

APPENDIX I

NEAR TERM WITH PROJECT SYNCHROS WORKSHEETS

(PHASE 1 & 2)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	2	378	388	311	507	8	396	5	158	1	1	1
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt	1.00	1.00	0.85	1.00	1.00	1.00	1.00	0.85	1.00	0.96	1.00	0.96
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.98	1.00	0.98
Satd. Flow (prot)	1770	1863	1583	1770	1868	1770	1775	1583	1775	1583	1750	1750
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.98	1.00	0.98
Satd. Flow (perm)	1770	1863	1583	1770	1858	1770	1775	1583	1775	1583	1750	1750
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2	420	431	346	563	9	440	6	176	1	1	1
RTOR Reduction (vph)	0	0	235	0	0	0	0	0	125	0	1	0
Lane Group Flow (vph)	2	420	196	346	572	0	0	446	51	0	2	0
Turn Type	Prot	Prot	Prot	Prot	Spill	Spill	Prot	Prot	Spill	Spill	Prot	Spill
Protected Phases	7	4	4	3	8	2	2	2	2	6	6	6
Permitted Phases												
Actuated Green, G (s)	0.8	25.8	25.8	19.6	44.6		25.5	25.5	25.5	1.1	1.1	1.1
Effective Green, g (s)	0.8	25.8	25.8	19.6	44.6		25.5	25.5	25.5	1.1	1.1	1.1
Actuated g/C Ratio	0.01	0.29	0.29	0.22	0.51		0.29	0.29	0.29	0.01	0.01	0.01
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)	16	546	464	394	942		514	459	0.03	22	22	22
v/s Ratio Prot	0.00	c0.23	0.12	c0.20	0.31		c0.25	0.03		c0.00		
v/s Ratio Perm												
v/c Ratio	0.12	0.77	0.42	0.88	0.61		0.87	0.11		0.09	0.09	0.09
Uniform Delay, d1	43.3	28.4	25.1	33.0	15.5		29.6	22.9		43.0	43.0	43.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.5	6.5	0.6	19.3	1.1		14.4	0.1		1.8	1.8	1.8
Delay (s)	46.8	34.8	25.7	52.3	16.6		44.0	23.0		44.8	44.8	44.8
Level of Service	D	C	C	D	B		D	C		D	D	D
Approach Delay (s)		30.3			30.0		38.1			44.8		
Approach LOS		C			C		D			D		
Intersection Summary												
HCM Average Control Delay				32.2						C		
HCM Volume to Capacity ratio				0.82								
Actuated Cycle Length (s)				88.0						16.0		
Intersection Capacity Utilization				76.0%						D		
Analysis Period (min)				15								
c Critical Lane Group												

Movement	WBL	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	407	308	0	203	291	289	443
Ideal Flow (vphpl)	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	0.97	1.00	1.00	1.00	1.00	1.00	0.95
Flt	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	1583	1863	1863	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	1583	1863	1863	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	452	342	0	226	323	321	492
RTOR Reduction (vph)	0	256	0	0	246	0	0
Lane Group Flow (vph)	452	86	0	226	77	321	492
Turn Type	Perm	Perm	Prot	Perm	Perm	Prot	Prot
Protected Phases	1	1	3	8	8	7	6
Permitted Phases							
Actuated Green, G (s)	13.0	13.0		12.3	12.3	14.3	13.0
Effective Green, g (s)	13.0	13.0		12.3	12.3	14.3	13.0
Actuated g/C Ratio	0.25	0.25		0.24	0.24	0.28	0.25
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)	865	399		444	377	491	892
v/s Ratio Prot	0.13			c0.12		c0.18	
v/s Ratio Perm		0.05			0.05		c0.14
v/c Ratio	0.52	0.22		0.51	0.20	0.55	0.55
Uniform Delay, d1	16.6	15.3		17.0	15.7	16.5	16.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.3		0.9	0.3	3.1	0.7
Delay (s)	17.2	15.5		18.0	16.0	19.6	17.5
Level of Service	B	B		B	B	B	B
Approach Delay (s)		16.5		16.8		18.3	
Approach LOS		B		B		B	
Intersection Summary							
HCM Average Control Delay			17.3				B
HCM Volume to Capacity ratio			0.58				
Actuated Cycle Length (s)			51.6				12.0
Intersection Capacity Utilization			48.3%				A
Analysis Period (min)			15				
c Critical Lane Group							

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	W	W	A	A	A	T	T
Volume (vph)	87	7	0	467	52	3	860
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	0.95	0.95	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.99	1.00	0.98	1.00	1.00	0.95
Flt	0.96	1.00	0.95	1.00	0.95	1.00	0.95
Flt Protected	3415	3486	3486	1770	3539	1770	3469
Satd. Flow (prot)	0.96	1.00	0.95	1.00	0.95	1.00	0.95
Flt Permitted	3415	3486	3486	1770	3539	1770	3469
Satd. Flow (perm)	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	97	8	0	519	58	3	956
RTOR Reduction (vph)	7	0	0	13	0	0	0
Lane Group Flow (vph)	98	0	0	564	0	3	956
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	8	5	2	1	6		
Permitted Phases							
Actuated Green, G (s)	3.2	15.3	0.6	19.9			
Effective Green, g (s)	3.2	15.3	0.6	19.9			
Actuated g/C Ratio	0.10	0.49	0.02	0.64			
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)	351	1715	34	2265			
v/s Ratio Prot	c0.03	0.16	0.00	c0.27			
v/s Ratio Perm							
v/c Ratio	0.28	0.33	0.09	0.42			
Uniform Delay, d1	12.9	4.8	15.0	2.8			
Progression Factor	1.00	1.00	1.00	1.00			
Incremental Delay, d2	0.4	0.1	1.1	0.1			
Delay (s)	13.3	4.9	16.1	2.9			
Level of Service	B	A	B	A			
Approach Delay (s)	13.3	4.9	2.9				
Approach LOS	B	A	A				
Intersection Summary							
HCM Average Control Delay	4.3						A
HCM Volume to Capacity ratio	0.40						
Actuated Cycle Length (s)	31.1						8.0
Intersection Capacity Utilization	33.8%						A
Analysis Period (min)	15						
c Critical Lane Group							

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SSR
Lane Configurations	W	T	R	W	T	R	N	T	R	S	T	S
Volume (vph)	24	114	20	65	84	153	6	320	46	165	705	107
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95
Flt	1.00	0.98	1.00	0.95	1.00	0.90	1.00	0.99	1.00	0.98	1.00	0.98
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1770	1821	1770	1770	1682	1770	3514	1770	3514	1770	3469	1770
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (perm)	1770	1821	1770	1770	1682	1770	3514	1770	3514	1770	3469	1770
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	27	127	22	72	93	170	7	356	18	183	783	119
RTOR Reduction (vph)	0	11	0	0	113	0	0	6	0	0	17	0
Lane Group Flow (vph)	27	138	0	72	150	0	7	368	0	183	885	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	5	2	1	6				
Permitted Phases												
Actuated Green, G (s)	0.7	10.7	2.3	12.3	0.7	14.1		6.4	19.8			
Effective Green, g (s)	0.7	10.7	2.3	12.3	0.7	14.1		6.4	19.8			
Actuated g/C Ratio	0.01	0.22	0.05	0.25	0.01	0.28		0.13	0.40			
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)	25	394	82	418	25	1001		229	1388			
v/s Ratio Prot	0.02	0.08	c0.04	c0.09	0.00	0.10		c0.10	c0.25			
v/s Ratio Perm												
v/c Ratio	1.08	0.35	0.88	0.36	0.28	0.37		0.80	0.64			
Uniform Delay, d1	24.4	16.5	23.5	15.3	24.2	14.1		20.9	12.0			
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00			
Incremental Delay, d2	205.9	0.5	59.9	0.5	6.0	0.2		17.5	1.0			
Delay (s)	230.3	17.0	83.3	15.9	30.2	14.4		38.4	12.9			
Level of Service	F	B	F	B	C	B		D	B			
Approach Delay (s)	49.7	30.4			14.7			17.2				
Approach LOS	D	C			B							
Intersection Summary												
HCM Average Control Delay	21.8											
HCM Volume to Capacity ratio	0.53											
Actuated Cycle Length (s)	49.5											
Intersection Capacity Utilization	56.7%											
Analysis Period (min)	15											
c Critical Lane Group												

Movement	EBL	EBT	EBL	EBT	WBL	WBT	NBL	NBT	NBL	NBT	NBL	NBT	SBT	SBT
Lane Configurations	5	85	72	96	141	37	41	341	57	42	796	1	1	1
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Util. 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	1.00	1.00
Fit	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Fit Protected	1770	1863	1583	1770	1805	1770	1864	1770	1864	1770	1864	1770	1864	1770
Satd. Flow (prot)	1770	1863	1583	1770	1805	1770	1864	1770	1864	1770	1864	1770	1864	1770
Fit Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1805	1770	1864	1770	1864	1770	1864	1770	1864	1770
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	94	80	107	157	41	46	379	63	47	884	8	8	8
RTOR Reduction (vph)	0	0	65	0	17	0	0	20	0	0	1	0	0	0
Lane Group Flow (vph)	6	94	15	107	181	0	46	422	0	47	891	0	0	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	4	3	8	5	2	1	6					
Permitted Phases	0.6	8.7	8.7	3.5	11.6	1.4	18.2	1.4	18.2	0.6	8.7	8.7	3.5	11.6
Actuated Green, G (s)	0.6	8.7	8.7	3.5	11.6	1.4	18.2	1.4	18.2	0.6	8.7	8.7	3.5	11.6
Effective Green, g (s)	0.01	0.18	0.18	0.07	0.24	0.03	0.38	0.03	0.38	0.01	0.18	0.18	0.07	0.24
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (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	3.0	3.0
Vehicle Extension (s)	22	339	288	130	438	52	1319	52	1346	22	339	288	130	438
Lane Grp Cap (vph)	0.00	0.05	0.01	c0.06	c0.10	0.03	0.12	c0.03	c0.25	0.00	0.05	0.01	c0.06	c0.10
v/s Ratio Prot	0.27	0.28	0.05	0.82	0.41	0.88	0.32	0.90	0.66	0.27	0.28	0.05	0.82	0.41
v/s Ratio Perm	23.4	16.8	16.1	21.8	15.2	23.1	10.4	23.1	12.3	23.4	16.8	16.1	21.8	15.2
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	6.6	0.4	0.1	32.6	0.6	82.7	0.1	89.2	1.2	6.6	0.4	0.1	32.6	0.6
Incremental Delay, d2	30.0	17.3	16.2	54.4	15.9	105.8	10.5	112.4	13.5	30.0	17.3	16.2	54.4	15.9
Delay (s)	C	B	B	D	B	F	B	F	B	C	B	B	D	B
Level of Service	C	B	B	D	B	F	B	F	B	C	B	B	D	B
Approach Delay (s)	17.2	B	B	29.4	C	19.6	B	18.4	B	17.2	B	B	29.4	C
Approach LOS	B	B	B	C	C	B	B	B	B	B	B	B	C	C
Intersection Summary														
HCM Average Control Delay	20.4													
HCM Volume to Capacity ratio	0.62													
Actuated Cycle Length (s)	47.8													
Intersection Capacity Utilization	47.5%													
Analysis Period (min)	15													
c Critical Lane Group														

Movement	EBL	EBT	EBL	EBT	WBL	WBT	NBL	NBT	NBL	NBT	NBL	NBT	SBT	SBT
Lane Configurations	96	876	24	90	882	203	70	58	81	454	23	84	23	84
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Lane Util. 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	1.00	1.00
Fit	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Fit Protected	1770	5085	1770	1770	3440	1813	1583	1681	1639	1770	5085	1770	1770	3440
Satd. Flow (prot)	1770	5085	1770	1770	3440	1813	1583	1681	1639	1770	5085	1770	1770	3440
Fit Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1770	1770	3440	1813	1583	1681	1639	1770	5085	1770	1770	3440
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	107	973	27	100	980	226	78	64	90	504	26	93	26	93
RTOR Reduction (vph)	0	3	0	0	21	0	0	0	77	0	17	0	17	0
Lane Group Flow (vph)	107	997	0	100	1185	0	142	13	318	288	0	0	0	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	2	2	2	2	2	2	2	2	2	2
Permitted Phases	6.6	30.8	8.2	32.4	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8
Actuated Green, G (s)	6.6	30.8	8.2	32.4	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8
Effective Green, g (s)	0.08	0.36	0.10	0.38	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (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	3.0	3.0
Vehicle Extension (s)	138	1837	171	1313	252	220	368	349	171	1313	252	220	368	349
Lane Grp Cap (vph)	c0.06	0.20	0.06	c0.34	c0.08	0.01	c0.19	0.18	c0.06	0.20	0.06	c0.34	c0.08	0.01
v/s Ratio Prot	0.78	0.54	0.58	0.90	0.56	0.06	0.89	0.82	0.78	0.54	0.58	0.90	0.56	0.06
v/s Ratio Perm	38.4	21.5	36.7	24.8	34.1	31.7	32.4	31.9	38.4	21.5	36.7	24.8	34.1	31.7
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	23.3	0.3	5.0	8.9	2.9	0.1	22.4	14.6	23.3	0.3	5.0	8.9	2.9	0.1
Incremental Delay, d2	61.8	21.8	41.7	33.6	37.0	31.8	54.8	46.4	61.8	21.8	41.7	33.6	37.0	31.8
Delay (s)	E	C	D	C	D	C	D	D	E	C	D	C	D	D
Level of Service	E	C	D	C	D	C	D	D	E	C	D	C	D	D
Approach Delay (s)	25.7	C	C	C	34.2	C	50.7	D	25.7	C	C	C	34.2	C
Approach LOS	C	C	C	C	C	C	D	D	C	C	C	C	C	C
Intersection Summary														
HCM Average Control Delay	34.5													
HCM Volume to Capacity ratio	0.78													
Actuated Cycle Length (s)	84.9													
Intersection Capacity Utilization	68.6%													
Analysis Period (min)	15													
c Critical Lane Group														

Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑↑	↑↑	↑↑	↑↑	↑	↑	
Volume (veh/h)	1443	55	0	1400	0	137	
Sign Control	Free	Free	Free	Free	Stop	Stop	
Grade	0%	0%	0%	0%	0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Hourly flow rate (vph)	1603	61	0	1556	0	152	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn lane (veh)							
Median type	None	None	None	None	None	None	
Median storage (veh)							
Upstream signal (ft)	575			607			
pX platoon unblocked							
vc, conflicting volume		0.86			0.90	0.86	
vc1, stage 1 cont vol		1664			2412	565	
vc2, stage 2 cont vol							
vcu, unblocked vol		1216			1430	0	
lc, single (s)		4.1			6.8	6.9	
lc, 2 stage (s)							
IF (s)		2.2			3.5	3.3	
p0 queue free %		100			100	84	
cm capacity (veh/h)		492			113	936	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	
Volume Total	641	641	392	778	778	152	
Volume Left	0	0	0	0	0	0	
Volume Right	0	0	61	0	0	152	
cSH	1700	1700	1700	1700	1700	936	
Volume to Capacity	0.38	0.38	0.22	0.46	0.46	0.16	
Queue Length 95th (ft)	0	0	0	0	0	14	
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.6	
Lane LOS						A	
Approach Delay (s)	0.0		0.0			9.6	
Approach LOS						A	
Intersection Summary							
Average Delay			0.4				
Intersection Capacity Utilization			44.3%				A
Analysis Period (min)			15				

Movement	EBL	EBT	WBT	WBL	SBL	SBR	
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	
Volume (vph)	0	795	1055	0	1009	336	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		6.3	6.3		5.4	5.4	
Lane Util. Factor		0.95	0.95		0.97	0.91	
Flt		1.00	1.00		1.00	0.85	
Flt Protected		1.00	1.00		0.95	1.00	
Satd. Flow (prot)		3539	3539		3430	1441	
Flt Permitted		1.00	1.00		0.95	1.00	
Satd. Flow (perm)		3539	3539		3430	1441	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	0	883	1172	0	1121	373	
RTOR Reduction (vph)	0	0	0	0	0	36	
Lane Group Flow (vph)	0	883	1172	0	1155	300	
Turn Type		2.6	6.2		4	Perm	
Protected Phases							
Permitted Phases		41.7	41.7		26.6	26.6	4
Actuated Green, G (s)		41.7	41.7		26.6	26.6	
Effective Green, g (s)		0.52	0.52		0.33	0.33	
Actuated g/C Ratio		0.52	0.52		0.33	0.33	
Clearance Time (s)					5.4	5.4	
Vehicle Extension (s)					3.0	3.0	
Lane Grp Cap (vph)		1845	1845		1140	479	
v/s Ratio Prot		0.25	c0.33		c0.34		
v/s Ratio Perm		0.48	0.64		1.01	0.63	
Uniform Delay, d1		12.2	13.7		26.7	22.5	
Progression Factor		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.7		30.0	2.6	
Delay (s)		12.4	14.4		56.7	25.1	
Level of Service		B	B		E	C	
Approach Delay (s)		12.4	14.4		49.6		
Approach LOS		B	B		D		
Intersection Summary							
HCM Average Control Delay		28.7					C
HCM Volume to Capacity ratio		0.78					
Actuated Cycle Length (s)		80.0					11.7
Intersection Capacity Utilization		123.5%					H
Analysis Period (min)		15					
c Critical Lane Group							

HCM Signalized Intersection Capacity Analysis

9: Del Mar Heights Road & I-15 NB Ramps

Near Term + Project (Phase 1&2) AM

3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SEB
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SEB
Volume (vph)	231	1494	0	0	1526	944	384	59	1079	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	0.95	0.91	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Flt	1.00	1.00	1.00	1.00	0.85	1.00	0.87	0.85	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3433	3539	3539	5085	1583	1681	1543	1504	1504	1504	1504	1504
Flt Permitted	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	3433	3539	3539	5085	1583	1681	1543	1504	1504	1504	1504	1504
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	257	1660	0	0	1696	1049	427	66	1199	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	456	0	6	6	0	0	0
Lane Group Flow (vph)	257	1660	0	0	1696	593	384	655	641	0	0	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	5	2	2	6	6	6	8	8	8	8	8	8
Permitted Phases	9.6	60.0	46.4	46.4	46.4	46.4	52.0	52.0	52.0	52.0	52.0	52.0
Effective Green, G (s)	9.6	60.0	46.4	46.4	46.4	46.4	52.0	52.0	52.0	52.0	52.0	52.0
Effective Green, g (s)	0.08	0.50	0.39	0.39	0.39	0.43	0.43	0.43	0.43	0.43	0.43	0.43
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (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
Vehicle Extension (s)	275	1770	1966	612	728	669	652	652	652	652	652	652
Lane Grp Cap (vph)	0.07	c0.47	0.33	0.37	0.23	0.42	c0.43	c0.43	c0.43	c0.43	c0.43	c0.43
v/s Ratio Prot	0.83	0.94	0.85	0.97	0.53	0.98	0.98	0.98	0.98	0.98	0.98	0.98
v/s Ratio Perm	54.9	28.2	33.9	36.1	25.0	33.5	33.6	33.6	33.6	33.6	33.6	33.6
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	36.9	11.0	5.3	29.4	0.7	29.1	30.7	30.7	30.7	30.7	30.7	30.7
Incremental Delay, d2	91.7	39.3	39.2	65.5	25.7	62.6	64.3	64.3	64.3	64.3	64.3	64.3
Delay (s)	F	D	D	E	C	E	E	E	E	E	E	E
Level of Service	D	D	D	E	C	E	E	E	E	E	E	E
Approach Delay (s)	46.3	46.3	49.2	49.2	49.2	54.9	54.9	54.9	54.9	54.9	54.9	54.9
Approach LOS	D	D	D	D	D	D	D	D	D	D	D	D
Intersection Summary												
HCM Average Control Delay	49.8											
HCM Volume to Capacity ratio	0.96											
Actuated Cycle Length (s)	120.0											
Intersection Capacity Utilization	98.2%											
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis

10: Del Mar Heights Road & High Bluff Drive

Near Term + Project (Phase 1&2) AM

3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SEB
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SEB
Volume (vph)	111	1768	894	103	1972	69	201	10	40	108	59	312
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	1.00	0.91	1.00	1.00	0.91	0.97	0.95	0.95	0.95	1.00	1.00	1.00
Flt	1.00	1.00	1.00	1.00	0.85	1.00	0.99	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5059	3433	3115	3115	3115	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5059	3433	3115	3115	3115	1770	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	123	1953	771	114	2191	77	223	11	44	120	66	347
RTOR Reduction (vph)	0	0	378	0	4	0	0	39	0	0	0	127
Lane Group Flow (vph)	123	1953	393	114	2264	0	223	16	0	120	66	220
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	4	3	8	5	2	2	1	1	6	6
Permitted Phases	7.6	40.1	40.1	8.6	41.1	7.0	10.4	10.4	13.4	16.8	16.8	16.8
Effective Green, G (s)	7.6	40.1	40.1	8.6	41.1	7.0	10.4	10.4	13.4	16.8	16.8	16.8
Effective Green, g (s)	0.09	0.45	0.45	0.10	0.46	0.08	0.12	0.12	0.15	0.19	0.19	0.19
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (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
Vehicle Extension (s)	152	2304	717	172	2349	272	366	366	268	354	301	301
Lane Grp Cap (vph)	c0.07	0.38	0.25	0.06	c0.45	c0.06	0.01	0.01	0.07	0.04	c0.14	c0.14
v/s Ratio Prot	0.81	0.85	0.55	0.66	0.96	0.82	0.04	0.04	0.45	0.19	0.73	0.73
v/s Ratio Perm	39.7	21.5	17.6	38.6	23.0	40.1	34.6	34.6	34.2	30.1	33.7	33.7
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	26.2	3.1	0.9	9.2	11.3	17.3	0.1	0.1	1.2	0.3	8.8	8.8
Incremental Delay, d2	65.9	24.6	18.5	47.8	34.2	57.4	34.7	34.7	35.4	30.4	42.5	42.5
Delay (s)	E	C	B	D	C	E	C	C	D	C	D	D
Level of Service	E	C	B	D	C	E	C	C	D	C	D	D
Approach Delay (s)	24.7	24.7	34.9	34.9	34.9	52.9	52.9	52.9	39.4	39.4	39.4	39.4
Approach LOS	C	C	C	C	C	D	D	D	D	D	D	D
Intersection Summary												
HCM Average Control Delay	31.3											
HCM Volume to Capacity ratio	0.83											
Actuated Cycle Length (s)	88.5											
Intersection Capacity Utilization	74.7%											
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

Synchro 7 - Report
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Movement	EBT	EBR	WBT	WBR	NBT	NBR
Lane Configurations	AAA	A	AAA	A	AAA	A
Volume (vph)	1936	165	128	2127	50	39
Ideal Flow (vphpl)	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	0.91	1.00	1.00	0.91	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	1770	5085	3433	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	1770	5085	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2151	183	142	2363	56	43
RTOR Reduction (vph)	0	72	0	0	0	40
Lane Group Flow (vph)	2151	111	142	2363	56	3
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	3	8	2	2
Permitted Phases						
Actuated Green, G (s)	33.5	33.5	6.0	43.5	3.7	3.7
Effective Green, g (s)	33.5	33.5	6.0	43.5	3.7	3.7
Actuated g/C Ratio	0.61	0.61	0.11	0.79	0.07	0.07
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)	3086	961	192	4007	230	106
v/s Ratio Prot	c0.42	0.07	c0.08	0.46	c0.02	0.00
v/s Ratio Perm						
v/c Ratio	0.70	0.12	0.74	0.59	0.24	0.03
Uniform Delay, d1	7.4	4.6	23.8	2.3	24.4	24.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.1	13.9	0.2	0.6	0.1
Delay (s)	8.1	4.6	37.7	2.5	25.0	24.2
Level of Service	A	A	D	A	C	C
Approach Delay (s)	7.8		4.5	24.6		
Approach LOS	A		A	C		
Intersection Summary						
HCM Average Control Delay			6.5		HCM Level of Service	A
HCM Volume to Capacity ratio			0.66			
Actuated Cycle Length (s)			55.2		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	EBT	EBR	WBT	WBR	NBT	NBR
Lane Configurations	AAA	A	AAA	A	AAA	A
Volume (vph)	1837	137	2213	41	41	41
Ideal Flow (vphpl)	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	0.91	1.00	0.97	0.91	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	3433	5085	1770	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	3433	5085	1770	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2041	152	2459	46	46	46
RTOR Reduction (vph)	0	62	0	0	0	42
Lane Group Flow (vph)	2041	90	152	2459	46	4
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	3	8	2	2
Permitted Phases						
Actuated Green, G (s)	28.4	28.4	3.5	35.9	4.1	4.1
Effective Green, g (s)	28.4	28.4	3.5	35.9	4.1	4.1
Actuated g/C Ratio	0.59	0.59	0.07	0.75	0.09	0.09
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3009	937	250	3803	151	135
v/s Ratio Prot	0.40	0.06	0.04	c0.48	c0.03	0.00
v/s Ratio Perm						
v/c Ratio	0.68	0.10	0.61	0.65	0.30	0.03
Uniform Delay, d1	6.7	4.2	21.6	3.0	20.6	20.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.0	4.1	0.4	1.1	0.1
Delay (s)	7.3	4.3	25.7	3.3	21.8	20.2
Level of Service	A	A	C	A	C	C
Approach Delay (s)	7.1		4.6	21.0		
Approach LOS	A		A	C		
Intersection Summary						
HCM Average Control Delay			6.0		HCM Level of Service	A
HCM Volume to Capacity ratio			0.61			
Actuated Cycle Length (s)			48.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			52.8%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis 13: Del Mar Heights Road & El Camino Real

HCM Signalized Intersection Capacity Analysis 14: Del Mar Heights Road & Carmel Country Road

Near Term + Project (Phase 1&2) AM
 3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SEB	SBR
Lane Configurations	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
Volume (vph)	231	962	498	251	1590	95	284	109	90	164	348	435	435
Ideal Flow (vphpl)	1900	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	4.0
Lane Util. Factor	0.97	0.91	0.97	0.91	0.97	0.91	0.97	0.91	0.97	0.91	0.97	0.91	0.97
Flt	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	3433	4825	3433	5042	3433	5042	3433	5042	3433	5042	3433	5042	3433
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (perm)	3433	4825	3433	5042	3433	5042	3433	5042	3433	5042	3433	5042	3433
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	257	1069	553	290	1767	106	316	121	100	182	387	483	483
RTOR Reduction (vph)	0	103	0	0	7	0	0	0	0	78	0	153	0
Lane Group Flow (vph)	257	1519	0	290	1866	0	316	121	22	182	717	0	0
Turn Type	Prot	4	Prot	3	8	Prot	5	2	Perm	Prot	1	6	6
Protected Phases	7												
Permitted Phases									2				
Actuated Green, G (s)	8.9	33.8	10.2	35.1	10.0	19.7	19.7	8.8	18.5				
Effective Green, g (s)	8.9	33.8	10.2	35.1	10.0	19.7	19.7	8.8	18.5				
Actuated g/C Ratio	0.10	0.38	0.12	0.40	0.11	0.22	0.22	0.10	0.21				
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)	345	1843	396	2000	388	1132	352	341	975				
v/s Ratio Prot	0.07	0.31	c0.08	c0.37	c0.09	0.02			0.05	c0.15			
v/s Ratio Perm													
v/c Ratio	0.74	0.82	0.73	0.93	0.81	0.11	0.06	0.53	1.00d				
Uniform Delay, d1	38.7	24.7	37.8	25.6	38.3	27.4	27.1	37.9	32.7				
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Incremental Delay, d2	8.5	3.1	6.8	8.6	12.3	0.0	0.1	1.6	2.9				
Delay (s)	47.2	27.8	44.7	34.2	50.7	27.4	27.2	39.5	35.6				
Level of Service	D	C	D	D	C	D	C	D	D				
Approach Delay (s)		30.5		35.6		41.1			36.3				
Approach LOS		C		D		D			D				
Intersection Summary													
HCM Average Control Delay				34.5		HCM Level of Service			C				
HCM Volume to Capacity ratio				0.81									
Actuated Cycle Length (s)				88.5		Sum of lost time (s)			12.0				
Intersection Capacity Utilization				77.4%		ICU Level of Service			D				
Analysis Period (min)				15									
dr Defacto Right Lane													
c Critical Lane Group													

Baseline
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SEB	SBR
Lane Configurations	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
Volume (vph)	153	645	303	280	1260	174	438	188	111	146	185	154	154
Ideal Flow (vphpl)	1900	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	4.0
Lane Util. Factor	0.97	0.91	0.97	0.91	0.97	0.91	0.97	0.91	0.97	0.91	0.97	0.91	0.97
Flt	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	3433	4841	3433	4993	3433	4993	3433	4803	1770	3298	3433	4803	1770
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (perm)	3433	4841	3433	4993	3433	4993	3433	4803	1770	3298	3433	4803	1770
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	170	717	337	311	1400	193	487	209	123	162	206	171	171
RTOR Reduction (vph)	0	108	0	0	22	0	0	100	0	0	136	0	0
Lane Group Flow (vph)	170	946	0	311	1571	0	487	232	0	162	241	0	0
Turn Type	Prot	4	Prot	3	8	Prot	5	2	Prot	1	6		
Protected Phases	7												
Permitted Phases													
Actuated Green, G (s)	5.0	20.2	9.2	24.4	9.2	24.4	12.0	12.5	9.6	10.1			
Effective Green, g (s)	5.0	20.2	9.2	24.4	9.2	24.4	12.0	12.5	9.6	10.1			
Actuated g/C Ratio	0.07	0.30	0.14	0.36	0.14	0.36	0.18	0.19	0.14	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			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	254	1449	468	1805	c0.09	c0.31	610	889	252	493			
v/s Ratio Prot	0.05	0.20					c0.14	0.05	0.09	c0.07			
v/s Ratio Perm													
v/c Ratio	0.67	0.65	0.66	0.87	0.66	0.87	0.80	0.26	0.64	0.49			
Uniform Delay, d1	30.4	20.6	27.7	20.1	26.6	23.5	26.6	23.5	27.3	26.3			
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	6.5	1.1	3.5	4.9	7.2	0.2	7.2	0.2	5.5	0.8			
Delay (s)	37.0	21.7	31.2	25.0	33.8	23.7	33.8	23.7	32.9	27.1			
Level of Service	D	C	C	C	C	C	C	C	C	C			
Approach Delay (s)		23.8		26.0		29.7			28.8				
Approach LOS		C		C		C			C				
Intersection Summary													
HCM Average Control Delay				26.4		HCM Level of Service			C				
HCM Volume to Capacity ratio				0.71									
Actuated Cycle Length (s)				67.5		Sum of lost time (s)			12.0				
Intersection Capacity Utilization				68.5%		ICU Level of Service			C				
Analysis Period (min)				15									
c Critical Lane Group													

Baseline
 Synchro 7 - Report
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SSR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	212	683	126	81	1105	216	116	156	11	56	62	129
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	1.00	0.91	1.00	0.91	1.00	0.91	1.00	0.99	1.00	1.00	1.00	0.90
Flt	1.00	0.98	1.00	0.98	1.00	0.98	1.00	0.99	1.00	0.95	1.00	0.90
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	4964	1770	4961	1770	4961	1770	1845	1770	1674	1674	1674
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	4964	1770	4961	1770	4961	1770	1845	1770	1674	1674	1674
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	236	737	140	90	1228	240	129	173	12	62	69	143
RTOR Reduction (vph)	0	31	0	0	34	0	0	3	0	0	102	0
Lane Group Flow (vph)	236	846	0	90	1434	0	129	182	0	62	110	0
Turn Type	Prot	7	4	Prot	3	8	Prot	5	2	Prot	1	6
Protected Phases												
Permitted Phases												
Actuated Green, G (s)	12.4	30.5	6.9	25.0	6.9	25.0	7.8	16.1	4.0	12.3	4.0	12.3
Effective Green, g (s)	12.4	30.5	6.9	25.0	6.9	25.0	7.8	16.1	4.0	12.3	4.0	12.3
Actuated g/C Ratio	0.17	0.41	0.09	0.34	0.09	0.34	0.11	0.22	0.05	0.17	0.05	0.17
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	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	3.0
Lane Grp Cap (vph)	299	2060	166	1687	166	1687	188	404	96	280	96	280
vs Ratio Prot	c0.13	0.17	0.05	c0.29	0.05	c0.29	c0.07	c0.10	0.04	0.07	0.04	0.07
vs Ratio Perm												
vs Ratio	0.79	0.41	0.54	0.85	0.54	0.85	0.69	0.45	0.65	0.39	0.65	0.39
Uniform Delay, d1	28.3	15.2	31.8	22.5	31.7	24.9	31.7	24.9	34.1	27.3	34.1	27.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.9	0.1	3.6	4.2	9.9	0.8	9.9	0.8	14.0	0.9	14.0	0.9
Delay (s)	42.2	15.3	35.4	26.7	41.6	25.7	41.6	25.7	48.0	28.2	48.0	28.2
Level of Service	D	B	D	C	D	C	D	C	D	C	D	C
Approach Delay (s)	21.0		27.2		32.2		32.2		32.7		32.7	
Approach LOS	C		C		C		C		C		C	
Intersection Summary												
HCM Average Control Delay	26.0					HCM Level of Service					C	
HCM Volume to Capacity ratio	0.73											
Actuated Cycle Length (s)	73.5					Sum of lost time (s)					16.0	
Intersection Capacity Utilization	68.9%					ICU Level of Service					C	
Analysis Period (min)	15											
c Critical Lane Group												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SSR
Lane Configurations	↔	↔↔↔	↔	↔	↔↔↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	160	576	35	67	1146	36	44	26	55	49	60	362
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	1.00	0.91	1.00	0.91	1.00	0.91	1.00	0.90	1.00	1.00	0.87	1.00
Flt	1.00	0.99	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.95	1.00	1.00
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	5041	1770	5062	1770	5062	1770	1673	1770	1623	1623	1623
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	5041	1770	5062	1770	5062	1770	1673	1770	1623	1623	1623
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	178	640	39	74	1273	40	49	29	61	54	67	402
RTOR Reduction (vph)	0	9	0	0	5	0	0	50	0	0	262	0
Lane Group Flow (vph)	178	670	0	74	1308	0	49	40	0	54	207	0
Turn Type	Prot	7	4	Prot	3	8	Prot	5	2	Prot	1	6
Protected Phases												
Permitted Phases												
Actuated Green, G (s)	8.2	24.9	3.7	20.4	3.7	20.4	2.4	10.8	3.2	11.6	3.2	11.6
Effective Green, g (s)	8.2	24.9	3.7	20.4	3.7	20.4	2.4	10.8	3.2	11.6	3.2	11.6
Actuated g/C Ratio	0.14	0.42	0.06	0.35	0.06	0.35	0.04	0.18	0.05	0.20	0.05	0.20
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	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	3.0
Lane Grp Cap (vph)	248	2142	112	1762	112	1762	72	308	97	321	97	321
vs Ratio Prot	c0.10	0.13	0.04	c0.26	0.04	c0.26	0.03	0.02	c0.03	c0.13	0.03	c0.13
vs Ratio Perm												
vs Ratio	0.72	0.31	0.66	0.74	0.66	0.74	0.68	0.13	0.56	0.64	0.56	0.64
Uniform Delay, d1	24.1	11.2	26.8	16.8	26.8	16.8	27.7	20.0	27.0	21.6	27.0	21.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.5	0.1	13.7	1.7	13.7	1.7	23.3	0.2	6.8	4.4	6.8	4.4
Delay (s)	33.6	11.3	40.5	18.5	40.5	18.5	51.0	20.2	33.8	26.0	33.8	26.0
Level of Service	C	B	D	B	D	B	D	C	C	C	C	C
Approach Delay (s)	15.9		19.7		19.7		31.0		26.8		26.8	
Approach LOS	B		B		B		C		C		C	
Intersection Summary												
HCM Average Control Delay	20.4					HCM Level of Service					C	
HCM Volume to Capacity ratio	0.65											
Actuated Cycle Length (s)	58.6					Sum of lost time (s)					12.0	
Intersection Capacity Utilization	74.0%					ICU Level of Service					D	
Analysis Period (min)	15											
c Critical Lane Group												

Movement	EBT	EBR	WBL	WBT	NBL	NBR	SWT	SWR
Lane Configurations	←↑↑	←↑↑	←↑↑	←↑↑	←↑↑	←↑↑	←↑↑	←↑↑
Volume (vph)	567	129	397	1023	274	342	173	857
Ideal Flow (vphpl)	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	0.91	1.00	0.91	0.97	1.00	0.85	0.97	0.91
Frt	0.97	1.00	1.00	1.00	1.00	0.95	1.00	0.99
Flt Protected	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	4944	1770	5085	3433	1583	3433	3433	5039
Flt Permitted	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (perm)	4944	1770	5085	3433	1583	3433	3433	5039
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	630	143	441	1137	304	380	192	952
RTOR Reduction (vph)	56	0	0	0	0	304	0	0
Lane Group Flow (vph)	717	0	441	1137	304	76	192	1003
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	3	8	2	2	2	7	4
Permitted Phases	14.4	17.5	35.9	10.9	10.9	10.9	3.8	17.0
Actuated Green, G (s)	14.4	17.5	35.9	10.9	10.9	10.9	3.8	17.0
Effective Green, g (s)	0.26	0.32	0.66	0.20	0.20	0.20	0.08	0.37
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	1299	565	3331	683	315	315	284	1862
Lane Grp Cap (vph)	c0.15	c0.25	0.22	c0.09	0.05	0.05	c0.06	c0.20
v/s Ratio Prot	0.55	0.78	0.34	0.45	0.24	0.24	0.68	0.54
v/s Ratio Perm	17.4	16.9	4.2	19.3	18.5	18.5	20.5	11.4
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	0.5	6.9	0.1	0.5	0.4	0.4	6.2	0.3
Incremental Delay, d2	17.9	23.8	4.3	19.8	18.9	18.9	26.7	11.7
Delay (s)	B	C	A	B	B	B	C	B
Level of Service	B	C	A	B	B	B	C	B
Approach Delay (s)	17.9	9.7	9.7	19.3	19.3	19.3	14.1	14.1
Approach LOS	B	A	A	B	B	B	B	B
Intersection Summary								
HCM Average Control Delay								
HCM Volume to Capacity ratio								
Actuated Cycle Length (s)								
Intersection Capacity Utilization								
Analysis Period (min)								
c Critical Lane Group								

Movement	EBT	EBR	WBL	WBT	NBL	NBR	SWT	SWR
Lane Configurations	←↑↑	←↑↑	←↑↑	←↑↑	←↑↑	←↑↑	←↑↑	←↑↑
Volume (vph)	41	8	97	27	110	137	101	857
Ideal Flow (vphpl)	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	0.95	0.95	1.00	1.00	0.97	0.91	0.97	0.91
Frt	1.00	0.96	1.00	0.85	1.00	0.97	1.00	0.99
Flt Protected	0.95	0.98	0.96	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1681	1659	1793	1583	3433	4912	3433	5039
Flt Permitted	0.95	0.98	0.96	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1681	1659	1793	1583	3433	4912	3433	5039
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	46	9	108	30	122	152	112	952
RTOR Reduction (vph)	0	8	0	0	78	0	71	0
Lane Group Flow (vph)	32	24	0	138	44	152	422	1003
Turn Type	Split	Split	Split	custom	Prot	Prot	Prot	Prot
Protected Phases	2	2	6	6	3	8	7	4
Permitted Phases	2.6	2.6	6.9	16.7	3.5	16.7	3.8	17.0
Actuated Green, G (s)	2.6	2.6	6.9	16.7	3.5	16.7	3.8	17.0
Effective Green, g (s)	0.06	0.06	0.15	0.36	0.08	0.36	0.08	0.37
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	95	94	269	575	261	1763	284	1862
Lane Grp Cap (vph)	c0.02	0.01	c0.06	0.03	0.04	0.09	c0.06	c0.20
v/s Ratio Prot	0.34	0.25	0.51	0.08	0.58	0.24	0.68	0.54
v/s Ratio Perm	20.9	20.8	18.0	9.6	20.5	10.2	20.5	11.4
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	2.1	1.4	1.7	0.1	3.3	0.1	6.2	0.3
Incremental Delay, d2	23.0	22.2	19.7	9.7	23.8	10.3	26.7	11.7
Delay (s)	C	C	B	A	C	B	C	B
Level of Service	C	C	B	A	C	B	C	B
Approach Delay (s)	22.6	22.6	15.0	15.0	13.5	13.5	14.1	14.1
Approach LOS	C	C	B	B	B	B	B	B
Intersection Summary								
HCM Average Control Delay								
HCM Volume to Capacity ratio								
Actuated Cycle Length (s)								
Intersection Capacity Utilization								
Analysis Period (min)								
c Critical Lane Group								

HCM Signalized Intersection Capacity Analysis
19: Townsgate Drive & Carmel Country Road

Near Term + Project (Phase 18&2) AM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	GBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	173	85	116	46	195	153	114	448	7	103	468	173
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Fr	1.00	1.00	0.85	1.00	0.83	1.00	1.00	1.00	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1740	1770	3531	1770	3531	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1740	1770	3531	1770	3531	1770	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	192	94	129	51	217	170	127	498	8	114	520	192
RTOR Reduction (vph)	0	0	79	0	36	0	0	2	0	0	0	149
Lane Group Flow (vph)	192	94	50	51	351	0	127	504	0	114	520	43
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	4	3	8		5	2		1	6	6
Permitted Phases												
Actuated Green, G (s)	12.2	26.8	26.8	3.6	18.2		7.1	16.5		6.1	15.5	15.5
Effective Green, g (s)	12.2	26.8	26.8	3.6	18.2		7.1	16.5		6.1	15.5	15.5
Actuated g/C Ratio	0.18	0.39	0.39	0.05	0.26		0.10	0.24		0.09	0.22	0.22
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	313	724	615	92	459		182	844		156	795	356
v/s Ratio Prot	c0.11	0.05	0.03	0.03	c0.20		c0.07	0.14		0.06	c0.15	0.03
v/s Ratio Perm												
v/c Ratio	0.61	0.13	0.08	0.55	0.76		0.70	0.60		0.73	0.65	0.12
Uniform Delay, d1	26.2	13.6	13.3	31.9	23.4		29.9	23.3		30.6	24.3	21.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.5	0.1	0.1	7.1	7.4		11.1	1.1		16.1	1.9	0.2
Delay (s)	29.8	13.7	13.4	39.0	30.8		41.0	24.4		46.7	26.3	21.5
Level of Service	C	B	B	D	C		D	C		D	C	C
Approach Delay (s)												
Approach LOS												

Intersection Summary		
HCM Average Control Delay	27.4	HCM Level of Service C
HCM Volume to Capacity ratio	0.69	
Actuated Cycle Length (s)	69.0	Sum of lost time (s) 16.0
Intersection Capacity Utilization	61.8%	ICU Level of Service B
Analysis Period (min)	15	
Critical Lane Group		

Baseline

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HCM Signalized Intersection Capacity Analysis
20: Townsgate Drive & El Camino Real

Near Term + Project (Phase 1&2) AM
3/2/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEE	NET	NER	SWL	SWT	SWR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	63	70	6	233	52	144	104	330	54	155	575	193
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	0.91	1.00	0.91
Fr	1.00	0.99	1.00	1.00	1.00	0.85	1.00	0.98	1.00	0.96	1.00	0.96
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1840	1770	1863	1583	1770	1863	1770	4978	1770	4894	1770
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1840	1770	1863	1583	1770	1863	1770	4978	1770	4894	1770
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	70	78	7	259	58	160	116	367	60	172	639	214
RTOR Reduction (vph)	0	5	0	0	0	0	0	31	0	0	80	0
Lane Group Flow (vph)	70	80	0	259	58	41	116	396	0	172	773	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	1	6		5	2	2	7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	3.8	7.1		11.7	15.0	15.0	5.4	14.8		8.4	17.8	
Effective Green, g (s)	3.8	7.1		11.7	15.0	15.0	5.4	14.8		8.4	17.8	
Actuated g/C Ratio	0.07	0.12		0.20	0.26	0.26	0.09	0.26		0.14	0.31	
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)	116	225		357	482	409	165	1270		256	1502	
v/s Ratio Prot	0.04	c0.04		c0.15	0.03	0.03	0.07	0.08		c0.10	c0.16	
v/s Ratio Perm												
v/c Ratio	0.60	0.35		0.73	0.12	0.10	0.70	0.31		0.67	0.51	
Uniform Delay, d1	26.4	23.3		21.6	16.5	16.4	25.5	17.5		23.5	16.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.6	1.0		7.2	0.1	0.1	12.7	0.1		6.8	0.3	
Delay (s)	34.9	24.3		28.8	16.6	16.5	38.3	17.6		30.3	16.8	
Level of Service	C	C		C	B	B	D	B		C	B	
Approach Delay (s)												
Approach LOS												

Intersection Summary		
HCM Average Control Delay	21.4	HCM Level of Service C
HCM Volume to Capacity ratio	0.59	
Actuated Cycle Length (s)	58.0	Sum of lost time (\$) 15.0
Intersection Capacity Utilization	50.8%	ICU Level of Service A
Analysis Period (min)	15	
c. Critical Lane Group		

Baseline

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	↑	→	←	↑	→	←	↑	→	←	↑	→
Volume (vph)	314	122	127	62	300	30	277	429	29	68	418	401
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99	1.00
Flt	1.00	1.00	0.85	0.99	1.00	0.99	1.00	0.99	1.00	1.00	0.93	1.00
Flt Protected	0.95	1.00	1.00	0.99	1.00	0.99	1.00	0.95	1.00	0.95	1.00	0.90
Satd. Flow (prot)	1770	1863	1583	1829	1770	3506	1770	3506	1770	3279	3279	1770
Flt Permitted	0.95	1.00	1.00	0.99	1.00	0.99	1.00	0.95	1.00	0.95	1.00	0.90
Satd. Flow (perm)	1770	1863	1583	1829	1770	3506	1770	3506	1770	3279	3279	1770
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	349	136	141	69	333	33	308	477	32	76	464	446
RTOR Reduction (vph)	0	0	114	0	3	0	0	5	0	0	192	0
Lane Group Flow (vph)	349	136	27	0	432	0	308	504	0	76	718	0
Turn Type	Split	4	4	4	8	8	Split	5	2	1	6	6
Protected Phases	2	2	2	2	2	2	2	2	2	2	2	2
Permitted Phases	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6
Actuated Green, G (s)	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3
Effective Green, g (s)	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3
Actuated g/C Ratio	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
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	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	3.0
Lane Grp Cap (vph)	337	355	302	403	300	1170	140	798	0.04	0.04	0.04	0.04
v/s Ratio Prot	0.20	0.07	0.02	0.24	0.17	0.14	0.04	0.22	0.04	0.04	0.04	0.04
v/s Ratio Perm	1.04	0.38	0.09	1.07	1.03	0.43	0.64	0.90	0.64	0.64	0.90	0.90
Uniform Delay, d1	36.8	32.1	30.3	35.4	37.7	23.5	40.2	33.3	40.2	33.3	33.3	33.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	56.5	0.7	0.1	65.3	59.0	0.3	4.2	12.9	4.2	12.9	4.2	12.9
Delay (s)	95.3	32.8	30.4	100.7	96.7	23.8	44.5	46.2	44.5	46.2	46.2	46.2
Level of Service	F	C	C	F	F	C	D	D	D	D	D	D
Approach Delay (s)	67.1	67.1	67.1	100.7	100.7	51.3	46.1	46.1	46.1	46.1	46.1	46.1
Approach LOS	E	E	E	F	F	D	D	D	D	D	D	D
Intersection Summary												
HCM Average Control Delay	60.4											
HCM Volume to Capacity ratio	1.00											
Actuated Cycle Length (s)	90.8											
Intersection Capacity Utilization	91.5%											
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)	314	122	127	62	300	30	277	429	29	68	418	401
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99	1.00
Flt	1.00	1.00	0.85	0.99	1.00	0.99	1.00	0.99	1.00	1.00	0.93	1.00
Flt Protected	0.95	1.00	1.00	0.99	1.00	0.99	1.00	0.95	1.00	0.95	1.00	0.90
Satd. Flow (prot)	1770	1863	1583	1829	1770	3506	1770	3506	1770	3279	3279	1770
Flt Permitted	0.95	1.00	1.00	0.99	1.00	0.99	1.00	0.95	1.00	0.95	1.00	0.90
Satd. Flow (perm)	1770	1863	1583	1829	1770	3506	1770	3506	1770	3279	3279	1770
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	349	136	141	69	333	33	308	477	32	76	464	446
RTOR Reduction (vph)	0	0	114	0	3	0	0	5	0	0	192	0
Lane Group Flow (vph)	349	136	27	0	432	0	308	504	0	76	718	0
Turn Type	Split	4	4	4	8	8	Split	5	2	1	6	6
Protected Phases	2	2	2	2	2	2	2	2	2	2	2	2
Permitted Phases	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6
Actuated Green, G (s)	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3
Effective Green, g (s)	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3
Actuated g/C Ratio	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
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	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	3.0
Lane Grp Cap (vph)	337	355	302	403	300	1170	140	798	0.04	0.04	0.04	0.04
v/s Ratio Prot	0.20	0.07	0.02	0.24	0.17	0.14	0.04	0.22	0.04	0.04	0.04	0.04
v/s Ratio Perm	1.04	0.38	0.09	1.07	1.03	0.43	0.64	0.90	0.64	0.64	0.90	0.90
Uniform Delay, d1	36.8	32.1	30.3	35.4	37.7	23.5	40.2	33.3	40.2	33.3	33.3	33.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	56.5	0.7	0.1	65.3	59.0	0.3	4.2	12.9	4.2	12.9	4.2	12.9
Delay (s)	95.3	32.8	30.4	100.7	96.7	23.8	44.5	46.2	44.5	46.2	46.2	46.2
Level of Service	F	C	C	F	F	C	D	D	D	D	D	D
Approach Delay (s)	67.1	67.1	67.1	100.7	100.7	51.3	46.1	46.1	46.1	46.1	46.1	46.1
Approach LOS	E	E	E	F	F	D	D	D	D	D	D	D
Intersection Summary												
HCM Average Control Delay	60.4											
HCM Volume to Capacity ratio	1.00											
Actuated Cycle Length (s)	90.8											
Intersection Capacity Utilization	91.5%											
Analysis Period (min)	15											
c Critical Lane Group												

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Volume (vph)	51	6	73	13	27	14	126	31	2	3	16	198
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	57	7	81	14	30	16	140	34	2	3	18	220
Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1							
Volume Total (vph)	63	81	60	177	241							
Volume Left (vph)	57	0	14	140	3							
Volume Right (vph)	0	81	16	2	220							
Head (s)	0.48	-0.67	-0.07	0.18	-0.51							
Departure Headway (s)	6.0	4.9	5.1	4.9	4.1							
Degree Utilization, x	0.11	0.11	0.09	0.24	0.28							
Capacity (veh/h)	555	682	635	701	820							
Control Delay (s)	8.5	7.3	8.6	9.4	8.7							
Approach Delay (s)	7.8		8.6	9.4	8.7							
Approach LOS	A		A	A	A							
Intersection Summary												
Delay	8.7											
HCM Level of Service	A											
Intersection Capacity Utilization	41.8%											
Analysis Period (min)	15											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SWR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4
Volume (vph)	54	92	119	205	31	25	31	299	83	15	787	144
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit	1.00	0.85	1.00	0.99	1.00	0.97	1.00	0.97	1.00	0.95	1.00	1.00
Fit Protected	0.98	1.00	0.97	0.97	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1829	1583	1779	1779	1779	1779	1779	1779	1779	1779	1779	1779
Satd. Flow (perm)	1829	1583	1779	1779	1779	1779	1779	1779	1779	1779	1779	1779
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	60	102	132	228	70	28	34	332	92	17	874	160
RTOR Reduction (vph)	0	0	110	0	4	0	0	30	0	0	18	0
Lane Group Flow (vph)	0	162	22	0	322	0	34	394	0	17	1016	0
Turn Type	Split	Prot	Split	Prot	Split	Prot	Split	Prot	Split	Prot	Split	Prot
Protected Phases	4	4	4	8	8	8	5	2	1	6		
Permitted Phases												
Actuated Green, G (s)	11.5	11.5	11.5	15.9	15.9	15.9	1.6	26.2	0.8	25.4		
Effective Green, g (s)	11.5	11.5	11.5	15.9	15.9	15.9	1.6	26.2	0.8	25.4		
Actuated g/C Ratio	0.16	0.16	0.16	0.23	0.23	0.23	0.02	0.37	0.01	0.36		
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	299	259	402	402	402	402	1274	20	1247			
v/s Ratio Prot	c0.09	0.01	c0.18	c0.18	c0.18	c0.18	c0.02	0.12	0.01	c0.29		
v/s Ratio Perm												
v/c Ratio	0.54	0.08	0.80	0.80	0.80	0.85	0.31	0.85	0.85	0.81		
Uniform Delay, d1	27.0	25.0	25.8	25.8	25.8	34.3	15.7	34.7	20.4			
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	2.0	0.1	10.9	10.9	10.9	85.5	0.1	131.5	4.2			
Delay (s)	29.0	25.1	36.7	36.7	36.7	119.8	15.8	166.2	24.6			
Level of Service	C	C	D	D	D	F	B	F	C			
Approach Delay (s)	27.3		36.7	36.7	36.7	23.5		26.9				
Approach LOS	C		D	D	D	C		C				
Intersection Summary												
HCM Average Control Delay	27.7											
HCM Volume to Capacity ratio	0.75											
Actuated Cycle Length (s)	70.4											
Intersection Capacity Utilization	59.9%											
Analysis Period (min)	15											
c Critical Lane Group												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEB	SEB	SEB
Lane Configurations	0	324	181	405	644	0	0	0	0	1081	3	148
Volume (vph)	0	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	0	0.95	0.95	0.97	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Lane Util. Factor	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit Protected	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3349	3433	3539	3433	3539	3433	3539	3433	3539	3433	3539	1504
Fit Permitted	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3349	3433	3539	3433	3539	3433	3539	3433	3539	3433	3539	1504
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	360	201	450	716	0	0	0	0	1201	3	164
RTOR Reduction (vph)	0	114	0	0	0	0	0	0	0	0	1	73
Lane Group Flow (vph)	0	447	0	450	716	0	0	0	0	613	606	75
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	3	8	3	8	3	8	3	8	3	8	3
Permitted Phases	13.9	10.9	28.8	10.9	28.8	10.9	28.8	10.9	28.8	10.9	28.8	10.9
Actuated Green, G (s)	13.9	10.9	28.8	10.9	28.8	10.9	28.8	10.9	28.8	10.9	28.8	10.9
Effective Green, g (s)	0.21	0.16	0.43	0.16	0.43	0.16	0.43	0.16	0.43	0.16	0.43	0.16
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (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
Vehicle Extension (s)	691	555	1512	555	1512	555	1512	555	1512	555	1512	683
Lane Grp Cap (vph)	c0.13	c0.13	0.20	c0.13	0.20	c0.13	0.20	c0.13	0.20	c0.13	0.20	0.05
v/s Ratio Prot	0.65	0.81	0.47	0.81	0.47	0.81	0.47	0.81	0.47	0.81	0.47	0.11
v/s Ratio Perm	24.5	27.3	13.9	27.3	13.9	27.3	13.9	27.3	13.9	27.3	13.9	10.6
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	2.1	8.8	0.2	8.8	0.2	2.1	8.8	0.2	8.8	0.2	2.1	0.1
Incremental Delay, d2	26.6	36.0	14.1	36.0	14.1	26.6	36.0	14.1	36.0	14.1	26.6	10.6
Delay (s)	C	C	B	C	B	C	B	C	B	C	B	B
Level of Service	C	D	B	C	D	C	B	C	D	C	B	C
Approach Delay (s)	26.6	22.6	22.6	22.6	22.6	26.6	22.6	22.6	22.6	26.6	22.6	21.6
Approach LOS	C	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary												
HCM Average Control Delay	22.8											
HCM Volume to Capacity ratio	0.78											
Actuated Cycle Length (s)	67.4											
Intersection Capacity Utilization	115.1%											
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEB	SEB	SEB
Lane Configurations	63	1270	0	977	879	109	2	570	0	0	0	0
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	0.97	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Lane Util. 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
Fit	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Fit Protected	1.00	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)	3433	3539	3539	3433	3539	3433	3539	3433	3539	3433	3539	1504
Fit Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	3539	3433	3539	3433	3539	3433	3539	3433	3539	1504
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	70	1411	0	1086	977	121	2	633	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	70	1411	0	1086	977	121	2	633	0	0	0	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	8	7	4	8	7	4	8	7	4	8
Permitted Phases	2.5	33.2	26.7	26.7	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6
Actuated Green, G (s)	2.5	33.2	26.7	26.7	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6
Effective Green, g (s)	0.04	0.57	0.46	0.46	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (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
Vehicle Extension (s)	148	2033	1635	731	483	416	432	432	432	432	432	432
Lane Grp Cap (vph)	0.02	c0.40	0.31	0.30	0.06	c0.20	0.19	0.19	0.19	0.19	0.19	0.19
v/s Ratio Prot	0.47	0.69	0.68	0.66	0.23	0.70	0.68	0.68	0.68	0.68	0.68	0.68
v/s Ratio Perm	27.0	8.7	12.1	12.0	15.7	18.4	18.2	18.2	18.2	18.2	18.2	18.2
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	2.4	1.0	1.0	2.2	0.2	5.3	4.1	4.1	4.1	4.1	4.1	4.1
Incremental Delay, d2	29.4	9.7	13.1	14.3	15.9	23.7	22.4	22.4	22.4	22.4	22.4	22.4
Delay (s)	C	A	B	B	B	C	C	C	C	C	C	C
Level of Service	C	A	B	B	B	C	C	C	C	C	C	C
Approach Delay (s)	10.7	13.7	13.7	13.7	13.7	22.0	22.0	22.0	22.0	22.0	22.0	22.0
Approach LOS	B	B	B	B	B	C	C	C	C	C	C	C
Intersection Summary												
HCM Average Control Delay	14.1											
HCM Volume to Capacity ratio	0.70											
Actuated Cycle Length (s)	57.8											
Intersection Capacity Utilization	115.1%											
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	36	13	44	725	19	164	90	1034	149	122	1117	28
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	0.95	0.91	0.95	0.95	0.91	0.95	1.00	0.91	0.95	1.00	0.91	0.95
Lane Util. Factor	1.00	0.93	0.85	1.00	0.99	0.85	1.00	0.98	1.00	1.00	0.95	1.00
Flt	0.95	0.99	1.00	0.95	0.96	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Flt Protected	1681	1563	1504	1681	1611	1504	1770	4989	1770	5067	1770	5067
Satd. Flow (prot)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Flt Permitted	40	14	49	806	21	182	100	1149	166	136	1241	31
Satd. Flow (perm)	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Adj. Flow (vph)	0	16	30	0	1	114	0	17	0	0	0	2
RTOR Reduction (vph)	36	19	2	419	425	50	100	1298	0	136	1270	0
Lane Group Flow (vph)	Split	Prot	Split	Prot	Split	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Turn Type	4	4	4	8	8	8	5	2	1	1	1	6
Protected Phases	6.2	6.2	6.2	28.0	28.0	28.0	7.0	30.3	12.1	35.4	12.1	35.4
Actuated Green, G (s)	0.07	0.07	0.07	0.30	0.30	0.30	0.08	0.33	0.13	0.38	0.13	0.38
Effective Green, g (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
Actuated g/C Ratio	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	113	105	101	508	487	455	134	1632	231	1937	231	1937
Lane Grp Cap (vph)	c0.02	0.01	0.00	0.25	c0.26	0.03	c0.06	c0.26	c0.08	0.25	c0.08	0.25
v/s Ratio Prot	0.32	0.18	0.02	0.82	0.87	0.11	0.75	0.80	0.59	0.66	0.59	0.66
v/c Ratio	41.2	40.8	40.4	30.0	30.6	23.3	41.9	28.3	37.9	23.6	37.9	23.6
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	1.6	0.8	0.1	10.5	15.7	0.1	20.0	2.8	3.8	0.8	41.7	24.4
Incremental Delay, d2	42.8	41.6	40.4	40.5	46.3	23.4	62.0	31.1	D	D	D	C
Delay (s)	D	D	D	D	D	D	E	C	D	D	D	C
Level of Service	D	D	D	D	D	D	C	C	D	D	D	C
Approach Delay (s)	41.7	41.7	41.7	40.2	40.2	40.2	33.3	33.3	C	C	C	C
Approach LOS	D	D	D	D	D	D	C	C	C	C	C	C
Intersection Summary												
HCM Average Control Delay	32.7											
HCM Volume to Capacity ratio	0.76											
Actuated Cycle Length (s)	92.6											
Intersection Capacity Utilization	69.0%											
Analysis Period (min)	15											
c Critical Lane Group												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	349	1043	261	165	918	0	0	625	677
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	0.97	0.91	0.95	0.97	0.91	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Lane Util. 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
Flt	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	3433	5085	1583	3433	5085	1583	3433	3539	3433	5085	1583	3539
Satd. Flow (prot)	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Flt Permitted	3433	5085	1583	3433	5085	1583	3433	3539	3433	5085	1583	3539
Satd. Flow (perm)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Peak-hour factor, PHF	0	0	0	388	1159	290	183	1020	0	0	694	752
Adj. Flow (vph)	0	0	0	0	0	0	53	0	0	0	10	10
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	388	1159	237	183	1020	0	0	1060	366
Confl. Peds. #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type	Split	Prot	Split	Prot	Split	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	8	8	8	5	5	5	2	2	2	2	2	2
Permitted Phases	16.0	16.0	16.0	3.0	3.0	3.0	24.2	24.2	24.2	24.2	24.2	24.2
Actuated Green, G (s)	16.0	16.0	16.0	3.0	3.0	3.0	0.06	0.50	0.50	0.50	0.50	0.50
Effective Green, g (s)	0.33	0.33	0.33	0.33	0.33	0.33	4.0	4.0	4.0	4.0	4.0	4.0
Actuated g/C Ratio	4.0	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	3.0
Lane Grp Cap (vph)	1140	1688	525	214	1777	525	214	1777	525	214	1777	525
v/s Ratio Prot	0.11	c0.23	0.15	0.05	c0.29	0.15	0.05	c0.29	0.15	0.05	c0.29	0.15
v/c Ratio	0.34	0.69	0.45	0.86	0.57	0.45	0.86	0.57	0.45	0.86	0.57	0.45
Uniform Delay, d1	12.1	13.9	12.6	22.4	8.4	12.6	22.4	8.4	12.6	22.4	8.4	12.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	1.2	0.6	26.8	0.5	0.6	26.8	0.5	0.6	26.8	0.5	0.6
Delay (s)	12.3	15.1	13.3	49.1	8.8	13.3	49.1	8.8	13.3	49.1	8.8	13.3
Level of Service	B	B	B	D	A	B	D	A	B	D	A	B
Approach Delay (s)	0.0	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2
Approach LOS	A	B	B	B	B	B	B	B	B	B	B	B
Intersection Summary												
HCM Average Control Delay	15.0											
HCM Volume to Capacity ratio	0.73											
Actuated Cycle Length (s)	48.2											
Intersection Capacity Utilization	102.0%											
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)	651	943	317	0	0	0	0	409	227	150	751	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	0.86	0.91	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.91	0.85
Flt	1.00	1.00	0.85	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	0.85
Flt Protected	0.95	0.99	1.00	0.95	0.99	1.00	0.95	0.99	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1610	3172	1441	1610	3172	1441	1610	3172	1441	1610	3172	1441
Flt Permitted	0.95	0.99	1.00	0.95	0.99	1.00	0.95	0.99	1.00	0.95	1.00	0.95
Satd. Flow (perm)	1610	3172	1441	1610	3172	1441	1610	3172	1441	1610	3172	1441
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	723	1048	352	0	0	0	0	454	252	167	834	0
RTOR Reduction (vph)	0	3	55	0	0	0	0	55	0	0	0	0
Lane Group Flow (vph)	596	1217	262	0	0	0	0	651	0	167	834	0
Turn Type	Split	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	4	4	4	4	4	4	4	4	4	4
Permitted Phases	27.1	27.1	27.1	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3
Actuated Green, G (s)	27.1	27.1	27.1	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3
Effective Green, g (s)	0.45	0.45	0.45	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (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
Vehicle Extension (s)	724	1426	648	1338	1338	1338	1338	1338	1338	1338	1338	1338
Lane Grp Cap (vph)	0.36	c0.38	0.18	c0.11	c0.11	c0.11	c0.11	c0.11	c0.11	c0.11	c0.11	c0.11
vis Ratio Prot	0.81	0.85	0.41	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
vis Ratio Perm	14.4	14.8	11.2	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	6.7	5.2	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Incremental Delay, d2	21.0	20.0	11.6	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8
Delay (s)	C	C	B	C	C	C	C	C	C	C	C	C
Level of Service	C	C	B	C	C	C	C	C	C	C	C	C
Approach Delay (s)	19.0	19.0	11.6	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8
Approach LOS	B	B	B	C	C	C	C	C	C	C	C	C
Intersection Summary												
HCM Average Control Delay	18.6											
HCM Volume to Capacity ratio	0.73											
Actuated Cycle Length (s)	60.3											
Intersection Capacity Utilization	102.0%											
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	216	0	440	25	97	115	1900	1900	1900	1900	1900
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	1.00	0.95	1.00	0.95	0.99	1.00	0.85	1.00	1.00	1.00	1.00	1.00
Flt	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1770	3539	3510	1770	3539	3510	1770	3539	3510	1770	3539	3510
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	1770	3539	3510	1770	3539	3510	1770	3539	3510	1770	3539	3510
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	240	0	489	28	108	128	1900	1900	1900	1900	1900
RTOR Reduction (vph)	0	0	0	8	0	0	0	100	100	100	100	100
Lane Group Flow (vph)	18	240	0	509	0	108	28	1900	1900	1900	1900	1900
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	6	6	6	6	6	6	6	6
Permitted Phases	0.5	12.0	0.5	7.5	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Actuated Green, G (s)	0.5	12.0	0.5	7.5	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Effective Green, g (s)	0.02	0.47	0.02	0.29	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (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
Vehicle Extension (s)	35	1659	1028	c0.14	c0.08	c0.08	c0.08	c0.08	c0.08	c0.08	c0.08	c0.08
Lane Grp Cap (vph)	0.01	c0.07	0.49	7.5	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3
vis Ratio Prot	0.51	0.14	0.49	7.5	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3
vis Ratio Perm	12.4	3.9	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	12.2	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Incremental Delay, d2	24.6	3.9	7.9	7.9	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7
Delay (s)	C	A	A	A	A	A	A	A	A	A	A	A
Level of Service	C	A	A	A	A	A	A	A	A	A	A	A
Approach Delay (s)	5.4	5.4	7.9	7.9	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4
Approach LOS	A	A	A	A	A	A	A	A	A	A	A	A
Intersection Summary												
HCM Average Control Delay	7.3											
HCM Volume to Capacity ratio	0.41											
Actuated Cycle Length (s)	25.6											
Intersection Capacity Utilization	26.7%											
Analysis Period (min)	15											
c Critical Lane Group												

Movement	EBL	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL	SBT	SSR
Lane Configurations	76	220	179	275	373	100	342	346	287	1102	227	207
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Lane Util. Factor	1.00	0.85	0.85	1.00	0.97	1.00	1.00	0.85	1.00	0.85	1.00	0.85
Frt	1.00	0.85	0.85	1.00	0.97	1.00	1.00	0.85	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	2787	1583	1770	1804	1770	3539	1583	3433	3539	1583	1583
Flt Permitted	0.46	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)	864	2787	1583	1770	1804	1770	3539	1583	3433	3539	1583	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	84	244	199	306	414	111	380	384	319	1224	252	230
RTOR Reduction (vph)	0	0	170	0	10	0	0	0	269	0	0	173
Lane Group Flow (vph)	84	244	29	306	515	0	380	384	50	1224	252	57
Turn Type	custom	custom	custom	Prot	3	8	Prot	5	2	Perm	Prot	Perm
Protected Phases	4	4	4									
Permitted Phases	13.9	13.9	13.9	17.0	34.9	17.0	25.5	15.0	15.0	34.1	23.6	23.6
Actuated Green, G (s)	13.9	13.9	13.9	17.0	34.9	17.0	25.5	15.0	15.0	34.1	23.6	23.6
Effective Green, g (s)	0.14	0.14	0.14	0.18	0.36	0.18	0.27	0.16	0.16	0.36	0.25	0.25
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (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
Vehicle Extension (s)	125	404	229	313	656	470	553	247	1219	870	389	389
Lane Grp Cap (vph)	0.10	0.09	0.02	0.98	0.79	0.81	0.89	0.20	1.00	0.29	0.15	0.04
v/s Ratio Prot	0.87	0.60	0.13	38.9	35.8	39.3	27.2	33.0	35.3	31.0	29.4	28.3
v/s Ratio Perm	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay, d1	13.3	2.5	0.2	44.3	6.2	9.9	3.8	0.4	26.8	0.2	0.2	0.2
Progression Factor	52.2	41.0	36.0	83.6	33.4	42.8	42.1	35.7	57.7	29.6	28.5	28.5
Incremental Delay, d2	D	D	D	F	C	D	D	D	E	C	C	C
Level of Service	D	D	D	F	C	D	D	D	E	C	C	C
Approach Delay (s)	51.9											
Approach LOS	D											

Intersection Summary			D
HCM Average Control Delay	46.6	HCM Level of Service	
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Baseline

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Movement	EBL	EBT	EBT2	WBL	WBT	WBT2	NBL	NBT	NBT2	SBL	SBT	SSR
Lane Configurations	450	0	330	0	0	0	0	0	0	188	462	0
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Lane Util. Factor	1.00	1.00	0.85	1.00	0.85	1.00	1.00	0.97	1.00	0.95	1.00	0.95
Frt	0.95	0.95	0.85	1.00	0.85	1.00	1.00	0.97	1.00	0.95	1.00	0.95
Flt Protected	1.00	1.00	0.85	1.00	0.85	1.00	1.00	0.97	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1681	1681	1583	1681	1681	1583	3433	1583	3433	1583	1583	1583
Flt Permitted	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Satd. Flow (perm)	1681	1681	1583	1681	1681	1583	3433	1583	3433	1583	1583	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	500	0	367	0	0	0	0	0	589	143	209	513
RTOR Reduction (vph)	0	0	205	0	0	0	0	0	43	0	0	0
Lane Group Flow (vph)	250	250	162	0	0	0	0	0	689	0	209	513
Turn Type	Split	4	4	4	4	4	Prot	2	1	6		
Protected Phases	13.1	13.1	13.1									
Permitted Phases	13.1	13.1	13.1									
Actuated Green, G (s)	13.1	13.1	13.1									
Effective Green, g (s)	0.31	0.31	0.31									
Actuated g/C Ratio	4.0	4.0	4.0									
Clearance Time (s)	3.0	3.0	3.0									
Vehicle Extension (s)	513	513	483									
Lane Grp Cap (vph)	c0.15	0.15	0.10									
v/s Ratio Prot	0.49	0.49	0.34									
v/s Ratio Perm	1.00	1.00	1.00									
Uniform Delay, d1	12.2	12.2	11.5									
Progression Factor	0.7	0.7	0.4									
Incremental Delay, d2	12.9	12.9	11.9									
Level of Service	B	B	B									
Approach Delay (s)	12.5											
Approach LOS	B											

Intersection Summary			B	
HCM Average Control Delay	12.6	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.57			
Actuated Cycle Length (s)	42.9	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	46.6%	ICU Level of Service	A	
Analysis Period (min)	15			
c. Critical Lane Group				

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
33: Carmel Country Road & Carmel Canyon Road
Near Term + Project (Phase 1&2) AM
3/2/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	89	512	37	145	472	345	58	66	243	642	143	183
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	5.0	5.0	5.0	4.0	5.0	4.0	5.0	5.0	4.0	5.0	4.0	5.0
Total Lost time (s)	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.97	1.00	0.97	1.00
Lane Util. Factor	1.00	0.99	1.00	0.94	1.00	0.94	1.00	0.88	1.00	0.92	1.00	0.92
Fit	1.00	0.99	1.00	0.94	1.00	0.94	1.00	0.88	1.00	0.92	1.00	0.92
Fit Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	3504	1770	3315	1770	3315	1770	1643	3433	1706	3433	1706
Fit Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	3504	1770	3315	1770	3315	1770	1643	3433	1706	3433	1706
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	99	569	41	161	524	383	64	73	270	713	159	203
RTOR Reduction (vph)	0	7	0	0	167	0	0	139	0	0	55	0
Lane Group Flow (vph)	99	603	0	161	740	0	64	204	0	713	307	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	1	6	5	2	7	4	3	8				
Permitted Phases												
Actuated Green, G (s)	5.0	17.8	9.0	20.8	4.0	14.4	17.6	28.0				
Effective Green, g (s)	5.0	17.8	9.0	20.8	4.0	14.4	17.6	28.0				
Actuated g/C Ratio	0.07	0.23	0.12	0.27	0.05	0.19	0.23	0.36				
Clearance Time (s)	5.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)	115	812	207	898	92	308	787	822				
v/s Ratio Prot	0.06	0.17	c0.09	c0.22	0.04	c0.12	c0.21	0.18				
v/c Ratio	0.86	0.74	0.78	0.82	0.70	0.66	0.91	0.49				
Uniform Delay, d1	35.6	27.4	32.9	26.3	35.8	28.9	28.8	18.9				
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Incremental Delay, d2	44.1	3.7	16.6	6.2	20.4	5.3	13.9	0.6				
Delay (s)	79.7	31.1	49.6	32.5	56.2	34.2	42.7	19.5				
Level of Service	E	C	D	C	E	C	D	B				
Approach Delay (s)	37.9		35.1		37.7		34.9					
Approach LOS	D		D		D		C					
Intersection Summary												
HCM Average Control Delay			35.9						D			
HCM Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			76.8						18.0			
Intersection Capacity Utilization			81.6%						D			
Analysis Period (min)			15									
c Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
34: SR-56 WB ramps & Carmel Country Road
Near Term + Project (Phase 1&2) AM
3/2/2012

Movement	WBL	WBR	SEL	SET	NWT	NWR	NWF2	SWL	SWR
Lane Configurations			111	111	111	111	111	111	111
Volume (vph)	0	0	777	597	764	0	315	137	233
Ideal Flow (vphpl)	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			0.97	0.95	0.95		1.00	0.97	1.00
Fit			1.00	1.00	1.00		0.85	1.00	0.85
Fit Protected			0.95	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)			3433	3539	3539		1583	3433	1583
Fit Permitted			0.95	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)			3433	3539	3539		1583	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	863	663	849	0	350	152	259
RTOR Reduction (vph)	0	0	0	0	0	0	237	0	221
Lane Group Flow (vph)	0	0	863	663	849	0	113	152	38
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases			5	2	6		4		
Permitted Phases						6			
Actuated Green, G (s)			17.4	39.3	17.9	17.9	8.2	8.2	
Effective Green, g (s)			17.4	39.3	17.9	17.9	8.2	8.2	
Actuated g/C Ratio			0.31	0.71	0.32	0.32	0.15	0.15	
Clearance Time (s)			4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)			3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)			1076	2506	1141	511	507	234	
v/s Ratio Prot			c0.25	0.19	c0.24		c0.04		
v/c Ratio			0.80	0.26	0.74	0.22	0.30	0.16	
Uniform Delay, d1			17.5	2.9	16.8	13.7	21.1	20.7	
Progression Factor			1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2			4.4	0.1	2.7	0.2	0.3	0.3	
Delay (s)			21.9	3.0	19.4	13.9	21.4	21.0	
Level of Service			C	A	B	B	C	C	
Approach Delay (s)		0.0		13.7	17.8		21.1		
Approach LOS		A		B	B		C		
Intersection Summary									
HCM Average Control Delay			16.2					B	
HCM Volume to Capacity ratio			0.88						
Actuated Cycle Length (s)			55.5					12.0	
Intersection Capacity Utilization			57.2%					B	
Analysis Period (min)			15						
c Critical Lane Group									

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
35: Carmel Country Road & SR-56 EB ramps

ALL-WAY STOP CONTROL ANALYSIS

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	ISWR		
Lane Configurations	FT	FT			FT	FT		FT	FT					
Volumes (vph)	353	381	0	0	745	220	309	2	166	0	0	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0		4.0					
Lane Util. Factor	0.97	0.95			0.95	1.00	0.95		0.95					
Fit	1.00	1.00			1.00	0.85	1.00		1.00					
Fit Protected	0.95	1.00			1.00	1.00	0.95		0.95					
Satd. Flow (prot)	3433	3539			3539	1583	1681		1686					
Fit Permitted	0.95	1.00			1.00	1.00	0.95		0.95					
Satd. Flow (perm)	3433	3539			3539	1583	1681		1686					
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90		
Adj. Flow (vph)	392	423	0	0	828	244	343	2	184	0	0	0		
RTOR Reduction (vph)	0	0	0	0	0	158	0	0	144	0	0	0		
Lane Group Flow (vph)	392	423	0	0	828	86	171	174	40	0	0	0		
Turn Type	Prot	1	6		2	2	4		4					
Protected Phases														
Permitted Phases														
Actuated Green, G (s)	10.1	32.2			18.1	18.1	11.3		11.3					
Effective Green, g (s)	10.1	32.2			18.1	18.1	11.3		11.3					
Actuated g/C Ratio	0.20	0.63			0.35	0.35	0.22		0.22					
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)	673	2213			1244	556	369		370					
v/s Ratio Prot	c0.11	0.12			c0.23	0.05	0.10		c0.10					
v/s Ratio Perm														
v/c Ratio	0.58	0.19			0.67	0.15	0.46		0.47					
Uniform Delay, d1	18.8	4.1			14.1	11.5	17.5		17.5					
Progression Factor	1.00	1.00			1.00	1.00	1.00		1.00					
Incremental Delay, d2	1.3	0.0			1.4	0.1	0.9		0.9					
Delay (s)	20.1	4.1			15.5	11.6	18.4		18.4					
Level of Service	C	A			B	B	B		B					
Approach Delay (s)		11.8			14.6				17.7			0.0		
Approach LOS		B			B				B			A		
Intersection Summary														
HCM Average Control Delay			14.3		HCM Level of Service					B				
HCM Volume to Capacity ratio			0.69											
Actuated Cycle Length (s)			51.5		Sum of lost time (s)					12.0				
Intersection Capacity Utilization			49.3%		ICU Level of Service					A				
Analysis Period (min)			15											
c Critical Lane Group														

HCM Signalized Intersection Capacity Analysis
 1: Via De La Valle & El Camino Real
 Near Term + Project (Phase 1 & 2) PM
 3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SEB
Lane Configurations	←	↑	→	←	↑	→	←	↑	→	←	↑	→
Volume (vph)	6	478	537	180	425	3	565	2	434	0	2	1
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	1.00	1.00	0.85	1.00	1.00	1.00	0.85	1.00	0.85	1.00	0.96	1.00
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1861	1774	1583	1779	1779	1779	1779	1779
Satd. Flow (perm)	1770	1863	1583	1770	1861	1774	1583	1779	1779	1779	1779	1779
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	7	531	597	200	472	3	628	2	482	0	2	1
RTOR Reduction (vph)	0	0	183	0	0	0	0	0	236	0	1	0
Lane Group Flow (vph)	7	531	414	200	475	0	630	246	0	2	0	0
Turn Type	Prot	Perm	Prot	Perm	Prot	Perm	Prot	Perm	Prot	Perm	Prot	Perm
Protected Phases	7	4	3	8	2	2	2	6	6	6	6	6
Permitted Phases	4	4	4	4	4	4	4	4	4	4	4	4
Actuated Green, G (s)	0.9	41.3	41.3	16.7	57.1	45.1	45.1	45.1	45.1	45.1	1.2	1.2
Effective Green, g (s)	0.9	41.3	41.3	16.7	57.1	45.1	45.1	45.1	45.1	45.1	1.2	1.2
Actuated g/C Ratio	0.01	0.34	0.34	0.14	0.47	0.37	0.37	0.37	0.37	0.37	0.01	0.01
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	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	3.0
Lane Grp Cap (vph)	13	640	543	246	883	665	593	18	18	18	18	18
v/s Ratio Prot	0.00	c0.29	0.26	c0.11	0.26	c0.36	c0.00	c0.00	c0.00	c0.00	c0.00	c0.00
v/s Ratio Perm	0.54	0.83	0.76	0.81	0.54	0.95	0.42	0.16	0.16	0.16	0.11	0.11
Uniform Delay, d1	59.5	36.3	35.1	50.3	22.3	36.4	27.8	59.0	59.0	59.0	59.0	59.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	36.8	8.8	6.3	18.2	0.6	22.6	0.5	2.7	2.7	2.7	2.7	2.7
Delay (s)	96.3	45.0	41.4	68.5	22.9	59.0	28.3	61.8	61.8	61.8	61.8	61.8
Level of Service	F	D	D	E	C	E	C	E	C	E	E	E
Approach Delay (s)	43.5	43.5	43.5	36.4	36.4	45.7	45.7	61.8	61.8	61.8	61.8	61.8
Approach LOS	D	D	D	D	D	D	D	E	E	E	E	E
Intersection Summary												
HCM Average Control Delay	42.7											
HCM Volume to Capacity ratio	0.87											
Actuated Cycle Length (s)	120.3											
Intersection Capacity Utilization	83.2%											
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 2: San Diegoito Road & El Camino Real
 Near Term + Project (Phase 1 & 2) PM
 3/2/2012

Movement	WBL	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↔	↔	↑	↔	↔	↔↔
Volume (vph)	215	264	0	576	378	342	303
Ideal Flow (vphpl)	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	0.97	1.00	1.00	1.00	1.00	1.00	0.95
Flt Protected	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Permitted	0.95	1.00	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	1863	1583	1770	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	239	283	0	640	420	380	337
RTOR Reduction (vph)	0	243	0	0	250	0	0
Lane Group Flow (vph)	239	50	0	640	170	380	337
Turn Type	Perm	Prot	Perm	Perm	Prot	Prot	
Protected Phases	1	3	8		7		
Permitted Phases	1			8			6
Actuated Green, G (s)	12.3	12.3	29.1	29.1	18.7	18.7	12.3
Effective Green, g (s)	12.3	12.3	29.1	29.1	18.7	18.7	12.3
Actuated g/C Ratio	0.17	0.17	0.40	0.40	0.26	0.26	0.17
Clearance Time (s)	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
Lane Grp Cap (vph)	586	270	752	639	459	604	
v/s Ratio Prot	0.07		0.34		0.21		
v/s Ratio Perm		0.03		0.11			0.10
w/c Ratio	0.41	0.19		0.85	0.27	0.83	0.56
Uniform Delay, d1	26.7	25.6	19.5	14.4	25.2	27.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.3	9.1	0.2	11.7	1.1	
Delay (s)	27.1	25.9	28.7	14.6	36.9	28.5	
Level of Service	C	C	C	C	B	D	C
Approach Delay (s)	26.5		23.1				32.9
Approach LOS	C		C				C
Intersection Summary							
HCM Average Control Delay	26.9			HCM Level of Service			C
HCM Volume to Capacity ratio	0.78						
Actuated Cycle Length (s)	72.1			Sum of lost time (s)			12.0
Intersection Capacity Utilization	65.4%			ICU Level of Service			C
Analysis Period (min)	15						
c Critical Lane Group							

Movement	WBL	WBR	NBL	NBT	NRB	SBL	SBT
Lane Configurations	W	W	W	W	W	W	W
Volume (vph)	65	6	0	912	111	8	514
Ideal Flow (vphpl)	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	0.97	0.98	0.98	1.00	0.95	1.00	0.95
Frt	0.99	0.98	0.98	1.00	0.95	1.00	0.95
Flt Protected	0.96	0.96	0.96	0.95	0.95	0.95	0.95
Satd. Flow (prot)	3410	3410	3410	3482	1770	3539	3539
Flt Permitted	0.96	0.96	0.96	1.00	0.95	1.00	0.95
Satd. Flow (perm)	3410	3410	3410	3482	1770	3539	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	72	7	0	1013	123	9	571
RTOR Reduction (vph)	6	0	0	12	0	0	0
Lane Group Flow (vph)	73	0	0	1124	0	9	571
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	8	5	2	1	6		
Permitted Phases							
Actuated Green, G (s)	3.2	19.9	0.6	24.5	0.6	24.5	
Effective Green, g (s)	3.2	19.9	0.6	24.5	0.6	24.5	
Actuated g/C Ratio	0.09	0.56	0.02	0.69	0.02	0.69	
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)	306	1941	30	2429	30	2429	
v/s Ratio Prot	c0.02	c0.32	0.01	c0.16	0.01	c0.16	
v/s Ratio Perm							
v/c Ratio	0.24	0.58	0.30	0.24	0.30	0.24	
Uniform Delay, d1	15.1	5.2	17.3	2.1	17.3	2.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.4	5.6	0.1	5.6	0.1	
Delay (s)	15.5	5.6	22.9	2.1	22.9	2.1	
Level of Service	B	A	C	A	C	A	
Approach Delay (s)	15.5	5.6	5.6	2.5	5.6	2.5	
Approach LOS	B	A	A	A	A	A	

Intersection Summary			
HCM Average Control Delay	5.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	35.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NRB	SBL	SBT	SEB	SEB
Lane Configurations	W	W	W	W	W	W	W	W	W	W	W	W	W
Volume (vph)	23	22	14	22	21	155	26	828	62	89	458	28	28
Ideal Flow (vphpl)	1900	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	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.97	1.00	0.99	1.00	0.99	1.00	0.99	1.00
Frt	1.00	0.94	1.00	1.00	0.87	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1770	1751	1770	1770	1616	1770	1770	3502	1770	3502	1770	3509	3509
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (perm)	1770	1751	1770	1770	1616	1770	1770	3502	1770	3502	1770	3509	3509
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	26	24	16	24	23	172	29	920	69	99	509	31	31
RTOR Reduction (vph)	0	14	0	0	152	0	0	6	0	0	5	0	0
Lane Group Flow (vph)	26	26	0	24	43	0	29	983	0	99	535	0	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	5	2	1	6					
Permitted Phases													
Actuated Green, G (s)	1.0	5.6	1.0	5.6	1.2	22.1	1.2	22.1	4.2	25.1	4.2	25.1	4.2
Effective Green, g (s)	1.0	5.6	1.0	5.6	1.2	22.1	1.2	22.1	4.2	25.1	4.2	25.1	4.2
Actuated g/C Ratio	0.02	0.11	0.02	0.11	0.02	0.45	0.02	0.45	0.09	0.51	0.09	0.51	0.09
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	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	3.0	3.0
Lane Grp Cap (vph)	36	201	36	185	43	1583	43	1583	152	1801	152	1801	152
v/s Ratio Prot	c0.01	0.01	0.01	c0.03	0.02	c0.28	0.02	c0.28	c0.06	c0.15	c0.06	c0.15	c0.06
v/s Ratio Perm													
v/c Ratio	0.72	0.13	0.67	0.23	0.67	0.62	0.67	0.62	0.85	0.30	0.85	0.30	0.85
Uniform Delay, d1	23.8	19.5	23.8	19.7	23.7	10.2	23.7	10.2	21.6	6.8	21.6	6.8	21.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	52.1	0.3	38.0	0.6	34.5	0.8	34.5	0.8	9.6	0.1	9.6	0.1	9.6
Delay (s)	75.9	19.7	61.8	20.3	58.2	11.0	58.2	11.0	31.2	6.9	31.2	6.9	31.2
Level of Service	E	B	E	C	E	B	E	B	C	A	C	A	C
Approach Delay (s)	41.9	24.9	24.9	12.3	12.3	12.3	12.3	12.3	10.7	10.7	10.7	10.7	10.7
Approach LOS	D	C	C	B	B	B	B	B	B	B	B	B	B

Intersection Summary			
HCM Average Control Delay	14.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	48.9	Sum of lost time (s)	20.0
Intersection Capacity Utilization	57.1%	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	GBR
Lane Configurations	7	42	33	49	30	20	48	977	130	23	488	10
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95
Lane Util. Factor	1.00	1.00	0.85	1.00	0.94	1.00	0.98	1.00	0.98	1.00	1.00	0.93
Fit Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.98
Satd. Flow (prot)	1770	1863	1583	1770	1751	1770	3477	1770	3529	1770	3529	1610
Fit Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.98
Satd. Flow (perm)	1770	1863	1583	1770	1751	1770	3477	1770	3529	1770	3529	1610
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	8	47	37	54	33	22	53	1086	144	26	542	11
RTOR Reduction (vph)	0	0	34	0	20	0	0	11	0	0	1	0
Lane Group Flow (vph)	8	47	3	54	35	0	53	1219	0	26	552	0
Turn Type	Prot	Perm	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	5	2	1	6				
Permitted Phases	0.8	4.4	1.7	5.3	1.8	25.2	0.6	24.0				
Actuated Green, G (s)	0.8	4.4	1.7	5.3	1.8	25.2	0.6	24.0				
Effective Green, g (s)	0.02	0.09	0.09	0.04	0.11	0.04	0.53	0.01	0.50			
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (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
Vehicle Extension (s)	30	171	145	63	194	67	1829	22	1768			
Lane Grp Cap (vph)	0.00	c0.03	0.00	c0.03	0.02	c0.03	c0.35	0.01	0.16			
vs Ratio Prot	0.27	0.27	0.02	0.86	0.18	0.79	0.67	1.18	0.31			
vs Ratio Perm	23.3	20.3	19.8	23.0	19.3	22.9	8.3	23.6	7.1			
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	4.7	0.9	0.1	64.9	0.5	45.6	0.9	253.5	0.1			
Incremental Delay, d2	28.0	21.1	19.9	87.8	19.8	68.5	9.2	277.1	7.2			
Delay (s)	C	C	B	F	B	E	A	F	A			
Level of Service	C	C	B	F	B	E	A	F	A			
Approach Delay (s)	21.2			53.5		11.7		19.3				
Approach LOS	C			D		B		B				
Intersection Summary												
HCM Average Control Delay				16.4					B			
HCM Volume to Capacity ratio				0.58								
Actuated Cycle Length (s)				47.9				12.0				
Intersection Capacity Utilization				53.9%				A				
Analysis Period (min)				15								
c Critical Lane Group												

Lane Configurations	128	859	16	142	929	212	41	32	58	400	36	134
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	0.91	1.00	1.00	0.95	1.00	0.95	1.00	0.85	1.00	0.93	0.98
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97	1.00	0.93	1.00	0.85	1.00	0.95	0.98
Fit Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.97	1.00	0.95	0.98	0.98
Satd. Flow (prot)	1770	5071	1770	3440	1770	3440	1812	1583	1681	1610	1610	1610
Fit Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.97	1.00	0.95	0.98	0.98
Satd. Flow (perm)	1770	5071	1770	3440	1770	3440	1812	1583	1681	1610	1610	1610
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	142	954	18	158	1032	236	46	36	64	444	40	149
RTOR Reduction (vph)	0	2	0	0	20	0	0	0	58	0	36	0
Lane Group Flow (vph)	142	970	0	158	1248	0	0	82	6	324	273	0
Turn Type	Prot	4	3	8	2	2	2	2	2	6	6	6
Protected Phases	7.8	28.2	10.8	31.2	7.6	7.6	7.6	7.6	7.6	17.3	17.3	17.3
Actuated Green, G (s)	7.8	28.2	10.8	31.2	7.6	7.6	7.6	7.6	7.6	17.3	17.3	17.3
Effective Green, g (s)	0.10	0.35	0.14	0.39	0.10	0.10	0.10	0.10	0.10	0.22	0.22	0.22
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (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
Vehicle Extension (s)	173	1790	239	1343	172	151	364	349	0.17			
Lane Grp Cap (vph)	c0.08	0.19	0.09	c0.36	c0.05	0.00	c0.19	0.17				
vs Ratio Prot	0.82	0.54	0.66	0.93	0.48	0.04	0.89	0.78				
vs Ratio Perm	35.4	20.7	32.8	23.3	34.3	32.8	30.4	29.5				
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	25.7	0.3	6.7	11.3	2.1	0.1	22.6	10.9				
Incremental Delay, d2	61.1	21.0	39.5	34.6	36.3	32.9	53.0	40.4				
Delay (s)	E	C	D	C	D	C	D	D				
Level of Service	E	C	D	C	D	C	D	D				
Approach Delay (s)	26.1		35.2		34.9		46.9					
Approach LOS	C		D		C		D					
Intersection Summary												
HCM Average Control Delay				34.3				C				
HCM Volume to Capacity ratio				0.85								
Actuated Cycle Length (s)				79.9				16.0				
Intersection Capacity Utilization				72.9%				C				
Analysis Period (min)				15								
c Critical Lane Group												

Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↕↕↕		↕↕			↕	
Volume (veh/h)	1267	64	0	1598	0	101	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Hourly flow rate (vph)	1430	71	0	1776	0	112	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None			
Median storage (veh)				607	0.75	0.87	
Upstream signal (ft)					2353	512	
pX, platoon unblocked							
vC, conflicting volume	575		0.87		1501		
vC1, stage 1 cont vol							
vC2, stage 2 cont vol							
vCu, unblocked vol					1044	1088	0
IC, single (s)					4.1	6.8	6.9
IC, 2 stage (s)							
IF (s)					2.2	3.5	3.3
p0 queue free %					100	100	88
cM capacity (veh/h)					574	158	941
Direction, Lane #	EB1	EB2	EB3	WB1	WB2	WB3	NB1
Volume Total	572	572	357	888	888	112	112
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	71	0	0	0	112
cSH	1700	1700	1700	1700	1700	1700	941
Volume to Capacity	0.34	0.34	0.21	0.52	0.52	0.12	0.12
Queue Length 95th (ft)	0	0	0	0	0	0	10
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.3	9.3
Lane LOS						A	A
Approach Delay (s)	0.0			0.0		9.3	
Approach LOS						A	
Intersection Summary							
Average Delay				0.3			
Intersection Capacity Utilization				47.5%		ICU Level of Service	A
Analysis Period (min)				15			

Movement	EBL	EBT	WBT	WBL	SBL	SBR	
Lane Configurations	↕↕	↕↕	↕↕	↕↕	↕↕	↕↕	
Volume (vph)	0	1001	1352	0	970	299	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		6.3	6.3		5.6	5.6	
Lane Util. Factor		0.95	0.95		0.97	0.91	
Flt		1.00	1.00		1.00	0.85	
Flt Protected		1.00	1.00		0.95	1.00	
Satd. Flow (prot)		3539	3539		3431	1441	
Satd. Flow (perm)		3539	3539		3431	1441	
Peak-hour factor, PHF		0.90	0.90		0.90	0.90	
Adj. Flow (vph)		0 1112	1502		0 1078	332	
RTOR Reduction (vph)		0	0		0	3	16
Lane Group Flow (vph)		0 1112	1502		0 1108	283	
Turn Type						Perm	
Protected Phases		2.6	6.2		4		
Permitted Phases						4	
Actuated Green, G (s)		42.5	42.5		25.6	25.6	
Effective Green, g (s)		42.5	42.5		25.6	25.6	
Actuated g/C Ratio		0.53	0.53		0.32	0.32	
Clearance Time (s)					5.6	5.6	
Vehicle Extension (s)					3.0	3.0	
Lane Grp Cap (vph)		1880	1880		1096	461	
v/s Ratio Prot		0.31	c0.42		c0.32		
v/s Ratio Perm						0.20	
v/c Ratio		0.59	0.80		1.01	0.61	
Uniform Delay, d1		12.8	15.3		27.2	23.0	
Progression Factor		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.5	2.5		29.5	2.4	
Delay (s)		13.3	17.7		56.7	25.5	
Level of Service		B	B		E	C	
Approach Delay (s)		13.3	17.7		50.1		
Approach LOS		B	B		D		
Intersection Summary							
HCM Average Control Delay			27.8			HCM Level of Service	C
HCM Volume to Capacity ratio			0.88				
Actuated Cycle Length (s)			80.0			Sum of lost time (s)	11.9
Intersection Capacity Utilization			125.3%			ICU Level of Service	H
Analysis Period (min)			15				
c Critical Lane Group							

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SSB
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	242	1674	0	0	1458	1006	649	24	939	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.99	0.95	0.91	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Frt	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3504	3539	5085	1583	1681	1548	1504				
Flt Permitted	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	3504	3539	5085	1583	1681	1548	1504				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	269	1860	0	0	1620	1118	721	27	1043	0	0
RTOR Reduction (vph)	0	0	0	0	0	502	0	5	5	0	0
Lane Group Flow (vph)	269	1860	0	0	1620	616	620	592	569	0	0
Turn Type	Prot	Prot	Prot	Split	Split	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	5	2		6	6	6	8	8	8		
Permitted Phases											
Actuated Green, G (s)	10.4	62.6		48.2	48.2	49.4	49.4	49.4	49.4		
Effective Green, g (s)	10.4	62.6		48.2	48.2	49.4	49.4	49.4	49.4		
Actuated g/C Ratio	0.09	0.52		0.40	0.40	0.41	0.41	0.41	0.41		
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	304	1846		2042	636	692	637	619			
v/s Ratio Prot	0.06	c0.53		0.32	0.39	0.37	c0.38	0.38			
v/s Ratio Perm											
v/c Ratio	0.88	1.01		0.79	0.97	0.90	0.93	0.92			
Uniform Delay, d1	54.2	28.7		31.5	35.2	32.9	33.6	33.4			
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	24.9	22.8		3.3	28.8	14.2	20.0	18.8			
Delay (s)	79.1	51.5		34.8	63.9	47.1	53.6	52.2			
Level of Service	E	D		C	E	D	D	D			
Approach Delay (s)		55.0		46.7			50.9			0.0	A
Approach LOS		D		D			D			A	
Intersection Summary											
HCM Average Control Delay				50.5							
HCM Volume to Capacity ratio				0.97							
Actuated Cycle Length (s)				120.0					8.0		
Intersection Capacity Utilization				107.4%					G		
Analysis Period (min)				15							
c Critical Lane Group											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SSB
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	249	2386	259	54	1855	68	637	67	161	51	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.89	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5058	3433	3164				
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5058	3433	3164				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	277	2651	288	60	2061	76	708	74	179	57	33
RTOR Reduction (vph)	0	0	57	0	2	0	0	138	0	0	85
Lane Group Flow (vph)	277	2651	231	60	2135	0	708	115	0	57	33
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	4	3	8	8	5	2	1	6	6
Permitted Phases											
Actuated Green, G (s)	25.6	73.0	73.0	8.6	56.0	31.1	31.5	31.5	8.4	8.8	8.8
Effective Green, g (s)	25.6	73.0	73.0	8.6	56.0	31.1	31.5	31.5	8.4	8.8	8.8
Actuated g/C Ratio	0.19	0.53	0.53	0.06	0.41	0.23	0.23	0.23	0.06	0.06	0.06
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)	330	2700	840	111	2080	776	725		108	119	101
v/s Ratio Prot	c0.16	c0.52	0.15	0.03	c0.42	c0.21	0.04		0.03	c0.02	0.00
v/s Ratio Perm											
v/c Ratio	0.84	0.98	0.28	0.54	1.04	0.91	0.16		0.53	0.28	0.06
Uniform Delay, d1	54.0	31.6	17.7	62.5	40.8	51.9	42.4		62.6	61.3	60.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	16.8	13.3	0.2	5.3	29.9	15.0	0.1		4.6	1.3	0.2
Delay (s)	70.8	44.9	17.9	67.8	70.7	66.9	42.5		67.2	62.6	60.7
Level of Service	E	D	B	E	E	E	D		E	E	E
Approach Delay (s)		44.7			70.6		60.4			63.1	
Approach LOS		D			E		E			E	
Intersection Summary											
HCM Average Control Delay				56.2							
HCM Volume to Capacity ratio				0.95							
Actuated Cycle Length (s)				137.5					20.0		
Intersection Capacity Utilization				86.0%					E		
Analysis Period (min)				15							
c Critical Lane Group											

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	←←←	→	←←←	←←←	←←←	→
Volume (vph)	2506	137	107	1935	231	180
Ideal Flow (vphpl)	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	0.91	1.00	1.00	0.91	0.97	1.00
Flt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	1770	5085	3433	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	1770	5085	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2784	152	119	2150	257	200
RTOR Reduction (vph)	0	57	0	0	0	127
Lane Group Flow (vph)	2784	95	119	2150	257	73
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	3	8	2	2
Permitted Phases						
Actuated Green, G (s)	52.1	52.1	7.9	64.0	11.6	11.6
Effective Green, g (s)	52.1	52.1	7.9	64.0	11.6	11.6
Actuated g/C Ratio	0.62	0.62	0.09	0.77	0.14	0.14
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3169	987	167	3893	476	220
v/s Ratio Prot	c0.55	0.06	c0.07	0.42	c0.07	0.05
v/s Ratio Perm						
v/c Ratio	0.88	0.10	0.71	0.55	0.54	0.33
Uniform Delay, d1	13.1	6.3	36.7	4.0	33.5	32.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.1	0.0	13.4	0.2	1.2	0.9
Delay (s)	16.2	6.4	50.2	4.2	34.7	33.4
Level of Service	B	A	D	A	C	C
Approach Delay (s)	15.7		6.6	34.1		
Approach LOS	B		A	C		
Intersection Summary						
HCM Average Control Delay			13.5		HCM Level of Service	B
HCM Volume to Capacity ratio			0.81			
Actuated Cycle Length (s)			83.6		Sum of lost time (s)	12.0
Intersection Capacity Utilization			70.9%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	←←←	→	←←←	←←←	←←←	→
Volume (vph)	2572	114	114	1848	193	193
Ideal Flow (vphpl)	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	0.91	1.00	0.97	0.91	1.00	1.00
Flt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	3433	5085	1770	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	3433	5085	1770	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2858	127	127	2053	214	214
RTOR Reduction (vph)	0	50	0	0	0	80
Lane Group Flow (vph)	2858	77	127	2053	214	134
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	3	8	2	2
Permitted Phases						
Actuated Green, G (s)	46.1	46.1	4.5	54.6	13.8	13.8
Effective Green, g (s)	46.1	46.1	4.5	54.6	13.8	13.8
Actuated g/C Ratio	0.60	0.60	0.06	0.71	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)	3088	955	202	3634	320	285
v/s Ratio Prot	c0.56	0.05	0.04	c0.40	c0.12	0.08
v/s Ratio Perm						
v/c Ratio	0.93	0.08	0.63	0.56	0.67	0.47
Uniform Delay, d1	13.7	6.3	35.1	5.2	29.2	28.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.9	0.0	6.0	0.2	5.2	1.2
Delay (s)	19.7	6.4	41.1	5.4	34.4	29.2
Level of Service	B	A	D	A	C	C
Approach Delay (s)	19.1		7.5	31.8		
Approach LOS	B		A	C		
Intersection Summary						
HCM Average Control Delay			15.6		HCM Level of Service	B
HCM Volume to Capacity ratio			0.86			
Actuated Cycle Length (s)			76.4		Sum of lost time (s)	12.0
Intersection Capacity Utilization			68.3%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	W	W	W	W	W	W	W	W	W	W	W	W
Volume (vph)	503	1713	490	153	938	181	613	446	308	151	169	227
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	0.97	0.91	0.97	0.91	0.97	0.91	0.97	0.91	0.97	0.91
Flt	1.00	0.97	1.00	0.98	1.00	0.98	1.00	0.98	1.00	0.98	1.00	0.98
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3433	4916	3433	4962	3433	4962	3433	4962	3433	4962	3433	4962
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3433	4916	3433	4962	3433	4962	3433	4962	3433	4962	3433	4962
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	559	1903	544	170	1042	201	681	496	342	168	188	252
RTOR Reduction (vph)	0	41	0	0	23	0	0	0	153	0	200	0
Lane Group Flow (vph)	559	2406	0	170	1220	0	681	496	189	168	240	0
Turn Type	Prot	4	Prot	3	8	Prot	5	2	Perm	Prot	1	6
Protected Phases	7	4	7	3	8	7	5	2	2	7	1	6
Permitted Phases	7	4	7	3	8	7	5	2	2	7	1	6
Actuated Green, G (s)	19.0	50.6	10.4	42.0	24.2	27.2	27.2	27.2	8.5	11.5	11.5	11.5
Effective Green, g (s)	19.0	50.6	10.4	42.0	24.2	27.2	27.2	27.2	8.5	11.5	11.5	11.5
Actuated g/C Ratio	0.17	0.45	0.09	0.37	0.21	0.24	0.24	0.24	0.08	0.10	0.10	0.10
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	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	3.0
Lane Grp Cap (vph)	579	2207	317	1849	737	1227	382	259	474	474	474	474
v/s Ratio Prot	c0.16	c0.49	0.05	0.25	c0.20	0.10	c0.12	0.05	0.05	0.05	0.05	0.05
v/s Ratio Perm	0.97	1.09	0.54	0.66	0.92	0.40	0.49	0.85	0.51	0.51	0.51	0.51
Uniform Delay, d1	46.5	31.0	48.8	29.4	43.3	35.9	36.8	50.6	47.9	47.9	47.9	47.9
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	28.6	48.8	1.7	0.9	17.2	0.2	1.0	5.5	0.9	0.9	0.9	0.9
Delay (s)	75.1	79.9	50.6	30.3	60.6	36.2	37.8	56.2	48.8	48.8	48.8	48.8
Level of Service	E	E	D	C	E	D	D	E	D	E	D	D
Approach Delay (s)	79.0	79.0	32.7	32.7	47.5	47.5	47.5	50.8	50.8	50.8	50.8	50.8
Approach LOS	E	E	C	C	D	D	D	D	D	D	D	D

Intersection Summary			E
HCM Average Control Delay	59.1	HCM Level of Service	E
HCM Volume to Capacity ratio	0.92	Sum of lost time (s)	8.0
Actuated Cycle Length (s)	112.7	ICU Level of Service	E
Intersection Capacity Utilization	87.9%		
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	W	W	W	W	W	W	W	W	W	W	W	W
Volume (vph)	136	1268	587	82	644	74	399	172	149	80	128	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	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	0.97	0.91	0.97	0.91	0.97	0.91
Flt	1.00	0.95	1.00	0.98	1.00	0.98	1.00	0.98	1.00	0.98	1.00	0.98
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3433	4844	3433	4844	3433	4844	3433	4844	3433	4844	3433	4844
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3433	4844	3433	4844	3433	4844	3433	4844	3433	4844	3433	4844
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	151	1409	652	91	716	82	443	191	166	89	142	146
RTOR Reduction (vph)	0	85	0	0	14	0	0	134	0	0	128	0
Lane Group Flow (vph)	151	1976	0	91	784	0	443	223	0	89	160	0
Turn Type	Prot	7	4	Prot	3	8	Prot	5	2	Prot	1	6
Protected Phases	7	4	7	3	8	7	5	2	2	7	1	6
Permitted Phases	7	4	7	3	8	7	5	2	2	7	1	6
Actuated Green, G (s)	7.9	38.3	3.5	33.9	13.0	15.6	13.0	15.6	7.3	9.9	7.3	9.9
Effective Green, g (s)	7.9	38.3	3.5	33.9	13.0	15.6	13.0	15.6	7.3	9.9	7.3	9.9
Actuated g/C Ratio	0.10	0.47	0.04	0.42	0.16	0.19	0.16	0.19	0.09	0.12	0.09	0.12
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	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	3.0
Lane Grp Cap (vph)	336	2299	149	2103	553	915	553	915	160	401	160	401
v/s Ratio Prot	c0.04	c0.41	0.03	0.16	c0.13	0.05	c0.13	0.05	0.05	c0.05	0.05	c0.05
v/s Ratio Perm	0.45	0.86	0.61	0.37	0.80	0.24	0.80	0.24	0.56	0.40	0.56	0.40
Uniform Delay, d1	34.3	18.8	37.9	16.1	32.6	27.6	32.6	27.6	35.1	32.7	35.1	32.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	3.5	7.2	0.1	8.2	0.1	8.2	0.1	4.1	0.7	4.1	0.7
Delay (s)	35.3	22.3	45.1	16.2	40.8	27.7	40.8	27.7	39.3	33.3	39.3	33.3
Level of Service	D	C	D	B	D	C	D	C	D	C	D	C
Approach Delay (s)	23.2	23.2	19.2	19.2	34.9	34.9	34.9	34.9	34.7	34.7	34.7	34.7
Approach LOS	C	C	B	B	C	C	C	C	C	C	C	C

Intersection Summary:			
HCM Average Control Delay	25.6	HCM Level of Service	
HCM Volume to Capacity ratio	0.77	C	
Actuated Cycle Length (s)	80.7	Sum of lost time (s)	
Intersection Capacity Utilization	73.4%	16.0	
Analysis Period (min)	15	ICU Level of Service	
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	49	1296	153	8	688	23	67	14	32	28	8	31
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	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	0.90	1.00	0.88	1.00
Flt	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	5002	1770	5060	1770	5060	1770	1669	1770	1642	1770	1642
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	5002	1770	5060	1770	5060	1770	1669	1770	1642	1770	1642
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	54	1440	177	9	764	26	74	16	36	31	9	34
RTOR Reduction (vph)	0	17	0	0	4	0	0	33	0	0	32	0
Lane Group Flow (vph)	54	1600	0	9	786	0	74	19	0	31	11	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	4	3	8	5	2	1	6			
Permitted Phases												
Actuated Green, G (s)	1.8	24.2	0.6	23.0	0.6	23.0	2.5	3.4	1.3	2.2		
Effective Green, g (s)	1.8	24.2	0.6	23.0	0.6	23.0	2.5	3.4	1.3	2.2		
Actuated g/C Ratio	0.04	0.53	0.01	0.51	0.01	0.51	0.05	0.07	0.03	0.05		
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	70	2860	23	2558	97	125	51	79				
v/s Ratio Prot	<0.03	<0.32	0.01	0.16	<0.04	<0.01	0.02	0.01				
v/s Ratio Perm												
v/c Ratio	0.77	0.60	0.39	0.31	0.76	0.15	0.61	0.13				
Uniform Delay, d1	21.6	7.3	22.3	6.6	21.2	19.7	21.8	20.7				
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Incremental Delay, d2	39.9	0.4	10.7	0.1	29.2	0.6	18.8	0.8				
Delay (s)	61.5	7.7	32.9	6.7	50.4	20.3	40.6	21.5				
Level of Service	E	A	C	A	D	C	D	C				
Approach Delay (s)	9.5		7.0		36.0		29.5					
Approach LOS	A		A		D		C					
Intersection Summary												
HCM Average Control Delay												
HCM Volume to Capacity ratio												
Actuated Cycle Length (s)												
Intersection Capacity Utilization												
Analysis Period (min)												
c Critical Lane Group												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	295	992	65	22	490	25	40	46	35	24	33	194
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	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	0.94	1.00	0.87	1.00
Flt	1.00	0.99	1.00	1.00	0.99	1.00	1.00	1.00	0.95	1.00	0.95	1.00
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	5039	1770	5048	1770	5048	1770	1742	1770	1624	1770	1624
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	5039	1770	5048	1770	5048	1770	1742	1770	1624	1770	1624
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	328	1102	72	24	544	28	44	51	39	27	37	216
RTOR Reduction (vph)	0	8	0	0	7	0	0	33	0	0	185	0
Lane Group Flow (vph)	328	1166	0	24	565	0	44	57	0	27	68	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	5	2	1	6				
Permitted Phases												
Actuated Green, G (s)	14.2	29.5	0.7	16.0	0.7	16.0	1.6	8.1	1.6	8.1		
Effective Green, g (s)	14.2	29.5	0.7	16.0	0.7	16.0	1.6	8.1	1.6	8.1		
Actuated g/C Ratio	0.25	0.53	0.01	0.29	0.01	0.29	0.03	0.14	0.03	0.14		
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	450	2659	22	1445	51	252	51	252	0.02	0.04		
v/s Ratio Prot	<0.19	<0.23	0.01	0.11	<0.02	0.03	0.02	0.03				
v/s Ratio Perm												
v/c Ratio	0.73	0.44	1.09	0.39	0.86	0.22	0.53	0.29				
Uniform Delay, d1	19.1	8.1	27.6	16.0	27.0	21.1	26.8	21.3				
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Incremental Delay, d2	5.8	0.1	22.19	0.2	76.8	0.5	9.6	0.7				
Delay (s)	24.9	8.2	249.5	16.2	103.8	21.6	36.4	22.0				
Level of Service	C	A	F	B	F	C	D	C				
Approach Delay (s)	11.9		25.6		48.6		23.4					
Approach LOS	B		C		D		C					
Intersection Summary												
HCM Average Control Delay												
HCM Volume to Capacity ratio												
Actuated Cycle Length (s)												
Intersection Capacity Utilization												
Analysis Period (min)												
c Critical Lane Group												

Movement	EBT	EBR	WBL	WBT	NBL	NBR	SWT	SWR
Lane Configurations	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑
Volume (vph)	850	186	92	434	119	255	333	435
Ideal Flow (vphpl)	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	0.91	1.00	0.91	0.97	1.00	0.97	0.97	0.91
Flt	0.97	1.00	1.00	1.00	1.00	0.85	1.00	0.99
Flt Protected	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	4948	1770	5085	3433	1583	1583	3433	5014
Flt Permitted	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (perm)	4948	1770	5085	3433	1583	1583	3433	5014
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	944	207	102	482	132	283	370	483
RTOR Reduction (vph)	56	0	0	0	0	228	0	0
Lane Group Flow (vph)	1095	0	102	482	132	55	370	519
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	3	8	2	2	2	7	4
Permitted Phases	16.9	2.5	23.4	5.9	5.9	5.9	10.1	24.9
Actuated Green, G (s)	16.9	2.5	23.4	5.9	5.9	5.9	10.1	24.9
Effective Green, g (s)	0.45	0.07	0.63	0.16	0.16	0.16	0.14	0.34
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	2242	119	3190	543	250	0.03	480	1729
Lane Grp Cap (vph)	c0.22	c0.06	0.09	c0.04	0.03	0.04	c0.11	0.10
v/s Ratio Prot	0.49	0.86	0.15	0.24	0.22	0.04	0.77	0.30
v/s Ratio Perm	7.2	17.2	2.9	13.7	13.7	0.04	29.9	17.3
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	0.2	41.8	0.0	0.2	0.4	0.4	7.5	0.1
Incremental Delay, d2	7.3	59.0	2.9	14.0	14.1	14.1	37.4	17.4
Delay (s)	A	E	A	B	B	B	D	B
Level of Service	A	E	A	B	B	B	D	B
Approach Delay (s)	7.3	12.7	14.1	14.1	14.1	14.1	25.6	17.4
Approach LOS	A	B	B	B	B	B	C	C
Intersection Summary								
HCM Average Control Delay								
HCM Volume to Capacity ratio								
Actuated Cycle Length (s)								
Intersection Capacity Utilization								
Analysis Period (min)								
c Critical Lane Group								

Movement	EBT	EBR	WBL	WBT	NBL	NBR	SWT	SWR
Lane Configurations	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑
Volume (vph)	193	38	194	22	255	114	859	168
Ideal Flow (vphpl)	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	0.95	0.95	1.00	1.00	0.97	0.91	0.97	0.91
Flt	1.00	0.96	1.00	0.85	1.00	0.98	1.00	0.99
Flt Protected	0.95	0.98	0.96	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1681	1658	1783	1583	3433	4960	3433	5014
Flt Permitted	0.95	0.98	0.96	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1681	1658	1783	1583	3433	4960	3433	5014
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	214	42	216	24	283	127	954	187
RTOR Reduction (vph)	0	18	0	0	226	0	35	0
Lane Group Flow (vph)	150	130	0	0	240	57	1106	0
Turn Type	Split	Split	Split	Split	Split	Split	Split	Split
Protected Phases	2	2	6	6	3	8	7	4
Permitted Phases	11.5	11.5	14.5	14.5	5.3	20.1	10.1	24.9
Actuated Green, G (s)	11.5	11.5	14.5	14.5	5.3	20.1	10.1	24.9
Effective Green, g (s)	0.16	0.16	0.20	0.20	0.07	0.28	0.14	0.34
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	268	264	358	318	252	1381	480	1729
Lane Grp Cap (vph)	c0.09	0.08	c0.13	0.04	0.22	c0.11	0.10	0.10
v/s Ratio Prot	0.56	0.49	0.67	0.18	0.50	0.80	0.77	0.30
v/s Ratio Perm	28.0	27.7	26.6	23.9	32.2	24.2	29.9	17.3
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	2.5	1.4	4.9	0.3	1.6	3.4	7.5	0.1
Incremental Delay, d2	30.5	29.1	31.5	24.2	33.8	27.6	37.4	17.4
Delay (s)	C	C	C	C	C	C	D	B
Level of Service	C	C	C	C	C	C	D	B
Approach Delay (s)	29.8	27.5	27.5	27.5	28.2	28.2	25.6	17.4
Approach LOS	C	C	C	C	C	C	C	C
Intersection Summary								
HCM Average Control Delay								
HCM Volume to Capacity ratio								
Actuated Cycle Length (s)								
Intersection Capacity Utilization								
Analysis Period (min)								
c Critical Lane Group								

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	128	108	178	14	56	118	116	527	10	187	611	96
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Util. 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
Fit	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit Protected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1673	1770	1770	3529	1770	3539	1583	1583
Fit Permitted	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1673	1770	1770	3529	1770	3539	1583	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	142	120	198	16	62	131	129	586	11	208	679	107
RTOR Reduction (vph)	0	0	137	0	106	0	0	2	0	0	0	75
Lane Group Flow (vph)	142	120	61	16	87	0	129	595	0	208	679	32
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	4	3	8	5	2	2	1	6	6	6
Permitted Phases												
Actuated Green, G (s)	8.2	18.4	18.4	0.7	10.9	6.8	14.5	6.8	14.5	9.9	17.6	17.6
Effective Green, g (s)	8.2	18.4	18.4	0.7	10.9	6.8	14.5	6.8	14.5	9.9	17.6	17.6
Actuated g/C Ratio	0.14	0.31	0.31	0.01	0.18	0.11	0.24	0.11	0.24	0.17	0.30	0.30
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	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	3.0
Lane Grp Cap (vph)	244	576	490	21	306	202	860	202	860	295	1047	468
v/s Ratio Prot	c0.08	0.06	0.04	0.01	c0.05	0.07	0.17	0.07	0.17	c0.12	c0.19	0.02
v/s Ratio Perm												
v/c Ratio	0.58	0.21	0.12	0.76	0.28	0.64	0.69	0.64	0.69	0.71	0.65	0.07
Uniform Delay, d1	24.0	15.2	14.8	29.3	20.9	25.2	20.5	25.2	20.5	23.4	18.3	15.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.5	0.2	0.1	92.1	0.5	6.5	2.4	6.5	2.4	7.5	1.4	0.1
Delay (s)	27.6	15.4	14.9	121.4	21.4	31.7	22.9	31.7	22.9	30.9	19.7	15.1
Level of Service	C	B	B	F	C	C	C	C	C	C	B	B
Approach Delay (s)	18.9				29.1						21.5	
Approach LOS	B				C						C	
Intersection Summary												
HCM Average Control Delay						22.6						C
HCM Volume to Capacity ratio						0.58						
Actuated Cycle Length (s)						59.5				16.0		
Intersection Capacity Utilization						55.9%				B		
Analysis Period (min)						15						
c Critical Lane Group												

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SBR
Lane Configurations	217	12	10	144	2	110	29	788	206	148	569	32
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Util. 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
Fit	1.00	0.93	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit Protected	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1770	1735	1770	1770	1863	1583	1770	4927	1770	5044	1583	1583
Fit Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1735	1770	1770	1863	1583	1770	4927	1770	5044	1583	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	241	13	11	160	2	122	32	876	229	164	632	36
RTOR Reduction (vph)	0	10	0	0	0	107	0	61	0	0	7	0
Lane Group Flow (vph)	241	14	0	160	2	15	32	1044	0	164	661	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	1	6		5	2	2	7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	10.8	4.4		13.9	7.5	7.5	2.0	18.9		8.0	24.9	
Effective Green, g (s)	10.8	4.4		13.9	7.5	7.5	2.0	18.9		8.0	24.9	
Actuated g/C Ratio	0.18	0.07		0.23	0.12	0.12	0.03	0.31		0.13	0.41	
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)	312	125		402	228	194	58	1522		231	2052	
v/s Ratio Prot	c0.14	0.01		0.09	0.00	c0.01	0.02	c0.21		c0.09	0.13	
v/s Ratio Perm												
v/c Ratio	0.77	0.11		0.40	0.01	0.08	0.55	0.69		0.71	0.32	
Uniform Delay, d1	24.0	26.6		20.1	23.6	23.8	29.2	18.5		25.5	12.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.3	0.4		0.6	0.0	0.2	10.9	1.3		9.6	0.1	
Delay (s)	35.3	27.0		20.7	23.6	24.0	40.0	19.8		35.1	12.5	
Level of Service	D	C		C	C	C	D	B		D	B	
Approach Delay (s)	34.5			22.1			20.4			16.9		
Approach LOS	C			C			C			B		
Intersection Summary												
HCM Average Control Delay				20.9					C			
HCM Volume to Capacity ratio				0.61								
Actuated Cycle Length (s)				61.2					16.0			
Intersection Capacity Utilization				56.7%					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)	316	244	127	33	102	18	97	392	40	26	456	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	4.0	4.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Flt	1.00	1.00	0.85	0.98	1.00	0.98	1.00	0.99	1.00	0.95	1.00	0.94
Flt Protected	0.95	1.00	1.00	0.99	1.00	0.99	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1813	1770	1770	3491	3491	1770	3491	3491	3491
Satd. Flow (perm)	1770	1863	1583	1813	1770	1770	3491	3491	1770	3491	3491	3491
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	351	271	141	37	113	20	108	436	44	29	507	297
RTOR Reduction (vph)	0	0	76	0	7	0	0	9	0	0	102	0
Lane Group Flow (vph)	351	271	65	0	163	0	108	471	0	29	702	0
Turn Type	Prot	Prot	Prot	Split	Split	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	4	8	8	5	2	2	1	6		
Permitted Phases												
Actuated Green, G (s)	17.5	33.3	33.3	11.8	11.8	5.2	23.4	20.2	20.2	20.2		
Effective Green, g (s)	17.5	33.3	33.3	11.8	11.8	5.2	23.4	20.2	20.2	20.2		
Actuated g/C Ratio	0.24	0.46	0.46	0.16	0.16	0.07	0.32	0.03	0.28	0.03	0.28	0.28
Clearance Time (s)	4.0	5.0	5.0	5.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0	5.0
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	3.0
Lane Grp Cap (vph)	426	853	725	294	294	127	1124	49	929			
v/s Ratio Prot	c0.20	0.15	0.04	c0.09	c0.09	c0.06	c0.13	0.02	c0.21			
v/s Ratio Perm												
v/c Ratio	0.82	0.32	0.09	0.56	0.56	0.85	0.42	0.59	0.76			
Uniform Delay, d1	26.1	12.5	11.1	28.0	28.0	33.4	19.3	34.9	24.0			
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.2	0.2	0.1	2.3	2.3	38.8	0.3	17.7	3.5			
Delay (s)	38.3	12.7	11.2	30.3	30.3	72.2	19.6	52.6	27.5			
Level of Service	D	B	B	C	C	E	B	D	C			
Approach Delay (s)	24.2			30.3			29.2			28.4		
Approach LOS	C			C			C			C		
Intersection Summary												
HCM Average Control Delay	27.4			27.4			27.4			27.4		
HCM Volume to Capacity ratio	0.80			0.80			0.80			0.80		
Actuated Cycle Length (s)	72.7			72.7			72.7			72.7		
Intersection Capacity Utilization	68.2%			68.2%			68.2%			68.2%		
Analysis Period (min)	15			15			15			15		
! Phase conflict between lane groups.												
c Critical Lane Group												

Movement	EBL	EBR	EBR2	NWL2	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↰	↱	↱	↰	↰↱	↰	↰↱	↰↱	↰	↰	↰↱	↰
Volume (vph)	74	279	324	99	173	125	266	1064	95	167	681	44
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	1.00	1.00	1.00	1.00	0.97	1.00	0.97	0.91	1.00	0.99	1.00	0.99
Flt	1.00	0.85	0.85	1.00	0.94	1.00	0.99	1.00	0.99	1.00	0.99	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	0.97	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	1583	1770	3291	3433	5023	5023	1770	5039	5039	1770
Satd. Flow (perm)	1770	1583	1583	1770	3291	3433	5023	5023	1770	5039	5039	1770
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	82	310	360	110	192	139	286	1182	106	186	757	49
RTOR Reduction (vph)	0	0	266	0	126	0	0	13	0	0	9	0
Lane Group Flow (vph)	82	310	94	110	205	0	286	1275	0	186	797	0
Turn Type	Prot	Perm	Perm	Split	Split	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	2	2	2	6	6	3	8	8	7	4		
Permitted Phases												
Actuated Green, G (s)	17.9	17.9	17.9	6.9	6.9	10.5	21.2	21.2	9.7	20.4		
Effective Green, g (s)	17.9	17.9	17.9	6.9	6.9	10.5	21.2	21.2	9.7	20.4		
Actuated g/C Ratio	0.25	0.25	0.25	0.10	0.10	0.15	0.30	0.30	0.14	0.28		
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	442	395	395	170	317	503	1485		239	1434		
v/s Ratio Prot	0.05			0.06	c0.06	0.09	c0.25		c0.11	0.16		
v/s Ratio Perm												
v/c Ratio	0.19	0.78	0.24	0.65	0.65	0.59	0.86		0.78	0.56		
Uniform Delay, d1	21.2	25.1	21.5	31.2	31.2	28.6	23.8		30.0	21.8		
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Incremental Delay, d2	0.2	9.8	0.3	8.2	4.5	1.8	5.2		14.7	0.5		
Delay (s)	21.4	34.9	21.8	39.4	35.7	30.3	29.0		44.7	22.3		
Level of Service	C	C	C	D	D	C	C		D	C		
Approach Delay (s)	27.2			36.7		29.2			26.5			
Approach LOS	C			D		C			C			
Intersection Summary												
HCM Average Control Delay	29.0			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.74									12.0		
Actuated Cycle Length (s)	71.7									B		
Intersection Capacity Utilization	59.2%											
Analysis Period (min)	15											
c Critical Lane Group												

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	4	Stop	4	Stop	4	Stop	4	Stop	4	Stop	4	Stop
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Volume (vph)	209	26	155	4	11	4	108	25	8	2	7	104
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	232	29	172	4	12	4	120	28	9	2	8	116
Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1							
Volume Total (vph)	261	172	21	157	126							
Volume Left (vph)	232	0	4	120	2							
Volume Right (vph)	0	172	4	9	116							
Head (s)	0.48	-0.67	-0.05	0.15	-0.51							
Departure Headway (s)	5.7	4.6	5.2	5.3	4.7							
Degree Utilization, x	0.42	0.22	0.03	0.23	0.16							
Capacity (veh/h)	603	753	627	640	706							
Control Delay (s)	11.6	7.7	8.4	9.9	8.6							
Approach Delay (s)	10.0	8.4	9.9	8.6								
Approach LOS	B	A	A	A	A							

Intersection Summary	
Delay	9.7
HCM Level of Service	A
Intersection Capacity Utilization	40.7%
Analysis Period (min)	15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Volume (vph)	119	52	72	57	27	9	111	765	138	6	370
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00
Flt	1.00	0.85	1.00	0.85	0.99	1.00	0.98	1.00	0.97	1.00	0.97
Flt Protected	0.97	1.00	0.97	1.00	0.97	1.00	0.95	1.00	0.95	1.00	0.95
Flt Permitted	1800	1583	1784	1784	1784	1770	3458	1770	3441	1770	3441
Satd. Flow (perm)	1800	1583	1784	1784	1784	1770	3458	1770	3441	1770	3441
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	132	58	80	63	30	10	123	850	153	7	411
RTOR Reduction (vph)	0	0	68	0	5	0	0	15	0	0	23
Lane Group Flow (vph)	0	180	12	0	96	0	123	988	0	7	481
Turn Type	Split	4	4	4	8	8	5	2	1	1	6
Protected Phases											
Permitted Phases											
Actuated Green, G (s)		8.8	8.8	6.7	6.7	5.6	26.0	5.6	21.0	0.6	21.0
Effective Green, g (s)		8.8	8.8	6.7	6.7	5.6	26.0	5.6	21.0	0.6	21.0
Actuated g/C Ratio		0.15	0.15	0.12	0.12	0.10	0.45	0.10	0.45	0.01	0.36
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		273	240	206	206	171	1547	171	1547	18	1244
v/s Ratio Prot		c0.11	0.01	c0.05	c0.05	c0.07	c0.29	c0.07	c0.29	0.00	0.14
v/c Ratio		0.70	0.05	0.47	0.47	0.72	0.64	0.72	0.64	0.39	0.39
Uniform Delay, d1		23.4	21.1	24.1	24.1	25.5	12.4	25.5	12.4	28.6	13.8
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		7.5	0.1	1.7	1.7	13.5	0.9	13.5	0.9	13.4	0.2
Delay (s)		30.9	21.2	25.8	25.8	39.0	13.3	39.0	13.3	41.9	14.0
Level of Service		C	C	C	C	D	B	D	B	D	B
Approach Delay (s)		28.0		25.8	25.8		16.1		16.1		14.4
Approach LOS		C		C	C		B		B		B

Intersection Summary	
HCM Average Control Delay	17.7
HCM Volume to Capacity ratio	0.62
Actuated Cycle Length (s)	58.1
Intersection Capacity Utilization	50.7%
Analysis Period (min)	15
c Critical Lane Group	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SSR
Lane Configurations	0	655	141	631	916	0	0	0	0	906	1	75
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	0.95	0.97	0.95	0.97	0.95	0.95	0.91	0.95	0.95	0.95	0.91	0.95
Lane Util. Factor	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.85
Flt Protected	1.00	0.95	1.00	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00
Satd. Flow (prot)	3445	3433	3539	3445	3433	3539	1681	1612	1504	1681	1612	1504
Flt Permitted	1.00	0.95	1.00	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00
Satd. Flow (perm)	3445	3433	3539	3445	3433	3539	1681	1612	1504	1681	1612	1504
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	728	157	701	1018	0	0	0	0	1007	1	83
RTOR Reduction (vph)	0	26	0	0	0	0	0	0	0	0	1	49
Lane Group Flow (vph)	0	859	0	701	1018	0	0	0	0	503	512	26
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Split	Split	Split	Prot	Prot	Prot
Protected Phases	4	3	8	3	8	3	6	6	6	6	6	6
Permitted Phases	18.4	15.4	37.8	15.4	37.8	15.4	23.7	23.7	23.7	23.7	23.7	23.7
Actuated Green, G (s)	18.4	15.4	37.8	15.4	37.8	15.4	23.7	23.7	23.7	23.7	23.7	23.7
Effective Green, g (s)	0.26	0.22	0.54	0.22	0.54	0.22	0.34	0.34	0.34	0.34	0.34	0.34
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (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
Vehicle Extension (s)	912	761	1925	761	1925	761	573	550	513	573	550	513
Lane Grp Cap (vph)	c0.25	c0.20	0.29	c0.20	0.29	c0.20	0.30	c0.32	0.02	0.30	c0.32	0.02
v/s Ratio Prot	0.94	0.92	0.53	0.92	0.53	0.92	0.88	0.93	0.05	0.88	0.93	0.05
v/s Ratio Perm	25.0	26.5	10.1	26.5	10.1	26.5	21.5	22.1	15.4	21.5	22.1	15.4
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	17.4	16.5	0.3	16.5	0.3	16.5	14.2	22.7	0.0	14.2	22.7	0.0
Incremental Delay, d2	42.4	42.9	10.4	42.9	10.4	42.9	35.7	44.9	15.4	35.7	44.9	15.4
Delay (s)	D	D	B	D	B	D	D	D	B	D	D	B
Level of Service	D	D	B	D	B	D	D	D	B	D	D	B
Approach Delay (s)	42.4	23.7	0.0	23.7	0.0	23.7	0.0	0.0	0.0	23.7	0.0	0.0
Approach LOS	D	C	A	C	A	C	D	D	D	C	D	D
Intersection Summary												
HCM Average Control Delay	32.6											
HCM Volume to Capacity ratio	0.93											
Actuated Cycle Length (s)	69.5											
Intersection Capacity Utilization	87.5%											
Analysis Period (min)	15											
c Critical Lane Group												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SSR
Lane Configurations	0	127	1458	0	1051	872	452	7	700	0	0	0
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	0.97	0.95	0.95	0.95	1.00	0.85	1.00	0.87	0.85	0.91	0.95	0.95
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.85	1.00	0.87	0.85	0.91	0.95	0.95
Flt Protected	0.95	1.00	1.00	1.00	1.00	0.95	1.00	0.95	0.99	1.00	1.00	1.00
Satd. Flow (prot)	3433	3539	3539	3433	3539	1583	1681	1469	1504	1583	1469	1504
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	0.99	1.00	1.00	1.00
Satd. Flow (perm)	3433	3539	3539	3433	3539	1583	1681	1469	1504	1583	1469	1504
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	141	1620	0	0	1168	969	502	8	778	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	524	0	11	11	0	0	0
Lane Group Flow (vph)	141	1620	0	0	1168	445	447	410	409	0	0	0
Turn Type	Prot	Prot	Split	Prot	Split	Prot	Split	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	8	7	4	8	2	2	2	2	2	2
Permitted Phases	3.5	31.6	24.1	3.5	31.6	24.1	19.5	19.5	19.5	19.5	19.5	19.5
Actuated Green, G (s)	3.5	31.6	24.1	3.5	31.6	24.1	19.5	19.5	19.5	19.5	19.5	19.5
Effective Green, g (s)	0.06	0.53	0.41	0.06	0.53	0.41	0.33	0.33	0.33	0.33	0.33	0.33
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (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
Vehicle Extension (s)	203	1892	1443	203	1892	1443	646	555	485	496	496	496
Lane Grp Cap (vph)	0.04	c0.46	0.33	0.04	c0.46	0.33	0.28	0.27	c0.28	0.27	c0.28	0.27
v/s Ratio Prot	0.69	0.86	0.81	0.69	0.86	0.81	0.69	0.81	0.85	0.83	0.85	0.83
v/s Ratio Perm	27.3	11.8	15.5	27.3	11.8	15.5	14.4	18.1	18.4	18.2	18.4	18.2
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	9.9	4.1	3.5	9.9	4.1	3.5	3.1	8.3	12.8	10.7	12.8	10.7
Incremental Delay, d2	37.1	15.9	18.9	37.1	15.9	18.9	17.5	28.4	31.2	29.0	31.2	29.0
Delay (s)	D	B	B	D	B	B	B	C	C	C	C	C
Level of Service	D	B	B	D	B	B	B	C	C	C	C	C
Approach Delay (s)	17.6	18.3	18.3	17.6	18.3	18.3	18.3	28.8	0.0	28.8	0.0	0.0
Approach LOS	B	B	B	B	B	B	B	C	C	C	C	A
Intersection Summary												
HCM Average Control Delay	20.6											
HCM Volume to Capacity ratio	0.85											
Actuated Cycle Length (s)	59.1											
Intersection Capacity Utilization	87.5%											
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
27: Valley Centre Drive & El Camino Real
Near Term + Project (Phase 1 & 2) PM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4
Volume (vph)	50	37	50	490	31	118	109	990	220	197	1519	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	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	0.91	0.95	0.91	0.95	0.91	0.95	0.91	0.95	0.91	0.95	0.91
Flt	1.00	0.98	0.85	1.00	0.99	0.85	1.00	0.97	1.00	1.00	1.00	1.00
Flt Protected	0.95	0.99	1.00	0.95	0.96	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1681	1649	1504	1681	1616	1504	1770	4947	1770	5064	1770	5064
Flt Permitted	0.95	0.99	1.00	0.95	0.96	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1681	1649	1504	1681	1616	1504	1770	4947	1770	5064	1770	5064
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	56	41	56	544	34	131	121	1100	244	219	1688	48
RTOR Reduction (vph)	0	7	44	0	2	92	0	37	0	0	3	0
Lane Group Flow (vph)	50	48	4	294	295	26	121	1307	0	219	1733	0
Turn Type	Split	Prot	Prot	Split	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	4	8	8	8	5	2	1	6	6	6
Permitted Phases	6.5	6.5	6.5	17.4	17.4	17.4	7.5	27.5	12.3	32.3	32.3	32.3
Effective Green, G (s)	6.5	6.5	6.5	17.4	17.4	17.4	7.5	27.5	12.3	32.3	32.3	32.3
Actuated g/C Ratio	0.08	0.08	0.08	0.22	0.22	0.22	0.09	0.35	0.15	0.41	0.41	0.41
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	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	3.0
Lane Grp Cap (vph)	137	134	123	367	353	328	167	1707	273	2052	2052	2052
v/s Ratio Prot	c0.03	0.03	0.00	0.17	c0.18	0.02	0.07	0.26	c0.12	c0.34	c0.34	c0.34
v/c Ratio	0.36	0.36	0.03	0.80	0.84	0.08	0.72	0.77	0.80	0.84	0.84	0.84
Uniform Delay, d1	34.6	34.6	3.03	29.5	29.8	24.8	35.1	23.2	32.5	21.4	21.4	21.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.7	1.6	0.1	11.9	15.7	0.1	14.4	2.1	15.5	3.4	3.4	3.4
Delay (s)	36.3	36.2	33.8	41.4	45.5	24.9	49.5	25.3	48.0	24.8	24.8	24.8
Level of Service	D	D	C	D	D	C	D	C	D	C	C	C
Approach Delay (s)	D	D	D	40.4	40.4	27.3	C	C	C	C	C	C
Approach LOS	D	D	D	D	D	D	C	C	C	C	C	C
Intersection Summary												
HCM Average Control Delay	29.8											
HCM Volume to Capacity ratio	0.77											
Actuated Cycle Length (s)	79.7											
Intersection Capacity Utilization	68.6%											
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
28: Carmel Valley Road & El Camino Real
Near Term + Project (Phase 1 & 2) PM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4
Volume (vph)	0	0	0	223	860	220	405	1098	0	0	751	837
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	0.97	0.91	0.97	0.91	0.97	0.91	0.97	0.91	0.97	0.91
Flt	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3539	3539	3539	3539	3539	3539	3539	3539
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3539	3539	3539	3539	3539	3539	3539	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	248	956	244	450	1220	0	0	834	930
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	248	956	184	450	1220	0	0	1292	458
Confl. Peds. (#/hr)	200											
Turn Type	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split
Protected Phases	8	8	8	8	8	8	5	2	6	6	6	6
Permitted Phases	16.4	16.4	16.4	16.4	16.4	16.4	10.0	40.0	26.0	26.0	26.0	26.0
Effective Green, G (s)	16.4	16.4	16.4	16.4	16.4	16.4	10.0	40.0	26.0	26.0	26.0	26.0
Actuated g/C Ratio	0.25	0.25	0.25	0.25	0.25	0.25	0.16	0.62	0.40	0.40	0.40	0.40
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	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	3.0
Lane Grp Cap (vph)	874	1295	403	533	2198	533	c0.13	0.34	1673	550	1673	550
v/s Ratio Prot	0.07	c0.19	0.12	c0.13	0.34	0.34	0.31	c0.34	0.31	c0.34	0.31	c0.34
v/c Ratio	0.28	0.74	0.46	0.84	0.56	0.56	0.77	0.83	0.77	0.83	0.77	0.83
Uniform Delay, d1	19.3	22.0	20.2	26.4	7.1	7.1	16.6	17.3	16.6	17.3	16.6	17.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	2.2	0.8	11.7	0.3	0.3	2.3	10.5	2.3	10.5	2.3	10.5
Delay (s)	19.5	24.3	21.1	38.1	7.4	7.4	18.9	27.7	18.9	27.7	18.9	27.7
Level of Service	B	B	C	C	D	D	A	B	A	B	A	B
Approach Delay (s)	0.0	22.9	C	C	C	C	21.2	C	21.2	C	C	C
Approach LOS	A	A	C	C	C	C	C	C	C	C	C	C
Intersection Summary												
HCM Average Control Delay	19.8											
HCM Volume to Capacity ratio	0.81											
Actuated Cycle Length (s)	64.4											
Intersection Capacity Utilization	114.1%											
Analysis Period (min)	15											
c Critical Lane Group												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4T	4T	4T	0	0	0	0	0	0	0	0	0
Volume (vph)	537	1031	133	0	0	0	914	442	286	646	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Util. Factor	0.91	0.86	0.91	0.00	0.00	0.00	0.86	0.86	1.00	0.91	0.00	0.00
Flt	1.00	1.00	0.85	0.00	0.00	0.00	0.95	0.95	1.00	1.00	0.00	0.00
Flt Protected	0.95	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.95	1.00	0.00	0.00
Satd. Flow (prot)	1610	3190	1441	0.00	0.00	0.00	6095	6095	1770	5085	0.00	0.00
Flt Permitted	0.95	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.95	1.00	0.00	0.00
Satd. Flow (perm)	1610	3190	1441	0.00	0.00	0.00	6095	6095	1770	5085	0.00	0.00
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	597	1146	148	0	0	0	1016	491	318	718	0	0
RTOR Reduction (vph)	0	1	80	0	0	0	0	41	0	0	0	0
Lane Group Flow (vph)	537	1220	53	0	0	0	1466	0	318	718	0	0
Turn Type	Spill	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	4	4	4	4	2	2	1	6	6	6
Permitted Phases	31.6	31.6	31.6	0.0	0.0	0.0	20.8	20.8	15.6	40.4	40.4	40.4
Effective Green, G (s)	31.6	31.6	31.6	0.0	0.0	0.0	20.8	20.8	15.6	40.4	40.4	40.4
Effective Green, g (s)	0.40	0.40	0.40	0.00	0.00	0.00	0.26	0.26	0.20	0.50	0.50	0.50
Actuated g/C Ratio	4.0	4.0	4.0	0.00	0.00	0.00	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (s)	3.0	3.0	3.0	0.00	0.00	0.00	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (vph)	636	1260	569	0.00	0.00	0.00	1585	1585	345	2568	0.00	0.00
v/s Ratio Prot	0.33	c0.38	0.04	0.00	0.00	0.00	c0.24	0.00	c0.18	0.14	0.00	0.00
v/s Ratio Perm	0.84	0.97	0.09	0.00	0.00	0.00	1.07dr	0.92	0.92	0.28	0.00	0.00
Uniform Delay, d1	22.0	23.7	15.2	0.00	0.00	0.00	28.8	28.8	31.6	11.4	0.00	0.00
Progression Factor	1.00	1.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00
Incremental Delay, d2	10.0	18.0	0.1	0.00	0.00	0.00	9.5	9.5	29.3	0.1	0.00	0.00
Delay (s)	32.0	41.7	15.3	0.00	0.00	0.00	38.3	38.3	60.9	11.5	0.00	0.00
Level of Service	C	D	B	0.0	0.0	0.0	D	D	E	B	0.0	0.0
Approach Delay (s)	37.1	37.1	37.1	0.0	0.0	0.0	38.3	38.3	26.6	26.6	0.0	0.0
Approach LOS	D	D	D	A	A	A	D	D	C	C	0.0	0.0

Intersection Summary			
HCM Average Control Delay	35.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	114.1%	ICU Level of Service	H
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	4T	4T	4T	0	0	0	0	0	0	0	0	0
Volume (vph)	68	398	0	370	97	1900	1900	1900	1900	1900	1900	1900
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Util. Factor	1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1770	3539	3429	1770	1770	5085	5085	5085	5085	5085	5085	5085
Flt Permitted	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	1770	3539	3429	1770	1770	5085	5085	5085	5085	5085	5085	5085
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	76	442	0	411	108	34	52	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	76	442	0	473	0	34	6	0	0	0	0	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	6	6	6	6	6	6	6	6
Permitted Phases	1.3	13.6	8.3	8.3	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Effective Green, G (s)	1.3	13.6	8.3	8.3	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Effective Green, g (s)	0.05	0.55	0.34	0.34	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (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
Vehicle Extension (s)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (vph)	94	1957	1157	1157	216	193	0.00	0.00	0.00	0.00	0.00	0.00
v/s Ratio Prot	c0.04	0.12	c0.14	c0.14	c0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
v/s Ratio Perm	0.81	0.23	0.41	0.41	0.16	0.03	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay, d1	11.5	2.8	6.3	6.3	9.7	9.5	0.00	0.00	0.00	0.00	0.00	0.00
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
Incremental Delay, d2	38.1	0.1	0.2	0.2	0.3	0.1	0.00	0.00	0.00	0.00	0.00	0.00
Delay (s)	49.6	2.9	6.5	6.5	10.0	9.6	0.00	0.00	0.00	0.00	0.00	0.00
Level of Service	D	A	A	A	B	A	0.0	0.0	0.0	0.0	0.0	0.0
Approach Delay (s)	9.7	6.5	6.5	6.5	9.8	9.8	0.0	0.0	0.0	0.0	0.0	0.0
Approach LOS	A	A	A	A	A	A	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary			
HCM Average Control Delay	8.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	24.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	30.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBT2	SSR
Lane Configurations	118	293	331	126	162	99	370	840	332	272	166	144
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	0.88	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Lane Util. Factor	1.00	0.85	0.85	1.00	0.94	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Frt	1.00	0.85	0.85	1.00	0.94	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Flt Protected	1770	2787	1583	1770	1757	1770	3539	1583	3433	3539	1583	1583
Satd. Flow (prot)	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Flt Permitted	1770	2787	1583	1770	1757	1770	3539	1583	3433	3539	1583	1583
Satd. Flow (perm)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Peak-hour factor, PHF	131	326	388	140	180	110	411	933	369	302	184	180
Adj. Flow (vph)	0	0	302	0	26	0	0	0	241	0	0	128
RTOR Reduction (vph)	131	326	66	140	264	0	411	933	128	302	184	32
Lane Group Flow (vph)	Prot	custom	custom	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Turn Type	7	4	4	3	8	5	2	2	1	6	6	6
Protected Phases	8.8	14.3	14.3	11.7	17.2	22.0	27.8	27.8	10.4	16.2	16.2	16.2
Actuated Green, G (s)	8.8	14.3	14.3	11.7	17.2	22.0	27.8	27.8	10.4	16.2	16.2	16.2
Effective Green, g (s)	0.11	0.18	0.18	0.15	0.21	0.27	0.35	0.35	0.13	0.20	0.20	0.20
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (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
Vehicle Extension (s)	194	497	282	258	377	486	1227	549	445	715	320	320
Lane Grp Cap (vph)	c0.07	0.12	0.04	0.08	c0.15	c0.23	c0.26	0.08	0.09	0.05	0.02	0.02
v/s Ratio Prot	0.88	0.66	0.23	0.54	0.70	0.85	0.76	0.23	0.68	0.26	0.10	0.10
v/s Ratio Perm	34.3	30.7	28.2	31.8	29.1	27.5	23.2	18.6	33.3	26.9	28.1	28.1
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	8.9	3.1	0.4	2.3	5.8	12.8	2.8	0.2	4.1	0.2	0.1	0.1
Incremental Delay, d2	43.3	33.8	28.7	34.1	34.9	40.3	26.1	18.8	37.4	27.1	26.2	26.2
Delay (s)	D	C	C	C	C	D	C	B	D	C	C	C
Level of Service												
Approach Delay (s)				34.6			27.9			31.7		
Approach LOS				C			C			C		
Intersection Summary												
HCM Average Control Delay				30.6					C			
HCM Volume to Capacity ratio				0.75								
Actuated Cycle Length (s)				80.2					12.0			
Intersection Capacity Utilization				65.4%					C			
Analysis Period (min)				15								
c Critical Lane Group												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBT2	SSR
Lane Configurations	935	0	221	0	0	0	0	0	557	213	358	258
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	0.95	0.95	1.00	0.85	1.00	0.96	1.00	0.95	1.00	0.95	1.00	1.00
Lane Util. Factor	1.00	1.00	0.85	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Flt Protected	1681	1681	1583	1681	1681	1583	3409	3409	3433	3539	3433	3539
Satd. Flow (prot)	0.95	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Flt Permitted	1681	1681	1583	1681	1681	1583	3409	3409	3433	3539	3433	3539
Satd. Flow (perm)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Peak-hour factor, PHF	1039	0	246	0	0	0	0	0	730	237	398	287
Adj. Flow (vph)	0	0	160	0	0	0	0	0	48	0	0	0
RTOR Reduction (vph)	519	520	86	0	0	0	0	0	919	0	398	287
Lane Group Flow (vph)	Split	4	4	Prot	4	4	2	2	1	6	6	6
Turn Type	22.2	22.2	22.2	22.2	22.2	22.2	20.3	20.3	9.0	33.3	33.3	33.3
Protected Phases	22.2	22.2	22.2	22.2	22.2	22.2	20.3	20.3	9.0	33.3	33.3	33.3
Actuated Green, G (s)	0.35	0.35	0.35	0.35	0.35	0.35	0.32	0.32	0.14	0.52	0.52	0.52
Effective Green, g (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
Actuated g/C Ratio	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Clearance Time (s)	588	588	553	588	588	553	1090	1090	487	1856	1856	1856
Vehicle Extension (s)	0.31	c0.31	0.05	0.31	c0.31	0.05	c0.27	c0.27	c0.12	0.08	0.08	0.08
Lane Grp Cap (vph)	0.88	0.88	0.16	0.88	0.88	0.16	0.84	0.84	0.82	0.15	0.15	0.15
v/s Ratio Prot	19.4	19.4	14.2	19.4	19.4	14.2	20.1	20.1	26.5	7.8	7.8	7.8
v/s Ratio Perm	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay, d1	14.6	14.7	0.1	14.6	14.7	0.1	6.1	6.1	10.2	0.0	0.0	0.0
Progression Factor	34.0	34.2	14.3	34.0	34.2	14.3	26.2	26.2	36.7	7.9	7.9	7.9
Incremental Delay, d2	C	C	B	C	C	B	C	C	D	A	A	A
Delay (s)												
Level of Service												
Approach Delay (s)							26.2			24.6		
Approach LOS							C			C		
Intersection Summary												
HCM Average Control Delay				27.6					C			
HCM Volume to Capacity ratio				0.86								
Actuated Cycle Length (s)				63.5					12.0			
Intersection Capacity Utilization				71.1%					C			
Analysis Period (min)				15								
c Critical Lane Group												

Movement	SEL	SET	ISER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	131	470	44	94	417	412	53	132	107	237	54	67
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.97	1.00	0.95
Lane Util. Factor	1.00	0.99	1.00	0.93	1.00	0.93	1.00	0.93	1.00	0.92	1.00	0.95
Flt	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Flt Protected	1770	3494	1770	3275	1770	3275	1770	1738	3433	1708	3433	1708
Satd. Flow (prot)	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Flt Permitted	1770	3494	1770	3275	1770	3275	1770	1738	3433	1708	3433	1708
Satd. Flow (perm)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Peak-hour factor, PHF	146	522	49	104	463	458	59	147	119	263	60	74
Adj. Flow (vph)	0	10	0	0	272	0	0	46	0	0	0	52
RTOR Reduction (vph)	146	561	0	104	649	0	59	220	0	263	82	0
Lane Group Flow (vph)	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Turn Type	1	6	5	2	7	4	3	8				
Protected Phases	6.1	17.7	5.0	16.6	4.6	13.8	8.8	18.0				
Permitted Phases	6.1	17.7	5.0	16.6	4.6	13.8	8.8	18.0				
Actuated Green, G (s)	0.10	0.29	0.08	0.27	0.08	0.23	0.14	0.29				
Effective Green, g (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Actuated g/C Ratio	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0				
Clearance Time (s)	176	1009	144	887	133	391	493	502				
Vehicle Extension (s)	c0.08	0.16	0.06	c0.20	0.03	c0.13	c0.08	0.05				
Lane Grp Cap (vph)	0.83	0.56	0.72	0.73	0.44	0.56	0.53	0.16				
v/s Ratio Prot	27.1	18.5	27.5	20.3	27.1	21.1	24.3	16.1				
v/s Ratio Perm	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Uniform Delay, d1	28.4	0.7	16.3	3.1	2.4	1.8	1.1	0.2				
Progression Factor	53.5	19.1	43.8	23.5	29.5	22.9	26.5	16.2				
Incremental Delay, d2	D	B	D	C	C	C	C	B				
Delay (s)	26.1	C	25.5	C	24.1	C	22.3	C				
Level of Service	C											
Approach Delay (s)												
Approach LOS												
Intersection Summary												
HCM Average Control Delay	25.0											
HCM Volume to Capacity ratio	0.65											
Actuated Cycle Length (s)	61.3											
Intersection Capacity Utilization	65.6%											
Analysis Period (min)	15											
c Critical Lane Group												

Movement	WBL	WBR	SEL	SET	NWT	NWR	NWB2	SWL	SWR
Lane Configurations	0	0	277	508	640	0	196	151	263
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	0.97	0.95	1.00	0.95	1.00	0.95	1.00	0.97	1.00
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.85	1.00	0.85	1.00
Flt	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Flt Protected	3433	3539	3539	3433	3539	3433	3539	3433	3539
Satd. Flow (prot)	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Flt Permitted	3433	3539	3539	3433	3539	3433	3539	3433	3539
Satd. Flow (perm)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Peak-hour factor, PHF	0	0	308	564	711	0	218	168	292
Adj. Flow (vph)	0	0	0	0	0	0	136	0	208
RTOR Reduction (vph)	0	0	0	0	0	0	82	168	84
Lane Group Flow (vph)	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Turn Type	5	2	6	4					
Protected Phases	4.1	22.8	14.7	14.7	8.2	8.2			
Permitted Phases	4.1	22.8	14.7	14.7	8.2	8.2			
Actuated Green, G (s)	0.11	0.58	0.38	0.38	0.21	0.21			
Effective Green, g (s)	4.0	4.0	4.0	4.0	4.0	4.0			
Actuated g/C Ratio	3.0	3.0	3.0	3.0	3.0	3.0			
Clearance Time (s)	361	2089	1334	597	722	333			
Vehicle Extension (s)	c0.09	0.16	c0.20	0.05	c0.05	0.05			
Lane Grp Cap (vph)	0.85	0.27	0.53	0.14	0.23	0.25			
v/s Ratio Prot	17.2	4.0	9.5	6.0	12.8	12.8			
v/s Ratio Perm	1.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay, d1	17.4	0.1	0.4	0.1	0.2	0.4			
Progression Factor	34.6	4.1	9.9	8.1	13.0	13.2			
Incremental Delay, d2	C	A	A	A	B	B			
Delay (s)	26.1	C	25.5	C	24.1	C			
Level of Service	C								
Approach Delay (s)									
Approach LOS									
Intersection Summary									
HCM Average Control Delay	12.3								
HCM Volume to Capacity ratio	0.50								
Actuated Cycle Length (s)	39.0								
Intersection Capacity Utilization	40.6%								
Analysis Period (min)	15								
c Critical Lane Group									

HCM Signalized Intersection Capacity Analysis
35: SR-56 EB Ramps & Carmel Country Road

Near Term + Project (Phase 1 & 2) PM

3/2/2012

Movement	EBL2	EBL	EBR	SEL	SET	SER	NWL	NWT	NWR	SWL	SWR	
Lane Configurations	EBL2	EBL	EBR	SEL	SET	SER	NWL	NWT	NWR	SWL	SWR	
Volume (vph)	411	0	248	284	366	0	0	413	263	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.95	0.95	1.00	0.97	0.95	1.00	0.95	1.00	0.95	1.00	0.85	
Flt Protected	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Satd. Flow (prot)	1681	1681	1583	3433	3539	3539	3539	3539	1583	1583	1583	
Flt Permitted	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Satd. Flow (perm)	1681	1681	1583	3433	3539	3539	3539	3539	1583	1583	1583	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	457	0	276	316	429	0	0	459	292	0	0	
RTOR Reduction (vph)	0	0	200	0	0	0	0	0	205	0	0	
Lane Group Flow (vph)	228	229	76	316	429	0	0	459	87	0	0	
Turn Type	Split	Prot	Prot	Prot	6			2	2			
Protected Phases	4	4	4	1	6			2	2			
Permitted Phases	11.2	11.2	11.2	5.2	21.3			12.1	12.1			
Actuated Green, G (s)	11.2	11.2	11.2	5.2	21.3			12.1	12.1			
Effective Green, g (s)	0.28	0.28	0.28	0.13	0.53			0.30	0.30			
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0			4.0	4.0			
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0			
Vehicle Extension (s)	465	465	438	441	1861			1057	473			
Lane Grp Cap (vph)	0.14	c0.14	0.05	c0.09	0.12			c0.13	0.06			
v/s Ratio Prot	0.49	0.49	0.17	0.72	0.23			0.43	0.18			
v/s Ratio Perm	12.3	12.3	11.1	16.9	5.2			11.4	10.5			
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00			1.00	1.00			
Progression Factor	0.8	0.8	0.2	5.5	0.1			0.3	0.2			
Incremental Delay, d2	13.1	13.1	11.3	22.4	5.2			11.7	10.7			
Delay (s)	B	B	B	C	A			B	B			
Level of Service	B	B	B	C	A			B	B			
Approach Delay (s)	12.4			12.5	B			11.3				
Approach LOS	B			B				B				
Intersection Summary												
HCM Average Control Delay	12.1				HCM Level of Service							
HCM Volume to Capacity ratio	0.51											
Actuated Cycle Length (s)	40.5				Sum of lost time (s)				12.0			
Intersection Capacity Utilization	40.3%				ICU Level of Service				A			
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

Synchro 7 - Report
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ALL-WAY STOP CONTROL ANALYSIS											
General Information				Site Information							
Analyst	Jacob Swinn	Intersection	Carmel Creek Rd/Del Mar Trail	Agency/Co.	USAI	Jurisdiction	City of San Diego	Analysis Year	2010		
Date Performed	9/16/2010										
Analysis Time Period	36 NT+P PM (Phase 1&2)										
Project ID 002407 - San Diego Corporate Center Lots											
East/West Street: Del Mar Trail				North/South Street: Carmel Creek Road							
Volume Adjustments and Site Characteristics											
Approach	Eastbound				Westbound				Southbound		
Movement	L	L	T	R	L	L	T	R	L	L	R
Volume (veh/h)	5	5	5	4	57	12	10	10			
%Thrus Left Lane											
Approach	Northbound				Southbound				Southbound		
Movement	L	L	T	R	L	L	T	R	L	L	R
Volume (veh/h)	12	778	103	15	440	10	10	10			
%Thrus Left Lane	50			50							
Configuration	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2	L1
PHF	LTR	LTR	LTR	TR	TR	TR	LT	TR	LT	TR	TR
Flow Rate (veh/h)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
% Heavy Vehicles	2	2	2	2	2	2	2	2	2	2	2
No. Lanes	1		1		2	2	2	2	2	2	2
Geometry Group	2		2		5	5	5	5	5	5	5
Duration, T	0.25										
Saturation Headway Adjustment Worksheet											
Prop. Left Turns	0.4		0.7		0.0	0.0	0.0	0.0	0.1		0.0
Prop. Right Turns	0.3		0.1		0.0	0.0	0.2	0.0	0.0		0.0
Prop. Heavy Vehicle	0.0		0.0				0.0	0.0	0.0		0.0
NLT-adj	0.2		0.2		0.2	0.2	0.5	0.5	0.5		0.5
hRT-adj	-0.6		-0.6		-0.6	-0.6	-0.7	-0.7	-0.7		-0.7
hHV-adj	1.7		1.7		1.7	1.7	1.7	1.7	1.7		1.7
hadj, computed	-0.1		0.1		0.0	0.0	-0.1	0.1	0.1		0.0
Departure Headway and Service Time											
hdi, initial value (s)	3.20		3.20		3.20	3.20	3.20	3.20	3.20		3.20
x, initial	0.01		0.08		0.40	0.49	0.23	0.23	0.23		0.23
hdi, final value (s)	6.76		6.65		5.54	5.38	6.10	6.10	6.04		6.04
x, final value	0.03		0.16		0.68	0.82	0.44	0.44	0.43		0.43
Move-up time, m (s)					2.3			2.3			2.3
Service Time, Ls (s)	4.8		4.6		3.2	3.1	3.1	3.8	3.7		3.7
Capacity and Level of Service											
Eastbound				Westbound				Southbound			
L1	L2	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	264		337		645	666	510	510	505		505
Delay (s/veh)	9.95		10.91		19.39	27.37	13.51	13.51	13.17		13.17
LOS	A		B		C	D	B	B	B		B
Approach: Delay (s/veh)					23.78		13.34				13.34
LOS					C						B
Intersection Delay (s/veh)					19.62						
Intersection LOS					C						