

APPENDIX G

NEAR TERM WITHOUT PROJECT SYNCHRO WORKSHEETS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SEB
Lane Configurations	2	378	370	302	507	8	390	5	150	1	1	4
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	0.95	1.00	0.95	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.98	0.98
Flt Protected	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 (prot)	1770	1863	1583	1770	1858	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	0.95	1.00	0.98	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	411	336	563	9	433	6	167	1	1	1
RTOR Reduction (vph)	0	0	224	0	0	0	0	0	119	0	1	0
Lane Group Flow (vph)	2	420	187	336	572	0	0	439	48	0	2	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Spill	Spill	Prot	Prot	Spill	Spill	Spill
Protected Phases	7	4	4	3	8	2	2	2	2	6	6	6
Permitted Phases	0.8	25.7	25.7	19.1	44.0	25.1	25.1	25.1	25.1	1.1	1.1	1.1
Actuated Green, G (s)	0.8	25.7	25.7	19.1	44.0	25.1	25.1	25.1	25.1	1.1	1.1	1.1
Effective Green, g (s)	0.01	0.30	0.30	0.22	0.51	0.29	0.29	0.29	0.29	0.01	0.01	0.01
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)	16	550	488	389	940	512	457	0.03	0.03	0.00	0.00	0.00
Lane Grp Cap (vph)	0.00	c0.23	0.12	c0.19	0.31	c0.25	0.03					
vis Ratio Prot	0.12	0.76	0.40	0.86	0.61	0.86	0.11					
vis Ratio Perm	42.8	27.9	24.5	32.7	15.3	29.3	22.7					
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00					
Progression Factor	3.5	6.2	0.6	17.7	1.1	13.3	0.1					
Incremental Delay, d2	46.3	34.1	25.0	50.4	16.5	42.6	22.8					
Delay (s)	D	C	C	D	B	D	C					
Level of Service	D	C	C	D	B	D	C					
Approach Delay (s)	29.7				29.0		37.1			44.3		
Approach LOS	C				C		D			D		
Intersection Summary												
HCM Average Control Delay	31.4											
HCM Volume to Capacity ratio	0.81											
Actuated Cycle Length (s)	87.0									16.0		
Intersection Capacity Utilization	75.2%									D		
Analysis Period (min)	15											
c Critical Lane Group												

Movement	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SEB
Lane Configurations	2	378	370	302	507	8	390	5
Volume (vph)	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
Total Lost time (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	1.00	0.95	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1858	1770	1775	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1858	1770	1775	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2	420	411	336	563	9	433	6
RTOR Reduction (vph)	0	0	224	0	0	0	119	0
Lane Group Flow (vph)	2	420	187	336	572	0	0	439
Turn Type	Prot	Prot	Prot	Prot	Prot	Spill	Spill	Spill
Protected Phases	7	4	4	3	8	2	2	2
Permitted Phases	0.8	25.7	25.7	19.1	44.0	25.1	25.1	25.1
Actuated Green, G (s)	0.8	25.7	25.7	19.1	44.0	25.1	25.1	25.1
Effective Green, g (s)	0.01	0.30	0.30	0.22	0.51	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
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	16	550	488	389	940	512	457	0.03
Lane Grp Cap (vph)	0.00	c0.23	0.12	c0.19	0.31	c0.25	0.03	
vis Ratio Prot	0.12	0.76	0.40	0.86	0.61	0.86	0.11	
vis Ratio Perm	42.8	27.9	24.5	32.7	15.3	29.3	22.7	
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Progression Factor	3.5	6.2	0.6	17.7	1.1	13.3	0.1	
Incremental Delay, d2	46.3	34.1	25.0	50.4	16.5	42.6	22.8	
Delay (s)	D	C	C	D	B	D	C	
Level of Service	D	C	C	D	B	D	C	
Approach Delay (s)	29.7				29.0		37.1	
Approach LOS	C				C		D	
Intersection Summary								
HCM Average Control Delay	31.4							
HCM Volume to Capacity ratio	0.81							
Actuated Cycle Length (s)	87.0							
Intersection Capacity Utilization	75.2%							
Analysis Period (min)	15							
c Critical Lane Group								

Movement	WBL	WBL	WBL	NBL	NBL	NBL	SBL	SBL	SBL
Lane Configurations	W	W	W	T	T	T	T	T	T
Volume (vph)	87	7	0	456	52	1900	1900	1900	823
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	4.0	4.0	4.0
Lane Util. Factor	0.97	0.99	0.98	1.00	1.00	1.00	1.00	1.00	0.95
Fit	0.96	0.96	0.96	1.00	0.95	1.00	0.95	1.00	0.95
Fit Protected	0.96	0.96	0.96	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	3415	3415	3415	3485	1770	3539	1770	3539	3485
Fit Permitted	0.96	0.96	0.96	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (perm)	3415	3415	3415	3485	1770	3539	1770	3539	3485
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)	97	8	0	507	58	3	914	0	914
RTOR Reduction (vph)	7	0	0	14	0	0	0	0	0
Lane Group Flow (vph)	98	0	0	551	0	3	914	0	914
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	8	5	2	1	6				
Permitted Phases									
Actuated Green, G (s)	3.2	14.7	0.5	19.2					
Effective Green, g (s)	3.2	14.7	0.5	19.2					
Actuated g/C Ratio	0.11	0.48	0.02	0.63					
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)	359	1885	29	2235					
v/s Ratio Prot	c0.03	0.16	0.00	c0.26					
v/s Ratio Perm									
v/c Ratio	0.27	0.33	0.10	0.41					
Uniform Delay, d1	12.5	4.8	14.7	2.8					
Progression Factor	1.00	1.00	1.00	1.00					
Incremental Delay, d2	0.4	0.1	1.6	0.1					
Delay (s)	12.9	4.9	16.3	2.9					
Level of Service	B	A	B	A					
Approach Delay (s)	12.9	4.9							
Approach LOS	B	A							
Intersection Summary									
HCM Average Control Delay	4.3								
HCM Volume to Capacity ratio	0.39								
Actuated Cycle Length (s)	30.4								
Intersection Capacity Utilization	32.7%								
Analysis Period (min)	15								
c Critical Lane Group									

Movement	EBL	EBL	EBL	WBL	WBL	WBL	NBL	NBL	NBL
Lane Configurations	T	T	T	T	T	T	T	T	T
Volume (vph)	24	114	20	56	84	153	6	309	13
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	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
Fit	1.00	0.98	1.00	0.90	1.00	0.90	1.00	0.95	1.00
Fit Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	1821	1770	1682	1770	1682	1770	3518	1770
Fit Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	1821	1770	1682	1770	1682	1770	3518	1770
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)	27	127	22	62	93	170	7	343	14
RTOR Reduction (vph)	0	11	0	0	113	0	0	5	0
Lane Group Flow (vph)	27	138	0	62	150	0	7	352	0
Turn Type	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					
Effective Green, g (s)	0.7	10.7	2.3	12.3					
Actuated g/C Ratio	0.01	0.22	0.05	0.25					
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)	25	385	83	420					
v/s Ratio Prot	0.02	0.08	c0.04	c0.09					
v/s Ratio Perm									
v/c Ratio	1.08	0.35	0.75	0.36					
Uniform Delay, d1	24.3	16.4	23.2	15.2					
Progression Factor	1.00	1.00	1.00	1.00					
Incremental Delay, d2	205.9	0.5	30.2	0.5					
Delay (s)	230.2	16.9	53.4	15.8					
Level of Service	F	B	D	B					
Approach Delay (s)		49.6		22.9					
Approach LOS		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									

HCM Signalized Intersection Capacity Analysis
5: Quarter Mile Road & El Camino Real

Near Term w/o Project AM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	5	85	72	87	141	37	41	327	54	42	750	7
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	0.97	1.00	1.00	0.98	1.00	1.00	1.00	1.00
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	1805	1770	3464	1770	3464	1770	3534	3534
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	1805	1770	3464	1770	3464	1770	3534	3534
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)	6	94	80	97	157	41	46	363	60	47	833	8
RTOR Reduction (vph)	0	0	65	0	17	0	0	20	0	0	1	0
Lane Group Flow (vph)	6	94	15	97	181	0	46	403	0	47	840	0
Turn Type	Prot	4	4	Prot	3	8	Prot	5	2	Prot	1	6
Protected Phases	7	4	4	3	8	3	5	2	2	1	6	6
Permitted Phases	0.6	8.7	8.7	3.5	11.6	1.3	17.8	1.3	17.8	1.3	17.8	1.3
Actuated Green, G (s)	0.6	8.7	8.7	3.5	11.6	1.3	17.8	1.3	17.8	1.3	17.8	1.3
Effective Green, g (s)	0.01	0.18	0.18	0.07	0.25	0.03	0.38	0.03	0.38	0.03	0.38	0.03
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)	22	343	291	131	443	49	1304	49	1304	49	1330	49
Lane Grp Cap (vph)	0.00	0.05	0.01	c0.05	c0.10	0.03	0.12	0.03	0.12	c0.03	c0.24	0.03
v/s Ratio Prot	0.27	0.27	0.05	0.74	0.41	0.94	0.31	0.96	0.63	0.96	0.63	0.96
v/s Ratio Perm	23.1	16.6	15.9	21.5	15.0	23.0	10.4	23.0	10.4	23.0	12.1	23.0
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	6.6	0.4	0.1	20.0	0.6	104.4	0.1	111.9	1.0	111.9	1.0	111.9
Incremental Delay, d2	29.8	17.0	16.0	41.4	15.6	127.4	10.5	134.9	13.1	134.9	13.1	134.9
Delay (s)	C	B	B	D	B	F	B	F	B	F	B	B
Level of Service	C	B	B	D	B	F	B	F	B	F	B	B
Approach Delay (s)	17.0			24.1		22.0		22.0		19.5		19.5
Approach LOS	B			C		C		C		B		B
Intersection Summary												
HCM Average Control Delay	20.6											
HCM Volume to Capacity ratio	0.60											
Actuated Cycle Length (s)	47.3											
Intersection Capacity Utilization	45.8%											
Analysis Period (min)	15											
c - Critical Lane Group												

Baseline

Synchro 7 - Report
Page 5

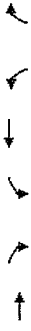
HCM Signalized Intersection Capacity Analysis
6: Del Mar Heights Road & Mango Drive

Near Term w/o Project AM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	96	855	24	84	876	197	70	58	60	433	23	84
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	1.00	0.85	1.00	0.95	0.95	0.95
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.97	1.00	0.95	0.97	0.97
Flt Protected	1770	5064	1770	1770	3442	1813	1583	1681	1637	1583	1681	1637
Satd. Flow (prot)	0.95	1.00	0.95	1.00	0.95	1.00	0.97	1.00	0.95	0.97	1.00	0.97
Flt Permitted	1770	5064	1770	1770	3442	1813	1583	1681	1637	1583	1681	1637
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	107	950	27	93	973	219	78	64	67	481	26	93
Adj. Flow (vph)	0	3	0	0	20	0	0	0	58	0	18	0
RTOR Reduction (vph)	107	974	0	93	1172	0	0	142	9	303	279	0
Lane Group Flow (vph)	Prot	7	4	Prot	3	8	Prot	2	2	6	6	6
Turn Type	7	4	4	3	8	3	2	2	2	6	6	6
Protected Phases	6.7	31.1	7.5	31.9	31.9	7.5	31.9	11.8	11.8	17.4	17.4	17.4
Permitted Phases	6.7	31.1	7.5	31.9	31.9	7.5	31.9	11.8	11.8	17.4	17.4	17.4
Actuated Green, G (s)	0.08	0.37	0.09	0.38	0.38	0.14	0.14	0.14	0.14	0.21	0.21	0.21
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)	142	1879	158	1310	1310	255	223	349	340	c0.18	0.17	0.17
Vehicle Extension (s)	c0.06	0.19	0.05	c0.34	c0.34	c0.08	0.01	c0.18	0.01	c0.18	0.17	0.17
Lane Grp Cap (vph)	0.75	0.52	0.59	0.89	0.89	0.56	0.04	0.87	0.82	0.87	0.82	0.82
v/s Ratio Prot	37.7	20.5	36.7	24.4	24.4	33.6	31.1	32.1	31.7	32.1	31.7	31.7
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	20.0	0.2	5.5	8.2	8.2	2.6	0.1	19.8	14.3	19.8	14.3	14.3
Progression Factor	57.8	20.8	42.2	32.5	32.5	36.2	31.2	51.9	46.0	36.2	31.2	31.2
Incremental Delay, d2	E	C	D	C	C	D	C	D	D	D	D	D
Delay (s)	E	C	D	C	C	D	C	D	D	D	D	D
Level of Service	E	C	D	C	C	D	C	D	D	D	D	D
Approach Delay (s)	24.4		33.2			34.6		34.6		48.9		48.9
Approach LOS	C		C			C		C		D		D
Intersection Summary												
HCM Average Control Delay	33.3											
HCM Volume to Capacity ratio	0.77											
Actuated Cycle Length (s)	83.8											
Intersection Capacity Utilization	67.6%											
Analysis Period (min)	15											
c - Critical Lane Group												

Baseline

Synchro 7 - Report
Page 6



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Volume (veh/h)	1361	55	0	1367	0	110	0	110
Sign Control	Free	Free	Free	Free	Free	Stop	0%	0%
Grade	0%	0%	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1512	61	0	1519	0	122	0	122
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn lane (veh)								
Median type	None			None				
Median storage (veh)								
Upstream signal (ft)	575			607			0.91	0.87
pX, platoon unblocked							2302	535
vC, conflicting volume				1573				
vC1, stage 1 cont vol								
vC2, stage 2 cont vol								
vC3, unblocked vol								
IC, single (s)				1141			1387	0
IC, 2 stage (s)				4.1			6.8	6.9
IF (s)				2.2			3.5	3.3
p0 queue free %				100			100	87
dM capacity (veh/h)				530			122	945
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	605	605	364	759	759	122		
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	61	0	0	122		
cSH	1700	1700	1700	1700	1700	945		
Volume to Capacity	0.36	0.36	0.21	0.45	0.45	0.13		
Queue Length 95th (ft)	0	0	0	0	0	11		
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.4		
Lane LOS						A		
Approach Delay (s)	0.0			0.0		9.4		
Approach LOS						A		
Intersection Summary								
Average Delay				0.4				
Intersection Capacity Utilization				41.1%			ICU Level of Service	A
Analysis Period (min)				15				

Baseline



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Volume (vph)	0	685	1022	0	927	336	0	336
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3	6.3		5.6	5.6		5.6
Lane Util. Factor		0.95	0.95		0.97	0.91		0.91
Fit		1.00	1.00		0.99	0.85		0.85
Fit Protected		1.00	1.00		0.95	1.00		1.00
Satd. Flow (prot)		3539	3539		3429	1441		1441
Fit Permitted		1.00	1.00		0.95	1.00		1.00
Satd. Flow (perm)		3539	3539		3429	1441		1441
Peak-hour factor, PHF		0.90	0.90		0.90	0.90		0.90
Adj. Flow (vph)		761	1136		1030	373		373
RTOR Reduction (vph)		0	0		0	3		43
Lane Group Flow (vph)		761	1136		1064	293		293
Turn Type						Perm		
Protected Phases		2.6	6.2		4			
Permitted Phases						4		
Actuated Green, G (s)		42.2	42.2		25.6	25.6		25.6
Effective Green, g (s)		42.2	42.2		25.6	25.6		25.6
Actuated g/C Ratio		0.53	0.53		0.32	0.32		0.32
Clearance Time (s)					5.6	5.6		5.6
Vehicle Extension (s)					3.0	3.0		3.0
Lane Grp Cap (vph)		1874	1874		1101	463		463
v/s Ratio Prot		0.22	0.32		0.31			
v/s Ratio Perm		0.41	0.61		0.97	0.63		0.20
v/c Ratio		11.2	13.0		26.6	23.1		23.1
Uniform Delay, d1		1.00	1.00		1.00	1.00		1.00
Progression Factor		0.1	0.6		19.3	2.8		2.8
Incremental Delay, d2		11.4	13.6		45.9	25.9		25.9
Delay (s)		B	B		D	C		C
Level of Service		B	B		D	D		D
Approach Delay (s)		11.4	13.6		41.1			
Approach LOS		B	B		D			
Intersection Summary								
HCM Average Control Delay		24.8					HCM Level of Service	C
HCM Volume to Capacity ratio		0.74						
Actuated Cycle Length (s)		79.7					Sum of lost time (s)	11.9
Intersection Capacity Utilization		114.8%					ICU Level of Service	H
Analysis Period (min)		15						
c Critical Lane Group								

Baseline

HCM Signalized Intersection Capacity Analysis
9: Del Mar Heights Road & I-15 NB Ramps

HCM Signalized Intersection Capacity Analysis
10: Del Mar Heights Road & High Bluff Drive

Near Term w/o Project AM
3/2/2012

Near Term w/o Project AM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEB	SEB	SEB
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEB	SEB	SEB
Volume (vph)	231	1302	0	0	1468	919	384	59	914	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	0.91	0.91	0.91	0.95	0.91	0.95	0.95	0.95	0.95	0.95
Flt	1.00	1.00	1.00	1.00	1.00	0.85	1.00	0.88	0.85	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3433	3539	5085	5085	5085	1583	1681	1484	1504	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00
Satd. Flow (perm)	3433	3539	5085	5085	5085	1583	1681	1484	1504	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)	257	1447	0	0	1631	1021	427	66	1016	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	14	14	0	0	0
Lane Group Flow (vph)	257	1447	0	0	1631	581	384	552	545	0	0	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	5	2	6	6	6	8	8	8	8	6	6	6
Permitted Phases	10.4	63.4	49.0	49.0	49.0	48.6	48.6	48.6	48.6	12.7	17.4	17.4
Actuated Green, G (s)	10.4	63.4	49.0	49.0	49.0	48.6	48.6	48.6	48.6	12.7	17.4	17.4
Effective Green, g (s)	0.09	0.53	0.41	0.41	0.41	0.40	0.40	0.40	0.40	0.14	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)	298	1870	2076	646	681	601	609	609	609	254	366	311
Lane Grp Cap (vph)	0.07	c0.41	0.32	c0.37	0.23	c0.37	0.36	0.36	0.36	0.05	0.04	c0.13
v/s Ratio Prot	0.86	0.77	0.79	0.90	0.56	0.92	0.89	0.89	0.89	0.35	0.18	0.68
v/s Ratio Perm	54.1	22.6	30.9	33.2	27.5	33.8	33.3	33.3	33.3	34.2	29.6	33.0
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	21.7	3.2	3.1	17.8	1.1	19.0	15.5	15.5	15.5	0.9	0.2	5.8
Incremental Delay, d2	75.8	25.8	34.0	51.0	28.6	52.8	48.9	48.9	48.9	35.1	29.8	38.8
Delay (s)	E	C	C	D	C	D	D	D	D	D	C	D
Level of Service	E	C	C	D	C	D	D	D	D	D	C	D
Approach Delay (s)	33.3	33.3	40.6	40.6	40.6	45.2	45.2	45.2	45.2	36.9	36.9	36.9
Approach LOS	C	C	D	D	D	D	D	D	D	D	D	D
Intersection Summary												
HCM Average Control Delay	39.6											
HCM Volume to Capacity ratio	0.91											
Actuated Cycle Length (s)	120.0											
Intersection Capacity Utilization	95.0%											
Analysis Period (min)	15											
c Critical Lane Group												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEB	SEB	SEB
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEB	SEB	SEB
Volume (vph)	111	1401	694	95	1864	61	201	10	13	81	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	1.00	0.97	0.95	1.00	1.00	1.00	1.00
Flt	1.00	1.00	0.85	1.00	1.00	1.00	1.00	0.92	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1770	3433	3242	3242	1770	1863	1583
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)	1770	5085	1583	1770	5085	1770	3433	3242	3242	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	1557	771	106	2071	68	223	11	14	90	66	347
RTOR Reduction (vph)	0	0	372	0	4	0	0	12	0	0	0	136
Lane Group Flow (vph)	123	1557	399	106	2135	0	223	13	0	90	66	211
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	4	3	8	8	5	2	2	1	6	6
Permitted Phases	8.0	41.3	41.3	6.7	40.0	40.0	7.1	11.8	11.8	12.7	17.4	17.4
Actuated Green, G (s)	8.0	41.3	41.3	6.7	40.0	40.0	7.1	11.8	11.8	12.7	17.4	17.4
Effective Green, g (s)	0.09	0.47	0.47	0.08	0.45	0.45	0.08	0.13	0.13	0.14	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)	160	2373	739	134	2287	275	432	432	432	254	366	311
Lane Grp Cap (vph)	c0.07	0.31	0.25	0.06	c0.42	c0.05	0.00	0.00	0.00	0.05	0.04	c0.13
v/s Ratio Prot	0.77	0.66	0.54	0.79	0.93	0.81	0.81	0.03	0.03	0.35	0.18	0.68
v/s Ratio Perm	39.3	18.1	16.8	40.2	23.0	40.0	40.0	33.4	33.4	34.2	29.6	33.0
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	19.6	0.7	0.8	26.4	7.8	16.4	0.0	0.0	0.0	0.9	0.2	5.8
Incremental Delay, d2	59.0	18.8	17.6	66.6	30.8	56.4	33.4	33.4	33.4	35.1	29.8	38.8
Delay (s)	E	B	B	E	C	E	C	C	C	D	C	D
Level of Service	E	B	B	E	C	E	C	C	C	D	C	D
Approach Delay (s)	20.4	20.4	32.5	32.5	32.5	54.1	54.1	54.1	54.1	36.9	36.9	36.9
Approach LOS	C	C	C	C	C	D	D	D	D	D	D	D
Intersection Summary												
HCM Average Control Delay	28.5											
HCM Volume to Capacity ratio	0.84											
Actuated Cycle Length (s)	88.5											
Intersection Capacity Utilization	72.4%											
Analysis Period (min)	15											
c Critical Lane Group												

Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑↑	↑	↑↑↑	↑↑↑	↑	↑	
Volume (vph)	100	5	0	100	0	5	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0		4.0		4.0	
Lane Util. Factor	0.91	1.00	0.91	1.00		1.00	
Flt	1.00	0.85	1.00	0.85		0.85	
Flt Protected	1.00	1.00	1.00	1.00		1.00	
Satd. Flow (prot)	5085	1583		5085		1611	
Flt Permitted	1.00	1.00		1.00		1.00	
Satd. Flow (perm)	5085	1583		5085		1611	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	109	5	0	109	0	5	
RTOR Reduction (vph)	0	3	0	0	0	3	
Lane Group Flow (vph)	109	2	0	109	0	2	
Turn Type	Perm						custom
Protected Phases	4						8
Permitted Phases	4						2
Actuated Green, G (s)	16.0	16.0		16.0		16.0	
Effective Green, g (s)	16.0	16.0		16.0		16.0	
Actuated g/C Ratio	0.40	0.40		0.40		0.40	
Clearance Time (s)	4.0	4.0		4.0		4.0	
Lane Grp Cap (vph)	2034	633		2034		644	
v/s Ratio Prot	60.02			0.02			
v/s Ratio Perm		0.00				0.00	
v/c Ratio	0.05	0.00		0.05		0.00	
Uniform Delay, d1	7.4	7.2		7.4		7.2	
Progression Factor	1.00	1.00		0.90		1.00	
Incremental Delay, d2	0.1	0.0		0.1		0.0	
Delay (s)	7.4	7.2		6.0		7.2	
Level of Service	A	A		A		A	
Approach Delay (s)	7.4			6.0		7.2	
Approach LOS	A			A		A	
Intersection Summary							
HCM Average Control Delay							A
HCM Volume to Capacity ratio							6.7
Actuated Cycle Length (s)							0.03
Intersection Capacity Utilization							40.0
Analysis Period (min)							13.3%
c Critical Lane Group							15

Baseline

Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑↑	↑	↑↑↑	↑↑↑	↑	↑	
Volume (vph)	100	5	0	100	0	5	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0		4.0		4.0	
Lane Util. Factor	0.91	1.00	0.91	1.00		1.00	
Flt	1.00	0.85	1.00	0.85		0.85	
Flt Protected	1.00	1.00	1.00	1.00		1.00	
Satd. Flow (prot)	5085	1583		5085		1611	
Flt Permitted	1.00	1.00		1.00		1.00	
Satd. Flow (perm)	5085	1583		5085		1611	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	109	5	0	109	0	5	
RTOR Reduction (vph)	0	3	0	0	0	3	
Lane Group Flow (vph)	109	2	0	109	0	2	
Turn Type	Perm						custom
Protected Phases	4						8
Permitted Phases	4						2
Actuated Green, G (s)	16.0	16.0		16.0		16.0	
Effective Green, g (s)	16.0	16.0		16.0		16.0	
Actuated g/C Ratio	0.40	0.40		0.40		0.40	
Clearance Time (s)	4.0	4.0		4.0		4.0	
Lane Grp Cap (vph)	2034	633		2034		644	
v/s Ratio Prot	60.02			0.02			
v/s Ratio Perm		0.00				0.00	
v/c Ratio	0.05	0.00		0.05		0.00	
Uniform Delay, d1	7.4	7.2		7.4		7.2	
Progression Factor	0.81	0.76		1.00		1.00	
Incremental Delay, d2	0.1	0.0		0.1		0.0	
Delay (s)	6.0	5.5		7.4		7.2	
Level of Service	A	A		A		A	
Approach Delay (s)	6.0			7.4		7.2	
Approach LOS	A			A		A	
Intersection Summary							
HCM Average Control Delay							A
HCM Volume to Capacity ratio							6.7
Actuated Cycle Length (s)							0.03
Intersection Capacity Utilization							40.0
Analysis Period (min)							13.3%
c Critical Lane Group							15

Baseline

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEB	SEB	SEB	SEB
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEB	SEB	SEB	SEB
Volume (vph)	220	883	388	206	1380	95	233	104	79	164	312	417	417
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	0.91
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	0.91
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	4854	3433	5036	3433	5036	3433	5085	1583	3433	4649	3433	4649
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	4854	3433	5036	3433	5036	3433	5085	1583	3433	4649	3433	4649
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)	244	992	431	229	1533	106	259	116	88	182	347	463	463
RTOR Reduction (vph)	0	95	0	9	0	0	0	0	72	0	149	0	0
Lane Group Flow (vph)	244	1328	0	229	1630	0	259	116	16	182	861	0	0
Turn Type	Prot	4	4	Prot	3	8	Prot	5	2	2	1	6	6
Protected Phases													
Permitted Phases													
Actuated Green, G (s)	7.0	25.7	7.8	26.5	7.8	26.5	7.2	14.0	14.0	11.7	18.5	18.5	18.5
Effective Green, g (s)	7.0	25.7	7.8	26.5	7.8	26.5	7.2	14.0	14.0	11.7	18.5	18.5	18.5
Actuated g/C Ratio	0.09	0.34	0.10	0.35	0.10	0.35	0.10	0.19	0.19	0.16	0.25	0.25	0.25
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)	320	1659	356	1775	356	1775	329	947	295	534	1144	1144	1144
v/s Ratio Prot	c0.07	0.27	0.07	c0.32	0.07	c0.32	c0.08	0.02	0.01	0.05	c0.14	c0.14	c0.14
v/s Ratio Perm													
v/c Ratio	0.76	0.80	0.64	0.92	0.64	0.92	0.79	0.12	0.06	0.34	0.88dr	0.88dr	0.88dr
Uniform Delay, d1	33.3	22.4	32.4	23.3	32.4	23.3	33.3	25.5	25.2	28.3	24.9	24.9	24.9
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	1.00
Incremental Delay, d2	10.3	2.9	4.0	8.0	4.0	8.0	11.8	0.1	0.1	0.4	0.7	0.7	0.7
Delay (s)	43.6	25.3	36.3	31.3	36.3	31.3	45.0	25.5	25.2	28.7	25.6	25.6	25.6
Level of Service	D	C	D	C	D	C	D	C	C	C	C	C	C
Approach Delay (s)	28.0			31.9			36.4				26.2		
Approach LOS	C			C			D				C		
Intersection Summary													
HCM Average Control Delay							29.9				C		
HCM Volume to Capacity ratio							0.73						
Actuated Cycle Length (s)							75.2				12.0		
Intersection Capacity Utilization							70.4%				C		
Analysis Period (min)							15						
dr Defacto Right Lane													
c Critical Lane Group													

Intersection Summary													
HCM Average Control Delay							22.9				C		
HCM Volume to Capacity ratio							0.74						
Actuated Cycle Length (s)							57.4				16.0		
Intersection Capacity Utilization							62.0%				B		
Analysis Period (min)							15						
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis
15: Del Mar Heights Road & Torrey Ridge Drive

Near Term w/o Project 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)	212	638	115	81	1023	216	79	156	11	56	62	128
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	1.00	1.00	1.00	1.00
Flt	1.00	0.96	1.00	1.00	0.97	1.00	1.00	0.99	1.00	1.00	0.90	1.00
Flt Protected	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	4969	1770	4952	1770	4952	1770	1845	1770	1674	1674	1674
Flt Permitted	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	4969	1770	4952	1770	4952	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	709	128	90	1137	240	88	173	12	62	69	143
RTOR Reduction (vph)	0	30	0	0	41	0	0	3	0	0	109	0
Lane Group Flow (vph)	236	807	0	90	1336	0	88	182	0	62	103	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	4	3	8	8	5	2	1	1	6	6
Permitted Phases	12.1	28.6	6.5	6.5	23.0	4.5	13.0	4.5	13.0	2.7	11.2	11.2
Effective Green, G (s)	12.1	28.6	6.5	6.5	23.0	4.5	13.0	4.5	13.0	2.7	11.2	11.2
Effective Green, g (s)	0.18	0.43	0.10	0.10	0.34	0.07	0.19	0.07	0.19	0.04	0.17	0.17
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)	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)	321	2127	172	172	1705	119	359	72	281	0.04	0.06	0.06
v/s Ratio Prot	c0.13	0.16	0.05	0.05	c0.27	c0.05	c0.10	0.04	0.06	0.04	0.06	0.06
v/s Ratio Perm	0.74	0.38	0.52	0.52	0.78	0.74	0.51	0.86	0.37	0.86	0.37	0.37
Uniform Delay, d1	25.8	13.0	28.7	28.7	19.7	30.6	24.0	31.9	24.7	31.9	24.7	24.7
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	8.5	0.1	2.9	2.9	2.4	21.2	1.1	60.9	0.8	60.9	0.8	0.8
Delay (s)	34.3	13.2	31.5	31.5	22.1	51.7	25.2	92.8	25.5	92.8	25.5	25.5
Level of Service	C	B	C	C	C	D	C	F	C	F	C	C
Approach Delay (s)	17.8	17.8	33.7	33.7	22.7	33.7	33.7	40.7	40.7	40.7	40.7	40.7
Approach LOS	B	B	C	C	C	C	C	D	D	D	D	D

Intersection Summary												
HCM Average Control Delay	23.6											
HCM Volume to Capacity ratio	0.67											
Actuated Cycle Length (s)	66.8											
Intersection Capacity Utilization	65.2%											
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

Synchro 7 - Report
Page 15

HCM Signalized Intersection Capacity Analysis
16: Del Mar Heights Road & Lansdale Drive

Near Term w/o Project 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)	149	562	35	67	1100	36	44	26	55	49	60	325
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	1.00	1.00	1.00	1.00
Flt	1.00	0.99	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	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	5040	1770	5061	1770	5061	1770	1673	1770	1627	1627	1627
Flt Permitted	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	5040	1770	5061	1770	5061	1770	1673	1770	1627	1627	1627
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)	166	624	39	74	1222	40	49	29	61	54	67	361
RTOR Reduction (vph)	0	9	0	0	5	0	0	50	0	0	270	0
Lane Group Flow (vph)	166	654	0	74	1257	0	49	40	0	54	158	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	4	3	8	8	5	2	1	1	6	6
Permitted Phases	8.1	24.6	3.7	3.7	20.2	2.4	10.2	2.4	10.2	2.4	10.2	10.2
Effective Green, G (s)	8.1	24.6	3.7	3.7	20.2	2.4	10.2	2.4	10.2	2.4	10.2	10.2
Effective Green, g (s)	0.14	0.43	0.07	0.07	0.36	0.04	0.18	0.04	0.18	0.04	0.18	0.18
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)	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)	252	2179	115	1797	0.04	c0.25	0.03	0.02	0.03	c0.10	c0.10	c0.10
v/s Ratio Prot	c0.09	0.13	0.64	0.70	0.65	0.13	0.65	0.13	0.65	0.13	0.65	0.65
v/s Ratio Perm	0.66	0.30	23.1	10.5	26.0	15.7	26.8	19.6	26.9	21.2	21.2	21.2
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	6.1	0.1	11.7	1.2	18.8	0.2	28.6	0.2	28.6	2.0	2.0	2.0
Incremental Delay, d2	29.2	10.6	37.6	17.0	45.4	19.8	55.5	23.3	55.5	23.3	23.3	23.3
Delay (s)	C	B	D	D	D	D	E	C	E	C	C	C
Level of Service	C	B	D	D	D	D	E	C	E	C	C	C
Approach Delay (s)	14.3	14.3	18.1	18.1	18.1	28.9	28.9	28.9	28.9	28.9	28.9	28.9
Approach LOS	B	B	C	C	C	C	C	C	C	C	C	C

Intersection Summary												
HCM Average Control Delay	19.0											
HCM Volume to Capacity ratio	0.65											
Actuated Cycle Length (s)	56.9											
Intersection Capacity Utilization	70.2%											
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

Synchro 7 - Report
Page 16

Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑↑	↑	↑↑↑	↑↑↑	↑↑↑	↑	
Volume (vph)	559	123	397	996	296	342	
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	0.91	0.97	1.00	1.00	
Frt	0.97	1.00	1.00	1.00	1.00	0.85	
Flt Protected	1.00	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	4947	1770	5085	3433	1583	1583	
Flt Permitted	1.00	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	4947	1770	5085	3433	1583	1583	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	621	137	441	1107	284	380	
RTOR Reduction (vph)	53	0	0	0	0	306	
Lane Group Flow (vph)	705	0	441	1107	284	74	
Turn Type	Prot	Prot	3	8	2	2	
Protected Phases	4						
Permitted Phases							
Actuated Green, G (s)	14.2	17.5	35.7	10.6	10.6	10.6	
Effective Green, g (s)	14.2	17.5	35.7	10.6	10.6	10.6	
Actuated g/C Ratio	0.26	0.32	0.66	0.20	0.20	0.20	
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)	1284	570	3343	670	309	309	
v/s Ratio Prot	c0.14	c0.25	0.22	c0.08	0.05		
v/s Ratio Perm							
v/c Ratio	0.54	0.77	0.33	0.42	0.24		
Uniform Delay, d1	17.3	16.6	4.1	19.2	18.4		
Progression Factor	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	0.5	6.5	0.1	0.4	0.4		
Delay (s)	17.7	23.1	4.1	19.6	18.9		
Level of Service	B	C	A	B	B		
Approach Delay (s)	17.7		9.5	19.2			
Approach LOS	B		A	B			
Intersection Summary							
HCM Average Control Delay		13.8			HCM Level of Service	B	
HCM Volume to Capacity ratio		0.61					
Actuated Cycle Length (s)		54.3			Sum of lost time (s)	12.0	
Intersection Capacity Utilization		52.8%			ICU Level of Service	A	
Analysis Period (min)		15					
c Critical Lane Group							

Baseline

Movement	WBL	WBR	WBR2	SER	NEU	NE	NET	NER	SWL	SWT	SWR
Lane Configurations	↑	↑	↑	↑	↑	↑	↑↑	↑	↑↑	↑↑	↑↑
Volume (vph)	97	0	110	0	0	0	325	101	165	815	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	1.00	1.00	1.00	0.91	0.91	0.91	0.91	0.91	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	1.00	0.96	1.00	1.00	1.00	
Flt Protected	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1583	1583	4905	4905	4905	3433	3433	5085	5085	
Flt Permitted	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1583	1583	4905	4905	4905	3433	3433	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	
Adj. Flow (vph)	108	0	122	0	0	0	361	112	183	906	
RTOR Reduction (vph)	0	0	100	0	0	0	75	0	0	0	
Lane Group Flow (vph)	108	0	22	0	0	0	398	0	183	906	
Turn Type	Prot	Perm	Prot	Prot	Prot	Prot	8	7	4		
Protected Phases	6										
Permitted Phases											
Actuated Green, G (s)	5.5	5.5	5.5	10.2	10.2	10.2	3.5	3.5	17.7		
Effective Green, g (s)	5.5	5.5	5.5	10.2	10.2	10.2	3.5	3.5	17.7		
Actuated g/C Ratio	0.18	0.18	0.18	0.33	0.33	0.33	0.11	0.11	0.57		
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	279		1604	1604	1604	365	2885			
v/s Ratio Prot	c0.06			0.08	0.08	0.08	c0.05	c0.18			
v/s Ratio Perm		0.01									
v/c Ratio	0.35	0.08		0.25	0.25	0.25	0.48	0.31			
Uniform Delay, d1	11.3	10.7		7.7	7.7	7.7	13.0	3.6			
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	0.7	0.1		0.1	0.1	0.1	0.9	0.1			
Delay (s)	11.9	10.8		7.8	7.8	7.8	13.9	3.6			
Level of Service	B	B		A	A	A	B	A			
Approach Delay (s)	11.4		0.0	7.8	7.8	7.8	5.3				
Approach LOS	B		A	A	A	A					
Intersection Summary											
HCM Average Control Delay		6.8									
HCM Volume to Capacity ratio		0.33									
Actuated Cycle Length (s)		31.2					Sum of lost time (s)	8.0			
Intersection Capacity Utilization		34.5%					ICU Level of Service	A			
Analysis Period (min)		15									
c Critical Lane Group											

Baseline

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

Near Term w/o Project AM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SEB
Lane Configurations	↔	↑	↔	↔	↑	↔	↔	↑	↔	↔	↑	↔
Volume (vph)	155	85	116	46	195	153	114	375	7	103	446	167
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	0.93	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Flt Protected	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	1740	1770	3529	3529	1770	3539	1583	1583
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 (perm)	1770	1863	1583	1770	1740	1770	3529	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)	172	94	129	51	217	170	127	417	8	114	496	186
RTOR Reduction (vph)	0	0	79	0	36	0	0	2	0	0	0	145
Lane Group Flow (vph)	172	94	50	51	351	0	127	423	0	114	496	41
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)	11.6	26.2	26.2	3.5	18.1	7.1	16.1	16.1	6.1	15.1	15.1	15.1
Effective Green, g (s)	11.6	26.2	26.2	3.5	18.1	7.1	16.1	16.1	6.1	15.1	15.1	15.1
Actuated g/C Ratio	0.17	0.39	0.39	0.05	0.27	0.10	0.24	0.24	0.09	0.22	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	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)	302	719	611	91	464	185	837	159	787	352	352	352
v/s Ratio Prot	c0.10	0.05	0.03	0.03	c0.20	c0.07	0.12	0.06	c0.14	0.03	0.03	0.03
v/s Ratio Perm												
v/c Ratio	0.57	0.13	0.08	0.56	0.76	0.89	0.51	0.72	0.63	0.63	0.12	0.12
Uniform Delay, d1	25.9	13.5	13.2	31.4	22.9	29.3	22.5	30.1	23.9	21.1	21.1	21.1
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	2.5	0.1	0.1	7.7	6.9	10.1	0.5	14.3	1.7	0.1	0.1	0.1
Delay (s)	28.3	13.6	13.3	39.1	29.8	39.4	22.9	44.3	25.5	21.2	21.2	21.2
Level of Service	C	B	B	D	C	D	C	D	C	C	C	C
Approach Delay (s)	19.9			30.9		26.7				27.2		
Approach LOS	B			C		C				C		

Intersection Summary			C
HCM Average Control Delay	26.5	HCM Level of Service	
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	67.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	60.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Baseline

Synchro 7 - Report
Page 19

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

Near Term w/o Project AM
3/2/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SEB
Lane Configurations	↔	↑	↔	↔	↑	↔	↔	↑	↔	↔	↑	↔
Volume (vph)	63	70	6	233	52	107	104	211	54	144	539	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	1.00	1.00	1.00	1.00	1.00
Flt	1.00	0.99	1.00	1.00	1.00	0.85	1.00	0.97	1.00	0.95	1.00	0.95
Flt Protected	0.95	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1770	1840	1770	1863	1863	1583	1770	4930	1770	4885	4885	4885
Flt Permitted	0.95	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (perm)	1770	1840	1770	1863	1863	1583	1770	4930	1770	4885	4885	4885
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	119	116	234	60	160	599	214
RTOR Reduction (vph)	0	5	0	0	0	88	0	45	0	0	86	0
Lane Group Flow (vph)	70	80	0	259	58	31	116	249	0	160	727	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	3	8	8
Permitted Phases												
Actuated Green, G (s)	3.8	7.1	11.7	15.0	15.0	5.4	14.5	8.2	17.3	8.2	17.3	17.3
Effective Green, g (s)	3.8	7.1	11.7	15.0	15.0	5.4	14.5	8.2	17.3	8.2	17.3	17.3
Actuated g/C Ratio	0.07	0.12	0.20	0.26	0.26	0.09	0.25	0.14	0.30	0.14	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)	117	227	360	486	413	166	1243	262	1470	262	1470	1470
v/s Ratio Prot	0.04	c0.04	c0.15	0.03	0.02	0.07	0.05	c0.09	c0.15	c0.09	c0.15	c0.15
v/s Ratio Perm												
v/c Ratio	0.60	0.35	0.72	0.12	0.08	0.70	0.20	0.63	0.49	0.63	0.49	0.49
Uniform Delay, d1	26.1	23.1	21.4	16.2	16.0	25.3	16.9	23.2	16.5	23.2	16.5	16.5
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	8.0	0.9	6.7	0.1	0.1	12.1	0.1	5.2	0.3	5.2	0.3	0.3
Delay (s)	34.1	24.0	28.1	16.3	16.1	37.4	17.0	28.4	16.8	28.4	16.8	16.8
Level of Service	C	C	C	B	B	D	B	C	B	C	B	B
Approach Delay (s)	28.6		23.3			22.8		18.7		18.7		
Approach LOS	C		C			C		B		B		

Intersection Summary		
HCM Average Control Delay	21.3	HCM Level of Service
HCM Volume to Capacity ratio	0.57	C
Actuated Cycle Length (s)	57.5	Sum of lost time (s)
Intersection Capacity Utilization	50.1%	16.0
Analysis Period (min)	15	A
c. Critical Lane Group		

Baseline

Synchro 7 - Report
Page 20

HCM Signalized Intersection Capacity Analysis
 21: Carmel Creek Road & Carmel Country Road

Near Term w/o Project AM
 3/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SEB
Lane Configurations	←	↑	↑	←	←	←	←	←	←	←	←	←
Volume (vph)	287	122	127	62	300	30	277	383	29	68	404	393
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
Fit	1.00	1.00	0.85	0.99	0.99	0.99	1.00	0.99	1.00	0.93	1.00	0.93
Fit Protected	0.95	1.00	1.00	0.99	0.99	0.99	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1770	1863	1583	1829	1829	1829	1770	3502	1770	3277	1770	3277
Fit Permitted	0.95	1.00	1.00	0.99	0.99	0.99	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (perm)	1770	1863	1583	1829	1829	1829	1770	3502	1770	3277	1770	3277
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)	319	136	141	69	333	33	308	426	32	76	449	437
RTOR Reduction (vph)	0	0	114	0	3	0	0	5	0	0	197	0
Lane Group Flow (vph)	319	136	27	0	432	0	308	453	0	76	689	0
Turn Type	Split	Prot	Prot	Split	Split	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	4	8	8	5	2	1	6			
Permitted Phases												
Actuated Green, G (s)	17.2	17.2	17.2	19.8	19.8	14.0	29.0	7.8	22.8			
Effective Green, g (s)	17.2	17.2	17.2	19.8	19.8	14.0	29.0	7.8	22.8			
Actuated g/C Ratio	0.19	0.19	0.19	0.22	0.22	0.16	0.32	0.09	0.25			
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)	339	357	303	403	403	276	1131	154	832			
v/s Ratio Prot	c0.18	0.07	0.02	c0.24	c0.24	c0.17	0.13	0.04	c0.21			
v/s Ratio Perm												
v/c Ratio	0.94	0.38	0.09	1.07	1.07	1.12	0.40	0.49	0.83			
Uniform Delay, d1	35.8	31.7	29.9	35.0	35.0	37.9	23.6	39.1	31.6			
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	33.7	0.7	0.1	65.3	65.3	89.0	0.2	2.5	6.8			
Delay (s)	69.5	32.3	30.0	100.3	100.3	126.9	23.9	41.6	38.5			
Level of Service	E	C	C	F	F	F	C	D	D			
Approach Delay (s)	51.7			100.3	100.3		65.3		38.7			
Approach LOS	D			F	F		E		D			
Intersection Summary												
HCM Average Control Delay	56.6											
HCM Volume to Capacity ratio	0.97											
Actuated Cycle Length (s)	89.8											
Intersection Capacity Utilization	89.4%											
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 22: High Bluff Drive & El Camino Real

Near Term w/o Project AM
 3/2012

Movement	EBL	EBR	EBR2	NWL2	NWL	NWR	NEL	NET	NBR	SWL	SWT
Lane Configurations	↰	↱	↱	↰	↰	↰	↰	↰	↰	↰	↰
Lane Volume (vph)	31	113	252	97	228	65	218	339	30	70	896
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	0.97	1.00	0.97	0.91	1.00	0.91	0.91
Fit	1.00	0.85	0.85	1.00	0.97	1.00	0.99	1.00	0.98	1.00	0.98
Fit Protected	0.95	1.00	1.00	0.95	0.96	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1770	1583	1583	1770	3363	3433	5024	1770	5002	1770	5002
Fit Permitted	0.95	1.00	1.00	0.95	0.96	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (perm)	1770	1583	1583	1770	3363	3433	5024	1770	5002	1770	5002
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)	34	126	280	108	253	72	242	377	33	78	996
RTOR Reduction (vph)	0	0	228	0	45	0	0	14	0	0	23
Lane Group Flow (vph)	34	126	52	108	280	0	242	396	0	78	1095
Turn Type	2	2	2	6	6	3	8	7	4		
Protected Phases											
Permitted Phases											
Actuated Green, G (s)	9.6	9.6	9.6	5.8	5.8	5.0	19.0	4.0	18.0		
Effective Green, g (s)	9.6	9.6	9.6	5.8	5.8	5.0	19.0	4.0	18.0		
Actuated g/C Ratio	0.18	0.18	0.18	0.11	0.11	0.09	0.35	0.07	0.33		
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	279	279	189	359	316	1755	130	1655		
v/s Ratio Prot	0.02			0.06	c0.08	c0.07	0.08	0.04	c0.22		
v/s Ratio Perm											
v/c Ratio	0.11	0.45	0.19	0.57	0.78	0.77	0.23	0.80	0.66		
Uniform Delay, d1	18.8	20.0	19.1	23.1	23.7	24.1	12.5	24.4	15.6		
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	1.2	0.3	4.1	10.5	10.6	0.1	7.6	1.0		
Delay (s)	19.0	21.2	19.4	27.2	34.2	34.7	12.6	32.0	16.6		
Level of Service	B	C	B	C	C	C	B	C	B		
Approach Delay (s)	19.9						20.8		17.6		
Approach LOS	B						C		B		
Intersection Summary											
HCM Average Control Delay	21.1										
HCM Volume to Capacity ratio	0.64										
Actuated Cycle Length (s)	54.4										
Intersection Capacity Utilization	51.2%										
Analysis Period (min)	15										
c Critical Lane Group											

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	4	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)	45	6	67	13	27	14	108	31	2	3	16	180
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)	50	7	74	14	30	16	120	34	2	3	18	200
Direction, Lane #	SE-1	SE-2	NW-1	NET-1	SW-1							
Volume Total (vph)	57	74	60	157	221							
Volume Left (vph)	50	0	14	120	3							
Volume Right (vph)	0	74	16	2	200							
Head (s)	0.48	-0.67	-0.07	0.18	-0.51							
Departure Headway (s)	5.9	4.8	5.0	4.8	4.1							
Degree Utilization, x	0.09	0.10	0.08	0.21	0.25							
Capacity (veh/h)	567	700	659	713	834							
Control Delay (s)	8.3	7.1	8.4	9.1	8.4							
Approach Delay (s)	7.6		8.4	9.1	8.4							
Approach LOS	A		A	A	A							

Intersection Summary	
Delay	8.4
HCM Level of Service	A
Intersection Capacity Utilization	39.5%
Analysis Period (min)	15

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)	54	92	119	205	1900	1900	31	272	83	15	779	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	0.95	1.00	0.95	1.00	0.95
Fit	1.00	0.85	0.99	0.99	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96
Fit Protected	0.98	1.00	0.97	0.97	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1829	1583	1779	1779	3415	1770	3415	1770	3415	1770	3415	1770
Satd. Flow (perm)	1829	1583	1779	1779	3415	1770	3415	1770	3415	1770	3415	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)	60	102	132	228	70	28	34	302	92	17	866	160
RTOR Reduction (vph)	0	0	110	0	4	0	0	33	0	0	18	0
Lane Group Flow (vph)	0	162	22	0	322	0	34	361	0	17	1008	0
Turn Type	Split	4	4	4	8	8	5	2	1	1	6	6
Protected Phases												
Permitted Phases												
Actuated Green, G (s)	11.5	11.5	11.5	15.9	15.9	15.9	1.6	26.1	0.8	25.3	0.8	25.3
Effective Green, g (s)	11.5	11.5	11.5	15.9	15.9	15.9	1.6	26.1	0.8	25.3	0.8	25.3
Actuated g/C Ratio	0.16	0.16	0.16	0.23	0.23	0.23	0.02	0.37	0.01	0.36	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	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	259	402	402	1268	402	40	1268	20	1244	20	1244
vs Ratio Prot	0.09	0.01	0.18	0.18	0.11	0.11	0.02	0.11	0.01	0.29	0.01	0.29
vs Ratio Perm												
v/c Ratio	0.54	0.08	0.80	0.80	0.28	0.28	0.85	0.28	0.85	0.81	0.85	0.81
Uniform Delay, d1	27.0	24.9	25.7	25.7	15.5	15.5	34.2	15.5	34.7	20.3	34.7	20.3
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	2.0	0.1	10.9	10.9	85.5	85.5	0.1	85.5	0.1	131.5	0.1	131.5
Delay (s)	29.0	25.1	36.6	36.6	119.7	119.7	15.7	119.7	166.2	24.4	166.2	24.4
Level of Service	C	C	D	D	B	B	F	B	F	C	F	C
Approach Delay (s)	27.2		36.6	36.6	23.9	23.9		23.9	26.7		26.7	
Approach LOS	C		D	D	C	C		C	C		C	

Intersection Summary	
HCM Average Control Delay	27.8
HCM Volume to Capacity ratio	0.75
Actuated Cycle Length (s)	70.3
Intersection Capacity Utilization	59.7%
Analysis Period (min)	15
c Critical Lane Group	

HCM Signalized Intersection Capacity Analysis
25: Carmel Valley Road & I-5 SB Ramps

Near Term w/o Project AM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	←	←	←	←	←	←	←	←	←	←	←
Volume (vph)	0	306	181	405	638	0	0	0	0	1081	3	148
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	0.95	0.97	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.91	0.95
Flt	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.85
Flt Protected	1.00	0.95	1.00	0.95	1.00	0.95	0.95	0.95	0.95	0.95	0.95	1.00
Satd. Flow (prot)	3342	3433	3433	3539	3433	3539	1681	1610	1504	1681	1610	1504
Satd. Flow (perm)	3342	3433	3433	3539	3433	3539	1681	1610	1504	1681	1610	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	340	201	450	709	0	0	0	0	1201	3	164
RTOR Reduction (vph)	0	118	0	0	0	0	0	0	0	0	1	69
Lane Group Flow (vph)	0	423	0	450	709	0	0	0	0	613	606	79
Turn Type	Prot	Prot	Prot	Split	Split	Prot	Prot	Prot	Prot	Split	Split	Prot
Protected Phases	4	3	8	6	6	6	6	6	6	6	6	6
Permitted Phases	13.6	11.7	29.3	30.9	30.9	30.9	30.9	30.9	30.9	30.9	30.9	30.9
Actuated Green, G (s)	13.6	11.7	29.3	30.9	30.9	30.9	30.9	30.9	30.9	30.9	30.9	30.9
Effective Green, g (s)	0.20	0.17	0.43	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
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)	666	589	1520	762	729	681	762	729	681	762	729	681
Lane Grp Cap (vph)	c0.13	c0.13	0.20	0.36	c0.38	0.05	0.36	c0.38	0.05	0.36	c0.38	0.05
v/s Ratio Prot	0.64	0.76	0.47	0.80	0.83	0.12	0.80	0.83	0.12	0.80	0.83	0.12
v/s Ratio Perm	25.0	26.9	13.9	16.1	16.4	10.8	16.1	16.4	10.8	16.1	16.4	10.8
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	2.0	5.9	0.2	6.2	8.0	0.1	6.2	8.0	0.1	6.2	8.0	0.1
Incremental Delay, d2	27.0	32.8	14.1	22.2	24.4	10.8	22.2	24.4	10.8	22.2	24.4	10.8
Delay (s)	C	C	B	C	C	B	C	C	B	C	C	B
Level of Service	27.0	21.4	C	21.9	C	A	21.9	C	A	21.9	C	A
Approach Delay (s)	C	C	C	C	C	A	C	C	A	C	C	A
Approach LOS	C	C	C	C	C	A	C	C	A	C	C	A
Intersection Summary												
HCM Average Control Delay	22.6	HCM Level of Service										
HCM Volume to Capacity ratio	0.77	C										
Actuated Cycle Length (s)	68.2	Sum of lost time (s)										
Intersection Capacity Utilization	114.6%	12.0										
Analysis Period (min)	15	H										
c Critical Lane Group												

Baseline

Synchro 7 - Report
Page 25

HCM Signalized Intersection Capacity Analysis
26: Carmel Valley Road & I-5 NB Ramps

Near Term w/o Project AM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔↔	↔	↔↔	↔↔	↔	↔	↔↔	↔	↔	↔	↔
Volume (vph)	63	1252	0	0	971	879	109	2	570	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	1.00	0.95	1.00	0.95	0.91	0.95		
Flt	1.00	1.00		1.00	1.00	0.85	1.00	0.86	0.85			
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00	0.95	1.00	1.00		
Satd. Flow (prot)	3433	3539		3539	3539	1583	1681	1449	1504			
Satd. Flow (perm)	3433	3539		3539	3539	1583	1681	1449	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	1391	0	0	1079	977	121	2	633	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	495	0	31	31	0	0	0
Lane Group Flow (vph)	70	1391	0	0	1079	482	109	293	292	0	0	0
Turn Type	Prot	Prot	Prot	Prot	Split	Split	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	8	8	2	2	2	2	2	2	2	2
Permitted Phases	2.4	31.9	25.5	25.5	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8
Actuated Green, G (s)	2.4	31.9	25.5	25.5	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8
Effective Green, g (s)	0.04	0.58	0.47	0.47	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
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)	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)	151	2064	1650	738	455	392	407	392	407	392	407	407
v/s Ratio Prot	0.02	c0.39	0.30	0.30	0.06	c0.20	0.19	c0.20	0.19	0.06	c0.20	0.19
v/s Ratio Perm	0.46	0.67	0.65	0.65	0.24	0.75	0.72	0.75	0.72	0.24	0.75	0.72
Uniform Delay, d1	25.5	7.8	11.2	11.2	15.6	18.2	18.1	18.2	18.1	15.6	18.2	18.1
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	2.2	0.9	0.9	0.9	2.1	0.3	7.6	6.0	7.6	0.3	7.6	6.0
Delay (s)	27.8	8.7	12.2	13.3	15.8	25.9	24.0	25.9	24.0	15.8	25.9	24.0
Level of Service	C	A	B	B	B	C	C	C	C	B	C	C
Approach Delay (s)	27.8	9.6	12.7	12.7	15.8	23.6	23.6	23.6	23.6	15.8	23.6	23.6
Approach LOS	A	A	B	B	B	C	C	C	C	A	C	C
Intersection Summary												
HCM Average Control Delay	13.6	HCM Level of Service										
HCM Volume to Capacity ratio	0.70	B										
Actuated Cycle Length (s)	54.7	Sum of lost time (s)										
Intersection Capacity Utilization	114.6%	8.0										
Analysis Period (min)	15	H										
c Critical Lane Group												

Baseline

Synchro 7 - Report
Page 26

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	←	←	←	←	←	←	←	←	←	←	←
Volume (vph)	36	13	44	725	19	137	90	979	149	114	1100
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	0.91	0.95	0.95	0.91	0.95	1.00	0.91	0.98	1.00	0.91
Flt	1.00	0.93	0.85	1.00	0.99	0.85	1.00	0.98	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	1.00
Satd. Flow (prot)	1681	1563	1504	1681	1612	1504	1770	4984	1770	5066	5066
Satd. Flow (perm)	1681	1563	1504	1681	1612	1504	1770	4984	1770	5066	5066
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)	40	14	49	806	21	152	100	1088	166	127	1222
RTOR Reduction (vph)	0	16	30	0	1	94	0	20	0	0	3
Lane Group Flow (vph)	36	19	2	419	422	43	100	1234	0	127	1250
Turn Type	Spill	4	4	4	8	8	5	21	81	Prot	Prot
Protected Phases	5.8	5.8	5.8	24.5	24.5	24.5	6.5	35.1	24.6	24.6	24.6
Actuated Green, G (s)	5.8	5.8	5.8	24.5	24.5	24.5	6.5	35.1	24.6	24.6	24.6
Effective Green, g (s)	0.07	0.07	0.07	0.32	0.32	0.32	0.08	0.45	0.32	0.32	0.32
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
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
Vehicle Extension (s)	126	117	113	532	510	476	149	2280	563	1610	1610
Lane Grp Cap (vph)	c0.02	0.01	0.00	0.25	0.26	0.03	c0.06	0.25	0.07	c0.25	c0.25
v/s Ratio Prot	0.29	0.16	0.02	0.79	0.83	0.09	0.67	0.55	0.23	0.78	0.78
v/s Ratio Perm	33.8	33.5	33.2	24.1	24.5	18.6	34.4	15.4	19.4	23.9	23.9
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
Progression Factor	1.3	0.7	0.1	7.6	10.6	0.1	11.3	0.3	0.2	2.4	2.4
Incremental Delay, d2	35.1	34.2	33.2	31.7	35.0	18.7	45.7	15.6	19.6	26.3	26.3
Delay (s)	D	C	C	C	D	B	D	B	B	C	C
Level of Service	C	C	C	C	D	B	D	B	B	C	C
Approach Delay (s)	34.2	34.2	34.2	31.3	31.3	31.3	17.9	17.9	17.9	25.7	25.7
Approach LOS	C	C	C	C	C	C	B	B	B	C	C
Intersection Summary											
HCM Average Control Delay	24.6										
HCM Volume to Capacity ratio	0.74										
Actuated Cycle Length (s)	77.4										
Intersection Capacity Utilization	67.2%										
Analysis Period (min)	15										
i Phase conflict between lane groups.	15										
c Critical Lane Group	C										

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	←	←	←	←	←	←	←	←	←	←	←
Volume (vph)	36	13	44	725	19	137	90	979	149	114	1100
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	0.91	0.95	0.95	0.91	0.95	1.00	0.91	0.98	1.00	0.91
Flt	1.00	0.93	0.85	1.00	0.99	0.85	1.00	0.98	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	1.00
Satd. Flow (prot)	1681	1563	1504	1681	1612	1504	1770	4984	1770	5066	5066
Satd. Flow (perm)	1681	1563	1504	1681	1612	1504	1770	4984	1770	5066	5066
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)	40	14	49	806	21	152	100	1088	166	127	1222
RTOR Reduction (vph)	0	16	30	0	1	94	0	20	0	0	3
Lane Group Flow (vph)	36	19	2	419	422	43	100	1234	0	127	1250
Turn Type	Spill	4	4	4	8	8	5	21	81	Prot	Prot
Protected Phases	5.8	5.8	5.8	24.5	24.5	24.5	6.5	35.1	24.6	24.6	24.6
Actuated Green, G (s)	5.8	5.8	5.8	24.5	24.5	24.5	6.5	35.1	24.6	24.6	24.6
Effective Green, g (s)	0.07	0.07	0.07	0.32	0.32	0.32	0.08	0.45	0.32	0.32	0.32
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
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
Vehicle Extension (s)	126	117	113	532	510	476	149	2280	563	1610	1610
Lane Grp Cap (vph)	c0.02	0.01	0.00	0.25	0.26	0.03	c0.06	0.25	0.07	c0.25	c0.25
v/s Ratio Prot	0.29	0.16	0.02	0.79	0.83	0.09	0.67	0.55	0.23	0.78	0.78
v/s Ratio Perm	33.8	33.5	33.2	24.1	24.5	18.6	34.4	15.4	19.4	23.9	23.9
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
Progression Factor	1.3	0.7	0.1	7.6	10.6	0.1	11.3	0.3	0.2	2.4	2.4
Incremental Delay, d2	35.1	34.2	33.2	31.7	35.0	18.7	45.7	15.6	19.6	26.3	26.3
Delay (s)	D	C	C	C	D	B	D	B	B	C	C
Level of Service	C	C	C	C	D	B	D	B	B	C	C
Approach Delay (s)	34.2	34.2	34.2	31.3	31.3	31.3	17.9	17.9	17.9	25.7	25.7
Approach LOS	C	C	C	C	C	C	B	B	B	C	C
Intersection Summary											
HCM Average Control Delay	24.6										
HCM Volume to Capacity ratio	0.74										
Actuated Cycle Length (s)	77.4										
Intersection Capacity Utilization	67.2%										
Analysis Period (min)	15										
i Phase conflict between lane groups.	15										
c Critical Lane Group	C										

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	651	943	317	0	0	0	0	391	227	144	745	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	4.0	4.0	4.0	4.0	0
Lane Util. Factor	0.91	0.86	0.91	0.91	0.86	0.91	0.91	0.86	0.91	0.86	0.91	0.91
Frt	1.00	1.00	0.85	1.00	0.85	1.00	0.94	1.00	0.85	1.00	0.85	1.00
Flt Protected	0.95	0.99	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3172	1441	6055	3172	1441	6055	1770	5085	1770	5085	1770
Flt Permitted	0.95	0.99	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1610	3172	1441	6055	3172	1441	6055	1770	5085	1770	5085	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)	723	1048	352	0	0	0	0	434	252	160	828	0
RTOR Reduction (vph)	0	3	50	0	0	0	0	60	0	0	0	0
Lane Group Flow (vph)	586	1217	267	0	0	0	0	626	0	160	828	0
Turn Type	Split	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	4	4	4	4	4	2	2	1	6	6
Permitted Phases	28.1	28.1	28.1	12.9	12.9	12.9	12.9	7.9	7.9	24.8	24.8	24.8
Actuated Green, G (s)	28.1	28.1	28.1	12.9	12.9	12.9	12.9	7.9	7.9	24.8	24.8	24.8
Effective Green, g (s)	0.46	0.46	0.46	0.21	0.21	0.21	0.21	0.13	0.13	0.41	0.41	0.41
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)	743	1464	665	1283	1283	1283	1283	230	2071	346	346	346
Lane Grp Cap (vph)	0.36	0.38	0.19	0.10	0.10	0.10	0.10	0.09	0.16	0.06	0.02	0.02
v/s Ratio Prot	0.79	0.83	0.40	0.49	0.49	0.49	0.49	0.70	0.40	0.28	0.08	0.08
v/s Ratio Perm	13.9	14.3	10.8	21.1	21.1	21.1	21.1	25.3	12.8	8.3	8.0	8.0
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	5.6	4.2	0.4	0.3	0.3	0.3	0.3	8.8	0.1	0.4	0.1	0.1
Incremental Delay, d2	19.5	18.5	11.2	21.4	21.4	21.4	21.4	34.2	12.9	8.7	8.1	8.1
Delay (s)	B	B	B	C	C	C	C	C	C	A	A	A
Level of Service	B	B	B	0.0	0.0	0.0	0.0	A	A	8.4	8.4	8.4
Approach Delay (s)	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7
Approach LOS	B	B	B	A	A	A	A	A	A	A	A	A
Intersection Summary												
HCM Average Control Delay	18.0											
HCM Volume to Capacity ratio	0.72											
Actuated Cycle Length (s)	60.9											
Intersection Capacity Utilization	101.5%											
Analysis Period (min)	15											
c - Critical Lane Group												

Movement	EBL	EBR	EBR2	WBL	WBR	NBL	NBT	NBR2	SBL	SBT	SSR
Lane Configurations	67	220	179	275	373	100	342	328	287	1102	221
Volume (vph)	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
Total Lost time (s)	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	0.85	1.00	0.85
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	0.95
Flt	1770	2787	1583	1770	1804	1770	3539	1583	3433	3539	1583
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1770	2787	1583	1770	1804	1770	3539	1583	3433	3539	1583
Flt Permitted	0.47	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	0.95
Satd. Flow (perm)	869	2787	1583	1770	1804	1770	3539	1583	3433	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
Adj. Flow (vph)	74	244	199	306	414	111	380	364	319	1224	246
RTOR Reduction (vph)	0	0	171	0	10	0	0	0	270	0	0
Lane Group Flow (vph)	74	244	28	306	515	0	380	364	49	1224	246
Turn Type	custom	custom	custom	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	4	3	8	5	2	2	1	6	6
Permitted Phases	13.5	13.5	13.5	17.0	34.5	25.3	14.8	14.8	34.1	23.6	23.6
Actuated Green, G (s)	13.5	13.5	13.5	17.0	34.5	25.3	14.8	14.8	34.1	23.6	23.6
Effective Green, g (s)	0.14	0.14	0.14	0.18	0.36	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
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
Vehicle Extension (s)	123	394	224	315	652	469	549	246	1227	875	392
Lane Grp Cap (vph)	0.09	0.09	0.02	0.17	0.29	0.21	0.10	0.03	0.36	0.07	0.04
v/s Ratio Prot	0.60	0.62	0.13	0.97	0.79	0.81	0.66	0.20	1.00	0.28	0.14
v/s Ratio Perm	38.4	38.5	35.8	39.0	27.2	32.8	38.0	35.1	30.6	29.0	28.0
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
Progression Factor	8.0	2.9	0.3	42.8	6.5	10.2	3.0	0.4	24.9	0.2	0.2
Incremental Delay, d2	46.5	41.4	36.0	81.7	33.7	43.0	41.0	35.5	55.5	29.2	28.2
Delay (s)	D	D	D	F	C	D	D	D	E	C	C
Level of Service	D	D	D	F	C	D	D	D	E	C	C
Approach Delay (s)	51.4	51.4	51.4	51.4	51.4	51.4	51.4	51.4	51.4	51.4	51.4
Approach LOS	D	D	D	D	D	D	D	D	D	D	D
Intersection Summary											
HCM Average Control Delay	45.7										
HCM Volume to Capacity ratio	0.87										
Actuated Cycle Length (s)	95.4										
Intersection Capacity Utilization	83.3%										
Analysis Period (min)	15										
c Critical Lane Group											

Baseline	Synchro 7 - Report	Page 31
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Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SSR
Lane Configurations	450	0	330	0	0	0	512	129	188	456	0
Volume (vph)	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
Total Lost time (s)	0.95	0.95	1.00	0.95	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
Flt	1681	1681	1583	1681	1681	1681	1681	1583	3433	3539	1583
Flt Protected	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1681	1681	1583	1681	1681	1681	1681	1583	3433	3539	1583
Flt Permitted	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	0.95	1.00	0.95
Satd. Flow (perm)	1681	1681	1583	1681	1681	1681	1681	1583	3433	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
Adj. Flow (vph)	500	0	367	0	0	0	569	143	209	507	0
RTOR Reduction (vph)	0	0	208	0	0	0	44	0	0	0	0
Lane Group Flow (vph)	250	250	159	0	0	0	668	0	209	507	0
Turn Type	Split	Prot	Prot	Split	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	4	4	4	4	2	1	6	6	6
Permitted Phases	13.1	13.1	13.1	13.1	13.1	13.1	14.0	3.6	21.6	21.6	21.6
Actuated Green, G (s)	13.1	13.1	13.1	13.1	13.1	13.1	14.0	3.6	21.6	21.6	21.6
Effective Green, g (s)	0.31	0.31	0.31	0.31	0.31	0.31	0.33	0.08	0.51	0.51	0.51
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
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
Vehicle Extension (s)	516	516	486	516	516	516	516	486	1790	1790	1790
Lane Grp Cap (vph)	0.15	0.15	0.10	0.15	0.15	0.15	0.19	0.06	0.14	0.14	0.14
v/s Ratio Prot	0.48	0.48	0.33	0.48	0.48	0.48	0.59	0.72	0.28	0.28	0.28
v/s Ratio Perm	12.1	12.1	11.4	12.1	12.1	12.1	12.0	19.1	6.1	6.1	6.1
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
Progression Factor	0.7	0.7	0.4	0.7	0.7	0.7	0.8	8.6	0.1	0.1	0.1
Incremental Delay, d2	12.8	12.8	11.8	12.8	12.8	12.8	12.8	27.7	6.2	6.2	6.2
Delay (s)	B	B	B	B	B	B	B	C	A	A	A
Level of Service	B	B	B	B	B	B	B	C	A	A	A
Approach Delay (s)	12.4	12.4	12.4	12.4	12.4	12.4	12.8	12.5	12.5	12.5	12.5
Approach LOS	B	B	B	B	B	B	B	B	B	B	B
Intersection Summary											
HCM Average Control Delay	12.5										
HCM Volume to Capacity ratio	0.56										
Actuated Cycle Length (s)	42.7										
Intersection Capacity Utilization	46.1%										
Analysis Period (min)	15										
c Critical Lane Group											

Baseline	Synchro 7 - Report	Page 32
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Movement	SEL	SET	SEL	SET	NWL	NWT	NWR	NEL	NET	NEB	SWL	SWT	SWR
Lane Configurations	89	501	34	145	435	345	49	66	243	183	183	183	183
Volume (vph)	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
Total Lost time (s)	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
Lane Util. Factor	0.95	0.99	1.00	0.93	1.00	0.88	1.00	0.92	1.00	0.92	1.00	0.92	1.00
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	0.95
Flt Protected	1770	3505	1770	3304	1770	1643	1770	1643	3433	1706	3433	1706	3433
Satd. Flow (prot)	1770	3505	1770	3304	1770	1643	1770	1643	3433	1706	3433	1706	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)	1770	3505	1770	3304	1770	1643	1770	1643	3433	1706	3433	1706	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)	99	557	38	161	483	383	54	73	270	713	159	203	203
RTOR Reduction (vph)	0	6	0	0	149	0	0	148	0	0	48	0	0
Lane Group Flow (vph)	99	589	0	161	717	0	54	195	0	713	314	0	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	1	6	5	2	7	4	3	8					
Permitted Phases	8.2	20.7	10.8	23.3	3.8	14.7	19.4	30.3					
Actuated Green, G (s)	8.2	20.7	10.8	23.3	3.8	14.7	19.4	30.3					
Effective Green, g (s)	0.10	0.25	0.13	0.29	0.05	0.18	0.24	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)	178	889	234	943	82	296	816	633					
Lane Grp Cap (vph)	0.06	0.17	c0.09	c0.22	0.03	c0.12	c0.21	0.18					
v/s Ratio Prot	0.66	0.66	0.69	0.76	0.66	0.66	0.87	0.50					
v/s Ratio Perm	35.0	27.3	33.8	26.6	38.3	31.1	29.9	19.8					
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00					
Progression Factor	3.7	1.9	8.1	3.7	17.5	5.2	10.2	0.6					
Incremental Delay, d2	38.7	29.2	41.9	30.3	55.7	36.3	40.2	20.4					
Delay (s)	D	C	D	C	E	D	D	C					
Level of Service	D	C	D	C	E	D	D	C					
Approach Delay (s)	30.5	32.1	38.9	33.5									
Approach LOS	C	C	D	C									
Intersection Summary													
HCM Average Control Delay	33.1												
HCM Volume to Capacity ratio	0.78												
Actuated Cycle Length (s)	81.6												
Intersection Capacity Utilization	78.1%												
Analysis Period (min)	15												
c. Critical Lane Group													

Movement	WBL	WBR	SEL	SET	NWT	NWR	NW2	SWL	SWR
Lane Configurations	0	0	777	593	764	0	315	137	215
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	0.95	0.95	1.00	0.85	1.00	0.97	1.00
Lane Util. Factor	0.95	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.85
Flt	0.95	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.85
Flt Protected	3433	3539	3539	1583	3433	1583	3433	1583	3433
Satd. Flow (prot)	3433	3539	3539	1583	3433	1583	3433	1583	3433
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.85
Satd. Flow (perm)	3433	3539	3539	1583	3433	1583	3433	1583	3433
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	659	849	0	350	152	239
RTOR Reduction (vph)	0	0	0	0	0	0	237	0	204
Lane Group Flow (vph)	0	0	863	659	849	0	113	152	35
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	5	2	6	4					
Permitted Phases	17.4	39.3	17.9	17.9	17.9	8.1	8.1	8.1	4
Actuated Green, G (s)	17.4	39.3	17.9	17.9	17.9	8.1	8.1	8.1	4
Effective Green, g (s)	0.31	0.71	0.32	0.32	0.32	0.15	0.15	0.15	0.15
Actuated g/C Ratio	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
Vehicle Extension (s)	1078	2511	1143	511	502	231			
Lane Grp Cap (vph)	c0.25	0.19	c0.24	0.07	0.02				
v/s Ratio Prot	0.80	0.26	0.74	0.22	0.30	0.15			
v/s Ratio Perm	17.4	2.9	16.7	13.7	21.1	20.6			
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00			
Progression Factor	4.3	0.1	2.6	0.2	0.3	0.3			
Incremental Delay, d2	21.8	2.9	19.3	13.9	21.5	21.0			
Delay (s)	C	A	B	B	C	C			
Level of Service	C	A	B	B	C	C			
Approach Delay (s)	0.0	13.6	17.8	21.2					
Approach LOS	A	B	B	C					
Intersection Summary									
HCM Average Control Delay	16.2								
HCM Volume to Capacity ratio	0.68								
Actuated Cycle Length (s)	55.4								
Intersection Capacity Utilization	57.2%								
Analysis Period (min)	15								
c. Critical Lane Group									

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

Near Term w/o Project AM
3/2/2012

Movement	EBL2	EBL	EBR	SEL	SET	SER	NWL	NWT	NWR	SWL	SWR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	309	2	166	347	381	0	0	745	220	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	0.95	1.00	0.85	1.00	0.85	1.00
Flt Protected	1.00	1.00	1.00	0.85	1.00	1.00	1.00	0.85	1.00	0.85	1.00
Satd. Flow (prot)	1681	1681	1583	3433	3539	3539	3539	1583	1583	1583	1583
Flt Permitted	0.95	0.95	1.00	0.95	1.00	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1681	1681	1583	3433	3539	3539	3539	1583	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)	343	2	184	386	423	0	0	828	244	0	0
RTOR Reduction (vph)	0	0	145	0	0	0	0	0	158	0	0
Lane Group Flow (vph)	171	174	39	386	423	0	0	828	86	0	0
Turn Type	Split	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	4	1	6			2	2		
Permitted Phases											
Actuated Green, G (s)	10.8	10.8	10.8	10.1	32.1			18.0	18.0		
Effective Green, g (s)	10.8	10.8	10.8	10.1	32.1			18.0	18.0		
Actuated g/C Ratio	0.21	0.21	0.21	0.20	0.63			0.35	0.35		
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)	357	357	336	681	2232			1252	560		
v/s Ratio Prot	0.10	c0.10	0.02	c0.11	0.42			c0.23	0.05		
v/s Ratio Perm											
v/c Ratio	0.48	0.49	0.12	0.57	0.19			0.66	0.15		
Uniform Delay, d1	17.6	17.6	16.2	18.4	3.9			13.9	11.2		
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		
Incremental Delay, d2	1.0	1.0	0.2	1.1	0.0			1.3	0.1		
Delay (s)	18.6	18.7	16.3	19.5	4.0			15.2	11.4		
Level of Service	B	B	B	B	A			B	B		
Approach Delay (s)					11.4			14.3			
Approach LOS					B			B			
Intersection Summary											
HCM Average Control Delay					14.1						
HCM Volume to Capacity ratio					0.59						
Actuated Cycle Length (s)					50.9						
Intersection Capacity Utilization					49.1%						
Analysis Period (min)					15						
c Critical Lane Group											

Baseline

Synchro 7 - Report
Page 35

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information				
Analyst	Jacob Swinn	Intersection	Carmel Creek Rd/Del Mar Trail					
Agency/Co.	USAF	Jurisdiction	City of San Diego					
Date Performed	9/15/2010	Analysis Year	2010					
Analysis Time Period	36 Near Term AM							
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					
Movement	L	T	L	T	R	L	R	
Volume (veh/h)	10	10	10	10	206	2	26	
% Thrus Left Lane								
Approach	Northbound		Southbound					
Movement	L	T	R	L	T		R	
Volume (veh/h)	3	244	103	15	952		3	
% Thrus Left Lane	50			50				
Saturation Headway Adjustment Worksheet								
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR	LTR	LTR	LTR	LTR	LTR	LTR	LTR
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Flow Rate (veh/h)	33	258	258	138	249	544	531	
% Heavy Vehicles	2	2	2	2	2	2	2	2
No. Lanes	1	2	1	2	2	2	2	2
Geometry Group	2		2		5		5	
Duration, T	0.25							
Saturation Headway Adjustment Worksheet								
	0.3		0.9		0.0	0.0	0.0	0.0
Prop. Left-Turns	0.3		0.1		0.0	0.5	0.0	0.0
Prop. Right-Turns	0.0		0.0		0.0	0.0	0.0	0.0
Prop. Heavy Vehicle	0.0		0.0		0.0	0.0	0.0	0.0
hLT-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
hRV-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	-0.3	0.0	0.0
Departure Headway and Service Time								
hd, initial value (s)	3.20		3.20		3.20	3.20	3.20	3.20
k, initial	0.03		0.23		0.12	0.22	0.48	0.47
hd, final value (s)	7.47		6.77		7.13	6.79	6.28	6.26
k, final value	0.07		0.49		0.27	0.47	0.95	0.92
Move-up time, m (s)	2.0		2.0		2.3		2.3	
Service Time, Ls (s)	5.4		4.8		4.8	4.5	4.0	4.0
Capacity and Level of Service								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	283		508		388	499	573	575
Delay (s/veh)	10.95		16.00		12.49	15.36	50.42	45.47
LOS	B		C		B	C	F	E
Approach: Delay (s/veh)	10.95		16.00		14.34		47.97	
LOS	B		C		B		E	
Intersection Delay (s/veh)					35.14			
Intersection LOS					E			

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Movement	WBL	WBR	NBL	NBR	SBL	SBT
Lane Configurations	W	W	W	W	W	W
Volume (vph)	207	264	0	537	365	342
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	0.97	1.00	1.00	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	1863	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	1863	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	230	293	0	597	405	380
RTOR Reduction (vph)	0	244	0	0	248	0
Lane Group Flow (vph)	230	49	0	597	158	380
Turn Type	Perm	Prot	Prot	Perm	Prot	Prot
Protected Phases	1		3			7
Permitted Phases		1		8		6
Actuated Green, G (s)	11.6	11.6		26.9	26.9	18.7
Effective Green, g (s)	11.6	11.6		26.9	26.9	18.7
Actuated g/C Ratio	0.17	0.17		0.39	0.39	0.27
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	575	265		724	615	478
v/s Ratio Prot	0.07			c0.32		c0.21
v/s Ratio Perm		0.03			0.10	
v/c Ratio	0.40	0.19		0.82	0.26	0.79
Uniform Delay, d1	25.7	24.7		19.0	14.4	23.5
Progression Factor	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.5	0.3		7.6	0.2	8.9
Delay (s)	26.2	25.1		26.6	14.6	32.3
Level of Service	C	C		C	B	C
Approach Delay (s)	25.6			21.7		30.0
Approach LOS	C			C		C
Intersection Summary						
HCM Average Control Delay	25.2			HCM Level of Service		
HCM Volume to Capacity ratio	0.75			C		
Actuated Cycle Length (s)	69.2			Sum of lost time (s)		
Intersection Capacity Utilization	63.1%			12.0		
Analysis Period (min)	15			B		
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis 3: Derby Downs Road & El Camino Real

HCM Signalized Intersection Capacity Analysis 4: Half Mile Road & El Camino Real

Movement	WBL	WBR	NBL	NBR	WBL	WBR	NBL	NBR	WBL	WBR	NBL	NBR	WBL	WBR	NBL	NBR
Lane Configurations	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
Volume (vph)	65	6	0	861	111	1900	1900	1900	23	22	14	14	21	155	26	777
Ideal Flow (vphpl)	1900	1900	1900	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	4.0	4.0	4.0
Lane Util. Factor	0.97	0.99	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	0.99	1.00	0.99	1.00	0.95
Flt Protected	0.99	0.96	0.98	1.00	1.00	1.00	1.00	1.00	1.00	0.94	0.95	0.95	1.00	0.95	0.95	1.00
Satd. Flow (prot)	3410	3410	3479	1770	3539	3479	1770	1616	1770	1751	1770	1616	1770	1770	3508	3507
Flt Permitted	0.96	0.96	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	0.95
Satd. Flow (perm)	3410	3410	3479	1770	3539	3479	1770	1616	1770	1751	1770	1616	1770	1770	3508	3507
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	0.90	0.90
Adj. Flow (vph)	72	7	0	957	123	9	538	31	26	24	16	16	23	172	29	863
RTOR Reduction (vph)	7	0	0	13	0	0	0	0	0	14	0	0	152	0	6	0
Lane Group Flow (vph)	72	0	0	1057	0	9	538	0	26	26	0	16	43	0	29	911
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	8	5	2	1	6				7	4	3	8	2	1	6	
Permitted Phases																
Actuated Green, G (s)	1.8	17.9	0.5	22.4					1.4	6.8	0.5	6.0	1.6	23.1	5.5	27.0
Effective Green, g (s)	1.8	17.9	0.5	22.4					1.4	6.8	0.5	6.0	1.6	23.1	5.5	27.0
Actuated g/C Ratio	0.06	0.56	0.02	0.70					0.03	0.13	0.01	0.12	0.03	0.44	0.11	0.52
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)	191	1934	27	2462					48	229	20	186	54	1558	187	1821
vis Ratio Prot	c0.02	c0.31	0.01	c0.15					c0.01	0.01	0.01	c0.03	0.02	c0.26	c0.06	c0.14
vis Ratio Perm																
v/c Ratio	0.38	0.55	0.33	0.22					0.54	0.11	0.80	0.23	0.54	0.59	0.53	0.28
Uniform Delay, d1	14.7	4.6	15.7	1.8					25.0	19.9	25.6	20.9	24.8	10.9	22.0	7.0
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	1.3	0.3	7.2	0.0					11.9	0.2	110.1	0.6	9.9	0.6	2.7	0.1
Delay (s)	15.9	4.9	22.8	1.8					36.9	20.2	135.7	21.5	34.7	11.4	24.7	7.1
Level of Service	B	A	C	A					D	C	F	C	C	B	C	A
Approach Delay (s)	15.9	4.9	2.1						26.8			30.2		12.1		10.0
Approach LOS	B	A	A						C			C		B		A
Intersection Summary																
HCM Average Control Delay		4.5							14.0							
HCM Volume to Capacity ratio		0.54							0.55							
Actuated Cycle Length (s)		32.2							52.0							
Intersection Capacity Utilization		37.3%							55.3%							
Analysis Period (min)		15							15							
c Critical Lane Group																

Baseline
Synchro 7 - Report
Page 3

Baseline
Synchro 7 - Report
Page 4

HCM Signalized Intersection Capacity Analysis

5: Quarter Mile Road & El Camino Real

Near Term w/o Project PM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑	↘	↘	←	↔	↔	↑	↗	↗	↑	↗
Volume (vph)	7	42	33	41	30	20	48	913	117	23	450	10
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 Protected	1.00	1.00	0.85	1.00	0.94	1.00	0.98	1.00	0.98	1.00	1.00	0.95
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	0.95
Flt Permitted	1770	1863	1583	1770	1751	1770	3479	1770	3479	1770	3528	1770
Satd. Flow (perm)	1770	1863	1583	1770	1751	1770	3479	1770	3479	1770	3528	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)	8	47	37	46	33	22	53	1014	130	26	500	11
RTOR Reduction (vph)	0	0	34	0	20	0	0	11	0	0	2	0
Lane Group Flow (vph)	8	47	3	46	35	0	53	1133	0	26	509	0
Turn Type	Prot		Perm	Prot	8	3	Prot	5	2	Prot	1	6
Protected Phases	4				3				2			
Permitted Phases	4				3				2			
Actuated Green, G (s)	0.7	4.1	4.1	1.6	5.0	1.7	22.6	0.6	21.5	0.6	21.5	0.6
Effective Green, g (s)	0.7	4.1	4.1	1.6	5.0	1.7	22.6	0.6	21.5	0.6	21.5	0.6
Actuated g/C Ratio	0.02	0.09	0.09	0.04	0.11	0.04	0.50	0.01	0.48	0.01	0.48	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)	28	170	145	63	195	67	1751	24	1689	0.01	0.14	0.14
v/s Ratio Prot	0.00	c0.03	0.00	c0.03	0.02	c0.03	c0.33	0.01	0.14	0.01	0.14	0.14
v/c Ratio Perm												
v/c Ratio	0.29	0.28	0.02	0.73	0.18	0.79	0.65	1.08	0.30	1.08	0.30	0.30
Uniform Delay, d1	21.9	19.0	18.6	21.4	18.1	21.4	8.2	22.2	7.1	22.2	7.1	7.1
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	5.6	0.9	0.1	34.9	0.5	45.6	0.8	210.9	0.1	210.9	0.1	0.1
Delay (s)	27.4	19.9	18.6	56.4	18.5	67.0	9.0	233.0	7.2	233.0	7.2	7.2
Level of Service	C	B	B	E	B	E	A	F	A	F	A	A
Approach Delay (s)	20.0				35.8				11.6			
Approach LOS	C				D				B			
Intersection Summary												
HCM Average Control Delay	15.1				HCM Level of Service				B			
HCM Volume to Capacity ratio	0.66				Sum of lost time (s)				12.0			
Actuated Cycle Length (s)	44.9				ICU Level of Service				A			
Intersection Capacity Utilization	51.2%				Analysis Period (min)				15			

Baseline

Synchro 7 - Report
Page 5

HCM Signalized Intersection Capacity Analysis

6: Del Mar Heights Road & Mango Drive

Near Term w/o Project PM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↕↕↕	↵	↕↕	↕↕	↕	↕	↕	↕	↕	↕↕	↕
Volume (vph)	128	842	16	113	900	183	41	32	41	383	36	134
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	0.95	1.00	0.95	1.00	1.00	0.95	0.95	0.95
Flt	1.00	1.00	1.00	1.00	0.97	1.00	0.97	1.00	0.85	1.00	0.93	1.00
Flt Protected	0.95	1.00		0.95	1.00		0.97	1.00	0.97	1.00	0.95	0.98
Satd. Flow (prot)	1770	5071		1770	3450		1812	1583	1681	1681	1608	
Flt Permitted	0.95	1.00		0.95	1.00		0.97	1.00	0.95	1.00	0.98	
Satd. Flow (perm)	1770	5071		1770	3450		1812	1583	1681	1681	1608	
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	936	18	126	1000	203	46	36	46	426	40	149
RTOR Reduction (vph)	0	2	0	0	17	0	0	0	42	0	38	0
Lane Group Flow (vph)	142	952	0	126	1186	0	0	82	4	315	262	0
Turn Type	Prot			Prot			Split		Prot	Split		
Protected Phases	7	4		3	8		2	2	2	6		6
Permitted Phases												
Actuated Green, G (s)	8.3	30.6		8.8	31.1		7.6	7.6	7.6	17.5		17.5
Effective Green, g (s)	8.3	30.6		8.8	31.1		7.6	7.6	7.6	17.5		17.5
Actuated g/C Ratio	0.10	0.38		0.11	0.39		0.09	0.09	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
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)	182	1928		193	1333		171	149	365	350		350
v/s Ratio Prot	c0.08	0.19		0.07	c0.34		c0.05	0.00	c0.19	0.16		0.16
v/c Ratio Perm												
w/c Ratio	0.78	0.49		0.65	0.89		0.48	0.03	0.86	0.75		0.75
Uniform Delay, d1	35.2	19.0		34.4	23.1		34.6	33.1	30.3	29.4		29.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	19.2	0.2		7.7	7.6		2.1	0.1	18.5	8.4		8.4
Delay (s)	54.4	19.2		42.1	30.7		36.7	33.2	48.9	37.9		37.9
Level of Service	D	B		D	C		D	C	D	D		D
Approach Delay (s)					31.8				43.5			
Approach LOS					C				D			
Intersection Summary												

Baseline

Synchro 7 - Report
Page 6

HCM Unsignalized Intersection Capacity Analysis
7: Del Mar Heights Road & Portofino Drive

Near Term w/o Project PM
3/2/2012

Movement	EBT	EBL	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑
Volume (veh/h)	1218	64	0	1443	0	78	
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)	1353	71	0	1603	0	87	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type							
Median storage (veh)							
Upstream signal (ft)	575			607			
pX, platoon unblocked							
vC, conflicting volume							
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol							
IC, single (s)							
IC, 2 stage (s)							
IF (s)							
p0 queue free %							
p0 capacity (veh/h)							
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	541	541	342	802	802	87	87
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	71	0	0	87	87
cSH	1700	1700	1700	1700	1700	953	953
Volume to Capacity	0.32	0.32	0.20	0.47	0.47	0.09	0.09
Queue Length 95th (ft)	0	0	0	0	0	7	7
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.2	9.2
Lane LOS						A	A
Approach Delay (s)	0.0		0.0			9.2	
Approach LOS						A	
Intersection Summary							
Average Delay							
Intersection Capacity Utilization			43.2%			ICU Level of Service	A
Analysis Period (min)			15				

Baseline

HCM Signalized Intersection Capacity Analysis
8: Del Mar Heights Rd. & I-15 SB Ramps

Near Term w/o Project PM
3/2/2012

Movement	EBL	EBT	WBT	WBL	SBL	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑
Volume (vph)	0	910	1198	0	901	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		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	1011	1331	0	1001	332
RTOR Reduction (vph)	0	0	0	0	3	26
Lane Group Flow (vph)	0	1011	1331	0	1031	273
Turn Type						Perm
Protected Phases		2.6	6.2		4	
Permitted Phases						4
Actuated Green, G (s)		42.7	42.7		25.3	25.3
Effective Green, g (s)		42.7	42.7		25.3	25.3
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)		1891	1891		1086	456
v/s Ratio Prot		0.29	c0.38		c0.30	
v/s Ratio Perm						0.19
v/c Ratio		0.53	0.70		0.95	0.60
Uniform Delay, d1		12.1	13.9		26.7	23.0
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.3	1.2		16.4	2.1
Delay (s)		12.4	15.1		43.1	25.1
Level of Service		B	B		D	C
Approach Delay (s)		12.4	15.1		39.0	
Approach LOS		B	B		D	
Intersection Summary						
HCM Average Control Delay			23.0		HCM Level of Service	C
HCM Volume to Capacity ratio			0.80			
Actuated Cycle Length (s)			79.9		Sum of lost time (s)	11.9
Intersection Capacity Utilization			105.6%		ICU Level of Service	G
Analysis Period (min)			15			
c Critical Lane Group						

Baseline

HCM Signalized Intersection Capacity Analysis
9: Del Mar Heights Road & I-15 NB Ramps

HCM Signalized Intersection Capacity Analysis
10: Del Mar Heights Road & High Bluff Drive

Near Term w/o Project PM
3/22/2012

Near Term w/o Project PM
3/22/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔↔		↔	↔↔↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	242	1514	0	0	1188	890	649	24	802	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			0.91	1.00	0.95	0.91	0.95			
Frt	1.00	1.00			1.00	0.85	1.00	0.90	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (prot)	3433	3539			5085	1583	1681	1503	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (perm)	3433	3539			5085	1583	1681	1503	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)	269	1682	0	0	1320	989	721	27	891	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	476	0	9	9	0	0	0
Lane Group Flow (vph)	269	1682	0	0	1320	513	570	534	517	0	0	0
Turn Type	Prot	Prot	Prot	Prot	Split	Prot	Split	Prot	Prot	Prot	Prot	Prot
Protected Phases	5	2		6	6	8	8	8	8			
Permitted Phases												
Actuated Green, G (s)	11.1	65.2		50.1	50.1	46.8	46.8	46.8	46.8			
Effective Green, g (s)	11.1	65.2		50.1	50.1	46.8	46.8	46.8	46.8			
Actuated g/C Ratio	0.09	0.54		0.42	0.42	0.39	0.39	0.39	0.39			
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)	318	1923		2123	661	656	586	587				
v/s Ratio Prot	0.08	c0.48		0.26	0.32	0.34	c0.36	0.34				
v/s Ratio Perm												
v/c Ratio	0.85	0.87		0.62	0.78	0.87	0.91	0.88				
Uniform Delay, d1	53.6	23.8		27.5	30.1	33.8	34.6	34.0				
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00				
Incremental Delay, d2	18.3	5.9		1.4	8.7	11.8	18.4	14.4				
Delay (s)	71.9	29.8		28.9	38.8	45.5	53.1	48.4				
Level of Service	E	C		C	D	D	D	D				
Approach Delay (s)		35.6		33.1		48.9					0.0	
Approach LOS		D		C		D					A	
Intersection Summary												
HCM Average Control Delay	38.3											
HCM Volume to Capacity ratio	0.89											
Actuated Cycle Length (s)	120.0											
Intersection Capacity Utilization	98.8%											
Analysis Period (min)	15											
Critical Lane Group												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	249	2089	259	15	1353	29	637	67	138	28	30	82
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	0.97	0.95	1.00	1.00	1.00	0.85
Frt	1.00	1.00	0.85	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5089	3433	3181	3433	1770	1863	1583	1583
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)	1770	5085	1583	1770	5089	3433	3181	3433	1770	1863	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)	277	2321	288	17	1503	32	708	74	153	31	33	91
RTOR Reduction (vph)	0	0	94	0	2	0	0	110	0	0	0	85
Lane Group Flow (vph)	277	2321	194	17	1533	0	708	117	0	31	33	6
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	4	3	8	8	5	2	1	6	6	6
Permitted Phases												
Actuated Green, G (s)	18.2	53.7	53.7	1.7	37.2	23.1	23.1	26.4	3.6	6.9	6.9	6.9
Effective Green, g (s)	18.2	53.7	53.7	1.7	37.2	23.1	23.1	26.4	3.6	6.9	6.9	6.9
Actuated g/C Ratio	0.18	0.53	0.53	0.02	0.37	0.23	0.23	0.26	0.04	0.07	0.07	0.07
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)	318	2693	838	30	1860	782	828		63	127	108	
v/s Ratio Prot	c0.16	c0.46	0.12	0.01	0.30	c0.21	0.04		0.02	c0.02	0.00	
v/s Ratio Perm												
v/c Ratio	0.87	0.86	0.23	0.57	0.82	0.91	0.14		0.49	0.26	0.06	
Uniform Delay, d1	40.5	20.6	12.8	49.5	29.1	38.1	28.8		48.0	44.8	44.2	
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	22.0	3.1	0.1	22.3	3.1	13.9	0.1		5.9	1.1	0.2	
Delay (s)	62.4	23.7	12.9	71.7	32.2	52.0	28.9		53.9	45.9	44.4	
Level of Service	E	C	B	E	C	D	C		D	D	D	
Approach Delay (s)		26.4		32.7		46.4				46.6		
Approach LOS		C		C		D				D		
Intersection Summary												
HCM Average Control Delay	32.1											
HCM Volume to Capacity ratio	0.81											
Actuated Cycle Length (s)	101.4											
Intersection Capacity Utilization	78.5%											
Analysis Period (min)	15											
c Critical Lane Group												



Movement	EBT	EBR	WBT	WBR	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↑↑			↑
Volume (vph)	100	5	0	100	0	5
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	0.91	1.00	0.86	1.00
Frt	1.00	0.85	1.00	1.00	1.00	1.00
Flt Protected	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	5085	1583	5085	5085	1611	1611
Flt Permitted	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	5085	1583	5085	5085	1611	1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	5	0	109	0	5
RTOR Reduction (vph)	0	3	0	0	0	3
Lane Group Flow (vph)	109	2	0	109	0	2
Turn Type	Perm	Perm			custom	custom
Protected Phases	4	4	8			2
Permitted Phases						
Actuated Green, G (s)	16.0	16.0	16.0	16.0	16.0	16.0
Effective Green, g (s)	16.0	16.0	16.0	16.0	16.0	16.0
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	2034	633	2034	644		
v/s Ratio Prot	c0.02	0.00	0.02			c0.00
v/s Ratio Perm						0.00
v/c Ratio	0.05	0.00	0.05	0.05	0.00	0.00
Uniform Delay, d1	7.4	7.2	7.4	7.4	7.2	7.2
Progression Factor	1.00	1.00	0.80	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.1	0.1	0.0	0.0
Delay (s)	7.4	7.2	6.0	7.4	7.2	7.2
Level of Service	A	A	A	A	A	A
Approach Delay (s)	7.4		6.0	7.4	7.2	
Approach LOS	A		A	A	A	

Intersection Summary

HCM Average Control Delay	6.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.03		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Baseline



Movement	EBT	EBR	WBT	WBR	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↑↑			↑
Volume (vph)	100	5	0	100	0	5
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	0.91	1.00	0.86	1.00
Frt	1.00	0.85	1.00	1.00	1.00	1.00
Flt Protected	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	5085	1583	5085	5085	1611	1611
Flt Permitted	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	5085	1583	5085	5085	1611	1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	5	0	109	0	5
RTOR Reduction (vph)	0	3	0	0	0	3
Lane Group Flow (vph)	109	2	0	109	0	2
Turn Type	Perm	Perm			custom	custom
Protected Phases	4	4	8			2
Permitted Phases						
Actuated Green, G (s)	16.0	16.0	16.0	16.0	16.0	16.0
Effective Green, g (s)	16.0	16.0	16.0	16.0	16.0	16.0
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	2034	633	2034	644		
v/s Ratio Prot	c0.02	0.00	0.02			c0.00
v/s Ratio Perm						0.00
v/c Ratio	0.05	0.00	0.05	0.05	0.00	0.00
Uniform Delay, d1	7.4	7.2	7.4	7.4	7.2	7.2
Progression Factor	0.81	0.76	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.1	0.1	0.0	0.0
Delay (s)	6.0	5.5	7.4	7.4	7.2	7.2
Level of Service	A	A	A	A	A	A
Approach Delay (s)	6.0		7.4	7.4	7.2	
Approach LOS	A		A	A	A	

Intersection Summary

HCM Average Control Delay	6.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.03		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Baseline

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

Near Term w/o Project PM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SSR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SSR
Volume (vph)	452	1392	389	108	763	181	444	421	257	151	154	197
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	0.97	0.91	0.97	0.91	0.91	1.00	0.97	0.91	0.91
Flt	1.00	0.97	1.00	1.00	0.97	1.00	0.97	1.00	0.95	1.00	0.92	1.00
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4915	3433	4939	3433	5085	3433	5085	3433	4657	3433	4657
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	4915	3433	4939	3433	5085	3433	5085	3433	4657	3433	4657
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)	502	1547	443	120	848	201	493	468	286	168	171	219
RTOR Reduction (vph)	0	53	0	0	41	0	0	0	104	0	192	0
Lane Group Flow (vph)	502	1937	0	120	1008	0	493	468	182	168	198	0
Turn Type	Prot	7	4	Prot	3	8	Prot	5	2	2	1	6
Protected Phases	7	4	4	3	8	8	5	2	2	2	1	6
Permitted Phases	7	4	4	3	8	8	5	2	2	2	1	6
Actuated Green, G (s)	15.5	36.4	4.8	25.7	14.2	17.5	17.5	17.5	17.5	6.8	10.1	10.1
Effective Green, g (s)	15.5	36.4	4.8	25.7	14.2	17.5	17.5	17.5	17.5	6.8	10.1	10.1
Actuated g/C Ratio	0.19	0.45	0.06	0.32	0.17	0.21	0.21	0.21	0.21	0.08	0.12	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)	653	2195	202	1557	588	1092	340	286	577	577	577	577
v/s Ratio Prot	c0.15	c0.39	0.03	0.20	c0.14	0.09	c0.12	0.05	0.04	0.05	0.04	0.04
v/s Ratio Perm	0.77	0.88	0.59	0.65	0.82	0.43	0.54	0.59	0.34	0.59	0.34	0.34
Uniform Delay, d1	31.3	20.6	37.4	24.0	32.4	27.7	28.4	36.0	32.7	36.0	32.7	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	5.4	4.6	4.6	0.9	9.0	0.3	1.6	3.1	0.4	3.1	0.4	0.4
Delay (s)	36.7	25.2	42.0	24.9	41.5	27.9	30.0	39.1	33.0	39.1	33.0	33.0
Level of Service	D	C	D	C	D	C	C	C	C	D	C	C
Approach Delay (s)	27.5	27.5	27.5	26.7	26.7	26.7	33.8	33.8	33.8	34.8	34.8	34.8
Approach LOS	C	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary												
HCM Average Control Delay	29.5											
HCM Volume to Capacity ratio	0.80											
Actuated Cycle Length (s)	81.5											
Intersection Capacity Utilization	72.5%											
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

Synchro 7 - Report
Page 13

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

Near Term w/o Project PM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SSR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SSR
Volume (vph)	85	1107	458	82	545	74	323	172	149	80	128	101
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	0.97	0.91	0.97	0.91	0.91	1.00	0.95	0.95	0.95
Flt	1.00	0.96	1.00	1.00	0.96	1.00	0.96	1.00	0.95	1.00	0.93	1.00
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4861	3433	4994	3433	4731	3433	4731	1770	3305	3305	3305
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	4861	3433	4994	3433	4731	3433	4731	1770	3305	3305	3305
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)	94	1223	509	91	606	82	359	191	166	89	142	112
RTOR Reduction (vph)	0	91	0	0	21	0	0	133	0	0	96	0
Lane Group Flow (vph)	94	1641	0	91	667	0	359	224	0	89	158	0
Turn Type	Prot	7	4	Prot	3	8	Prot	5	2	1	6	6
Protected Phases	7	4	4	3	8	8	5	2	2	1	6	6
Permitted Phases	7	4	4	3	8	8	5	2	2	1	6	6
Actuated Green, G (s)	4.2	27.2	4.2	27.2	3.5	26.5	9.4	12.8	5.8	9.2	9.2	9.2
Effective Green, g (s)	4.2	27.2	4.2	27.2	3.5	26.5	9.4	12.8	5.8	9.2	9.2	9.2
Actuated g/C Ratio	0.06	0.42	0.06	0.42	0.05	0.41	0.14	0.20	0.09	0.14	0.14	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	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)	221	2025	184	2027	184	2027	494	927	157	466	466	466
v/s Ratio Prot	c0.03	c0.34	0.03	0.13	0.03	0.13	c0.10	c0.05	0.05	c0.05	c0.05	c0.05
v/s Ratio Perm	0.43	0.81	0.49	0.33	0.49	0.33	0.73	0.24	0.57	0.34	0.34	0.34
Uniform Delay, d1	29.4	16.8	30.0	13.3	30.0	13.3	26.7	22.2	28.5	25.3	25.3	25.3
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	1.3	2.6	2.1	0.1	2.1	0.1	5.3	0.1	4.6	0.4	0.4	0.4
Delay (s)	30.7	19.3	32.1	13.4	32.1	13.4	32.0	22.3	33.2	25.7	25.7	25.7
Level of Service	C	B	C	B	C	B	C	C	C	C	C	C
Approach Delay (s)	19.9	19.9	19.9	15.6	15.6	15.6	27.2	27.2	27.2	27.2	27.2	27.2
Approach LOS	B	B	B	B	B	B	C	C	C	C	C	C
Intersection Summary												
HCM Average Control Delay	21.1											
HCM Volume to Capacity ratio	0.66											
Actuated Cycle Length (s)	65.3											
Intersection Capacity Utilization	62.4%											
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

Synchro 7 - Report
Page 14

HCM Signalized Intersection Capacity Analysis
15: Del Mar Heights Road & Torrey Ridge Drive

HCM Signalized Intersection Capacity Analysis
16: Del Mar Heights Road & Lansdale Drive

Near Term w/o Project PM
3/2/2012

Near Term w/o Project PM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SSR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	49	1180	108	8	619	23	37	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	0.91	1.00	0.91	1.00	0.91	1.00	0.91	1.00	0.88
Flt Protected	1.00	0.99	1.00	0.99	1.00	0.99	1.00	0.99	1.00	0.99	1.00	0.88
Satd. Flow (prot)	1770	5021	1770	5058	1770	5058	1770	1669	1770	1642	1770	1631
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	5021	1770	5058	1770	5058	1770	1669	1770	1642	1770	1631
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	1311	120	9	688	26	41	16	36	31	9	34
RTOR Reduction (vph)	0	12	0	5	0	0	0	33	0	0	32	0
Lane Group Flow (vph)	54	1419	0	9	709	0	41	19	0	31	11	0
Turn Type	Prot	4	Prot	3	8	Prot	5	2	Prot	1	6	
Permitted Phases	1,4	21,5	0,6	20,7	0,6	20,7	1,3	3,1	0,9	0,9	2,7	
Actuated Green, G (s)	1,4	21,5	0,6	20,7	0,6	20,7	1,3	3,1	0,9	0,9	2,7	
Effective Green, g (s)	0,03	0,51	0,01	0,49	0,01	0,49	0,03	0,07	0,02	0,06		
Actuated g/C Ratio	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		
Vehicle Extension (s)	59	2564	25	2487	55	123	c0.02	c0.01	0,82	0,11		
Lane Grp Cap (vph)	c0.03	c0.28	0,01	0,14	0,01	0,14	0,01	0,14	0,02	0,01		
v/s Ratio Prot	0,92	0,55	0,36	0,29	0,75	0,15	0,75	0,15	0,82	0,11		
v/s Ratio Perm	20,3	7,0	20,6	6,3	20,2	18,3	20,2	18,3	20,5	18,6		
Uniform Delay, d1	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00		
Progression Factor	88,4	0,3	8,7	0,1	41,8	0,6	62,1	18,8	76,1	0,4		
Incremental Delay, d2	106,7	7,3	29,2	6,4	62,1	18,8	62,1	18,8	96,6	19,0		
Delay (s)	F	A	C	A	E	B	E	B	F	B		
Level of Service	B	A	C	A	E	B	E	B	F	B		
Approach Delay (s)	10,9		6,7		37,9		37,9		51,5			
Approach LOS	B		A		D		D		D			
Intersection Summary												
HCM Average Control Delay	11,9								B			
HCM Volume to Capacity ratio	0,43											
Actuated Cycle Length (s)	42,1								8,0			
Intersection Capacity Utilization	47,3%								A			
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)	244	928	65	22	452	25	40	46	35	24	33	164
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	0.91	1.00	0.91	1.00	0.88
Flt Protected	1.00	0.99	1.00	0.99	1.00	0.99	1.00	0.99	1.00	0.99	1.00	0.88
Satd. Flow (prot)	1770	5036	1770	5045	1770	5045	1770	1742	1770	1742	1770	1631
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	5036	1770	5045	1770	5045	1770	1742	1770	1742	1770	1631
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)	271	1031	72	24	502	28	44	51	39	27	37	182
RTOR Reduction (vph)	0	10	0	0	9	0	0	33	0	0	154	0
Lane Group Flow (vph)	271	1083	0	24	521	0	44	57	0	27	65	0
Turn Type	Prot	7	4	Prot	3	8	Prot	5	2	Prot	1	6
Permitted Phases	11,2	25,1	0,7	14,6	0,7	14,6	1,4	7,7	1,4	7,7		
Actuated Green, G (s)	11,2	25,1	0,7	14,6	0,7	14,6	1,4	7,7	1,4	7,7		
Effective Green, g (s)	0,22	0,49	0,01	0,29	0,01	0,29	0,03	0,15	0,03	0,15		
Actuated g/C Ratio	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		
Vehicle Extension (s)	389	2483	24	1447	49	264	49	264	49	247		
Lane Grp Cap (vph)	c0.15	c0.22	0,01	0,10	0,01	0,10	c0.02	0,03	0,02	c0.04		
v/s Ratio Prot	0,70	0,44	1,00	0,36	1,00	0,36	0,90	0,22	0,55	0,26		
v/s Ratio Perm	18,3	8,4	25,1	14,4	25,1	14,4	24,7	19,0	24,4	19,1		
Uniform Delay, d1	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00		
Progression Factor	5,4	0,1	183,7	0,2	90,0	0,4	90,0	0,4	12,7	0,6		
Incremental Delay, d2	23,6	8,5	208,8	14,6	114,7	19,4	114,7	19,4	37,2	19,7		
Delay (s)	C	A	F	B	F	B	F	B	D	B		
Level of Service	C	A	F	B	F	B	F	B	D	B		
Approach Delay (s)	11,5		23,0		23,0		50,7		21,6			
Approach LOS	B		C		C		D		C			
Intersection Summary												
HCM Average Control Delay	17,6								B			
HCM Volume to Capacity ratio	0,48											
Actuated Cycle Length (s)	50,9								12,0			
Intersection Capacity Utilization	51,3%								A			
Analysis Period (min)	15											
c Critical Lane Group												

Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	←←←	→	←←←	→	←←←	→	
Volume (vph)	811	160	92	411	104	255	
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	0.91	0.97	1.00	0.85	
Flt	0.98	1.00	1.00	1.00	1.00	0.85	
Flt Protected	1.00	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	4959	1770	5085	3433	1583	1583	
Flt Permitted	1.00	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	4959	1770	5085	3433	1583	1583	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	901	178	102	457	116	283	
RTOR Reduction (vph)	49	0	0	0	0	232	
Lane Group Flow (vph)	1030	0	102	457	116	51	
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	
Protected Phases	4	3	8	2	2	2	
Permitted Phases							
Actuated Green, G (s)	16.2	2.4	22.6	5.6	5.6	5.6	
Effective Green, g (s)	16.2	2.4	22.6	5.6	5.6	5.6	
Actuated g/C Ratio	0.45	0.07	0.62	0.15	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)	2219	117	3175	531	245	245	
v/s Ratio Prot	c0.21	c0.06	0.09	c0.03	0.03	0.03	
v/s Ratio Perm							
v/c Ratio	0.46	0.87	0.14	0.22	0.21	0.21	
Uniform Delay, d1	7.0	16.7	2.8	13.4	13.4	13.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	46.1	0.0	0.2	0.4	0.4	
Delay (s)	7.1	62.8	2.8	13.6	13.8	13.8	
Level of Service	A	E	A	B	B	B	
Approach Delay (s)	7.1		13.8	13.7			
Approach LOS	A		B	B			
Intersection Summary							
HCM Average Control Delay			10.2			HCM Level of Service	B
HCM Volume to Capacity ratio			0.45				
Actuated Cycle Length (s)			36.2			Sum of lost time (s)	12.0
Intersection Capacity Utilization			41.7%			ICU Level of Service	A
Analysis Period (min)			15				
c Critical Lane Group							

Movement	WBL	WBR	WBR2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	←	←	←	←	←	←	←	←	←	←	←
Volume (vph)	194	0	255	0	0	0	0	168	295	380	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	1.00	1.00	1.00	1.00	0.91	0.91	0.91	0.97	0.91	0.91	0.91
Flt	1.00	1.00	0.85	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	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1583	1583	4959	4959	4959	3433	5085	5085	5085
Flt Permitted	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1583	1583	4959	4959	4959	3433	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
Adj. Flow (vph)	216	0	283	0	0	0	0	187	328	422	0
RTOR Reduction (vph)	0	0	203	0	0	0	0	52	0	0	0
Lane Group Flow (vph)	216	0	80	0	0	0	0	1073	0	328	422
Turn Type	Prot	Perm	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	6		3				8		7		4
Permitted Phases											
Actuated Green, G (s)	11.2		11.2				16.0		8.5		28.5
Effective Green, g (s)	11.2		11.2				16.0		8.5		28.5
Actuated g/C Ratio	0.23		0.23				0.34		0.18		0.60
Clearance Time (s)	4.0		4.0				4.0		4.0		4.0
Vehicle Extension (s)	3.0		3.0				3.0		3.0		3.0
Lane Grp Cap (vph)	416		372				1663		612		3038
v/s Ratio Prot	c0.12		0.05				c0.22		c0.10		0.08
v/s Ratio Perm											
v/c Ratio	0.52		0.22				0.65		0.54		0.14
Uniform Delay, d1	15.9		14.7				13.4		17.8		4.2
Progression Factor	1.00		1.00				1.00		1.00		1.00
Incremental Delay, d2	1.1		0.3				0.9		0.9		0.0
Delay (s)	17.0		15.0				14.3		18.7		4.2
Level of Service	B		B				B		B		A
Approach Delay (s)	15.9		0.0				14.3		10.6		
Approach LOS	B		A				B		B		
Intersection Summary											
HCM Average Control Delay			13.5								B
HCM Volume to Capacity ratio			0.58								
Actuated Cycle Length (s)			47.7						12.0		
Intersection Capacity Utilization			49.2%						A		
Analysis Period (min)			15								
c Critical Lane Group											

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

Near Term w/o Project PM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (vph)	113	108	178	14	56	118	116	466	10	187	508	70
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
Frt	1.00	1.00	0.85	1.00	0.90	1.00	1.00	1.00	0.85	1.00	0.95	1.00
Flt Protected	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	1673	1770	3528	1770	3528	1770	3539	1583
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 (perm)	1770	1863	1583	1770	1673	1770	3528	1770	3528	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)	126	120	198	16	62	131	129	518	11	208	564	78
RTOR Reduction (vph)	0	0	138	0	106	0	0	2	0	0	0	54
Lane Group Flow (vph)	126	120	60	16	87	0	129	527	0	208	564	24
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	7.7	17.9	17.9	0.7	10.9	6.3	14.9	9.9	18.5	18.5	18.5	18.5
Actuated Green, G (s)	7.7	17.9	17.9	0.7	10.9	6.3	14.9	9.9	18.5	18.5	18.5	18.5
Effective Green, g (s)	0.13	0.30	0.30	0.01	0.18	0.11	0.25	0.17	0.31	0.31	0.31	0.31
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)	229	561	477	21	307	188	885	285	1102	483		
Lane Grp Cap (vph)	c0.07	0.06	0.04	0.01	c0.05	0.07	0.15	c0.12	c0.16	0.02		
v/s Ratio Prot												
v/s Ratio Perm	0.55	0.21	0.13	0.76	0.28	0.69	0.60	0.71	0.51	0.05		
Uniform Delay, d1	24.2	15.5	15.1	29.3	20.9	25.6	19.6	23.4	16.8	14.3		
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	2.8	0.2	0.1	92.1	0.5	9.9	1.1	7.5	0.4	0.0		
Delay (s)	27.1	15.7	15.2	121.3	21.4	35.5	20.7	30.8	17.2	14.3		
Level of Service	C	B	B	F	C	D	C	C	B	B		
Approach Delay (s)	18.7			29.0		23.6			20.2			
Approach LOS	B			C		C			C			

Intersection Summary		
HCM Average Control Delay	21.8	HCM Level of Service
HCM Volume to Capacity ratio	0.51	C
Actuated Cycle Length (s)	59.4	Sum of lost time (s)
Intersection Capacity Utilization	53.3%	16.0
Analysis Period (min)	15	A
c Critical Lane Group		

Baseline

Synchro 7 - Report
Page 19

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

Near Term w/o Project PM
3/2/2012

Movement	SEL	SET	SEB	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	SEL	SET	SEB	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Volume (vph)	217	12	10	144	2	80	29	689	206	97	402	32
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
Frt	1.00	0.93	1.00	1.00	1.00	0.85	1.00	0.97	1.00	0.99	1.00	0.99
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	1735	1770	1770	1863	1583	1770	4910	1770	5028	1770	5028
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	1735	1770	1770	1863	1583	1770	4910	1770	5028	1770	5028
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	89	32	766	229	108	447	36
RTOR Reduction (vph)	0	10	0	0	0	77	0	76	0	0	12	0
Lane Group Flow (vph)	241	14	0	160	2	12	32	919	0	108	471	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	1	6	5	2	2	2	7	4	3	8		
Permitted Phases	10.4	4.9	12.5	7.0	7.0	1.6	16.9	3.6	18.9			
Actuated Green, G (s)	10.4	4.9	12.5	7.0	7.0	1.6	16.9	3.6	18.9			
Effective Green, g (s)	0.19	0.09	0.23	0.13	0.13	0.03	0.31	0.07	0.35			
Actuated g/C Ratio	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			
Vehicle Extension (s)	342	168	410	242	206	53	1539	118	1763			
Lane Grp Cap (vph)	c0.14	c0.01	0.09	0.00	0.01	0.02	c0.19	c0.06	0.09			
v/s Ratio Prot												
v/s Ratio Perm	0.70	0.09	0.39	0.01	0.06	0.60	0.60	0.92	0.27			
Uniform Delay, d1	20.3	22.5	17.5	20.4	20.6	25.8	15.6	25.0	12.5			
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	6.5	0.2	0.6	0.0	0.1	17.9	0.6	56.7	0.1			
Delay (s)	26.8	22.7	18.1	20.4	20.7	43.7	16.3	81.7	12.6			
Level of Service	C	C	B	C	C	D	B	F	B			
Approach Delay (s)	26.4		19.0				17.1		25.2			
Approach LOS	C		B				B		C			

Intersection Summary			
HCM Average Control Delay	20.7	HCM Level of Service	
HCM Volume to Capacity ratio	0.55	C	
Actuated Cycle Length (s)	53.9	Sum of lost time (s)	
Intersection Capacity Utilization	52.0%	16.0	
Analysis Period (min)	15	A	
c Critical Lane Group			

Baseline

Synchro 7 - Report
Page 20

HCM Signalized Intersection Capacity Analysis
 21: Carmel Creek Road & Carmel Country Road

Near Term w/o Project PM

3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑	↔	↔	↑	↔	↔	↑	↔	↔	↑	↔
Volume (vph)	293	244	127	33	102	18	97	354	40	25	392	228
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
Flt	1.00	1.00	0.85	0.98	1.00	0.98	1.00	0.98	1.00	1.00	0.94	1.00
Flt Protected	0.95	1.00	1.00	0.99	1.00	0.99	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1813	1813	1770	3486	1770	3486	1770	3344	3444
Flt Permitted	0.95	1.00	1.00	0.99	1.00	0.99	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1813	1813	1770	3486	1770	3486	1770	3344	3444
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)	326	271	141	37	113	20	108	393	44	29	436	253
RTOR Reduction (vph)	0	0	107	0	8	0	0	11	0	0	111	0
Lane Group Flow (vph)	326	271	34	0	162	0	108	426	0	29	578	0
Turn Type	Split	Prot	Prot	Split	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	4	8	8	5	2	1	6			
Permitted Phases	15.2	15.2	15.2	8.8	8.8	4.8	20.8	1.6	17.6			
Actuated Green, G (s)	15.2	15.2	15.2	8.8	8.8	4.8	20.8	1.6	17.6			
Effective Green, g (s)	0.24	0.24	0.24	0.14	0.14	0.08	0.33	0.03	0.28			
Actuated g/C Ratio	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			
Vehicle Extension (s)	4.31	454	386	256	136	1162	c0.06	c0.12	45	943	c0.17	
Lane Grp Cap (vph)	0.18	0.15	0.02	0.09	0.63	0.79	0.37	0.64	0.61			
vs Ratio Prot	0.76	0.60	0.09	25.3	25.3	28.3	15.8	30.1	19.4			
vs Ratio Perm	21.9	20.9	18.2	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			
Progression Factor	7.4	2.1	0.1	5.1	5.1	26.4	0.2	27.5	1.2			
Incremental Delay, d2	29.3	23.0	18.3	30.3	30.3	54.8	16.0	57.6	20.6			
Delay (s)	C	C	B	C	C	D	B	E	C			
Level of Service	C	C	B	C	C	D	B	E	C			
Approach Delay (s)	24.9	C	C	30.3	30.3	23.7	C	22.1	C			
Approach LOS	C	C	C	C	C	C	C	C	C			
Intersection Summary												
HCM Average Control Delay	24.1											
HCM Volume to Capacity ratio	0.72											
Actuated Cycle Length (s)	62.4											
Intersection Capacity Utilization	61.4%											
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

Synchro 7 - Report

Page 21

HCM Signalized Intersection Capacity Analysis
 22: High Bluff Drive & El Camino Real

Near Term w/o Project PM

3/2/2012

Movement	EBL	EBT	EBR	EBR2	NWL2	NWL	NWR	NEL	NER	SWL	SWT	SWR
Lane Configurations	↔	↑	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	74	279	324	99	173	95	266	995	95	116	565	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	0.97	0.97	0.91	1.00	0.91	1.00	0.91
Flt	1.00	0.85	0.85	1.00	0.95	1.00	0.99	1.00	0.99	1.00	0.99	1.00
Flt Protected	0.95	1.00	1.00	0.95	0.97	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1583	1583	1770	3314	3433	5019	1770	5030	1770	5030	1770
Flt Permitted	0.95	1.00	1.00	0.95	0.97	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1583	1583	1770	3314	3433	5019	1770	5030	1770	5030	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	106	296	1106	106	129	628	49
RTOR Reduction (vph)	0	0	219	0	97	0	0	18	0	0	15	0
Lane Group Flow (vph)	82	310	141	110	201	0	296	1194	0	129	662	0
Turn Type	2	2	2	2	6	6	3	8	7	4		
Protected Phases	14.7	14.7	14.7	4.9	4.9	4.9	6.2	17.6	4.4	15.8		
Permitted Phases	14.7	14.7	14.7	4.9	4.9	4.9	6.2	17.6	4.4	15.8		
Actuated Green, G (s)	14.7	14.7	14.7	4.9	4.9	4.9	6.2	17.6	4.4	15.8		
Effective Green, g (s)	0.26	0.26	0.26	0.09	0.09	0.09	0.11	0.31	0.08	0.27		
Actuated g/C Ratio	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		
Vehicle Extension (s)	452	404	404	151	282	370	1534	135	1380	0.07	0.13	
Lane Grp Cap (vph)	0.05	c0.20	0.09	0.73	0.71	0.80	0.78	0.96	0.48			
vs Ratio Prot	0.18	0.77	0.35	0.73	0.71	0.80	0.78	0.96	0.48			
vs Ratio Perm	16.8	19.9	17.5	25.7	25.7	25.1	18.2	26.5	17.5			
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Progression Factor	0.2	8.5	0.5	16.1	8.3	11.7	2.6	63.3	0.3			
Incremental Delay, d2	16.9	28.3	18.1	41.8	33.9	36.8	20.8	89.8	17.7			
Delay (s)	B	C	B	D	C	D	C	F	B			
Level of Service	B	C	B	D	C	D	C	F	B			
Approach Delay (s)	22.2	C	C	36.0	D	23.9	C	28.3	C			
Approach LOS	C	C	C	D	D	C	C	C	C			
Intersection Summary												
HCM Average Control Delay	26.2											
HCM Volume to Capacity ratio	0.73											
Actuated Cycle Length (s)	57.6											
Intersection Capacity Utilization	55.0%											
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

Synchro 7 - Report

Page 22

HCM Unsignalized Intersection Capacity Analysis 23: High Bluff Drive & Carmel View Road

Near Term w/o Project PM
3/2/2012

Movement	SEL	SET	SE1	SE2	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	SE1	SE2	SE1	SE2	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Volume (vph)	183	26	129	4	11	4	93	0.90	0.90	0.90	0.90	0.90	0.90
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	0.90
Hourly flow rate (vph)	203	29	143	4	12	4	103	28	9	2	8	99	
Direction, Lane #	SE1	SE2	NW1	NE1	SW1								
Volume Total (vph)	232	143	21	140	103								
Volume Left (vph)	203	0	4	103	2								
Volume Right (vph)	0	143	4	9	99								
Head (s)	0.47	-0.67	-0.05	0.14	-0.51								
Departure Headway (s)	5.6	4.5	5.0	5.1	4.5								
Degree Utilization, x	0.36	0.18	0.03	0.20	0.14								
Capacity (veh/h)	614	770	656	662	733								
Control Delay (s)	10.6	7.3	8.2	9.4	8.3								
Approach Delay (s)	9.3	8.2	9.4	8.3									
Approach LOS	A	A	A	A	A								
Intersection Summary													
Delay													
HCM Level of Service													
Intersection Capacity Utilization													
Analysis Period (min)													

Baseline

HCM Signalized Intersection Capacity Analysis 24: Carmel Grove Road & Carmel Creek Road

Near Term w/o Project PM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (vph)	119	52	72	57	27	9	111	742	138	6	331	84
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	0.98	1.00	0.97	1.00	0.95
Flt	1.00	0.85	0.99	1.00	0.97	0.95	1.00	0.98	1.00	0.97	1.00	0.95
Flt Protected	0.97	1.00	0.97	1.00	0.97	0.95	1.00	0.98	1.00	0.97	1.00	0.95
Satd. Flow (prot)	1800	1563	1784	1784	1784	1784	1770	3456	1770	3432	1770	3432
Flt Permitted	0.97	1.00	0.97	1.00	0.97	0.95	1.00	0.98	1.00	0.97	1.00	0.95
Satd. Flow (perm)	1800	1563	1784	1784	1784	1784	1770	3456	1770	3432	1770	3432
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)	132	58	80	63	30	10	123	824	153	7	368	93
RTOR Reduction (vph)	0	0	68	0	6	0	0	16	0	0	25	0
Lane Group Flow (vph)	0	190	12	0	97	0	123	961	0	7	436	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	1	6	6
Permitted Phases												
Actuated Green, G (s)	8.7	8.7	6.6	6.6	6.6	6.6	5.8	25.4	0.7	20.3	0.7	20.3
Effective Green, g (s)	8.7	8.7	6.6	6.6	6.6	6.6	5.8	25.4	0.7	20.3	0.7	20.3
Actuated g/C Ratio	0.15	0.15	0.11	0.11	0.11	0.11	0.10	0.44	0.01	0.35	0.01	0.35
Clearance Time (s)	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	3.0	3.0
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)	273	240	205	205	205	205	179	1529	22	1214	22	1214
v/s Ratio Prot	c0.11	0.01					c0.07	c0.28	0.00	0.13	0.00	0.13
v/s Ratio Perm												
v/c Ratio	0.70	0.05	0.47	0.47	0.47	0.47	0.69	0.63	0.32	0.36	0.32	0.36
Uniform Delay, d1	23.1	20.8	23.8	23.8	23.8	23.8	24.9	12.4	28.1	13.7	28.1	13.7
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	7.5	0.1	1.7	1.7	1.7	1.7	10.4	0.8	8.2	0.2	8.2	0.2
Delay (s)	30.6	20.9	25.5	25.5	25.5	25.5	35.4	13.2	36.3	13.9	36.3	13.9
Level of Service	C	C	C	C	C	C	D	B	D	B	D	B
Approach Delay (s)	27.7		25.5	25.5	25.5	25.5	15.7		14.3		14.3	
Approach LOS	C		C	C	C	C	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												

Baseline

HCM Signalized Intersection Capacity Analysis
25: Carmel Valley Road & I-5 SB Ramps

Near Term w/o Project PM

3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SSL	SBT	SSR
Volume (vph)	0	640	141	631	880	0	0	0	0	906	1	75
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	0.95	0.97	0.95	0.95	0.95	0.95	0.91	0.95	0.95	0.91	0.85
Flt	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	0.95	1.00
Satd. Flow (prot)	3443	3433	3539	3433	3539	3433	3539	1681	1612	1504	1504	1504
Flt 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)	3443	3433	3539	3433	3539	3433	3539	1681	1612	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)	0	711	157	701	989	0	0	0	0	1007	1	83
RTOR Reduction (vph)	0	27	0	0	0	0	0	0	0	0	0	49
Lane Group Flow (vph)	0	841	0	701	989	0	0	0	0	503	512	26
Turn Type	4	Prot	3	8	Prot	6	6	6	6	6	6	6
Protected Phases												
Permitted Phases												
Actuated Green, G (s)	18.0	15.4	37.4	23.9	23.9	23.9	23.9	23.9	23.9	23.9	23.9	23.9
Effective Green, g (s)	18.0	15.4	37.4	23.9	23.9	23.9	23.9	23.9	23.9	23.9	23.9	23.9
Actuated g/C Ratio	0.26	0.22	0.54	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	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)	894	763	1910	580	556	519	519	519	519	519	519	519
v/s Ratio Prot	c0.24	c0.20	0.28	0.30	c0.32	0.02	0.02	0.02	0.02	0.02	0.02	0.02
v/s Ratio Perm	0.94	0.92	0.52	0.87	0.92	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Uniform Delay, d1	25.1	26.3	10.2	21.2	21.8	15.1	15.1	15.1	15.1	15.1	15.1	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	17.5	15.9	0.2	12.9	20.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay (s)	42.6	42.2	10.4	34.1	42.6	15.2	15.2	15.2	15.2	15.2	15.2	15.2
Level of Service	D	D	B	C	D	B	B	B	B	D	D	D
Approach Delay (s)	42.6	23.6	0.0	36.8	0.0	0.0	0.0	0.0	0.0	36.8	0.0	0.0
Approach LOS	D	C	A	D	A	A	A	A	A	D	A	A
Intersection Summary												
HCM Average Control Delay	32.1	HCM Level of Service	C									
HCM Volume to Capacity ratio	0.93											
Actuated Cycle Length (s)	69.3	Sum of lost time (s)	12.0									
Intersection Capacity Utilization	87.5%	ICU Level of Service	E									
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

Synchro 7 - Report
Page 25

HCM Signalized Intersection Capacity Analysis
26: Carmel Valley Road & I-5 NB Ramps

Near Term w/o Project PM

3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SSL	SBT	SSR
Volume (vph)	127	1443	0	0	1025	872	452	7	700	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	0.95	1.00	0.95	1.00	0.91	0.95	0.95	0.91	0.85
Flt	1.00	1.00	1.00	1.00	0.85	1.00	0.85	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	1.00	0.95	0.99	1.00	1.00	0.95	0.99	1.00
Satd. Flow (prot)	3433	3539	3539	3539	1583	1681	1469	1504	1504	1504	1504	1504
Flt Permitted	0.95	1.00	1.00	1.00	1.00	0.95	0.99	1.00	1.00	0.95	0.99	1.00
Satd. Flow (perm)	3433	3539	3539	3539	1583	1681	1469	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)	141	1603	0	0	1139	969	502	8	778	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	524	0	11	11	0	0
Lane Group Flow (vph)	141	1603	0	0	1139	445	447	410	409	0	0	0
Turn Type	Prot	7	4	8	8	2	2	2	2	2	2	2
Protected Phases												
Permitted Phases												
Actuated Green, G (s)	3.5	31.5	24.0	24.0	24.0	19.4	19.4	19.4	19.4	19.4	19.4	19.4
Effective Green, g (s)	3.5	31.5	24.0	24.0	24.0	19.4	19.4	19.4	19.4	19.4	19.4	19.4
Actuated g/C Ratio	0.06	0.53	0.41	0.41	0.41	0.33	0.33	0.33	0.33	0.33	0.33	0.33
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)	204	1893	1442	645	554	484	495	495	495	495	495	495
v/s Ratio Prot	0.04	c0.45	0.32	0.28	0.27	c0.28	0.27	0.27	0.27	0.27	0.27	0.27
v/s Ratio Perm	0.69	0.85	0.79	0.69	0.81	0.85	0.83	0.83	0.83	0.83	0.83	0.83
Uniform Delay, d1	27.2	11.6	15.2	14.4	18.0	18.4	18.2	18.2	18.2	18.2	18.2	18.2
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	9.7	3.7	3.0	3.1	8.4	12.8	10.8	10.8	10.8	10.8	10.8	10.8
Delay (s)	36.8	15.4	18.2	17.5	26.5	31.2	29.0	29.0	29.0	29.0	29.0	29.0
Level of Service	D	B	B	B	C	C	C	C	C	C	C	C
Approach Delay (s)	17.1	17.9	17.9	17.9	17.9	28.8	0.0	0.0	0.0	0.0	0.0	0.0
Approach LOS	B	B	B	B	C	A	A	A	A	A	A	A
Intersection Summary												
HCM Average Control Delay	20.4	HCM Level of Service	C									
HCM Volume to Capacity ratio	0.85											
Actuated Cycle Length (s)	58.9	Sum of lost time (s)	8.0									
Intersection Capacity Utilization	87.5%	ICU Level of Service	E									
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

Synchro 7 - Report
Page 26

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	50	37	50	490	31	95	109	944	220	158	1442	43
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	1.00	0.91	1.00	0.91
Lane Util. Factor	1.00	0.98	0.95	1.00	0.99	0.95	1.00	0.97	1.00	0.97	1.00	1.00
Flt	0.95	0.99	1.00	0.95	0.96	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Flt Protected	1681	1649	1504	1681	1617	1504	1770	4941	1770	5063	5063	43
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	56	41	56	544	34	106	121	1049	244	176	1602	48
Satd. Flow (perm)	0	7	44	0	2	74	0	37	0	0	3	0
Peak-hour factor, PHF	50	48	4	294	293	21	121	1256	0	176	1647	0
Adj. Flow (vph)	Spill	Prot	Spill	Prot	Spill	Prot	Prot	Prot	Prot	Prot	Prot	Prot
RTOR Reduction (vph)	4	4	4	8	8	8	5	21	61	61	61	61
Lane Group Flow (vph)	6.5	6.5	6.5	17.3	17.3	17.3	17.3	43.6	31.9	31.9	31.9	31.9
Turn Type	6.5	6.5	6.5	17.3	17.3	17.3	17.3	43.6	31.9	31.9	31.9	31.9
Protected Phases	0.08	0.08	0.08	0.22	0.22	0.22	0.10	0.35	0.40	0.40	0.40	0.40
Actuated 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
Effective Green, g (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
Actuated g/C Ratio	138	135	123	366	352	328	172	2713	711	2034	2034	2034
Clearance Time (s)	c0.03	0.03	0.00	0.17	c0.18	0.01	c0.07	0.25	0.10	c0.33	c0.33	c0.33
Vehicle Extension (s)	0.36	0.35	0.03	0.80	0.83	0.06	0.70	0.46	0.25	0.25	0.25	0.25
Lane Grp Cap (vph)	34.5	34.5	33.6	29.4	29.7	24.6	34.7	10.8	15.8	15.8	21.1	21.1
vs Ratio Prot	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
vs Ratio Perm	1.6	1.6	0.1	12.0	15.5	0.1	12.3	0.1	0.2	0.2	2.5	2.5
Uniform Delay, d1	36.1	36.1	33.7	41.5	45.1	24.7	47.0	10.9	16.0	16.0	23.5	23.5
Progression Factor	D	D	C	D	D	C	D	D	B	B	C	C
Incremental Delay, d2	35.3	35.3	33.7	41.5	45.1	24.7	47.0	10.9	16.0	16.0	23.5	23.5
Delay (s)	D	D	C	D	D	C	D	D	B	B	C	C
Level of Service	D	D	C	D	D	C	D	D	B	B	C	C
Approach Delay (s)	D	D	C	D	D	C	D	D	B	B	C	C
Approach LOS	D	D	C	D	D	C	D	D	B	B	C	C
Intersection Summary												
HCM Average Control Delay	23.2											
HCM Volume to Capacity ratio	0.76											
Actuated Cycle Length (s)	79.4											
Intersection Capacity Utilization	66.9%											
Analysis Period (min)	15											
f - Phase conflict between lane groups.	15											
c - Critical Lane Group	15											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	223	405	1068	0	0	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	0.91	0.97	1.00	0.97	0.95	1.00	0.95	1.00	0.91	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
Flt	0.95	0.99	1.00	0.95	0.96	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Flt Protected	3433	5085	1583	3433	3433	3433	3433	3433	3433	3433	3433	3433
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	0	0	0	248	956	244	450	1187	0	0	778	901
Satd. Flow (perm)	0	0	0	0	0	0	64	0	0	0	7	7
Peak-hour factor, PHF	0	0	0	248	956	244	450	1187	0	0	778	901
Adj. Flow (vph)	0	0	0	248	956	244	450	1187	0	0	778	901
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	248	956	244	450	1187	0	0	778	901
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	3	3	3	8	8	8	5	2	6	6	6	6
Actuated Green, G (s)	16.2	16.2	16.2	16.2	16.2	16.2	10.2	39.6	25.4	25.4	25.4	25.4
Effective Green, g (s)	16.2	16.2	16.2	16.2	16.2	16.2	10.2	39.6	25.4	25.4	25.4	25.4
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)	872	1291	402	549	2197	2197	c0.13	0.34	0.30	c0.33	c0.33	c0.33
vs Ratio Prot	0.07	c0.19	0.11	c0.13	0.34	0.34	0.13	0.34	0.30	c0.33	c0.33	c0.33
vs Ratio Perm	0.28	0.74	0.45	0.82	0.54	0.54	0.28	0.74	0.45	0.82	0.54	0.54
Uniform Delay, d1	18.1	21.9	20.0	25.9	6.9	6.9	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	0.2	2.3	0.8	9.3	0.3	0.3	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	19.3	24.2	20.8	35.2	7.2	7.2	1.00	1.00	1.00	1.00	1.00	1.00
Delay (s)	B	C	C	C	D	D	1.00	1.00	1.00	1.00	1.00	1.00
Level of Service	B	C	C	C	D	D	1.00	1.00	1.00	1.00	1.00	1.00
Approach Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Approach LOS	A	A	A	A	B	B	1.00	1.00	1.00	1.00	1.00	1.00
Intersection Summary												
HCM Average Control Delay	19.2											
HCM Volume to Capacity ratio	0.79											
Actuated Cycle Length (s)	63.8											
Intersection Capacity Utilization	112.8%											
Analysis Period (min)	15											
f - Phase conflict between lane groups.	15											
c - Critical Lane Group	15											

HCM Signalized Intersection Capacity Analysis
29: SR-56 EB on ramp & El Camino Real

Near Term w/o Project PM
3/2/2012

Movement	EBL	EBT	EBL	EBT	WBL	WBT	WBL	WBT	NBL	NBT	NBL	NBT	SBL	SBT	SBL	SBT
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Volume (vph)	537	1031	133	0	0	0	0	0	899	442	260	620	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	0.91	0.86	0.91	0.86	0.91	0.86	0.91	0.86	0.91	0.86	0.91	0.86	0.91
Lane Util. Factor	0.95	0.95	0.95	0.95	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 Protected	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Satd. Flow (prot)	1610	3190	1441	6091	6091	6091	6091	6091	6091	6091	6091	6091	6091	6091	6091	6091
Flt Permitted	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Satd. Flow (perm)	1610	3190	1441	6091	6091	6091	6091	6091	6091	6091	6091	6091	6091	6091	6091	6091
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	0.90	0.90
Adj. Flow (vph)	597	1146	148	0	0	0	0	0	999	491	289	689	0	0	0	0
RTOR Reduction (vph)	0	1	80	0	0	0	0	0	41	0	0	0	0	0	0	0
Lane Group Flow (vph)	537	1220	53	0	0	0	0	0	1449	0	289	689	0	0	0	0
Turn Type	Split	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	4	2	2	2	2	2	2	2	2	2	2	2	2	2
Permitted Phases	30.0	30.0	30.0	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6
Actuated Green, G (s)	30.0	30.0	30.0	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6
Effective Green, g (s)	0.40	0.40	0.40	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
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	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	3.0	3.0
Vehicle Extension (s)	644	1276	576	1592	1592	1592	1592	1592	1592	1592	1592	1592	1592	1592	1592	1592
Lane Grp Cap (vph)	0.33	c0.38	0.04	c0.24	c0.24	c0.24	c0.24	c0.24	c0.24	c0.24	c0.24	c0.24	c0.24	c0.24	c0.24	c0.24
v/s Ratio Prot	0.83	0.96	0.09	1.06dr	1.06dr	1.06dr	1.06dr	1.06dr	1.06dr	1.06dr	1.06dr	1.06dr	1.06dr	1.06dr	1.06dr	1.06dr
v/s Ratio Perm	20.3	21.9	14.0	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8
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	1.00	1.00
Progression Factor	9.1	15.7	0.1	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
Incremental Delay, d2	29.4	37.6	14.1	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
Delay (s)	C	D	B	D	D	D	D	D	D	D	D	D	D	D	D	D
Level of Service	C	D	B	D	D	D	D	D	D	D	D	D	D	D	D	D
Approach Delay (s)	33.6	C	0.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
Approach LOS	C	C	A	D	D	D	D	D	D	D	D	D	D	D	D	D

Intersection Summary			
HCM Average Control Delay	32.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.93	Sum of lost time (s)	12.0
Actuated Cycle Length (s)	75.0	ICU Level of Service	H
Intersection Capacity Utilization	112.8%		
Analysis Period (min)	15		
dr Defacto Right Lane. Recode with 1 though lane as a right lane.			
c Critical Lane Group			

Baseline

Synchro 7 - Report
Page 29

HCM Signalized Intersection Capacity Analysis
30: Valley Centre Drive & Carmel View Road

Near Term w/o Project PM
3/2/2012

Movement	EBL	EBT	EBL	EBT	WBL	WBT	WBL	WBT	NBL	NBT	NBL	NBT	SBL	SBT	SBL	SBT
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Volume (vph)	68	390	0	357	97	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Lane Util. Factor	0.95	0.95	0.95	0.95	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 Protected	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Satd. Flow (prot)	1770	3539	3426	6091	6091	6091	6091	6091	6091	6091	6091	6091	6091	6091	6091	6091
Flt Permitted	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Satd. Flow (perm)	1770	3539	3426	6091	6091	6091	6091	6091	6091	6091	6091	6091	6091	6091	6091	6091
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	0.90	0.90
Adj. Flow (vph)	76	433	0	397	108	34	52	34	52	34	52	34	52	34	52	34
RTOR Reduction (vph)	0	0	0	49	0	0	46	0	46	0	46	0	46	0	46	0
Lane Group Flow (vph)	76	433	0	456	0	34	6	34	6	34	6	34	6	34	6	34
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	8	8	8	8	8	8	8	8	8	8	8	8
Permitted Phases	1.3	13.5	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
Actuated Green, G (s)	1.3	13.5	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
Effective Green, g (s)	0.05	0.55	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	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	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	3.0	3.0
Vehicle Extension (s)	94	1960	1147	c0.04	c0.13	c0.02	0.00	c0.02	0.00	c0.02	0.00	c0.02	0.00	c0.02	0.00	c0.02
Lane Grp Cap (vph)	0.81	0.22	0.40	0.81	0.22	0.40	0.81	0.22	0.40	0.81	0.22	0.40	0.81	0.22	0.40	0.81
v/s Ratio Prot	11.5	2.8	6.3	11.5	2.8	6.3	11.5	2.8	6.3	11.5	2.8	6.3	11.5	2.8	6.3	11.5
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	1.00	1.00	1.00	1.00
Uniform Delay, d1	38.1	0.1	0.2	38.1	0.1	0.2	38.1	0.1	0.2	38.1	0.1	0.2	38.1	0.1	0.2	38.1
Progression Factor	49.6	2.9	6.5	49.6	2.9	6.5	49.6	2.9	6.5	49.6	2.9	6.5	49.6	2.9	6.5	49.6
Incremental Delay, d2	D	A	A	D	A	A	D	A	A	D	A	A	D	A	A	D
Delay (s)	D	A	A	D	A	A	D	A	A	D	A	A	D	A	A	D
Level of Service	D	A	A	D	A	A	D	A	A	D	A	A	D	A	A	D
Approach Delay (s)	9.8	6.5	9.7	9.8	6.5	9.7	9.8	6.5	9.7	9.8	6.5	9.7	9.8	6.5	9.7	9.8
Approach LOS	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A

Intersection Summary		
HCM Average Control Delay	8.3	HCM Level of Service
HCM Volume to Capacity ratio	0.38	A
Actuated Cycle Length (s)	24.5	Sum of lost time (s)
Intersection Capacity Utilization	30.1%	12.0
Analysis Period (min)	15	ICU Level of Service
		A
c Critical Lane Group		

Baseline

Synchro 7 - Report
Page 30

Movement	EBL	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL	SBT	SBT2
Lane Configurations	110	293	331	126	162	99	370	825	332	272	140	131
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	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95
Satd. Flow (prot)	1770	2787	1583	1770	1757	1770	3539	1583	3433	3539	1583	1583
Flt Permitted	0.58	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95
Satd. Flow (perm)	1085	2787	1583	1770	1757	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)	122	326	368	140	180	110	411	917	369	302	156	146
RTOR Reduction (vph)	0	0	299	0	28	0	0	212	0	0	0	114
Lane Group Flow (vph)	122	326	69	140	262	0	411	917	157	302	156	32
Turn Type	custom	custom	custom	Prot	8	Prot	5	2	2	1	6	6
Protected Phases	4	4	4	4	4	4	4	4	4	4	4	4
Permitted Phases	13.8	13.8	13.8	8.0	25.8	20.1	26.6	26.6	26.6	9.5	16.0	16.0
Actuated Green, G (s)	13.8	13.8	13.8	8.0	25.8	20.1	26.6	26.6	26.6	9.5	16.0	16.0
Effective Green, g (s)	0.19	0.19	0.19	0.11	0.35	0.27	0.36	0.36	0.36	0.13	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)	203	520	296	192	613	481	1274	570	441	766	343	343
Lane Grp Cap (vph)	0.11	0.12	0.04	0.08	0.15	0.23	0.26	0.10	0.09	0.04	0.02	0.02
v/s Ratio Prot	0.60	0.63	0.23	0.73	0.43	0.85	0.72	0.27	0.88	0.20	0.09	0.09
v/s Ratio Perm	27.5	27.7	25.5	31.9	18.4	25.5	20.4	16.8	30.8	23.7	23.1	23.1
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	4.9	2.4	0.4	13.0	0.5	13.8	2.0	0.3	4.4	0.1	0.1	0.1
Incremental Delay, d2	32.5	30.0	26.0	44.9	18.9	39.3	22.4	17.1	35.1	23.9	23.3	23.3
Delay (s)	C	C	C	C	D	D	C	C	B	D	C	C
Level of Service	C	C	C	D	B	D	C	C	B	D	C	C
Approach Delay (s)	27.3	27.3	27.3	27.3	27.3	27.3	27.3	27.3	27.3	27.3	27.3	27.3
Approach LOS	C	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary												
HCM Average Control Delay	27.0											
HCM Volume to Capacity ratio	0.73											
Actuated Cycle Length (s)	73.9											
Intersection Capacity Utilization	64.6%											
Analysis Period (min)	15											
c Critical Lane Group												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	935	0	221	0	0	0	0	642	213	358	232	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	0.95	0.95	0.95	0.95	0.97	0.95	0.95
Lane Util. Factor	1.00	1.00	0.85	1.00	0.85	1.00	1.00	0.96	1.00	1.00	1.00	1.00
Flt Protected	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95
Satd. Flow (prot)	1681	1681	1583	1681	1681	1583	3407	3407	3433	3539	1583	1583
Flt Permitted	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95
Satd. Flow (perm)	1681	1681	1583	1681	1681	1583	3407	3407	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)	1039	0	246	0	0	0	0	713	237	398	258	0
RTOR Reduction (vph)	0	0	160	0	0	0	0	50	0	0	0	0
Lane Group Flow (vph)	519	520	86	0	0	0	0	900	0	398	258	0
Turn Type	Split	Prot	Prot	Prot	Prot	Prot	Prot	2	1	6	6	6
Protected Phases	4	4	4	4	4	4	4	4	4	4	4	4
Permitted Phases	22.2	22.2	22.2	22.2	22.2	22.2	22.2	20.2	20.2	9.0	33.2	33.2
Actuated Green, G (s)	22.2	22.2	22.2	22.2	22.2	22.2	22.2	20.2	20.2	9.0	33.2	33.2
Effective Green, g (s)	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.32	0.32	0.14	0.52	0.52
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)	589	589	554	589	589	554	1086	1086	1086	487	1853	1853
Lane Grp Cap (vph)	0.31	0.31	0.05	0.31	0.31	0.05	0.26	0.26	0.26	0.12	0.07	0.07
v/s Ratio Prot	0.88	0.88	0.16	0.88	0.88	0.16	0.83	0.83	0.83	0.82	0.14	0.14
v/s Ratio Perm	19.4	19.4	14.2	19.4	19.4	14.2	20.0	20.0	20.0	26.4	7.8	7.8
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	14.4	14.6	0.1	14.4	14.6	0.1	5.3	5.3	5.3	10.2	0.0	0.0
Incremental Delay, d2	33.8	34.0	14.3	33.8	34.0	14.3	25.3	25.3	25.3	36.6	7.8	7.8
Delay (s)	C	C	B	C	C	B	C	C	C	D	A	A
Level of Service	C	C	B	C	C	B	C	C	C	D	A	A
Approach Delay (s)	30.1	30.1	14.3	30.1	30.1	14.3	25.3	25.3	25.3	36.6	7.8	7.8
Approach LOS	C	C	B	C	C	B	C	C	C	D	A	A
Intersection Summary												
HCM Average Control Delay	27.4											
HCM Volume to Capacity ratio	0.85											
Actuated Cycle Length (s)	63.4											
Intersection Capacity Utilization	70.7%											
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
33: Carmel Country Road & Carmel Canyon Road

HCM Signalized Intersection Capacity Analysis
34: SR-56 WB Ramps & Carmel Country Road

Near Term w/o Project PM
3/2/2012

Near Term w/o Project PM
3/2/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	131	419	31	94	387	412	45	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	0.92
Lane Util. Factor	1.00	0.99	1.00	0.92	1.00	0.93	1.00	0.93	1.00	0.95	1.00	0.92
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	3503	1770	3265	1770	3265	1770	3265	1770	3433	1708	1708
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	3503	1770	3265	1770	3265	1770	3265	1770	3433	1708	1708
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)	146	466	34	104	430	458	50	147	119	263	60	74
RTOR Reduction (vph)	0	9	0	0	323	0	0	51	0	0	52	0
Lane Group Flow (vph)	146	491	0	104	565	0	50	215	0	263	82	0
Turn Type	Prot	1	6	5	2	7	4	4	3	3	8	8
Protected Phases												
Permitted Phases												
Actuated Green, G (s)	5.7	17.1	3.4	14.8	2.5	13.2	2.5	13.2	5.4	16.1	5.4	16.1
Effective Green, g (s)	5.7	17.1	3.4	14.8	2.5	13.2	2.5	13.2	5.4	16.1	5.4	16.1
Actuated g/C Ratio	0.10	0.31	0.06	0.27	0.05	0.24	0.05	0.24	0.10	0.29	0.10	0.29
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)	183	1087	109	877	80	416	80	416	336	499	336	499
v/s Ratio Prot	c0.08	0.14	0.06	c0.17	0.03	c0.12	0.03	c0.12	c0.08	c0.05	c0.08	c0.05
v/s Ratio Perm	0.80	0.45	0.95	0.64	0.62	0.52	0.62	0.52	0.78	0.16	0.78	0.16
Uniform Delay, d1	24.1	15.2	25.8	17.8	25.8	18.2	24.3	14.5	24.3	14.5	24.3	14.5
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	21.0	0.3	71.1	1.6	14.2	1.1	14.2	1.1	11.3	0.2	11.3	0.2
Delay (s)	45.1	15.5	96.9	19.5	40.1	19.3	35.6	14.7	35.6	14.7	35.6	14.7
Level of Service	D	B	F	B	D	B	D	B	D	B	D	B
Approach Delay (s)	22.2	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6
Approach LOS	C	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary												
HCM Average Control Delay	25.6											
HCM Volume to Capacity ratio	0.67											
Actuated Cycle Length (s)	55.1											
Intersection Capacity Utilization	64.8%											
Analysis Period (min)	15											
c Critical Lane Group												

Movement	WBL	WBR	SEL	SET	NWT	NWR	NW2	SWL	SWR
Lane Configurations	0	0	277	486	640	0	196	151	248
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	0.95	1.00	0.95	1.00	0.97	1.00	0.85
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	3539	3539	3539	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	3539	3539	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	308	540	711	0	218	168	276
RTOR Reduction (vph)	0	0	0	0	0	0	140	0	224
Lane Group Flow (vph)	0	0	308	540	711	0	78	168	52
Turn Type	Prot	5	2	6	6	6	6	4	4
Protected Phases									
Permitted Phases									
Actuated Green, G (s)	7.8	27.3	15.5	15.5	15.5	15.5	8.1	8.1	8.1
Effective Green, g (s)	7.8	27.3	15.5	15.5	15.5	15.5	8.1	8.1	8.1
Actuated g/C Ratio	0.18	0.63	0.36	0.36	0.36	0.36	0.36	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
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)	617	2226	1264	1264	1264	1264	585	641	295
v/s Ratio Prot	c0.09	0.15	c0.20	c0.20	c0.20	c0.20	c0.05	c0.05	0.03
v/s Ratio Perm	0.50	0.24	0.56	0.56	0.56	0.56	0.14	0.26	0.17
Uniform Delay, d1	16.0	3.5	11.2	11.2	11.2	11.2	9.4	15.1	14.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.1	0.6	0.6	0.6	0.6	0.1	0.2	0.3
Delay (s)	16.7	3.6	11.8	11.8	11.8	11.8	9.5	15.3	15.1
Level of Service	B	A	B	B	B	B	A	B	B
Approach Delay (s)	0.0	8.3	11.3	11.3	11.3	11.3	15.2	15.2	15.2
Approach LOS	A	A	B	B	B	B	B	B	B
Intersection Summary									
HCM Average Control Delay	10.9								
HCM Volume to Capacity ratio	0.47								
Actuated Cycle Length (s)	43.4								
Intersection Capacity Utilization	39.9%								
Analysis Period (min)	15								
c Critical Lane Group									

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

Near Term w/o Project PM
3/2/2012

Movement	EBL2	EBL	EBR	SEL	SET	SER	NWL	NWT	NWR	SWL	SWR	
Lane Configurations	411	2	248	258	386	0	0	413	263	0	0	↖ ↗
Volume (vph)	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	
Total Lost time (s)	0.95	0.95	1.00	0.97	0.95	0.95	0.95	1.00	0.85	1.00	0.85	
Lane Util. Factor	1.00	1.00	0.85	1.00	1.00	1.00	1.00	0.85	1.00	1.00	0.85	
Frt	0.95	0.95	1.00	0.95	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Flt Protected	1681	1681	1583	3433	3539	3539	3539	1583	3539	1583	3539	
Satd. Flow (prot)	0.95	0.95	1.00	0.95	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Flt Permitted	1681	1681	1583	3433	3539	3539	3539	1583	3539	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	
Peak-hour factor, PHF	457	2	276	287	429	0	0	459	292	0	0	
Adj. Flow (vph)	0	0	200	0	0	0	0	0	205	0	0	
RTOR Reduction (vph)	228	231	76	287	429	0	0	459	87	0	0	
Lane Group Flow (vph)												
Turn Type	Split	Prot	Prot	Prot	6							
Protected Phases	4	4	4	1				2	2			
Permitted Phases												
Actuated Green, G (s)	11.2	11.2	11.2	5.2	21.3			12.1	12.1			
Effective Green, g (s)	11.2	11.2	11.2	5.2	21.3			12.1	12.1			
Actuated g/C Ratio	0.28	0.28	0.28	0.13	0.53			0.30	0.30			
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)	465	465	438	441	1861			1057	473			
v/s Ratio Prot	0.14	c0.14	0.05	c0.08	0.12			c0.13	0.06			
v/s Ratio Perm												
v/c Ratio	0.49	0.50	0.17	0.65	0.23			0.43	0.18			
Uniform Delay, d1	12.3	12.3	11.1	16.8	5.2			11.4	10.5			
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00			
Incremental Delay, d2	0.8	0.8	0.2	3.4	0.1			0.3	0.2			
Delay (s)	13.1	13.1	11.3	20.2	5.2			11.7	10.7			
Level of Service	B	B	B	C	A			B	B			
Approach Delay (s)	12.4				11.2			11.3				
Approach LOS	B				B			B				
Intersection Summary												
HCM Average Control Delay	11.7											B
HCM Volume to Capacity ratio	0.50											
Actuated Cycle Length (s)	40.5											12.0
Intersection Capacity Utilization	40.2%											A
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

Synchro 7 - Report

Page 35

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information			
Analyst	Jacob Swin	Intersection	Carmel Creek Rd/Del Mar Trail				
Agency/Co.	USAI	Jurisdiction	City of San Diego				
Date Performed	9/16/2010	Analysis Year	2010				
Analysis Time Period	36 Near Term PM						
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			
Movement	L	T	R	L	T	R	
Volume (veh/h)	5	5	4	57	12	10	
%Thrus Left Lane							
Approach		Northbound		Southbound			
Movement	L	T	R	L	T	R	
Volume (veh/h)	12	755	103	15	401	10	
%Thrus Left Lane	50			50			
		Eastbound		Westbound		Southbound	
	L1	L2	L1	L2	L1	L2	
Configuration	L/TR	L/TR	L/TR	L/TR	L/TR	L/TR	
PHF	0.90		0.90		0.90		0.90
Flow Rate (veh/h)	14		87		431		234
% Heavy Vehicles	2		2		2		2
No. Lanes	1		1		2		2
Geometry Group	2		2		5		5
Duration, T	0.25						
Saturation Headway Adjustment Worksheet							
Prop. Left-Turns	0.4		0.7		0.0		0.0
Prop. Right-Turns	0.3		0.1		0.0		0.0
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0
hLT-adj	0.2	0.2	0.2	0.2	0.5	0.5	0.5
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.7	-0.7	-0.7
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.1		0.1		0.0	-0.1	0.1
Departure Headway and Service Time							
hdi, initial value (s)	3.20		3.20		3.20		3.20
hdi, initial	0.01		0.08		0.38		0.21
hdi, final value (s)	6.66		6.56		5.47		5.97
hdi, final value	0.03		0.16		0.65		0.40
Move-up time, m (s)	2.0		2.0		2.3		2.3
Service Time, ts (s)	4.7		4.6		3.2		3.7
Capacity and Level of Service							
Approach		Eastbound		Westbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1
Capacity (veh/h)	264		337		653		488
Delay (s/veh)	9.84		10.79		17.94		12.70
LOS	A		B		C		B
Approach Delay (s/veh)	9.84		10.79		21.67		12.56
LOS	A		B		C		B
Intersection Delay (s/veh)	18.15						
Intersection LOS	C						

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