

APPENDIX E

EXISTING + PROJECT SYNCHRO WORKSHEETS

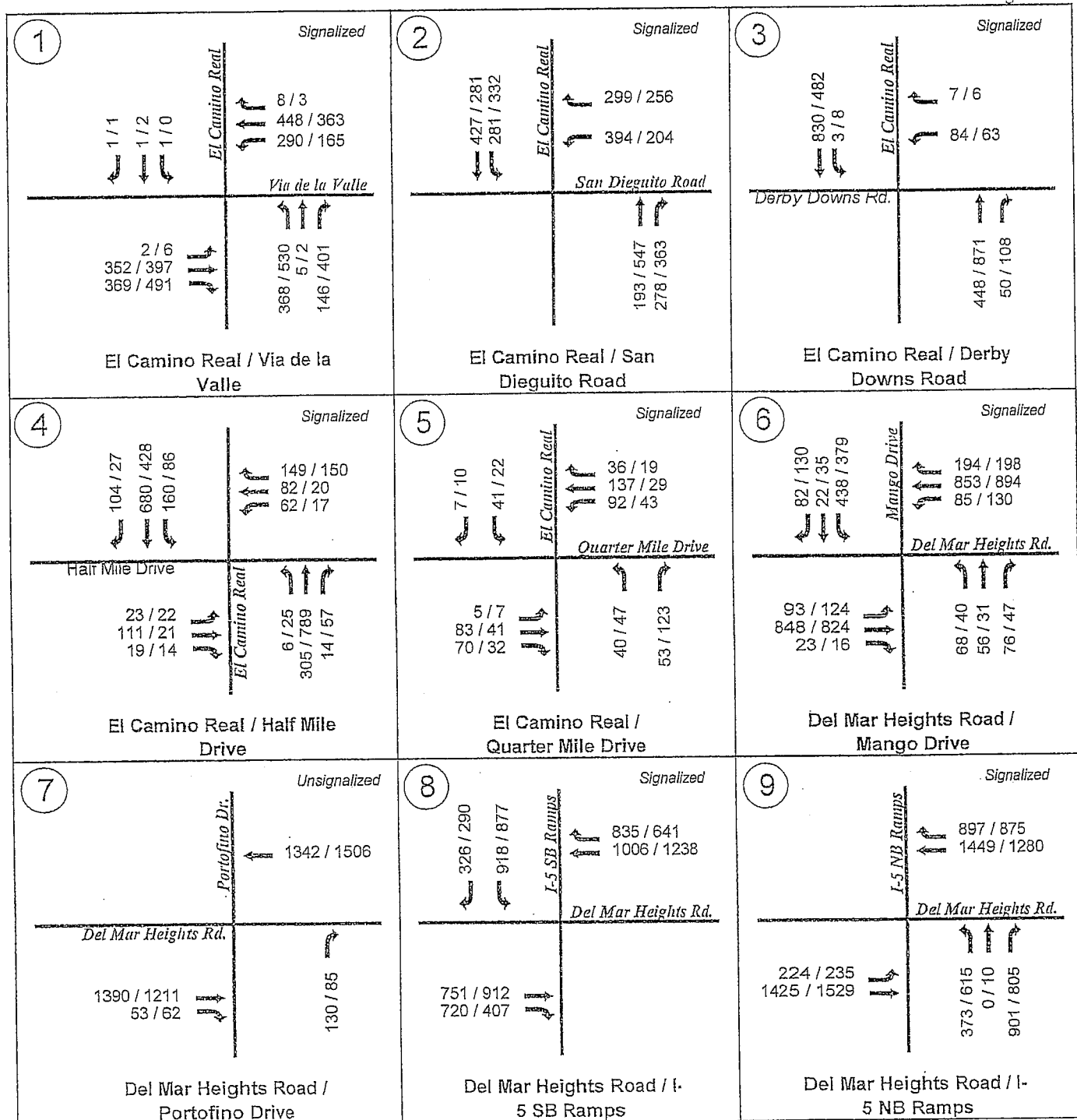


FIGURE X-X

Existing + Project (Phase 1) AM/PM Peak Hour Traffic

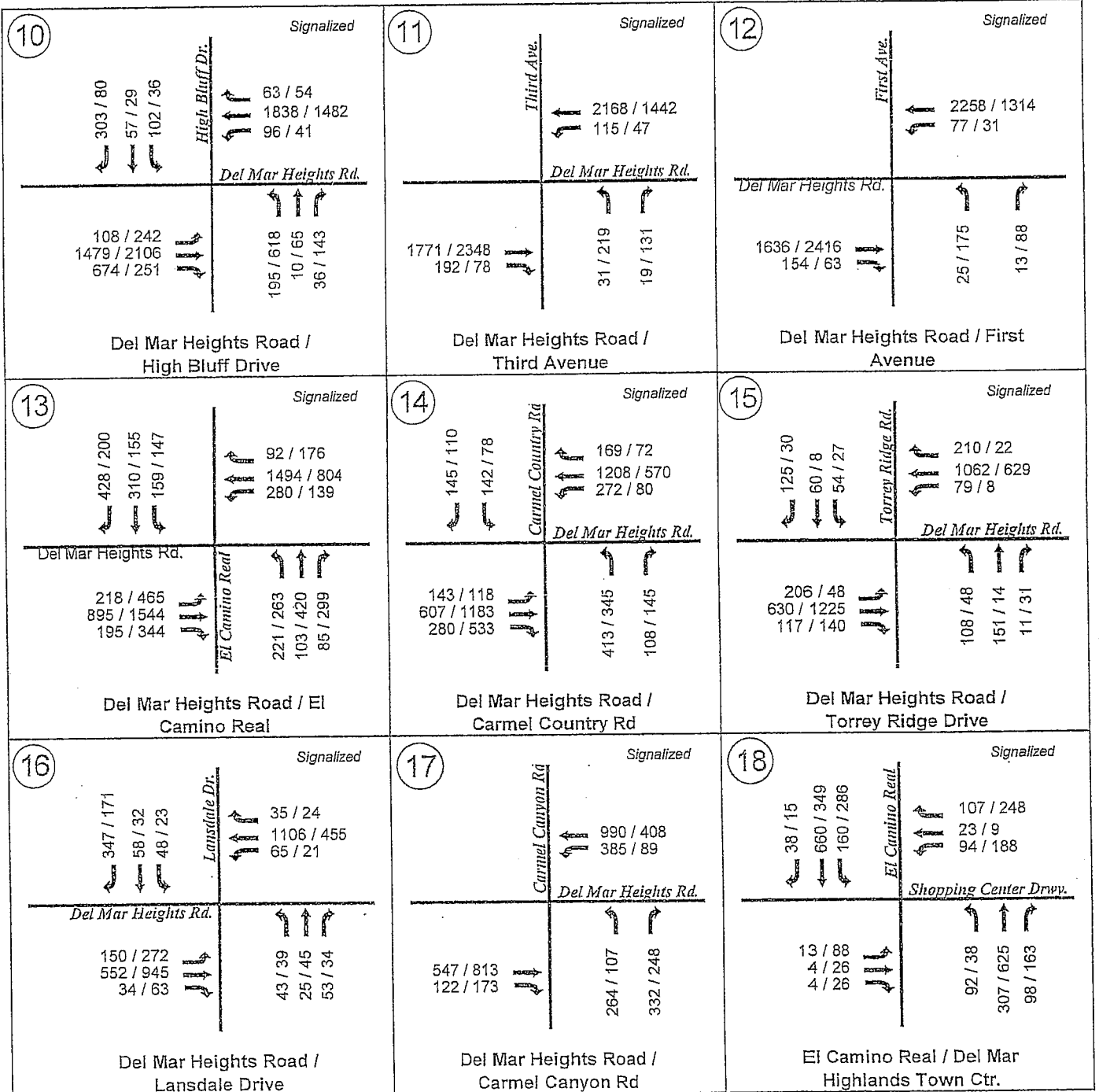


FIGURE X-X

Existing + Project (Phase 1) AM/PM Peak Hour Traffic

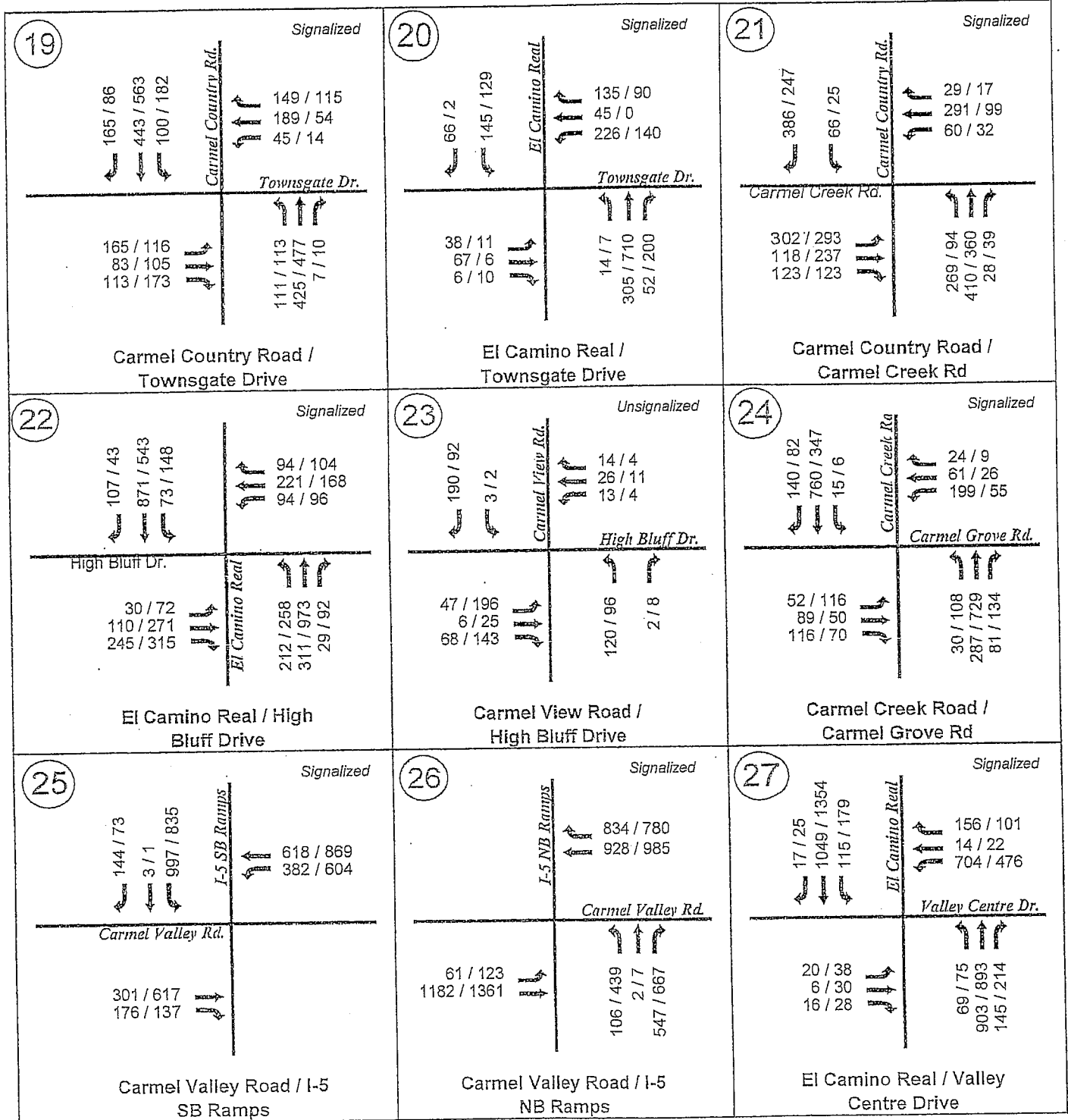


FIGURE X-X

Existing + Project (Phase 1) AM/PM Peak Hour Traffic

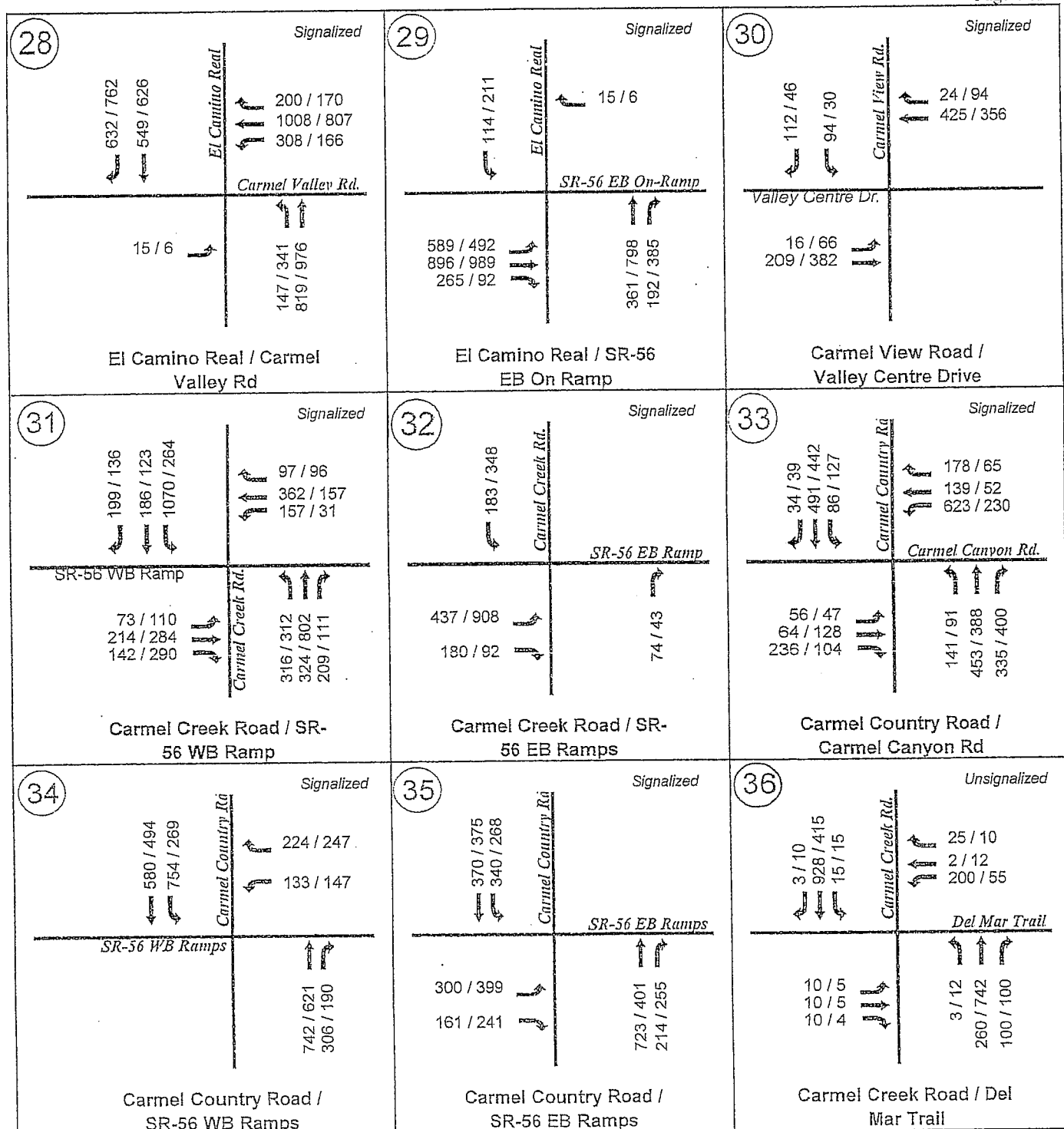


FIGURE X-X

Existing + Project (Phase 1) AM/PM Peak Hour Traffic

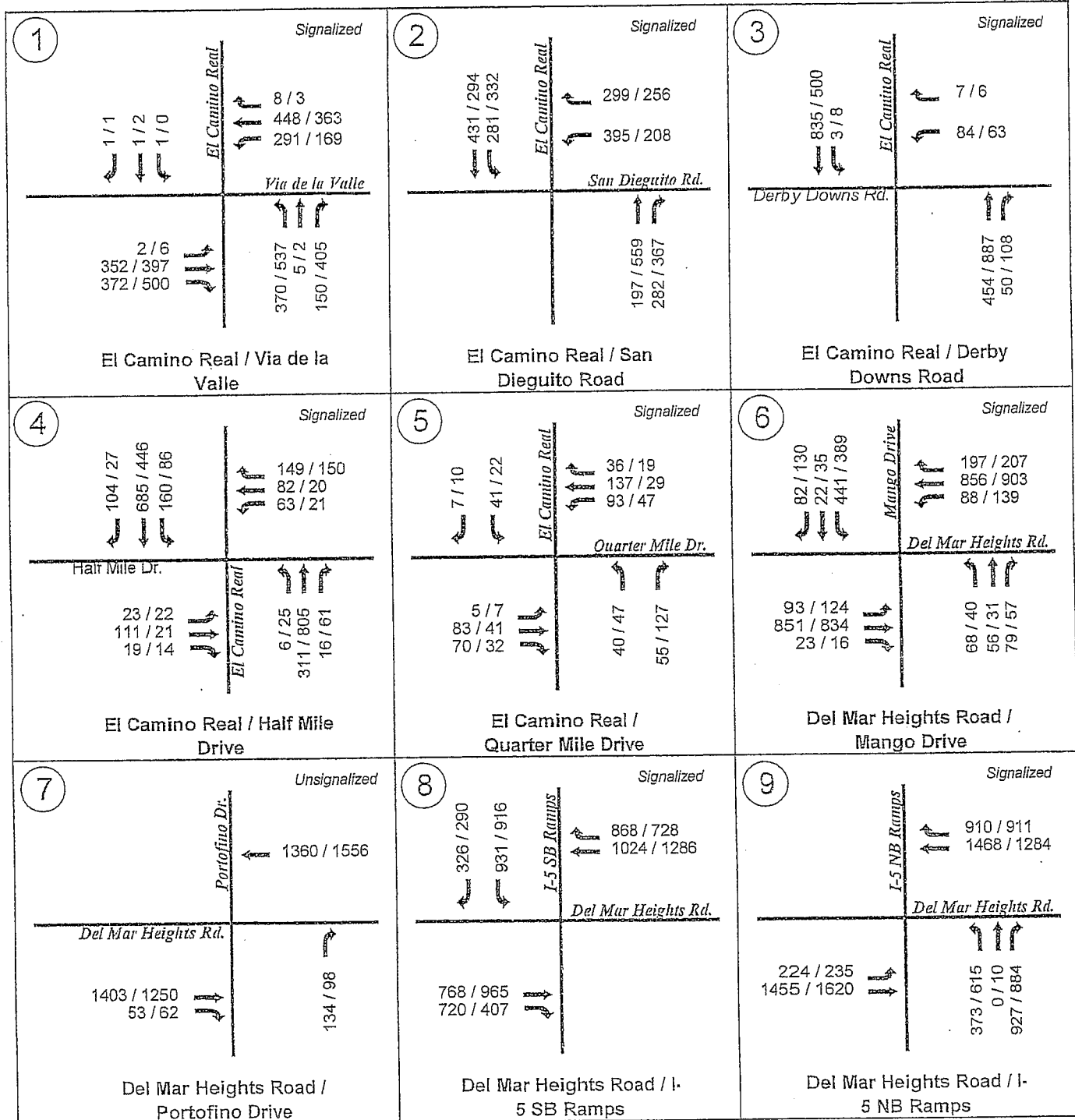


FIGURE X-X

Existing + Project (Phase 1&2) AM/PM Peak Hour Traffic

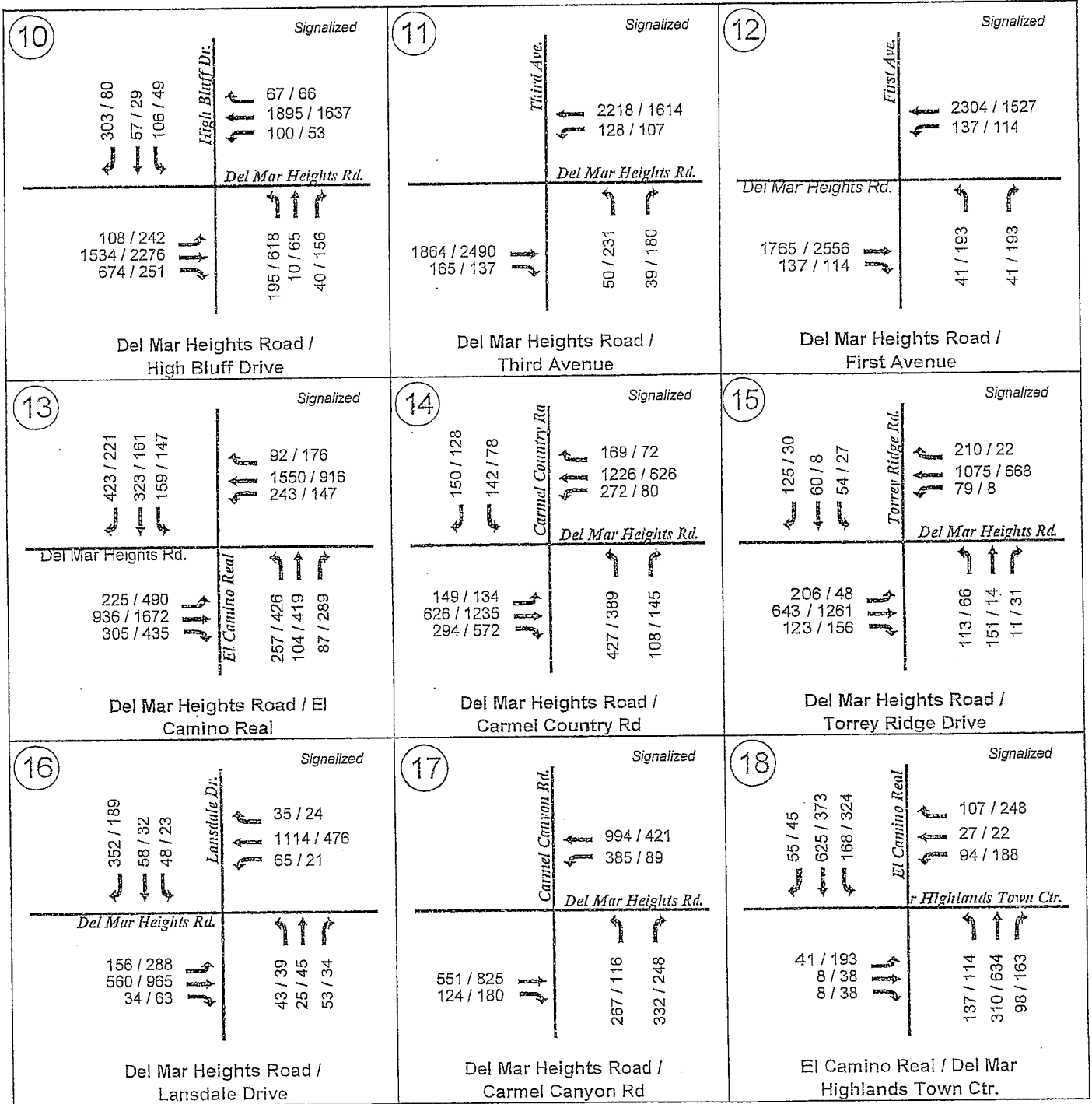


FIGURE X-X

Existing + Project (Phase 1&2) AM/PM Peak Hour Traffic

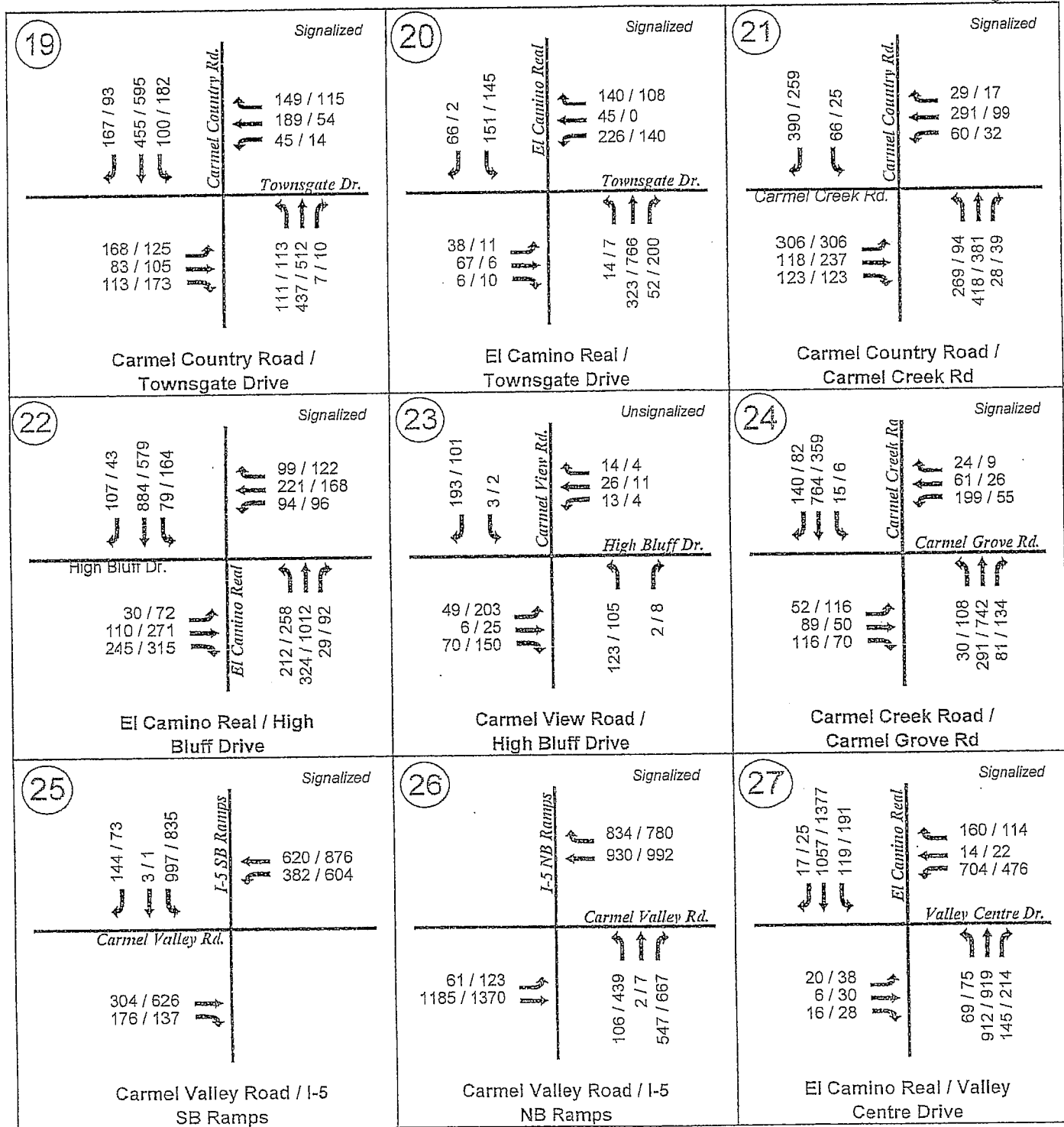


FIGURE X-X

Existing + Project (Phase 1&2) AM/PM Peak Hour Traffic

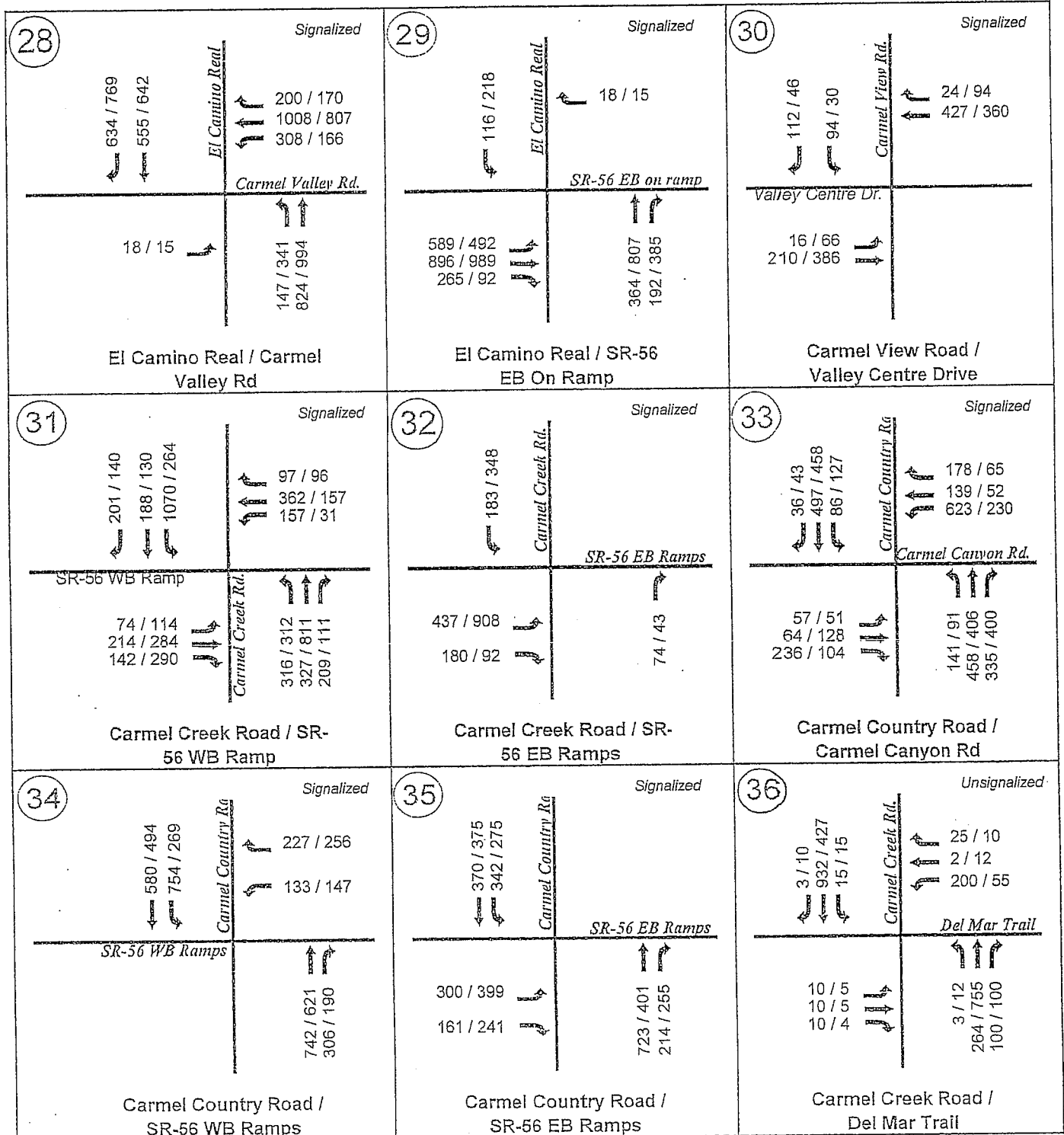


FIGURE X-X

Existing + Project (Phase 1&2) AM/PM Peak Hour Traffic

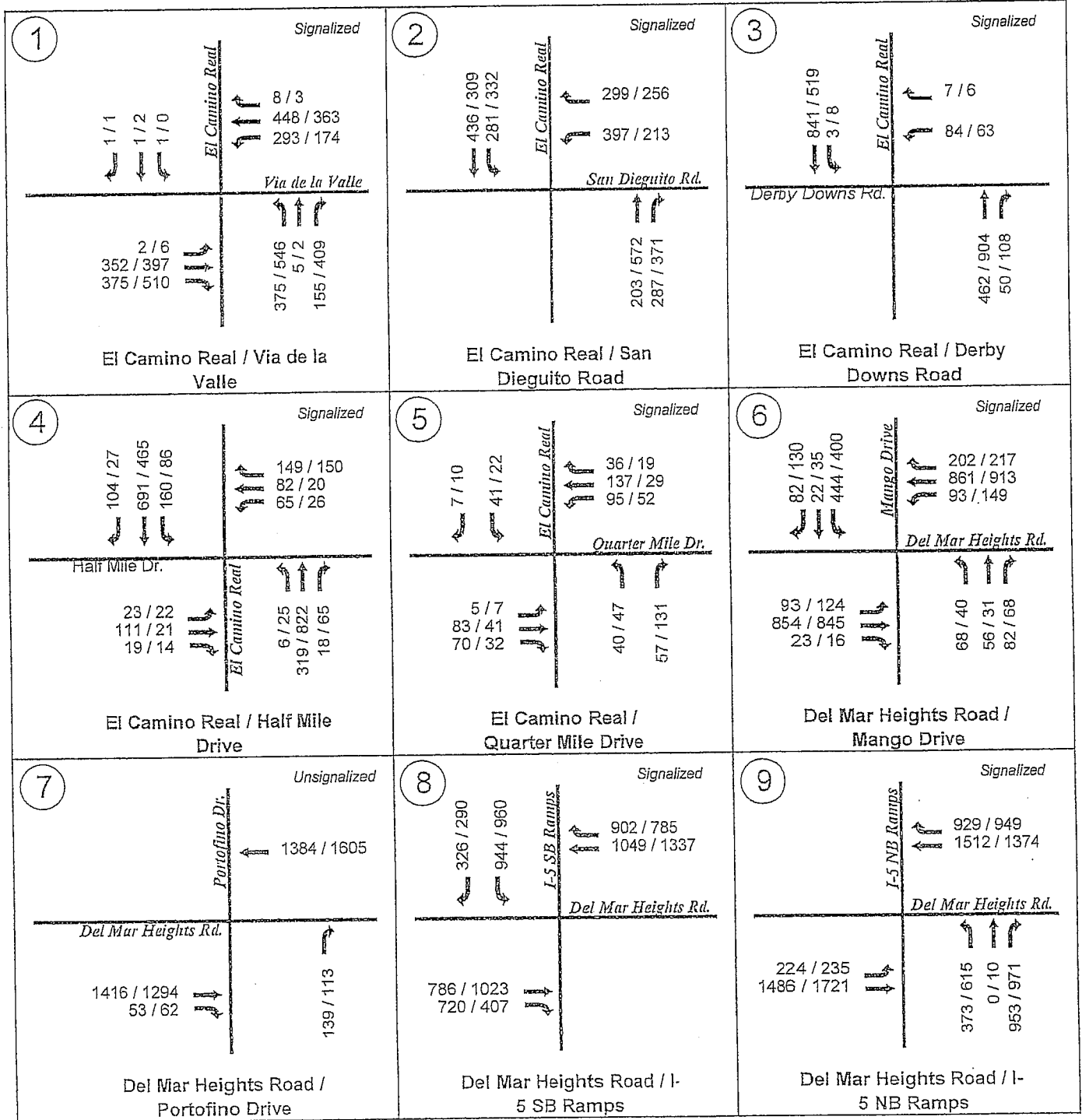


FIGURE X-X

Existing + Project (Buildout) AM/PM Peak Hour Traffic

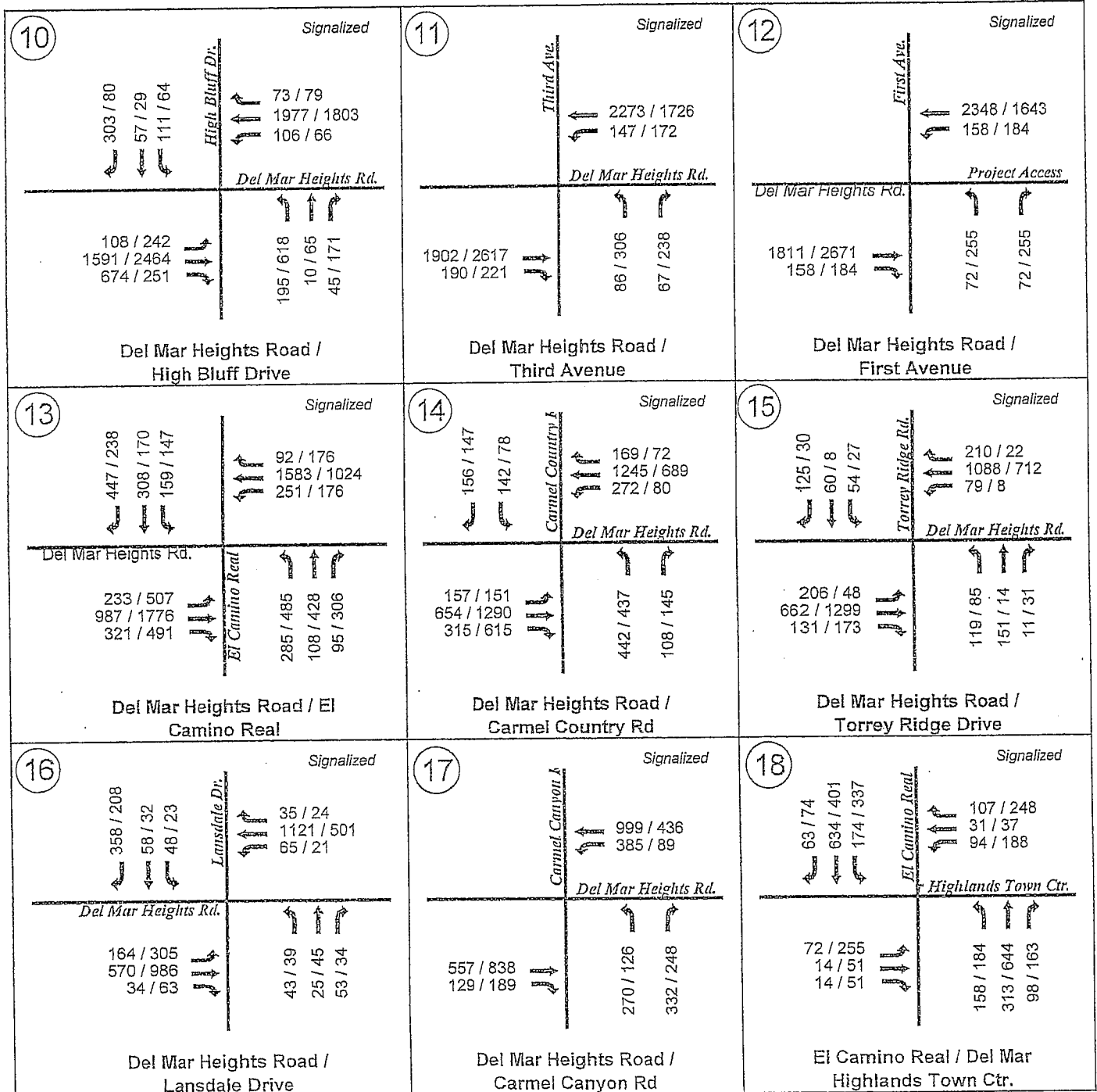
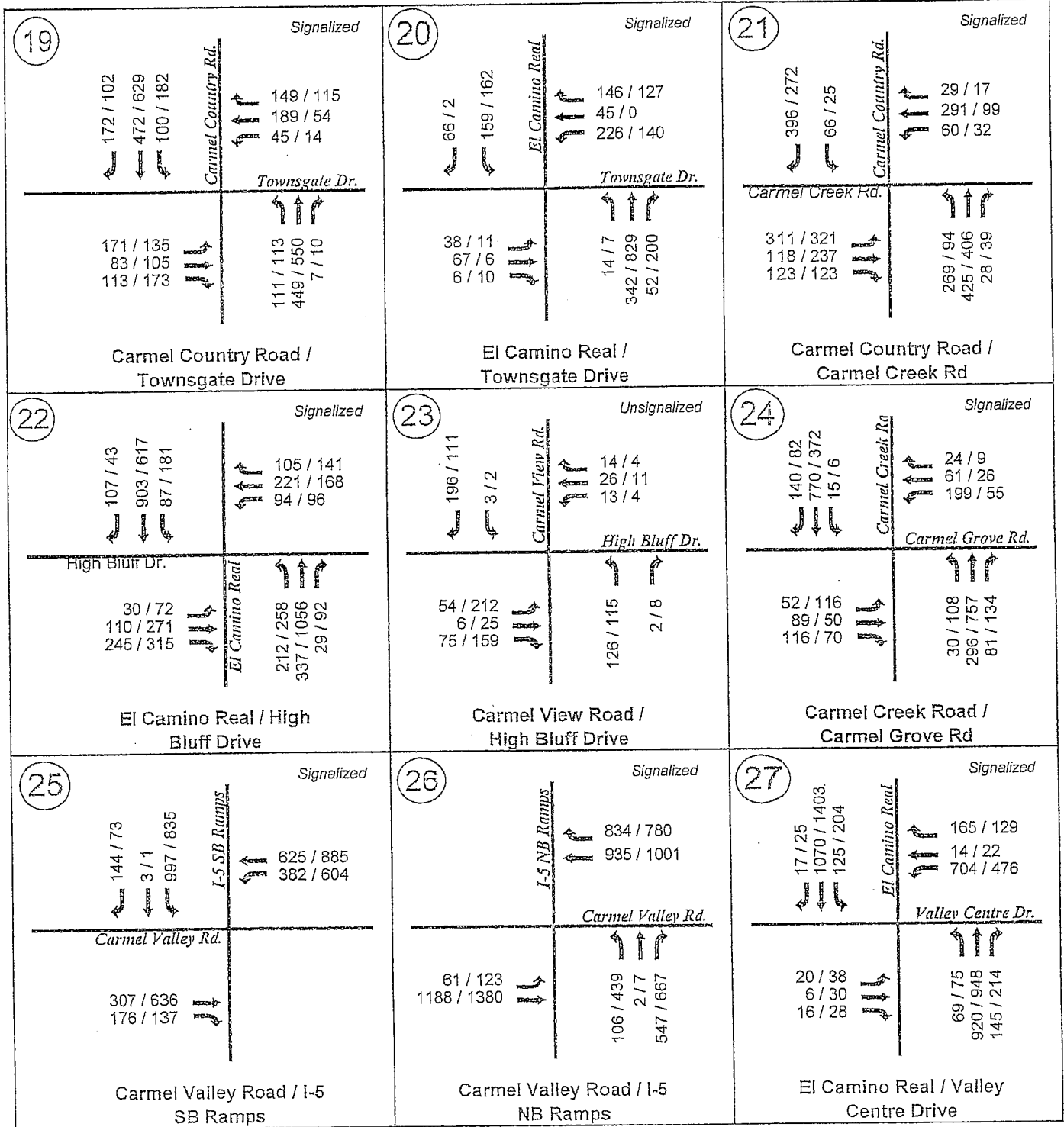


FIGURE X-X

Existing + Project (Buildout) AM/PM Peak Hour Traffic



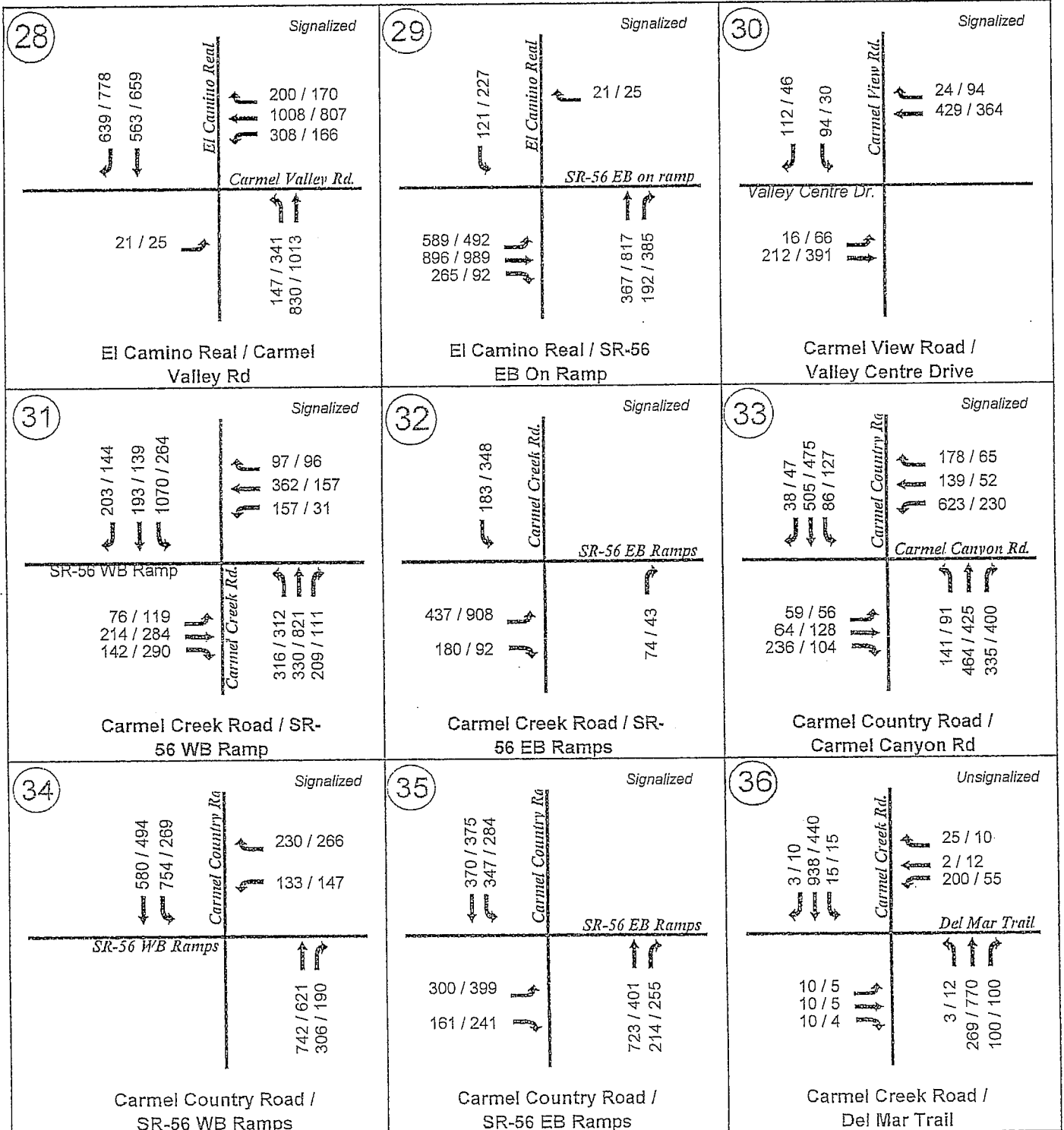


FIGURE X-X

Existing + Project (Buildout) AM/PM Peak Hour Traffic



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	2	352	369	290	446	8	368	5	146	1	4
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt	0.95	1.00	0.85	1.00	1.00	1.00	0.95	1.00	0.85	0.95	0.98
Flt Protected	1770	1863	1583	1770	1868	1775	1583	1775	1583	1760	1760
Satd. Flow (prot)	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	0.98
Flt Permitted	1770	1863	1583	1770	1868	1775	1583	1775	1583	1760	1760
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)	2	391	410	322	498	9	409	6	162	1	1
RTOR Reduction (vph)	0	0	265	0	1	0	0	0	117	0	1
Lane Group Flow (vph)	2	391	745	322	506	0	0	415	45	0	2
Turn Type	Prot	Prot	Prot	Prot	Prot	Split	Split	Prot	Split	Prot	Split
Protected Phases	7	4	4	3	8	2	2	2	2	6	6
Permitted Phases	0.8	22.3	22.3	16.7	38.2	21.4	21.4	21.4	21.4	1.1	1.1
Actuated Green, G (s)	0.8	22.3	22.3	16.7	38.2	21.4	21.4	21.4	21.4	1.1	1.1
Effective Green, g (s)	0.01	0.29	0.29	0.22	0.49	0.28	0.28	0.28	0.28	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
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)	18	536	455	381	916	490	437	490	437	25	25
Lane Grp Cap (vph)	0.00	0.21	0.09	0.18	0.27	0.23	0.03	0.23	0.03	0.00	0.00
vs Ratio Prot	0.11	0.73	0.32	0.85	0.55	0.85	0.10	0.85	0.10	0.08	0.08
vc Ratio	38.0	24.9	21.6	29.2	13.7	26.5	20.9	26.5	20.9	37.7	37.7
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	2.7	4.9	0.4	15.7	0.7	12.8	0.1	12.8	0.1	1.4	1.4
Incremental Delay, d2	40.7	29.8	22.1	44.8	14.4	39.3	21.0	39.3	21.0	39.1	39.1
Delay (s)	D	C	C	D	B	D	C	D	C	D	D
Level of Service	D	C	C	D	B	D	C	D	C	D	D
Approach Delay (s)	25.9	26.2	34.1	38.1	38.1	38.1	38.1	38.1	38.1	38.1	38.1
Approach LOS	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary											
HCM Average Control Delay	28.2										
HCM Volume to Capacity ratio	0.79										
Actuated Cycle Length (s)	77.5										
Sum of lost time (s)	16.0										
Intersection Capacity Utilization	71.9%										
Analysis Period (min)	15										
c Critical Lane Group											

EXISTING + PROJECT

Phase 1

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBR
Lane Configurations	W	W	T	T	T	T	T
Volume (vph)	394	239	0	193	278	281	427
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.95
Flt	1.00	0.95	1.00	0.85	1.00	1.00	1.00
Flt Protected	0.95	1.00	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	0.90
Adj. Flow (vph)	438	332	0	214	309	312	474
RTOR Reduction (vph)	0	249	0	0	237	0	0
Lane Group Flow (vph)	438	83	0	214	72	312	474
Turn Type	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted
Protected Phases	1	3	8	7	6		
Permitted Phases	12.7	12.7	11.8	11.8	14.0	12.7	
Effective Green, G (s)	12.7	12.7	11.8	11.8	14.0	12.7	
Effective Green, g (s)	0.25	0.25	0.23	0.23	0.28	0.25	
Actualized g/C Ratio	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	
Vehicle Extension (s)	883	398	435	370	491	890	
Lane Grp Cap (vph)	0.13	0.05	0.49	0.20	0.54	0.53	
vs Ratio Prot	0.51	0.21	16.8	15.5	16.0	16.3	
vs Ratio Perm	16.2	14.9	1.00	1.00	1.00	1.00	
Uniform Delay, d1	0.5	0.3	0.9	0.3	2.7	0.6	
Progression Factor	16.7	15.2	17.8	15.8	18.7	17.0	
Incremental Delay, d2	B	B	B	B	B	B	
Delay (s)	16.0	16.0	16.5	16.5	17.6	16.0	
Level of Service	B	B	B	B	B	B	
Approach Delay (s)	B	B	B	B	B	B	
Approach LOS	B	B	B	B	B	B	
Intersection Summary							
HCM Average Control Delay	16.8						
HCM Volume to Capacity ratio	0.56						
Actualized Cycle Length (s)	50.5						
Intersection Capacity Utilization	47.0%						
Analysis Period (min)	15						
c Critical Lane Group							

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBR
Lane Configurations	W	W	T	T	T	T	T
Volume (vph)	84	7	0	448	50	3	830
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	0.95	1.00	0.95	1.00
Flt	0.99	1.00	1.00	0.98	1.00	1.00	1.00
Flt Protected	0.96	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3414	3414	3486	3486	1770	3539	
Flt Permitted	0.96	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3414	3414	3486	3486	1770	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	93	8	0	498	56	3	922
RTOR Reduction (vph)	7	0	0	13	0	0	0
Lane Group Flow (vph)	94	0	0	541	0	3	922
Turn Type	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted
Protected Phases	8	5	2	1	6		
Permitted Phases	3.1	14.8	14.8	0.6	19.4		
Effective Green, G (s)	3.1	14.8	14.8	0.6	19.4		
Effective Green, g (s)	0.10	0.49	0.49	0.02	0.64		
Actualized g/C Ratio	4.0	4.0	4.0	4.0	4.0		
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0		
Vehicle Extension (s)	347	1692	1692	35	2251		
Lane Grp Cap (vph)	0.03	0.16	0.16	0.00	0.28		
vs Ratio Prot	0.27	0.32	0.32	0.09	0.41		
vs Ratio Perm	12.7	4.8	4.8	14.7	2.7		
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00		
Progression Factor	0.4	0.1	0.1	1.1	0.1		
Incremental Delay, d2	13.1	4.9	4.9	15.7	2.9		
Delay (s)	B	B	B	B	B		
Level of Service	B	B	B	B	B		
Approach Delay (s)	B	B	B	B	B		
Approach LOS	B	B	B	B	B		
Intersection Summary							
HCM Average Control Delay	4.2						
HCM Volume to Capacity ratio	0.39						
Actualized Cycle Length (s)	30.5						
Intersection Capacity Utilization	32.9%						
Analysis Period (min)	15						
c Critical Lane Group							

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	23	111	19	62	82	149	6	305	14	180	104
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	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	0.98	0.95	1.00	0.90	0.95	1.00	0.99	1.00	0.95	0.98
Flt	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1770	1822	1770	1682	1770	1682	1770	3515	1770	3469	1770
Satd. Flow (perm)	1770	1822	1770	1682	1770	1682	1770	3515	1770	3469	1770
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	26	123	21	69	91	166	7	339	16	178	116
RTOR Reduction (vph)	0	11	0	0	114	0	0	6	0	0	17
Lane Group Flow (vph)	26	133	0	69	143	0	7	349	0	178	85
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	5	2	1	6			
Permitted Phases	0.7	10.6	2.3	12.2	0.7	13.8	6.8	19.9			
Actuated Green, G (s)	0.7	10.6	2.3	12.2	0.7	13.8	6.8	19.9			
Effective Green, g (s)	0.01	0.21	0.05	0.25	0.01	0.28	0.14	0.40			
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)	25	390	82	415	25	980	243	1395			
Lane Grp Cap (vph)	0.01	0.07	0.04	0.09	0.00	0.10	0.10	0.25			
vs Ratio Prot	1.04	0.34	0.84	0.35	0.28	0.36	0.73	0.61			
vs Ratio Perm	24.4	16.5	23.4	15.4	24.2	14.3	20.5	11.7			
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Progression Factor	192.8	0.5	60.7	0.5	6.0	0.2	10.8	0.8			
Incremental Delay, d2	217.2	17.0	74.1	15.9	30.2	14.5	31.3	12.5			
Delay (s)	F	B	E	B	C	B	C	B			
Level of Service	F	B	E	B	C	B	C	B			
Approach Delay (s)	47.6	28.2	14.8	16.7							
Approach LOS	D	B	C	B							
Intersection Summary											
HCM Average Control Delay	20.5										
HCM Volume to Capacity ratio	0.51										
Actuated Cycle Length (s)	49.5										
Intersection Capacity Utilization	55.6%										
Analysis Period (min)	15										
c Critical Lane Group											

Baseline
Synchro 7 - Report
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	5	83	70	92	137	36	40	323	53	41	766
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	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	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Flt	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1770	1863	1583	1770	1805	1770	1805	3464	1770	3534	1770
Satd. Flow (perm)	1770	1863	1583	1770	1805	1770	1805	3464	1770	3534	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
Adj. Flow (vph)	6	92	78	102	152	40	44	359	59	46	851
RTOR Reduction (vph)	0	0	64	0	17	0	0	19	0	0	1
Lane Group Flow (vph)	6	92	14	102	175	0	44	399	0	46	858
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	4	3	8	5	2	1	6		
Permitted Phases	0.6	8.4	8.4	3.5	11.3	1.3	17.4	1.3	17.4		
Actuated Green, G (s)	0.6	8.4	8.4	3.5	11.3	1.3	17.4	1.3	17.4		
Effective Green, g (s)	0.01	0.18	0.18	0.08	0.24	0.03	0.37	0.03	0.37		
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)	23	336	285	133	438	49	1293	49	1320		
Lane Grp Cap (vph)	0.00	0.05	0.01	0.06	0.10	0.02	0.12	0.03	0.24		
vs Ratio Prot	1.26	0.27	0.05	0.77	0.40	0.90	0.31	0.94	0.85		
vs Ratio Perm	22.8	16.5	15.8	21.1	14.8	22.6	10.3	22.6	12.1		
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Progression Factor	60	0.4	0.1	22.8	0.6	90.0	0.1	104.4	1.1		
Incremental Delay, d2	28.7	16.9	16.9	44.0	15.4	112.6	10.5	127.0	13.2		
Delay (s)	C	B	B	D	B	F	B	F	B		
Level of Service	C	B	B	D	B	F	B	F	B		
Approach Delay (s)	16.9	25.3	20.2								
Approach LOS	B	C	C								
Intersection Summary											
HCM Average Control Delay	20.1										
HCM Volume to Capacity ratio	0.61										
Actuated Cycle Length (s)	46.6										
Intersection Capacity Utilization	46.5%										
Analysis Period (min)	15										
c Critical Lane Group											

Baseline
Synchro 7 - Report
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh/h)	93	848	23	85	853	194	68	56	76	436	22	82
Ideal Flow (veh/pl)	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	1.00	1.00	1.00	0.95	0.95	0.95
Flt Protected	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.95	1.00	0.95	0.97	0.97
Satd. Flow (prot)	1770	5065	1770	3441	1813	1563	1681	1638	1638	1638	1638	1638
Flt Permitted	0.95	1.00	0.95	1.00	0.97	1.00	0.97	1.00	0.95	0.97	0.97	0.97
Satd. Flow (perm)	1770	5065	1770	3441	1813	1563	1681	1638	1638	1638	1638	1638
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)	103	942	26	94	948	216	76	62	84	487	24	91
RTOR Reduction (vph)	0	3	0	0	21	0	0	0	72	0	17	0
Lane Group Flow (vph)	103	965	0	94	1143	0	0	138	12	507	278	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Split	Split	Perm	Split	Split	6
Protected Phases	7	4	3	8	2	2	2	2	2	2	2	6
Permitted Phases	6.6	30.4	7.6	31.4	11.5	11.5	11.5	11.5	11.5	17.6	17.6	17.6
Actuated Green, G (s)	6.6	30.4	7.6	31.4	11.5	11.5	11.5	11.5	11.5	17.6	17.6	17.6
Effective Green, g (s)	0.08	0.37	0.09	0.36	0.14	0.14	0.14	0.14	0.14	0.21	0.21	0.21
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)	141	1853	162	1300	251	219	356	347	347	347	347	347
Lane Grp Cap (vph)	141	1853	162	1300	251	219	356	347	347	347	347	347
Wt Ratio Prot	0.06	0.19	0.05	0.33	0.08	0.08	0.08	0.08	0.08	0.18	0.17	0.17
Wt Ratio Perm	0.73	0.52	0.68	0.88	0.55	0.55	0.55	0.55	0.55	0.86	0.86	0.86
Uniform Delay d1	37.4	20.6	36.2	24.1	33.4	31.1	31.1	31.1	31.1	31.1	31.1	31.1
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	17.6	0.3	5.2	7.1	2.5	0.1	18.8	12.4	12.4	12.4	12.4	12.4
Delay (s)	55.0	20.9	41.4	31.2	35.9	31.2	50.1	43.5	43.5	43.5	43.5	43.5
Level of Service	D	C	D	C	D	C	D	C	D	D	D	D
Approach Delay (s)	24.2	31.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9
Approach LOS	C	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary												
HCM Average Control Delay	32.3											
HCM Volume to Capacity ratio	0.76											
Actuated Cycle Length (s)	83.1											
Intersection Capacity Utilization	66.8%											
Analysis Period (min)	15											
c Critical Lane Group												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Volume (veh/h)	1390	53	0	1342	0	0	0	130	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free
Grade	0%	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	0.90
Hourly flow rate (vph)	1544	59	0	1491	0	0	0	144	0
Pedestrians									
Lane Width (ft)									
Waiting Speed (ft/s)									
Percent Blockage									
Right turn lane (veh)	None								
Median type	None								
Median storage (veh)	575								
Upstream signal (ft)	0.87								
pX, platoon unblocked	1603								
VC, conflicting volume	2319								
VC1, stage 1 conf vol	0								
VC2, stage 2 conf vol	1421								
VCu, unblocked vol	1179								
IC, single (s)	4.1								
IC, 2 stage (s)	3.5								
IF (s)	2.2								
p0 queue free %	100								
cM capacity (veh/h)	513								
Direction Lane#	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Volume Total	618	618	618	746	746	746	144	144	144
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.36	0.36	0.36	0.44	0.44	0.44	0.15	0.15	0.15
Queue Length 95th (ft)	0	0	0	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A	A	A	A	A	A	A	A
Approach Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Approach LOS	A	A	A	A	A	A	A	A	A
Intersection Summary									
Average Delay	0.4								
Intersection Capacity Utilization	42.8%								
Analysis Period (min)	15								

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	AA	AA	AA	AA	AA	AA
Volume (vph)	0	751	1005	0	918	326
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.3	6.3	6.3	6.3	6.3
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95
Fit	1.00	1.00	1.00	1.00	1.00	1.00
Fit Protected	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3539	3539	3539	3539	3539	3539
Fit Permitted	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	3539	3539	3539	3539	3539	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	834	1118	0	1020	362
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	834	1118	0	1020	362
Turn Type	Perm	Perm	Perm	Perm	Perm	Perm
Protected Phases	2.6	6.2	4	4	4	4
Permitted Phases	42.4	42.4	25.4	25.4	25.4	25.4
Effective Green, G (s)	42.4	42.4	25.4	25.4	25.4	25.4
Effective Green, g (s)	0.53	0.53	0.32	0.32	0.32	0.32
Actuated g/C Ratio	0.53	0.53	0.32	0.32	0.32	0.32
Clearance Time (s)	5.6	5.6	5.6	5.6	5.6	5.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1883	1883	1093	1093	459	459
v/s Ratio Prot	0.24	0.32	0.31	0.31	0.19	0.19
v/s Ratio Perm	0.44	0.59	0.56	0.56	0.67	0.67
Uniform Delay, d1	11.4	12.8	28.7	23.0	1.00	1.00
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.5	18.8	2.4	0.0	0.0
Delay (s)	11.6	13.3	47.5	25.4	1.00	1.00
Level of Service	B	B	D	D	C	C
Approach Delay (s)	11.6	13.3	40.8	40.8	1.00	1.00
Approach LOS	B	B	D	D	C	C
Intersection Summary						
HCM Average Control Delay	24.2					
HCM Volume to Capacity ratio	0.73					
Actuated Cycle Length (s)	79.7					
Intersection Capacity Utilization	66.9%					
Analysis Period (min)	15					
c Critical Lane Group						

Baseline

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	AA	AA	AA	AA	AA	AA
Volume (vph)	224	1425	0	1449	897	0
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	0.95	0.91	0.95	0.91	0.95
Fit	1.00	1.00	1.00	1.00	1.00	1.00
Fit Protected	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3433	3539	3433	3539	3433	3539
Fit Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	3433	3539	3433	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	249	1583	0	1610	997	414
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	249	1583	0	1610	997	414
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	5	2	6	6	8	8
Permitted Phases	10.2	67.8	53.6	53.6	44.2	44.2
Effective Green, G (s)	10.2	67.8	53.6	53.6	44.2	44.2
Effective Green, g (s)	0.08	0.56	0.45	0.45	0.37	0.37
Actuated g/C Ratio	0.08	0.56	0.45	0.45	0.37	0.37
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)	292	2000	2271	707	619	554
v/s Ratio Prot	0.07	0.45	0.32	0.34	0.22	0.34
v/s Ratio Perm	0.85	0.79	0.71	0.77	0.60	0.91
Uniform Delay, d1	54.2	20.5	26.9	28.0	36.7	36.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	20.7	3.3	1.9	7.9	1.7	25.6
Delay (s)	74.8	23.8	28.8	36.0	38.4	61.7
Level of Service	E	C	C	D	E	E
Approach Delay (s)	74.8	23.8	31.5	31.5	52.0	52.0
Approach LOS	E	C	C	C	D	A
Intersection Summary						
HCM Average Control Delay	36.2					
HCM Volume to Capacity ratio	0.85					
Actuated Cycle Length (s)	120.0					
Intersection Capacity Utilization	91.5%					
Analysis Period (min)	15					
c Critical Lane Group						

Baseline

Movement	EBT	EBL	EBR	WBT	WBL	WBR	NBT	NBL	NBR	SBT	SBL	SBR
Lane Configurations	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA
Volume (vph)	108	1479	574	96	1838	63	195	10	36	102	57	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.97	0.95	1.00	1.00	1.00	1.00	0.85
Flt	1.00	1.00	0.85	1.00	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	3433	3123	1770	5085	1770	1583	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	3433	3123	1770	5085	1770	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)	120	1643	748	107	2042	70	217	11	40	113	63	337
RTOR Reduction (vph)	0	0	373	0	4	0	35	0	0	0	0	137
Lane Group Flow (vph)	120	1643	376	107	2108	0	217	16	0	113	63	200
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Permitted Phases	7	4	4	3	8	3	5	2	1	5	6	6
Actuated Green, G (s)	7.9	41.3	41.3	6.7	40.1	7.0	10.0	10.0	13.2	16.2	16.2	16.2
Effective Green, g (s)	7.9	41.3	41.3	6.7	40.1	7.0	10.0	10.0	13.2	16.2	16.2	16.2
Actuated g/C Ratio	0.09	0.47	0.47	0.08	0.46	0.08	0.11	0.11	0.16	0.19	0.19	0.19
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	160	2408	750	136	2327	276	358	358	268	346	294	294
vs Ratio Prot	c0.07	0.32	0.24	0.06	c0.42	c0.06	0.00	0.06	0.06	0.03	c0.13	c0.13
vs Ratio Perm	0.75	0.68	0.50	0.79	0.91	0.79	0.04	0.42	0.42	0.18	0.66	0.66
Uniform Delay, d1	38.7	17.8	15.8	39.5	21.8	39.4	34.3	34.3	33.5	29.9	33.1	33.1
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	17.8	0.8	0.5	25.2	5.5	13.7	0.1	1.1	1.1	0.3	6.4	6.4
Delay (s)	56.5	18.7	16.4	64.8	27.3	53.1	34.4	34.6	34.6	30.2	39.4	39.4
Level of Service	E	B	B	E	C	D	D	C	C	C	D	D
Approach Delay (s)	16.3	16.3	16.3	29.1	29.1	48.5	48.5	37.2	37.2	37.2	37.2	37.2
Approach LOS	B	B	B	C	C	D	D	C	C	C	D	D

Intersection Summary												
HCM Average Control Delay	28.6											
HCM Volume to Capacity ratio	0.83											
Actuated Cycle Length (s)	87.2											
Intersection Capacity Utilization	71.2%											
Analysis Period (min)	15											
c Critical Lane Group												

Intersection Summary												
HCM Average Control Delay	28.6											
HCM Volume to Capacity ratio	0.83											
Actuated Cycle Length (s)	87.2											
Intersection Capacity Utilization	71.2%											
Analysis Period (min)	15											
c Critical Lane Group												

Movement	EBL	EBR	WBL	WBR	NBL	NBR
Lane Configurations	AAA	AAA	AAA	AAA	AAA	AAA
Volume (vph)	1635	154	77	2258	25	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	0.97	0.91	1.00	1.00
Flt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	3433	5085	1770	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	3433	5085	1770	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1818	171	86	2509	28	14
RTOR Reduction (vph)	0	59	0	0	0	13
Lane Group Flow (vph)	1818	112	86	2509	28	1
Turn Type	Perm	Perm	Prot	Perm	Perm	Perm
Protected Phases	4	4	3	8	2	2
Permitted Phases	4					
Actuated Green, G (s)	32.0	32.0	2.3	38.3	2.5	2.5
Effective Green, g (s)	32.0	32.0	2.3	38.3	2.5	2.5
Activated g/C Ratio	0.66	0.66	0.05	0.78	0.05	0.05
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)	3334	1038	162	3991	91	81
vs Ratio Prot	0.36	0.03	0.03	0.46	0.02	0.00
vs Ratio Perm	0.55	0.11	0.53	0.63	0.31	0.01
Uniform Delay, d1	4.5	3.1	22.7	2.2	22.3	22.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.0	3.3	0.3	1.9	0.0
Delay (s)	4.7	3.2	26.0	2.5	24.2	22.0
Level of Service	A	A	C	A	C	C
Approach Delay (s)	4.6	3.3	23.5	2.3	23.5	22.0
Approach LOS	A	A	C	A	C	C
Intersection Summary						
HCM Average Control Delay	4.0					
HCM Volume to Capacity ratio	0.61					
Actuated Cycle Length (s)	48.8					
Intersection Capacity Utilization	53.6%					
Analysis Period (min)	15					
c Critical Lane Group						

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	↔↔↔	↔↔↔	↔	↔↔↔	↔↔↔	↔	↔↔↔	↔↔↔	↔	↔↔↔	↔↔↔
Volumes (vph)	218	895	185	280	1494	92	221	103	85	159	310
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	0.97	0.91	0.97	0.97	0.91	0.97	0.91	1.00	0.97	0.91	0.91
Flt	1.00	0.97	1.00	0.99	1.00	1.00	1.00	0.85	1.00	0.91	0.91
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4949	3433	5041	3433	5085	3433	5583	3433	4843	4843
Flt Permitted	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)	3433	4949	3433	5041	3433	5085	3433	5583	3433	4843	4843
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)	242	994	217	311	1660	102	246	114	94	177	344
RTOR Reduction (vph)	0	45	0	9	0	0	0	0	76	0	160
Lane Group Flow (vph)	242	1165	0	311	1753	0	246	114	18	177	560
Turn Type	Prot	4	3	8	5	2	2	1	6		
Protected Phases	7										
Permitted Phases											
Activated Green, G (s)	7.0	24.8	9.2	27.0	7.0	14.2	14.2	9.7	16.9		
Effective Green, g (s)	7.0	24.8	9.2	27.0	7.0	14.2	14.2	9.7	16.9		
Activated g/C Ratio	0.09	0.34	0.12	0.37	0.09	0.19	0.19	0.13	0.23		
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)	325	1661	427	1842	325	977	304	451	1062		
vs Ratio Prot	0.07	0.24	0.09	0.35	0.07	0.02	0.01	0.05	0.14		
vs Ratio Perm											
vc Ratio	0.74	0.70	0.73	0.95	0.76	0.12	0.06	0.39	0.93d1		
Uniform Delay, d1	32.6	21.3	31.1	22.8	32.6	24.7	24.4	29.4	25.6		
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	8.9	1.4	6.1	11.6	9.7	0.1	0.1	0.6	1.1		
Delay (s)	41.5	22.7	37.3	34.4	42.3	24.7	24.5	30.0	26.8		
Level of Service	D	C	D	C	D	C	C	C	C		
Approach Delay (s)											
Approach LOS											
Intersection Summary											
HCM Average Control Delay	30.6										
HCM Volume to Capacity ratio	0.77										
Actuated Cycle Length (s)	73.9										
Intersection Capacity Utilization	72.4%										
Analysis Period (min)	15										
dr. Delacato Right Lane. Repede with 1 through lane as a right lane.											

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SEB	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SEB	SBR
Volume (vph)	143	607	280	272	1208	169	413	183	108	142	180	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	0.97	0.91	0.97	0.91	0.97	0.91	0.97	0.91	0.97	0.91
Flt	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3433	4844	3433	4844	3433	4844	3433	4844	3433	4844	3433	4844
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3433	4844	3433	4844	3433	4844	3433	4844	3433	4844	3433	4844
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	159	674	311	302	1342	188	459	203	120	158	200	161
RTOR Reduction (vph)	0	105	0	0	23	0	0	98	0	0	138	0
Lane Group Flow (vph)	159	800	0	302	1507	0	459	225	0	158	223	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	5	2	1	6				
Permitted Phases	5.0	20.1	9.0	24.1	11.7	12.0	9.4	9.7				
Actuated Green, G (s)	5.0	20.1	9.0	24.1	11.7	12.0	9.4	9.7				
Effective Green, g (s)	0.08	0.30	0.14	0.36	0.18	0.16	0.14	0.15				
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)	258	1464	465	1809	604	867	250	482				
Lane Grp Cap (vph)	0.05	0.18	0.09	0.30	0.13	0.05	0.09	0.07				
vs Ratio Prot	0.52	0.60	0.65	0.83	0.76	0.26	0.63	0.46				
Uniform Delay, d1	29.8	13.8	27.3	19.4	26.1	23.4	26.9	26.0				
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Incremental Delay, d2	4.3	0.7	3.1	3.5	5.5	0.2	5.1	0.7				
Delay (s)	34.1	20.5	30.4	22.8	31.5	23.6	32.1	26.7				
Level of Service	C	C	C	C	C	C	C	C				
Approach Delay (s)	22.4	24.1	28.3	28.3	28.3	28.3	28.3	28.3				
Approach LOS	C	C	C	C	C	C	C	C				
Intersection Summary												
HCM Average Control Delay	24.9											
HCM Volume to Capacity ratio	0.73											
Actuated Cycle Length (s)	66.5											
Intersection Capacity Utilization	65.9%											
Analysis Period (min)	15											
c Critical Lane Group												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SEB	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SEB	SBR
Volume (vph)	206	630	117	79	1062	210	108	151	11	54	60	125
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	0.91
Flt	1.00	0.98	1.00	0.98	1.00	0.98	1.00	0.98	1.00	0.98	1.00	0.98
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	4966	1770	4966	1770	4966	1770	4966	1770	4966	1770	4966
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	4966	1770	4966	1770	4966	1770	4966	1770	4966	1770	4966
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)	229	700	130	88	1180	233	120	168	12	60	67	139
RTOR Reduction (vph)	0	29	0	0	34	0	0	3	0	0	102	0
Lane Group Flow (vph)	229	801	0	88	1379	0	120	171	0	60	104	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	5	2	1	6				
Permitted Phases	12.4	31.2	6.7	25.5	6.1	13.7	3.9	11.5				
Actuated Green, G (s)	12.4	31.2	6.7	25.5	6.1	13.7	3.9	11.5				
Effective Green, g (s)	0.17	0.44	0.09	0.36	0.09	0.19	0.05	0.16				
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)	307	2167	166	1768	151	353	97	269				
Lane Grp Cap (vph)	0.13	0.16	0.05	0.26	0.07	0.10	0.03	0.06				
vs Ratio Prot	0.75	0.37	0.53	0.78	0.79	0.50	0.62	0.39				
Uniform Delay, d1	28.1	13.5	30.9	20.5	32.1	25.8	33.1	26.8				
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Incremental Delay, d2	9.5	0.1	3.2	2.2	24.3	1.1	11.2	0.9				
Delay (s)	37.5	13.6	34.1	22.7	56.4	27.0	44.3	27.8				
Level of Service	D	B	C	C	E	C	D	C				
Approach Delay (s)	18.8	23.4	38.7	38.7	38.7	38.7	38.7	38.7				
Approach LOS	B	C	D	D	D	D	D	D				
Intersection Summary												
HCM Average Control Delay	24.0											
HCM Volume to Capacity ratio	0.68											
Actuated Cycle Length (s)	71.5											
Intersection Capacity Utilization	66.8%											
Analysis Period (min)	15											
c Critical Lane Group												

[illegible]

Movement	EB1	EB2	WB1	WB2	NB1	NB2
Lane Configurations	4+4	4	4+4	4	4+4	4
Volume (vph)	547	122	385	990	284	332
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
Flt	0.97	1.00	1.00	1.00	0.95	1.00
Flt Protected	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	4046	1770	5085	3433	1583	
Flt Permitted	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	4046	1770	5085	3433	1583	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	608	136	428	1100	293	369
RTOR Reduction (vph)	60	0	0	0	0	294
Lane Group Flow (vph)	684	0	428	1100	293	75
Turn Type		Prot		8	2	2
Protected Phases	4	3				
Permitted Phases						
Actuated Green, G (s)	13.6	15.2	32.8	10.4	10.4	
Effective Green, g (s)	13.6	15.2	32.8	10.4	10.4	
Actuated g/C Ratio	0.27	0.30	0.94	0.20	0.20	
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)	1314	525	3258	697	322	
vs Ratio Prot	c0.14	c0.24	0.22	c0.09	0.05	
vs Ratio Perm						
vc Ratio	0.82	0.82	0.34	0.42	0.23	
Uniform Delay, d1	16.0	16.7	4.2	17.9	17.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	9.5	0.1	0.4	0.4	
Delay (s)	16.4	26.2	4.3	18.2	17.4	
Level of Service	B	C	A	B	B	
Approach Delay (s)	16.4		10.4	17.8		
Approach LOS	B		B	B		
Intersection Summary						
HCM Average Control Delay		13.6		HCM Level of Service		B
HCM Volume to Capacity ratio		0.61				120
Actuated Cycle Length (s)		51.2		Sum of lost time (s)		
Intersection Capacity Utilization		52.2%		ICU Level of Service		A
Analysis Period (min)		15				
c Critical Lane Group						

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SWR
Lane Configurations	13	4	4	94	23	107	92	307	98	160	660	38
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	0.95	1.00	1.00	1.00	0.97	0.91	0.97	0.91	0.97	0.91
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.85	1.00	0.96	1.00	0.99	1.00	0.99
Flt	0.95	0.99	0.96	0.96	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Flt Protected	1681	1651	1791	1791	1583	3433	4901	3433	5044	3433	5044	1681
Satd. Flow (prot)	0.95	0.99	0.96	0.96	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Flt Permitted	1681	1651	1791	1791	1583	3433	4901	3433	5044	3433	5044	1681
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	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Adj. Flow (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	11	8	0	0	130	17	102	387	0	178	768	0
Turn Type	Split	2	2	Split	6	6	Perm	3	8	7	4	4
Protected Phases	6.6	6.6	6.6	7.2	7.2	7.2	3.6	13.6	5.9	15.9	6.6	6.6
Permitted Phases	6.6	6.6	6.6	7.2	7.2	7.2	3.6	13.6	5.9	15.9	6.6	6.6
Actuated Green, G (s)	0.13	0.13	0.13	0.15	0.15	0.15	0.07	0.26	0.12	0.32	0.13	0.13
Effective Green, g (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Actuated g/C Ratio	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	225	221	262	231	251	1352	411	1627	60.05	60.15	225	221
Lane Grp Cap (vph)	60.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
vs Ratio Prot	0.05	0.03	0.03	0.50	0.08	0.41	0.29	0.43	0.47	0.43	0.47	0.43
vs Ratio Perm	18.6	18.6	19.4	18.2	21.8	14.0	20.1	13.3	13.3	13.3	13.3	13.3
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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Incremental Delay, d2	18.7	18.6	20.3	18.3	22.9	14.2	20.9	15.8	15.8	15.8	15.8	15.8
Delay (s)	B	B	C	B	C	B	C	B	C	B	C	B
Level of Service	B	B	C	B	C	B	C	B	C	B	C	B
Approach Delay (s)	18.7	18.6	20.3	18.3	22.9	14.2	20.9	15.8	15.8	15.8	15.8	15.8
Approach LOS	B	B	C	B	C	B	C	B	C	B	C	B
Intersection Summary												
HCM Average Control Delay	15.9											
HCM Volume to Capacity ratio	0.37											
Actuated Cycle Length (s)	49.3											
Intersection Capacity Utilization	40.0%											
Analysis Period (min)	15											
c Critical Lane Group												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SWR
Lane Configurations	165	83	113	45	189	149	111	425	7	100	443	165
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Util. Factor	1.00	1.00	1.00	0.85	1.00	0.93	1.00	1.00	1.00	1.00	1.00	1.00
Flt	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 Protected	1770	1863	1583	1770	1739	1739	1770	1739	1770	1739	1770	1863
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	1739	1739	1770	1739	1770	1739	1770	1863
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	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Adj. Flow (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	183	92	126	49	50	340	0	123	478	0	111	492
Turn Type	Prot	7	4	4	3	8	5	2	1	6	5	6
Protected Phases	12.0	26.2	26.2	3.5	17.7	16.1	7.1	16.1	6.1	15.1	15.1	15.1
Permitted Phases	12.0	26.2	26.2	3.5	17.7	16.1	7.1	16.1	6.1	15.1	15.1	15.1
Actuated Green, G (s)	0.18	0.39	0.39	0.05	0.26	0.24	0.10	0.24	0.09	0.22	0.22	0.22
Effective Green, g (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Actuated g/C Ratio	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	313	719	611	91	453	185	837	185	837	352	352	352
Lane Grp Cap (vph)	60.10	0.05	0.03	0.03	60.20	60.07	0.14	0.06	0.06	60.14	0.03	0.03
vs Ratio Prot	0.58	0.13	0.08	0.55	0.75	0.66	0.57	0.70	0.63	0.12	0.12	0.12
vs Ratio Perm	25.7	13.5	13.2	31.4	23.1	29.3	22.9	30.0	23.8	21.1	21.1	21.1
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	2.8	0.1	0.1	6.6	6.9	8.7	0.9	12.6	1.6	0.1	0.1	0.1
Incremental Delay, d2	28.4	13.6	13.3	38.1	29.9	37.9	23.8	42.6	25.4	21.2	21.2	21.2
Delay (s)	C	B	B	D	C	D	C	D	C	C	C	C
Level of Service	C	B	B	D	C	D	C	D	C	C	C	C
Approach Delay (s)	20.3	13.6	13.3	38.1	29.9	37.9	23.8	42.6	25.4	21.2	21.2	21.2
Approach LOS	C	B	B	D	C	D	C	D	C	C	C	C
Intersection Summary												
HCM Average Control Delay	26.4											
HCM Volume to Capacity ratio	0.66											
Actuated Cycle Length (s)	67.9											
Intersection Capacity Utilization	59.9%											
Analysis Period (min)	15											
c Critical Lane Group												

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

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SEW
Lane Configurations	38	67	6	226	45	135	14	305	52	145	452	66
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	0.91	1.00	0.91	1.00	0.91
Lane Util. Factor	1.00	0.99	1.00	1.00	1.00	0.95	1.00	0.98	1.00	0.98	1.00	0.98
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	1839	1770	1863	1593	1770	4974	1770	4988	1770	4988	1770
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	1839	1770	1863	1593	1770	4974	1770	4988	1770	4988	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)	42	74	7	251	50	150	16	339	58	161	502	73
RTOR Reduction (vph)	0	5	0	0	0	108	0	34	0	0	24	0
Lane Group Flow (vph)	42	76	0	251	80	42	16	363	0	161	551	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	2.0	5.4	11.6	15.0	15.0	0.7	13.0	8.2	20.5	8.2	20.5	8.2
Actuated Green, G (s)	2.0	5.4	11.6	15.0	15.0	0.7	13.0	8.2	20.5	8.2	20.5	8.2
Effective Green, g (s)	0.04	0.10	0.21	0.28	0.28	0.01	0.24	0.15	0.38	0.15	0.38	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	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)	65	183	379	516	438	23	1193	268	1887	268	1887	268
Lane Grp Cap (vph)	0.002	0.004	0.014	0.09	0.09	0.01	0.07	0.009	0.11	0.009	0.11	0.009
v/s Ratio Prot	0.65	0.41	0.86	0.10	0.09	0.70	0.30	0.60	0.29	0.60	0.29	0.60
v/s Ratio Perm	25.8	22.9	19.5	14.6	14.6	26.6	16.9	21.5	11.8	21.5	11.8	21.5
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	20.0	1.5	4.3	0.1	0.1	63.9	0.1	3.8	0.1	3.8	0.1	3.8
Incremental Delay, d2	45.7	24.4	23.8	14.6	14.7	90.6	17.0	25.2	11.9	25.2	11.9	25.2
Delay (s)	D	C	C	B	B	F	B	C	B	C	B	B
Level of Service	D	C	C	B	B	F	B	C	B	C	B	B
Approach Delay (s)	31.7	19.8	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9
Approach LOS	C	C	B	B	B	B	B	C	B	C	B	B
Intersection Summary												
HCM Average Control Delay	18.5											
HCM Volume to Capacity ratio	0.46											
Actuated Cycle Length (s)	54.2											
Intersection Capacity Utilization	44.3%											
Analysis Period (min)	15											
c. Critical Lane Group												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SEW
Lane Configurations	302	118	123	60	291	29	269	410	28	66	398	386
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	0.95	1.00	1.00	1.00	1.00	0.99	1.00	0.99	1.00	0.95	1.00	0.95
Flt Protected	0.95	1.00	1.00	1.00	1.00	0.99	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1770	1863	1593	1829	1829	1770	3506	1770	3506	1770	3506	1770
Flt Permitted	0.95	1.00	1.00	1.00	1.00	0.99	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (perm)	1770	1863	1593	1829	1829	1770	3506	1770	3506	1770	3506	1770
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	318	124	129	63	306	31	283	432	29	68	419	406
RTOR Reduction (vph)	0	0	103	0	4	0	0	6	0	0	218	0
Lane Group Flow (vph)	318	124	26	0	396	0	283	455	0	68	607	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4.0	4.0	4.0	8.0	8.0	8.0	5.0	2.0	1.0	6.0	6.0	6.0
Actuated Green, G (s)	16.0	16.0	16.0	17.4	17.4	17.4	13.2	24.0	6.6	17.4	17.4	17.4
Effective Green, g (s)	16.0	16.0	16.0	17.4	17.4	17.4	13.2	24.0	6.6	17.4	17.4	17.4
Actuated g/C Ratio	0.20	0.20	0.20	0.22	0.22	0.22	0.16	0.30	0.08	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)	354	373	317	398	398	292	1052	146	713	354	373	317
v/s Ratio Prot	0.18	0.07	0.07	0.22	0.22	0.16	0.13	0.04	0.19	0.18	0.07	0.07
v/s Ratio Perm	0.90	0.33	0.06	1.00	1.00	0.97	0.43	0.47	0.85	0.90	0.33	0.06
Uniform Delay, d1	31.2	27.4	26.0	31.3	31.3	33.2	22.5	35.0	30.1	31.2	27.4	26.0
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	24.2	0.5	0.1	43.6	43.6	43.7	0.3	2.4	9.6	24.2	0.5	0.1
Delay (s)	55.4	28.0	26.1	74.8	74.8	76.9	22.8	37.4	39.6	55.4	28.0	26.1
Level of Service	E	C	C	E	E	E	C	D	D	E	C	C
Approach Delay (s)	42.8	19.8	19.9	19.9	19.9	19.9	19.9	19.9	19.9	42.8	19.8	19.9
Approach LOS	D	C	C	E	E	E	C	D	D	D	C	C
Intersection Summary												
HCM Average Control Delay	46.7											
HCM Volume to Capacity ratio	0.93											
Actuated Cycle Length (s)	80.0											
Intersection Capacity Utilization	88.8%											
Analysis Period (min)	15											
c. Critical Lane Group												

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Movement	EBL	EBR	EBR2	NW1	NW2	NW3	NW4	NW5	NW6	NW7	NW8	NW9	NW10	NW11	NW12	NW13	NW14	NW15	NW16	NW17	NW18	NW19	NW20	NW21	NW22	NW23	NW24	NW25	NW26	NW27	NW28	NW29	NW30	NW31	NW32	NW33	NW34	NW35	NW36	NW37	NW38	NW39	NW40	NW41	NW42	NW43	NW44	NW45	NW46	NW47	NW48	NW49	NW50	NW51	NW52	NW53	NW54	NW55	NW56	NW57	NW58	NW59	NW60	NW61	NW62	NW63	NW64	NW65	NW66	NW67	NW68	NW69	NW70	NW71	NW72	NW73	NW74	NW75	NW76	NW77	NW78	NW79	NW80	NW81	NW82	NW83	NW84	NW85	NW86	NW87	NW88	NW89	NW90	NW91	NW92	NW93	NW94	NW95	NW96	NW97	NW98	NW99	NW100	NW101	NW102	NW103	NW104	NW105	NW106	NW107	NW108	NW109	NW110	NW111	NW112	NW113	NW114	NW115	NW116	NW117	NW118	NW119	NW120	NW121	NW122	NW123	NW124	NW125	NW126	NW127	NW128	NW129	NW130	NW131	NW132	NW133	NW134	NW135	NW136	NW137	NW138	NW139	NW140	NW141	NW142	NW143	NW144	NW145	NW146	NW147	NW148	NW149	NW150	NW151	NW152	NW153	NW154	NW155	NW156	NW157	NW158	NW159	NW160	NW161	NW162	NW163	NW164	NW165	NW166	NW167	NW168	NW169	NW170	NW171	NW172	NW173	NW174	NW175	NW176	NW177	NW178	NW179	NW180	NW181	NW182	NW183	NW184	NW185	NW186	NW187	NW188	NW189	NW190	NW191	NW192	NW193	NW194	NW195	NW196	NW197	NW198	NW199	NW200	NW201	NW202	NW203	NW204	NW205	NW206	NW207	NW208	NW209	NW210	NW211	NW212	NW213	NW214	NW215	NW216	NW217	NW218	NW219	NW220	NW221	NW222	NW223	NW224	NW225	NW226	NW227	NW228	NW229	NW230	NW231	NW232	NW233	NW234	NW235	NW236	NW237	NW238	NW239	NW240	NW241	NW242	NW243	NW244	NW245	NW246	NW247	NW248	NW249	NW250	NW251	NW252	NW253	NW254	NW255	NW256	NW257	NW258	NW259	NW260	NW261	NW262	NW263	NW264	NW265	NW266	NW267	NW268	NW269	NW270	NW271	NW272	NW273	NW274	NW275	NW276	NW277	NW278	NW279	NW280	NW281	NW282	NW283	NW284	NW285	NW286	NW287	NW288	NW289	NW290	NW291	NW292	NW293	NW294	NW295	NW296	NW297	NW298	NW299	NW300	NW301	NW302	NW303	NW304	NW305	NW306	NW307	NW308	NW309	NW310	NW311	NW312	NW313	NW314	NW315	NW316	NW317	NW318	NW319	NW320	NW321	NW322	NW323	NW324	NW325	NW326	NW327	NW328	NW329	NW330	NW331	NW332	NW333	NW334	NW335	NW336	NW337	NW338	NW339	NW340	NW341	NW342	NW343	NW344	NW345	NW346	NW347	NW348	NW349	NW350	NW351	NW352	NW353	NW354	NW355	NW356	NW357	NW358	NW359	NW360	NW361	NW362	NW363	NW364	NW365	NW366	NW367	NW368	NW369	NW370	NW371	NW372	NW373	NW374	NW375	NW376	NW377	NW378	NW379	NW380	NW381	NW382	NW383	NW384	NW385	NW386	NW387	NW388	NW389	NW390	NW391	NW392	NW393	NW394	NW395	NW396	NW397	NW398	NW399	NW400	NW401	NW402	NW403	NW404	NW405	NW406	NW407	NW408	NW409	NW410	NW411	NW412	NW413	NW414	NW415	NW416	NW417	NW418	NW419	NW420	NW421	NW422	NW423	NW424	NW425	NW426	NW427	NW428	NW429	NW430	NW431	NW432	NW433	NW434	NW435	NW436	NW437	NW438	NW439	NW440	NW441	NW442	NW443	NW444	NW445	NW446	NW447	NW448	NW449	NW450	NW451	NW452	NW453	NW454	NW455	NW456	NW457	NW458	NW459	NW460	NW461	NW462	NW463	NW464	NW465	NW466	NW467	NW468	NW469	NW470	NW471	NW472	NW473	NW474	NW475	NW476	NW477	NW478	NW479	NW480	NW481	NW482	NW483	NW484	NW485	NW486	NW487	NW488	NW489	NW490	NW491	NW492	NW493	NW494	NW495	NW496	NW497	NW498	NW499	NW500	NW501	NW502	NW503	NW504	NW505	NW506	NW507	NW508	NW509	NW510	NW511	NW512	NW513	NW514	NW515	NW516	NW517	NW518	NW519	NW520	NW521	NW522	NW523	NW524	NW525	NW526	NW527	NW528	NW529	NW530	NW531	NW532	NW533	NW534	NW535	NW536	NW537	NW538	NW539	NW540	NW541	NW542	NW543	NW544	NW545	NW546	NW547	NW548	NW549	NW550	NW551	NW552	NW553	NW554	NW555	NW556	NW557	NW558	NW559	NW560	NW561	NW562	NW563	NW564	NW565	NW566	NW567	NW568	NW569	NW570	NW571	NW572	NW573	NW574	NW575	NW576	NW577	NW578	NW579	NW580	NW581	NW582	NW583	NW584	NW585	NW586	NW587	NW588	NW589	NW590	NW591	NW592	NW593	NW594	NW595	NW596	NW597	NW598	NW599	NW600	NW601	NW602	NW603	NW604	NW605	NW606	NW607	NW608	NW609	NW610	NW611	NW612	NW613	NW614	NW615	NW616	NW617	NW618	NW619	NW620	NW621	NW622	NW623	NW624	NW625	NW626	NW627	NW628	NW629	NW630	NW631	NW632	NW633	NW634	NW635	NW636	NW637	NW638	NW639	NW640	NW641	NW642	NW643	NW644	NW645	NW646	NW647	NW648	NW649	NW650	NW651	NW652	NW653	NW654	NW655	NW656	NW657	NW658	NW659	NW660	NW661	NW662	NW663	NW664	NW665	NW666	NW667	NW668	NW669	NW670	NW671	NW672	NW673	NW674	NW675	NW676	NW677	NW678	NW679	NW680	NW681	NW682	NW683	NW684	NW685	NW686	NW687	NW688	NW689	NW690	NW691	NW692	NW693	NW694	NW695	NW696	NW697	NW698	NW699	NW700	NW701	NW702	NW703	NW704	NW705	NW706	NW707	NW708	NW709	NW710	NW711	NW712	NW713	NW714	NW715	NW716	NW717	NW718	NW719	NW720	NW721	NW722	NW723	NW724	NW725	NW726	NW727	NW728	NW729	NW730	NW731	NW732	NW733	NW734	NW735	NW736	NW737	NW738	NW739	NW740	NW741	NW742	NW743	NW744	NW745	NW746	NW747	NW748	NW749	NW750	NW751	NW752	NW753	NW754	NW755	NW756	NW757	NW758	NW759	NW760	NW761	NW762	NW763	NW764	NW765	NW766	NW767	NW768	NW769	NW770	NW771	NW772	NW773	NW774	NW775	NW776	NW777	NW778	NW779	NW780	NW781	NW782	NW783	NW784	NW785	NW786	NW787	NW788	NW789	NW790	NW791	NW792	NW793	NW794	NW795	NW796	NW797	NW798	NW799	NW800	NW801	NW802	NW803	NW804	NW805	NW806	NW807	NW808	NW809	NW810	NW811	NW812	NW813	NW814	NW815	NW816	NW817	NW818	NW819	NW820	NW821	NW822	NW823	NW824	NW825	NW826	NW827	NW828	NW829	NW830	NW831	NW832	NW833	NW834	NW835	NW836	NW837	NW838	NW839	NW840	NW841	NW842	NW843	NW844	NW845	NW846	NW847	NW848	NW849	NW850	NW851	NW852	NW853	NW854	NW855	NW856	NW857	NW858	NW859	NW860	NW861	NW862	NW863	NW864	NW865	NW866	NW867	NW868	NW869	NW870	NW871	NW872	NW873	NW874	NW875	NW876	NW877	NW878	NW879	NW880	NW881	NW882	NW883	NW884	NW885	NW886	NW887	NW888	NW889	NW890	NW891	NW892	NW893	NW894	NW895	NW896	NW897	NW898	NW899	NW900	NW901	NW902	NW903	NW904	NW905	NW906	NW907	NW908	NW909	NW910	NW911	NW912	NW913	NW914	NW915	NW916	NW917	NW918	NW919	NW920	NW921	NW922	NW923	NW924	NW925	NW926	NW927	NW928	NW929	NW930	NW931	NW932	NW933	NW934	NW935	NW936	NW937	NW938	NW939	NW940	NW941	NW942	NW943	NW944	NW945	NW946	NW947	NW948	NW949	NW950	NW951	NW952	NW953	NW954	NW955	NW956	NW957	NW958	NW959	NW960	NW961	NW962	NW963	NW964	NW965	NW966	NW967	NW968	NW969	NW970	NW971	NW972	NW973	NW974	NW975	NW976	NW977	NW978	NW979	NW980	NW981	NW982	NW983	NW984	NW985	NW986	NW987	NW988	NW989	NW990	NW991	NW992	NW993	NW994	NW995	NW996	NW997	NW998	NW999	NW1000	NW1001	NW1002	NW1003	NW1004	NW1005	NW1006	NW1007	NW1008	NW1009	NW1010	NW1011	NW1012	NW1013	NW1014	NW1015	NW1016	NW1017	NW1018	NW1019	NW1020	NW1021	NW1022	NW1023	NW1024	NW1025	NW1026	NW1027	NW1028	NW1029	NW1030	NW1031	NW1032	NW1033	NW1034	NW1035	NW1036	NW1037	NW1038	NW1039	NW1040	NW1041	NW1042	NW1043	NW1044	NW1045	NW1046	NW1047	NW1048	NW1049	NW1050	NW1051	NW1052	NW1053	NW1054	NW1055	NW1056	NW1057	NW1058	NW1059	NW1060	NW1061	NW1062	NW1063	NW1064	NW1065	NW1066	NW1067	NW1068	NW1069	NW1070	NW1071	NW1072	NW1073	NW1074	NW1075	NW1076	NW1077	NW1078	NW1079	NW1080	NW1081	NW1082	NW1083	NW1084	NW1085	NW1086	NW1087	NW1088	NW1089	NW1090	NW1091	NW1092	NW1093	NW1094	NW1095	NW1096	NW1097	NW1098	NW1099	NW1100	NW1101	NW1102	NW1103	NW1104	NW1105	NW1106	NW1107	NW1108	NW1109	NW1110	NW1111	NW1112	NW1113	NW1114	NW1115	NW1116	NW1117	NW1118	NW1119	NW1120	NW1121	NW1122	NW1123	NW1124	NW1125	NW1126	NW1127	NW1128	NW1129	NW1130	NW1131	NW1132	NW1133	NW1134	NW1135	NW1136	NW1137	NW1138	NW1139	NW1140	NW1141	NW1142	NW1143	NW1144	NW1145	NW1146	NW1147	NW1148	NW1149	NW1150	NW1151	NW1152	NW1153	NW1154	NW1155	NW1156	NW1157	NW1158	NW1159	NW1160	NW1161	NW1162	NW1163	NW1164	NW1165	NW1166	NW1167	NW1168	NW1169	NW1170	NW1171	NW1172	NW1173	NW1174	NW1175	NW1176	NW1177	NW1178	NW1179	NW1180	NW1181	NW1182	NW1183	NW1184	NW1185	NW1186	NW1187	NW1188	NW1189	NW1190	NW1191	NW1192	NW1193	NW1194	NW1195	NW1196	NW1197	NW1198	NW1199	NW1200	NW1201	NW1202	NW1203	NW1204	NW1205	NW1206	NW1207	NW1208	NW1209	NW1210	NW1211	NW1212	NW1213	NW1214	NW1215	NW1216	NW1217	NW1218	NW1219	NW1220	NW1221	NW1222	NW1223	NW1224	NW1225	NW1226	NW1227	NW1228	NW1229	NW1230	NW1231	NW1232	NW1233	NW1234	NW1235	NW1236	NW1237	NW1238	NW1239	NW1240	NW1241	NW1242	NW1243	NW1244	NW1245	NW1246	NW1247	NW1248	NW1249	NW1250	NW1251	NW1252	NW1253	NW1254	NW1255	NW1256	NW1257	NW1258	NW1259	NW1260	NW1261	NW1262	NW1263	NW1264	NW1265	NW1266	NW1267	NW1268	NW1269	NW1270	NW1271	NW1272	NW1273	NW1274	NW1275	NW1276	NW1277	NW1278	NW1279	NW1280	NW1281	NW1282	NW1283	NW1284	NW1285	NW1286	NW1287	NW1288	NW1289	NW1290	NW1291	NW1292	NW1293	NW1294	NW1295	NW1296	NW1297	NW1298	NW1299	NW1300	NW1301	NW1302	NW1303	NW1304	NW1305	NW1306	NW1307	NW1308	NW1309	NW1310	NW1311	NW1312	NW1313	NW1314	NW1315	NW1316	NW1317	NW1318	NW1319	NW1320	NW1321	NW1322	NW1323	NW1324	NW1325	NW1326	NW1327	NW1328	NW1329	NW1330	NW1331
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HCM Signalized Intersection Capacity Analysis
24: Carmel Grove Road & Carmel Creek Road

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

Existing + Project (Phase 1) AM
12/11/2011

Existing + Project (Phase 1) AM
12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	←	←	←	←	←	←	←	←	←	←	←
Volume (vph)	52	89	116	199	61	24	30	287	81	15	780	140
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	0.85	0.99	0.99	1.00	0.97	0.95	1.00	0.97	1.00	0.98	1.00
Flt Protected	0.98	1.00	0.97	0.97	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1829	1583	1779	1779	1779	1770	3422	1770	3422	1770	3456	1504
Flt Permitted	0.98	1.00	0.97	0.97	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1829	1583	1779	1779	1779	1770	3422	1770	3422	1770	3456	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)	58	99	129	221	68	27	33	319	90	17	844	156
RTOR Reduction (vph)	0	0	108	0	4	0	0	30	0	0	18	0
Lane Group Flow (vph)	0	157	21	0	312	0	33	379	0	17	982	0
Turn Type	Prot	Prot	Split	Split	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Permitted Phases	4	4	4	8	5	2	1	6				
Actuated Green, G (s)	11.5	11.5	15.5	15.5	1.6	25.3	0.8	24.5				
Effective Green, g (s)	11.5	11.5	15.5	15.5	1.6	25.3	0.8	24.5				
Actuated g/C Ratio	0.17	0.17	0.22	0.22	0.02	0.37	0.01	0.35				
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)	304	263	399	399	41	1253	20	1225				
v/s Ratio Prot	c0.09	c0.01	c0.16	c0.16	c0.02	c0.11	c0.01	c0.28				
v/s Ratio Perm	0.52	0.08	0.78	0.78	0.80	0.30	0.85	0.80				
Uniform Delay, d1	26.3	24.3	25.2	25.2	33.6	15.6	34.1	20.1				
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Incremental Delay, d2	1.5	0.1	9.6	9.6	69.0	0.1	131.5	3.9				
Delay (s)	27.7	24.5	34.8	34.8	102.6	15.7	165.6	24.0				
Level of Service	C	C	C	C	F	B	F	C				
Approach Delay (s)	26.3				22.2							
Approach LOS	C				C							
Intersection Summary												
HCM Average Control Delay												
HCM Volume to Capacity ratio												
Actuated Cycle Length (s)												
Intersection Capacity Utilization												
Analysis Period (min)												
c - Critical Lane Group												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	←	←	←	←	←	←	←	←	←	←	←
Volume (vph)	0	301	176	382	618	0	0	0	0	997	3	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	0.95	0.95	0.97	0.95	0.95	1.00	1.00	1.00	1.00	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	0.95	1.00
Flt Protected	1.00	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	3343	3433	3539	3433	3539	3433	3539	3433	3539	1681	1610	1504
Flt Permitted	1.00	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	3343	3433	3539	3433	3539	3433	3539	3433	3539	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	334	196	424	687	0	0	0	0	1108	3	160
RTOR Reduction (vph)	0	139	0	0	0	0	0	0	0	0	2	84
Lane Group Flow (vph)	0	391	0	424	687	0	0	0	0	565	560	60
Turn Type	Prot	Prot	Split	Split	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Permitted Phases	4	4	4	8	5	2	1	6				
Actuated Green, G (s)	12.2	12.2	15.2	15.2	1.6	26.1	0.8	24.7				
Effective Green, g (s)	12.2	12.2	15.2	15.2	1.6	26.1	0.8	24.7				
Actuated g/C Ratio	0.21	0.21	0.27	0.27	0.02	0.37	0.01	0.35				
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)	694	578	1571	1571	1571	1571	1571	1571				
v/s Ratio Prot	c0.12	c0.12	c0.12	c0.12	c0.12	c0.12	c0.12	c0.12				
v/s Ratio Perm	0.56	0.73	0.73	0.73	0.73	0.73	0.73	0.73				
Uniform Delay, d1	20.9	23.2	23.2	23.2	11.3	11.3	14.9	15.2				
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Incremental Delay, d2	1.1	4.8	4.8	4.8	0.2	0.2	6.5	8.3				
Delay (s)	22.0	28.0	28.0	28.0	11.5	11.5	21.4	23.5				
Level of Service	C	C	C	C	B	B	C	C				
Approach Delay (s)	22.0				17.8							
Approach LOS	C				B							
Intersection Summary												
HCM Average Control Delay												
HCM Volume to Capacity ratio												
Actuated Cycle Length (s)												
Intersection Capacity Utilization												
Analysis Period (min)												
c - Critical Lane Group												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Volume (vph)	61	1182	0	0	928	834	106	2	547	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	0.97	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Fit Protected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3433	3539	3539	3539	3539	3539	3539	3539	3539	3539	3539
Fit Permitted	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	3433	3539	3539	3539	3539	3539	3539	3539	3539	3539	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	68	1313	0	0	1031	927	118	2	608	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	68	1313	0	0	1031	927	118	2	608	0	0
Turn Type	Prot	Prot	Split	Prot	Prot	Split	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	2	8	2	2	2	2	2	2	2
Permitted Phases	2,4	316	25,2	25,2	14,4	14,4	14,4	14,4	14,4	14,4	14,4
Actuated Green, G (s)	2,4	316	25,2	25,2	14,4	14,4	14,4	14,4	14,4	14,4	14,4
Effective Green, g (s)	2,4	316	25,2	25,2	14,4	14,4	14,4	14,4	14,4	14,4	14,4
Actuated g/C Ratio	0.04	0.59	0.47	0.47	0.27	0.27	0.27	0.27	0.27	0.27	0.27
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	153	2071	739	448	386	401	401	401	401	401	401
v/s Ratio Prot	0.02	0.37	0.29	0.27	0.06	0.19	0.18	0.18	0.18	0.18	0.18
v/s Ratio Perm	0.44	0.63	0.62	0.59	0.24	0.71	0.69	0.69	0.69	0.69	0.69
Uniform Delay, d1	25.2	7.4	10.8	10.5	15.5	17.9	17.7	17.7	17.7	17.7	17.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	0.6	0.7	1.2	0.3	6.1	4.5	4.5	4.5	4.5	4.5
Delay (s)	27.2	8.0	11.5	11.8	15.8	24.0	22.3	22.3	22.3	22.3	22.3
Level of Service	C	A	B	B	B	C	C	C	C	C	C
Approach Delay (s)	9.0	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7
Approach LOS	A	A	B	B	B	C	C	C	C	C	C
Intersection Summary											
HCM Average Control Delay	12.6										
HCM Volume to Capacity ratio	0.86										
Actuated Cycle Length (s)	54.0										
Intersection Capacity Utilization	73.6%										
Analysis Period (min)	15										
c Critical Lane Group											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Volume (vph)	20	6	16	704	14	156	69	903	145	115	1049
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	0.95	0.91	0.95	0.91	0.95
Fit Protected	1.00	0.97	0.85	1.00	0.99	0.85	1.00	0.98	1.00	0.95	1.00
Satd. Flow (prot)	1681	1617	1504	1681	1617	1504	1681	1617	1504	1681	1617
Fit Permitted	0.95	0.98	1.00	0.95	0.96	1.00	0.95	0.96	1.00	0.95	1.00
Satd. Flow (perm)	1681	1617	1504	1681	1617	1504	1681	1617	1504	1681	1617
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)	22	7	18	782	16	173	77	1003	161	128	1166
RTOR Reduction (vph)	0	3	14	0	1	104	0	21	0	0	2
Lane Group Flow (vph)	16	13	1	407	407	52	77	1143	0	128	1183
Turn Type	Split	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	4	8	8	8	5	2	6	6	6
Permitted Phases	3,5	3,5	3,5	23,7	23,7	23,7	4,4	32,1	23,7	23,7	23,7
Actuated Green, G (s)	3,5	3,5	3,5	23,7	23,7	23,7	4,4	32,1	23,7	23,7	23,7
Effective Green, g (s)	3,5	3,5	3,5	23,7	23,7	23,7	4,4	32,1	23,7	23,7	23,7
Actuated g/C Ratio	0.05	0.05	0.05	0.33	0.33	0.33	0.06	0.45	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
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	83	79	74	559	535	500	109	2242	588	1686	1686
v/s Ratio Prot	0.01	0.01	0.00	0.24	0.25	0.03	0.04	0.23	0.07	0.07	0.23
v/s Ratio Perm	0.19	0.17	0.01	0.73	0.76	0.10	0.71	0.51	0.22	0.22	0.70
Uniform Delay, d1	32.5	32.5	32.3	21.0	21.3	16.5	32.8	14.0	17.1	17.1	20.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	1.0	0.1	4.7	6.3	0.1	18.8	0.2	0.2	0.2	1.3
Delay (s)	33.7	33.5	32.3	25.7	27.5	16.5	51.6	14.2	17.3	17.3	22.1
Level of Service	C	C	C	C	C	C	B	D	B	B	C
Approach Delay (s)	33.2	33.2	33.2	25.0	25.0	25.0	16.5	16.5	21.6	21.6	21.6
Approach LOS	C	C	C	C	C	C	B	B	C	C	C
Intersection Summary											
HCM Average Control Delay	20.9										
HCM Volume to Capacity ratio	0.69										
Actuated Cycle Length (s)	71.3										
Intersection Capacity Utilization	65.2%										
Analysis Period (min)	15										
i Phase conflict between lane groups											
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis
28: Carmel Valley Road & El Camino Real

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

Existing + Project (Phase 1) AM
12/11/2011

Existing + Project (Phase 1) AM
12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEB	SEB	SEB
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4
Volume (vph)	0	0	0	308	1008	200	147	819	0	0	549	632
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.97	0.95	0.97	0.95	0.86	0.86	0.86	0.86
Flt. ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	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)	0	0	0	342	1120	222	163	910	0	0	610	702
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	342	1120	437	163	910	0	0	947	337
Conf. Peds. (#/hr)												200
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1
Permitted Phases	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1
Actuated Green, G (s)	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1
Effective Green, g (s)	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	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)	1067	1580	492	225	1892	0.06	0.06	0.26	0.23	0.23	0.23	0.23
Lane Grp Cap (vph)	0.10	0.22	0.09	0.28	0.72	0.48	0.28	0.72	0.48	0.28	0.72	0.48
vs Ratio Prot	0.32	0.71	0.28	0.72	0.48	0.28	0.72	0.48	0.28	0.72	0.48	0.28
vs Ratio Perm	13.7	15.8	13.5	23.7	7.5	23.7	7.5	23.7	7.5	23.7	7.5	23.7
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	0.2	0.15	0.3	1.10	0.2	0.2	1.10	0.2	0.2	1.10	0.2	0.2
Incremental Delay, d2	13.8	17.3	13.8	34.7	7.7	34.7	7.7	34.7	7.7	34.7	7.7	34.7
Delay (s)	13.8	17.3	13.8	34.7	7.7	34.7	7.7	34.7	7.7	34.7	7.7	34.7
Level of Service	B	B	B	C	A	C	A	C	A	C	A	C
Approach Delay (s)	0.0	16.1	16.1	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8
Approach LOS	A	B	B	B	B	B	B	B	B	B	B	B
Intersection Summary	14.9	HCM Level of Service	B	12.0	F	12.0	F	12.0	F	12.0	F	12.0
HCM Average Control Delay	0.75	Sum of lost time (s)	51.8	ICU Level of Service	F	51.8	ICU Level of Service	F	51.8	ICU Level of Service	F	51.8
Actuated Cycle Length (s)	96.8%	ICU Level of Service	15	Analysis Period (min)	15	Analysis Period (min)	15	Analysis Period (min)	15	Analysis Period (min)	15	Analysis Period (min)
Intersection Capacity Utilization	c	Critical Lane Group										

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEB	SEB	SEB
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4
Volume (vph)	599	896	265	0	0	0	0	0	0	114	679	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	0.86	0.91	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Flt	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1610	3176	1441	1610	3176	1441	1610	3176	1441	1610	3176	1441
Flt Permitted	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	1610	3176	1441	1610	3176	1441	1610	3176	1441	1610	3176	1441
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	654	996	294	0	0	0	0	0	0	127	754	0
RTOR Reduction (vph)	0	3	70	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	543	1133	195	0	0	0	0	0	0	127	754	0
Turn Type	Split	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7
Permitted Phases	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7
Actuated Green, G (s)	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7
Effective Green, g (s)	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
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)	734	1448	657	0.34	0.36	0.14	0.34	0.36	0.14	0.34	0.36	0.14
Lane Grp Cap (vph)	0.74	0.78	0.30	0.74	0.78	0.30	0.74	0.78	0.30	0.74	0.78	0.30
vs Ratio Prot	11.6	12.0	8.9	11.6	12.0	8.9	11.6	12.0	8.9	11.6	12.0	8.9
vs 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	3.9	2.8	0.3	3.9	2.8	0.3	3.9	2.8	0.3	3.9	2.8	0.3
Progression Factor	16.5	14.8	9.2	16.5	14.8	9.2	16.5	14.8	9.2	16.5	14.8	9.2
Incremental Delay, d2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2
Delay (s)	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2
Level of Service	B	B	A	B	B	A	B	B	A	B	B	A
Approach Delay (s)	0.0	14.2	14.2	0.0	14.2	14.2	0.0	14.2	14.2	0.0	14.2	14.2
Approach LOS	A	B	B	A	B	B	A	B	B	A	B	B
Intersection Summary	15.6	HCM Level of Service	B	8.0	F	8.0	F	8.0	F	8.0	F	8.0
HCM Average Control Delay	0.63	Sum of lost time (s)	52.0	ICU Level of Service	F	52.0	ICU Level of Service	F	52.0	ICU Level of Service	F	52.0
Actuated Cycle Length (s)	96.8%	ICU Level of Service	15	Analysis Period (min)	15	Analysis Period (min)	15	Analysis Period (min)	15	Analysis Period (min)	15	Analysis Period (min)
Intersection Capacity Utilization	c	Critical Lane Group										

Movement	EBL	EBT	WBL	WBT	WBR	SBL	SBR
Lane Configurations	7	4	3	8	6	6	6
Volume (vph)	16	209	0	425	24	94	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	0.85
Fit	1.00	1.00	1.00	0.99	1.00	1.00	0.95
Fit Protected	0.95	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	3510	3510	1770	1553	1553
Fit Permitted	0.95	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	3510	3510	1770	1553	1553
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	232	0	472	27	104	124
RTOR Reduction (vph)	0	0	0	0	0	0	105
Lane Group Flow (vph)	18	232	0	491	0	104	19
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	6	6	6
Permitted Phases	0.5	12.7	8.2	8.2	3.8	3.8	3.8
Actuated Green, G (s)	0.5	12.7	8.2	8.2	3.8	3.8	3.8
Effective Green, g (s)	0.02	0.52	0.33	0.33	0.16	0.16	0.16
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	36	1835	1175	1175	275	246	246
Lane Grp Cap (vph)	0.01	0.007	0.014	0.014	0.006	0.006	0.006
v/s Ratio Prot	0.50	0.13	0.42	0.42	0.35	0.08	0.08
v/s Ratio Perm	11.9	3.0	6.3	6.3	9.3	8.9	8.9
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	10.5	0.0	0.2	0.2	0.9	0.1	0.1
Incremental Delay, d2	22.4	3.1	6.5	6.5	10.2	9.0	9.0
Delay (s)	C	A	A	A	B	A	A
Level of Service	C	A	A	A	B	A	A
Approach Delay (s)	4.5	6.5	6.5	6.5	9.5	9.5	9.5
Approach LOS	A	A	A	A	A	A	A
Intersection Summary							
HCM Average Control Delay	6.7						
HCM Volume to Capacity ratio	0.41						
Actuated Cycle Length (s)	24.5						
Intersection Capacity Utilization	26.1%						
Analysis Period (min)	15						
c Critical Lane Group							

Movement	EBL	EBT	WBL	WBT	WBR	SBL	SBR
Lane Configurations	7	4	3	8	6	6	6
Volume (vph)	16	209	0	425	24	94	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	0.85
Fit	1.00	1.00	1.00	0.99	1.00	1.00	0.95
Fit Protected	0.95	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	3510	3510	1770	1553	1553
Fit Permitted	0.95	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	3510	3510	1770	1553	1553
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	232	0	472	27	104	124
RTOR Reduction (vph)	0	0	0	0	0	0	105
Lane Group Flow (vph)	18	232	0	491	0	104	19
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	6	6	6
Permitted Phases	0.5	12.7	8.2	8.2	3.8	3.8	3.8
Actuated Green, G (s)	0.5	12.7	8.2	8.2	3.8	3.8	3.8
Effective Green, g (s)	0.02	0.52	0.33	0.33	0.16	0.16	0.16
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	36	1835	1175	1175	275	246	246
Lane Grp Cap (vph)	0.01	0.007	0.014	0.014	0.006	0.006	0.006
v/s Ratio Prot	0.50	0.13	0.42	0.42	0.35	0.08	0.08
v/s Ratio Perm	11.9	3.0	6.3	6.3	9.3	8.9	8.9
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	10.5	0.0	0.2	0.2	0.9	0.1	0.1
Incremental Delay, d2	22.4	3.1	6.5	6.5	10.2	9.0	9.0
Delay (s)	C	A	A	A	B	A	A
Level of Service	C	A	A	A	B	A	A
Approach Delay (s)	4.5	6.5	6.5	6.5	9.5	9.5	9.5
Approach LOS	A	A	A	A	A	A	A
Intersection Summary							
HCM Average Control Delay	6.7						
HCM Volume to Capacity ratio	0.41						
Actuated Cycle Length (s)	24.5						
Intersection Capacity Utilization	26.1%						
Analysis Period (min)	15						
c Critical Lane Group							

HCM Signalized Intersection Capacity Analysis
32: SR-56 EB Ramps & Carmel Creek Road

Existing + Project (Phase 1) AM
12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4
Volume (vph)	437	0	180	0	0	0	0	408	74	183	272
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	0.95	0.95	0.95	0.95	0.95	0.97	0.95	0.95
Flt	1.00	1.00	0.85	1.00	0.88	1.00	1.00	0.95	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
Satd. Flow (prot)	1681	1681	1683	3458	3458	3458	3458	3458	3458	3458	3458
Flt Permitted	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1681	1681	1683	3458	3458	3458	3458	3458	3458	3458	3458
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)	486	0	200	0	0	0	454	52	203	302	302
RTOR Reduction (vph)	0	0	139	0	0	0	0	31	0	0	0
Lane Group Flow (vph)	243	243	61	0	0	0	505	0	203	302	302
Turn Type	Spill	Spill	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	4	4	4	4	4	4	4	4	4
Permitted Phases	12.2	12.2	12.2	11.9	11.9	11.9	3.6	19.5	3.6	19.5	19.5
Actuated Green, G (s)	12.2	12.2	12.2	11.9	11.9	11.9	3.6	19.5	3.6	19.5	19.5
Effective Green, g (s)	0.31	0.31	0.31	0.30	0.30	0.30	0.09	0.49	0.09	0.49	0.49
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)	517	517	486	1037	1037	1037	311	1738	311	1738	1738
Lane Grp Cap (vph)	6074	0.14	0.04	0.15	0.15	0.15	0.06	0.09	0.06	0.09	0.09
v/s Ratio Prot	0.47	0.47	0.13	0.48	0.48	0.48	0.65	0.17	0.65	0.17	0.17
v/s Ratio Perm	11.1	11.1	9.9	11.4	11.4	11.4	17.4	5.6	17.4	5.6	5.6
Uniform Delay, d1	100	100	100	100	100	100	100	100	100	100	100
Progression Factor	0.7	0.7	0.1	0.4	0.4	0.4	4.9	0.0	4.9	0.0	0.0
Incremental Delay, d2	11.8	11.6	10.0	11.8	11.8	11.8	22.3	5.7	22.3	5.7	5.7
Delay (s)	B	B	B	B	B	B	C	A	C	A	A
Level of Service	B	B	B	B	B	B	C	A	C	A	A
Approach Delay (s)	11.3	11.3	11.8	11.8	11.8	11.8	12.4	5.6	12.4	5.6	5.6
Approach LOS	B	B	B	B	B	B	C	A	C	A	A
Intersection Summary											
HCM Average Control Delay	11.7										
HCM Volume to Capacity ratio	0.50										
Actuated Cycle Length (s)	39.7										
Intersection Capacity Utilization	41.0%										
Analysis Period (min)	15										
c. Critical Lane Group	B										

Baseline

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

Existing + Project (Phase 1) AM
12/11/2011

Movement	SBL	SBT	SBR	NBL	NBT	NBR	WBL	WBT	WBR	EBL	EBT	EBR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4
Volume (vph)	86	491	34	141	453	335	56	64	236	623	139	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.88	1.00	0.88	1.00	0.97	1.00	0.92
Flt	1.00	0.99	1.00	0.94	1.00	0.88	1.00	0.88	1.00	0.92	1.00	0.92
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1770	3505	1770	3314	1770	1643	3433	1706	3433	1706	3433	1706
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (perm)	1770	3505	1770	3314	1770	1643	3433	1706	3433	1706	3433	1706
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	96	546	38	157	503	372	62	71	262	692	154	198
RTOR Reduction (vph)	0	5	0	0	138	0	0	151	0	0	48	0
Lane Group Flow (vph)	96	579	0	157	737	0	62	182	0	692	304	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	1	6	2	2	7	4	3	8	3	8	3	8
Permitted Phases	8.1	19.8	12.1	23.8	6.7	13.5	18.9	25.7	18.9	25.7	18.9	25.7
Actuated Green, G (s)	8.1	19.8	12.1	23.8	6.7	13.5	18.9	25.7	18.9	25.7	18.9	25.7
Effective Green, g (s)	0.10	0.25	0.15	0.30	0.08	0.17	0.24	0.32	0.24	0.32	0.24	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	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)	179	864	287	982	148	276	808	546	808	546	808	546
Lane Grp Cap (vph)	0.05	0.17	0.09	0.22	0.04	0.11	0.20	0.18	0.20	0.18	0.20	0.18
v/s Ratio Prot	0.54	0.67	0.59	0.75	0.42	0.66	0.86	0.56	0.86	0.56	0.86	0.56
v/s Ratio Perm	34.3	27.3	31.8	25.6	35.0	31.3	29.4	22.6	29.4	22.6	29.4	22.6
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	3.1	2.0	3.3	3.3	1.9	5.8	8.9	1.2	8.9	1.2	8.9	1.2
Incremental Delay, d2	37.4	29.3	35.1	28.8	36.9	37.1	38.3	23.8	38.3	23.8	38.3	23.8
Delay (s)	D	C	D	C	D	D	D	C	D	C	D	C
Level of Service	D	C	D	C	D	D	D	C	D	C	D	C
Approach Delay (s)	30.4	30.4	29.8	29.8	37.1	37.1	33.4	23.4	37.1	23.4	33.4	23.4
Approach LOS	C	C	C	C	D	D	C	C	D	C	C	C
Intersection Summary												
HCM Average Control Delay	32.0											
HCM Volume to Capacity ratio	0.76											
Actuated Cycle Length (s)	80.3											
Intersection Capacity Utilization	77.0%											
Analysis Period (min)	15											
c. Critical Lane Group	B											

Baseline

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Movement	WBL	WBR	SEL	SET	NWT	NWR	NW2	SWL	SWR
Lane Configurations	TT	TT	TT	TT	TT	TT	TT	TT	TT
Volume (vph)	0	0	754	590	742	0	306	133	224
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	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Flt	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	3539	3539	3539	3539	3433	3539	3539
Flt Permitted	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	3539	3539	3539	3539	3433	3539	3539
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	838	644	824	0	340	148	249
RTOR Reduction (vph)	0	0	0	0	0	0	230	0	212
Lane Group Flow (vph)	0	0	838	644	824	0	110	148	37
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	5	2	6	6	6	6	4	4	4
Permitted Phases	17.2	39.0	17.8	17.8	17.8	17.8	8.1	8.1	8.1
Actuated Green, G (s)	17.2	39.0	17.8	17.8	17.8	17.8	8.1	8.1	8.1
Effective Green, g (s)	0.31	0.71	0.32	0.32	0.32	0.32	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)	1072	2505	1143	1143	1143	511	605	233	233
Lane Grp Cap (vph)	c0.24	c0.18	c0.23	c0.23	c0.23	c0.24	c0.04	c0.02	c0.02
vs Ratio Prot	0.78	0.26	0.72	0.72	0.72	0.21	0.20	0.16	0.16
vs Ratio Perm	17.2	2.9	16.5	16.5	16.5	13.6	20.9	20.5	20.5
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	3.8	0.1	2.3	2.3	2.3	0.2	0.3	0.3	0.3
Incremental Delay, d2	21.0	2.9	18.7	18.7	18.7	13.8	21.3	20.8	20.8
Delay (s)	C	A	B	B	B	B	C	C	C
Level of Service	A	A	B	B	B	B	C	C	C
Approach Delay (s)	0.0	13.2	17.3	17.3	17.3	13.2	21.0	21.0	21.0
Approach LOS	A	B	B	B	B	B	C	C	C
Intersection Summary									
HCM Average Control Delay	15.8								
HCM Volume to Capacity ratio	0.85								
Actuated Cycle Length (s)	55.1								
Intersection Capacity Utilization	55.6%								
Analysis Period (min)	15								
c Critical Lane Group									

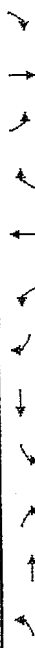
Movement	EBL2	EBL	EBR	SEL	SET	SER	NWL	NWT	NWR	SWL	SWR
Lane Configurations	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
Volume (vph)	300	0	161	340	370	0	0	723	214	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	0.95	1.00	0.97	0.95	0.95	1.00	0.95	1.00	0.95	1.00
Flt	1.00	1.00	0.85	1.00	1.00	1.00	1.00	0.85	1.00	0.85	1.00
Flt Protected	0.95	0.95	1.00	0.95	1.00	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1681	1681	1583	3433	3539	3539	3539	1681	1583	1681	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	1681	1583	1681	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)	333	0	179	378	411	0	0	803	238	0	0
RTOR Reduction (vph)	0	0	141	0	0	0	0	0	156	0	0
Lane Group Flow (vph)	165	167	38	378	411	0	0	803	82	0	0
Turn Type	Split	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	4	1	6	2	2	2	2	2	2
Permitted Phases	10.1	10.1	10.1	8.9	29.3	16.4	16.4	16.4	16.4	16.4	16.4
Actuated Green, G (s)	10.1	10.1	10.1	8.9	29.3	16.4	16.4	16.4	16.4	16.4	16.4
Effective Green, g (s)	0.21	0.21	0.21	0.19	0.62	0.35	0.35	0.35	0.35	0.35	0.35
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)	358	358	337	645	2188	1224	1224	1224	1224	1224	1224
Lane Grp Cap (vph)	c0.10	c0.10	c0.02	c0.11	c0.12	c0.23	c0.23	c0.23	c0.23	c0.23	c0.23
vs Ratio Prot	0.46	0.47	0.11	0.59	0.19	0.66	0.66	0.66	0.66	0.66	0.66
vs Ratio Perm	16.3	16.3	15.0	17.6	3.9	13.1	13.1	13.1	13.1	13.1	13.1
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	1.0	1.0	0.1	1.4	0.0	1.3	1.3	1.3	1.3	1.3	1.3
Incremental Delay, d2	17.2	17.3	15.2	18.9	4.0	14.4	14.4	14.4	14.4	14.4	14.4
Delay (s)	B	B	B	B	A	B	B	B	B	B	B
Level of Service	B	B	B	B	A	B	B	B	B	B	B
Approach Delay (s)	16.5	16.5	11.1	11.1	11.1	13.6	13.6	13.6	13.6	13.6	13.6
Approach LOS	B	B	B	B	B	B	B	B	B	B	B
Intersection Summary											
HCM Average Control Delay	13.4										
HCM Volume to Capacity ratio	0.58										
Actuated Cycle Length (s)	47.4										
Intersection Capacity Utilization	48.0%										
Analysis Period (min)	15										
c Critical Lane Group											

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information									
Analyst	Linda Swain	Intersection	Carmel Creek Rd/Del Mar Trail										
Agency/Co.	USG	Jurisdiction	City of San Diego										
Date Performed	3/20/2011	Analysis Year	2011										
Analysis Time Period	16 Existing + Project Ph. 1 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	R	L	R	L	T	R	L	T	R	L	R
Volume (veh/h)	10	10	10	200	2								25
% Thru Left Lane													
Approach		Northbound				Southbound							
Movement	L	T	R	L	R	L	T	R	L	T	R	L	R
Volume (veh/h)	3	260	100	15	928								3
% Thru Left Lane	50												
Eastbound		Westbound		Northbound		Southbound		Eastbound		Westbound		Northbound	
L1	L2	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2
LTR	LTR	LTR	LTR	LTR	LTR	LTR	LTR	LTR	LTR	LTR	LTR	LTR	LTR
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
PHF	33	251	2	2	2	2	2	2	2	2	2	2	2
Flow Rate (veh/h)	2	1	1	1	1	1	1	1	1	1	1	1	1
% Heavy Vehicles	1	2	2	2	2	2	2	2	2	2	2	2	2
No. Lanes	2	2	2	2	2	2	2	2	2	2	2	2	2
Geometry Group	D												
Duration, T	0.25												
Saturation Headway Adjustment Worksheet													
Popp. Left-Turns	0.3	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Popp. Right-Turns	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Popp. Heavy Vehicle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
RT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
HV-adj	1.7	1.7	1.7	1.7	1.7	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	0.0	0.0	0.0	0.0	0.0	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	3.20	3.20	3.20	3.20	3.20	3.20	3.20
s, initial	0.03	0.22	0.13	0.23	0.47	0.46	0.47	0.46	0.47	0.46	0.47	0.46	0.47
hd, final value (s)	7.40	6.79	7.07	6.75	6.27	6.25	6.27	6.25	6.27	6.25	6.27	6.25	6.27
x, final value	0.07	0.47	0.29	0.48	0.92	0.90	0.92	0.90	0.92	0.90	0.92	0.90	0.92
Move-up time, m (s)	2.0	2.0	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Service Time, Is (s)	5.4	4.8	4.8	4.4	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.9
Capacity and Level of Service													
Eastbound		Westbound		Northbound		Southbound		Eastbound		Westbound		Northbound	
L1	L2	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2
283	501	397	505	574	576	574	576	574	576	574	576	574	576
10.94	15.74	12.62	15.48	45.81	41.42	45.81	41.42	45.81	41.42	45.81	41.42	45.81	41.42
B	C	B	C	B	C	B	C	B	C	B	C	B	C
LOS	10.94	15.74	14.43	43.65	E	43.65	E	43.65	E	43.65	E	43.65	E
Approach Delay (s/veh)	B	C	B	B	E	B	E	B	E	B	E	B	E
LOS	B	C	B	B	E	B	E	B	E	B	E	B	E
Intersection Delay (s/veh)	32.22												
Intersection LOS	D												

HCM Signalized Intersection Capacity Analysis
Existing + Project (Phase 1) PM
12/11/2011

1: Via De La Valle & El Camino Real

[illegible]

Baseline

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	TT	TT	TT	TT	TT	TT	TT
Volume (vph)	204	256	0	547	353	332	281
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.95
Flt	1.00	0.95	1.00	0.85	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	3433	1583	1863	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	1863	1583	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	227	284	0	608	403	369	312
RTOR Reduction (vph)	0	237	0	0	244	0	0
Lane Group Flow (vph)	227	47	0	608	159	369	312
Turn Type	Permt	Permt	Prot	Permt	Permt	Prot	Prot
Protected Phases	1	3	8	7	6	7	6
Permitted Phases	1	3	8	7	6	7	6
Actuated Green, G (s)	11.5	11.5	27.3	27.3	18.2	11.5	11.5
Effective Green, g (s)	11.5	11.5	27.3	27.3	18.2	11.5	11.5
Actuated g/C Ratio	0.17	0.17	0.40	0.40	0.26	0.17	0.17
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	572	284	737	626	467	590	590
v/s Ratio Prot	0.07	0.07	0.33	0.33	0.21	0.07	0.07
v/s Ratio Perm	0.03	0.03	0.10	0.10	0.09	0.03	0.03
v/c Ratio	0.40	0.18	0.82	0.25	0.79	0.53	0.53
Uniform Delay, d1	25.7	24.7	18.7	14.0	23.6	28.3	28.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.3	7.5	0.2	8.8	0.9	0.9
Delay (s)	26.1	25.0	26.2	14.2	32.5	27.1	27.1
Level of Service	C	C	C	B	C	C	C
Approach Delay (s)	25.5	25.5	21.4	30.0	30.0	30.0	30.0
Approach LOS	C	C	C	C	C	C	C
Intersection Summary							
HCM Average Control Delay	25.0						
HCM Volume to Capacity ratio	0.75						
Actuated Cycle Length (s)	69.0						
Intersection Capacity Utilization	63.0%						
Analysis Period (min)	15						
c. Critical Lane Group							

Baseline

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	TT	TT	TT	TT	TT	TT	TT
Volume (vph)	63	6	0	871	108	8	482
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.99	1.00	0.95	1.00	1.00	0.95
Flt	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3409	3409	3481	1770	3539	3539	3539
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3409	3409	3481	1770	3539	3539	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	70	7	0	968	120	9	536
RTOR Reduction (vph)	7	0	0	13	0	0	0
Lane Group Flow (vph)	70	0	0	1075	0	9	536
Turn Type	Permt	Permt	Prot	Permt	Permt	Prot	Prot
Protected Phases	8	5	2	1	6	1	6
Permitted Phases	8	5	2	1	6	1	6
Actuated Green, G (s)	18.0	18.0	18.0	0.5	22.5	0.5	22.5
Effective Green, g (s)	18.0	18.0	18.0	0.5	22.5	0.5	22.5
Actuated g/C Ratio	0.06	0.06	0.06	0.02	0.70	0.02	0.70
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)	190	190	1940	27	2465	27	2465
v/s Ratio Prot	0.02	0.02	0.31	0.01	0.15	0.01	0.15
v/s Ratio Perm	0.37	0.37	0.56	0.33	0.22	0.33	0.22
v/c Ratio	0.37	0.37	0.56	0.33	0.22	0.33	0.22
Uniform Delay, d1	14.7	14.7	4.6	15.7	1.8	15.7	1.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	1.2	0.3	7.2	0.0	7.2	0.0
Delay (s)	15.9	15.9	4.9	22.9	1.8	22.9	1.8
Level of Service	B	B	A	C	A	C	A
Approach Delay (s)	15.9	15.9	4.9	22.9	2.1	22.9	2.1
Approach LOS	B	B	A	A	A	A	A
Intersection Summary							
HCM Average Control Delay	4.5						
HCM Volume to Capacity ratio	0.55						
Actuated Cycle Length (s)	32.3						
Intersection Capacity Utilization	37.5%						
Analysis Period (min)	15						
c. Critical Lane Group							

Baseline

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	↵	↵	↵	↵	↵	↵	↵	↵	↵	↵	↵
Volume (vph)	22	21	14	17	20	150	25	789	57	86	428
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00
Flt	1.00	0.94	1.00	1.00	0.87	1.00	0.95	1.00	0.95	1.00	0.99
Flt Protected	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)	1770	1748	1770	1770	1616	1770	3504	1770	3504	1770	3508
Flt Permitted	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	1748	1770	1770	1616	1770	3504	1770	3504	1770	3508
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)	24	23	16	19	22	167	28	877	63	96	476
RTOR Reduction (vph)	0	14	0	0	148	0	0	7	0	0	5
Lane Group Flow (vph)	24	25	0	19	41	0	28	933	0	96	501
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	5	2	1	6			
Permitted Phases											
Actuated Green, G (s)	0.8	5.2	0.8	5.2	0.6	20.1	3.5	23.0			
Effective Green, g (s)	0.8	5.2	0.8	5.2	0.6	20.1	3.5	23.0			
Actuated g/C Ratio	0.02	0.11	0.02	0.11	0.01	0.44	0.08	0.50			
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)	31	199	31	184	23	1545	136	1789			
v/s Ratio Prot	0.01	0.01	0.01	0.03	0.02	0.27	0.05	0.14			
v/s Ratio Perm	0.77	0.12	0.61	0.22	1.22	0.60	0.71	0.28			
Uniform Delay, d1	22.3	18.2	22.2	18.4	22.5	9.7	20.5	6.5			
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	73.6	0.3	30.9	0.6	281.7	0.7	15.4	0.1			
Delay (s)	96.0	18.4	53.2	19.0	284.2	10.4	35.9	6.6			
Level of Service	F	B	D	B	F	B	D	A			
Approach Delay (s)	48.0		22.1								
Approach LOS	D		C								
Intersection Summary											
HCM Average Control Delay	17.5					HCM Level of Service					
HCM Volume to Capacity ratio	0.61					B					
Actuated Cycle Length (s)	45.6					Sum of lost time (s)					
Intersection Capacity Utilization	55.4%					B					
Analysis Period (min)	15					ICU Level of Service					
c. Critical Lane Group											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	5 7	4 1	7 32	4 43	2 29	1 19	4 47	9 930	123 1900	22 1900	4 1900
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	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.94	1.00	0.98	1.00	0.95	1.00
Flt	0.95	1.00	0.85	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Flt Protected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1752	1770	3477	1770	3477	1770	3528
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1752	1770	3477	1770	3477	1770	3528
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)	8	46	36	48	32	21	52	1033	137	24	503
RTOR Reduction (vph)	0	0	33	0	19	0	0	12	0	0	2
Lane Group Flow (vph)	8	46	3	48	34	0	52	1158	0	24	512
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	4	3	8	5	2	1	6		
Permitted Phases											
Actuated Green, G (s)	0.8	4.3	4.3	1.6	5.1	1.7	23.2	0.6	22.1		
Effective Green, g (s)	0.8	4.3	4.3	1.6	5.1	1.7	23.2	0.6	22.1		
Actuated g/C Ratio	0.02	0.09	0.09	0.04	0.11	0.04	0.51	0.01	0.48		
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)	31	175	149	62	198	66	1765	23	1705		
v/s Ratio Prot	0.00	0.02	0.00	0.03	0.02	0.03	0.33	0.01	0.15		
v/s Ratio Perm	0.76	0.26	0.02	0.77	0.18	0.79	0.66	1.04	0.30		
Uniform Delay, d1	22.2	13.2	18.8	21.9	18.4	21.8	8.3	22.6	7.1		
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	4.4	0.8	0.1	44.2	0.4	44.9	0.9	201.7	0.1		
Delay (s)	26.5	20.0	18.9	66.1	18.8	66.7	9.2	224.3	7.2		
Level of Service	C	C	B	E	B	E	A	F	A		
Approach Delay (s)	20.1										
Approach LOS	C										
Intersection Summary											
HCM Average Control Delay	15.0					HCM Level of Service					
HCM Volume to Capacity ratio	0.56					B					
Actuated Cycle Length (s)	45.7					Sum of lost time (s)					
Intersection Capacity Utilization	52.0%					A					
Analysis Period (min)	15					ICU Level of Service					
c. Critical Lane Group											



Movement	EBT	EBR	WBT	WBR	NBT	NBR	SBT	SBR
Lane Configurations	12A	12B	12C	12D	12E	12F	12G	12H
Volume (veh/h)	124	824	16	130	894	1900	1900	1900
Ideal Flow (veh/h)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	0.95	1.00	0.95	1.00	0.95
Fr	1.00	1.00	1.00	0.97	1.00	0.85	1.00	0.93
Fr Protected	0.95	1.00	0.95	1.00	0.97	1.00	0.95	0.98
Satd. Flow (prot)	1770	5071	1770	3443	1812	1553	1681	1609
Fr Permitted	0.95	1.00	0.95	1.00	0.97	1.00	0.95	0.98
Satd. Flow (perm)	1770	5071	1770	3443	1812	1553	1681	1609
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (veh/h)	138	916	18	144	993	220	44	39
RTOR Reduction (veh/h)	0	2	0	0	0	0	0	0
Lane Group Flow (veh/h)	138	932	0	144	1193	0	78	5
Turn Type	Prot	Prot	Prot	Split	Split	Perm	Split	Split
Protected Phases	7	4	3	8	2	2	6	6
Permitted Phases	8.1	27.3	11.4	30.6	7.4	7.4	17.4	17.4
Actuated Green, G (s)	8.1	27.3	11.4	30.6	7.4	7.4	17.4	17.4
Effective Green, g (s)	0.10	0.34	0.14	0.38	0.09	0.09	0.22	0.22
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)	180	1741	254	1325	169	147	368	352
Lane Grp Cap (veh/h)	60.08	0.18	0.08	60.35	60.04	0.00	60.19	0.16
v/s Ratio Prot	0.77	0.54	0.57	0.90	0.46	0.03	0.85	0.72
v/s Ratio Perm	34.8	21.0	31.7	23.0	34.2	32.8	29.8	28.8
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	17.6	0.3	2.9	8.7	36.2	32.9	46.1	36.0
Delay (s)	52.3	21.3	34.6	31.7	36.2	32.9	46.1	36.0
Level of Service	D	C	C	C	D	C	D	D
Approach Delay (s)	25.3	32.0	34.8	34.8	34.8	34.8	41.2	41.2
Approach LOS	C	C	C	C	C	C	D	D
Intersection-Summary	C							
HCM Average Control Delay	31.6							
HCM Volume to Capacity ratio	0.82							
Actuated Cycle Length (s)	79.5							
Intersection Capacity Utilization	70.5%							
Analysis Period (min)	15							
Critical Lane Group	C							



Movement	EBT	EBR	WBT	WBR	NBT	NBR	SBT	SBR
Lane Configurations	12A	12B	12C	12D	12E	12F	12G	12H
Volume (veh/h)	124	824	16	130	894	1900	1900	1900
Ideal Flow (veh/h)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	0.95	1.00	0.95	1.00	0.95
Fr	1.00	1.00	1.00	0.97	1.00	0.85	1.00	0.93
Fr Protected	0.95	1.00	0.95	1.00	0.97	1.00	0.95	0.98
Satd. Flow (prot)	1770	5071	1770	3443	1812	1553	1681	1609
Fr Permitted	0.95	1.00	0.95	1.00	0.97	1.00	0.95	0.98
Satd. Flow (perm)	1770	5071	1770	3443	1812	1553	1681	1609
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (veh/h)	138	916	18	144	993	220	44	39
RTOR Reduction (veh/h)	0	2	0	0	0	0	0	0
Lane Group Flow (veh/h)	138	932	0	144	1193	0	78	5
Turn Type	Prot	Prot	Prot	Split	Split	Perm	Split	Split
Protected Phases	7	4	3	8	2	2	6	6
Permitted Phases	8.1	27.3	11.4	30.6	7.4	7.4	17.4	17.4
Actuated Green, G (s)	8.1	27.3	11.4	30.6	7.4	7.4	17.4	17.4
Effective Green, g (s)	0.10	0.34	0.14	0.38	0.09	0.09	0.22	0.22
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)	180	1741	254	1325	169	147	368	352
Lane Grp Cap (veh/h)	60.08	0.18	0.08	60.35	60.04	0.00	60.19	0.16
v/s Ratio Prot	0.77	0.54	0.57	0.90	0.46	0.03	0.85	0.72
v/s Ratio Perm	34.8	21.0	31.7	23.0	34.2	32.8	29.8	28.8
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	17.6	0.3	2.9	8.7	36.2	32.9	46.1	36.0
Delay (s)	52.3	21.3	34.6	31.7	36.2	32.9	46.1	36.0
Level of Service	D	C	C	C	D	C	D	D
Approach Delay (s)	25.3	32.0	34.8	34.8	34.8	34.8	41.2	41.2
Approach LOS	C	C	C	C	C	C	D	D
Intersection-Summary	C							
HCM Average Control Delay	31.6							
HCM Volume to Capacity ratio	0.82							
Actuated Cycle Length (s)	79.5							
Intersection Capacity Utilization	70.5%							
Analysis Period (min)	15							
Critical Lane Group	C							

Movement	EBL	EBT	WBT	WBR	SEB	SBR
Lane Configurations	AA	AA	AA	AA	AA	AA
Volume (vph)	0	912	1238	0	877	290
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.3	5.6	5.6	5.6	5.6
Lane Util. Factor	0.95	0.95	0.97	0.97	0.91	0.91
Fr	1.00	1.00	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3539	3539	3539	3539	3430	1441
Flt Permitted	1.00	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3539	3539	3539	3539	3430	1441
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1013	1376	0	974	322
RTOR Reduction (vph)	0	0	0	0	3	23
Lane Group Flow (vph)	0	1013	1376	0	1003	267
Turn Type		2.6	6.2		4.1	Perm
Protected Phases		42.7	42.7		24.9	4
Actuated Green, G (s)		42.7	42.7		24.9	24.9
Effective Green, g (s)		42.7	42.7		24.9	24.9
Actuated g/C Ratio		0.54	0.54		0.31	0.31
Clearance Time (s)					5.6	5.6
Vehicle Extension (s)					3.0	3.0
Lane Grp Cap (vph)		1901	1901		1074	451
v/s Ratio Prot		0.29	0.39		0.29	0.19
v/s Ratio Perm		0.53	0.72		0.33	0.59
Uniform Delay, d1		11.9	13.9		26.5	23.0
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.3	1.4		14.3	2.1
Delay (s)		12.2	15.3		40.8	25.1
Level of Service		B	B		D	C
Approach Delay (s)		12.2	15.3		37.3	
Approach LOS		B	B		D	
Intersection Summary						
HCM Average Control Delay		22.2			HCM Level of Service	C
HCM Volume to Capacity ratio		0.80				
Actuated Cycle Length (s)		79.5			Sum of lost time (s)	11.9
Intersection Capacity Utilization		59.6%			ICU Level of Service	C
Analysis Period (min)		15				
c Critical Lane Group						

Movement	EBL	EBT	WBT	WBR	SEB	SBR
Lane Configurations	AA	AA	AA	AA	AA	AA
Volume (vph)	235	1529	0	1280	875	10
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	0.95	1.00	0.91	1.00	0.85
Fr	1.00	1.00	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	3539	5085	5085	1583	1881
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	5085	5085	1583	1881
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	261	1699	0	1422	972	883
RTOR Reduction (vph)	0	0	0	0	487	0
Lane Group Flow (vph)	261	1699	0	1422	485	553
Turn Type	Prot	5	2	6	6	8
Protected Phases		11.5	63.0		47.5	49.0
Actuated Green, G (s)		11.5	63.0		47.5	49.0
Effective Green, g (s)		11.5	63.0		47.5	49.0
Actuated g/C Ratio		0.10	0.52		0.40	0.41
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)		329	1838		627	686
v/s Ratio Prot		0.08	0.48		0.31	0.33
v/s Ratio Perm		0.79	0.91		0.71	0.81
Uniform Delay, d1		53.1	26.0		30.4	31.3
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		12.3	8.5		2.1	6.9
Delay (s)		65.4	34.5		32.5	38.2
Level of Service		E	C		C	D
Approach Delay (s)		38.6			35.8	40.5
Approach LOS		D			D	A
Intersection Summary						
HCM Average Control Delay					HCM Level of Service	D
HCM Volume to Capacity ratio					0.89	
Actuated Cycle Length (s)					120.0	
Intersection Capacity Utilization					96.4%	
Analysis Period (min)					15	
c Critical Lane Group						

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	AAA	AAA	A	AAA	AAA	A	AAA	AAA	A	AAA	AAA	A
Volume (vph)	242	2106	251	41	1482	54	614	65	143	38	28	80
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5058	3433	3174	1770	1663	1663	1583	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5058	3433	3174	1770	1663	1663	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)	269	2340	279	46	1647	60	682	72	159	42	32	89
RTOR Reduction (vph)	0	0	94	0	3	0	105	0	0	0	0	83
Lane Group Flow (vph)	269	2340	165	46	1704	0	682	126	0	42	32	5
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	8
Permitted Phases												
Actuated Green, G (s)	17.4	51.8	51.8	3.5	37.9	22.1	25.0	25.0	4.0	6.9	6.9	6.9
Effective Green, g (s)	17.4	51.8	51.8	3.5	37.9	22.1	25.0	25.0	4.0	6.9	6.9	6.9
Actuated g/C Ratio	0.17	0.52	0.52	0.03	0.38	0.22	0.25	0.25	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)	307	2628	818	62	1911	796	791	791	71	128	109	109
vs Ratio Prot	cd:15	cd:46	0.12	0.03	0.34	cd:20	0.04	0.02	cd:02	cd:02	0.00	0.00
vs Ratio Perm	0.88	0.89	0.23	0.74	0.89	0.90	0.16	0.59	0.59	0.25	0.06	0.06
v/c Ratio	40.4	21.7	13.3	48.0	29.3	38.0	29.4	47.3	44.2	44.2	43.7	43.7
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	23.2	4.3	0.1	37.6	5.7	14.0	0.1	12.5	1.0	0.2	1.0	0.2
Incremental Delay, d2	63.6	26.0	13.4	85.5	35.0	52.0	29.5	59.9	45.3	43.9	43.9	43.9
Delay (s)	E	C	B	F	C	D	C	E	D	D	D	D
Level of Service	E	C	B	F	C	D	C	E	D	D	D	D
Approach Delay (s)	28.3			36.3		46.3		46.3		46.3		46.3
Approach LOS	C			D		D		D		D		D
Intersection Summary												
HCM Average Control Delay												
HCM Volume to Capacity ratio												
Actuated Cycle Length (s)												
Intersection Capacity Utilization												
Analysis Period (min)												
c Critical Lane Group												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	AAA	AAA	A	AAA	AAA	A	AAA	AAA	A	AAA	AAA	A
Volume (vph)	242	2106	251	41	1482	54	614	65	143	38	28	80
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5058	3433	3174	1770	1663	1663	1583	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5058	3433	3174	1770	1663	1663	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)	269	2340	279	46	1647	60	682	72	159	42	32	89
RTOR Reduction (vph)	0	0	94	0	3	0	105	0	0	0	0	83
Lane Group Flow (vph)	269	2340	165	46	1704	0	682	126	0	42	32	5
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	8
Permitted Phases												
Actuated Green, G (s)	17.4	51.8	51.8	3.5	37.9	22.1	25.0	25.0	4.0	6.9	6.9	6.9
Effective Green, g (s)	17.4	51.8	51.8	3.5	37.9	22.1	25.0	25.0	4.0	6.9	6.9	6.9
Actuated g/C Ratio	0.17	0.52	0.52	0.03	0.38	0.22	0.25	0.25	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)	307	2628	818	62	1911	796	791	791	71	128	109	109
vs Ratio Prot	cd:15	cd:46	0.12	0.03	0.34	cd:20	0.04	0.02	cd:02	cd:02	0.00	0.00
vs Ratio Perm	0.88	0.89	0.23	0.74	0.89	0.90	0.16	0.59	0.59	0.25	0.06	0.06
v/c Ratio	40.4	21.7	13.3	48.0	29.3	38.0	29.4	47.3	44.2	44.2	43.7	43.7
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	23.2	4.3	0.1	37.6	5.7	14.0	0.1	12.5	1.0	0.2	1.0	0.2
Incremental Delay, d2	63.6	26.0	13.4	85.5	35.0	52.0	29.5	59.9	45.3	43.9	43.9	43.9
Delay (s)	E	C	B	F	C	D	C	E	D	D	D	D
Level of Service	E	C	B	F	C	D	C	E	D	D	D	D
Approach Delay (s)	28.3			36.3		46.3		46.3		46.3		46.3
Approach LOS	C			D		D		D		D		D
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												

12: Del Mar Heights Road & First Ave.

13: Del Mar Heights Road & El Camino Real

Movement	EBT	EBL	EBR	WBL	WBT	NBL	MBR	
Lane Configurations	AAA	AAA	A	AAA	AAA	N	A	
Volume (vph)	2416	63	31	1314	175	88	1900	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.91	1.00	0.85	0.97	0.91	1.00	1.00	
Flt	1.00	0.85	1.00	1.00	1.00	0.95	1.00	
Flt Protected	5085	1553	3433	5085	1770	1583		
Satd. Flow (prot)	1.00	1.00	0.95	1.00	0.95	1.00		
Flt Permitted	5085	1553	3433	5085	1770	1583		
Satd. Flow (perm)	0.90	0.90	0.90	0.90	0.90	0.90		
Peak-hour factor, PHF	2684	70	34	1460	194	98		
Adj. Flow (vph)	0	28	0	0	0	0	60	
RTOR Reduction (vph)	2684	42	34	1460	194	18		
Lane Group Flow (vph)	4	4	3	8	2	2	Perm	
Turn Type	Permitted Phases	Permitted Phases	Permitted Phases	Permitted Phases	Permitted Phases	Permitted Phases	Permitted Phases	
Actuated Green, G (s)	38.5	38.5	1.4	43.9	11.6	11.6	2	
Effective Green, g (s)	38.5	38.5	1.4	43.9	11.6	11.6		
Actuated g/C Ratio	0.61	0.61	0.02	0.69	0.18	0.18		
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	3083	960	76	3515	323	289		
v/s Ratio Prot	0.53	0.01	0.01	0.29	0.11	0.11		
v/s Ratio Perm	0.87	0.04	0.45	0.42	0.80	0.06		
Uniform Delay, d1	10.4	5.1	30.7	4.2	23.8	21.5		
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	3.0	0.0	4.1	0.1	3.1	0.1		
Delay (s)	13.4	5.1	34.8	4.3	27.0	21.5		
Level of Service	B	A	C	A	C	C		
Approach Delay (s)	13.2	5.0	25.1					
Approach LOS	B	A	C					
Intersection Summary								
HCM Average Control Delay	11.3						B	
HCM Volume to Capacity ratio	0.81							
Actuated Cycle Length (s)	63.5						12.0	
Intersection Capacity Utilization	63.0%						B	
Analysis Period (min)	15							
c Critical Lane Group								

Movement	EBT	EBL	EBR	WBL	WBT	NBL	MBR	SBL	SBR
Lane Configurations	AAA	AAA	A	AAA	AAA	N	A	A	A
Volume (vph)	465	1344	344	139	804	176	283	420	299
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	0.91	1.00	0.97	0.91	1.00	0.95	1.00	0.97
Flt	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.95	1.00
Flt Protected	3433	4946	3433	3433	4946	3433	5085	1583	3433
Satd. Flow (prot)	0.95	1.00	0.95	0.95	1.00	0.95	1.00	0.95	1.00
Flt Permitted	3433	4946	3433	3433	4946	3433	5085	1583	3433
Satd. Flow (perm)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Peak-hour factor, PHF	517	1716	382	154	893	196	292	467	332
Adj. Flow (vph)	0	38	0	0	36	0	0	117	0
RTOR Reduction (vph)	517	2080	0	154	1053	0	292	467	215
Lane Group Flow (vph)	7	4	3	8	2	2	1	6	
Turn Type	Permitted Phases	Permitted Phases	Permitted Phases	Permitted Phases	Permitted Phases	Permitted Phases	Permitted Phases	Permitted Phases	
Actuated Green, G (s)	16.8	40.1	6.0	29.3	9.9	17.3	17.3	6.6	14.0
Effective Green, g (s)	16.8	40.1	6.0	29.3	9.9	17.3	17.3	6.6	14.0
Actuated g/C Ratio	0.20	0.47	0.07	0.34	0.12	0.20	0.20	0.08	0.16
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)	671	2306	240	1686	395	1023	318	283	798
v/s Ratio Prot	0.15	0.42	0.04	0.21	0.08	0.09	0.14	0.05	0.04
v/s Ratio Perm	0.77	0.89	0.64	0.62	0.74	0.46	0.68	0.62	0.27
Uniform Delay, d1	32.8	21.0	39.0	23.7	36.8	30.2	31.8	38.5	31.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.5	4.9	5.8	0.7	7.1	0.3	5.6	4.3	0.2
Delay (s)	38.2	25.9	44.7	24.5	43.9	30.5	37.4	42.8	31.7
Level of Service	D	C	D	C	D	D	D	D	C
Approach Delay (s)	28.3								
Approach LOS	C								
Intersection Summary									
HCM Average Control Delay	30.3								
HCM Volume to Capacity ratio	0.85								
Actuated Cycle Length (s)	86.0								
Intersection Capacity Utilization	70.2%								
Analysis Period (min)	15								
c Critical Lane Group									

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

Existing + Project (Phase 1) PM
12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	118	1183	533	80	570	72	345	167	145	78	124
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	0.97	0.91	0.97	0.97	0.91	0.97	0.97	0.91	0.97	0.97	0.91
Flt Protected	1.00	0.95	1.00	1.00	0.98	1.00	0.93	1.00	0.93	1.00	0.93
Flt Permitted	0.95	1.00	0.95	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3433	4948	3433	3433	5000	3433	4731	3433	4731	1770	3290
Satd. Flow (perm)	3433	4948	3433	3433	5000	3433	4731	3433	4731	1770	3290
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)	131	1314	592	89	633	80	383	186	161	87	138
RTOR Reduction (vph)	0	93	0	0	18	0	0	131	0	0	106
Lane Group Flow (vph)	131	1813	0	88	695	0	383	216	0	87	154
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	3	5	2	1	6		
Permitted Phases											
Actuated Green, G (s)	5.4	28.9	5.3	28.6	10.3	12.9	6.8	9.4			
Effective Green, g (s)	5.4	28.9	5.3	28.6	10.3	12.9	6.8	9.4			
Actuated g/C Ratio	0.08	0.41	0.08	0.41	0.15	0.18	0.10	0.13			
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	285	2004	260	2060	508	873	172	442			
vs Ratio Prot	0.04	0.37	0.03	0.14	0.11	0.05	0.05	0.05			
vs Ratio Perm	0.49	0.90	0.34	0.34	0.76	0.25	0.51	0.35			
Uniform Delay, d1	30.9	19.2	30.6	14.0	28.6	24.4	30.0	27.5			
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	1.5	6.3	0.8	0.1	6.4	0.1	2.3	0.5			
Delay (s)	32.4	25.5	31.4	14.1	35.0	24.5	32.3	28.0			
Level of Service	C	C	C	B	C	C	C	C			
Approach Delay (s)	25.9		16.1		30.0		29.0				
Approach LOS	C		B		C		C				
Intersection Summary											
HCM Average Control Delay	24.9										
HCM Volume to Capacity ratio	0.72										
Actuated Cycle Length (s)	89.9										
Intersection Capacity Utilization	68.2%										
Analysis Period (min)	15										
c Critical Lane Group											

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
15: Del Mar Heights Road & Torrey Ridge Drive

Existing + Project (Phase 1) PM
12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	48	1225	140	8	629	22	48	14	31	27	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	0.88
Flt Protected	1.00	0.98	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Flt Permitted	0.95	1.00	0.95	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	5007	1770	1770	5060	1770	1673	1770	1673	1770	1643
Satd. Flow (perm)	1770	5007	1770	1770	5060	1770	1673	1770	1673	1770	1643
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)	53	1361	156	9	689	24	53	16	34	30	9
RTOR Reduction (vph)	0	16	0	0	4	0	0	0	31	0	31
Lane Group Flow (vph)	53	1501	0	9	719	0	53	19	0	30	11
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	3	5	2	1	6		
Permitted Phases											
Actuated Green, G (s)	1.3	21.8	0.6	21.1	1.2	3.1	0.6	2.5			
Effective Green, g (s)	1.3	21.8	0.6	21.1	1.2	3.1	0.6	2.5			
Actuated g/C Ratio	0.03	0.52	0.03	0.50	0.03	0.07	0.01	0.06			
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)	55	2593	25	2536	50	123	25	98			
vs Ratio Prot	0.03	0.30	0.01	0.14	0.03	0.01	0.02	0.01			
vs Ratio Perm	0.96	0.58	0.36	0.28	1.06	0.15	1.20	0.11			
Uniform Delay, d1	20.4	7.0	20.6	6.1	20.4	18.3	20.8	18.7			
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	107.4	0.3	8.7	0.1	146.2	0.6	247.2	0.5			
Delay (s)	127.7	7.3	29.2	6.2	165.7	18.8	268.0	19.3			
Level of Service	F	A	C	A	F	B	F	B			
Approach Delay (s)	11.4		6.5		94.4		122.9				
Approach LOS	B		A		F		F				
Intersection Summary											
HCM Average Control Delay	16.6										
HCM Volume to Capacity ratio	0.46										
Actuated Cycle Length (s)	42.1										
Intersection Capacity Utilization	49.4%										
Analysis Period (min)	15										
c Critical Lane Group											

Baseline

Synchro 7 - Report
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR	SBL	SBT	SBR
Lane Configurations	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA
Volume (vph)	272	945	63	21	455	24	39	45	34	23	32	171	1900	1900	1900
Ideal Flow (vphpl)	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
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	1.00	1.00	1.00
Fit	1.00	0.99	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1770	5038	1770	5047	1770	5047	1770	5047	1770	5047	1770	5047	1770	5047	1770
Fit Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (perm)	1770	5038	1770	5047	1770	5047	1770	5047	1770	5047	1770	5047	1770	5047	1770
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	302	1050	70	23	506	27	43	50	38	26	36	190	1900	1900	1900
RTOR Reduction (vph)	0	9	0	9	0	9	0	31	0	0	160	0	0	0	0
Lane Group Flow (vph)	302	1111	0	23	524	0	43	57	0	26	66	0	0	0	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	5	2	1	6	1	6	1	6	1	6	1
Permitted Phases	120	26.0	0.7	14.7	1.5	9.2	0.7	8.4	0.7	8.4	0.7	8.4	0.7	8.4	0.7
Actuated Green, G (s)	12.0	26.0	0.7	14.7	1.5	9.2	0.7	8.4	0.7	8.4	0.7	8.4	0.7	8.4	0.7
Effective Green, g (s)	12.0	26.0	0.7	14.7	1.5	9.2	0.7	8.4	0.7	8.4	0.7	8.4	0.7	8.4	0.7
Actuated g/C Ratio	0.23	0.49	0.01	0.28	0.03	0.17	0.01	0.16	0.01	0.16	0.01	0.16	0.01	0.16	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	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	3.0	3.0
Lane Grp Cap (vph)	404	2490	24	1410	50	305	24	260	24	260	24	260	24	260	24
vs Ratio Prot	c0.17	c0.22	0.01	0.10	c0.02	0.03	0.01	c0.04	0.01	c0.04	0.01	c0.04	0.01	c0.04	0.01
vs Ratio Perm	0.75	0.45	0.96	0.37	0.86	0.19	1.08	0.26	1.08	0.26	1.08	0.26	1.08	0.26	1.08
Uniform Delay, d1	18.9	8.6	25.9	15.2	25.4	18.5	26.0	19.4	26.0	19.4	26.0	19.4	26.0	19.4	26.0
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	1.00	1.00	1.00
Incremental Delay, d2	7.4	0.1	163.4	0.2	77.1	0.3	210.9	0.5	210.9	0.5	210.9	0.5	210.9	0.5	210.9
Delay (s)	26.3	8.8	189.3	15.4	102.6	18.8	236.8	19.9	236.8	19.9	236.8	19.9	236.8	19.9	236.8
Level of Service	C	A	F	B	F	B	F	B	F	B	F	B	F	B	F
Approach Delay (s)	12.5	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6
Approach LOS	B	B	C	C	C	C	D	D	D	D	D	D	D	D	D
Intersection Summary															
HCM Average Control Delay	19.9														
HCM Volume to Capacity ratio	0.49														
Actuated Cycle Length (s)	52.6														
Intersection Capacity Utilization	63.3%														
Analysis Period (min)	15														
c. Critical Lane Group															

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR	SBL	SBT	SBR
Lane Configurations	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA
Volume (vph)	813	173	08	408	107	248	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
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
Lane Util. Factor	0.91	1.00	0.91	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit	0.97	1.00	0.97	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit Protected	1.00	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 (prot)	4852	1770	5085	4852	1770	5085	4852	1770	5085	4852	1770	5085	4852	1770	5085
Fit Permitted	1.00	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)	4852	1770	5085	4852	1770	5085	4852	1770	5085	4852	1770	5085	4852	1770	5085
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	903	192	99	453	119	276	1900	1900	1900	1900	1900	1900	1900	1900	1900
RTOR Reduction (vph)	54	0	0	0	0	232	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	1041	0	99	453	119	44	0	0	0	0	0	0	0	0	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	3	8	2	2	2	1	6	1	6	1	6	1	6	1
Permitted Phases	16.3	2.4	22.7	5.5	5.5	5.5	12.0	26.0	0.7	14.7	1.5	9.2	0.7	8.4	0.7
Actuated Green, G (s)	16.3	2.4	22.7	5.5	5.5	5.5	12.0	26.0	0.7	14.7	1.5	9.2	0.7	8.4	0.7
Effective Green, g (s)	16.3	2.4	22.7	5.5	5.5	5.5	12.0	26.0	0.7	14.7	1.5	9.2	0.7	8.4	0.7
Actuated g/C Ratio	0.45	0.07	0.63	0.15	0.15	0.15	0.03	0.17	0.01	0.28	0.03	0.17	0.01	0.16	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	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	3.0	3.0
Lane Grp Cap (vph)	2230	117	3189	522	241	260	24	260	24	260	24	260	24	260	24
vs Ratio Prot	c0.21	c0.06	0.09	c0.03	0.03	0.03	0.01	c0.04	0.01	c0.04	0.01	c0.04	0.01	c0.04	0.01
vs Ratio Perm	0.47	0.85	0.14	0.23	0.18	0.18	1.08	0.26	1.08	0.26	1.08	0.26	1.08	0.26	1.08
Uniform Delay, d1	6.9	16.7	2.8	13.5	13.4	13.4	26.0	19.4	26.0	19.4	26.0	19.4	26.0	19.4	26.0
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	1.00	1.00	1.00
Incremental Delay, d2	0.2	39.9	0.0	0.2	0.4	0.4	210.9	0.5	210.9	0.5	210.9	0.5	210.9	0.5	210.9
Delay (s)	7.1	56.6	2.8	13.7	13.7	13.7	236.8	19.9	236.8	19.9	236.8	19.9	236.8	19.9	236.8
Level of Service	A	E	A	B	B	B	F	B	F	B	F	B	F	B	F
Approach Delay (s)	7.1	12.4	13.7	13.7	13.7	13.7	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6
Approach LOS	A	B	B	B	B	B	D	D	D	D	D	D	D	D	D
Intersection Summary															
HCM Average Control Delay	9.8														
HCM Volume to Capacity ratio	0.45														
Actuated Cycle Length (s)	36.2														
Intersection Capacity Utilization	41.5%														
Analysis Period (min)	15														
c. Critical Lane Group															

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SWL	SWT	SWR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4
Volume (vph)	88	26	26	188	9	248	38	625	153	286	349	15
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	0.95	1.00	1.00	0.97	0.91	0.97	0.91	0.97	0.91	0.91
Flt	1.00	0.94	1.00	0.85	1.00	0.97	1.00	0.97	1.00	0.95	1.00	0.99
Flt Protected	0.95	0.99	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1681	1649	1681	1778	1553	1649	1681	1649	1681	1649	1681	1649
Flt Permitted	0.95	0.99	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1681	1649	1681	1778	1553	1649	1681	1649	1681	1649	1681	1649
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)	98	29	29	209	10	276	42	694	161	318	398	17
RTOR Reduction (vph)	0	25	0	0	0	218	0	50	0	0	5	0
Lane Group Flow (vph)	79	52	0	0	219	58	42	825	0	318	400	0
Turn Type	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split
Protected Phases	2	2	2	6	6	6	3	8	6	7	4	4
Permitted Phases	6	6	6	6	6	6	6	6	6	6	6	6
Actuated Green, G (s)	8.6	8.6	8.6	14.2	14.2	14.2	2.2	18.3	10.7	26.8	10.7	26.8
Effective Green, g (s)	8.6	8.6	8.6	14.2	14.2	14.2	2.2	18.3	10.7	26.8	10.7	26.8
Actuated g/C Ratio	0.13	0.13	0.13	0.21	0.21	0.21	0.03	0.27	0.16	0.40	0.16	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)	213	209	372	332	111	1330	642	1997	642	1997	642	1997
Vis Ratio Prot	0.005	0.003	0.012	0.01	0.01	0.01	0.01	0.01	0.009	0.008	0.009	0.008
Vis Ratio Perm	0.37	0.25	0.59	0.17	0.38	0.59	0.59	0.59	0.59	0.59	0.59	0.59
Uniform Delay, d1	27.1	26.7	24.2	22.0	32.1	21.7	21.7	21.7	26.5	13.5	26.5	13.5
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	1.1	0.6	2.4	0.3	2.2	0.9	1.6	0.0	1.6	0.0	1.6	0.0
Delay (s)	28.2	27.3	26.5	22.2	34.3	22.6	23.3	21.7	28.1	13.5	28.1	13.5
Level of Service	C	C	C	C	C	C	C	C	C	C	C	C
Approach Delay (s)	27.8	27.8	24.1	23.1	23.1	23.1	23.1	23.1	23.1	19.9	23.1	19.9
Approach LOS	C	C	C	C	C	C	C	C	C	B	C	B
Intersection Summary												
HCM Average Control Delay	22.7											
HCM Volume to Capacity ratio	0.56											
Actuated Cycle Length (s)	67.8											
Intersection Capacity Utilization	51.4%											
Analysis Period (min)	15											
c Critical Lane Group												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEB	SEB	SEB
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4
Volume (vph)	116	105	173	14	54	115	113	477	10	182	563	86
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	1.00	0.90	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	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1653	1583	1770	1673	1770	1673	1770	1673	1770	1583	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1653	1583	1770	1673	1770	1673	1770	1673	1770	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)	129	117	192	16	60	128	126	530	11	202	626	96
RTOR Reduction (vph)	0	0	135	0	105	0	0	1	0	0	0	65
Lane Group Flow (vph)	129	117	57	16	83	0	126	540	0	202	626	31
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	4	3	8	5	2	5	1	6	5	5
Permitted Phases	7	7	7	7	7	7	7	7	7	7	7	7
Actuated Green, G (s)	7.8	17.8	17.8	0.7	10.7	6.2	15.6	6.2	15.6	9.6	19.0	19.0
Effective Green, g (s)	7.8	17.8	17.8	0.7	10.7	6.2	15.6	6.2	15.6	9.6	19.0	19.0
Actuated g/C Ratio	0.13	0.30	0.30	0.01	0.18	0.10	0.26	0.10	0.26	0.16	0.32	0.32
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)	231	555	472	21	300	184	922	285	1125	504	1125	504
Vis Ratio Prot	0.007	0.06	0.04	0.01	0.05	0.07	0.15	0.07	0.15	0.11	0.18	0.02
Vis Ratio Perm	0.56	0.21	0.12	0.76	0.28	0.68	0.59	0.71	0.56	0.71	0.56	0.06
Uniform Delay, d1	24.3	15.7	15.3	23.4	21.2	25.8	19.2	23.7	16.9	14.1	23.7	16.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.9	0.2	0.1	92.1	0.5	10.1	1.0	7.8	0.6	0.1	7.8	0.6
Delay (s)	27.2	15.9	15.4	121.5	21.7	35.9	20.2	31.6	17.5	14.2	31.6	17.5
Level of Service	C	B	B	F	C	D	C	C	C	C	C	B
Approach Delay (s)	19.0	19.0	19.0	28.5	28.5	23.1	23.1	23.1	20.2	20.2	20.2	20.2
Approach LOS	B	B	B	C	C	C	C	C	C	C	C	C
Intersection Summary												
HCM Average Control Delay	21.7											
HCM Volume to Capacity ratio	0.53											
Actuated Cycle Length (s)	59.7											
Intersection Capacity Utilization	53.3%											
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
20: Townsgate Drive & El Camino Real
Existing + Project (Phase 1) PM
12/11/2011

Existing + Project (Phase 1) PM
12/11/2011

[illegible]

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

Existing + Project (Phase 1) PM
12/11/2011

Movement	EBL	EBT	ECBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				4<	99	17	94	360	39	25	425	247
Ideal Flow (vph)	293	237	123	32	99	1900	1900	1900	1900	1900	1900	1900
Volume Flow (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95
Flt	1.00	1.00	0.95	0.98	0.99	1.00	0.99	1.00	0.99	1.00	0.95	1.00
Flt Protected	0.95	1.00	1.00	0.99	0.99	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	1853	1563	1814	1814	1770	3488	1770	3488	1770	3344	3344
Flt Permitted	0.95	1.00	1.00	0.99	0.99	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	1853	1563	1814	1814	1770	3488	1770	3488	1770	3344	3344
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	263	137	36	110	19	104	400	43	28	472	274
RTOR Reduction (vph)	0	0	102	0	7	0	0	10	0	0	104	0
Lane Group Flow (vph)	326	263	35	0	158	0	104	433	0	28	642	0
Turn Type	Split	Split	Prot	Split	Split	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	4	4	8	8	5	2	1	6	6	6
Permitted Phases												
Actuated Green, G (s)	16.4	16.4	16.4		8.8	8.8	4.2	21.8	1.8	19.4	19.4	19.4
Effective Green, G (s)	16.4	16.4	16.4		8.8	8.8	4.2	21.8	1.8	19.4	19.4	19.4
Actuated g/C Ratio	0.25	0.25	0.25		0.14	0.14	0.06	0.34	0.03	0.30	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 Gap Cap (vph)	448	472	401		246	246	115	1173	49	1001	1001	1001
vs Ratio Prot	c0.18	0.14	0.02		c0.09	c0.09	c0.06	0.12	0.02	c0.19	c0.19	c0.19
vs Ratio Perm	0.73	0.56	0.09		0.64	0.64	0.30	0.37	0.57	0.64	0.64	0.64
Uniform Delay, d1	22.2	21.0	18.5		28.5	28.5	30.1	16.3	31.1	19.7	19.7	19.7
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	5.8	1.4	0.1		5.6	5.6	54.7	0.2	15.1	1.4	1.4	1.4
Delay (s)	28.0	22.5	18.6		34.2	34.2	84.8	16.5	46.2	21.1	21.1	21.1
Level of Service	C	C	B		C	C	F	B	D	C	C	C
Approach Delay (s)					32.2	32.2		29.5		22.0		
Approach LOS					C	C		C		C		
Intersection Summary												
HCM Average Control Delay	25.3											
HCM Volume to Capacity ratio	0.68											
Actuated Cycle Length (s)	64.8											
Intersection Capacity Utilization	52.4%											
Analysis Period (min)	15											
Critical Lane Group	C											

Movement	EBL	EBR	EBL2	EBR2	NWL	NWR	NEL	NEL2	SWL	SWR
Volume (vph)	72	271	315	96	168	104	258	973	92	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97	0.97	0.97	0.91	1.00	0.91
Flt	1.00	0.85	0.85	1.00	0.94	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	1.00	0.95	1.00
Satd. Flow (prot)	1770	1563	1563	1770	3304	3433	5020	1770	5029	1770
Flt Permitted	0.95	1.00	1.00	0.95	0.97	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1563	1563	1770	3304	3433	5020	1770	5029	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
Adj. Flow (vph)	80	301	350	107	187	116	287	1081	102	164
RTOR Reduction (vph)	0	0	227	0	107	0	18	0	0	15
Lane Group Flow (vph)	80	301	350	107	187	116	287	1081	102	164
Turn Type	Prot	Perm	Perm	Split	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	2	2	2	6	6	3	8	7	4	4
Permitted Phases	16.7	16.7	16.7	4.8	4.8	6.0	15.8	6.7	16.5	16.5
Actuated Green, G (s)	16.7	16.7	16.7	4.8	4.8	6.0	15.8	6.7	16.5	16.5
Effective Green, g (s)	0.28	0.28	0.28	0.08	0.08	0.10	0.26	0.11	0.28	0.28
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)	493	441	441	142	264	343	1322	198	1383	198
Lane Grp Cap (vph)	0.05	0.19	0.08	0.06	0.06	0.08	0.23	0.09	0.15	0.15
v/s Ratio Prot	0.16	0.68	0.28	0.75	0.74	0.84	0.88	0.83	0.46	0.46
v/s Ratio Perm	16.4	19.3	16.9	27.0	27.0	26.5	21.2	26.1	18.1	18.1
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	0.7	8.3	1.6	20.0	10.8	16.1	7.2	23.9	0.2	0.2
Incremental Delay, d2	17.1	27.6	18.5	47.0	37.8	42.6	28.4	49.9	18.3	18.3
Delay (s)	B	C	B	D	D	D	C	D	B	B
Level of Service	C	C	B	D	D	D	C	D	B	B
Approach Delay (s)	22.1	22.1	22.1	40.2	40.2	31.1	31.1	24.7	24.7	24.7
Approach LOS	C	C	C	D	D	C	C	D	D	D
Intersection Summary										
HCM Average Control Delay	28.8									
HCM Volume to Capacity ratio	0.78									
Actual Cycle Length (s)	60.0									
Sum of lost time (s)	16.0									
Intersection Capacity Utilization	55.8%									
Analysis Period (min)	15									
c Critical Lane Group										

Movement	SEB	SEB2	SEB2	SEB2	NWB	NWB2	NWB2	NWB2	NEB	NEB2	NEB2	SWB	SWB2	SWB2
Volume (vph)	186	25	143	4	11	4	96	24	8	2	7	92	7	92
Ideal Flow (vphpl)	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
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97	0.97	0.97	0.91	1.00	0.99	1.00	0.99	1.00	0.99
Flt	1.00	0.85	0.85	1.00	0.94	1.00	0.99	1.00	0.99	1.00	0.99	1.00	0.99	1.00
Flt Protected	0.95	1.00	1.00	0.95	0.97	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	1563	1563	1770	3304	3433	5020	1770	5029	1770	5029	1770	5029	1770
Flt Permitted	0.95	1.00	1.00	0.95	0.97	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	1563	1563	1770	3304	3433	5020	1770	5029	1770	5029	1770	5029	1770
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	80	301	350	107	187	116	287	1081	102	164	603	48	15	0
RTOR Reduction (vph)	0	0	227	0	107	0	18	0	0	0	15	0	0	0
Lane Group Flow (vph)	80	301	350	107	187	116	287	1081	102	164	603	48	15	0
Turn Type	Prot	Perm	Perm	Split	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	2	2	2	6	6	3	8	7	4	4	4	4	4	4
Permitted Phases	16.7	16.7	16.7	4.8	4.8	6.0	15.8	6.7	16.5	16.5	16.5	16.5	16.5	16.5
Actuated Green, G (s)	16.7	16.7	16.7	4.8	4.8	6.0	15.8	6.7	16.5	16.5	16.5	16.5	16.5	16.5
Effective Green, g (s)	0.28	0.28	0.28	0.08	0.08	0.10	0.26	0.11	0.28	0.28	0.28	0.28	0.28	0.28
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	493	441	441	142	264	343	1322	198	1383	198	1383	198	1383	198
Lane Grp Cap (vph)	0.05	0.19	0.08	0.06	0.06	0.08	0.23	0.09	0.15	0.15	0.15	0.15	0.15	0.15
v/s Ratio Prot	0.16	0.68	0.28	0.75	0.74	0.84	0.88	0.83	0.46	0.46	0.46	0.46	0.46	0.46
v/s Ratio Perm	16.4	19.3	16.9	27.0	27.0	26.5	21.2	26.1	18.1	18.1	18.1	18.1	18.1	18.1
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	1.00	1.00
Progression Factor	0.7	8.3	1.6	20.0	10.8	16.1	7.2	23.9	0.2	0.2	0.2	0.2	0.2	0.2
Incremental Delay, d2	17.1	27.6	18.5	47.0	37.8	42.6	28.4	49.9	18.3	18.3	18.3	18.3	18.3	18.3
Delay (s)	B	C	B	D	D	D	C	D	B	B	B	B	B	B
Level of Service	C	C	B	D	D	D	C	D	B	B	B	B	B	B
Approach Delay (s)	22.1	22.1	22.1	40.2	40.2	31.1	31.1	24.7	24.7	24.7	24.7	24.7	24.7	24.7
Approach LOS	C	C	C	D	D	C	C	D	D	D	D	D	D	D
Intersection Summary														
HCM Average Control Delay	28.8													
HCM Volume to Capacity ratio	0.78													
Actual Cycle Length (s)	60.0													
Sum of lost time (s)	16.0													
Intersection Capacity Utilization	55.8%													
Analysis Period (min)	15													
c Critical Lane Group														

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

Existing + Project (Phase 1) PM
12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	↑	↘	←	↑	↘	←	↑	↘	←	↑	↘
Volume (vph)	116	50	70	55	26	9	108	729	134	6	347	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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit	1.00	0.95	1.00	0.99	0.97	1.00	0.95	1.00	0.98	1.00	0.97	1.00
Fit Protected	0.97	1.00	0.97	1.00	0.97	1.00	0.95	1.00	0.98	1.00	0.97	1.00
Satd. Flow (prot)	1800	1583	1783	1770	1770	1770	1770	1770	1770	1770	1770	1770
Satd. Flow (perm)	1800	1583	1783	1770	1770	1770	1770	1770	1770	1770	1770	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)	128	56	78	61	29	10	120	810	149	7	385	91
RTOR Reduction (vph)	0	0	66	0	6	0	0	16	0	0	23	0
Lane Group Flow (vph)	0	185	12	0	94	0	120	943	0	7	454	0
Turn Type	Split	Prot	Split	Prot	Split	Prot	Split	Prot	Split	Prot	Split	Prot
Protected Phases	1	4	4	8	8	5	2	1	6			
Permitted Phases	Actuated Green, G (s)	8.6	8.6	6.5	6.5	5.7	25.4	6.5	6.5	0.7	20.4	
Effective Green, g (s)	8.6	8.6	6.5	6.5	6.5	5.7	25.4	6.5	6.5	0.7	20.4	
Actuated g/C Ratio	0.15	0.15	0.11	0.11	0.10	0.44	0.01	0.36	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	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	271	238	203	176	1535	60.05	60.27	60.05	60.27	22	1226	
vs Ratio Prot	60.10	0.01								0.00	0.13	
vs Ratio Perm	0.68	0.05	0.46	0.68	0.68	0.68	0.68	0.68	0.68	0.37	0.37	
Uniform Delay, d1	23.0	20.8	23.7	24.9	12.2	28.0	13.6	23.7	24.9	1.00	13.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	6.9	0.1	1.7	10.4	0.7	10.4	0.7	8.2	0.2			
Delay (s)	29.9	20.9	25.4	35.3	12.9	38.4	14.3	31.9	25.1	1.00	13.6	
Level of Service	C	C	C	D	B	D	B	D	B	D	B	
Approach Delay (s)	27.2	27.2	25.4	25.4	15.4	15.4	14.2	15.4	15.4	14.2	14.2	
Approach LOS	C	C	C	C	B	B	B	B	B	B	B	
Intersection Summary												
HCM Average Control Delay	17.2											
HCM Volume to Capacity ratio	0.59											
Actuated Cycle Length (s)	57.2											
Intersection Capacity Utilization	49.4%											
Analysis Period (min)	15											
c Critical Lane Group												

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

Existing + Project (Phase 1) PM
12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	↑	↘	←	↑	↘	←	↑	↘	←	↑	↘
Volume (vph)	0	617	137	604	889	0	0	0	0	835	1	73
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	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Fit	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit Protected	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3443	3443	3443	3443	3443	3443	3443	3443	3443	3443	3443	3443
Satd. Flow (perm)	3443	3443	3443	3443	3443	3443	3443	3443	3443	3443	3443	3443
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	688	152	671	966	0	0	0	0	928	1	81
RTOR Reduction (vph)	0	32	0	0	0	0	0	0	0	0	0	1
Lane Group Flow (vph)	0	806	0	671	966	0	0	0	0	473	463	23
Turn Type	Split	Prot	Split	Prot	Split	Prot	Split	Prot	Split	Prot	Split	Prot
Protected Phases	1	4	4	8	8	5	2	1	6			
Permitted Phases	Actuated Green, G (s)	16.3	16.3	12.8	33.1	16.3	16.3	16.3	16.3	18.6	18.6	18.6
Effective Green, g (s)	16.3	16.3	16.3	12.8	33.1	16.3	16.3	16.3	16.3	18.6	18.6	18.6
Actuated g/C Ratio	0.27	0.27	0.21	0.21	0.55	0.21	0.21	0.21	0.21	0.31	0.31	0.31
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)	940	736	1962	60.20	0.27	60.20	0.27	60.20	0.27	524	502	469
vs Ratio Prot	60.23									0.28	0.29	0.02
vs Ratio Perm	0.86	0.91	0.49	0.86	0.86	0.86	0.86	0.86	0.86	0.90	0.92	0.05
Uniform Delay, d1	20.6	22.9	8.2	22.9	8.2	22.9	8.2	22.9	8.2	19.7	19.8	14.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.8	15.5	0.2	15.5	0.2	15.5	0.2	15.5	0.2	18.7	22.5	4.4
Delay (s)	28.4	38.4	8.3	38.4	8.3	38.4	8.3	38.4	8.3	38.4	42.3	18.8
Level of Service	C	D	A	D	A	D	A	D	A	D	D	B
Approach Delay (s)	28.4	28.4	20.7	20.7	0.0	20.7	0.0	20.7	0.0	38.5	38.5	18.8
Approach LOS	C	C	C	C	A	C	A	C	A	D	D	D
Intersection Summary												
HCM Average Control Delay	27.7											
HCM Volume to Capacity ratio	0.90											
Actuated Cycle Length (s)	59.7											
Intersection Capacity Utilization	80.9%											
Analysis Period (min)	15											
c Critical Lane Group												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	123	1361	0	0	985	780	439	7	667	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)	0.97	0.95	1.00	0.95	1.00	0.95	0.91	0.95	0.95	1.00	0.91
Lane Util. Factor	1.00	1.00	1.00	1.00	0.85	1.00	0.87	0.85	1.00	1.00	1.00
Flt	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.99	1.00	1.00	1.00
Flt Protected	3433	3539	0	0	3539	1583	1681	1472	1504	0	0
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
Flt Permitted	137	1512	0	0	1094	867	498	8	741	0	0
Adj. Flow (vph)	0	0	0	0	525	0	13	13	0	0	0
RTOR Reduction (vph)	137	1512	0	0	1094	342	429	395	397	0	0
Lane Group Flow (vph)	137	1512	0	0	1094	342	429	395	397	0	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	0	0	8	8	2	2	2	0	0
Permitted Phases	3.4	30.1	22.7	22.7	19.5	19.5	19.5	19.5	19.5	0	0
Actuated Green, G (s)	3.4	30.1	22.7	22.7	19.5	19.5	19.5	19.5	19.5	0	0
Effective Green, g (s)	0.06	0.52	0.39	0.39	0.34	0.34	0.34	0.34	0.34	0	0
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	0	0
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0	0
Vehicle Extension (s)	203	1849	1385	624	569	498	509	509	509	0	0
Lane Grp Cap (vph)	0.04	0.43	0.31	0.22	0.26	0.26	0.26	0.26	0.26	0	0
vs Ratio Prot	0.67	0.82	0.76	0.55	0.75	0.75	0.75	0.75	0.75	0	0
vs Ratio Perm	26.6	11.5	15.3	13.5	16.9	17.2	17.0	17.0	17.0	0	0
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	0
Progression Factor	8.6	2.9	3.0	1.0	5.6	8.5	6.6	6.6	6.6	0	0
Incremental Delay, d2	35.1	14.4	18.3	14.5	22.5	25.7	23.6	23.6	23.6	0	0
Delay (s)	D	B	B	B	C	C	C	C	C	0	0
Level of Service	D	B	B	B	C	C	C	C	C	0	0
Approach Delay (s)	16.1	16.1	16.6	16.6	16.6	16.6	16.6	16.6	16.6	0	0
Approach LOS	B	B	B	B	B	B	B	B	B	0	0
Intersection Summary	18.3										
HCM Average Control Delay	18.3										
HCM Volume to Capacity ratio	0.81										
Actuated Cycle Length (s)	57.6										
Intersection Capacity Utilization	80.9%										
Analysis Period (min)	15										
c Critical Lane Group	B										

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	38	30	28	476	22	101	75	893	214	179	1364
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	0.91	0.95	0.95	0.91	0.95	1.00	0.81	1.00	0.91	0.91
Lane Util. Factor	1.00	0.99	0.95	1.00	0.99	0.95	1.00	0.97	1.00	1.00	1.00
Flt	0.95	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Flt Protected	1681	1681	1681	1681	1681	1681	1681	1681	1681	1681	1681
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
Flt Permitted	42	33	31	525	24	112	83	992	238	199	1504
Adj. Flow (vph)	0	3	28	0	2	77	0	40	0	0	2
RTOR Reduction (vph)	38	37	2	280	282	24	83	1190	0	199	1530
Lane Group Flow (vph)	38	37	2	280	282	24	83	1190	0	199	1530
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	4	8	8	5	2	2	6	6	6
Permitted Phases	5.6	5.6	5.6	17.8	17.8	17.8	4.3	38.8	30.5	30.5	30.5
Actuated Green, G (s)	5.6	5.6	5.6	17.8	17.8	17.8	4.3	38.8	30.5	30.5	30.5
Effective Green, g (s)	0.08	0.08	0.08	0.24	0.24	0.24	0.06	0.52	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
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)	127	126	114	403	387	361	103	2882	728	2084	2084
Lane Grp Cap (vph)	0.02	0.02	0.00	0.17	0.17	0.07	0.05	0.24	0.11	0.30	0.30
vs Ratio Prot	0.30	0.30	0.02	0.69	0.73	0.07	0.81	0.46	0.27	0.73	0.73
vs Ratio Perm	32.4	32.4	31.8	25.7	26.0	21.8	34.5	11.1	14.5	18.4	18.4
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	1.3	1.3	0.1	5.1	6.8	0.1	35.2	0.1	0.2	1.4	1.4
Incremental Delay, d2	33.8	33.7	31.8	30.9	32.7	21.9	69.7	11.3	14.7	19.8	19.8
Delay (s)	C	C	C	C	C	C	E	B	B	B	B
Level of Service	C	C	C	C	C	C	E	B	B	B	B
Approach Delay (s)	33.2	33.2	30.3	30.3	30.3	30.3	15.0	15.0	19.2	19.2	19.2
Approach LOS	C	C	C	C	C	C	B	B	B	B	B
Intersection Summary	20.1										
HCM Average Control Delay	20.1										
HCM Volume to Capacity ratio	0.70										
Actuated Cycle Length (s)	74.2										
Intersection Capacity Utilization	63.4%										
Analysis Period (min)	15										
c Critical Lane Group	B										



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	0	0	0	166	807	170	341	976	0	0	626
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)	0.97	0.91	1.00	0.97	0.95	0.95	0.95	0.95	0.86	0.86	0.86
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
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.94	0.85	1.00
Flt Protected	3433	5085	1593	3433	3539	3539	3539	3539	4079	1002	1002
Satd. Flow (prot)	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.94	0.85	1.00
Flt Permitted	3433	5085	1593	3433	3539	3539	3539	3539	4079	1002	1002
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	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	184	887	189	379	1084	0	0	596
RTOR Reduction (vph)	0	0	0	0	92	0	0	0	0	0	6
Lane Group Flow (vph)	0	0	0	184	887	97	379	1084	0	0	417
Confl. Peds. (#/hr)											200
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Perm
Protected Phases	3	8	8	3	8	8	3	8	8	3	6
Permitted Phases	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	31.5
Actuated Green, G (s)	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	31.5
Effective Green, g (s)	0.24	0.24	0.24	0.24	0.13	0.65	0.65	0.65	0.46	0.46	0.46
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)	810	1199	373	450	2292	2292	2292	2292	1870	499	499
Lane Grp Cap (vph)	0.05	c0.18	c0.18	0.05	c0.11	0.31	0.31	0.31	0.27	c0.42	0.27
v/s Ratio Prot	0.23	0.75	0.26	0.84	0.47	0.47	0.47	0.47	0.60	0.91	0.91
v/s Ratio Perm	21.2	24.4	21.4	29.2	6.1	6.1	6.1	6.1	13.9	17.3	17.3
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	0.1	2.6	0.4	13.4	0.2	0.5	0.5	0.5	21.5	14.4	38.8
Incremental Delay, d2	21.3	27.0	21.7	42.5	6.3	6.3	6.3	6.3	14.4	38.8	38.8
Delay (s)	C	C	C	C	D	D	D	D	B	B	D
Level of Service	C	C	C	C	D	D	D	D	B	B	D
Approach Delay (s)	0.0	A	A	25.4	C	C	C	C	15.7	21.1	21.1
Approach LOS	A	A	A	B	B	B	B	B	C	C	C
Intersection Summary											
HCM Average Control Delay	20.5	HCM Level of Service	C								
HCM Volume to Capacity ratio	0.85										
Actuated Cycle Length (s)	68.7	Sum of lost time (s)	12.0								
Intersection Capacity Utilization	105.4%	ICU Level of Service	G								
Analysis Period (min)	15										
c Critical Lane Group											



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4
Volume (vph)	492	989	92	0	0	0	798	385	211	588	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	0.91	0.86	0.91	0.86	0.91	0.86	0.91	0.86	0.91	0.86	0.91
Flt	1.00	1.00	1.00	0.85	1.00	1.00	1.00	0.95	1.00	0.95	1.00
Flt Protected	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1610	3192	1441	1.00	1.00	1.00	1.00	6095	1770	5095	1.00
Flt Permitted	1610	3192	1441	1.00	1.00	1.00	1.00	6095	1770	5095	1.00
Satd. Flow (perm)	1610	3192	1441	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	547	1099	102	0	0	0	887	428	234	631	0
RTOR Reduction (vph)	0	1	54	0	0	0	56	0	0	0	0
Lane Group Flow (vph)	492	1163	38	0	0	0	1259	0	234	631	0
Turn Type	Split	Prot	Prot								
Protected Phases	4	4	4								
Permitted Phases	30.5	30.5	30.5								
Actuated Green, G (s)	30.5	30.5	30.5								
Effective Green, g (s)	0.41	0.41	0.41								
Actuated g/C Ratio	4.0	4.0	4.0								
Clearance Time (s)	3.0	3.0	3.0								
Vehicle Extension (s)	664	1317	595								
Lane Grp Cap (vph)	0.31	c0.36	0.03								
v/s Ratio Prot	0.74	0.86	0.06								
v/s Ratio Perm	18.4	20.1	13.1								
Uniform Delay, d1	1.00	1.00	1.00								
Progression Factor	4.5	7.3	0.0								
Incremental Delay, d2	22.8	27.4	13.1								
Delay (s)	C	C	B								
Level of Service	C	C	B								
Approach Delay (s)	25.4	C	C								
Approach LOS	C	C	C								
Intersection Summary											
HCM Average Control Delay	25.3	HCM Level of Service	C								
HCM Volume to Capacity ratio	0.84										
Actuated Cycle Length (s)	73.9	Sum of lost time (s)	12.0								
Intersection Capacity Utilization	105.4%	ICU Level of Service	G								
Analysis Period (min)	15										
c Critical Lane Group											

Movement	EBL	EBT	WBL	WBT	WBR	SBL	SBR
Lane Configurations	4	4	4	4	4	4	4
Volume (vph)	66	302	0	356	94	30	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3429	1770	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3429	1770	1583	1770	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	73	424	0	396	104	33	51
RTOR Reduction (vph)	0	0	0	44	0	0	47
Lane Group Flow (vph)	73	424	0	456	0	33	4
Turn Type	Prot	7	4	3	8	6	6
Protected Phases							
Permitted Phases							
Actuated Green, G (s)	1.2	14.0		8.8		1.7	1.7
Effective Green, g (s)	1.2	14.0		8.8		1.7	1.7
Actuated g/C Ratio	0.05	0.58		0.37		0.07	0.07
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)	90	2091		1273		127	114
v/s Ratio Prot	c0.04	0.12		c0.13		c0.02	0.00
v/s Ratio Perm							
v/c Ratio	0.81	0.20		0.36		0.26	0.03
Uniform Delay, d1	11.1	2.3		5.4		10.4	10.2
Progression Factor	1.00	1.00		1.00		1.00	1.00
Incremental Delay, d2	40.5	0.0		0.2		1.1	0.1
Delay (s)	51.6	2.3		5.6		11.5	10.3
Level of Service	D	A		A		B	B
Approach Delay (s)		9.5		5.6		10.8	
Approach LOS		A		A		B	
Intersection Summary							
HCM Average Control Delay			7.8				A
HCM Volume to Capacity ratio			0.38				12.0
Actuated Cycle Length (s)			23.7				A
Intersection Capacity Utilization			29.8%				15
Analysis Period (min)			15				
c. Critical Lane Group							

Movement	EBL	EBT	WBL	WBT	WBR	SBL	SBR
Lane Configurations	4	4	4	4	4	4	4
Volume (vph)	110	284	290	31	157	96	312
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.88	1.00	1.00	1.00	0.95	1.00
Flt Protected	0.95	1.00	0.85	1.00	0.94	1.00	0.85
Satd. Flow (prot)	1770	2787	1583	1770	1756	1770	3539
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	2787	1583	1770	1756	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	122	316	322	34	174	107	347
RTOR Reduction (vph)	0	0	235	0	34	0	78
Lane Group Flow (vph)	122	316	67	34	247	0	347
Turn Type	Prot	custom	custom	Prot	3	8	5
Protected Phases							
Permitted Phases							
Actuated Green, G (s)	12.6	12.6	12.6	1.5	18.1	19.0	21.9
Effective Green, g (s)	12.6	12.6	12.6	1.5	18.1	19.0	21.9
Actuated g/C Ratio	0.21	0.21	0.21	0.02	0.30	0.31	0.36
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)	228	580	330	44	525	556	1281
v/s Ratio Prot	0.11	0.11	0.04		c0.14	c0.20	c0.25
v/s Ratio Perm							
v/c Ratio	0.64	0.54	0.20	0.77	0.47	0.62	0.70
Uniform Delay, d1	21.3	21.4	19.8	29.3	17.3	17.7	16.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.4	1.0	0.3	57.0	0.7	2.2	1.7
Delay (s)	23.7	22.4	20.1	86.3	18.0	19.9	18.1
Level of Service	C	C	C	F	B	B	B
Approach Delay (s)				25.3			
Approach LOS				C			
Intersection Summary							
HCM Average Control Delay			20.8				C
HCM Volume to Capacity ratio			0.57				8.0
Actuated Cycle Length (s)			60.5				B
Intersection Capacity Utilization			63.2%				15
Analysis Period (min)			15				
c. Critical Lane Group							

HCM Signalized Intersection Capacity Analysis Existing + Project (Phase 1) PM 12/11/2011

HCM Signalized Intersection Capacity Analysis Existing + Project (Phase 1) PM 12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SSR
Lane Configurations	90°	90°	90°	90°	90°	90°	90°	90°	90°	90°	90°	90°
Volume (vph)	908	0	92	0	0	0	0	323	43	348	91	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	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.97	0.95	0.97	0.95	0.95
Flt	1.00	1.00	0.85	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1681	1681	1933	1681	1681	1933	1681	1681	1933	1681	1933	1681
Flt Permitted	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	0.95
Satd. Flow (perm)	1681	1681	1933	1681	1681	1933	1681	1681	1933	1681	1933	1681
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)	1009	0	102	0	0	0	0	359	48	387	101	0
RTOR Reduction (vph)	0	0	64	0	0	0	0	24	0	0	0	0
Lane Group Flow (vph)	504	505	38	0	0	0	0	383	0	387	101	0
Turn Type	Spill	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm
Protected Phases	4	4	4	4	4	4	4	4	4	4	4	4
Permitted Phases	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2
Actuated Green, G(s)	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2
Effective Green, g(s)	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2
Actuated g/C Ratio	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
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)	626	626	590	626	626	590	626	626	590	626	590	626
v/s Ratio Prot	0.30	0.30	0.02	0.30	0.30	0.02	0.30	0.30	0.02	0.30	0.30	0.30
v/s Ratio Perm	0.81	0.81	0.06	0.81	0.81	0.06	0.81	0.81	0.06	0.81	0.81	0.81
Uniform Delay, d1	12.2	12.2	8.8	12.2	12.2	8.8	12.2	12.2	8.8	12.2	12.2	12.2
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	7.4	7.5	0.0	7.4	7.5	0.0	7.4	7.5	0.0	7.4	7.5	7.4
Delay (s)	19.7	19.8	8.8	19.7	19.8	8.8	19.7	19.8	8.8	19.7	19.8	19.7
Level of Service	B	B	A	B	B	A	B	B	A	B	B	B
Approach Delay (s)	18.7	18.7	0.0	18.7	18.7	0.0	18.7	18.7	0.0	18.7	18.7	18.7
Approach LOS	B	B	A	B	B	A	B	B	A	B	B	B
Intersection Summary												
HCM Average Control Delay	25.0											
HCM Volume to Capacity ratio	0.72											
Actuated Cycle Length (s)	43.5											
Intersection Capacity Utilization	55.4%											
Analysis Period (min)	15											
c Critical Lane Group												

Movement	SEL	SET	SEB	NWL	NWT	NWR	NEL	NET	NEB	SWL	SWB	SSR
Lane Configurations	90°	90°	90°	90°	90°	90°	90°	90°	90°	90°	90°	90°
Volume (vph)	127	442	39	91	398	400	47	128	104	230	52	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.92
Flt	1.00	0.98	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Flt Protected	0.95	1.00	0.95	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1770	3496	1770	1770	3270	1770	1770	1737	1737	3433	1708	1708
Flt Permitted	0.95	1.00	0.95	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (perm)	1770	3496	1770	1770	3270	1770	1770	1737	1737	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)	141	491	43	101	431	444	52	142	116	256	58	72
RTOR Reduction (vph)	0	8	0	0	226	0	0	37	0	0	49	0
Lane Group Flow (vph)	141	526	0	101	649	0	52	221	0	256	81	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	1	6	1	5	2	7	4	3	8	3	8	3
Permitted Phases	8.7	19.2	7.5	18.0	4.6	15.6	8.7	19.7	8.7	19.7	8.7	19.7
Actuated Green, G(s)	8.7	19.2	7.5	18.0	4.6	15.6	8.7	19.7	8.7	19.7	8.7	19.7
Effective Green, g(s)	8.7	19.2	7.5	18.0	4.6	15.6	8.7	19.7	8.7	19.7	8.7	19.7
Actuated g/C Ratio	0.13	0.29	0.11	0.27	0.07	0.23	0.13	0.29	0.13	0.29	0.13	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)	230	1002	198	879	122	404	230	1002	198	879	122	404
v/s Ratio Prot	0.06	0.15	0.06	0.06	0.03	0.03	0.06	0.15	0.06	0.06	0.03	0.03
v/s Ratio Perm	0.61	0.53	0.51	0.74	0.43	0.55	0.57	0.16	0.57	0.16	0.57	0.16
Uniform Delay, d1	27.6	20.1	28.0	22.4	29.9	22.6	27.4	17.5	27.4	17.5	27.4	17.5
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	4.8	0.5	2.2	3.3	2.4	1.5	4.8	0.2	4.8	0.2	4.8	0.2
Delay (s)	32.3	20.6	30.2	25.6	32.3	24.1	32.3	17.7	32.3	17.7	32.3	17.7
Level of Service	C	C	C	C	C	C	C	B	C	B	C	B
Approach Delay (s)	29.0	29.0	26.1	26.1	26.1	26.1	29.0	25.3	29.0	25.3	29.0	25.3
Approach LOS	C	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary												
HCM Average Control Delay	25.0											
HCM Volume to Capacity ratio	0.63											
Actuated Cycle Length (s)	67.0											
Intersection Capacity Utilization	63.6%											
Analysis Period (min)	15											
c Critical Lane Group												

Movement	WB1	WBR	SBL	SET	NWT1	NNWR	NNR2	SBL	SWR
Lane Configurations	VV	VV	AA	AA	AA	AA	AA	VV	AA
Volume (vph)	0	0	289	494	621	0	190	147	247
Ideal Flow (vpl)	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	0.95	0.95	0.95	0.95	1.00	0.97	1.00	0.97
Fit	1.00	1.00	1.00	1.00	1.00	0.85	1.00	0.85	1.00
Fit Protected	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95
Satd. Flow (prot)	3433	3539	3539	3539	3539	1563	3433	1563	3433
Fit Permitted	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95
Satd. Flow (perm)	3433	3539	3539	3539	3539	1563	3433	1563	3433
Peak-hour factor, PHF	0.90	0.80	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	289	549	690	0	211	163	274
RTOR Reduction (vph)	0	0	0	0	0	0	135	0	225
Lane Group Flow (vph)	0	0	289	549	690	0	75	163	49
Turn Type	Prot		5	2	6	Perm		4	Perm
Protected Phases					6				4
Permitted Phases									
Actuated Green, G (s)	9.5		29.8		16.3		8.2		8.2
Effective Green, g (s)	9.5		29.8		16.3		8.2		8.2
Actuated g/C Ratio	0.21		0.65		0.35		0.18		0.18
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)	709		2293		1254		561		612
v/s Ratio Prot	c0.09		0.16		c0.19		c0.05		c0.05
v/s Ratio Perm	0.42		0.24		0.55		0.13		0.17
Uniform Delay, d1	15.9		3.4		11.9		10.1		16.3
Progression Factor	1.00		1.00		1.00		1.00		1.00
Incremental Delay, d2	0.4		0.1		0.5		0.1		0.2
Delay (s)	16.3		3.4		12.4		10.2		16.5
Level of Service	B		A		B		B		B
Approach Delay (s)	0.0		8.0		11.9		16.4		B
Approach LOS	A		A		B		B		B
Intersection Summary									
HCM Average Control Delay	11.3		HCM Level of Service				B		B
HCM Volume to Capacity ratio	0.45								
Actuated Cycle Length (s)	46.0		Sum of lost time (s)				12.0		12.0
Intersection Capacity Utilization	39.1%		ICU Level of Service				A		A
Analysis Period (min)	15								
Critical Lane Group	6								

[illegible]

ALL-WAY STOP CONTROL ANALYSIS											
General Information			Site Information								
Analyst	Jacobs Swire		Intersection		Carmel Creek Rd/Del Mar Trail						
Agency/Co.	USAI		Jurisdiction		City of San Diego						
Date Prepared	3/4/2011		Analysis Year		2011						
Study's Time Period	36 Existing + Project Ph. 1 P.M.										
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		Northbound		Southbound				
Movement	L	T	R	L	T	R	L	T	R		
Volume (veh/h)	5	5	4	55	12	10					
% Thus Left Lane											
Approach	Northbound		Southbound		Eastbound		Westbound				
Movement	L	T	R	L	T	R	L	T	R		
Volume (veh/h)	12	742	100	15	415	10					
% Thus Left Lane											
Configuration	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2	
LTR	LTR	LTR	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	0.90	0.90	
Flow Rate (veh/h)	14	85	2	2	2	2	2	2	2	2	
% Heavy Vehicles	2	2	1	2	2	2	2	2	2	2	
No. Lanes	1	2	2	2	2	2	2	2	2	2	
Geometry Group	2	2	2	2	2	2	2	2	2	2	
Duration, T	0.25										
Saturation Headway Adjustment Worksheet											
Prop. Left-Turns	0.4	0.7	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	
Prop. Right-Turns	0.3	0.1	0.0	0.2	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	0.0	0.0	0.0	0.0	
hLT-adj	0.2	0.2	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
hRT-adj	-0.6	-0.6	-0.6	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	
hadj, computed	-0.1	0.1	0.0	-0.1	0.1	0.1	0.1	0.1	0.1	0.1	
Departure Headway and Service Time											
hdi, initial value (s)	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	
k, initial	0.01	0.08	0.38	0.46	0.22	0.22	0.22	0.22	0.22	0.22	
hdi, final value (s)	6.67	6.67	5.48	5.32	6.01	5.95	6.01	5.95	6.01	5.95	
k, final value	0.03	0.16	0.65	0.77	0.41	0.40	0.41	0.40	0.41	0.40	
Move-up time, m (s)	2.0	2.0	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	
Service Time, ts (s)	4.7	4.6	3.2	3.0	3.7	3.6	3.7	3.6	3.7	3.6	
Capacity and Level of Service											
Eastbound		Westbound		Northbound		Southbound					
L1	L2	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	264	335	652	674	496	496	492	496	492	496	492
Delay (s/veh)	9.84	10.77	17.66	23.65	12.84	12.55	12.84	12.55	12.84	12.55	12.84
LOS	A	B	C	C	B	B	B	B	B	B	B
Approach: Delay (s/veh)	9.84	10.77	20.97	20.97	12.70	12.70	12.70	12.70	12.70	12.70	12.70
LOS	A	B	C	C	B	B	B	B	B	B	B
Intersection Delay (s/veh)	17.67										
Intersection LOS	C										
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	2	352	372	291	448	8	370	5	150	1	4	1
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	0.85	1.00	1.00	1.00	0.95	1.00	0.85	1.00	0.95	0.98
Flt Protected	1770	1863	1583	1770	1868		1775	1583		1750		
Satd. Flow (prot)	0.95	1.00	0.85	1.00	1.00	1.00	0.95	1.00	0.85	1.00	0.98	0.98
Flt Permitted	1770	1863	1583	1770	1868		1775	1583		1750		
Satd. Flow (perm)	0.95	1.00	0.85	1.00	1.00	1.00	0.95	1.00	0.85	1.00	0.98	0.98
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	391	413	323	498	8	411	5	167	1	4	1
RTOR Reduction (vph)	0	0	267	0	1	0	0	0	121	0	1	0
Lane Group Flow (vph)	2	391	146	323	506	0	0	417	46	0	2	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Split	Split	Prot	Split	Split	Prot	Split
Protected Phases	7	4	4	3	8			2	2	2	6	6
Permitted Phases												
Actuated Green, G (s)	0.8	22.3	22.3	16.7	38.2			21.6	21.6	21.6	1.1	1.1
Effective Green, g (s)	0.8	22.3	22.3	16.7	38.2			21.6	21.6	21.6	1.1	1.1
Actuated g/C Ratio	0.01	0.29	0.29	0.21	0.49			0.28	0.28	0.28	0.01	0.01
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	18	535	454	380	913			493	440	25		
v/s Ratio Prot	0.00	0.21	0.09	0.18	0.27			0.23	0.03	0.00		
v/s Ratio Perm												
v/c Ratio	0.11	0.73	0.32	0.85	0.55			0.85	0.11	0.08		
Uniform Delay, d1	38.1	25.0	21.8	29.3	13.8			26.5	20.9	37.8		
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00		
Incremental Delay, d2	2.7	5.1	0.4	16.4	0.7			12.6	0.1	1.4		
Delay (s)	40.8	30.1	22.2	45.7	14.5			39.1	21.0	39.2		
Level of Service	D	C	C	D	B			D	C	D		
Approach Delay (s)			26.1		26.7			33.9		39.2		
Approach LOS			C		C			C		D		
Intersection Summary												
HCM Average Control Delay			28.4		HCM Level of Service					C		
HCM Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			77.7		Sum of lost time (s)					16.0		
Intersection Capacity Utilization			72.1%		ICU Level of Service					C		
Analysis Period (min)			15									
c Critical Lane Group												

Baseline



Movement	WBL	WBR	NBU	NBT	SBL	SBR
Lane Configurations	395	299	0	197	282	431
Volume (vph)	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	0.97	1.00	1.00	1.00	1.00	0.95
Lane Util. Factor	1.00	0.85	1.00	0.85	1.00	1.00
Flt	0.95	1.00	1.00	1.00	0.95	1.00
Flt Protected	3433	1593	1863	1593	1770	3539
Satd. Flow (prot)	0.95	1.00	1.00	1.00	0.95	1.00
Flt Permitted	3433	1593	1863	1593	1770	3539
Satd. Flow (perm)	0.90	0.90	0.90	0.90	0.90	0.90
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	439	332	0	219	313	312
RTOR Reduction (vph)	0	248	0	0	240	0
Lane Group Flow (vph)	439	84	0	219	73	312
Turn Type	Perm	Prot	Perm	Prot	Perm	Prot
Protected Phases	1	3	8	7	6	6
Permitted Phases	12.9	12.9	11.9	11.9	14.0	12.9
Actuated Green, G (s)	12.9	12.9	11.9	11.9	14.0	12.9
Effective Green, g (s)	0.25	0.25	0.23	0.23	0.28	0.25
Actuated g/C Ratio	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
Vehicle Extension (s)	872	402	436	371	488	889
Lane Grp Cap (vph)	0.13	0.50	0.20	0.64	0.53	0.14
v/s Ratio Prot	0.05	0.21	0.50	0.20	0.64	0.53
v/s Ratio Perm	16.2	14.9	16.9	15.6	16.2	16.4
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	0.5	0.3	0.9	0.3	2.8	0.6
Incremental Delay, d2	16.7	15.2	17.8	15.9	18.9	17.0
Delay (s)	B	B	B	B	B	B
Level of Service	B	B	B	B	B	B
Approach Delay (s)	16.0	16.7	17.7	17.7	17.7	17.7
Approach LOS	B	B	B	B	B	B
Intersection Summary						
HCM Average Control Delay	16.8					
HCM Volume to Capacity ratio	0.36					
Actuated Cycle Length (s)	50.8					
Intersection Capacity Utilization	47.2%					
Analysis Period (min)	15					
c Critical Lane Group						

Baseline



Movement	WBL	WBR	NBU	NBT	SBL	SBR
Lane Configurations	84	7	0	454	50	3
Volume (vph)	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	0.97	1.00	1.00	0.95	1.00	0.95
Lane Util. Factor	0.99	1.00	1.00	0.98	1.00	1.00
Flt	0.96	1.00	1.00	0.96	1.00	1.00
Flt Protected	3414	3414	3466	3466	1770	3539
Satd. Flow (prot)	0.96	1.00	1.00	0.96	1.00	1.00
Flt Permitted	3414	3414	3466	3466	1770	3539
Satd. Flow (perm)	0.90	0.90	0.90	0.90	0.90	0.90
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	93	8	0	504	56	3
RTOR Reduction (vph)	7	0	0	13	0	0
Lane Group Flow (vph)	94	0	0	547	0	3
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	8	5	2	1	6	6
Permitted Phases	3.1	14.9	14.9	0.6	19.5	19.5
Actuated Green, G (s)	3.1	14.9	14.9	0.6	19.5	19.5
Effective Green, g (s)	0.10	0.49	0.49	0.02	0.64	0.64
Actuated g/C Ratio	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
Vehicle Extension (s)	346	1697	1697	35	2255	2255
Lane Grp Cap (vph)	0.03	0.16	0.16	0.00	0.26	0.26
v/s Ratio Prot	0.27	0.32	0.32	0.08	0.41	0.41
v/s Ratio Perm	12.7	4.8	4.8	14.7	2.7	2.7
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	0.4	0.1	0.1	1.1	0.1	0.1
Incremental Delay, d2	13.1	4.9	4.9	15.8	2.9	2.9
Delay (s)	B	A	A	B	A	A
Level of Service	B	A	A	B	A	A
Approach Delay (s)	13.1	4.9	4.9	15.8	2.9	2.9
Approach LOS	B	A	A	B	A	A
Intersection Summary						
HCM Average Control Delay	4.2					
HCM Volume to Capacity ratio	0.39					
Actuated Cycle Length (s)	30.6					
Intersection Capacity Utilization	33.1%					
Analysis Period (min)	15					
c Critical Lane Group						

Baseline

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

Existing + Project (Phase 1&2) AM
12/11/2011

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)	23	111	19	63	82	149	6	311	16	160	685	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1800
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	0.99	1.00	0.99	1.00	0.98	1.00
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	1822	1770	1822	1770	1822	1770	1822	1770	1822	1770	1822
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	1822	1770	1822	1770	1822	1770	1822	1770	1822	1770	1822
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)	26	123	21	70	91	166	7	346	18	178	761	116
RTOR Reduction (vph)	0	11	0	0	114	0	0	6	0	0	17	0
Lane Group Flow (vph)	26	133	0	70	143	0	7	355	0	178	880	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	3	8	5	2	1	6		
Actuated Green, G (s)	0.7	10.6	2.3	12.2	0.7	13.9	0.7	13.9	0.7	6.8	20.0	6.8
Effective Green, g (s)	0.7	10.6	2.3	12.2	0.7	13.9	0.7	13.9	0.7	6.8	20.0	6.8
Actuated g/C Ratio	0.01	0.21	0.05	0.25	0.01	0.28	0.01	0.28	0.01	0.14	0.40	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)	25	389	82	414	25	904	25	904	25	243	1399	243
vs Ratio Prot	0.01	0.07	0.04	0.09	0.01	0.10	0.01	0.10	0.01	0.10	0.25	0.10
vs Ratio Perm	0.04	0.34	0.06	0.35	0.04	0.36	0.04	0.36	0.04	0.36	0.61	0.36
Uniform Delay, d1	21.4	16.5	23.5	15.4	21.4	14.3	21.4	14.3	21.4	20.5	11.7	20.5
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	192.8	0.5	53.6	0.5	6.0	0.2	6.0	0.2	6.0	10.8	0.8	10.8
Delay (s)	217.2	17.1	77.1	15.9	27.4	14.5	27.4	14.5	27.4	31.4	12.6	31.4
Level of Service	F	B	E	B	E	B	C	B	C	C	B	C
Approach Delay (s)	47.7	29.0	14.8	15.7	47.7	29.0	14.8	15.7	47.7	29.0	14.8	15.7
Approach LOS	D	C	C	B	D	C	C	B	D	C	B	C
Intersection Summary												
HCM Average Control Delay	20.6											
HCM Volume to Capacity ratio	0.51											
Actuated Cycle Length (s)	49.6											
Intersection Capacity Utilization	35.7%											
Analysis Period (min)	15											
c. Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
5: Quarter Mile Road & El Camino Real

Existing + Project (Phase 1&2) AM
12/11/2011

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)	5	83	70	93	137	35	40	331	55	41	774	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1800
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	0.98	1.00	0.98	1.00	0.95	1.00
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1805	1770	1770	1863	1583	1770	1770	1863
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	1863	1583	1770	1805	1770	1770	1863	1583	1770	1770	1863
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	92	78	103	152	40	44	368	61	46	860	8
RTOR Reduction (vph)	0	0	64	0	17	0	0	20	0	0	0	1
Lane Group Flow (vph)	6	92	14	103	17	0	44	409	0	46	867	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	4	3	8	3	5	2	1	6		
Actuated Green, G (s)	0.6	8.4	8.4	3.5	11.3	0.6	1.3	17.5	1.3	17.5	1.3	17.5
Effective Green, g (s)	0.6	8.4	8.4	3.5	11.3	0.6	1.3	17.5	1.3	17.5	1.3	17.5
Actuated g/C Ratio	0.01	0.18	0.18	0.07	0.24	0.01	0.03	0.37	0.03	0.37	0.03	0.37
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)	23	335	285	133	437	49	1298	49	1298	49	1324	49
vs Ratio Prot	0.00	0.05	0.01	0.06	0.10	0.02	0.12	0.05	0.05	0.05	0.05	0.05
vs Ratio Perm	0.26	0.21	0.06	0.17	0.40	0.30	0.32	0.26	0.26	0.26	0.26	0.26
Uniform Delay, d1	22.8	15.5	15.8	21.2	14.9	22.8	10.4	22.7	10.4	22.7	12.1	22.7
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	6.0	0.4	0.1	24.0	0.8	90.0	0.1	104.4	0.1	104.4	1.2	104.4
Delay (s)	28.8	17.0	15.9	45.2	15.5	112.8	10.5	127.1	10.5	127.1	13.3	127.1
Level of Service	C	B	B	D	B	F	B	F	B	F	B	F
Approach Delay (s)	16.9	25.8	25.8	25.8	25.8	25.8	25.8	25.8	25.8	25.8	25.8	25.8
Approach LOS	B	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary												
HCM Average Control Delay	20.1											
HCM Volume to Capacity ratio	0.61											
Actuated Cycle Length (s)	46.7											
Intersection Capacity Utilization	46.8%											
Analysis Period (min)	15											
c. Critical Lane Group												

Baseline

Synchro 7 - Report
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4
Volume (veh/h)	93	851	23	88	856	197	68	56	79	441	22	82
Ideal Flow (veh/h)	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	1.00	1.00	0.95	1.00	0.95	0.95
Flt	1.00	1.00	1.00	1.00	0.97	1.00	0.85	1.00	0.85	1.00	0.95	0.97
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.97	1.00	0.95	0.95	0.97	0.97
Satd. Flow (prot)	1770	5065	1770	3440	1770	3440	1813	1583	1681	1638	1638	1638
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.97	1.00	0.95	0.95	0.97	0.97
Satd. Flow (perm)	1770	5065	1770	3440	1770	3440	1813	1583	1681	1638	1638	1638
Peak-hour factor, H/F	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 (veh/h)	103	946	26	98	951	219	76	62	88	490	24	91
RTOR Reduction (veh/h)	0	3	0	0	21	0	0	0	76	0	17	0
Lane Group Flow (veh/h)	103	989	0	98	1149	0	0	138	12	309	279	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Split	Split	Perm	Split	Split	Perm
Protected Phases	7	4	3	8	2	2	2	2	6	6	6	6
Permitted Phases	6.4	30.1	8.0	31.7	11.5	11.5	17.8	17.8	17.8	17.8	17.8	17.8
Actuated Green, G (s)	6.4	30.1	8.0	31.7	11.5	11.5	17.8	17.8	17.8	17.8	17.8	17.8
Effective Green, g (s)	6.4	30.1	8.0	31.7	11.5	11.5	17.8	17.8	17.8	17.8	17.8	17.8
Actuated Q/C Ratio	0.08	0.36	0.10	0.38	0.14	0.14	0.21	0.21	0.21	0.21	0.21	0.21
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 (veh/h)	136	1828	170	1308	60.06	60.06	359	359	359	359	359	359
v/s Ratio Prot	0.06	0.19	0.06	0.33	0.06	0.06	0.18	0.17	0.17	0.17	0.17	0.17
v/s Ratio Perm	0.76	0.53	0.58	0.88	0.35	0.35	0.86	0.86	0.86	0.86	0.86	0.86
Uniform Delay, d1	37.7	21.1	36.1	24.1	33.5	31.2	31.5	31.5	31.5	31.5	31.5	31.5
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	21.1	0.3	4.7	7.0	2.6	0.1	18.6	11.9	11.9	11.9	11.9	11.9
Delay (s)	58.9	21.4	40.7	31.0	36.2	31.3	50.2	42.9	42.9	42.9	42.9	42.9
Level of Service	E	C	D	C	D	C	D	D	D	D	D	D
Approach Delay (s)	25.0	31.8	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3
Approach LOS	C	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary												
HCM Average Control Delay	32.5											
HCM Volume to Capacity ratio	0.76											
Actuated Cycle Length (s)	83.4											
Intersection Capacity Utilization	67.1%											
Analysis Period (min)	15											
6. Critical Lane Group												

Baseline

Movement	EBT	EBR	WBL	NBL	NBR
Lane Configurations	4	4	4	4	4
Volume (veh/h)	1403	53	0	1360	0
Sign Control	Free	Free	Free	Free	Stop
Grade	0%	0%	0%	0%	0%
Peak-Hour Factor	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (veh/h)	1559	59	0	1511	0
Pedestrians					
Lane Width (ft)					
Walking Speed (ft/s)					
Percent Blockage					
Right turn lane (veh/h)					
Median type	None	None	None	None	None
Median storage (veh)					
Upstream signal (ft)	575			607	0.91
pX, platoon unblocked				0.87	0.91
vC, conflicting volume				1618	2344
vC1, stage 1 conf vol					549
vC2, stage 2 conf vol				1186	1419
vC3, unblocked vol				4.1	5.8
IC, single (s)					6.9
IC, 2 stage (s)					
IF (s)	2.2			3.5	3.3
p0 queue free %				100	100
CM capacity (veh/h)				508	116
Directional Lane #	EBT	EBR	WBL	NBL	NBR
Volume Total	624	624	371	756	756
Volume Left	0	0	0	0	0
Volume Right	0	0	359	0	0
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.37	0.37	0.22	0.44	0.44
Queue Length 95th (ft)	0	0	0	0	14
Control Delay (s)	0.0	0.0	0.0	0.0	9.5
Lane LOS					A
Approach Delay (s)	0.0	0.0	0.0	0.0	9.5
Approach LOS					A
Intersection Summary					
Average Delay	0.4				
Intersection Capacity Utilization	43.3%				
Analysis Period (min)	15				

Baseline

Movement	EBL	EBT	WBT	WBR	SEB	SEB
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Lane Volume (vph)	0	768	1024	0	931	326
Ideal Flow (vphp)	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
Fr	1.00	1.00			0.99	0.85
FL Protected	1.00	1.00			0.95	1.00
Satd. Flow (prot)	3539	3539			3430	1441
FL 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	853	1138	0	1034	362
RTOR reduction (vph)	0	0	0	0	3	42
Lane Group Flow (vph)	0	853	1138	0	1067	284
Turn Type		2.6	6.2			Perm
Protected Phases					4	4
Permitted Phases		42.4	42.4		25.6	25.6
Actuated Green, G (s)		42.4	42.4		25.6	25.6
Effective Green, G (s)		42.4	42.4		25.6	25.6
Actuated g/C Ratio		-0.53	-0.53		0.32	0.32
Clearance Time (s)					5.6	5.6
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	1878	1878			1089	462
v/s Ratio Prot	0.24	0.32			0.31	0.20
v/s Ratio Perm		0.45	0.61		0.97	0.61
v/c Ratio		11.6	13.0		25.8	23.0
Uniform Delay, d1		1.00	1.00		1.00	1.00
Progression Factor		0.2	0.6		20.3	2.4
Incremental Delay, d2		11.8	13.5		47.1	25.4
Delay (s)		B	B		D	C
Level of Service		B	B		D	D
Approach Delay (s)		11.8	13.5		42.0	
Approach LOS		B	B		D	
Intersection Summary:						C
HCM Average Control Delay		24.8				
HCM Volume to Capacity ratio		0.74				
Actual Cycle Length (s)		79.9				11.9
Intersection Capacity Utilization		61.8%				C
Analysis Period (min)		15				
C Critical Lane Group						

[illegible]

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

Existing + Project (Phase 1&2) AM
12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA
Volume (vph)	108	1534	674	100	1895	67	195	10	40	106	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	1.00	1.00
Flt	1.00	1.00	0.85	1.00	0.99	1.00	0.95	1.00	0.95	1.00	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5059	3433	3115	3433	1770	1663	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
Satd. Flow (perm)	1770	5085	1583	1770	5059	3433	3115	3433	1770	1663	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)	120	1704	748	111	2106	74	217	11	44	116	63
RTOR Reduction (vph)	0	0	384	0	4	0	0	39	0	0	0
Lane Group Flow (vph)	120	1704	385	111	2176	0	217	16	0	116	63
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Permitted Phases	7	4	4	3	8	2	5	2	1	6	5
Actuated Green, G (s)	7.9	42.1	42.1	6.9	41.1	7.0	9.8	7.0	13.3	16.1	16.1
Effective Green, g (s)	7.9	42.1	42.1	6.9	41.1	7.0	9.8	7.0	13.3	16.1	16.1
Actuated g/C Ratio	0.09	0.48	0.48	0.08	0.47	0.08	0.11	0.08	0.15	0.18	0.18
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	159	2430	756	139	2380	273	347	267	340	289	289
v/s Ratio Prot	<0.07	0.34	0.24	0.06	<0.43	<0.06	0.01	<0.07	0.03	<0.13	<0.13
v/s Ratio Perm	0.75	0.70	0.51	0.80	0.92	0.79	0.05	0.44	0.19	0.70	0.70
Uniform Delay, d1	39.2	18.1	15.9	39.9	22.0	39.8	35.0	34.0	30.5	33.7	33.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	18.2	0.9	0.5	20.5	6.6	14.7	0.1	1.2	0.3	7.2	7.2
Delay (s)	57.4	19.0	16.4	60.4	28.6	54.5	35.0	35.2	30.7	40.9	40.9
Level of Service	E	B	B	E	C	D	D	D	D	C	D
Approach Delay (s)	20.0	20.0	30.5	50.6	50.6	50.6	50.6	50.6	50.6	50.6	50.6
Approach LOS	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary											
HCM Average Control Delay	27.4										
HCM Volume to Capacity ratio	0.84										
Actuated Cycle Length (s)	88.1										
Intersection Capacity Utilization	72.4%										
Analysis Period (min)	15										
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis
11: Del Mar Heights Road & Third Ave.

Existing + Project (Phase 1&2) AM
12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Lane Configurations	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA
Volume (vph)	1864	165	128	2218	50	39	1900	1900	1900
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	0.91	1.00	1.00	0.91	1.00	0.85	1.00	1.00	1.00
Flt	1.00	0.85	1.00	1.00	1.00	1.00	0.95	1.00	1.00
Flt Protected	1.00	1.00	0.95	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	5085	1583	1770	5085	3433	1583	5085	1583	1583
Flt Permitted	1.00	1.00	0.95	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	5085	1583	1770	5085	3433	1583	5085	1583	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)	2071	183	142	2464	56	43	2071	2071	2071
RTOR Reduction (vph)	0	81	0	0	0	0	0	0	0
Lane Group Flow (vph)	2071	102	142	2464	56	43	2071	2071	2071
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Permitted Phases	4	4	3	8	2	2	4	4	4
Actuated Green, G (s)	26.4	26.4	5.1	35.5	3.7	3.7	26.4	26.4	26.4
Effective Green, g (s)	26.4	26.4	5.1	35.5	3.7	3.7	26.4	26.4	26.4
Actuated g/C Ratio	0.56	0.56	0.11	0.75	0.08	0.08	0.56	0.56	0.56
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)	2844	885	191	3825	289	124	2844	2844	2844
v/s Ratio Prot	<0.41	<0.41	<0.08	<0.48	<0.02	<0.02	<0.41	<0.41	<0.41
v/s Ratio Perm	0.73	0.73	0.12	0.74	0.21	0.21	0.73	0.73	0.73
Uniform Delay, d1	7.7	4.9	20.4	2.8	20.4	20.1	7.7	7.7	7.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.1	14.5	0.4	0.4	0.1	1.0	1.0	1.0
Delay (s)	8.7	5.0	34.9	3.2	20.8	20.2	8.7	8.7	8.7
Level of Service	A	A	C	A	C	C	A	A	A
Approach Delay (s)	8.4	8.4	4.9	20.5	20.5	20.5	8.4	8.4	8.4
Approach LOS	A	A	A	A	A	A	A	A	A
Intersection Summary									
HCM Average Control Delay	6.8								
HCM Volume to Capacity ratio	0.69								
Actuated Cycle Length (s)	47.2								
Intersection Capacity Utilization	56.4%								
Analysis Period (min)	15								
c Critical Lane Group									

Movement	EBL	EBR	WBL	WBR	NBL	NBR
are Configurations	AAA	A	AAA	AAA	A	A
Volume (vph)	1765	137	137	2304	41	41
deal Flow (vph)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
are Util. Factor	0.91	1.00	0.97	0.97	1.00	1.00
Fl	1.00	0.85	1.00	1.00	1.00	0.85
Fl Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5095	1593	3433	5085	1770	1593
Fl Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	6095	1593	3433	5085	1770	1593
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1951	152	152	2550	46	46
RTOR Reduction (vph)	0	60	0	0	0	42
Lane Group Flow (vph)	1951	92	152	2550	46	4
Turn Type	Perm	Prot	Prot	Perm	Perm	Perm
Protected Phases	4	3	8	2	2	2
Permitted Phases	29.3	29.3	3.1	36.4	4.1	4.1
Actuated Green, G (s)	29.3	29.3	3.1	36.4	4.1	4.1
Effective Green, g (s)	0.60	0.60	0.06	0.75	0.08	0.08
Actuated g/C Ratio	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
Vehicle Extension (s)	3072	956	219	3816	150	134
Lane Grp Cap (vph)	0.39	0.04	0.50	0.03	0.00	0.00
vs Ratio Prot.	0.64	0.10	0.66	0.67	0.31	0.03
vs Ratio Perm	6.2	4.0	2.22	3.0	20.9	20.4
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	0.4	0.0	9.2	0.5	1.2	0.1
Incremental Delay, d2	6.6	4.1	31.4	3.5	22.0	20.5
Delay (s)	A	A	C	A	C	C
Level of Service	6.4	5.1	21.2	A	C	A
Approach Delay (s)	A	A	A	A	C	A
Approach LOS	A	A	A	A	C	A
Intersection Summary	HCM Level of Service					
HCM Average Control Delay	6.0					
HCM Volume to Capacity ratio	0.63					
Actuated Cycle Length (s)	48.5					
Sum of lost time (s)	8.0					
Intersection Capacity Utilization	54.5%					
Analysis Period (min)	15					
Critical Lane Group	A					

[illegible]

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
Volume (vph)	149	626	284	272	1226	163	427	183	108	142	180	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	0.97	0.91	0.97	0.91	0.97	0.91	0.97	0.91	0.97	0.91
Flt	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3433	4841	3433	4841	3433	4841	3433	4841	3433	4841	3433	4841
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3433	4841	3433	4841	3433	4841	3433	4841	3433	4841	3433	4841
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	686	327	302	1362	188	474	203	120	158	200	167
RTOR Reduction (vph)	0	107	0	22	0	0	98	0	0	0	139	0
Lane Group Flow (vph)	166	916	0	302	1528	0	474	225	0	158	228	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Permitted Phases	7	4	3	8	5	2	1	6				
Actuated Green, G (s)	5.0	20.1	9.0	24.1	11.9	12.3	9.4	9.8				
Effective Green, g (s)	5.0	20.1	9.0	24.1	11.9	12.3	9.4	9.8				
Actuated g/C Ratio	0.07	0.30	0.13	0.36	0.18	0.18	0.14	0.15				
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)	257	1457	463	1801	612	884	249	484				
v/s Ratio Prot	0.05	0.19	0.09	0.31	0.14	0.05	0.09	0.07				
v/s Ratio Perm	0.65	0.63	0.65	0.65	0.77	0.25	0.69	0.47				
Uniform Delay, d1	30.0	20.1	27.4	19.7	26.2	23.3	27.1	26.1				
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Incremental Delay, d2	5.5	0.9	3.3	3.9	6.1	0.2	5.2	0.7				
Delay (s)	35.5	21.0	30.7	23.6	32.3	23.5	32.3	26.8				
Level of Service	D	C	C	C	C	C	C	C				
Approach Delay (s)	23.0			24.8				28.5				
Approach LOS	C			C				C				
Intersection Summary												
HCM Average Control Delay	25.5											
HCM Volume to Capacity ratio	0.74											
Actuated Cycle Length (s)	66.8											
Intersection Capacity Utilization	67.0%											
Analysis Period (min)	15											
c Critical Lane Group												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
Volume (vph)	149	626	284	272	1226	163	427	183	108	142	180	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	0.97	0.91	0.97	0.91	0.97	0.91	0.97	0.91	0.97	0.91
Flt	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3433	4841	3433	4841	3433	4841	3433	4841	3433	4841	3433	4841
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3433	4841	3433	4841	3433	4841	3433	4841	3433	4841	3433	4841
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	686	327	302	1362	188	474	203	120	158	200	167
RTOR Reduction (vph)	0	107	0	22	0	0	98	0	0	0	139	0
Lane Group Flow (vph)	166	916	0	302	1528	0	474	225	0	158	228	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Permitted Phases	7	4	3	8	5	2	1	6				
Actuated Green, G (s)	5.0	20.1	9.0	24.1	11.9	12.3	9.4	9.8				
Effective Green, g (s)	5.0	20.1	9.0	24.1	11.9	12.3	9.4	9.8				
Actuated g/C Ratio	0.07	0.30	0.13	0.36	0.18	0.18	0.14	0.15				
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)	257	1457	463	1801	612	884	249	484				
v/s Ratio Prot	0.05	0.19	0.09	0.31	0.14	0.05	0.09	0.07				
v/s Ratio Perm	0.65	0.63	0.65	0.65	0.77	0.25	0.69	0.47				
Uniform Delay, d1	30.0	20.1	27.4	19.7	26.2	23.3	27.1	26.1				
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Incremental Delay, d2	5.5	0.9	3.3	3.9	6.1	0.2	5.2	0.7				
Delay (s)	35.5	21.0	30.7	23.6	32.3	23.5	32.3	26.8				
Level of Service	D	C	C	C	C	C	C	C				
Approach Delay (s)	23.0			24.8				28.5				
Approach LOS	C			C				C				
Intersection Summary												
HCM Average Control Delay	25.5											
HCM Volume to Capacity ratio	0.74											
Actuated Cycle Length (s)	66.8											
Intersection Capacity Utilization	67.0%											
Analysis Period (min)	15											
c Critical Lane Group												

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

Existing + Project (Phase 1&2) AM
12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	←	←	←	←	←	←	←	←	←	←
Volume (vph)	156	560	34	65	1114	35	43	25	53	48	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.87
Flt Protected	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)	1770	5041	1770	5062	1770	5062	1770	1673	1770	1623	1623
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (perm)	1770	5041	1770	5062	1770	5062	1770	1673	1770	1623	1623
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	173	622	38	72	1238	39	48	28	59	53	64
RTOR Reduction (vph)	0	9	0	0	5	0	0	47	0	0	236
Lane Group Flow (vph)	173	651	0	72	1272	0	48	40	0	53	219
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	5	2	1	6			
Permitted Phases											
Actuated Green, G (s)	6.2	22.4	2.7	18.9	1.7	11.0	2.4	11.7			
Effective Green, g (s)	6.2	22.4	2.7	18.9	1.7	11.0	2.4	11.7			
Actuated g/C Ratio	0.11	0.41	0.05	0.35	0.03	0.20	0.04	0.21			
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)	201	2072	88	1755	55	338	78	348			
v/s Ratio Prot	0.10	0.13	0.04	0.25	0.03	0.02	0.03	0.13			
v/s Ratio Perm	0.86	0.31	0.82	0.72	0.87	0.12	0.68	0.63			
Uniform Delay, d1	23.7	10.9	25.7	15.5	26.3	17.8	25.7	19.4			
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	29.3	0.1	42.2	1.5	76.2	0.2	21.0	3.5			
Delay (s)	53.0	10.9	67.9	17.0	102.5	17.9	46.7	23.0			
Level of Service	D	B	E	B	F	B	D	C			
Approach Delay (s)	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7			
Approach LOS	B	B	B	B	B	B	B	B			
Intersection Summary											
HCM Average Control Delay	22.1										
HCM Volume to Capacity ratio	0.69										
Actuated Cycle Length (s)	54.5										
Intersection Capacity Utilization	72.4%										
Analysis Period (min)	15										
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis 17: Del Mar Heights Road & Carmel Canyon Road

Existing + Project (Phase 1&2) AM
12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	←	←	←	←	←	←	←	←	←	←
Volume (vph)	551	124	385	984	267	332					
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	1.00	0.91	1.00	0.91	0.97	1.00					
Frt	1.00	0.97	1.00	1.00	1.00	0.85					
Flt Protected	1.00	0.95	1.00	0.95	1.00	0.95					
Satd. Flow (prot)	4945	1770	5085	3433	1683	1683					
Flt Permitted	1.00	0.95	1.00	0.95	1.00	0.95					
Satd. Flow (perm)	4945	1770	5085	3433	1683	1683					
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90					
Adj. Flow (vph)	612	138	428	1104	297	369					
RTOR Reduction (vph)	61	0	0	0	0	0					
Lane Group Flow (vph)	689	0	428	1104	297	75					
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot					
Protected Phases	4	3	8	2	1	2					
Permitted Phases											
Actuated Green, G (s)	13.6	15.2	32.8	10.4	10.4	10.4					
Effective Green, g (s)	13.6	15.2	32.8	10.4	10.4	10.4					
Actuated g/C Ratio	0.27	0.30	0.64	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)	1314	526	3258	687	322	322					
v/s Ratio Prot	0.14	0.24	0.22	0.09	0.05	0.05					
v/s Ratio Perm	0.52	0.82	0.34	0.43	0.23	0.23					
Uniform Delay, d1	16.0	16.7	4.2	17.8	17.1	17.1					
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00					
Incremental Delay, d2	0.4	9.5	0.1	0.4	0.4	0.4					
Delay (s)	16.4	26.2	4.3	18.2	17.4	17.4					
Level of Service	B	C	A	B	B	B					
Approach Delay (s)	16.4	16.4	16.4	16.4	16.4	16.4					
Approach LOS	B	B	B	B	B	B					
Intersection Summary											
HCM Average Control Delay	13.6										
HCM Volume to Capacity ratio	0.61										
Actuated Cycle Length (s)	51.2										
Intersection Capacity Utilization	52.4%										
Analysis Period (min)	15										
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis Existing + Project (Phase 1&2) AM 12/11/2011

HCM Signalized Intersection Capacity Analysis Existing + Project (Phase 1&2) AM 12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SWL	SWT	SWR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4
Volume (vph)	41	8	8	94	27	107	310	98	168	625	55	55
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	0.95	1.00	1.00	0.97	0.91	0.97	0.91	0.97	0.91	0.91
Flt Protected	1.00	0.96	1.00	0.95	1.00	0.96	1.00	0.96	1.00	0.96	1.00	1.00
Satd. Flow (prot)	1681	1659	1681	1793	1583	1659	1770	1583	1659	1770	1583	1583
Flt Permitted	0.95	0.98	0.95	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00
Satd. Flow (perm)	1681	1659	1681	1793	1583	1659	1770	1583	1659	1770	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)	46	9	9	104	30	119	344	109	187	694	61	61
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	32	24	0	134	21	152	386	0	187	744	0	0
Turn Type	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split
Protected Phases	2	2	2	6	6	6	3	8	7	4	7	4
Permitted Phases	6	6	6	6	6	6	6	6	6	6	6	6
Actuated Green, G (s)	6.8	6.8	6.8	9.7	9.7	9.7	5.3	14.3	8.1	17.1	8.1	17.1
Effective Green, g (s)	6.8	6.8	6.8	9.7	9.7	9.7	5.3	14.3	8.1	17.1	8.1	17.1
Actuated g/C Ratio	0.12	0.12	0.12	0.18	0.18	0.18	0.10	0.26	0.16	0.31	0.16	0.31
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)	208	205	205	317	280	331	1277	507	1565	507	1565	1565
v/s Ratio Prot	0.02	0.01	0.01	0.07	0.04	0.04	0.08	0.05	0.15	0.05	0.15	0.15
v/s Ratio Perm	0.01	0.01	0.01	0.04	0.04	0.04	0.08	0.05	0.15	0.05	0.15	0.15
v/c Ratio	0.15	0.12	0.12	0.42	0.08	0.46	0.30	0.37	0.48	0.37	0.48	0.48
Uniform Delay, d1	21.5	21.4	21.4	20.1	18.9	23.4	16.3	21.1	15.3	21.1	15.3	15.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.3	0.3	0.9	0.1	1.0	0.1	0.5	0.2	0.5	0.2	0.2
Delay (s)	21.8	21.6	21.6	21.0	19.0	24.5	16.4	21.6	15.5	21.6	15.5	15.5
Level of Service	C	C	C	C	B	C	B	B	C	B	C	B
Approach Delay (s)	21.7	21.7	21.7	20.1	18.9	23.4	16.3	21.1	15.3	21.1	15.3	15.3
Approach LOS	C	C	C	C	B	C	B	B	C	B	C	B
Intersection Summary												
HCM Average Control Delay	17.9											
HCM Volume to Capacity ratio	0.41											
Actuated Cycle Length (s)	54.9											
Intersection Capacity Utilization	40.5%											
Analysis Period (min)	15											
c Critical Lane Group												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SWL	SWT	SWR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4
Volume (vph)	188	83	113	188	149	149	111	437	7	100	455	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 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	1739	1739	1770	1583	1770	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1739	1739	1770	1583	1770	1583	1770	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)	187	92	126	187	160	160	123	486	8	111	506	186
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	187	92	126	187	160	160	123	486	8	111	506	186
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	4	3	8	3	5	2	1	6	1	6
Permitted Phases	7	4	4	3	8	3	5	2	1	6	1	6
Actuated Green, G (s)	12.1	26.4	26.4	3.5	17.8	3.5	7.1	16.3	6.1	15.3	6.1	15.3
Effective Green, g (s)	12.1	26.4	26.4	3.5	17.8	3.5	7.1	16.3	6.1	15.3	6.1	15.3
Actuated g/C Ratio	0.18	0.38	0.38	0.05	0.26	0.05	0.10	0.24	0.09	0.22	0.09	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)	314	720	812	91	453	91	184	843	168	793	355	355
v/s Ratio Prot	0.11	0.05	0.05	0.03	0.20	0.03	0.07	0.14	0.06	0.14	0.06	0.14
v/s Ratio Perm	0.00	0.13	0.08	0.55	0.75	0.55	0.67	0.58	0.70	0.64	0.70	0.64
v/c Ratio	0.35	0.13	0.13	0.31	0.23	0.23	0.29	0.23	0.30	0.24	0.30	0.24
Uniform Delay, d1	25.8	13.5	13.3	31.6	23.2	23.2	29.5	23.0	30.2	24.0	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	3.0	0.1	0.1	5.6	6.9	6.9	8.9	1.0	13.2	1.7	0.1	0.1
Delay (s)	28.9	13.6	13.3	37.2	30.1	30.1	38.3	24.0	43.4	25.7	21.3	21.3
Level of Service	C	B	B	D	C	C	D	C	D	C	C	C
Approach Delay (s)	28.9	13.6	13.3	37.2	30.1	30.1	38.3	24.0	43.4	25.7	21.3	21.3
Approach LOS	C	B	B	D	C	C	D	C	D	C	C	C
Intersection Summary												
HCM Average Control Delay	26.6											
HCM Volume to Capacity ratio	0.67											
Actuated Cycle Length (s)	60.3											
Intersection Capacity Utilization	60.4%											
Analysis Period (min)	15											
c Critical Lane Group												

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

Existing + Project (Phase 1&2) AM
12/11/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	38	67	8	226	45	140	14	323	52	151	471	66
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Util. Factor	1.00	0.99	1.00	1.00	0.95	1.00	0.98	1.00	0.98	1.00	0.98	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	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1770	1839	1770	1863	1583	1770	1863	1770	1863	1770	1863	1770
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (perm)	1770	1839	1770	1863	1583	1770	1863	1770	1863	1770	1863	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)	42	74	7	251	50	156	16	359	58	168	523	73
RTOR Reduction (vph)	0	5	0	0	0	113	0	31	0	0	22	0
Lane Group Flow (vph)	42	76	0	251	50	43	16	386	0	168	574	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	3
Permitted Phases	2.0	5.4	11.6	15.0	15.0	0.7	13.2	8.3	20.8	8.3	20.8	8.3
Actuated Green, G (s)	2.0	5.4	11.6	15.0	15.0	0.7	13.2	8.3	20.8	8.3	20.8	8.3
Effective Green, g (s)	2.0	5.4	11.6	15.0	15.0	0.7	13.2	8.3	20.8	8.3	20.8	8.3
Actuated g/C Ratio	0.04	0.10	0.21	0.28	0.28	0.01	0.24	0.15	0.38	0.15	0.38	0.15
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	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)	65	182	377	513	436	23	1206	270	1905	270	1905	270
vs Ratio Prot	0.02	c0.04	c0.14	0.03	0.03	0.01	0.08	c0.09	c0.11	c0.09	c0.11	0.08
vs Ratio Perm	0.65	0.42	0.67	0.10	0.10	0.70	0.32	0.62	0.30	0.62	0.30	0.32
Uniform Delay, d1	25.9	23.1	19.7	14.7	26.8	17.0	21.6	11.8	11.8	21.6	11.8	11.8
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	20.0	1.5	4.4	0.1	63.9	0.2	4.4	0.1	0.1	4.4	0.1	0.1
Delay (s)	45.9	24.6	24.1	14.8	14.3	90.7	17.1	26.0	11.9	26.0	11.9	11.9
Level of Service	D	C	C	B	B	F	B	C	B	C	B	B
Approach Delay (s)	31.9	31.9	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8
Approach LOS	C	C	B	B	B	B	B	B	B	B	B	B
Intersection Summary	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6
HCM Average Control Delay	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
HCM Volume to Capacity ratio	54.5	54.5	54.5	54.5	54.5	54.5	54.5	54.5	54.5	54.5	54.5	54.5
Actuated Cycle Length (s)	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
Intersection Capacity Utilization	15	15	15	15	15	15	15	15	15	15	15	15
Analysis Period (min)	15	15	15	15	15	15	15	15	15	15	15	15
c Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
21: Carmel Creek Road & Carmel Country Road

Existing + Project (Phase 1&2) AM
12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SWR
Lane Configurations	306	118	123	60	291	29	269	418	28	66	406	390
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1770	1863	1863	1829	1770	1863	1770	1863	1770	1863	1770	1863
Flt Permitted	0.95	1.00	1.00	0.99	1.00	0.99	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	1863	1863	1829	1770	1863	1770	1863	1770	1863	1770	1863
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	322	124	129	63	306	31	283	400	29	69	427	411
RTOR Reduction (vph)	0	0	103	0	4	0	0	6	0	0	216	0
Lane Group Flow (vph)	322	124	26	0	386	0	283	463	0	69	622	0
Turn Type	Perm	Perm	Perm	Spill	Spill	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	4	8	8	5	2	1	8	1	8	1
Permitted Phases	16.1	16.1	16.1	17.4	17.4	13.2	24.2	6.6	17.6	6.6	17.6	17.6
Actuated Green, G (s)	16.1	16.1	16.1	17.4	17.4	13.2	24.2	6.6	17.6	6.6	17.6	17.6
Effective Green, g (s)	16.1	16.1	16.1	17.4	17.4	13.2	24.2	6.6	17.6	6.6	17.6	17.6
Actuated g/C Ratio	0.20	0.20	0.20	0.22	0.22	0.16	0.30	0.08	0.22	0.08	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)	385	374	317	396	396	291	1057	145	719	145	719	719
vs Ratio Prot	c0.16	c0.17	c0.17	c0.22	c0.22	c0.16	c0.13	c0.04	c0.19	c0.04	c0.19	c0.19
vs Ratio Perm	0.91	0.33	0.08	1.00	1.00	0.97	0.44	0.48	0.87	0.48	0.87	0.87
Uniform Delay, d1	31.4	27.5	26.1	31.4	31.4	33.4	22.6	36.2	30.2	36.2	30.2	30.2
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	25.7	0.5	0.1	45.3	45.3	45.0	0.3	2.5	10.7	2.5	10.7	10.7
Delay (s)	57.1	28.0	26.2	76.7	76.7	78.3	22.9	37.7	40.9	37.7	40.9	40.9
Level of Service	E	C	C	E	E	E	C	D	D	D	D	D
Approach Delay (s)	43.9	43.9	43.9	43.9	43.9	43.9	43.9	43.9	43.9	43.9	43.9	43.9
Approach LOS	D	D	D	D	D	D	D	D	D	D	D	D
Intersection Summary	47.7	47.7	47.7	47.7	47.7	47.7	47.7	47.7	47.7	47.7	47.7	47.7
HCM Average Control Delay	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
HCM Volume to Capacity ratio	80.3	80.3	80.3	80.3	80.3	80.3	80.3	80.3	80.3	80.3	80.3	80.3
Actuated Cycle Length (s)	89.3%	89.3%	89.3%	89.3%	89.3%	89.3%	89.3%	89.3%	89.3%	89.3%	89.3%	89.3%
Intersection Capacity Utilization	15	15	15	15	15	15	15	15	15	15	15	15
Analysis Period (min)	15	15	15	15	15	15	15	15	15	15	15	15
c Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
 22: High Bluff Drive & El Camino Real
 Existing + Project (Phase 1&2) AM
 12/11/2011

Movement	SEL	SET	SE2	SE1	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SNR
Lane Configurations	30	110	245	94	221	99	212	324	29	79	884	107	
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	1.00	1.00	1.00	0.95	1.00	0.95	0.91	1.00	0.91	1.00	0.91	1.00
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	1.00	0.95	0.99	1.00	0.99	1.00	0.98	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	0.95	1.00
Satd. Flow (prot)	1770	1863	1963	1770	3375	3433	5023	5023	3433	5023	1770	5003	1770
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	1863	1963	1770	3375	3433	5023	5023	3433	5023	1770	5003	1770
Peak-hour factor, p/H	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)	33	122	272	104	246	110	236	360	32	88	982	119	0
RTOR Reduction (vph)	0	0	195	0	86	0	0	17	0	0	25	0	0
Lane Group Flow (vph)	33	122	73	104	270	0	236	375	0	88	1076	0	0
Turn Type	Prot	custom	Split	Prot	3	8	7	4					
Protected Phases	2	2	2	2	2	2	2	2	2	2	2	2	2
Actuated Green, G (s)	16.1	16.1	16.1	5.8	5.8	5.8	5.0	16.4	5.7	17.1	5.7	17.1	5.7
Effective Green, g (s)	16.1	16.1	16.1	5.8	5.8	5.8	5.0	16.4	5.7	17.1	5.7	17.1	5.7
Actuated g/C Ratio	0.27	0.27	0.27	0.10	0.10	0.10	0.08	0.27	0.10	0.28	0.10	0.28	0.10
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	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)	475	500	425	171	326	286	1373	168	1426	168	1426	168	1426
v/s Ratio Prot	0.02	0.07	0.05	0.06	0.08	0.07	0.07	0.07	0.05	0.22	0.05	0.22	0.05
v/s Ratio Perm	0.07	0.24	0.17	0.61	0.63	0.63	0.63	0.27	0.52	0.75	0.52	0.75	0.52
Uniform Delay, d1	16.4	17.2	16.8	26.0	26.6	27.1	17.1	17.1	25.9	19.5	25.9	19.5	25.9
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	0.3	1.2	0.9	6.0	15.8	17.3	0.1	0.1	2.9	2.3	2.9	2.3	2.9
Delay (s)	16.6	18.3	17.7	32.0	42.4	44.4	17.2	17.2	28.8	21.9	28.8	21.9	28.8
Level of Service	B	B	B	C	D	D	D	D	B	C	C	C	C
Approach Delay (s)	17.8			40.1			21.4				22.4		
Approach LOS	B			D			C				C		
Intersection Summary													
HCM Average Control Delay	25.8												
HCM Volume to Capacity ratio	0.54												
Actuated Cycle Length (s)	60.0												
Intersection Capacity Utilization	51.5%												
Analysis Period (min)	15												
Critical Lane Group													

Baseline

HCM Unsignalized Intersection Capacity Analysis
 23: High Bluff Drive & Carmel Vista Road
 Existing + Project (Phase 1&2) AM
 12/11/2011

Movement	SEL	SET	SE2	SE1	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SNR
Lane Configurations	49	6	70	13	26	14	123	30	2	3	16	193	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Volume (vph)	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
Peak Hour Factor	54	7	78	14	29	16	137	33	2	3	18	214	
Hourly flow rate (vph)	54	7	78	14	29	16	137	33	2	3	18	214	
Direction Lane #	SE1	SE2	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SNR		
Volume Total (vph)	61	78	59	172	236								
Volume Left (vph)	54	0	14	137	3								
Volume Right (vph)	0	78	16	2	214								
Head (s)	0.48	0.67	0.08	0.18	0.51								
Departure Headway (s)	6.0	4.8	5.1	4.9	4.1								
Degree Utilization, x	0.10	0.10	0.08	0.23	0.27								
Capacity (veh/h)	559	687	641	705	826								
Control Delay (s)	8.5	7.2	8.5	9.3	8.6								
Approach Delay (s)	7.8		8.5	9.3	8.6								
Approach LOS	A		A	A	A								
Intersection Summary													
Delay			8.5										
HCM Level of Service			A										
Intersection Capacity Utilization			11.1%										
Analysis Period (min)			15										

Baseline

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

Existing + Project (Phase 1&2) AM
12/11/2011

Existing + Project (Phase 1&2) AM
12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	4	7	7	4	7	7	4	7	7	4	7
Volume (vph)	52	98	116	189	61	24	30	281	81	15	764
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	1.00	0.85	1.00	0.99	1.00	0.99	1.00	0.97	1.00	0.95	1.00
Satd. Flow (prot)	1829	1553	1779	1779	1779	1779	1779	1779	1779	1779	1779
Satd. Flow (perm)	1829	1553	1779	1779	1779	1779	1779	1779	1779	1779	1779
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	58	98	129	221	68	27	33	323	90	17	849
RTOR Reduction (vph)	0	0	108	0	4	0	0	29	0	0	17
Lane Group Flow (vph)	0	157	21	0	312	0	33	384	0	17	988
Turn Type	Spill	Prot	Prot	Spill	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	1	4	4	8	8	8	5	2	1	1	6
Permitted Phases	1	4	4	8	8	8	5	2	1	1	6
Actuated Green, G (s)	11.5	11.5	11.5	15.5	15.5	15.5	16	25.4	0.8	0.8	24.6
Effective Green, g (s)	11.5	11.5	11.5	15.5	15.5	15.5	16	25.4	0.8	0.8	24.6
Actuated g/C Ratio	0.17	0.17	0.17	0.22	0.22	0.22	0.02	0.37	0.01	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
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	304	263	398	41	1257	41	1257	20	1229	20	1229
W/S Ratio Prot	c0.09	0.01	c0.18	c0.02	0.11	c0.02	0.11	0.01	c0.29	0.01	c0.29
W/S Ratio Perm	0.52	0.08	0.76	0.80	0.31	0.80	0.31	0.85	0.80	0.85	0.80
Uniform Delay, d1	26.3	24.4	25.3	33.6	15.6	34.1	15.6	34.1	20.1	34.1	20.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.5	0.1	9.7	69.0	0.1	131.5	0.1	131.5	3.9	131.5	3.9
Delay (s)	27.8	24.5	35.0	102.6	15.8	165.6	15.8	165.6	24.0	165.6	24.0
Level of Service	C	C	D	F	B	F	B	F	C	F	C
Approach Delay (s)	26.3	24.5	35.0	22.2	17.8	22.2	17.8	22.2	26.4	22.2	26.4
Approach LOS	C	C	D	D	B	D	B	D	C	D	C
Intersection Summary	Intersection Summary										
HCM Average Control Delay	26.8										
HCM Volume to Capacity ratio	0.74										
Actuated Cycle Length (s)	69.2										
Intersection Capacity Utilization	58.5%										
Analysis Period (min)	15										
c Critical Lane Group	c Critical Lane Group										

Baseline

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	4	7	7	4	7	7	4	7	7	4	7
Volume (vph)	52	98	116	189	61	24	30	281	81	15	764
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	1.00	0.85	1.00	0.99	1.00	0.99	1.00	0.97	1.00	0.95	1.00
Satd. Flow (prot)	1829	1553	1779	1779	1779	1779	1779	1779	1779	1779	1779
Satd. Flow (perm)	1829	1553	1779	1779	1779	1779	1779	1779	1779	1779	1779
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	58	98	129	221	68	27	33	323	90	17	849
RTOR Reduction (vph)	0	0	108	0	4	0	0	29	0	0	17
Lane Group Flow (vph)	0	157	21	0	312	0	33	384	0	17	988
Turn Type	Spill	Prot	Prot	Spill	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	1	4	4	8	8	8	5	2	1	1	6
Permitted Phases	1	4	4	8	8	8	5	2	1	1	6
Actuated Green, G (s)	11.5	11.5	11.5	15.5	15.5	15.5	16	25.4	0.8	0.8	24.6
Effective Green, g (s)	11.5	11.5	11.5	15.5	15.5	15.5	16	25.4	0.8	0.8	24.6
Actuated g/C Ratio	0.17	0.17	0.17	0.22	0.22	0.22	0.02	0.37	0.01	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
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	304	263	398	41	1257	41	1257	20	1229	20	1229
W/S Ratio Prot	c0.09	0.01	c0.18	c0.02	0.11	c0.02	0.11	0.01	c0.29	0.01	c0.29
W/S Ratio Perm	0.52	0.08	0.76	0.80	0.31	0.80	0.31	0.85	0.80	0.85	0.80
Uniform Delay, d1	26.3	24.4	25.3	33.6	15.6	34.1	15.6	34.1	20.1	34.1	20.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.5	0.1	9.7	69.0	0.1	131.5	0.1	131.5	3.9	131.5	3.9
Delay (s)	27.8	24.5	35.0	102.6	15.8	165.6	15.8	165.6	24.0	165.6	24.0
Level of Service	C	C	D	F	B	F	B	F	C	F	C
Approach Delay (s)	26.3	24.5	35.0	22.2	17.8	22.2	17.8	22.2	26.4	22.2	26.4
Approach LOS	C	C	D	D	B	D	B	D	C	D	C
Intersection Summary	Intersection Summary										
HCM Average Control Delay	26.8										
HCM Volume to Capacity ratio	0.74										
Actuated Cycle Length (s)	69.2										
Intersection Capacity Utilization	58.5%										
Analysis Period (min)	15										
c Critical Lane Group	c Critical Lane Group										

Baseline

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HCM Signalized Intersection Capacity Analysis 28: Carmel Valley Road & El Camino Real

Existing + Project (Phase 1&2) AM
12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
Volume (vph)	0	0	0	308	1088	200	147	824	0	0	555
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	0.97	0.91	1.00	0.97	0.95	0.95	0.95	0.86	0.86	0.86	0.86
Flph, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.93	0.80	1.00	1.00
Flt	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	1.00	0.95	0.85	0.95	0.85
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	1.00	0.95	0.85	0.95	0.85
Satd. Flow (prot)	3433	5085	5833	3433	3433	3433	3433	3433	3433	3433	3433
Satd. Flow (perm)	3433	5085	5833	3433	3433	3433	3433	3433	3433	3433	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
Adj. Flow (vph)	0	0	0	342	1120	222	163	916	0	0	617
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	14
Lane Group Flow (vph)	0	0	0	342	1120	138	163	916	0	0	955
Conf. Ped. (#/hr)											200
Turn Type	Prot.	Prot.	Prot.	Prot.	Prot.	Prot.	Prot.	Prot.	Prot.	Prot.	Prot.
Protected Phases	3	8	8	5	5	5	5	5	5	5	6
Permitted Phases	16.1	16.1	16.1	3.4	27.7	3.4	27.7	3.4	27.7	3.4	20.3
Effective Green, G (s)	16.1	16.1	16.1	3.4	27.7	3.4	27.7	3.4	27.7	3.4	20.3
Actuated g/C Ratio	0.31	0.31	0.31	0.07	0.53	0.07	0.53	0.07	0.53	0.07	0.39
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1067	1580	492	225	1892	225	1892	1650	428	1650	428
vs Ratio Prot	0.10	0.22	0.08	0.05	0.26	0.05	0.26	0.23	0.03	0.23	0.03
vs Ratio Perm	0.32	0.71	0.28	0.72	0.48	0.28	0.48	0.58	0.79	0.58	0.79
Uniform Delay, d1	13.7	15.8	13.5	23.7	7.6	23.7	7.6	12.4	13.9	12.4	13.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	1.5	0.3	1.10	0.2	1.10	0.2	0.5	0.8	0.5	0.8
Delay (s)	13.8	17.3	13.8	34.7	7.8	34.7	7.8	12.9	23.7	12.9	23.7
Level of Service	B	B	B	C	A	C	A	B	B	B	C
Approach Delay (s)	0.0	0.0	0.0	16.1	11.8	16.1	11.8	15.8	15.8	15.8	15.8
Approach LOS	A	A	A	B	B	B	B	B	B	B	B
Intersection Summary											
HCM Average Control Delay	14.9										
HCM Volume to Capacity ratio	0.75										
Actuated Cycle Length (s)	51.8										
Intersection Capacity Utilization	95.9%										
Analysis Period (min)	15										
c Critical Lane Group											

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

Existing + Project (Phase 1&2) AM
12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
Volume (vph)	589	896	285	0	0	0	0	0	364	192	116
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	0.91	0.86	0.91	0.86	0.91	0.86	0.86	0.86	0.86	0.86	0.86
Flph, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1610	3176	1441	1610	3176	1441	1610	3176	1441	1610	3176
Satd. Flow (perm)	1610	3176	1441	1610	3176	1441	1610	3176	1441	1610	3176
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)	654	995	294	0	0	0	0	0	404	213	129
RTOR Reduction (vph)	0	3	70	0	0	0	0	0	55	0	0
Lane Group Flow (vph)	543	1133	195	0	0	0	0	0	362	0	129
Turn Type	Prot.	Prot.	Prot.	Prot.	Prot.	Prot.	Prot.	Prot.	Prot.	Prot.	Prot.
Protected Phases	4	4	4	4	4	4	4	4	4	4	4
Permitted Phases	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7
Effective Green, G (s)	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7
Actuated g/C Ratio	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	734	1448	657	734	1448	657	734	1448	657	734	1448
vs Ratio Prot	0.34	0.36	0.14	0.34	0.36	0.14	0.34	0.36	0.14	0.34	0.36
vs Ratio Perm	0.74	0.78	0.30	0.74	0.78	0.30	0.74	0.78	0.30	0.74	0.78
Uniform Delay, d1	11.8	12.0	8.9	11.8	12.0	8.9	11.8	12.0	8.9	11.8	12.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.9	2.8	0.3	3.9	2.8	0.3	3.9	2.8	0.3	3.9	2.8
Delay (s)	15.5	14.8	9.2	15.5	14.8	9.2	15.5	14.8	9.2	15.5	14.8
Level of Service	B	B	A	B	B	A	B	B	A	B	B
Approach Delay (s)	14.2	14.2	0.0	14.2	14.2	0.0	14.2	14.2	0.0	14.2	14.2
Approach LOS	B	B	A	B	B	A	B	B	A	B	B
Intersection Summary											
HCM Average Control Delay	16.7			16.7							
HCM Volume to Capacity ratio	0.63			0.63							
Actuated Cycle Length (s)	52.0			52.0							
Intersection Capacity Utilization	95.9%			95.9%							
Analysis Period (min)	15			15							
c Critical Lane Group											

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Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations	T	T	T	T	T	T	T
Lane Volume (vph)	16	210	0	427	24	94	112
Desired Flow (vph)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	0.95
FL	1.00	1.00	0.99	1.00	0.95	1.00	1.00
FL Protected	0.95	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	3511	1770	1583	1770	1583
FL Permitted	0.95	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	3511	1770	1583	1770	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	16	233	0	474	27	104	124
RTOR Reduction (vph)	0	0	0	8	0	0	105
Lane Group Flow (vph)	18	233	0	483	0	104	19
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	5	5	5
Permitted Phases							
Actuated Green, G (s)	0.5	12.7		6.2	3.8	3.8	3.8
Effective Green, g (s)	0.5	12.7		8.2	3.8	3.8	3.8
Actuated g/C Ratio	0.02	0.52		0.33	0.16	0.16	0.16
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	36	1835		1175	275	246	246
Vis Ratio Prot	0.01	c0.07		c0.14	c0.06	c0.06	0.01
Vis Ratio Perm							
Wt Ratio	0.50	0.13		0.42	0.38	0.08	0.08
Uniform Delay, d1	11.9	3.0		6.3	9.3	8.9	8.9
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	10.5	0.0		0.2	0.9	0.1	0.1
Delay (s)	22.4	3.1		6.6	10.2	9.0	9.0
Level of Service	C	A		A	B	A	A
Approach Delay (s)		4.5		6.6	9.5		
Approach LOS		A		A	A		
Intersection Summary							
HCM Average Control Delay	6.7			HCM Level of Service			
HCM Volume to Capacity ratio	0.41			A			
Actuated Cycle Length (s)	24.5			Sum of lost time (s)			
Intersection Capacity Utilization	26.2%			12.0			
Analysis Period (min)	15			A			

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)	437	0	180	0	0	0	0	412	74	183	274	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	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	0.95
Flt	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95
Flt Protected	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1681	1681	1583	1681	1681	1583	1681	1681	1583	1681	1681	1583
Flt Permitted	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	0.95
Satd. Flow (perm)	1681	1681	1583	1681	1681	1583	1681	1681	1583	1681	1681	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)	486	0	200	0	0	0	0	458	82	203	304	0
RTOR Reduction (vph)	0	0	139	0	0	0	0	31	0	0	0	0
Lane Group Flow (vph)	243	243	61	0	0	0	0	509	0	203	304	0
Turn Type	Spill	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	4	4	4	4	4	4	4	4	4	4
Permitted Phases	122	122	122	122	122	122	122	122	122	122	122	122
Actuated Green, G (s)	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2
Effective Green, g (s)	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2
Actuated g/C Ratio	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
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)	515	515	485	515	515	485	515	515	485	515	515	485
v/s Ratio Prot	c0.14	0.14	0.04	c0.14	0.14	0.04	c0.14	0.14	0.04	c0.14	0.14	0.04
v/s Ratio Perm	0.47	0.47	0.13	0.47	0.47	0.13	0.47	0.47	0.13	0.47	0.47	0.13
v/c Ratio	11.2	11.2	10.0	11.2	11.2	10.0	11.2	11.2	10.0	11.2	11.2	10.0
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	0.7	0.7	0.1	0.7	0.7	0.1	0.7	0.7	0.1	0.7	0.7	0.1
Incremental Delay, d2	11.9	11.9	10.1	11.9	11.9	10.1	11.9	11.9	10.1	11.9	11.9	10.1
Delay (s)	B	B	B	B	B	B	B	B	B	B	B	B
Level of Service	B	B	B	B	B	B	B	B	B	B	B	B
Approach Delay (s)	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3
Approach LOS	B	B	B	B	B	B	B	B	B	B	B	B
Intersection Summary												
HCM Average Control Delay	11.8			11.8			11.8			11.8		
HCM Volume to Capacity ratio	0.90			0.90			0.90			0.90		
Actuated Cycle Length (s)	39.8			39.8			39.8			39.8		
Intersection Capacity Utilization	41.1%			41.1%			41.1%			41.1%		
Analysis Period (min)	15			15			15			15		
c Critical Lane Group												

Movement	SEEL	SET	SEEP	NWEL	NWET	NWEP	NEEL	NET	NEEP	SSEL	SET	SSEP
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4
Volume (vph)	86	497	36	141	458	335	57	64	236	623	823	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Flt	1.00	0.98	1.00	0.98	0.98	1.00	0.98	0.98	1.00	0.98	0.98	1.00
Flt Protected	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Satd. Flow (prot)	1770	3503	1770	1770	3503	1770	1770	3503	1770	3503	1770	3503
Flt Permitted	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Satd. Flow (perm)	1770	3503	1770	1770	3503	1770	1770	3503	1770	3503	1770	3503
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)	96	552	40	157	509	372	63	71	262	692	892	198
RTOR Reduction (vph)	0	6	0	0	137	0	0	150	0	0	0	46
Lane Group Flow (vph)	96	586	0	157	744	0	63	183	0	692	304	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	1	6	5	2	7	4	3	8				
Permitted Phases	8.1	19.8	12.1	23.8	6.7	13.6	18.8	25.7				
Actuated Green, G (s)	8.1	19.8	12.1	23.8	6.7	13.6	18.8	25.7				
Effective Green, g (s)	8.1	19.8	12.1	23.8	6.7	13.6	18.8	25.7				
Actuated g/C Ratio	0.10	0.25	0.15	0.30	0.08	0.17	0.23	0.32				
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)	179	864	267	983	148	278	804	546				
v/s Ratio Prot	0.05	0.17	c0.09	c0.22	0.04	0.11	c0.20	c0.18				
v/s Ratio Perm	0.54	0.68	0.59	0.76	0.43	0.66	0.86	0.56				
v/c Ratio	34.3	27.4	31.8	25.6	35.0	31.2	29.5	22.6				
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Progression Factor	3.1	2.1	3.3	3.4	2.0	5.5	9.3	1.2				
Incremental Delay, d2	37.4	29.5	35.1	29.0	36.9	36.7	38.8	23.8				
Delay (s)	D	C	D	C	D	D	D	C				
Level of Service	D	C	D	C	D	D	D	C				
Approach Delay (s)	30.6	30.6	29.9	29.9	36.7	36.7	33.8	C				
Approach LOS	C	C	C	C	D	D	C	C				
Intersection Summary												
HCM Average Control Delay	32.2		32.2		32.2		32.2			32.2		
HCM Volume to Capacity ratio	0.71		0.71		0.71		0.71			0.71		
Actuated Cycle Length (s)	80.3		80.3		80.3		80.3			80.3		
Intersection Capacity Utilization	77.2%		77.2%		77.2%		77.2%			77.2%		
Analysis Period (min)	15		15		15		15			15		
c Critical Lane Group												

Movement	WBL	WBR	SEL	SET	NWL	NWR	SWL	SWR
Lane Configurations	0	0	754	742	0	306	133	227
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)	0.97	0.95	0.95	0.95	1.00	0.97	1.00	1.00
Lane Util. Factor	1.00	1.00	1.00	1.00	0.85	1.00	0.85	1.00
Flt Protected	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	3539	3539	1681	3433	1583	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	3539	3539	1681	3433	1583	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	838	644	824	0	230	0
RTOR Reduction (vph)	0	0	0	0	0	0	215	0
Lane Group Flow (vph)	0	0	838	644	824	0	110	37
Turn Type	Prot	Prot	Perm	Perm	Perm	Perm	Perm	Perm
Protected Phases	6	2	6	6	6	6	6	6
Permitted Phases	17.2	39.0	17.8	17.8	17.8	8.1	8.1	8.1
Actuated Green, G (s)	17.2	39.0	17.8	17.8	17.8	8.1	8.1	8.1
Effective Green, g (s)	0.31	0.71	0.32	0.32	0.32	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
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	1072	2505	1143	511	505	233	0.04	0.02
Lane Grp Cap (vph)	1024	0.18	0.23	0.07	0.21	0.28	0.16	0.16
Vis Ratio Prot	0.78	0.26	0.72	0.21	0.28	0.16	0.16	0.16
Vis Ratio Perm	17.2	2.9	16.5	13.6	20.9	20.5	20.5	20.5
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	3.8	0.1	2.3	0.2	0.3	0.3	0.3	0.3
Incremental Delay, d2	21.0	2.9	18.7	13.8	21.3	20.8	20.8	20.8
Delay (s)	C	A	B	B	C	C	C	C
Level of Service	A	B	B	B	C	C	C	C
Approach Delay (s)	0.0	13.2	17.3	13.2	17.3	13.2	17.3	13.2
Approach LOS	A	B	B	B	C	C	C	C
Intersection Summary								
HCM Average Control Delay	15.8							
HCM Volume to Capacity ratio	0.66							
Actuated Cycle Length (s)	55.1							
Intersection Capacity Utilization	55.8%							
Analysis Period (min)	15							
c Critical Lane Group								

Movement	EBL2	EBL	EBR	SEL	SET	SER	NNWL	NWTL	NNWR	SWL	SWR
Lane Configurations					1+1						
Volume (vph)	300	0	161	242	370	0	0	723	214	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	0.95	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00	0.85	1.00	1.00
Satd. Flow (prot)	1681	1681	1583	3433	3539	3539	3539	3539	1583	3539	1583
Flt Permitted	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1681	1681	1583	3433	3539	3539	3539	3539	1583	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)	333	0	179	380	411	0	0	803	238	0	0
RTOR Reduction (vph)	0	0	141	0	0	0	0	0	156	0	0
Lane Group Flow (vph)	165	167	38	380	411	0	0	803	82	0	0
Turn Type	Spill	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	4	1	6	2	2	2	2	2	2
Permitted Phases	10.1	10.1	10.1	8.9	29.3	16.4	16.4	16.4	16.4	16.4	16.4
Actuated Green, G (s)	10.1	10.1	10.1	8.9	29.3	16.4	16.4	16.4	16.4	16.4	16.4
Effective Green, g (s)	0.21	0.21	0.21	0.19	0.62	0.35	0.35	0.35	0.35	0.35	0.35
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)	358	358	337	645	2188	1224	548	1224	548	1224	548
Lane Grp Cap (vph)	0.10	0.10	0.02	0.11	0.12	0.23	0.05	0.23	0.05	0.23	0.05
Vis Ratio Prot	0.46	0.47	0.11	0.59	0.19	0.66	0.15	0.66	0.15	0.66	0.15
Vis Ratio Perm	16.3	16.3	15.0	17.6	3.9	13.1	10.7	13.1	10.7	13.1	10.7
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	1.0	1.0	0.1	1.4	0.0	1.3	0.1	1.3	0.1	1.3	0.1
Incremental Delay, d2	17.2	17.3	15.2	19.0	4.0	14.4	10.8	14.4	10.8	14.4	10.8
Delay (s)	B	B	B	B	A	B	B	B	B	B	B
Level of Service	B	B	B	B	A	B	B	B	B	B	B
Approach Delay (s)	16.5	16.5	11.2	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6
Approach LOS	B	B	B	B	B	B	B	B	B	B	B
Intersection Summary											
HCM Average Control Delay	13.4										
HCM Volume to Capacity ratio	0.69										
Actuated Cycle Length (s)	47.4										
Intersection Capacity Utilization	48.1%										
Analysis Period (min)	15										
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis	Existing + Project (Phase 1&2) PM
12/11/2011	

Intersection LOS D

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HCM Signalized Intersection Capacity Analysis
 Existing + Project (Phase 1&2) PM
 12/11/2011

HCM Signalized Intersection Capacity Analysis
 Existing + Project (Phase 1&2) PM
 12/11/2011

Movement	NBL	NBR	NBU	NBT	SBL	SBR	SBU	SBT
Lane Configurations	1	1	1	1	1	1	1	1
Volume (vph)	208	256	0	559	357	294	0	500
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95
Fit	1.00	0.85	1.00	1.00	0.85	1.00	1.00	1.00
Fit Protected	0.95	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1563	1863	1563	3433	1563	1863	1563
Fit Permitted	0.95	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1563	1863	1563	3433	1563	1863	1563
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	231	284	0	621	408	369	0	550
RTOR Reduction (vph)	0	235	0	0	245	0	0	0
Lane Group Flow (vph)	231	49	0	621	163	369	0	550
Turn Type	1	3	3	8	7	7	7	6
Protected Phases	1	3	3	8	7	7	7	6
Permitted Phases	1	3	3	8	7	7	7	6
Actuated Green, G (s)	12.1	12.1	12.1	28.2	18.3	12.1	12.1	12.1
Effective Green, g (s)	12.1	12.1	12.1	28.2	18.3	12.1	12.1	12.1
Actuated g/C Ratio	0.17	0.17	0.17	0.40	0.40	0.26	0.17	0.17
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	588	271	744	632	459	607	607	607
v/s Ratio Prot	0.07	0.03	0.03	0.10	0.07	0.07	0.07	0.07
v/s Ratio Perm	0.39	0.18	0.33	0.26	0.30	0.54	0.09	0.09
v/c Ratio	26.0	25.0	19.1	14.2	24.5	26.7	26.7	26.7
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	0.4	0.3	0.4	0.2	0.2	0.9	0.9	0.9
Incremental Delay, d2	26.4	26.3	27.1	14.4	34.3	27.6	27.6	27.6
Delay (s)	26.4	26.3	27.1	14.4	34.3	27.6	27.6	27.6
Level of Service	C	C	C	B	C	C	C	C
Approach Delay (s)	25.8	22.1	22.1	31.2	31.2	31.2	31.2	31.2
Approach LOS	C	C	C	C	C	C	C	C
Intersection Summary								
HCM Average Control Delay	25.8							
HCM Volume to Capacity ratio	0.76							
Actuated Cycle Length (s)	70.6							
Intersection Capacity Utilization	63.7%							
Analysis Period (min)	15							
c Critical Lane Group								

Movement	NBL	NBR	NBU	NBT	SBL	SBR	SBU	SBT
Lane Configurations	1	1	1	1	1	1	1	1
Volume (vph)	208	256	0	559	357	294	0	500
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95
Fit	1.00	0.85	1.00	1.00	0.85	1.00	1.00	1.00
Fit Protected	0.95	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1563	1863	1563	3433	1563	1863	1563
Fit Permitted	0.95	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1563	1863	1563	3433	1563	1863	1563
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	231	284	0	621	408	369	0	550
RTOR Reduction (vph)	0	235	0	0	245	0	0	0
Lane Group Flow (vph)	231	49	0	621	163	369	0	550
Turn Type	1	3	3	8	7	7	7	6
Protected Phases	1	3	3	8	7	7	7	6
Permitted Phases	1	3	3	8	7	7	7	6
Actuated Green, G (s)	12.1	12.1	12.1	28.2	18.3	12.1	12.1	12.1
Effective Green, g (s)	12.1	12.1	12.1	28.2	18.3	12.1	12.1	12.1
Actuated g/C Ratio	0.17	0.17	0.17	0.40	0.40	0.26	0.17	0.17
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	588	271	744	632	459	607	607	607
v/s Ratio Prot	0.07	0.03	0.03	0.10	0.07	0.07	0.07	0.07
v/s Ratio Perm	0.39	0.18	0.33	0.26	0.30	0.54	0.09	0.09
v/c Ratio	26.0	25.0	19.1	14.2	24.5	26.7	26.7	26.7
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	0.4	0.3	0.4	0.2	0.2	0.9	0.9	0.9
Incremental Delay, d2	26.4	26.3	27.1	14.4	34.3	27.6	27.6	27.6
Delay (s)	26.4	26.3	27.1	14.4	34.3	27.6	27.6	27.6
Level of Service	C	C	C	B	C	C	C	C
Approach Delay (s)	25.8	22.1	22.1	31.2	31.2	31.2	31.2	31.2
Approach LOS	C	C	C	C	C	C	C	C
Intersection Summary								
HCM Average Control Delay	25.8							
HCM Volume to Capacity ratio	0.76							
Actuated Cycle Length (s)	70.6							
Intersection Capacity Utilization	63.7%							
Analysis Period (min)	15							
c Critical Lane Group								

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SSR
Lane Configurations	1	1	1	1	1	1	1	1	1	1	1	1
Volume (vph)	22	21	14	21	20	150	25	805	61	86	446	27
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	0.95	1.00	0.95	1.00	0.95	1.00	0.95
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	1748	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	1748	1770	1770	1770	1770	1770	1770	1770	1770	1770	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)	24	23	16	23	22	167	28	894	68	96	496	30
RTOR Reduction (vph)	0	14	0	0	148	0	0	7	0	0	5	0
Lane Group Flow (vph)	24	24	25	0	23	41	0	28	955	0	96	521
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Permitted Phases	7	4	3	8	5	2	1	6				
Actuated Green, G (s)	0.8	5.2	0.8	5.2	0.6	20.2	3.6	23.2				
Effective Green, g (s)	0.8	5.2	0.8	5.2	0.6	20.2	3.6	23.2				
Actuated g/C Ratio	0.02	0.11	0.02	0.11	0.01	0.44	0.08	0.51				
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)	31	198	31	163	23	1545	139	1777				
Vis Ratio Prot	0.01	0.01	0.01	0.01	0.02	0.27	0.05	0.15				
Vis Ratio Perm	0.37	0.13	0.74	0.22	1.22	0.62	0.69	0.29				
Uniform Delay, d1	22.4	18.3	22.4	18.5	22.6	9.8	20.6	6.5				
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Incremental Delay, d2	73.6	0.3	64.1	0.6	261.7	0.7	13.8	0.1				
Delay (s)	96.1	18.5	86.5	19.1	284.3	10.5	34.3	6.6				
Level of Service	F	B	F	B	F	B	C	A				
Approach Delay (s)	46.1		26.4		18.3		10.3					
Approach LOS	D		C		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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SSR
Lane Configurations	1	1	1	1	1	1	1	1	1	1	1	1
Volume (vph)	7	41	32	47	29	19	47	950	127	22	474	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	0.98	1.00	0.95	1.00	0.95
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	1863	1863	1770	1770	1770	1770	1770	1770	1770	1770	1770
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	1863	1863	1770	1770	1770	1770	1770	1770	1770	1770	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	46	36	52	32	21	52	1056	141	24	527	11
RTOR Reduction (vph)	0	0	33	0	19	0	0	12	0	0	2	0
Lane Group Flow (vph)	8	46	3	52	34	0	52	1185	0	24	536	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Permitted Phases	7	4	4	3	8	5	2	1	6			
Actuated Green, G (s)	0.8	4.3	4.3	1.7	5.2	1.8	24.1					
Effective Green, g (s)	0.8	4.3	4.3	1.7	5.2	1.8	24.1					
Actuated g/C Ratio	0.02	0.09	0.09	0.04	0.11	0.04	0.52					
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)	30	172	146	64	195	68	1794					
Vis Ratio Prot	0.00	0.02	0.00	0.03	0.02	0.03	0.34					
Vis Ratio Perm	0.27	0.27	0.02	0.81	0.18	0.76	0.66					
Uniform Delay, d1	22.7	19.7	19.3	22.3	18.8	22.2	8.3					
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00					
Incremental Delay, d2	4.7	0.8	0.1	52.3	0.4	33.2	0.9					
Delay (s)	27.4	20.6	19.4	74.7	19.2	61.4	9.2					
Level of Service	C	C	B	E	B	B	E					
Approach Delay (s)	20.7		20.7		46.7		11.4					
Approach LOS	C		C		D		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

Movement	EBT	EBL	EBR	WBT	WBL	WBR	NBT	NBL	NBR
Lane Configurations	EBT	EBL	EBR	WBT	WBL	WBR	NBT	NBL	NBR
Volume (vph)	1250	62	0	1556	0	98	0	98	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free
Grade	0%	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	0.90
Hourly flow rate (vph)	1389	69	0	1729	0	109	0	109	0
Pedestrians									
Lane Width (ft)									
Walking Speed (ft/s)									
Percent Blockage									
Right turn lane (veh)									
Median type									
Median storage (veh)									
Upstream signal (ft)									
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)									
PQ queue free %									
CM capacity (veh/h)									
Direction Lane #									
Volume Total									
Volume Left									
Volume Right									
cSH									
Volume to Capacity									
Queue Length 95th (ft)									
Control Delay (s)									
Lane LOS									
Approach Delay (s)									
Approach LOS									
Intersection Summary									
Average Delay									
Intersection Capacity Utilization									
Analysis Period (min)									

Movement	EBT	EBL	EBR	WBT	WBL	WBR	NBT	NBL	NBR
Lane Configurations	EBT	EBL	EBR	WBT	WBL	WBR	NBT	NBL	NBR
Volume (vph)	124	834	16	139	903	207	40	31	57
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	0.91	1.00	0.95	0.90	0.95	1.00	0.85	1.00
FL	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.95	0.98
FL Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.97	1.00	0.95
Satd. Flow (prot)	1770	5071	1770	3440	1770	3440	1812	1583	1812
FL Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.97	1.00	0.95
Satd. Flow (perm)	1770	5071	1770	3440	1770	3440	1812	1583	1812
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)	138	927	18	154	1003	230	44	34	63
RTOR Reduction (vph)	0	2	0	0	20	0	0	57	0
Lane Group Flow (vph)	138	943	0	154	1213	0	78	5	315
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Split	Split	Split
Protected Phases									
Actuated Green, G (s)	8.1	27.5	11.8	31.2	7.4	7.4	7.4	17.5	17.5
Effective Green, g (s)	8.1	27.5	11.8	31.2	7.4	7.4	7.4	17.5	17.5
Actuated g/C Ratio	0.10	0.34	0.15	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)	179	1739	260	1338	167	146	367	352	352
vs Ratio Prot	0.08	0.19	0.09	0.35	0.04	0.04	0.19	0.16	0.16
vs Ratio Perm									
UIC Ratio	0.77	0.54	0.59	0.91	0.47	0.47	0.86	0.75	0.75
Uniform Delay, d1	35.1	21.3	32.0	23.1	34.5	33.2	30.2	28.3	28.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	18.3	0.3	3.6	9.0	2.1	0.1	17.7	8.7	8.7
Delay (s)	53.5	21.6	35.6	32.1	36.6	33.3	47.9	38.0	38.0
Level of Service	D	C	D	C	D	C	D	D	D
Approach Delay (s)									
Approach LOS									
Intersection Summary									
HCM Average Control Delay									
HCM Volume to Capacity ratio									
Actuated Cycle Length (s)									
Intersection Capacity Utilization									
Analysis Period (min)									
c. Critical Lane Group									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR
Lane Configurations	AA	AA		AA	AA		AA	AA
Volume (vph)	0	955	1286	0	916	0	916	290
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
Lane Util. Factor	0.95	0.95	0.95	0.97	0.97	0.97	0.97	0.91
Fit	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.85
Fit Protected	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3639	3639	3639	3431	3431	3431	3431	1441
Fit Permitted	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3639	3639	3639	3431	3431	3431	3431	1441
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1072	1429	0	1018	322	0	320
RTOR Reduction (vph)	0	0	0	0	0	3	0	20
Lane Group Flow (vph)	0	1072	1429	0	1047	270		
Turn Type								Perm
Protected Phases		2.6	16.2					4
Permitted Phases								4
Actuated Green, G (s)		42.7	42.7					25.4
Effective Green, g (s)		42.7	42.7					25.4
Actuated g/C Ratio		0.53	0.53					0.32
Clearance Time (s)		5.6	5.6					5.6
Vehicle Extension (s)		3.0	3.0					3.0
Lane Grp Cap (vph)		1889	1889					1089
v/s Ratio Prot		0.30	0.40					0.31
v/s Ratio Perm		0.57	0.76					0.96
Uniform Delay, d1		12.5	14.6					26.8
Progression Factor		1.00	1.00					1.00
Incremental Delay, d2		0.4	1.8					18.7
Delay (s)		12.9	16.4					45.5
Level of Service		B	B					D
Approach Delay (s)		12.9	16.4					41.0
Approach LOS		B	B					D
Intersection Summary								
HCM Average Control Delay								C
HCM Volume to Capacity ratio								0.83
Actuated Cycle Length (s)								80.0
Intersection Capacity Utilization								72.4%
Analysis Period (min)								15
c. Critical Lane Group								

Baseline

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR
Lane Configurations	AA	AA		AA	AA		AA	AA
Volume (vph)	235	1620	0	0	1284	911	615	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	0.97	0.97	0.95	0.95	0.91	0.95
Fit	1.00	1.00	1.00	1.00	0.85	1.00	0.88	0.85
Fit Protected	0.95	1.00	1.00	1.00	1.00	0.95	0.99	1.00
Satd. Flow (prot)	3433	3639	3639	3639	3639	3433	3639	3639
Fit Permitted	0.95	1.00	1.00	1.00	1.00	0.95	0.99	1.00
Satd. Flow (perm)	3433	3639	3639	3639	3639	3433	3639	3639
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	261	1800	0	0	1427	1012	683	11
RTOR Reduction (vph)	0	0	0	0	0	0	7	0
Lane Group Flow (vph)	261	1800	0	0	1427	504	548	533
Turn Type								Prot
Protected Phases		5	2					8
Permitted Phases								8
Actuated Green, G (s)		10.5	64.5					50.0
Effective Green, g (s)		10.5	64.5					47.5
Actuated g/C Ratio		0.09	0.54					0.42
Clearance Time (s)		4.0	4.0					4.0
Vehicle Extension (s)		3.0	3.0					3.0
Lane Grp Cap (vph)		300	1902					2119
v/s Ratio Prot		0.08	0.51					0.32
v/s Ratio Perm		0.87	0.95					0.76
Uniform Delay, d1		54.1	26.1					28.4
Progression Factor		1.00	1.00					1.00
Incremental Delay, d2		22.9	11.4					1.7
Delay (s)		76.9	37.5					30.1
Level of Service		E	D					C
Approach Delay (s)		42.5						33.4
Approach LOS		D						C
Intersection Summary								
HCM Average Control Delay								D
HCM Volume to Capacity ratio								0.94
Actuated Cycle Length (s)								120.0
Intersection Capacity Utilization								99.4%
Analysis Period (min)								15
c. Critical Lane Group								

Baseline

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

Existing + Project (Phase 1&2) PM
12/11/2011

Existing + Project (Phase 1&2) PM
12/11/2011

Movement	EBT	EBL	EBR	WBT	WBL	WBR	NBT	NBL	NBR	SBT	SBL	SEB
Lane Configurations	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA
Volume (vph)	242	2276	251	53	637	68	610	65	156	40	29	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.97	0.95	1.00	0.89	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.85
Satd. Flow (prot)	1770	5085	1583	1770	5085	3433	3164	1770	1863	1583	1583	1583
Satd. Flow (perm)	1770	5085	1583	1770	5085	3433	3164	1770	1863	1583	1583	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	269	2529	279	59	1819	73	587	72	173	54	32	83
RTOR Reduction (vph)	0	0	77	0	3	0	98	0	0	0	0	83
Lane Group Flow (vph)	269	2529	202	59	1869	0	687	147	0	54	32	56
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	4	3	8	5	2	1	6	6	6	6
Permitted Phases	7	4	4	3	8	5	2	1	6	6	6	6
Actuated Green, G (s)	20.7	65.0	65.0	5.1	48.4	26.0	27.4	7.1	8.5	8.5	8.5	8.5
Effective Green, g (s)	20.7	65.0	65.0	5.1	48.4	26.0	27.4	7.1	8.5	8.5	8.5	8.5
Actuated g/C Ratio	0.17	0.54	0.54	0.04	0.41	0.22	0.23	0.06	0.07	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)	304	2741	853	75	2071	740	719	104	131	112	112	112
v/s Ratio Prot	0.15	0.50	0.13	0.03	0.37	0.20	0.05	0.03	0.02	0.02	0.02	0.02
v/s Ratio Perm	0.88	0.92	0.24	0.79	0.91	0.93	0.20	0.52	0.24	0.06	0.06	0.06
Uniform Delay, d1	48.8	25.5	14.7	57.2	33.6	46.4	37.8	55.1	52.0	52.3	52.3	52.3
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	24.9	5.8	0.1	40.6	6.6	17.7	0.1	4.3	1.0	0.2	0.2	0.2
Delay (s)	73.6	31.3	14.8	97.8	40.2	64.1	37.9	59.4	53.0	52.5	52.5	52.5
Level of Service	E	C	B	F	D	E	D	E	D	D	D	D
Approach Delay (s)	33.5	33.5	33.5	41.9	41.9	57.2	57.2	57.2	57.2	57.2	57.2	57.2
Approach LOS	C	C	C	D	D	E	E	E	E	E	E	E
Intersection Summary												
HCM Average Control Delay	40.4											
HCM Volume to Capacity ratio	0.82											
Actuated Cycle Length (s)	120.6											
Intersection Capacity Utilization	81.6%											
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

Synchro 7 - Report
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Movement	EBT	EBL	EBR	WBT	WBL	WBR	NBT	NBL	NBR	SBT	SBL	SEB
Lane Configurations	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA
Volume (vph)	2400	137	107	614	231	180	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	0.97	1.00	0.89	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.85
Satd. Flow (prot)	5085	1583	1770	5085	1583	1770	5085	1583	1770	1583	1583	1583
Satd. Flow (perm)	5085	1583	1770	5085	1583	1770	5085	1583	1770	1583	1583	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2767	152	119	1793	257	200	1900	1900	1900	1900	1900	1900
RTOR Reduction (vph)	0	55	0	0	0	0	0	0	0	0	0	110
Lane Group Flow (vph)	2767	97	119	1793	257	200	1900	1900	1900	1900	1900	1900
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	4	3	8	2	1	6	6	6	6	6
Permitted Phases	4	4	4	3	8	2	1	6	6	6	6	6
Actuated Green, G (s)	45.1	45.1	6.0	55.1	11.2	11.2	7.1	8.5	8.5	8.5	8.5	8.5
Effective Green, g (s)	45.1	45.1	6.0	55.1	11.2	11.2	7.1	8.5	8.5	8.5	8.5	8.5
Actuated g/C Ratio	0.61	0.61	0.08	0.74	0.15	0.15	0.06	0.07	0.07	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)	3087	981	143	3771	517	239	104	131	112	112	112	112
v/s Ratio Prot	0.54	0.07	0.03	0.35	0.07	0.06	0.03	0.02	0.02	0.02	0.02	0.02
v/s Ratio Perm	0.90	0.10	0.83	0.48	0.50	0.38	0.93	0.20	0.52	0.24	0.06	0.06
Uniform Delay, d1	12.6	6.1	33.7	3.8	29.0	28.4	46.4	37.8	55.1	52.0	52.3	52.3
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	3.8	0.0	31.9	0.1	0.8	1.0	17.7	0.1	4.3	1.0	0.2	0.2
Delay (s)	16.4	6.2	65.6	3.9	29.7	29.4	64.1	37.9	59.4	53.0	52.5	52.5
Level of Service	B	A	E	A	C	C	E	D	E	D	D	D
Approach Delay (s)	15.9	15.9	15.9	7.6	29.6	29.6	57.2	57.2	57.2	57.2	57.2	57.2
Approach LOS	B	B	B	A	C	C	E	E	E	E	E	E
Intersection Summary												
HCM Average Control Delay	14.1											
HCM Volume to Capacity ratio	0.82											
Actuated Cycle Length (s)	74.3											
Intersection Capacity Utilization	70.8%											
Analysis Period (min)	15											
c Critical Lane Group												

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13: Del Mar Heights Road & El Camino Real

12: Del Mar Heights Road & First Ave.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
Volume (vph)	490	1672	435	147	916	176	428	419	289	147	221
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	0.97	0.91	0.97	0.91	0.97	0.91	0.97	0.91	0.97	0.91	0.91
Flt	1.00	0.97	1.00	0.98	1.00	0.98	1.00	0.95	1.00	0.95	1.00
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	3433	4928	3433	4962	3433	4962	3433	5085	1583	3433	4644
Flt Permitted	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	4928	3433	4962	3433	4962	3433	5085	1583	3433	4644
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)	544	1858	483	163	1018	196	473	466	321	163	179
RTOR Reduction (vph)	0	44	0	0	27	0	0	0	100	0	214
Lane Group Flow (vph)	544	2287	0	163	1187	0	473	466	221	163	214
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	5	2	2	1	6		
Permitted Phases											
Actuated Green, G (s)	18.2	45.2	5.8	32.8	14.6	19.8	19.8	7.2	12.4		
Effective Green, g (s)	18.2	45.2	5.8	32.8	14.6	19.8	19.8	7.2	12.4		
Actuated g/C Ratio	0.19	0.48	0.06	0.35	0.16	0.21	0.21	0.08	0.13		
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)	665	2370	212	1731	533	1071	333	263	613		
vs Ratio Prot	0.16	0.47	0.05	0.24	0.14	0.09	0.14	0.05	0.05		
vs Ratio Perm	0.82	0.97	0.77	0.69	0.89	0.44	0.66	0.62	0.34		
g/C Ratio	36.3	23.7	43.4	26.2	38.9	32.2	34.0	42.1	37.1		
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	7.7	12.0	15.4	1.1	16.3	0.3	4.9	4.3	0.3		
Delay (s)	44.1	35.7	58.8	27.3	55.2	32.5	38.9	46.4	37.4		
Level of Service	D	D	E	C	E	C	D	D	D		
Approach Delay (s)	37.3	31.1	42.7	39.9	39.9	39.9	39.9	39.9	39.9		
Approach LOS	D	D	C	D	D	D	D	D	D		
Intersection Summary											
HCM Average Control Delay	37.3										
HCM Volume to Capacity ratio	0.89										
Actuated Cycle Length (s)	94.0										
Intersection Capacity Utilization	79.8%										
Analysis Period (min)	15										
c Critical Lane Group											

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	444	7	7	444	5	7
Volume (vph)	2356	114	114	1527	193	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	0.97	0.91	1.00	1.00
Flt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	3433	5085	1770	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	3433	5085	1770	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2840	127	127	1697	214	214
RTOR Reduction (vph)	0	50	0	0	0	77
Lane Group Flow (vph)	2840	77	127	1697	214	137
Turn Type	Perm	Prot	Prot	Perm	Perm	Perm
Protected Phases	4	3	8	2	2	2
Permitted Phases	43.1	43.1	4.0	51.1	13.1	13.1
Actuated Green, G (s)	43.1	43.1	4.0	51.1	13.1	13.1
Effective Green, g (s)	0.60	0.60	0.06	0.71	0.18	0.18
Actuated g/C Ratio	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
Vehicle Extension (s)	3036	945	190	3599	321	287
Lane Grp Cap (vph)	vs Ratio Prot	vs Ratio Prot	vs Ratio Prot	vs Ratio Prot	vs Ratio Prot	vs Ratio Prot
vs Ratio Prot	0.56	0.04	0.33	0.12	0.09	0.09
vs Ratio Perm	0.94	0.98	0.67	0.47	0.67	0.48
Uniform Delay, d1	13.3	6.2	33.4	4.6	27.5	26.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.3	0.0	8.6	0.1	5.2	1.3
Delay (s)	19.6	6.2	42.0	4.7	32.7	27.7
Level of Service	B	A	D	A	C	C
Approach Delay (s)	19.0	7.3	30.2			
Approach LOS	B	A		A	C	
Intersection Summary						
HCM Average Control Delay	15.8					
HCM Volume to Capacity ratio	0.86					
Actuated Cycle Length (s)	72.2					
Intersection Capacity Utilization	68.0%					
Analysis Period (min)	15					
Critical Lane Group						

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

Existing + Project (Phase 1&2) PM
12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Configurations	←	←	←	←	←	←	←	←	←	←	←
Volume (vph)	134	1235	572	80	626	72	389	167	145	78	124
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	0.97	0.91	0.97	0.91	0.97	0.91	0.97	0.91	0.97	0.91	0.97
Flt	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Flt Protected	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	4844	3433	5007	3433	5007	3433	4731	3433	4731	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
Satd. Flow (perm)	3433	4844	3433	5007	3433	5007	3433	4731	3433	4731	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
Adj. Flow (vph)	149	1372	636	89	695	80	432	186	161	87	138
RTOR Reduction (vph)	0	96	0	0	16	0	0	131	0	0	123
Lane Group Flow (vph)	149	1912	0	89	760	0	432	216	0	87	157
Turn Type	Prot	7	4	Prot	3	8	Prot	5	2	Prot	6
Protected Phases											
Permitted Phases											
Actuated Green, G (s)	5.4	28.9	5.3	28.8	10.5	13.1	5.8	28.8	5.8	9.4	28.8
Effective Green, g (s)	5.4	28.9	5.3	28.8	10.5	13.1	5.8	28.8	5.8	9.4	28.8
Actuated g/C Ratio	0.08	0.41	0.08	0.41	0.15	0.19	0.10	0.13	0.10	0.13	0.13
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	264	1997	260	2057	514	884	172	438	172	438	514
vs Ratio Prot	0.04	0.39	0.03	0.15	0.13	0.05	0.05	0.05	0.05	0.05	0.05
vs Ratio Perm	0.56	0.96	0.34	0.37	0.84	0.24	0.51	0.36	0.51	0.36	0.36
Uniform Delay, d1	31.2	20.0	30.7	14.3	29.0	24.3	30.1	27.6	30.1	27.6	29.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.8	11.8	0.8	0.1	11.8	0.1	2.3	0.5	2.3	0.5	11.8
Delay (s)	34.0	31.8	31.5	14.5	40.8	24.4	32.4	28.1	32.4	28.1	40.8
Level of Service	C	C	C	B	D	C	C	C	C	C	C
Approach Delay (s)	31.8		16.2		33.5		29.1		29.1		33.5
Approach LOS	C		B		C		C		C		C
Intersection Summary											
HCM Average Control Delay											
HCM Volume to Capacity ratio											
Actuated Cycle Length (s)											
Intersection Capacity Utilization											
Analysis Period (min)											
c Critical Lane Group											

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
15: Del Mar Heights Road & Torrey Ridge Drive

Existing + Project (Phase 1&2) PM
12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Configurations	←	←	←	←	←	←	←	←	←	←	←
Volume (vph)	48	1281	156	8	668	22	66	14	31	27	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	0.91	1.00	0.91	1.00	0.91	1.00	0.91	1.00
Flt	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1770	5001	1770	5001	1770	5001	1770	1673	1770	1673	1770
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (perm)	1770	5001	1770	5001	1770	5001	1770	1673	1770	1673	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
Adj. Flow (vph)	53	1401	173	9	742	24	73	16	34	30	9
RTOR Reduction (vph)	0	16	0	0	3	0	0	31	0	0	31
Lane Group Flow (vph)	53	1568	0	9	763	0	73	19	0	30	11
Turn Type	Prot	7	4	Prot	3	8	Prot	5	2	Prot	6
Protected Phases											
Permitted Phases											
Actuated Green, G (s)	1.3	28.2	0.6	22.5	1.6	3.3	1.6	3.3	1.6	2.7	2.7
Effective Green, g (s)	1.3	28.2	0.6	22.5	1.6	3.3	1.6	3.3	1.6	2.7	2.7
Actuated g/C Ratio	0.03	0.53	0.01	0.51	0.04	0.07	0.04	0.07	0.04	0.02	0.06
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	52	2831	24	2582	64	125	40	101	40	101	125
vs Ratio Prot	0.03	0.31	0.01	0.15	0.04	0.01	0.02	0.01	0.02	0.01	0.01
vs Ratio Perm	1.02	0.69	0.38	0.30	1.14	0.15	0.75	0.11	0.75	0.11	0.11
Uniform Delay, d1	21.4	7.2	21.6	6.2	21.2	19.1	21.4	19.6	21.4	19.6	21.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	130.4	0.4	9.6	0.1	155.9	0.6	55.2	0.5	55.2	0.5	155.9
Delay (s)	151.8	7.6	31.1	6.3	177.1	19.6	76.7	20.0	76.7	20.0	177.1
Level of Service	F	A	C	A	F	B	E	C	E	C	B
Approach Delay (s)	12.3		6.6		113.1		43.6		43.6		113.1
Approach LOS	B		A		F		D		F		D
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

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	←	←	←	←	←	←	←	←	←	←	←
Volume (vph)	288	865	63	21	476	24	39	45	34	23	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	0.99	1.00	0.91	1.00	0.94	1.00	1.00	0.97
Flt Protected	1.00	0.99	1.00	0.99	1.00	0.94	1.00	0.94	1.00	1.00	0.97
Satd. Flow (prot)	1770	5039	1770	5048	1770	5048	1770	5048	1770	5048	1770
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (perm)	1770	5039	1770	5048	1770	5048	1770	5048	1770	5048	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
Adj. Flow (vph)	320	1072	70	23	528	27	43	50	38	26	36
RTOR Reduction (vph)	0	8	0	0	8	0	0	32	0	0	17
Lane Group Flow (vph)	320	1134	0	23	548	0	43	56	0	26	53
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Permitted Phases	7	4	3	8	5	2	1	6			
Actuated Green, G (s)	8.6	23.8	0.9	16.1	1.8	8.0	1.8	8.0	1.8	8.0	1.8
Effective Green, g (s)	8.6	23.8	0.9	16.1	1.8	8.0	1.8	8.0	1.8	8.0	1.8
Actuated g/C Ratio	0.17	0.47	0.02	0.32	0.04	0.16	0.04	0.16	0.04	0.16	0.04
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	301	2375	32	1809	63	276	63	257			
v/c Ratio Prot	0.16	0.22	0.01	0.11	0.02	0.03	0.01	0.04			
v/c Ratio Perm	1.05	0.48	0.72	0.34	0.65	0.20	0.41	0.27			
Uniform Delay, d1	21.0	9.1	24.7	13.1	24.1	18.5	23.8	18.7			
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	69.5	0.2	55.4	0.1	26.3	0.4	4.3	0.6			
Delay (s)	90.5	9.3	80.1	13.3	50.4	18.9	28.2	19.2			
Level of Service	F	A	F	B	D	B	C	B			
Approach Delay (s)	27.0	15.9	29.2								
Approach LOS	C	B	C								
Intersection Summary											
HCM Average Control Delay	23.8										
HCM Volume to Capacity ratio	0.56										
Actuated Cycle Length (s)	50.5										
Intersection Capacity Utilization	55.7%										
Analysis Period (min)	15										
Critical Lane Group											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	←	←	←	←	←	←	←	←	←	←	←
Volume (vph)	825	180	89	421	116	248					
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	0.97	1.00					
Flt Protected	1.00	1.00	1.00	1.00	1.00	0.95					
Satd. Flow (prot)	1770	5039	1770	5048	1770	5048					
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00					
Satd. Flow (perm)	1770	5039	1770	5048	1770	5048					
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90					
Adj. Flow (vph)	917	200	99	468	129	276					
RTOR Reduction (vph)	57	0	0	0	0	230					
Lane Group Flow (vph)	1060	0	99	468	129	46					
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot					
Permitted Phases	4	3	8	2	2						
Actuated Green, G (s)	16.4	2.4	22.8	5.7	5.7	5.7					
Effective Green, g (s)	16.4	2.4	22.8	5.7	5.7	5.7					
Actuated g/C Ratio	0.45	0.07	0.62	0.16	0.16	0.16					
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0					
Lane Grp Cap (vph)	2224	116	3176	538	247						
v/c Ratio Prot	0.22	0.06	0.09	0.04	0.03						
v/c Ratio Perm	0.46	0.85	0.15	0.24	0.18						
Uniform Delay, d1	7.0	16.9	2.8	13.5	13.4						
Progression Factor	1.00	1.00	1.00	1.00	1.00						
Incremental Delay, d2	0.2	42.0	0.0	0.2	0.4						
Delay (s)	7.2	58.8	2.8	13.7	13.7						
Level of Service	A	E	A	B	B						
Approach Delay (s)	7.2	12.6	13.7								
Approach LOS	A	B	B								
Intersection Summary											
HCM Average Control Delay	9.9										
HCM Volume to Capacity ratio	0.46										
Actuated Cycle Length (s)	36.5										
Intersection Capacity Utilization	42.0%										
Analysis Period (min)	15										
Critical Lane Group											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4
Volume (vph)	193	38	38	188	22	248	114	634	183	324	373
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	0.95	1.00	1.00	0.95	1.00	0.97	0.91	0.97	0.91
Flt	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	0.95	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1681	1658	1658	1763	1583	3433	4929	3433	5003	3433	5003
Flt Permitted	0.95	0.95	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1681	1658	1658	1763	1583	3433	4929	3433	5003	3433	5003
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)	214	42	42	209	24	276	127	704	181	360	414
RTOR Reduction (vph)	0	18	0	0	0	218	0	50	0	0	16
Lane Group Flow (vph)	190	130	0	233	58	127	835	0	360	448	0
Turn Type	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split
Permitted Phases	2	2	2	6	6	6	6	6	6	6	6
Actuated Green, G (s)	11.6	11.6	11.6	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
Effective Green, g (s)	11.6	11.6	11.6	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
Actuated g/C Ratio	0.16	0.16	0.16	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	271	267	374	332	219	1222	539	1716	539	1716	539
v/s Ratio Prot	60.09	0.08	0.13	0.04	0.17	0.04	0.17	0.04	0.17	0.04	0.17
v/s Ratio Perm	0.55	0.49	0.62	0.17	0.58	0.68	0.67	0.67	0.67	0.67	0.67
Uniform Delay, d1	27.8	27.5	25.9	23.3	32.8	24.4	28.6	17.1	28.6	17.1	28.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.4	1.4	3.2	0.3	3.7	1.5	3.1	0.1	3.1	0.1	3.1
Delay (s)	30.3	28.9	29.1	23.6	36.5	25.9	31.7	17.1	31.7	17.1	31.7
Level of Service	C	C	C	C	C	D	C	C	C	C	B
Approach Delay (s)	29.6	29.6	26.1	27.2	27.2	23.5	23.5	23.5	23.5	23.5	23.5
Approach LOS	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary											
HCM Average Control Delay	26.1										
HCM Volume to Capacity ratio	0.64										
Actuated Cycle Length (s)	72.0										
Intersection Capacity Utilization	53.4%										
Analysis Period (min)	15										
c Critical Lane Group											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4
Volume (vph)	193	38	38	188	22	248	114	634	183	324	373
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	0.95	1.00	1.00	0.95	1.00	0.97	0.91	0.97	0.91
Flt	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	0.95	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1681	1658	1658	1763	1583	3433	4929	3433	5003	3433	5003
Flt Permitted	0.95	0.95	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1681	1658	1658	1763	1583	3433	4929	3433	5003	3433	5003
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)	214	42	42	209	24	276	127	704	181	360	414
RTOR Reduction (vph)	0	18	0	0	0	218	0	50	0	0	16
Lane Group Flow (vph)	190	130	0	233	58	127	835	0	360	448	0
Turn Type	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split
Permitted Phases	2	2	2	6	6	6	6	6	6	6	6
Actuated Green, G (s)	11.6	11.6	11.6	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
Effective Green, g (s)	11.6	11.6	11.6	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
Actuated g/C Ratio	0.16	0.16	0.16	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	271	267	374	332	219	1222	539	1716	539	1716	539
v/s Ratio Prot	60.09	0.08	0.13	0.04	0.17	0.04	0.17	0.04	0.17	0.04	0.17
v/s Ratio Perm	0.55	0.49	0.62	0.17	0.58	0.68	0.67	0.67	0.67	0.67	0.67
Uniform Delay, d1	27.8	27.5	25.9	23.3	32.8	24.4	28.6	17.1	28.6	17.1	28.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.4	1.4	3.2	0.3	3.7	1.5	3.1	0.1	3.1	0.1	3.1
Delay (s)	30.3	28.9	29.1	23.6	36.5	25.9	31.7	17.1	31.7	17.1	31.7
Level of Service	C	C	C	C	C	D	C	C	C	C	B
Approach Delay (s)	29.6	29.6	26.1	27.2	27.2	23.5	23.5	23.5	23.5	23.5	23.5
Approach LOS	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary											
HCM Average Control Delay	26.1										
HCM Volume to Capacity ratio	0.64										
Actuated Cycle Length (s)	72.0										
Intersection Capacity Utilization	53.4%										
Analysis Period (min)	15										
c Critical Lane Group											

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

Existing + Project (Phase 1&2) PM
12/11/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	11	6	10	140	0	108	1900	1900	1900	1900	1900	1900
Volume (vph)	11	6	10	140	0	108	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit	1.00	0.91	1.00	0.95	1.00	0.95	1.00	0.97	1.00	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	0.95	1.00	1.00
Satd. Flow (prot)	1770	1692	1770	1692	1770	1692	1770	1692	1770	1692	1770	1692
Fit Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1692	1770	1692	1770	1692	1770	1692	1770	1692	1770	1692
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)	12	7	11	156	0	120	8	851	222	161	594	2
RTOR Reduction (vph)	0	11	0	0	0	102	0	60	0	0	0	0
Lane Group Flow (vph)	12	7	0	156	0	18	8	1013	0	161	596	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	0.7	1.1	7.1	7.5	0.7	19.0	7.9	26.2	7.9	26.2	7.9	26.2
Effective Green, G (s)	0.7	1.1	7.1	7.5	0.7	19.0	7.9	26.2	7.9	26.2	7.9	26.2
Effective Green, g (s)	0.01	0.02	0.14	0.15	0.01	0.37	0.15	0.51	0.15	0.51	0.15	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	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)	24	38	246	232	24	1832	274	2606	274	2606	274	2606
Lane Grp Cap (vph)	0.01	0.00	0.09	0.01	0.00	0.21	0.09	0.12	0.09	0.12	0.09	0.12
v/s Ratio Prot	0.50	0.20	0.63	0.08	0.33	0.55	0.59	0.23	0.59	0.23	0.59	0.23
v/s Ratio Perm	25.0	24.6	20.8	18.8	25.0	12.7	20.1	6.9	20.1	6.9	20.1	6.9
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	1.00
Progression Factor	15.4	2.7	5.3	0.1	8.0	0.4	3.2	0.0	3.2	0.0	3.2	0.0
Incremental Delay, d2	40.5	27.3	26.0	19.0	33.0	13.1	23.3	6.9	23.3	6.9	23.3	6.9
Delay (s)	D	C	C	B	C	B	C	A	C	A	C	A
Level of Service	D	C	C	B	C	B	C	A	C	A	C	A
Approach Delay (s)	32.6	32.6	23.0	13.2	13.2	13.2	10.4	10.4	10.4	10.4	10.4	10.4
Approach LOS	C	C	C	B	B	B	B	B	B	B	B	B
Intersection Summary												
HCM Average Control Delay	13.7											
HCM Volume to Capacity ratio	0.51											
Actuated Cycle Length (s)	51.1											
Intersection Capacity Utilization	51.7%											
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

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

Existing + Project (Phase 1&2) PM
12/11/2011

Movement	EBL	EFT	EBR	NWB	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	306	237	123	32	99	17	94	381	39	25	445	259
Volume (vph)	306	237	123	32	99	17	94	381	39	25	445	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit Protected	0.95	1.00	1.00	0.99	1.00	0.99	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1692	1770	1692	1770	1692	1770	1692	1770	1692	1770	1692
Fit Permitted	0.95	1.00	1.00	0.99	1.00	0.99	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1692	1770	1692	1770	1692	1770	1692	1770	1692	1770	1692
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)	340	263	137	36	110	19	104	423	43	28	494	288
RTOR Reduction (vph)	0	0	102	0	7	0	0	9	0	0	106	0
Lane Group Flow (vph)	340	263	35	0	158	0	104	457	0	28	676	10
Turn Type	Split	Split	Prot	Split	Prot	Split	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	4	4	4	4	4	4	4	4	4	4
Permitted Phases	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6
Effective Green, G (s)	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6
Effective Green, g (s)	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	449	473	402	244	116	116	116	116	116	116	116	116
Lane Grp Cap (vph)	0.19	0.14	0.02	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
v/s Ratio Prot	0.76	0.56	0.09	0.65	0.90	0.39	0.57	0.67	0.57	0.67	0.57	0.67
v/s Ratio Perm	22.5	21.2	18.5	26.8	30.3	16.4	31.4	20.0	31.4	20.0	31.4	20.0
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	7.2	1.4	0.1	5.8	5.2	0.2	15.1	1.8	15.1	1.8	15.1	1.8
Incremental Delay, d2	28.7	22.6	18.7	32.6	32.6	16.6	46.5	21.8	46.5	21.8	46.5	21.8
Delay (s)	C	C	C	C	C	C	F	D	F	D	F	D
Level of Service	C	C	C	C	C	C	F	D	F	D	F	D
Approach Delay (s)	25.1	25.1	25.1	32.6	32.6	28.7	28.7	28.7	28.7	28.7	28.7	28.7
Approach LOS	C	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary												
HCM Average Control Delay	25.7											
HCM Volume to Capacity ratio	0.70											
Actuated Cycle Length (s)	85.4											
Intersection Capacity Utilization	64.1%											
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

Movement	EBL	EBR	EBR2	NWL2	NWL	NWR	NEL	NEL2	NEE	SWL	SWR
Lane Configurations	72	271	315	96	168	122	258	1012	92	164	579
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	1.00	1.00	1.00	0.97	0.97	0.97	0.91	1.00	0.91	0.91
Lane Util. Factor	1.00	0.85	0.85	1.00	0.94	1.00	0.99	1.00	0.99	1.00	0.99
Flt Preceded	0.95	1.00	1.00	0.95	0.97	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	1583	1770	3290	3433	5022	3433	5022	1770	5032
Satd. Flow (perm)	1770	1583	1583	1770	3290	3433	5022	3433	5022	1770	5032
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)	90	301	350	107	187	136	287	1124	102	182	643
RTOR Reduction (vph)	0	0	250	0	123	0	0	16	0	0	13
Lane Group Flow (vph)	30	301	100	107	200	0	287	1210	0	182	678
Turn Type	Perm	Perm	Perm	Split	Perm	Prot	Prot	Prot	Prot	Prot	Prot
Permitted Phases	2	2	2	6	6	3	8	8	7	4	4
Actuated Green, G (s)	18.0	18.0	18.0	6.0	6.0	7.8	17.0	8.0	17.2	8.0	17.2
Effective Green, g (s)	18.0	18.0	18.0	6.0	6.0	7.8	17.0	8.0	17.2	8.0	17.2
Actuated g/C Ratio	0.28	0.28	0.28	0.09	0.09	0.12	0.26	0.12	0.26	0.12	0.26
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	490	438	438	163	304	412	1313	218	1332	218	1332
vs Ratio Prot	0.05	0.19	0.09	0.06	0.06	0.08	0.24	0.10	0.13	0.10	0.13
vs Ratio Perm	0.16	0.69	0.23	0.66	0.66	0.70	0.92	0.83	0.51	0.83	0.51
Uniform Delay, d1	17.8	21.0	18.1	28.5	28.5	27.5	23.3	27.9	20.3	27.9	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
Incremental Delay, d2	0.7	8.5	1.2	9.2	5.0	5.1	10.7	23.2	0.3	23.2	0.3
Delay (s)	18.5	29.5	19.3	37.7	33.5	32.5	34.1	51.0	20.6	51.0	20.6
Level of Service	B	C	B	D	C	C	C	D	C	D	C
Approach Delay (s)	23.4			34.6			33.8			27.0	
Approach LOS	C			C			C			C	
Intersection Summary											
HCM Average Control Delay	30.1										
HCM Volume to Capacity ratio	0.79										
Actuated Cycle Length (s)	65.0										
Intersection Capacity Utilization	57.5%										
Analysis Period (min)	15										
c Critical Lane Group											

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NEL2	NEE	SWL	SWR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Volume (vph)	203	25	150	4	11	4	105	24	8	2	7
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
Hourly flow rate (vph)	226	28	167	4	12	4	117	27	9	2	8
Direction Lane											
Volume Total (vph)	253	167	21	152	122						
Volume Left (vph)	226	0	4	117	2						
Volume Right (vph)	0	167	4	9	112						
l-adj (s)	0.48	-0.67	-0.05	0.15	-0.51						
Departure Headway (s)	5.7	4.6	5.2	5.3	4.7						
Degree Utilization, x	0.40	0.21	0.03	0.22	0.16						
Capacity (veh/h)	608	757	634	645	712						
Control Delay (s)	11.3	7.6	8.4	9.8	8.5						
Approach Delay (s)	9.8		8.4	9.8	8.5						
Approach LOS	A		A	A	A						
Intersection Summary											
Delay	9.5										
HCM Level of Service	A										
Intersection Capacity Utilization	40.1%										
Analysis Period (min)	15										

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

Existing + Project (Phase 1&2) PM
12/11/2011

Movement	EBL	EBT	EBL	EBT	WBL	WBT	NBL	NBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4	4
Volume (vph)	116	50	70	55	26	9	108	742	134	6	359	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	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.97	
Flt Protected	1.00	0.85	0.99	0.99	0.99	0.99	1.00	0.98	1.00	0.98	1.00	0.97	
Flt Permitted	0.97	1.00	0.97	1.00	0.97	1.00	0.95	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (prot)	1800	1800	1800	1800	1800	1800	1770	1770	1770	1770	1770	1770	
Satd. Flow (perm)	1800	1533	1763	1763	1763	1763	1770	1770	1770	1770	1770	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)	129	55	78	61	29	10	120	824	149	7	398	91	
RTOR Reduction (vph)	0	0	66	0	6	0	0	16	0	0	0	22	
Lane Group Flow (vph)	0	185	12	0	94	0	120	957	0	7	468	0	
Turn Type	Split	4	4	4	8	8	5	2	1	6	1	6	
Protected Phases													
Actuated Green, G (s)		8.7	8.7	6.5	5.7	25.7	0.7	20.7	0.7	20.7	0.7	20.7	
Effective Green, g (s)		8.7	8.7	6.5	5.7	25.7	0.7	20.7	0.7	20.7	0.7	20.7	
Actuated g/C Ratio		0.15	0.15	0.11	0.10	0.46	0.01	0.36	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	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		272	239	201	175	1543	22	1237	22	1237	22	1237	
vs Ratio Prot		0.10	0.01	0.05	0.07	0.28	0.00	0.14	0.00	0.14	0.00	0.14	
vs Ratio Perm		0.68	0.05	0.47	0.59	0.62	0.32	0.38	0.32	0.38	0.32	0.38	
Uniform Delay, d1		23.1	20.9	23.9	25.1	12.2	23.2	13.7	23.2	13.7	23.2	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	
Incremental Delay, d2		8.8	0.1	1.7	10.6	0.8	8.2	0.2	8.2	0.2	8.2	0.2	
Delay (s)		30.0	21.0	25.6	35.7	13.0	31.4	13.9	31.4	13.9	31.4	13.9	
Level of Service		C	C	C	D	B	D	B	D	B	D	B	
Approach Delay (s)		27.3	25.6	25.6	15.5	15.5	15.5	14.2	15.5	14.2	15.5	14.2	
Approach LOS		C	C	C	B	B	B	B	B	B	B	B	
Intersection Summary													
HCM Average Control Delay		17.3											
HCM Volume to Capacity ratio		0.60											
Actuated Cycle Length (s)		57.5											
Intersection Capacity Utilization		45.7%											
Analysis Period (min)		15											
c Critical Lane Group													

Baseline

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

Existing + Project (Phase 1&2) PM
12/11/2011

Movement	EBL	EBT	EBL	EBT	WBL	WBT	NBL	NBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4	
Volume (vph)	0	626	137	804	876	0	0	0	0	0	835	1	73
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	0.97	0.95	0.95	0.95	0.95	0.91	
Flt Protected	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95	0.95	0.95	1.00	0.95	
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	0.95	1.00	0.95	
Satd. Flow (perm)	3444	3444	3444	3433	3433	3433	3444	3433	3433	3433	3444	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	
Adj. Flow (vph)	0	686	152	871	973	0	0	0	0	0	928	1	81
RTOR Reduction (vph)	0	31	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	817	0	871	973	0	0	0	0	0	928	1	81
Turn Type	Split	4	4	3	8	8	3	8	3	8	6	6	
Protected Phases													
Actuated Green, G (s)		16.3	12.8	12.8	33.1	12.8	33.1	12.8	33.1	12.8	18.6	18.6	
Effective Green, g (s)		16.3	12.8	12.8	33.1	12.8	33.1	12.8	33.1	12.8	18.6	18.6	
Actuated g/C Ratio		0.27	0.21	0.21	0.55	0.21	0.55	0.21	0.55	0.21	0.31	0.31	
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		940	735	1962	1962	735	1962	735	1962	735	524	502	
vs Ratio Prot		0.24	0.20	0.20	0.27	0.20	0.27	0.20	0.27	0.20	0.28	0.29	
vs Ratio Perm		0.87	0.91	0.91	0.50	0.91	0.50	0.91	0.50	0.91	0.92	0.95	
Uniform Delay, d1		20.7	22.9	22.9	8.2	22.9	8.2	22.9	8.2	22.9	19.7	19.8	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		8.6	15.5	15.5	0.2	15.5	0.2	15.5	0.2	15.5	18.7	22.5	
Delay (s)		29.3	38.4	38.4	8.4	38.4	8.4	38.4	8.4	38.4	38.4	42.3	
Level of Service		C	D	D	A	D	A	D	A	D	D	D	
Approach Delay (s)		29.3	20.6	20.6	0.0	20.6	0.0	20.6	0.0	20.6	38.5	38.5	
Approach LOS		C	C	C	A	C	A	C	A	C	D	D	
Intersection Summary													
HCM Average Control Delay		27.9											
HCM Volume to Capacity ratio		0.90											
Actuated Cycle Length (s)		59.7											
Intersection Capacity Utilization		80.9%											
Analysis Period (min)		15											
c Critical Lane Group													

Baseline

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HCM Signalized Intersection Capacity Analysis 26: Carmel Valley Road & I-5 NB Ramps Existing + Project (Phase 1&2) PM 12/11/2011

Movement	EBT	EBL	EBR	WBT	WBL	WBR	NBT	NBL	NBR	SBL	SBLT	SBR
Lane Configurations	123	1370	0	0	992	780	439	0	667	0	0	0
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	0.97	0.95	0.95	0.95	1.00	0.85	1.00	0.95	0.91	0.95	0.95	0.95
Lane Util. Factor	1.00	1.00	1.00	1.00	0.85	1.00	0.87	0.85	0.99	1.00	0.99	1.00
Friction	0.95	1.00	1.00	1.00	0.95	1.00	0.95	0.99	1.00	1.00	0.95	1.00
Flt Protected	3433	3539	3539	3539	3539	3539	3539	3539	3539	3539	3539	3539
Satd. Flow (prot)	137	1522	0	0	1102	867	488	0	741	0	0	0
Flt Permitted	0	0	0	0	0	0	0	0	0	0	0	0
Satd. Flow (perm)	137	1522	0	0	1102	867	488	0	741	0	0	0
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)	137	1522	0	0	1102	867	488	0	741	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	137	1522	0	0	1102	867	488	0	741	0	0	0
Turn Type	Prot	4	4	4	4	4	4	4	4	4	4	4
Permitted Phases	3.4	30.2	22.8	22.8	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5
Actuated Green, G (s)	3.4	30.2	22.8	22.8	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5
Effective Green, g (s)	0.06	0.52	0.40	0.40	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	202	1852	1398	626	568	487	508	0.26	0.26	0.26	0.26	0.26
Lane Grp Cap (vph)	0.04	0.43	0.31	0.22	0.26	0.26	0.27	0.26	0.26	0.26	0.26	0.26
v/s Ratio Prot	0.68	0.82	0.79	0.55	0.76	0.90	0.76	0.90	0.76	0.90	0.76	0.90
v/s Ratio Perm	26.6	11.5	15.3	13.5	17.0	17.3	17.0	17.3	17.0	17.3	17.0	17.3
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	8.7	3.1	3.0	1.0	5.7	8.6	6.7	8.6	6.7	8.6	6.7	8.6
Incremental Delay, d2	135.3	14.6	18.4	14.4	22.7	25.9	23.7	25.9	23.7	25.9	23.7	23.7
Delay (s)	D	B	B	B	C	C	C	C	C	C	C	C
Level of Service	D	B	B	B	C	C	C	C	C	C	C	C
Approach Delay (s)	16.3	16.3	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6
Approach LOS	B	B	B	B	B	B	B	B	B	B	B	B
Intersection Summary												
HCM Average Control Delay	18.4											
HCM Volume to Capacity Ratio	0.81											
Actuated Cycle Length (s)	57.7											
Intersection Capacity Utilization	80.9%											
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis 27: Valley Centre Drive & El Camino Real Existing + Project (Phase 1&2) PM 12/11/2011

Movement	EBT	EBL	EBR	WBT	WBL	WBR	NBT	NBL	NBR	SBL	SBLT	SBR
Lane Configurations	38	30	28	476	22	114	75	919	214	191	1377	25
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	0.95	0.91	0.91	0.91	0.91	0.91
Lane Util. Factor	1.00	0.98	0.95	1.00	0.99	0.95	1.00	0.97	1.00	1.00	0.95	1.00
Friction	0.95	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00	0.95	1.00
Flt Protected	1681	1681	1681	1681	1681	1681	1681	1681	1681	1681	1681	1681
Satd. Flow (prot)	1681	1681	1681	1681	1681	1681	1681	1681	1681	1681	1681	1681
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1681	1681	1681	1681	1681	1681	1681	1681	1681	1681	1681	1681
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)	42	33	31	529	24	127	83	1021	238	212	1530	28
RTOR Reduction (vph)	0	3	26	0	2	87	0	38	0	0	2	0
Lane Group Flow (vph)	38	37	2	286	27	83	1221	0	212	1556	0	0
Turn Type	Prot	4	4	4	4	4	4	4	4	4	4	4
Permitted Phases	5.7	5.7	5.7	17.4	17.4	17.4	4.3	39.7	31.4	31.4	31.4	31.4
Actuated Green, G (s)	5.7	5.7	5.7	17.4	17.4	17.4	4.3	39.7	31.4	31.4	31.4	31.4
Effective Green, g (s)	0.08	0.08	0.08	0.23	0.23	0.23	0.06	0.53	0.42	0.42	0.42	0.42
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)	128	127	115	391	375	350	102	2622	743	2128	0	0
Lane Grp Cap (vph)	0.02	0.02	0.02	0.17	0.17	0.17	0.02	0.25	0.12	0.12	0.12	0.12
v/s Ratio Prot	0.90	0.29	0.02	0.73	0.74	0.08	0.81	0.47	0.29	0.73	0.31	0.31
v/s Ratio Perm	32.7	32.6	32.0	26.5	26.6	22.4	34.9	40.9	14.3	18.2	18.2	18.2
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	1.3	1.3	0.1	6.9	7.7	0.1	37.2	0.1	0.2	1.3	1.3	1.3
Incremental Delay, d2	34.0	33.9	32.0	33.4	34.4	22.5	72.0	11.1	14.5	19.5	19.5	19.5
Delay (s)	C	C	C	C	C	C	C	E	B	B	B	B
Level of Service	C	C	C	C	C	C	C	E	B	B	B	B
Approach Delay (s)	33.4	33.4	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
Approach LOS	C	C	C	C	C	C	C	E	B	B	B	B
Intersection Summary												
HCM Average Control Delay	20.2											
HCM Volume to Capacity Ratio	0.70											
Actuated Cycle Length (s)	74.8											
Intersection Capacity Utilization	64.7%											
Analysis Period (min)	15											
i Phase conflict between lane groups												
c Critical Lane Group												

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Movement	EBL	EBT	WBL	WBT	WBR	WBL	WBR	EBL	EBT	WBL	WBT	WBR	WBL	WBR
Lane Configurations	66	386	0	380	94	30	46							
Volume (vph)	1900	1900	1900	1900	1900	1900	1900							
Ideal Flow (vphpl)	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	1.00	0.85							
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	0.95							
Flt	0.95	1.00	1.00	1.00	0.95	1.00	1.00							
Flt Protected	1.00	1.00	1.00	1.00	1.00	1.00	1.00							
Satd. Flow (prot)	1770	3539	3430	3430	1770	1770	1583							
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00	1.00							
Satd. Flow (perm)	1770	3539	3430	3430	1770	1770	1583							
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90							
Adj. Flow (vph)	73	429	0	400	104	33	51							
RTOR Reduction (vph)	0	0	0	43	0	0	47							
Lane Group Flow (vph)	73	429	0	461	0	33	4							
Turn Type	Prot	Prot		Prot			Prot							
Protected Phases	7	4	3	8		6	6							
Permitted Phases														
Actuated Green, G (s)	1.2	14.0		8.8		1.7	1.7							
Effective Green, g (s)	1.2	14.0		8.8		1.7	1.7							
Actuated g/C Ratio	0.05	0.59		0.37		0.07	0.07							
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 Grip Cap (vph)	90	2091		1274		127	114							
v/s Ratio Prot	c0.04	0.12		c0.13		c0.02	0.00							
v/s Ratio Perm														
v/c Ratio	0.81	0.21		0.36		0.26	0.03							
Uniform Delay, d1	11.1	2.3		5.4		10.4	10.2							
Progression Factor	1.00	1.00		1.00		1.00	1.00							
Incremental Delay, d2	40.5	0.0		0.2		1.1	0.1							
Delay (s)	51.6	2.3		5.6		11.5	10.3							
Level of Service	D	A		A		B	B							
Approach Delay (s)		9.5		5.6		10.8								
Approach LOS		A		A		B								
Intersection Summary														
HCM Average Control Delay					7.8					HCM Level of Service				
HCM Volume to Capacity ratio					0.39					A				
Actuated Cycle Length (s)					23.7					Sum of lost time (s)				
Intersection Capacity Utilization					29.9%					A				
Analysis Period (min)					15					Critical Lane Group				

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HCM Signalized Intersection Capacity Analysis
32: SR-56 EB Ramps & Carmel Creek Road
Existing + Project (Phase 1&2) PM
12/11/2011

Existing + Project (Phase 1&2) PM
12/11/2011

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Existing + Project (Phase 1&2) PM	12/11/2011
HCM Signalized Intersection Capacity Analysis	
33: Carmel Country Road & Carmel Canyon Road	

Existing + Project (Phase 1&2) PM
12/11/2011

Movement	SEL	SET	SER	NWL	NNWT	NWR	NEL	NET	NER	SWL	SNW	SWT
Lane Configurations	127	458	43	91	406	400	51	128	104	230	52	65
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	1.00	0.93	1.00	0.92	1.00
Lane Util. Factor	1.00	0.99	1.00	0.99	1.00	0.98	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	0.93	1.00	0.95	1.00
Satd. Flow (prot)	1770	3493	1770	3493	3276	1770	1737	1737	3433	1708	3433	1708
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.93	1.00	0.95	1.00
Satd. Flow (perm)	1770	3493	1770	3493	3276	1770	1737	1737	3433	1708	3433	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
Agt. Flow (vph)	141	509	48	101	451	444	57	142	116	256	58	77
RTOR Reduction (vph)	0	8	0	0	213	0	0	37	0	0	50	(C)
Lane Group Flow (vph)	141	549	0	101	682	0	57	221	0	256	60	(C)
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	1	6	5	2	7	4	3	8	3	8	3	8
Permitted Phases												
Actuated Green, G (s)	8.8	20.1	7.6	18.9	4.8	15.5	8.7	19.4	8.7	19.4	8.7	19.4
Effective Green, g (s)	8.8	20.1	7.6	18.9	4.8	15.5	8.7	19.4	8.7	19.4	8.7	19.4
Actuated g/C Ratio	-0.13	0.30	-0.11	0.28	0.07	0.23	-0.13	0.29	-0.13	0.29	-0.13	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)	229	1034	198	912	125	397	400	488	400	488	400	488
v/s Ratio Prot	5008	915	0.06	5021	0.03	5013	5013	5013	5013	5013	5013	5013
v/s Ratio Perm												
Wt Ratio	0.62	0.53	0.51	0.75	0.46	0.56	0.58	0.16	0.58	0.16	0.58	0.16
Uniform Delay, d1	28.4	20.0	28.4	22.3	30.3	23.2	27.9	18.2	27.9	18.2	27.9	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	4.9	0.5	2.2	3.4	2.6	1.7	2.0	0.2	2.0	0.2	2.0	0.2
Delay (s)	32.8	20.5	30.6	25.7	32.8	24.9	26.8	18.3	26.8	18.3	26.8	18.3
Level of Service	C	C	C	C	C	C	C	C	C	C	C	C
Approach Delay (s)	C	23.0	C	26.2	C	26.3	C	26.0	C	26.0	C	26.0
Approach LOS	C	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary												
HCM Average Control Delay		25.2		HCM Level of Service		C						
HCM Volume to Capacity ratio		0.67										
Actuated Cycle Length (s)		67.9		Sum of lost time (s)		20.0						
Intersection Capacity Utilization		64.1%		ICU Level of Service		C						
Analysis Period (min)		15										
6 Critical Lane Group												

Movement	WB	WBR	SEL	SET	NMT	NWR	NWR2	SWL	SWR
Lane Configurations	0	0	259	494	621	0	190	147	256
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	0.95	0.95	0.97	1.00	1.00
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.85	1.00	0.85
Fit	0.95	1.00	1.00	1.00	1.00	1.00	0.85	1.00	0.85
Fit Protected	3433	3539	3539	3539	3539	3539	1563	3433	1563
Satd. Flow (prot)	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95
Fit Permitted	3433	3539	3539	3539	3539	3539	1563	3433	1563
Satd. Flow (perm)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Peak-hour factor, PHF	0	0	299	549	690	0	211	163	284
Adj. Flow (vph)	0	0	299	549	690	0	211	163	284
RTOR Reduction (vph)	0	0	0	0	0	0	136	0	233
Lane Group Flow (vph)	0	0	299	549	690	0	75	163	51
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	5	2	6	6	6	6	6	6	6
Permitted Phases	8.5	29.8	16.3	16.3	16.3	16.3	8.3	8.3	8.3
Actuated Green, G (s)	9.5	29.8	16.3	16.3	16.3	16.3	8.3	8.3	8.3
Effective Green, g (s)	0.21	0.65	0.35	0.35	0.35	0.35	0.18	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
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	707	2288	1251	1251	1251	1251	618	285	285
Lane Grp Cap (vph)	0.13	0.13	0.13	0.13	0.13	0.13	0.05	0.05	0.05
vs Ratio Prot	0.42	0.24	0.55	0.55	0.55	0.55	0.26	0.16	0.16
vs Ratio Perm	15.9	3.4	12.0	12.0	12.0	12.0	10.1	16.3	16.0
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	0.4	0.1	0.5	0.5	0.5	0.5	0.1	0.2	0.3
Incremental Delay, d2	16.3	3.5	12.5	12.5	12.5	12.5	10.2	16.5	16.3
Delay (s)	B	A	B	B	B	B	B	B	B
Level of Service	A	A	B	B	B	B	B	B	B
Approach Delay (s)	8.0	8.0	12.0	12.0	12.0	12.0	16.4	16.4	16.4
Approach LOS	A	A	B	B	B	B	B	B	B
Intersection Summary									
HCM Average Control Delay	11.3								
HCM Volume to Capacity ratio	0.45								
Actuated Cycle Length (s)	46.1								
Intersection Capacity Utilization	39.7%								
Analysis Period (min)	15								
c Critical Lane Group									

Movement	EB1	EB2	SEL	SET	SEB	NW1	NW2	SWL	SWR
Lane Configurations	399	0	241	275	375	0	0	401	255
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)	0.95	0.95	1.00	0.97	0.95	0.95	1.00	0.85	1.00
Lane Util. Factor	1.00	1.00	0.85	1.00	1.00	1.00	1.00	0.85	1.00
Fit	0.95	0.95	0.85	1.00	0.95	0.95	1.00	0.85	1.00
Fit Protected	1681	1681	1583	3433	3539	3539	1583	3433	1583
Satd. Flow (prot)	0.95	0.95	0.85	1.00	0.95	0.95	1.00	0.85	1.00
Fit Permitted	1681	1681	1583	3433	3539	3539	1583	3433	1583
Satd. Flow (perm)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Peak-hour factor, PHF	443	0	269	306	417	0	0	446	280
Adj. Flow (vph)	0	0	269	306	417	0	0	446	280
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	221	222	76	306	417	0	0	446	83
Turn Type	Split	Split	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	4	4	4	4	4	4	4
Permitted Phases	11.4	11.4	11.4	5.2	21.0	11.4	11.8	11.8	11.8
Actuated Green, G (s)	11.4	11.4	11.4	5.2	21.0	11.4	11.8	11.8	11.8
Effective Green, g (s)	0.28	0.28	0.28	0.13	0.52	0.28	0.29	0.29	0.29
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	474	474	442	1840	1034	482	482	482	482
Lane Grp Cap (vph)	0.13	0.13	0.13	0.09	0.12	0.13	0.05	0.05	0.05
vs Ratio Prot	0.47	0.47	0.17	0.69	0.23	0.43	0.18	0.18	0.18
vs Ratio Perm	12.0	12.0	10.9	16.8	5.3	11.6	10.7	10.7	10.7
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	0.7	0.7	0.2	4.6	0.1	0.3	0.2	0.2	0.2
Incremental Delay, d2	12.7	12.7	11.1	21.5	5.3	11.9	10.9	10.9	10.9
Delay (s)	B	B	B	C	A	B	B	B	B
Level of Service	A	A	B	C	A	B	B	B	B
Approach Delay (s)	12.1	12.1	12.2	12.2	11.5	11.5	11.5	11.5	11.5
Approach LOS	B	B	B	B	B	B	B	B	B
Intersection Summary									
HCM Average Control Delay	11.9								
HCM Volume to Capacity ratio	0.49								
Actuated Cycle Length (s)	40.4								
Intersection Capacity Utilization	40.0%								
Analysis Period (min)	15								
c Critical Lane Group									

ALL-WAY STOP CONTROL ANALYSIS														
General Information					Site Information									
Analyst	Jacob Swin	Intersection	Carmel Creek Rd / Del Mar Trail											
Agency/Co.	USA	Jurisdiction	City of San Diego											
Date Performed	3/26/2011	Analysis Year	2011											
Analysis Time Period	30 Existing + Project (182) 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	L	T	R	L	T
Volume (veh/h)					5	5	4	55	12	10	10	10	10	10
% Thus Left Lane					Northbound					Southbound				
Approach					L	T	R	L	T	L	T	R	L	T
Volume (veh/h)					12	755	100	15	427	50	427	10	50	427
% Thus Left Lane					50					50				
Eastbound					Westbound					Southbound				
L1					L1					L1				
L2					L2					L2				
LTR					LTR					LTR				
0.90					0.90					0.90				
PHF					14					85				
Flow Rate (veh/h)					2					2				
% Heavy Vehicles					1					2				
No. Lanes					2					5				
Geometry Group					2					5				
Duration, T					0.25					0.25				
Saturation Headway Adjustment Worksheet														
Prop. Left-Turns					0.4					0.0				
Prop. Right-Turns					0.3					0.0				
Prop. Heavy Vehicle					0.0					0.0				
hLT-adj					0.2					0.2				
hRT-adj					-0.6					-0.6				
hHV-adj					1.7					1.7				
hadj computed					-0.1					0.0				
Departure Headway and Service Time					3.20					3.20				
hd initial value (s)					0.08					0.38				
K initial					6.70					5.50				
hd final value (s)					0.16					0.66				
K final value					2.0					2.3				
Move-up time, m (s)					4.6					3.2				
Service Time, ts (s)					4.7					3.0				
Capacity and Level of Service														
Eastbound					Westbound					Northbound				
L1					L1					L1				
L2					L2					L2				
264					335					649				
Capacity (veh/h)					10.81					18.16				
Delay (s/veh)					9.88					24.85				
LOS					A					C				
Approach Delay (s/veh)					9.88					10.81				
LOS					A					B				
Intersection Delay (s/veh)					18.29					21.86				
Intersection LOS					C					C				
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	2	352	375	293	448	8	375	5	155	1	4
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)	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
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1770	1863	1770	1863	1770	1863
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1863	1770	1863	1770	1863	1770	1863
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)	2	391	417	326	498	9	417	6	172	1	4
RTOR Reduction (vph)	0	0	271	0	1	0	0	0	124	0	1
Lane Group Flow (vph)	2	391	146	326	506	0	0	423	48	0	2
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	4	8	8	2	2	2	2	6	6
Permitted Phases	0.8	22.3	22.3	16.8	38.3	21.9	21.9	21.9	21.9	1.1	1.1
Activated Green, G (s)	0.8	22.3	22.3	16.8	38.3	21.9	21.9	21.9	21.9	1.1	1.1
Effective Green, g (s)	0.01	0.29	0.29	0.22	0.49	0.26	0.26	0.26	0.26	0.01	0.01
Activated 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)	18	532	452	381	911	498	444	498	444	25	25
Lane Grp Cap (vph)	0.00	c0.21	0.09	c0.18	0.27	c0.24	0.03	c0.24	0.03	c0.00	c0.00
v/s Ratio Prot	0.11	0.73	0.32	0.86	0.56	0.86	0.11	0.86	0.11	0.08	0.08
v/c Ratio	38.3	25.2	22.0	23.5	13.9	26.5	20.9	26.5	20.9	38.0	38.0
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	2.7	5.2	0.4	16.9	0.7	12.8	0.1	12.8	0.1	1.4	1.4
Incremental Delay, d2	41.0	30.5	22.4	16.4	14.7	39.3	21.0	39.3	21.0	39.4	39.4
Delay (s)	D	C	C	D	B	D	C	D	C	D	D
Level of Service	D	C	C	D	B	D	C	D	C	D	D
Approach Delay (s)	26.3	26.3	26.3	27.1	27.1	26.3	26.3	26.3	26.3	26.3	26.3
Approach LOS	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary	C										
HCM Average Control Delay	28.7										
HCM Volume to Capacity ratio	0.80										
Actuated Cycle Length (s)	78.1										
Intersection Capacity Utilization	72.5%										
Analysis Period (min)	15										
c Critical Lane Group	C										

HCM Signalized Intersection Capacity Analysis
 2: San Dieguito Road & El Camino Real

Existing + Project (Buildout) AM
 12/11/2011

Movement	WB	WB	WB	NB	NB	NB	SB	SB
Lane Configurations	1	1	1	1	1	1	1	1
Volume (vph)	397	299	0	203	287	281	436	436
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	0.85	1.00	0.95	0.95
Fit	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fit Protected	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	1583	1863	1583	1583	1770	3539	3539
Fit Permitted	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	1583	1863	1583	1583	1770	3539	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	441	332	0	226	319	312	484	484
RTOR Reduction (vph)	0	246	0	0	243	0	0	0
Lane Group Flow (vph)	441	84	0	226	76	312	484	484
Turn Type	1	1	3	8	8	7	7	7
Permitted Phases	1	1	3	8	8	7	7	7
Actuated Green, G (s)	12.9	12.9	12.1	12.1	12.1	14.0	12.9	12.9
Effective Green, g (s)	12.9	12.9	12.1	12.1	12.1	14.0	12.9	12.9
Actuated g/C Ratio	0.25	0.25	0.24	0.24	0.24	0.27	0.25	0.25
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)	888	400	442	376	486	895	400	400
v/s Ratio Prot	0.13	0.05	0.12	0.05	0.05	0.14	0.05	0.05
v/s Ratio Perm	0.51	0.21	0.51	0.20	0.64	0.54	0.21	0.21
Uniform Delay, d1	16.3	15.0	16.9	15.6	16.3	16.5	16.5	16.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.3	1.0	0.3	2.9	0.7	0.7	0.7
Delay (s)	16.8	15.3	17.9	15.8	19.2	17.2	17.2	17.2
Level of Service	B	B	B	B	B	B	B	B
Approach Delay (s)	16.2	16.7	16.7	16.7	18.0	18.0	18.0	18.0
Approach LOS	B	B	B	B	B	B	B	B
Intersection Summary								
HCM Average Control Delay	17.0							
HCM Volume to Capacity ratio	0.57							
Actuated Cycle Length (s)	51.0							
Intersection Capacity Utilization	47.6%							
Analysis Period (min)	15							
c Critical Lane Group								

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

Existing + Project (Buildout) AM
 12/11/2011

Movement	WB	WB	WB	NB	NB	NB	SB	SB
Lane Configurations	1	1	1	1	1	1	1	1
Volume (vph)	84	7	0	462	50	3	841	841
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Fit	0.98	0.98	1.00	0.98	1.00	1.00	0.95	1.00
Fit Protected	0.98	0.98	1.00	0.98	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3414	3414	3487	3487	1770	3539	3539	3539
Fit Permitted	0.96	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3414	3414	3487	3487	1770	3539	3539	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	93	8	0	513	56	3	934	934
RTOR Reduction (vph)	7	0	0	13	0	0	0	0
Lane Group Flow (vph)	94	0	0	556	0	3	934	934
Turn Type	1	1	3	5	2	4	5	5
Permitted Phases	1	1	3	5	2	4	5	5
Actuated Green, G (s)	3.1	3.1	14.9	14.9	0.6	19.5	19.5	19.5
Effective Green, g (s)	3.1	3.1	14.9	14.9	0.6	19.5	19.5	19.5
Actuated g/C Ratio	0.10	0.10	0.49	0.49	0.02	0.64	0.64	0.64
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)	346	1688	1688	1688	35	2255	2255	2255
v/s Ratio Prot	0.03	0.16	0.16	0.16	0.00	0.28	0.28	0.28
v/s Ratio Perm	0.27	0.39	0.39	0.39	0.09	0.41	0.41	0.41
Uniform Delay, d1	12.7	4.8	4.8	4.8	14.7	2.7	2.7	2.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.1	0.1	0.1	1.1	0.1	0.1	0.1
Delay (s)	13.1	4.9	4.9	4.9	15.8	2.8	2.8	2.8
Level of Service	B	B	B	B	B	B	B	B
Approach Delay (s)	13.1	4.9	4.9	4.9	15.8	2.8	2.8	2.8
Approach LOS	B	B	B	B	B	B	B	B
Intersection Summary								
HCM Average Control Delay	4.3							
HCM Volume to Capacity ratio	0.39							
Actuated Cycle Length (s)	30.6							
Intersection Capacity Utilization	33.2%							
Analysis Period (min)	15							
c Critical Lane Group								

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

Existing + Project (Buildout) AM 12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SSR
Lane Configurations	5	83	70	95	137	35	40	341	57	41	781	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	1.00	1.00	1.00	1.00	1.00
Lane Util. Factor	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	1822	1770	1822	1770	1822	1770	1822	1770	1822	1770	1822
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	1822	1770	1822	1770	1822	1770	1822	1770	1822	1770	1822
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)	26	123	21	72	91	166	7	354	20	176	768	116
RTOR Reduction (vph)	0	11	0	0	114	0	6	0	0	0	17	0
Lane Group Flow (vph)	26	133	0	72	143	0	7	368	0	176	857	0
Turn Type	Prot	4	3	8	5	2	1	6				
Protected Phases												
Permitted Phases												
Actuated Green, G (s)	0.7	10.6	2.3	12.2	0.7	14.0	6.8	20.1				
Effective Green, g (s)	0.7	10.6	2.3	12.2	0.7	14.0	6.8	20.1				
Actuated g/C Ratio	0.01	0.21	0.05	0.25	0.01	0.28	0.14	0.40				
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)	25	389	82	413	25	989	242	1403				
vs Ratio Prot	0.01	0.07	0.04	0.09	0.09	0.10	0.10	0.25				
vs Ratio Perm												
W/C Ratio	1.04	0.34	0.88	0.35	0.28	0.37	0.74	0.82				
Uniform Delay, d1	24.5	16.6	23.6	15.5	24.3	14.3	20.6	11.8				
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Incremental Delay, d2	192.8	0.5	59.9	0.5	6.0	0.2	11.0	0.8				
Delay (s)	217.3	17.1	83.4	16.0	30.3	14.6	31.6	12.6				
Level of Service	F	B	F	B	C	B	C	B				
Approach Delay (s)	47.7		30.7		14.8		15.8					
Approach LOS	D		C		B		B					
Intersection Summary												
HCM Average Control Delay	20.9											
HCM Volume to Capacity Ratio	0.51											
Actuated Cycle Length (s)	49.7											
Intersection Capacity Utilization	55.9%											
Analysis Period (min)	15											
c Critical Lane Group												

[illegible]

Movement	EBT	EBP	WBT	NBT	WBL	NBL	NBR
Lane Configurations	↑↑↑	↑↑	↑↑	↑			
Lane Volume (veh/h)	1416	53	0	1384	0	0	139
Sign Control	Free		Free	Stop			
Grade	0%		0%	0%			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1673	59	0	1538	0	0	154
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn lane (veh)	None		None				
Median Type							
Median storage (veh)	575		607				
Upstream signal (ft)			0.87		0.90		0.87
PX platoon unblocked							
IC conflicting volume		1632		2372			554
VC1, stage 1 control vol							
VC2, stage 2 control vol			1199		1422		0
VCU, unblocked vol			41		6.8		6.9
IC, single (s)					114		942
IC, 2 stage (s)			2.2		3.5		3.3
IF (s)			100		100		84
p0 queue free %			502		114		942
dm capacity (veh/h)							
Decision Lane	EBT	EBP	WBT	NBT	WBL	NBL	NBR
Volume Total	679	679	374	769	769	154	
Volume Left	0	0	0	0	0	0	
Volume Right	0	0	59	0	0	154	
gSH	1700	1700	1700	1700	1700	942	
Volume to Capacity	0.37	0.37	0.22	0.45	0.45	0.16	
Queue Length 550 (ft)	0	0	0	0	0	15	
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.6	
Lane LOS						A	
Approach Delay (s)	0.0		0.0			9.6	
Approach LOS						A	
Intersection Summary							
Average Delay			0.4				
Intersection Capacity Utilization			43.8%				
Analysis Period (min)			15				
							A

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

Existing + Project (Buildout) AM
12/1/2011

Movement	EBL	EBT	WBT	WBR	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Volume (vph)	0	788	1049	0	944	326
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.3	5.6	5.6	5.6	5.6
Lane Util. Factor	0.95	0.95	0.95	0.95	0.97	0.91
Fit Protected						
Satd. Flow (prot)	1.00	1.00	1.00	1.00	0.95	1.00
Fit Permitted						
Satd. Flow (perm)	1.00	1.00	1.00	1.00	0.95	1.00
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	873	1166	0	1049	362
RTOR Reduction (vph)	0	0	0	0	3	39
Lane Group Flow (vph)	0	873	1166	0	1082	287
Turn Type						
Protected Phases		2.6	6.2		4	
Permitted Phases					4	
Actuated Green, G (s)		42.2	42.2		25.9	25.9
Effective Green, g (s)		42.2	42.2		25.9	25.9
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)		1867	1867		1110	467
v/s Ratio Prot		0.25	0.33		0.32	0.20
v/s Ratio Perm		0.47	0.62		0.97	0.62
v/c Ratio		11.9	13.3		26.7	22.8
Uniform Delay, d1		1.00	1.00		1.00	1.00
Progression Factor		0.2	0.7		20.9	2.4
Incremental Delay, d2		12.0	14.0		47.6	25.3
Delay (s)		B	B		D	C
Level of Service		B	B		D	C
Approach Delay (s)		12.0	14.0		42.5	
Approach LOS		B	B		D	
Intersection Summary						
HCM Average Control Delay		25.1			HCM Level of Service	C
HCM Volume to Capacity ratio		0.76				
Actuated Cycle Length (s)		80.0			Sum of lost time (s)	11.9
Intersection Capacity Utilization		68.6%			ICU Level of Service	C
Analysis Period (min)		15				
c Critical Lane Group						

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
9: Del Mar Heights Road & I-15 NB Ramps

Existing + Project (Buildout) AM
12/1/2011

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	224	1486	0	0	1512	929	373	0	953	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	0.91	1.00	0.95	0.95	0.91	0.95	0.95	0.95
Fit	1.00	1.00	1.00	1.00	0.95	1.00	0.86	0.85	1.00	1.00
Fit Protected	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3433	3538	5085	5833	1681	1454	1504	1504	1504	1504
Fit Permitted	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Satd. Flow (perm)	3433	3538	5085	5833	1681	1454	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
Adj. Flow (vph)	249	1651	0	0	1680	1032	414	0	1059	0
RTOR Reduction (vph)	0	0	0	0	447	0	9	9	0	0
Lane Group Flow (vph)	249	1651	0	0	1680	585	373	540	542	0
Turn Type	Prot	Prot	Prot	Split	Split	Split	Prot	Prot	Prot	Prot
Protected Phases	5	2	6	6	8	8	8	8	8	8
Permitted Phases										
Actuated Green, G (s)	10.2	64.1	49.9	49.9	47.9	47.9	47.9	47.9	47.9	47.9
Effective Green, g (s)	10.2	64.1	49.9	49.9	47.9	47.9	47.9	47.9	47.9	47.9
Actuated g/C Ratio	0.08	0.53	0.42	0.42	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	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	282	1890	2115	659	671	580	600	600	600	600
v/s Ratio Prot	0.07	0.47	0.33	0.37	0.22	0.37	0.36	0.36	0.36	0.36
v/s Ratio Perm										
W/C Ratio	0.85	0.87	0.79	0.89	0.56	0.93	0.93	0.93	0.93	0.93
Uniform Delay, d1	54.2	24.4	30.6	32.5	27.8	34.5	33.9	33.9	33.9	33.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	20.7	6.0	3.2	16.4	1.0	21.8	16.9	16.9	16.9	16.9
Delay (s)	74.8	30.4	33.8	48.9	28.8	56.3	50.8	50.8	50.8	50.8
Level of Service	E	C	C	D	C	E	D	D	D	D
Approach Delay (s)		36.2		39.5		47.3				
Approach LOS		D		D		D				
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

Synchro 7 - Report
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Movement	EBS	EBR	WBL	WBT	NBL	NBR
Lane Configurations	AAA	A	AA	AA	AA	A
Lane Volume (vph)	1902	180	147	2273	86	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	1.00
FT	100	0.85	1.00	1.00	1.00	0.85
FT Protected	100	1.00	0.95	1.00	0.85	1.00
Satd. Flow [prot]	5085	1583	1770	5085	3433	1583
FT Permitted	100	1.00	0.95	1.00	0.95	1.00
Satd. Flow [perm]	5085	1583	1770	5085	3433	1583
Pick-up factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2113	211	163	2526	96	74
ROR Reduction (vph)	0	102	0	0	0	66
Lane Grp Flow (vph)	2113	109	163	2526	96	8
Turn Type	Perm	Prot	Perm	Prot	Perm	Prot
Protected Phases	4	3	8	2		2
Permitted Phases	25.3	25.3	6.1	35.4	5.4	5.4
Actuated Green, G (s)	25.3	25.3	6.1	35.4	5.4	5.4
Effective Green, g (s)	0.92	0.92	0.12	0.73	0.11	0.11
Actuated g/C Ratio	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
Vehicle Extension (s)	2538	821	221	3689	380	175
Lane Grp Cap (vph)	6042	0.09	0.50	6042	0.03	0.01
v/s Ratio Prot	0.07					
v/s Ratio Perm	0.80	0.13	0.74	0.68	0.25	0.05
v/c Ratio	9.7	6.1	20.6	3.7	19.9	19.4
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	1.8	0.1	12.1	0.5	0.4	0.1
Incremental Delay, d2	11.5	6.2	32.7	4.2	20.2	19.5
Delay (s)	B	A	C	A	C	B
Level of Service	B	A	C	A	C	B
Approach Delay (s)	11.0		5.9	19.9		
Approach LOS	B		A	B		
Intersection Summary						
HCM Average Control Delay	8.7					A
HCM Volume to Capacity ratio	0.73					12.0
Actuated Cycle Length (s)	48.8					B
Intersection Capacity Utilization	58.2%					
Analysis Period (min)	15					
Critical Lane Group						

Baseline

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Left	7	4	4	3	8	6	5	2	1	6	6	6
Through	7	4	4	3	8	6	5	2	1	6	6	6
Right	7	4	4	3	8	6	5	2	1	6	6	6
Left	7	4	4	3	8	6	5	2	1	6	6	6
Through	7	4	4	3	8	6	5	2	1	6	6	6
Right	7	4	4	3	8	6	5	2	1	6	6	6
Left	7	4	4	3	8	6	5	2	1	6	6	6
Through	7	4	4	3	8	6	5	2	1	6	6	6
Right	7	4	4	3	8	6	5	2	1	6	6	6
Left	7	4	4	3	8	6	5	2	1	6	6	6
Through	7	4	4	3	8	6	5	2	1	6	6	6
Right	7	4	4	3	8	6	5	2	1	6	6	6
Left	7	4	4	3	8	6	5	2	1	6	6	6
Through	7	4	4	3	8	6	5	2	1	6	6	6
Right	7	4	4	3	8	6	5	2	1	6	6	6
Left	7	4	4	3	8	6	5	2	1	6	6	6
Through	7	4	4	3	8	6	5	2	1	6	6	6
Right	7	4	4	3	8	6	5	2	1	6	6	6
Left	7	4	4	3	8	6	5	2	1	6	6	6
Through	7	4	4	3	8	6	5	2	1	6	6	6
Right	7	4	4	3	8	6	5	2	1	6	6	6
Left	7	4	4	3	8	6	5	2	1	6	6	6
Through	7	4	4	3	8	6	5	2	1	6	6	6
Right	7	4	4	3	8	6	5	2	1	6	6	6
Left	7	4	4	3	8	6	5	2	1	6	6	6
Through	7	4	4	3	8	6	5	2	1	6	6	6
Right	7	4	4	3	8	6	5	2	1	6	6	6
Left	7	4	4	3	8	6	5	2	1	6	6	6
Through	7	4	4	3	8	6	5	2	1	6	6	6
Right	7	4	4	3	8	6	5	2	1	6	6	6
Left	7	4	4	3	8	6	5	2	1	6	6	6
Through	7	4	4	3	8	6	5	2	1	6	6	6
Right	7	4	4	3	8	6	5	2	1	6	6	6
Left	7	4	4	3	8	6	5	2	1	6	6	6
Through	7	4	4	3	8	6	5	2	1	6	6	6
Right	7	4	4	3	8	6	5	2	1	6	6	6
Left	7	4	4	3	8	6	5	2	1	6	6	6
Through	7	4	4	3	8	6	5	2	1	6	6	6
Right	7	4	4	3	8	6	5	2	1	6	6	6
Left	7	4	4	3	8	6	5	2	1	6	6	6
Through	7	4	4	3	8	6	5	2	1	6	6	6
Right	7	4	4	3	8	6	5	2	1	6	6	6
Left	7	4	4	3	8	6	5	2	1	6	6	6
Through	7	4	4	3	8	6	5	2	1	6	6	6
Right	7	4	4	3	8	6	5	2	1	6	6	6
Left	7	4	4	3	8	6	5	2	1	6	6	6
Through	7	4	4	3	8	6	5	2	1	6	6	6
Right	7	4	4	3	8							

Baseline

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA
Volume (vph)	1811	158	158	158	2348	72	72	72	72	159	308
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	0.91	1.00	0.97	0.91	1.00	1.00	1.00	1.00	1.00	0.97	0.91
Flt Protected	1.00	0.85	1.00	1.00	1.00	0.85	1.00	0.85	1.00	1.00	0.91
Satd. Flow (prot)	5085	3433	3433	5085	3433	3433	5085	3433	3433	5085	3433
Flt Permitted	5085	3433	3433	5085	3433	3433	5085	3433	3433	5085	3433
Satd. Flow (perm)	5085	3433	3433	5085	3433	3433	5085	3433	3433	5085	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
Adj. Flow (vph)	2012	176	176	176	2609	80	80	80	80	176	342
RTOR Reduction (vph)	0	75	0	0	0	0	70	0	0	0	149
Lane Group Flow (vph)	2012	101	176	2609	80	10	10	10	10	176	690
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	3	8	2	2	2	2	2	2	2	2
Permitted Phases	4	3	8	2	2	2	2	2	2	2	2
Actuated Green, G (s)	29.6	29.6	3.8	37.4	6.3	6.3	6.3	6.3	6.3	29.6	16.7
Effective Green, g (s)	29.6	29.6	3.8	37.4	6.3	6.3	6.3	6.3	6.3	29.6	16.7
Actuated g/C Ratio	0.57	0.57	0.07	0.72	0.12	0.12	0.12	0.12	0.12	0.57	0.21
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2911	906	282	3679	216	193	193	193	193	3679	984
vs Ratio Prot	0.40	0.05	0.05	0.51	0.05	0.05	0.05	0.05	0.05	0.51	0.15
vs Ratio Perm	0.09	0.11	0.70	0.71	0.37	0.05	0.01	0.01	0.01	0.71	0.04
Uniform Delay, d1	7.8	5.0	23.4	4.1	20.9	20.1	20.1	20.1	20.1	4.1	28.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.1	8.2	0.6	1.1	0.1	0.1	0.1	0.1	0.6	2.3
Delay (s)	8.5	5.1	31.6	4.7	22.0	20.2	20.2	20.2	20.2	4.7	30.9
Level of Service	A	A	C	A	C	C	C	C	C	A	C
Approach Delay (s)	8.3	6.4	21.1	6.4	21.1	21.1	21.1	21.1	21.1	6.4	31.9
Approach LOS	A	A	C	A	C	C	C	C	C	A	C
Intersection Summary											
HCM Average Control Delay	7.7										
HCM Volume to Capacity ratio	0.66										
Actuated Cycle Length (s)	51.7										
Intersection Capacity Utilization	56.0%										
Analysis Period (min)	15										
c Critical Lane Group											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA
Volume (vph)	233	987	321	251	1563	92	285	108	95	159	308
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	0.97	0.91	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	0.91
Flt Protected	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	0.91
Satd. Flow (prot)	3433	4898	3433	3433	5043	3433	5043	3433	3433	5043	3433
Flt Permitted	3433	4898	3433	3433	5043	3433	5043	3433	3433	5043	3433
Satd. Flow (perm)	3433	4898	3433	3433	5043	3433	5043	3433	3433	5043	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
Adj. Flow (vph)	259	1097	357	279	1759	102	317	120	106	177	342
RTOR Reduction (vph)	0	72	0	0	0	0	0	0	0	0	149
Lane Group Flow (vph)	259	1382	0	279	1853	0	317	120	25	177	690
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	2	2	2	2	2	2	2
Permitted Phases	7	4	3	8	2	2	2	2	2	2	2
Actuated Green, G (s)	7.2	28.2	9.0	30.0	8.7	18.2	18.2	18.2	18.2	7.2	16.7
Effective Green, g (s)	7.2	28.2	9.0	30.0	8.7	18.2	18.2	18.2	18.2	7.2	16.7
Actuated g/C Ratio	0.09	0.36	0.11	0.38	0.11	0.23	0.23	0.23	0.23	0.09	0.21
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	314	1757	393	1925	380	1177	367	314	984	1757	984
vs Ratio Prot	0.06	0.28	0.08	0.37	0.06	0.10	0.07	0.07	0.07	0.28	0.15
vs Ratio Perm	0.02	0.79	0.71	0.96	0.02	0.40	0.07	0.07	0.07	0.79	0.04
Uniform Delay, d1	35.1	22.5	33.5	23.8	34.2	23.8	23.8	23.8	23.8	34.2	28.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	18.0	2.4	5.8	12.8	14.5	0.0	0.1	0.1	0.1	2.4	2.3
Delay (s)	53.1	24.9	39.3	36.5	48.8	23.8	23.8	23.8	23.8	36.5	30.9
Level of Service	D	C	D	D	D	C	C	C	C	D	C
Approach Delay (s)	53.1	24.9	39.3	36.5	48.8	23.8	23.8	23.8	23.8	36.5	31.9
Approach LOS	D	C	D	D	D	C	C	C	C	D	C
Intersection Summary											
HCM Average Control Delay	33.6										
HCM Volume to Capacity ratio	0.61										
Actuated Cycle Length (s)	78.6										
Intersection Capacity Utilization	76.8%										
Analysis Period (min)	15										
c Critical Lane Group											

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

Existing + Project (Buildout) AM
 12/11/2011

Movement	EBB	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
Volume (vph)	157	664	315	272	1245	169	442	183	108	142	180
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	0.97	0.91	0.97	0.91	0.97	0.91	0.97	0.91	0.97	0.91	0.97
Flt Protected	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	4837	3433	4837	3433	4837	3433	4837	3433	4837	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
Satd. Flow (perm)	3433	4837	3433	4837	3433	4837	3433	4837	3433	4837	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
Adj. Flow (vph)	174	727	350	302	1383	188	491	203	120	158	200
RTOR Reduction (vph)	0	102	0	20	0	0	98	0	0	0	149
Lane Group Flow (vph)	174	975	0	302	1551	0	491	225	0	158	224
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	5	2	1	6			
Permitted Phases	6.0	22.6	9.5	26.1	12.8	12.8	10.0	10.0			
Actuated Green, G (s)	6.0	22.6	9.5	26.1	12.8	12.8	10.0	10.0			
Effective Green, g (s)	6.0	22.6	9.5	26.1	12.8	12.8	10.0	10.0			
Actuated g/C Ratio	0.08	0.32	0.13	0.37	0.18	0.18	0.14	0.14			
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)	291	1542	460	1838	620	867	250	464			
v/s Ratio Prot	0.05	0.20	0.09	0.31	0.14	0.15	0.08	0.07			
v/s Ratio Perm	0.60	0.63	0.66	0.84	0.79	0.26	0.63	0.48			
Uniform Delay, d1	31.3	20.8	29.2	20.5	27.8	25.0	28.7	26.1			
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	3.3	0.9	3.4	3.7	6.9	0.2	5.1	0.8			
Delay (s)	34.6	21.5	32.5	24.3	34.6	25.1	33.8	26.9			
Level of Service	C	C	C	C	C	C	C	C			
Approach Delay (s)	23.3		25.6		30.9		30.3				
Approach LOS	C		C		C		C				
Intersection Summary											
HCM Average Control Delay			26.5								
HCM Volume to Capacity ratio			0.80								
Actuated Cycle Length (s)			70.9								
Intersection Capacity Utilization			86.2%								
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

Existing + Project (Buildout) AM
 12/11/2011

Movement	EBB	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
Volume (vph)	206	682	131	79	1088	210	119	151	11	54	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.98	1.00	0.98	1.00	0.98	1.00	0.98	1.00	0.98	1.00
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1770	4959	1770	4959	1770	4959	1770	4959	1770	4959	1770
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (perm)	1770	4959	1770	4959	1770	4959	1770	4959	1770	4959	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
Adj. Flow (vph)	229	736	146	88	1209	233	132	168	12	60	67
RTOR Reduction (vph)	0	33	0	0	34	0	0	0	0	0	102
Lane Group Flow (vph)	229	849	0	88	1408	0	132	177	0	60	104
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	5	2	1	6			
Permitted Phases	12.3	30.5	6.9	25.1	7.9	15.9	4.0	12.0			
Actuated Green, G (s)	12.3	30.5	6.9	25.1	7.9	15.9	4.0	12.0			
Effective Green, g (s)	12.3	30.5	6.9	25.1	7.9	15.9	4.0	12.0			
Actuated g/C Ratio	0.17	0.42	0.09	0.34	0.11	0.22	0.06	0.16			
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)	287	2063	467	1689	191	400	97	274			
v/s Ratio Prot	0.13	0.17	0.05	0.28	0.07	0.10	0.03	0.06			
v/s Ratio Perm	0.77	0.41	0.53	0.83	0.69	0.44	0.62	0.38			
Uniform Delay, d1	29.2	15.1	31.6	22.1	31.5	24.9	33.9	27.3			
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	11.7	0.1	3.0	3.5	10.3	0.8	11.2	0.9			
Delay (s)	40.8	15.2	34.6	25.6	41.8	25.8	45.1	28.2			
Level of Service	D	B	C	C	D	C	D	C			
Approach Delay (s)	20.5		26.1		32.5		32.0				
Approach LOS	C		C		C		C				
Intersection Summary											
HCM Average Control Delay			25.3								
HCM Volume to Capacity ratio			0.72								
Actuated Cycle Length (s)			73.3								
Intersection Capacity Utilization			67.9%								
Analysis Period (min)			15								
c Critical Lane Group											

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
16: Del Mar Heights Road & Lansdale Drive

Existing + Project (Buildout) AM
12/11/2011

Movement	EBT	EBL	EBR	WBT	WBL	WBR	NBT	NBL	NBR	SBT	SBL	SBR
Lane Configurations	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA
Volume (vph)	164	570	34	65	1721	35	43	25	53	48	58	358
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	1.00	1.00	1.00	1.00	1.00	0.87	1.00
Flt Protected	1.00	0.98	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	5042	1770	5062	1770	5062	1770	1673	1770	1622	1770	1622
Satd. Flow (perm)	1770	5042	1770	5062	1770	5062	1770	1673	1770	1622	1770	1622
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)	182	633	38	72	1246	39	48	28	59	53	64	398
RTOR Reduction (vph)	0	9	0	0	5	0	0	47	0	0	236	0
Lane Group Flow (vph)	182	662	0	72	1280	0	48	40	0	53	228	0
Turn Type	Prot	7	4	3	8	5	2	1	6			
Permitted Phases	1	2	3	4	5	6						
Actuated Green, G (s)	6.2	22.4	2.7	18.9	1.7	11.1	2.4	11.8				
Effective Green, g (s)	6.2	22.4	2.7	18.9	1.7	11.1	2.4	11.8				
Actuated g/C Ratio	0.11	0.41	0.05	0.35	0.03	0.20	0.04	0.22				
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)	201	2069	88	1732	55	340	78	351				
v/s Ratio Prot	0.10	0.13	0.04	0.25	0.03	0.02	0.03	0.14				
v/s Ratio Perm	0.91	0.32	0.82	0.73	0.87	0.12	0.68	0.64				
Uniform Delay, d1	23.9	10.9	25.7	15.6	26.3	17.8	25.7	19.5				
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Incremental Delay, d2	38.0	0.1	42.2	1.6	76.2	0.2	21.0	4.0				
Delay (s)	61.9	11.0	68.0	17.2	102.6	17.9	46.7	23.5				
Level of Service	E	B	E	B	F	B	D	C				
Approach Delay (s)	21.9		19.5		46.0		25.9					
Approach LOS	C		B		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
17: Del Mar Heights Road & Carmel Canyon Road

Existing + Project (Buildout) AM
12/11/2011

Movement	EBT	EBL	EBR	WBT	WBL	WBR	NBT	NBL	NBR	SBT	SBL	SBR
Lane Configurations	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA
Volume (vph)	557	1229	385	999	270	332	270	332	270	332	270	332
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00
Flt Protected	1.00	0.97	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	4942	1770	5065	3433	1583	1583	4942	1770	5065	3433	1583	1583
Satd. Flow (perm)	4942	1770	5065	3433	1583	1583	4942	1770	5065	3433	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)	619	143	428	1110	300	369	619	143	428	1110	300	369
RTOR Reduction (vph)	64	0	0	0	0	0	64	0	0	0	0	294
Lane Group Flow (vph)	688	0	428	1110	300	75	688	0	428	1110	300	75
Turn Type	Prot	4	3	8	2	2	Prot	4	3	8	2	2
Permitted Phases	1	2	3	4	5	6	1	2	3	4	5	6
Actuated Green, G (s)	13.7	15.2	32.9	10.4	10.4	10.4	13.7	15.2	32.9	10.4	10.4	10.4
Effective Green, g (s)	13.7	15.2	32.9	10.4	10.4	10.4	13.7	15.2	32.9	10.4	10.4	10.4
Actuated g/C Ratio	0.27	0.30	0.64	0.20	0.20	0.20	0.27	0.30	0.64	0.20	0.20	0.20
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1320	524	3261	696	321	321	1320	524	3261	696	321	321
v/s Ratio Prot	0.14	0.24	0.22	0.09	0.05	0.05	0.14	0.24	0.22	0.09	0.05	0.05
v/s Ratio Perm	0.53	0.82	0.34	0.43	0.23	0.23	0.53	0.82	0.34	0.43	0.23	0.23
Uniform Delay, d1	16.0	16.8	4.2	17.9	17.1	17.1	16.0	16.8	4.2	17.9	17.1	17.1
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	0.4	9.6	0.1	0.4	0.4	0.4	0.4	9.6	0.1	0.4	0.4	0.4
Delay (s)	16.4	26.3	4.3	18.3	17.5	17.5	16.4	26.3	4.3	18.3	17.5	17.5
Level of Service	B	C	A	B	B	B	B	C	A	B	B	B
Approach Delay (s)	16.4		10.4	17.8			16.4		10.4	17.8		
Approach LOS	B		B	B			B		B	B		
Intersection Summary												
HCM Average Control Delay												
HCM Volume to Capacity ratio												
Actuated Cycle Length (s)												
Intersection Capacity Utilization												
Analysis Period (min)												
c. Critical Lane Group												

HCM Signalized Intersection Capacity Analysis 18: Del Mar Highlands Town Ctr. & El Camino Real

Existing + Project (Buildout) AM
12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SWL	SWT	SWR
Lane Configurations	72	14	14	94	31	107	158	313	98	174	634
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	0.95	1.00	1.00	1.00	0.97	0.91	0.97	0.91	0.81
Lane Util. Factor	1.00	0.96	1.00	0.96	1.00	0.95	1.00	0.96	1.00	0.99	1.00
Flt Protected	0.95	0.98	0.95	0.96	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1681	1658	1681	1795	1593	1633	1633	1633	1633	1633	1633
Flt Permitted	0.95	0.98	0.95	0.96	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1681	1658	1681	1795	1593	1633	1633	1633	1633	1633	1633
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)	80	16	16	104	34	119	176	348	109	193	704
RTOR Reduction (vph)	0	14	0	0	0	88	0	65	0	0	14
Lane Group Flow (vph)	57	41	0	138	21	176	392	0	193	760	0
Turn Type	Spill	Spill	Spill	Spill	Spill	Perm	Prot	Prot	Prot	Prot	Prot
Protected Phases	2	2	2	6	6	6	3	8	7	4	4
Permitted Phases	7.6	7.6	7.6	10.0	10.0	10.0	7.0	14.8	8.4	16.2	16.2
Actuated Green, G (s)	7.6	7.6	7.6	10.0	10.0	10.0	7.0	14.8	8.4	16.2	16.2
Effective Green, g (s)	0.13	0.13	0.13	0.18	0.18	0.18	0.12	0.26	0.15	0.29	0.29
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
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)	225	222	222	316	279	423	1278	1278	508	1431	1431
Lane Grp Cap (vph)	225	222	222	316	279	423	1278	1278	508	1431	1431
v/s Ratio Prot	0.03	0.02	0.02	0.08	0.06	0.06	0.06	0.08	0.06	0.15	0.15
v/s Ratio Perm	0.26	0.19	0.19	0.44	0.08	0.42	0.31	0.31	0.38	0.53	0.53
Uniform Delay, d1	22.1	21.9	21.9	20.9	19.5	23.0	16.9	17.1	21.8	17.1	17.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.4	0.4	1.0	0.1	0.1	0.7	0.1	0.5	0.4	0.4
Delay (s)	22.7	22.3	22.3	21.9	19.7	23.7	17.0	17.0	22.3	17.5	17.5
Level of Service	C	C	C	C	B	C	B	B	C	B	B
Approach Delay (s)	22.5	22.5	22.5	20.8	19.9	23.7	17.0	17.0	22.3	17.5	17.5
Approach LOS	C	C	C	C	B	B	B	B	C	B	B
Intersection Summary											
HCM Average Control Delay	19.1										
HCM Volume to Capacity ratio	0.40										
Actuated Cycle Length (s)	66.8										
Intersection Capacity Utilization	41.7%										
Analysis Period (min)	15										
Critical Lane Group	B										
	12.0										
	A										

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

Existing + Project (Buildout) AM
12/11/2011

Movement	EBL	EBT	EBB	WBL	WBT	NBL	NBT	NBR	SWL	SWT	SWR
Lane Configurations	7	7	7	7	7	7	7	7	7	7	7
Volume (vph)	171	83	113	45	189	149	111	449	100	472	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00
Flt Protected	1.00	1.00	0.95	1.00	0.93	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1770	1863	1563	1770	1739	1770	1770	3531	1770	3539	1563
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1563	1770	1739	1770	1770	3531	1770	3539	1563
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)	190	92	125	50	210	166	123	499	8	111	524
RTOR Reduction (vph)	0	0	77	0	36	0	0	2	0	0	148
Lane Group Flow (vph)	190	92	49	50	340	0	123	505	0	111	524
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	4	3	8	5	6	2	1	6	6
Permitted Phases	12.2	26.5	26.5	3.5	17.8	7.1	16.5	16.5	6.1	15.5	15.5
Actuated Green, G (s)	12.2	26.5	26.5	3.5	17.8	7.1	16.5	16.5	6.1	15.5	15.5
Effective Green, g (s)	0.18	0.39	0.39	0.05	0.26	0.10	0.24	0.24	0.08	0.23	0.23
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)	315	720	612	90	451	183	849	358	157	800	358
Lane Grp Cap (vph)	315	720	612	90	451	183	849	358	157	800	358
v/s Ratio Prot	0.01	0.05	0.03	0.03	0.02	0.07	0.14	0.06	0.06	0.15	0.03
v/s Ratio Perm	0.60	0.43	0.08	0.56	0.75	0.67	0.50	0.56	0.71	0.66	0.12
Uniform Delay, d1	28.0	13.6	13.3	31.8	23.4	29.6	23.1	30.4	24.1	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
Incremental Delay, d2	3.2	0.1	0.1	7.2	7.0	9.3	1.1	13.5	1.9	0.2	1.9
Delay (s)	29.2	13.7	13.4	39.0	30.4	39.0	24.2	43.9	26.1	21.3	21.3
Level of Service	C	B	B	D	C	D	C	D	D	C	C
Approach Delay (s)	20.8	31.4	31.4	31.4	31.4	31.4	27.1	27.1	27.1	27.1	27.1
Approach LOS	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary											
HCM Average Control Delay	26.9										
HCM Volume to Capacity ratio	0.68										
Actual Cycle Length (s)	66.6										
Intersection Capacity Utilization	61.1%										
Analysis Period (min)	15										
Critical Lane Group	C										

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

Existing + Project (Buildout) AM
12/11/2011

Movement	SEL	SET	3ER	NWL	NWLR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	3	6	1	4	1	1	4	1	4	1	4
Volume (vph)	311	118	123	60	291	28	283	425	28	66	356
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1639	1770	1863	1863	1829	1770	3507	1770	3280	3280
Satd. Flow (perm)	1770	1863	1863	1829	1770	1863	1829	3507	1770	3280	3280
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	327	124	129	63	305	31	283	447	29	69	417
RTOR Reduction (vph)	0	0	104	0	3	0	0	5	0	0	191
Lane Group Flow (vph)	327	124	25	0	397	0	283	471	0	69	664
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	4	4	4	4	4	4	4	4	4
Actuated Green, G (s)	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8
Effective Green, g (s)	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8
Actuated g/C Ratio	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	349	367	312	409	305	1144	305	1144	305	1144	785
v/s Ratio Prot	0.18	0.07	0.02	0.22	0.16	0.13	0.16	0.13	0.16	0.13	0.20
v/s Ratio Perm	0.94	0.94	0.94	0.97	0.93	0.41	0.93	0.41	0.93	0.41	0.88
Uniform Delay, d1	35.7	31.2	29.6	34.8	36.8	23.7	36.8	23.7	36.8	23.7	36.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	32.0	0.5	0.1	36.6	32.9	0.2	32.9	0.2	32.9	0.2	11.4
Delay (s)	67.7	31.8	29.7	71.4	69.7	23.9	69.7	23.9	69.7	23.9	48.0
Level of Service	E	C	C	E	E	C	E	C	E	C	D
Approach Delay (s)	51.8	51.8	51.8	71.4	71.4	41.0	71.4	41.0	71.4	41.0	44.9
Approach LOS	D	D	D	E	E	D	E	D	E	D	D
Intersection Summary											
HCM Average Control Delay	46.2										
HCM Volume to Capacity ratio	0.93										
Actuated Cycle Length (s)	90.4										
Intersection Capacity Utilization	90.1%										
Analysis Period (min)	15										
c - Critical Lane Group											

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

Existing + Project (Buildout) AM
12/11/2011

Movement	SEL	SET	3ER	NWL	NWLR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	3	6	1	4	1	1	4	1	4	1	4
Volume (vph)	38	67	6	228	45	146	14	342	52	159	499
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1770	1639	1770	1863	1863	1770	1863	1770	1863	1770	1863
Satd. Flow (perm)	1770	1863	1863	1829	1770	1863	1829	1770	1863	1770	1863
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)	42	74	7	251	50	162	16	380	58	177	554
RTOR Reduction (vph)	0	5	0	0	0	118	0	29	0	0	20
Lane Group Flow (vph)	42	76	0	251	50	44	16	409	0	177	607
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	4	4	4	4	4	4	4	4	4
Actuated Green, G (s)	2.0	5.4	11.6	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Effective Green, g (s)	2.0	5.4	11.6	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Actuated g/C Ratio	0.04	0.10	0.21	0.27	0.27	0.01	0.25	0.15	0.39	0.15	0.39
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	64	181	374	509	433	23	1235	288	1929	288	1929
v/s Ratio Prot	0.02	0.04	0.14	0.03	0.03	0.01	0.08	0.10	0.12	0.10	0.12
v/s Ratio Perm	0.66	0.42	0.67	0.10	0.10	0.70	0.33	0.66	0.31	0.66	0.31
Uniform Delay, d1	26.1	23.3	19.9	14.9	14.9	27.0	16.9	22.0	11.8	22.0	11.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	21.7	1.6	4.7	0.1	0.1	63.9	0.2	6.0	0.1	6.0	0.1
Delay (s)	47.8	24.8	24.6	15.0	15.0	90.9	17.1	28.0	11.9	28.0	11.9
Level of Service	D	C	C	B	B	F	B	C	B	C	B
Approach Delay (s)	32.7	32.7	20.2	19.7	19.7	15.4	15.4	15.4	15.4	15.4	15.4
Approach LOS	C	C	C	B	B	A	B	B	B	B	B
Intersection Summary											
HCM Average Control Delay	18.8										
HCM Volume to Capacity ratio	0.48										
Actuated Cycle Length (s)	54.9										
Intersection Capacity Utilization	45.8%										
Analysis Period (min)	15										
c - Critical Lane Group											

Movement	ASEL	SET	SER	NWE	NWR	NEE	NET	SWL	SWR
Lane Configurations	30	110	245	94	221	105	337	29	107
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)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	0.85	1.00	0.95	1.00	0.99	1.00	0.98
Satd. Flow (prot)	1770	1863	1583	1770	3368	3433	5025	1770	6004
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	1863	1583	1770	3368	3433	5025	1770	6004
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)	33	122	272	104	246	117	236	374	119
RTOR Reduction (vph)	0	0	200	0	95	0	16	0	24
Lane Group Flow (vph)	33	122	72	104	268	0	236	390	0
Turn Type	Prot	custom	Split	Prot	Prot	Prot	Prot	Prot	4
Permitted Phases	2	2	6	3	8	7	7	7	4
Actuated Green, G (s)	15.9	15.9	15.9	5.8	5.8	5.0	15.6	6.7	17.3
Effective Green, g (s)	15.9	15.9	15.9	5.8	5.8	5.0	15.6	6.7	17.3
Actuated g/C Ratio	0.26	0.26	0.26	0.10	0.10	0.08	0.26	0.11	0.29
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)	469	494	419	171	326	286	1307	198	1443
Via Ratio Prot	0.02	0.05	0.05	0.06	0.08	0.07	0.08	0.05	0.22
Via Ratio Perm	0.07	0.25	0.17	0.61	0.82	0.83	0.30	0.49	0.76
Uniform Delay, d1	16.5	17.3	17.0	26.0	26.6	27.1	17.8	25.0	19.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	1.2	0.9	6.0	15.3	17.3	0.1	1.9	2.4
Delay (s)	16.8	18.5	17.9	32.0	41.9	44.4	17.9	26.9	21.9
Level of Service	B	B	B	C	D	D	B	C	C
Approach Delay (s)	16.0	18.0	16.0	39.7	27.7	27.7	15.0	22.3	15.0
Approach LOS	B	B	B	D	C	C	C	C	C
Intersection Summary									
HCM Average Control Delay	25.8								
HCM Volume to Capacity ratio	0.54								
Actuated Cycle Length (s)	60.0								
Intersection Capacity Utilization	52.0%								
Analysis Period (min)	15								
C Critical Lane Group									

Movement	ASEL	SET	SER	NWE	NWR	NEE	NET	SWL	SWR
Lane Configurations	4	7	4	4	4	4	4	4	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Volume (vph)	54	6	75	13	25	14	126	30	16
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	60	7	83	14	29	16	140	33	18
Predicted Lane #	SE 1	SE 2	NW 1	NW 2	NE 1	NE 2	SW 1	SW 2	SW 3
Volume Total (vph)	67	83	59	176	239				
Volume Left (vph)	60	0	14	140	3				
Volume Right (vph)	0	83	16	2	218				
Head (s)	0.48	0.67	0.08	0.19	0.51				
Departure Headway (s)	6.0	4.9	5.1	4.9	4.2				
Degree Utilization, x	0.11	0.11	0.08	0.24	0.28				
Capacity (veh/h)	556	684	635	699	817				
Control Delay (s)	8.8	7.3	8.6	9.4	8.7				
Approach Delay (s)	7.8		8.6	9.4	8.7				
Approach LOS	A		A	A	A				
Intersection Summary									
Delay	8.7								
HCM Level of Service	A								
Intersection Capacity Utilization	41.5%								
Analysis Period (min)	15								

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

Existing + Project (Buildout) AM 12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SSR
Lane Configurations	4	7	4	4	4	4	4	4	4	4	4	4
Volume (vph)	52	89	115	199	61	24	30	295	81	15	770	140
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	0.99	1.00	0.97	1.00	0.95	1.00	1.00	0.95	1.00
Flt	1.00	0.85	1.00	0.99	1.00	0.97	1.00	0.95	1.00	1.00	0.95	1.00
Flt Protected	0.98	1.00	1.00	0.97	1.00	0.97	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1829	1829	1829	1779	1779	1779	1770	3425	1770	3457	1770	3457
Flt Permitted	0.98	1.00	1.00	0.97	1.00	0.97	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1829	1829	1829	1779	1779	1779	1770	3425	1770	3457	1770	3457
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)	58	99	129	221	68	27	33	329	90	17	855	155
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	157	21	312	0	33	391	0	17	395	0	0
Turn Type	Spill	4	4	4	8	8	5	2	1	6	6	6
Protected Phases												
Permitted Phases												
Actuated Green, G (s)	11.5	11.5	11.5	15.5	15.5	15.5	1.6	25.6	0.8	24.8	0.8	24.8
Effective Green, g (s)	11.5	11.5	11.5	15.5	15.5	15.5	1.6	25.6	0.8	24.8	0.8	24.8
Actuated g/C Ratio	0.17	0.17	0.17	0.22	0.22	0.22	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)	303	262	397	397	397	397	41	1283	20	1235	20	1235
v/s Ratio Prot	c0.09	0.01	c0.18	c0.18	c0.18	c0.18	c0.02	0.11	0.01	c0.29	0.01	c0.29
v/s Ratio Perm	0.52	0.08	0.79	0.79	0.79	0.80	0.31	0.85	0.81	0.85	0.81	0.81
Uniform Delay, d1	26.1	24.5	25.4	25.4	25.4	25.4	33.7	15.6	34.2	20.1	34.2	20.1
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	1.5	0.1	9.9	9.9	9.9	9.9	69.0	0.1	131.5	3.9	131.5	3.9
Delay (s)	27.5	24.6	35.2	35.2	35.2	35.2	102.7	15.7	165.7	24.0	165.7	24.0
Level of Service	C	C	C	C	C	C	F	B	F	C	F	C
Approach Delay (s)	26.4	26.4	35.2	35.2	35.2	35.2	22.1	17.9	21.2	21.2	21.2	21.2
Approach LOS	C	C	D	D	D	D	C	C	C	C	C	C
Intersection Summary												
HCM Average Control Delay	26.8											
HCM Volume to Capacity ratio	0.74											
Actuated Cycle Length (s)	69.4											
Intersection Capacity Utilization	56.6%											
Analysis Period (min)	15											
c Critical Lane Group												

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

Existing + Project (Buildout) AM 12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SSR
Lane Configurations	4	7	4	4	4	4	4	4	4	4	4	4
Volume (vph)	0	307	176	382	625	0	0	0	0	997	3	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	0.95	0.95	0.95	0.97	0.95	0.95	0.95	0.95	0.95	0.95	0.91	0.95
Flt	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Flt Protected	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3345	3345	3345	3433	3539	3433	3539	3433	3539	3433	1610	1504
Flt Permitted	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3345	3345	3345	3433	3539	3433	3539	3433	3539	3433	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	341	196	424	694	0	0	0	0	1108	3	160
RTOR Reduction (vph)	0	132	0	0	0	0	0	0	0	0	0	2
Lane Group Flow (vph)	0	405	0	424	694	0	0	0	0	565	560	60
Turn Type	Spill	4	4	8	8	8	5	2	1	6	6	6
Protected Phases												
Permitted Phases												
Actuated Green, G (s)	12.4	12.4	12.4	9.9	26.3	9.9	26.3	9.9	26.3	24.8	24.8	24.8
Effective Green, g (s)	12.4	12.4	12.4	9.9	26.3	9.9	26.3	9.9	26.3	24.8	24.8	24.8
Actuated g/C Ratio	0.21	0.21	0.21	0.17	0.45	0.17	0.45	0.17	0.45	0.42	0.42	0.42
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)	702	575	1575	575	1575	575	1575	575	1575	705	676	631
v/s Ratio Prot	c0.12	c0.12	c0.12	c0.12	0.20	c0.12	0.20	c0.12	0.20	0.34	c0.35	0.04
v/s Ratio Perm	0.58	0.58	0.58	0.74	0.44	0.74	0.44	0.74	0.44	0.80	0.83	0.10
Uniform Delay, d1	21.0	21.0	21.0	23.4	11.3	23.4	11.3	23.4	11.3	15.0	15.3	10.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	1.2	1.2	4.9	0.2	4.9	0.2	4.9	0.2	6.5	8.3	0.1
Delay (s)	22.1	22.1	22.1	28.3	11.5	28.3	11.5	28.3	11.5	21.5	23.5	10.4
Level of Service	C	C	C	C	B	C	B	C	B	C	C	B
Approach Delay (s)	22.1	22.1	22.1	17.9	17.9	17.9	17.9	17.9	17.9	21.2	21.2	21.2
Approach LOS	C	C	C	B	B	B	B	B	B	C	C	C
Intersection Summary												
HCM Average Control Delay	20.1											
HCM Volume to Capacity ratio	0.74											
Actuated Cycle Length (s)	59.1											
Intersection Capacity Utilization	73.6%											
Analysis Period (min)	15											
c Critical Lane Group												

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

Existing + Project (Buildout) AM
12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
Lane Volume (vph)	61	1188	0	0	935	834	106	2	547	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	1.00	1.00	0.95	1.00	0.95	0.91	0.95	0.85	0.85	0.85
Flt	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3433	3539	3539	3539	3539	3583	1681	1449	1504	1504	1504	1504
Satd. Flow (perm)	3433	3539	3539	3539	3539	3583	1681	1449	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)	68	1320	0	0	1039	927	118	2	608	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	494	0	37	37	0	0
Lane Group Flow (vph)	68	1320	0	0	1039	433	106	275	273	0	0	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	8	8	2	2	2	2	2	2	2	2
Permitted Phases	2.4	31.6	25.2	25.2	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4
Actuated Green, G (s)	2.4	31.6	25.2	25.2	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4
Effective Green, g (s)	0.04	0.59	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)	153	2071	1652	739	448	386	401	401	401	401	401	401
Lane Grp Cap (vph)	0.02	0.37	0.29	0.27	0.06	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Wt Ratio Prot	0.44	0.64	0.63	0.59	0.24	0.71	0.68	0.68	0.68	0.68	0.68	0.68
Wt Ratio Perm	25.2	7.4	10.9	10.6	15.5	17.9	17.7	17.7	17.7	17.7	17.7	17.7
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	2.1	0.7	0.8	1.2	0.3	6.1	4.7	4.7	4.7	4.7	4.7	4.7
Incremental Delay, d2	27.2	8.1	11.6	11.8	15.8	24.1	22.5	22.5	22.5	22.5	22.5	22.5
Delay (s)	C	A	B	B	B	C	C	C	C	C	C	C
Level of Service	A	A	B	B	B	C	C	C	C	C	C	C
Approach Delay (s)	9.0	9.0	11.7	11.7	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2
Approach LOS	A	A	B	B	C	C	C	C	C	C	C	C
Intersection Summary												
HCM Average Control Delay	12.6											
HCM Volume to Capacity ratio	0.68											
Actuated Cycle Length (s)	54.0											
Intersection Capacity Utilization	73.6%											
Analysis Period (min)	15											
c. Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
27: Valley Centre Drive & El Camino Real

Existing + Project (Buildout) AM
12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	20	6	16	704	14	165	69	920	145	125	1070	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	0.91	0.95	0.95	0.91	0.95	0.95	0.91	0.95	0.91	0.95	0.91
Flt	1.00	0.97	0.85	1.00	0.99	0.85	1.00	0.98	1.00	1.00	0.95	1.00
Flt Protected	0.95	0.98	1.00	0.95	0.96	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1681	1617	1504	1681	1610	1504	1770	4981	1770	1770	5073	5073
Satd. Flow (perm)	1681	1617	1504	1681	1610	1504	1770	4981	1770	1770	5073	5073
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)	22	7	18	782	16	183	77	1022	161	139	1189	19
RTOR Reduction (vph)	0	3	14	0	2	110	0	21	0	0	0	1
Lane Group Flow (vph)	16	13	1	407	407	55	77	1162	0	139	1207	0
Turn Type	Split	Split	Prot	Split	Split	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	4	8	8	8	5	21	6	6	6	6
Permitted Phases												
Actuated Green, G (s)	3.6	3.6	3.6	23.8	23.8	23.8	4.4	32.2	23.8	23.8	23.8	23.8
Effective Green, g (s)	3.6	3.6	3.6	23.8	23.8	23.8	4.4	32.2	23.8	23.8	23.8	23.8
Actuated g/C Ratio	0.05	0.05	0.05	0.33	0.33	0.33	0.06	0.45	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)	85	81	76	599	535	500	109	2240	588	1686	1686	1686
Wt Ratio Prot	0.01	0.01	0.00	0.24	0.25	0.04	0.04	0.23	0.08	0.08	0.08	0.08
Wt Ratio Perm												
v/c Ratio	0.19	0.16	0.01	0.73	0.76	0.11	0.71	0.52	0.24	0.24	0.24	0.24
Uniform Delay, d1	32.6	32.6	32.3	21.1	21.4	16.6	33.0	14.1	17.3	20.9	20.9	20.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	0.9	0.1	4.7	6.3	0.1	18.8	0.2	0.2	1.5	1.5	1.5
Delay (s)	33.7	33.5	32.4	25.8	27.7	16.7	51.8	14.3	17.5	22.4	22.4	22.4
Level of Service	C	C	C	C	C	C	D	B	B	B	B	C
Approach Delay (s)	33.2	33.2	33.2	25.0	25.0	16.6	16.6	16.6	16.6	16.6	16.6	16.6
Approach LOS	C	C	C	C	C	B	B	B	B	B	B	C
Intersection Summary												
HCM Average Control Delay	21.1											
HCM Volume to Capacity ratio	0.70											
Actuated Cycle Length (s)	71.6											
Intersection Capacity Utilization	66.1%											
Analysis Period (min)	15											
Phase conflict between lane groups:												
6 Critical Lane Group												

Baseline

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	SSR
Lane Configurations	←	←	←	←	←	←	←	←	←	←	←	←
Volume (vph)	0	0	0	308	1008	200	147	830	0	0	563	639
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.97	0.95	0.95	0.86	0.86	0.86	0.86	0.86
Flt. ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt. Protected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Flt. Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	3433	5085	583	3433	3539	3539	3433	3539	4212	4212	1066	1066
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	342	1120	222	163	922	0	0	626	710
RTOR Reduction (vph)	0	0	0	0	0	0	83	0	0	0	14	14
Lane Group Flow (vph)	0	0	0	342	1120	139	163	922	0	0	957	341
Cont. Peds. (fltr)												
Turn Type	Prot	3	8	Perm	5	2	Perm	5	2	Perm	6	6
Permitted Phases												
Actuated Green, G (s)	16.1	16.1	16.1	3.4	27.8	20.4	16.1	16.1	16.1	16.1	20.4	20.4
Effective Green, g (s)	16.1	16.1	16.1	3.4	27.8	20.4	16.1	16.1	16.1	16.1	20.4	20.4
Actuated g/C Ratio	0.31	0.31	0.31	0.07	0.54	0.39	0.39	0.39	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	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)	1065	1577	491	225	1896	1656	1065	1577	491	1656	427	427
vs Ratio Prot	0.10	0.22	0.08	0.05	0.26	0.23	0.10	0.22	0.08	0.23	0.23	0.23
vs Ratio Perm	0.32	0.71	0.28	0.72	0.49	0.58	0.32	0.71	0.28	0.58	0.80	0.80
Uniform Delay, d1	13.7	15.3	13.5	23.8	7.6	12.4	13.7	15.3	13.5	12.4	13.9	13.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	1.5	0.3	11.0	0.2	0.5	0.2	1.5	0.3	0.5	10.0	10.0
Delay (s)	13.9	17.4	13.9	34.8	7.8	12.9	13.9	17.4	13.9	12.9	24.0	24.0
Level of Service	B	B	B	C	A	B	B	B	B	B	C	C
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	A	A	A	A	A	A	A	A
Intersection Summary												
HCM Average Control Delay	14.9											
HCM Volume to Capacity ratio	0.76											
Actuated Cycle Length (s)	51.9											
Intersection Capacity Utilization	96.1%											
Analysis Period (min)	15											
c Critical Lane Group												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	SSR
Lane Configurations	←	←	←	←	←	←	←	←	←	←	←	←
Volume (vph)	589	886	265	0	0	0	0	357	192	121	686	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	0.86	0.91	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Flt. ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt. Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3176	1441	1610	3176	1441	1610	3176	1441	1610	3176	1441
Flt. Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1610	3176	1441	1610	3176	1441	1610	3176	1441	1610	3176	1441
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	654	986	294	0	0	0	0	408	213	134	762	0
RTOR Reduction (vph)	0	3	68	0	0	0	0	53	0	0	0	0
Lane Group Flow (vph)	654	1133	197	0	0	0	0	568	0	134	762	0
Turn Type	Prot	4	4	4	4	4	Prot	2	1	6	6	6
Permitted Phases												
Actuated Green, G (s)	24.2	24.2	24.2	24.2	24.2	24.2	11.9	11.9	4.6	20.5	20.5	20.5
Effective Green, g (s)	24.2	24.2	24.2	24.2	24.2	24.2	11.9	11.9	4.6	20.5	20.5	20.5
Actuated g/C Ratio	0.46	0.46	0.46	0.46	0.46	0.46	0.23	0.23	0.09	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	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)	739	1458	652	739	1458	652	1372	1372	154	1978	1978	1978
vs Ratio Prot	0.34	0.35	0.14	0.34	0.35	0.14	0.09	0.09	0.08	0.15	0.15	0.15
vs Ratio Perm	0.73	0.78	0.30	0.73	0.78	0.30	0.41	0.41	0.87	0.39	0.39	0.39
Uniform Delay, d1	11.6	12.0	8.9	11.6	12.0	8.9	17.4	17.4	23.8	11.6	11.6	11.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.8	2.7	0.3	3.8	2.7	0.3	0.2	0.2	0.3	37.7	0.1	0.1
Delay (s)	15.4	14.7	9.2	15.4	14.7	9.2	17.6	17.6	23.8	51.5	11.7	11.7
Level of Service	B	B	A	B	B	A	B	B	B	E	B	B
Approach Delay (s)	14.1			14.1			17.6	17.6	23.8	10.1		
Approach LOS	B	B	A	B	B	A	B	B	B	E	B	B
Intersection Summary												
HCM Average Control Delay	16.1			16.1								
HCM Volume to Capacity ratio	0.63			0.63								
Actuated Cycle Length (s)	52.7			52.7								
Intersection Capacity Utilization	96.1%			96.1%								
Analysis Period (min)	15			15								
c Critical Lane Group												

Movement	EBL	EBT	WBL	WBR	SBL	SBR
Lane Configurations	4-4	0	4-4		4	4
Volume (vph)	16	212	0	429	24	94
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	1.00	0.95	1.00	0.95	1.00	1.00
Frt	1.00	1.00	1.00	0.99	1.00	0.85
FL Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3511		1770	1583
FL Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3511		1770	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	236	0	477	27	104
RTOR Reduction (vph)	0	0	0	8	0	105
Lane Group Flow (vph)	18	236	0	496	0	104
Turn Type	Prot	Prot	Prot		Prot	Prot
Protected Phases	7	4	3	8	6	6
Permitted Phases						
Actuated Green, G (s)	0.5	12.7	8.2	8.2	3.8	3.8
Effective Green, g (s)	0.5	12.7	8.2	8.2	3.8	3.8
Actuated G/C Ratio	0.02	0.52	0.33	0.33	0.16	0.16
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	38	1835	1175		275	246
vs Ratio Prot	0.01	c0.07	c0.14		c0.06	0.01
vs Ratio Perm						
vc Ratio	0.50	0.13	0.42		0.38	0.08
Uniform Delay, d1	11.9	3.0	6.3		9.3	8.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	10.5	0.0	0.2		0.9	0.1
Delay (s)	22.4	3.1	6.6		10.2	9.0
Level of Service	C	A	A		B	A
Approach Delay (s)	4.4		6.6		9.5	
Approach LOS	A		A		A	
Intersection Summary:						
HCM Average Control Delay		6.7				HCM Level of Service
HCM Volume to Capacity ratio		0.41				A
Actuated Cycle Length (s)		24.5				Sum of lost time (s)
Intersection Capacity Utilization		26.2%				12.0
Analysis Period (min)		15				ICU Level of Service
c Critical Lane Group						A

Movement	EBL	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL	SBT	SSB	
Lane Configurations	↔	↗↘	↖	→	↖	↖	↗↘	↗	↖↗	↖↗	↖↗	
Volume (vph)	76	214	142	157	362	97	316	330	209	1070	193	
Ideal Flow (vphpl)	1800	1800	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.68	1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	1.00	
Frt.	1.00	0.85	0.85	1.00	0.97	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (prot)	1770	2787	1533	1770	1804	1770	3539	1533	3433	3539	1533	
Flt Permitted	0.31	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	579	2787	1533	1770	1804	1770	3539	1533	3433	3539	1533	
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)	84	238	153	174	402	108	351	367	232	1189	214	
RTOR Reduction (vph)	0	0	130	0	11	0	0	0	193	0	0	
Lane Group Flow (vph)	84	238	28	174	499	0	351	367	39	1189	214	
Turn type	custom	custom	custom	Prot	8		Prot	5	2	2	1	
Protected Phases				3							6	
Permitted Phases	4	4	4									
Actuated Green, G (s)	15.5	15.5	15.5	9.4	26.9	21.9	14.5	14.5	14.5	31.1	23.7	
Effective Green, g (s)	15.5	15.5	15.5	9.4	26.9	21.9	14.5	14.5	14.5	31.1	23.7	
Actuated G/C Ratio	0.18	0.18	0.18	0.11	0.33	0.25	0.17	0.17	0.17	0.36	0.27	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	104	499	284	192	603	448	593	265	1234	970	434	
v/s Ratio Prot	0.15	0.09	0.02	0.10	0.28	0.20	<0.10	0.02	<0.35	0.06	0.04	
v/s Ratio Perm	0.81	0.48	0.10	0.91	0.93		0.78	0.92	0.15	0.98	0.22	
v/c Ratio	34.1	31.9	29.7	38.1	28.5	30.1	33.4	30.7	27.1	24.3	23.7	
Uniform Factor, d1	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	35.2	0.7	0.2	39.4	9.2	8.7	1.9	0.3	17.5	0.1	0.2	
Level of Service	E	C	C	E	D	D	D	D	C	D	C	
Approach Delay (s)	69.2	32.6	29.8	77.5	35.7	38.8	35.4	31.0	44.6	24.4	23.9	
Approach LOS	D	D	D	D	D	D	D	D	D	D	D	
Intersection Summary:												
HCM Average Control Delay	39.4			HCM Level of Service								
HCM Volume to Capacity ratio:	0.84			D								
Actuated Cycle Length (s)	86.5			Sum of lost time (s)								
Intersection Capacity Utilization	82.1%			E								
Analysis Period (min)	15											
Critical Lane Group												

HCM Signalized Intersection Capacity Analysis	Existing + Project (Buildout) AM
32: SR-56 EB Ramps & Carmel Creek Road	12/11/2011

[illegible]

HCM Signalized Intersection Capacity Analysis	Existing + Project (Buildout) AM
33: Carmel Country Road & Carmel Canyon Road	12/11/2011

[illegible]

Movement	WBL	WBR	SEL	SET	NWT	NWR	NW2	SWL	SWR
Lane Configurations									
Volume (vph)	0	0	754	590	742	0	306	133	230
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	0.95	0.95	1.00	0.95	1.00	0.97	1.00	1.00
Fit	1.00	1.00	1.00	1.00	0.85	1.00	0.85	1.00	0.85
Fit Protected	0.95	0.95	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	3539	3539	3539	1583	3433	3539	1583	3539
Fit Permitted	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	3539	3539	3539	1583	3433	3539	1583	3539
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	838	644	824	0	340	148	256
RTOR Reduction (vph)	0	0	0	0	0	0	230	0	218
Lane Group Flow (vph)	0	0	838	644	824	0	110	148	38
Turn Type	Prot	Prot	5	2	5	6	4	4	4
Permitted Phases									
Actuated Green, G (s)	17.2	39.0	17.8	17.8	8.2	8.2	8.2	8.2	8.2
Effective Green, g (s)	17.2	39.0	17.8	17.8	8.2	8.2	8.2	8.2	8.2
Actuated g/C Ratio	0.31	0.71	0.32	0.32	0.15	0.15	0.15	0.15	0.15
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	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)	1070	2500	1141	1141	510	510	235	235	235
vs Ratio Prot	c0.24	0.18	c0.23		c0.04				
vs Ratio Perm					0.07		0.02		
vc Ratio	0.78	0.26	0.72	0.21	0.29	0.16			
Uniform Delay, d1	17.3	2.9	16.5	13.6	20.9	20.5			
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.8	0.1	2.3	0.2	0.3	0.3			
Delay (s)	21.1	3.0	18.8	13.8	21.2	20.8			
Level of Service	C	A	B	B	C	C			
Approach Delay (s)	0.0	13.2	17.3		21.0				
Approach LOS	A	B	B		C				
Intersection Summary									
HCM Average Control Delay	15.8								
HCM Volume to Capacity ratio	0.66								
Actuated Cycle Length (s)	55.2								
Intersection Capacity Utilization	56.8%								
Analysis Period (min)	15								
c Critical Lane Group									

Movement	EBL2	EBL	EBB	SEL	SET	SER	NWL	NWL2	SWL	SWR
Lane Configurations										
Volume (vph)	300	0	161	347	370	0	0	723	214	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	0.95	1.00	0.97	0.95	1.00	0.95	1.00	0.85	1.00
Fit	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	0.85
Fit Protected	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1681	1681	1583	3433	3539	3539	3539	1583	3539	1583
Fit Permitted	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	1681	1681	1583	3433	3539	3539	3539	1583	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
Adj. Flow (vph)	333	0	179	386	411	0	0	803	238	0
RTOR Reduction (vph)	0	0	141	0	0	0	0	0	156	0
Lane Group Flow (vph)	166	167	38	386	411	0	0	803	82	0
Turn Type	Spill	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Permitted Phases										
Actuated Green, G (s)	10.1	10.1	10.1	8.9	28.3			16.4	16.4	16.4
Effective Green, g (s)	10.1	10.1	10.1	8.9	28.3			16.4	16.4	16.4
Actuated g/C Ratio	0.21	0.21	0.21	0.18	0.62			0.35	0.35	0.35
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)	358	358	337	645	2188			1224	546	
vs Ratio Prot	0.10	c0.10	c0.02	c0.11	0.12			c0.23	0.05	
vs Ratio Perm										
vc Ratio	0.46	0.47	0.11	0.60	0.19			0.66	0.15	
Uniform Delay, d1	16.3	16.3	15.0	17.5	3.9			13.1	10.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00	
Incremental Delay, d2	1.0	1.0	0.1	1.5	0.0			1.3	0.1	
Delay (s)	17.2	17.3	15.2	19.1	4.0			14.4	10.8	
Level of Service	B	B	B	B	A			B	B	
Approach Delay (s)	16.5			11.3				13.6		
Approach LOS	B			B				B		
Intersection Summary										
HCM Average Control Delay										
HCM Volume to Capacity ratio	13.4									
Actuated Cycle Length (s)	0.59									
Intersection Capacity Utilization	48.2%									
Analysis Period (min)	15									
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis
Existing + Project (Buildout) PM
12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	SRT	SST
Lane Configurations	6	3	510	174	363	3	546	2	409	1	2	409	1
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Actual 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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Flt Protected	1770	1863	1583	1770	1861		1774	1583	1774	1583	1774	1583	1774
Satd. Flow (prot)	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Flt Permitted	3770	1863	1583	1770	1861		3774	1583	3774	1583	3774	1583	3774
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	0.90
Peak-hour factor, PHF	7	441	567	193	403	3	607	2	454	1	2	454	1
Adj. Flow (vph)	0	0	269	0	0	0	0	0	277	0	1	277	0
RTOR Reduction (vph)	0	0	269	0	0	0	0	0	277	0	1	277	0
Lane Group Flow (vph)	7	441	298	193	406	0	0	609	177	0	3	609	177
Turn Type	Prot	Prot	Prot	Prot	Prot	Split	Split	Prot	Split	Prot	Split	Prot	Split
Protected Phases	7	4	4	3	8	2	2	2	2	2	2	2	2
Permitted Phases	0.8	29.4	29.4	12.4	41.0		37.7	37.7	37.7		37.7	37.7	37.7
Actuated Green, G (s)	0.8	29.4	29.4	12.4	41.0		37.7	37.7	37.7		37.7	37.7	37.7
Effective Green, G (s)	0.01	0.30	0.30	0.13	0.42		0.38	0.38	0.38		0.38	0.38	0.38
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
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
Vehicle Extension (s)	15	566	481	227	789		692	617	692		617	692	617
Lane Grp Cap (vph)	0.00	-0.24	0.19	60.11	0.22		60.34	0.11	60.34		0.11	60.34	0.11
v/s Ratio Prot	0.47	0.76	0.62	0.95	0.51		0.88	0.29	0.88		0.29	0.88	0.29
v/s Ratio Perm	4.77	30.7	28.9	41.2	20.5		21.4	20.3	21.4		20.3	21.4	20.3
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	21.2	6.7	2.5	25.0	0.6		12.5	0.3	12.5		0.3	12.5	0.3
Incremental Delay, d2	69.0	37.4	31.3	66.2	21.1		35.9	20.5	35.9		20.5	35.9	20.5
Delay (s)	E	D	C	E	C		D	C	D		C	D	C
Level of Service	E	D	C	E	C		D	C	D		C	D	C
Approach Delay (s)	34.2			35.6			31.6		31.6			31.6	
Approach LOS	C			D			C		C			C	
Intersection Summary													
HCM Average Control Delay	33.5			33.5			HCM Level of Service		C				
HCM Volume to Capacity ratio	0.83			0.83									
Actualized Cycle Length (s)	96.7			96.7									
Actualized Cycle Length (s)	96.7			96.7									
Intersection Capacity Utilization	77.6%			77.6%									
Analysis Period (min)	15			15									
6. Critical Lane Group													

Movement	WB	WB	NB	NB	SB	SB
Lane Configurations	3	3	3	3	3	3
Volume (vph)	213	256	0	572	371	309
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	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1863	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1863	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	237	284	0	636	412	343
RTOR Reduction (vph)	0	235	0	0	246	0
Lane Group Flow (vph)	237	49	0	636	166	343
Turn Type	Perm	Prot	Perm	Prot	Perm	Prot
Permitted Phases	1	3	8	7	8	6
Actuated Green, G (s)	12.4	12.4	28.8	28.8	18.3	12.4
Effective Green, g (s)	12.4	12.4	28.8	28.8	18.3	12.4
Actuated g/C Ratio	0.17	0.17	0.40	0.40	0.26	0.17
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)	595	275	750	638	453	614
v/s Ratio Prot	0.07	0.07	0.34	0.21	0.10	0.10
v/s Ratio Perm	0.40	0.18	0.85	0.26	0.81	0.56
Uniform Delay, d1	26.2	25.2	19.4	14.2	25.0	27.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.3	8.8	0.2	10.8	1.1
Delay (s)	26.7	25.5	28.2	14.5	35.8	28.2
Level of Service	C	C	C	B	D	C
Approach Delay (s)	26.0	26.0	22.8	32.1	32.1	32.1
Approach LOS	C	C	C	C	C	C
Intersection Summary						
HCM Average Control Delay	26.4	26.4				
HCM Volume to Capacity ratio	0.76	0.76				
Actuated Cycle Length (s)	71.5	71.5				
Intersection Capacity Utilization	64.6%	64.6%				
Analysis Period (min)	15	15				
c Critical Lane Group						

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	←	←	←	←	←	←	←	←	←	←	←
Volume (vph)	7	41	32	52	29	19	47	971	131	22	499
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.95
Flt	0.95	1.00	0.85	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1770	1863	1583	1770	1752	1770	1770	3476	1770	3529	1770
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
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)	8	46	36	58	32	21	52	1079	146	24	554
RTOR Reduction (vph)	0	0	32	0	18	0	0	12	0	0	2
Lane Group Flow (vph)	8	46	4	58	35	0	52	1213	0	24	563
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Permitted Phases	7	4	4	3	8	5	2	1	6		
Actuated Green, G (s)	0.8	5.0	5.0	2.8	7.0	1.9	25.3	0.7	24.1		
Effective Green, g (s)	0.8	5.0	5.0	2.8	7.0	1.9	25.3	0.7	24.1		
Actuated g/C Ratio	0.02	0.10	0.10	0.08	0.14	0.04	0.51	0.01	0.48		
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)	28	187	159	100	246	68	1768	25	1708		
W/S Ratio Prot	0.00	c0.02	0.00	c0.03	c0.02	c0.03	c0.35	0.01	0.16		
W/S Ratio Perm	0.29	0.25	0.02	0.68	0.14	0.76	0.89	0.96	0.93		
Uniform Delay, d1	24.2	20.7	20.2	22.9	18.8	23.7	9.3	24.5	7.9		
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	5.6	0.7	0.1	7.9	0.3	39.2	1.1	161.9	0.1		
Delay (s)	29.8	21.4	20.3	30.8	19.1	62.9	10.4	186.4	8.0		
Level of Service	C	C	C	C	B	E	B	F	A		
Approach Delay (s)		21.7		25.2		12.5		15.3			
Approach LOS		C		C		B		B			
Intersection Summary											
HCM Average Control Delay	14.4										
HCM Volume to Capacity ratio	0.57										
Actuated Cycle Length (s)	48.8										
Intersection Capacity Utilization	53.9%										
Analysis Period (min)	15										
c Critical Lane Group											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	←	←	←	←	←	←	←	←	←	←	←
Volume (vph)	22	21	14	25	20	150	25	822	65	86	465
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95
Flt	1.00	0.94	1.00	0.87	1.00	0.99	1.00	0.99	1.00	0.99	1.00
Satd. Flow (prot)	1770	1748	1770	1616	1770	1770	3500	1770	3510	1770	3510
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
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)	24	23	16	29	22	167	28	913	72	96	517
RTOR Reduction (vph)	0	14	0	148	0	0	8	0	0	0	5
Lane Group Flow (vph)	24	25	0	29	41	0	28	977	0	96	542
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Permitted Phases	7	4	3	8	5	2	1	6			
Actuated Green, G (s)	0.8	5.2	0.8	5.2	0.6	20.6	0.6	20.6	3.6	23.6	
Effective Green, g (s)	0.8	5.2	0.8	5.2	0.6	20.6	0.6	20.6	3.6	23.6	
Actuated g/C Ratio	0.02	0.11	0.02	0.11	0.01	0.45	0.08	0.51	0.08	0.51	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	31	197	31	182	23	1561	23	1561	138	1783	
W/S Ratio Prot	0.01	0.01	0.02	c0.03	0.02	c0.28	0.02	c0.28	c0.05	c0.15	
W/S Ratio Perm	0.77	0.19	0.94	0.22	1.22	0.63	0.70	0.70	0.30	0.30	
Uniform Delay, d1	22.6	18.5	22.7	18.7	22.8	9.8	20.8	20.8	6.5		
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	73.6	0.3	133.5	0.6	261.7	0.8	14.2	0.1			
Delay (s)	96.3	18.7	156.2	19.3	284.5	10.6	34.9	6.6			
Level of Service	F	B	F	B	F	B	C	A			
Approach Delay (s)		48.3		37.5		18.2		10.9			
Approach LOS		D		D		B		B			
Intersection Summary											
HCM Average Control Delay	18.9										
HCM Volume to Capacity ratio	0.63										
Actuated Cycle Length (s)	46.2										
Intersection Capacity Utilization	56.5%										
Analysis Period (min)	15										
c Critical Lane Group											

Movement	EBT	EBL	EBR	WBT	WBL	WBR	NBT	NBL	NBR	SBL	SBR
Lane Configurations	←↑↑	↑↑	→	←↑↑	↑↑	→	←	↑	→	←	→
Volume (vph)	124	845	16	149	913	217	40	31	68	400	35
Initial Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	0.95	0.95	0.95
Flt	1.00	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	0.95
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Satd. Flow (prot)	1770	5071	1770	1770	3437	1812	1583	1681	1613	1613	1613
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Satd. Flow (perm)	1770	5071	1770	1770	3437	1812	1583	1681	1613	1613	1613
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)	138	539	18	166	1014	241	44	34	76	444	38
RTOR Reduction (vph)	0	2	0	0	21	0	0	0	69	0	34
Lane Group Flow (vph)	138	955	0	166	1254	0	0	78	7	320	273
Turn Type	Prot	Prot	Prot	Split	Split	Split	Split	Split	Split	Split	Split
Permitted Phases	7	4	3	8	3	2	2	2	6	6	6
Actuated Green, G (s)	7.9	28.2	11.3	31.6	31.6	7.5	7.5	7.5	17.8	17.8	17.8
Effective Green, g (s)	7.9	28.2	11.3	31.6	31.6	7.5	7.5	7.5	17.8	17.8	17.8
Actuated g/C Ratio	0.10	0.35	0.14	0.39	0.39	0.09	0.09	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
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	173	1770	248	1344	1344	168	147	370	355	355	355
v/s Ratio Prot	0.08	0.19	0.09	0.36	0.36	0.04	0.04	0.04	0.19	0.17	0.17
v/s Ratio Perm	0.80	0.54	0.67	0.92	0.92	0.46	0.46	0.46	0.86	0.77	0.77
Uniform Delay, d1	35.7	21.1	33.0	23.4	23.4	34.7	34.4	30.3	29.6	29.6	29.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	22.0	0.3	6.7	10.1	10.1	2.0	0.1	18.5	9.6	9.6	9.6
Delay (s)	57.7	21.4	39.7	33.4	33.4	36.8	34.5	48.9	39.2	39.2	39.2
Level of Service	E	C	C	D	D	D	D	C	D	D	D
Approach Delay (s)	26.0	34.2	34.2	34.2	34.2	35.2	35.2	35.2	44.1	44.1	44.1
Approach LOS	C	C	C	C	C	D	D	D	D	D	D
Intersection Summary											
HCM Average Control Delay	33.4										
HCM Volume to Capacity ratio	0.84										
Actuated Cycle Length (s)	80.8										
Sum of lost time (s)	16.0										
Intersection Capacity Utilization	72.2%										
Analysis Period (min)	15										
c Critical Lane Group											

Movement	EBT	EBL	EBR	WBT	WBL	WBR	NBT	NBL	NBR
Lane Configurations	←↑↑	↑↑	→	←↑↑	↑↑	→	←	↑	→
Volume (veh/h)	1294	0	1605	0	1605	0	0	0	113
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop
Grade	0%	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	0.90
Hourly flow rate (vph)	1438	69	1783	0	1783	0	0	0	126
Pedestrians									
Lane Width (ft)									
Walking Speed (ft/s)									
Percent Blockage									
Right turn lane (veh)									
Median type	None	None	None	None	None	None	None	None	None
Median storage (veh)									
Upstream Signal (ft)	575			607					
pX, platoon unblocked				0.87					0.75
VC, conflicting volume				1507					2364
VC, stage 1 conf vol									514
VC2, stage 2 conf vol									1122
VC, unblocked vol				1069					0
IC, single (s)				4.1					5.8
IC, 2 stage (s)									6.9
IF (s)				2.2					3.5
p0 queue free %				100					100
p0 queue free (veh/h)				568					151
pl capacity (veh/h)									943
Intersection Summary									
Volume Total	575	575	892	892	892	892	0	0	126
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	0	0	892	892	892	892	0	0	126
cSH	1700	1700	1700	1700	1700	1700	1700	1700	943
Volume to Capacity	0.34	0.34	0.21	0.52	0.52	0.52	0.52	0.52	0.13
Queue Length 95th (ft)	0	0	0	0	0	0	0	0	11
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.4
Lane LOS									A
Approach Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.4
Approach LOS									A
Intersection Summary									
Average Delay	0.3								
Intersection Capacity Utilization	47.7%								
Analysis Period (min)	15								
ICU Level of Service	A								

Movement	EBL	EBT	EBL	EBT	WBL	WBT	WBL	WBT	SBL	SBT	SBL	SBT
Lane Configurations	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA
Volume (vph)	0	1023	1337	0	960	290	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	0	1900	1900	0	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	0	6.3	6.3	0	5.6	5.6	0	0	0	0	0	0
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
Fit Protected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3539	3539	3539	3539	3539	3539	3539	3539	3539	3539	3539	3539
Fit Permitted	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	3539	3539	3539	3539	3539	3539	3539	3539	3539	3539	3539	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1137	1486	0	1067	322	1900	1900	1900	1900	1900	1900
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1137	1486	0	1066	274	1900	1900	1900	1900	1900	1900
Turn Type	Prot	2.6	6.2	Prot	2.6	6.2	Prot	2.6	6.2	Prot	2.6	6.2
Permitted Phases	4	4	4	4	4	4	4	4	4	4	4	4
Actuated Green, G (s)	42.1	42.1	42.1	42.1	42.1	42.1	42.1	42.1	42.1	42.1	42.1	42.1
Effective Green, g (s)	42.1	42.1	42.1	42.1	42.1	42.1	42.1	42.1	42.1	42.1	42.1	42.1
Actuated g/C Ratio	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
Clearance Time (s)	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
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)	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862
via Ratio Prot	0.32	0.42	0.42	0.32	0.42	0.42	0.32	0.42	0.42	0.32	0.42	0.42
via Ratio Perm	0.91	0.80	0.80	0.91	0.80	0.80	0.91	0.80	0.80	0.91	0.80	0.80
Uniform Delay, d1	13.2	15.5	15.5	13.2	15.5	15.5	13.2	15.5	15.5	13.2	15.5	15.5
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	0.6	2.5	2.5	0.6	2.5	2.5	0.6	2.5	2.5	0.6	2.5	2.5
Delay (s)	13.8	18.0	18.0	13.8	18.0	18.0	13.8	18.0	18.0	13.8	18.0	18.0
Level of Service	B	B	B	B	B	B	B	B	B	B	B	B
Approach Delay (s)	13.8	18.0	18.0	13.8	18.0	18.0	13.8	18.0	18.0	13.8	18.0	18.0
Approach LOS	B	B	B	B	B	B	B	B	B	B	B	B
Intersection Summary												
HCM Average Control Delay	25.9											
HCM Volume to Capacity ratio	0.87											
Actuated Cycle Length (s)	90.0											
Intersection Capacity Utilization	75.3%											
Analysis Period (min)	15											
c Critical Lane Group												

Movement	EBL	EBT	EBL	EBT	WBL	WBT	WBL	WBT	SBL	SBT	SBL	SBT
Lane Configurations	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA
Volume (vph)	235	1721	0	0	1374	949	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	1900	1900	1900	0	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	0	0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	0.95	1.00	0.95	0.91	0.95	1.00	0.95
Fit Protected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3433	3539	3539	3539	3433	3539	3539	3539	3433	3539	3539	3539
Fit Permitted	0.95	1.00	1.00	1.00	0.95	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	3539	3539	3539	3433	3539	3539	3539	3433	3539	3539	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	261	1912	0	0	1527	1054	1900	1900	1900	1900	1900	1900
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	261	1912	0	0	1527	1054	1900	1900	1900	1900	1900	1900
Turn Type	Prot	5	2	Prot	5	2	Prot	5	2	Prot	5	2
Permitted Phases	8	8	8	8	8	8	8	8	8	8	8	8
Actuated Green, G (s)	11.0	62.0	47.0	47.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
Effective Green, g (s)	11.0	62.0	47.0	47.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
Actuated g/C Ratio	0.09	0.52	0.39	0.39	0.38	0.42	0.42	0.42	0.42	0.42	0.42	0.42
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)	315	1828	1992	620	700	611	1992	620	700	611	1992	620
via Ratio Prot	0.08	0.54	0.30	0.34	0.37	0.40	0.37	0.40	0.37	0.40	0.37	0.40
via Ratio Perm	0.83	1.05	0.77	0.88	0.86	0.95	0.86	0.95	0.86	0.95	0.86	0.95
Uniform Delay, d1	53.6	23.0	31.7	33.9	32.2	33.8	32.2	33.8	32.2	33.8	32.2	33.8
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	16.2	34.2	2.9	16.2	12.1	25.0	16.2	34.2	2.9	16.2	34.2	25.0
Delay (s)	69.8	57.2	34.6	50.1	44.3	58.9	48.4	91.0	50.8	68.0	68.0	58.9
Level of Service	E	E	C	D	D	D	D	E	D	E	D	D
Approach Delay (s)	64.0	40.9	40.9	40.9	40.9	40.9	40.9	40.9	40.9	40.9	40.9	40.9
Approach LOS	E	E	D	D	D	D	D	E	D	E	D	D
Intersection Summary												
HCM Average Control Delay	51.3											
HCM Volume to Capacity ratio	1.00											
Actuated Cycle Length (s)	120.0											
Intersection Capacity Utilization	102.7%											
Analysis Period (min)	15											
c Critical Lane Group												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	5	AAA	5	AAA	5	AAA	5	AAA	5	AAA	5	AAA
Volume (vph)	242	2464	251	66	1803	79	618	65	171	64	29	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.97	0.95	1.00	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	0.85
Satd. Flow (prot)	1770	5085	1583	1770	5083	3433	3154	1770	5083	1583	1770	5083
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	0.85
Satd. Flow (perm)	1770	5085	1583	1770	5083	3433	3154	1770	5083	1583	1770	5083
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	2738	279	73	2003	88	687	72	190	71	32	89
RTOR Reduction (vph)	0	0	62	0	3	0	0	102	0	0	0	83
Lane Group Flow (vph)	269	2738	217	73	2008	0	687	160	0	71	32	16
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	4	3	8	5	2				6	6
Permitted Phases												
Actuated Green, G (s)	23.4	79.0	79.0	7.0	62.6	30.0	29.8	9.0	8.8	8.8	8.8	8.8
Effective Green, g (s)	23.4	79.0	79.0	7.0	62.6	30.0	29.8	9.0	8.8	8.8	8.8	8.8
Actuated g/C Ratio	0.17	0.56	0.56	0.05	0.44	0.21	0.21	0.06	0.06	0.06	0.06	0.06
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	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)	284	2853	888	88	2247	731	668	113	116	98		
vs Ratio Prot	60.15	60.54	0.14	0.04	0.41	60.20	60.05	0.04	0.02	0.02		
vs Ratio Perm												
Uniform Delay, d1	57.7	29.4	15.7	66.3	37.0	54.5	46.1	64.3	63.0	62.1		
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	31.1	9.2	0.1	44.8	7.4	19.7	0.2	10.4	1.3	0.2		
Delay (s)	88.8	38.6	15.9	111.1	44.5	74.3	46.3	74.7	64.3	62.3		
Level of Service	F	D	B	F	D	E	D	E	E	E		
Approach Delay (s)		40.8			46.7		66.5					
Approach LOS		D			D		E					
Intersection Summary												
HCM Average Control Delay	47.2				HCM Level of Service				D			
HCM Volume to Capacity ratio	0.86				Sum of lost time (s)				8.0			
Actuated Cycle Length (s)	140.8				ICU Level of Service				E			
Intersection Capacity Utilization	86.6%				Analysis Period (min)				15			
Analysis Period (min)	15				Critical Lane Group				6			

Baseline

Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	←←←	←	←	←←←	←←	←	↔
Volume (vph)	2617	221	172	1726	306	238	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	1.00	
Flt Protected	1.00	0.85	1.00	1.00	1.00	0.85	
Satd. Flow (prot)	5085	1583	1770	5085	3433	1583	
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (perm)	5085	1583	1770	5085	3433	1583	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	2908	246	191	1918	340	264	
RTOR Reduction (vph)	0	80	0	0	0	150	
Lane Group Flow (vph)	2908	166	191	1918	340	114	
Turn Type	Perm	Prot	Prot	Perm	Perm	Perm	
Protected Phases	4		3	8	2	2	
Permitted Phases		4					
Actuated Green, G (s)	52.0	52.0	10.0	56.0	13.5	13.5	
Effective Green, g (s)	52.0	52.0	10.0	56.0	13.5	13.5	
Actuated g/C Ratio	0.59	0.59	0.11	0.75	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)	3022	941	202	3636	530	244	
vs Ratio Prot	60.57	60.11	0.36	60.10			
vs Ratio Perm		0.10				0.07	
Uniform Delay, d1	16.8	8.0	38.5	4.2	34.7	33.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	9.2	0.1	47.6	0.1	2.7	1.4	
Delay (s)	26.0	8.1	86.0	4.3	37.4	35.2	
Level of Service	C	A	F	A	D	D	
Approach Delay (s)		24.6			11.7	36.4	
Approach LOS		C			B	D	
Intersection Summary							
HCM Average Control Delay	21.2			HCM Level of Service			C
HCM Volume to Capacity ratio	0.90			Sum of lost time (s)			12.0
Actuated Cycle Length (s)	87.5			ICU Level of Service			D
Intersection Capacity Utilization	78.8%			Analysis Period (min)			15
6 Critical Lane Group							

Baseline

HCM Signalized Intersection Capacity Analysis Existing + Project (Buildout) PM 12/1/2011

HCM Signalized Intersection Capacity Analysis Existing + Project (Buildout) PM 12/1/2011

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	AAA	AAA	AAA	AAA	AAA	AAA	AAA
Volume (vph)	2571	184	184	184	255	255	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	0.97	0.91	1.00	1.00	1.00
Fit	1.00	0.95	1.00	1.00	1.00	0.95	1.00
Fit Protected	1.00	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	5085	5085	5085	5085	5085	5085	5085
Fit Permitted	1.00	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	5085	5085	5085	5085	5085	5085	5085
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2988	204	204	204	283	283	283
RTOR Reduction (vph)	0	66	0	0	0	0	88
Lane Group Flow (vph)	2988	138	204	1826	283	194	
Turn Type	Perm	Perm	Prot	Prot	Perm	Perm	Perm
Protected Phases	4	3	8	2	2		
Permitted Phases	4	4	2	2	2		
Actuated Green, G (s)	54.0	54.0	8.0	64.0	16.9	16.9	16.9
Effective Green, g (s)	54.0	54.0	6.0	64.0	16.9	16.9	16.9
Actuated g/C Ratio	0.61	0.61	0.07	0.72	0.19	0.19	0.19
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)	3089	982	232	3551	336	301	
v/s Ratio Prot	0.38	0.06	0.06	0.36	0.16	0.12	
v/s Ratio Perm	0.95	0.14	0.88	0.50	0.84	0.64	
v/c Ratio	0.65	0.14	0.88	0.50	0.84	0.64	
Uniform Delay, d1	16.5	7.5	41.1	5.4	34.7	33.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	8.9	0.1	23.1	0.1	17.1	4.7	
Delay (s)	25.3	7.6	70.2	5.5	51.9	37.9	
Level of Service	C	A	E	A	D	D	
Approach Delay (s)	24.2			12.0	44.9		
Approach LOS	C			B	D		
Intersection Summary							
HCM Average Control Delay	22.0						
HCM Volume to Capacity ratio	0.93						
Actuated Cycle Length (s)	88.9						
Intersection Capacity Utilization	81.0%						
Analysis Period (min)	15						
c. Critical Lane Group							

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	AAA	AAA	AAA	AAA	AAA	AAA	AAA
Volume (vph)	507	1776	491	176	1024	486	428
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97
Fit	1.00	0.97	1.00	1.00	0.98	1.00	0.95
Fit Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	3433	4920	3433	4973	3433	5085	5085
Fit Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (perm)	3433	4920	3433	4973	3433	5085	5085
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	563	1973	546	196	1138	539	476
RTOR Reduction (vph)	0	39	0	0	19	0	102
Lane Group Flow (vph)	563	2480	0	196	1315	0	539
Turn Type	Prot	7	4	3	8	5	2
Protected Phases	7	4	4	3	8	5	2
Permitted Phases	7	4	4	3	8	5	2
Actuated Green, G (s)	22.0	58.1	7.8	43.9	19.6	24.4	24.4
Effective Green, g (s)	22.0	58.1	7.8	43.9	19.6	24.4	24.4
Actuated g/C Ratio	0.19	0.51	0.07	0.38	0.17	0.21	0.21
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)	660	2499	234	1908	588	1085	338
v/s Ratio Prot	0.16	0.50	0.06	0.26	0.16	0.09	0.15
v/s Ratio Perm	0.85	0.99	0.84	0.69	0.92	0.44	0.70
v/c Ratio	0.46	0.27	0.07	0.29	0.46	0.21	0.17
Uniform Delay, d1	10.4	16.1	22.2	1.1	19.1	0.3	6.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.4	16.1	22.2	1.1	19.1	0.3	6.5
Delay (s)	55.0	44.1	74.8	30.6	65.7	39.3	48.2
Level of Service	E	D	E	C	E	D	E
Approach Delay (s)		46.1		36.3		52.0	
Approach LOS		D		D		D	
Intersection Summary							
HCM Average Control Delay		45.5					
HCM Volume to Capacity ratio		0.92					
Actuated Cycle Length (s)		114.4					
Intersection Capacity Utilization		86.1%					
Analysis Period (min)		15					
c. Critical Lane Group							

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

Existing + Project (Buildout) PM
12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
Volume (vph)	151	1200	615	80	689	72	437	167	145	78	124
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	0.97	0.91	0.97	0.91	0.97	0.91	0.97	0.91	0.97	0.91	0.97
Flt	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Flt Permitted	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	4639	3433	5013	3433	4639	3433	4639	3433	4639	3433
Satd. Flow (perm)	3433	4639	3433	5013	3433	4639	3433	4639	3433	4639	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
Adj. Flow (vph)	168	1433	683	89	766	80	486	186	161	87	138
RTOR Reduction (vph)	0	98	0	0	15	0	0	131	0	0	141
Lane Group Flow (vph)	468	2018	0	89	831	0	486	216	0	87	160
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	5	2	5	2	5	2	5
Permitted Phases	6.9	28.9	5.3	27.3	10.5	13.2	6.8	9.5	6.8	9.5	6.8
Actuated Green, G (s)	6.9	28.9	5.3	27.3	10.5	13.2	6.8	9.5	6.8	9.5	6.8
Effective Green, g (s)	0.10	0.41	0.08	0.39	0.45	0.19	0.10	0.14	0.10	0.14	0.10
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)	337	1992	269	1950	513	890	171	440	171	440	171
Lane Grp Cap (vph)	60.05	60.42	0.03	0.17	60.14	60.05	0.05	60.05	0.05	60.05	0.05
vs Ratio Prot	0.50	1.01	0.34	0.43	0.95	0.24	0.51	0.36	0.51	0.36	0.51
vs Ratio Perm	30.0	20.6	30.8	15.7	28.6	24.2	30.1	27.6	30.1	27.6	30.1
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	1.2	23.4	0.8	0.2	26.8	0.1	2.4	0.5	2.4	0.5	2.4
Incremental Delay, d2	31.2	44.1	31.6	15.9	56.4	24.4	32.5	28.1	32.5	28.1	32.5
Delay (s)	C	D	C	B	E	C	C	C	C	C	C
Level of Service	D	D	C	B	E	C	C	C	C	C	C
Approach Delay (s)	43.1	17.4	17.4	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0
Approach LOS	D	B	B	D	D	D	D	D	D	D	D
Intersection Summary											
HCM Average Control Delay	36.5										
HCM Volume to Capacity ratio	0.82										
Actuated Cycle Length (s)	70.2										
Intersection Capacity Utilization	76.0%										
Analysis Period (min)	15										
c : Critical Lane Group											

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

Existing + Project (Buildout) PM
12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
Volume (vph)	48	1289	173	8	712	22	85	14	31	27	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	0.91	1.00	0.91	1.00	0.91	1.00	0.91	1.00
Flt	1.00	0.98	1.00	0.98	1.00	0.98	1.00	0.98	1.00	0.98	1.00
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Flt Permitted	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)	1770	4956	1770	5063	1770	4956	1770	5063	1770	4956	1770
Satd. Flow (perm)	1770	4956	1770	5063	1770	4956	1770	5063	1770	4956	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
Adj. Flow (vph)	53	1443	192	9	791	24	94	16	34	30	9
RTOR Reduction (vph)	0	18	0	0	4	0	0	0	0	0	0
Lane Group Flow (vph)	53	1617	0	9	811	0	94	20	0	30	11
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	5	2	5	2	5	2	5
Permitted Phases	6.9	28.9	5.3	27.3	10.5	13.2	6.8	9.5	6.8	9.5	6.8
Actuated Green, G (s)	6.9	28.9	5.3	27.3	10.5	13.2	6.8	9.5	6.8	9.5	6.8
Effective Green, g (s)	0.10	0.41	0.08	0.39	0.45	0.19	0.10	0.14	0.10	0.14	0.10
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)	337	1992	269	1950	513	890	171	440	171	440	171
Lane Grp Cap (vph)	60.05	60.42	0.03	0.17	60.14	60.05	0.05	60.05	0.05	60.05	0.05
vs Ratio Prot	0.50	1.01	0.34	0.43	0.95	0.24	0.51	0.36	0.51	0.36	0.51
vs Ratio Perm	30.0	20.6	30.8	15.7	28.6	24.2	30.1	27.6	30.1	27.6	30.1
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	1.2	23.4	0.8	0.2	26.8	0.1	2.4	0.5	2.4	0.5	2.4
Incremental Delay, d2	31.2	44.1	31.6	15.9	56.4	24.4	32.5	28.1	32.5	28.1	32.5
Delay (s)	C	D	C	B	E	C	C	C	C	C	C
Level of Service	D	D	C	B	E	C	C	C	C	C	C
Approach Delay (s)	43.1	17.4	17.4	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0
Approach LOS	D	B	B	D	D	D	D	D	D	D	D
Intersection Summary											
HCM Average Control Delay	36.5										
HCM Volume to Capacity ratio	0.82										
Actuated Cycle Length (s)	70.2										
Intersection Capacity Utilization	76.0%										
Analysis Period (min)	15										
c : Critical Lane Group											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
	←	↑	→	←	↑	→	←	↑	→	←	↑	→
Lane Configurations	←	↑	←	←	↑	←	←	↑	←	←	↑	←
Volume (vph)	305	986	63	21	501	24	38	45	34	23	32	208
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	0.94	1.00	0.87	1.00	0.87
Flt	1.00	0.99	1.00	0.99	1.00	0.99	1.00	0.95	1.00	0.95	1.00	0.95
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1770	5040	1770	5050	1770	5050	1770	5050	1770	5050	1770	5050
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (perm)	1770	5040	1770	5050	1770	5050	1770	5050	1770	5050	1770	5050
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)	339	1086	70	23	557	27	43	50	38	26	36	231
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	339	1158	0	23	577	0	43	56	0	26	73	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	5	2	1	6				
Permitted Phases												
Actuated Green, G (s)	8.6	24.2	0.9	16.5	1.8	8.2	1.8	8.2	1.8	8.2	1.8	8.2
Effective Green, g (s)	8.6	24.2	0.9	16.5	1.8	8.2	1.8	8.2	1.8	8.2	1.8	8.2
Actuated g/C Ratio	0.17	0.47	0.02	0.32	0.04	0.16	0.04	0.16	0.04	0.16	0.04	0.16
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)	298	2387	31	1631	62	280	82	280		62	280	
v/s Ratio Prot	c0.19	c0.23	c0.01	0.11	c0.02	0.03	0.01	c0.05		0.01	c0.05	
v/s Ratio Perm	0.14	0.46	0.74	0.35	0.68	0.20	0.42	0.28		0.42	0.28	
Uniform Delay, d1	21.2	9.2	25.0	13.2	24.4	18.6	24.1	18.9		24.1	18.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	94.6	0.2	64.1	0.1	28.5	0.4	4.5	0.6		4.5	0.6	
Delay (s)	115.8	9.3	89.1	13.4	52.9	19.0	28.7	19.5		28.7	19.5	
Level of Service	F	A	F	B	D	B	C	B		C	B	
Approach Delay (s)	33.3		16.2		30.1		20.9			30.1		20.9
Approach LOS	C		B		C		B			C		B
Intersection Summary												
HCM Average Control Delay	27.6											
HCM Volume to Capacity ratio	0.58											
Actuated Cycle Length (s)	51.1											
Intersection Capacity Utilization	58.3%											
Analysis Period (min)	15											
6. Critical Lane Group												

Baseline

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	←←	←	←	←←	←	←
Volume (vph)	839	189	89	436	128	248
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	0.97	1.00	0.95	1.00	0.95	1.00
Flt Protected	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	4945	7770	5085	3433	1583	1583
Flt Permitted	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (perm)	4945	1770	5085	3433	1583	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	932	210	99	484	140	276
RTOR Reduction (vph)	59	0	0	0	0	229
Lane Group Flow (vph)	1083	0	99	484	140	47
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	3	8	2	2	2
Permitted Phases						
Actuated Green, G (s)	16.6	2.4	23.0	5.8	5.8	5.8
Effective Green, g (s)	16.6	2.4	23.0	5.8	5.8	5.8
Actuated g/C Ratio	0.45	0.07	0.62	0.16	0.16	0.16
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2231	115	3178	541	249	
v/s Ratio Prot	c0.22	c0.06	0.10	c0.04	0.03	
v/s Ratio Perm						
w/s Ratio	0.49	0.86	0.15	0.26	0.19	
Uniform Delay, d1	7.1	17.0	2.9	13.6	13.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	44.1	0.0	0.3	0.4	
Delay (s)	7.3	61.1	2.9	13.9	13.8	
Level of Service	A	E	A	B	B	
Approach Delay (s)	7.3		12.8	13.8		
Approach LOS	A		B	B		
Intersection Summary						
HCM Average Control Delay	10.0					
HCM Volume to Capacity ratio	0.47					
Actuated Cycle Length (s)	36.8					
Intersection Capacity Utilization	42.4%					
Analysis Period (min)	15					
Critical Lane Group	B					
	Sum of lost time (s)					
	12.0					
	ICU Level of Service					
	A					

Baseline

HCM Signalized Intersection Capacity Analysis	Existing + Project (Buildout) PM
18: Del Mar Highlands Town Ctr. & El Camino Real	12/11/2011

Existing + Project (Buildout) PM
12/11/2011

[illegible]

HCM Signalized Intersection Capacity Analysis	Existing + Project (Buildout) PM
19: Townsgate Drive & Carmel Country Road	12/11/2011

Existing + Project (Buildout) PM
12/11/2011

[illegible]

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

Existing + Project (Buildout) PM
12/11/2011

Movement	SEE	SET	SER	NWL	NWMT	NWR	NET	NIE	NIER	SWL	SWMT	SWR
Lane Configurations	1	1	1	1	1	1	1	1	1	1	1	1
Volume (vph)	11	6	10	140	0	127	7	829	200	162	590	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	1.00	0.97	1.00	0.95	1.00	0.97	1.00	0.97	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1692	1770	1692	1770	1692	1770	1692	1770	1692	1770	1692
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	1692	1770	1692	1770	1692	1770	1692	1770	1692	1770	1692
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)	12	7	11	156	0	141	8	921	222	180	656	2
RTOR Reduction (vph)	0	11	0	0	0	121	0	52	0	0	0	0
Lane Group Flow (vph)	12	7	0	156	0	20	8	1091	0	180	656	0
Turn Type	Prot	1	6	Prot	5	2	7	4	Prot	3	8	Prot
Permitted Phases	1	6	1	5	2	7	4	3	1	8	1	6
Actuated Green, G (s)	0.7	1.1	7.1	7.1	7.5	0.7	19.5	8.1	26.9	8.1	26.9	8.1
Effective Green, g (s)	0.7	1.1	7.1	7.1	7.5	0.7	19.5	8.1	26.9	8.1	26.9	8.1
Actuated g/C Ratio	0.01	0.02	0.14	0.01	0.01	0.38	0.16	0.52	0.16	0.52	0.16	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)	24	36	243	229	24	1859	277	2640	277	2640	277	2640
v/s Ratio Prot	0.01	0.00	0.09	0.01	0.00	0.22	0.10	0.13	0.10	0.13	0.10	0.13
v/s Ratio Perm	0.90	0.20	0.64	0.08	0.33	0.59	0.65	0.25	0.65	0.25	0.65	0.25
Uniform Delay, d1	25.4	24.9	21.1	19.2	25.3	12.9	20.5	6.9	20.5	6.9	20.5	6.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	15.4	2.7	5.7	0.2	0.2	0.5	5.2	0.0	5.2	0.0	5.2	0.0
Delay (s)	40.8	27.7	26.8	19.4	33.4	13.4	25.7	6.9	25.7	6.9	25.7	6.9
Level of Service	D	C	C	B	C	B	C	B	C	B	C	A
Approach Delay (s)	32.9	23.3	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5
Approach LOS	C	C	B	B	B	B	B	B	B	B	B	B
Intersection Summary												
HCM Average Control Delay	14.1											
HCM Volume to Capacity ratio	0.54											
Actuated Cycle Length (s)	51.8											
Intersection Capacity Utilization	53.9%											
Analysis Period (min)	15											
c - Critical Lane Group												

Baseline
Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
21: Carmel Creek Road & Carmel Country Road

Existing + Project (Buildout) PM
12/11/2011

Movement	EBL	EBT	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑	↗	↔	↔	↗	↗	↗	↗	↗	↗
Volume (vph)	321	237	123	32	99	17	94	406	39	25	468
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95
Flt Protected	1.00	1.00	0.95	0.99	0.99	1.00	0.99	1.00	0.99	1.00	0.94
Flt Permitted	0.95	1.00	1.00	0.99	0.99	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	1693	1693	1814	1814	1770	3493	1770	3344	1770	3344
Satd. Flow (perm)	1770	1693	1693	1814	1814	1770	3493	1770	3344	1770	3344
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)	357	263	137	36	110	19	104	451	43	28	516
RTOR Reduction (vph)	0	0	103	0	6	0	0	9	0	0	101
Lane Group Flow (vph)	357	263	34	0	159	0	104	485	0	28	719
Turn Type	Split	4	4	8	8	5	2	1	6	1	6
Permitted Phases	1	4	4	8	8	5	2	1	6	1	6
Actuated Green, G (s)	17.7	17.7	17.7	11.6	11.6	5.1	24.2	1.9	21.0	1.9	21.0
Effective Green, g (s)	17.7	17.7	17.7	11.6	11.6	5.1	24.2	1.9	21.0	1.9	21.0
Actuated g/C Ratio	0.25	0.25	0.25	0.16	0.16	0.07	0.34	0.03	0.29	0.03	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
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	439	462	392	295	295	128	1184	47	984	47	984
v/s Ratio Prot	0.20	0.14	0.02	0.09	0.06	0.06	0.14	0.02	0.22	0.02	0.22
v/s Ratio Perm	0.81	0.57	0.09	0.54	0.54	0.83	0.41	0.80	0.73	0.80	0.73
Uniform Delay, d1	25.3	23.5	20.6	27.4	27.4	32.7	18.1	34.4	22.7	34.4	22.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.0	1.6	0.1	1.9	1.9	33.7	0.2	18.6	2.8	18.6	2.8
Delay (s)	36.3	25.1	20.7	29.3	29.3	66.4	18.4	53.0	25.5	53.0	25.5
Level of Service	D	C	C	C	C	E	B	D	C	D	C
Approach Delay (s)	28.6	28.6	28.6	29.3	29.3	28.6	28.6	28.6	28.6	28.6	28.6
Approach LOS	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary											
HCM Average Control Delay	27.7										
HCM Volume to Capacity ratio	0.76										
Actuated Cycle Length (s)	71.4										
Intersection Capacity Utilization	65.9%										
Analysis Period (min)	15										
c - Critical Lane Group											

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

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

Movement	EBL	EBR	EBR2	NWL2	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	72	271	315	96	168	141	258	1056	92	181	617	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)	1.00	1.00	1.00	1.00	0.97	0.97	0.97	0.97	1.00	0.99	1.00	0.99
Lane Util. Factor	1.00	0.85	0.85	1.00	0.93	0.93	0.93	0.93	1.00	0.98	1.00	0.98
Flt Protected	0.95	1.00	1.00	0.95	0.97	0.95	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	1583	1770	2277	3433	5024	5024	1770	5035	1770	5035
Flt Permitted	0.95	1.00	1.00	0.95	0.97	0.95	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	1583	1583	1770	3277	3433	5024	5024	1770	5035	1770	5035
Peak-hour factor, P/H	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)	80	301	350	107	187	157	287	1173	102	201	686	48
RTOR Reduction (vph)	0	0	248	0	143	0	0	15	0	0	12	0
Lane Group Flow (vph)	80	301	102	107	201	0	287	1280	0	201	722	0
Turn Type	2	2	2	6	6	3	8	7	7	4	4	4
Protected Phases												
Permitted Phases												
Actuated Green, G (s)	17.5	17.5	17.5	5.7	5.7	7.8	17.2	8.6	8.6	18.0	18.0	18.0
Effective Green, g (s)	17.5	17.5	17.5	5.7	5.7	7.8	17.2	8.6	8.6	18.0	18.0	18.0
Actuated g/C Ratio	0.27	0.27	0.27	0.09	0.09	0.12	0.26	0.13	0.13	0.28	0.28	0.28
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	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)	477	426	426	155	287	412	1329	234	1394	477	426	426
v/s Ratio Prot	0.05	0.06	0.06	0.06	0.06	0.08	0.25	0.11	0.14	0.05	0.06	0.06
v/s Ratio Perm	0.19	0.24	0.24	0.69	0.70	0.70	0.95	0.66	0.52	0.19	0.24	0.24
v/s Ratio	0.17	0.21	0.24	0.69	0.70	0.70	0.95	0.66	0.52	0.17	0.21	0.24
Uniform Delay, d1	18.2	21.4	18.5	28.8	28.8	27.5	23.5	27.5	27.5	19.8	19.8	19.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	9.5	1.3	12.5	7.3	5.1	13.9	25.4	25.4	0.3	0.3	0.3
Delay (s)	18.9	30.9	19.9	41.2	36.1	32.5	37.4	53.0	53.0	20.2	20.2	20.2
Level of Service	B	C	B	D	D	C	D	D	D	C	C	C
Approach Delay (s)	24.3			37.9		38.5				27.2		
Approach LOS	C			D		D				C		
Intersection Summary												
HCM Average Control Delay	31.8											
HCM Volume to Capacity ratio	0.82											
Actuated Cycle Length (s)	65.0											
Intersection Capacity Utilization	69.3%											
Analysis Period (min)	15											
c Critical Lane Group												

Baseline
Synchro 7 - Report
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Movement	EBL	EBR	EBR2	NWL2	NWL	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)	212	25	159	4	11	4	115	24	8	2	7	111
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)	236	28	177	4	12	4	128	27	9	2	8	123
Direction Lane Group	SE 1	SE 2	SE 3	NW 1	NW 2	NW 3	NE 1	NE 2	NE 3	SW 1	SW 2	SW 3
Volume Total (vph)	263	177	21	163	133							
Volume Left (vph)	236	0	4	128	2							
Volume Right (vph)	0	177	4	9	123							
Had (s)	0.48	0.67	0.05	0.16	0.32							
Departure Headway (s)	5.8	4.6	5.3	5.3	4.7							
Degree Utilization, x	0.42	0.23	0.03	0.24	0.17							
Capacity (veh/h)	599	746	618	635	702							
Control Delay (s)	11.3	7.8	8.5	10.0	8.7							
Approach Delay (s)	10.2	8.5	10.0	8.7								
Approach LOS	B	B	A	B	A							
Intersection Summary												
Delay	9.8											
HCM Level of Service	A											
Intersection Capacity Utilization	41.2%											
Analysis Period (min)	15											

Baseline
Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
24: Carnel Grove Road & Carnel Creek Road

Existing + Project (Buildout) PM
12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4
Volume (vph)	116	50	70	55	26	9	108	757	134	6	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.97	1.00	0.85	0.99	1.00	0.98	1.00	0.98	1.00	0.95	1.00
Satd. Flow (prot)	1800	1800	1583	1783	1770	3459	1770	3459	1770	3443	1800
Flt Permitted	0.97	1.00	0.97	0.97	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1800	1800	1583	1783	1770	3459	1770	3459	1770	3443	1800
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)	129	56	78	61	29	10	120	841	149	7	413
RTOR Reduction (vph)	0	0	66	0	6	0	15	0	0	0	21
Lane Group Flow (vph)	0	185	12	0	94	0	120	975	0	7	483
Turn Type	Split	Prot	Prot	Split	Prot	Prot	Prot	Split	Prot	Prot	Split
Protected Phases	4	4	4	4	4	4	4	4	4	4	4
Permitted Phases	8	7	8	7	8	7	8	7	8	7	8
Actuated Green, G (s)	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7
Effective Green, g (s)	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7
Actuated g/C Ratio	0.15	0.15	0.15	0.11	0.11	0.10	0.45	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
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	269	237	202	173	1657	173	1657	21	1254	21	1254
vs Ratio Prot	c0.10	0.01	c0.05	c0.07	c0.28	c0.07	c0.28	0.00	0.14	0.00	0.14
vs Ratio Perm	0.69	0.05	0.45	0.69	0.63	0.69	0.63	0.33	0.39	0.33	0.39
Uniform Delay, d1	23.5	21.2	24.1	25.4	12.3	28.5	13.7	28.5	13.7	28.5	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
Incremental Delay, d2	7.1	0.1	1.7	11.4	0.8	9.1	0.2	9.1	0.2	9.1	0.2
Delay (s)	30.6	21.3	25.8	36.8	13.0	37.7	13.9	37.7	13.9	37.7	13.9
Level of Service	C	C	C	D	B	D	B	D	B	D	B
Approach Delay (s)	27.8	27.8	25.8	25.8	15.6	15.6	14.2	15.6	14.2	15.6	14.2
Approach LOS	C	C	C	C	B	B	B	C	B	C	B
Intersection Summary											
HCM Average Control Delay	17.4										
HCM Volume to Capacity ratio	0.60										
Actuated Cycle Length (s)	50.2										
Intersection Capacity Utilization	50.2%										
Analysis Period (min)	15										
c Critical Lane Group											

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

Existing + Project (Buildout) PM
12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4
Volume (vph)	0	636	137	604	885	0	0	0	835	1	73
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	0.97	0.95	0.97	0.95	1.00	1.00	1.00	0.95	0.91	0.95
Flt Protected	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3445	3445	3445	3445	3445	3445	3445	3445	3445	3445	3445
Flt Permitted	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3445	3445	3445	3445	3445	3445	3445	3445	3445	3445	3445
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)	0	707	152	671	983	0	0	0	928	1	81
RTOR Reduction (vph)	0	28	0	0	0	0	0	0	0	0	1
Lane Group Flow (vph)	0	831	0	671	983	0	0	0	473	463	24
Turn Type	Prot	Split	Prot	Split	Prot	Prot	Prot	Prot	Split	Prot	Split
Protected Phases	4	4	4	4	4	4	4	4	4	4	4
Permitted Phases	8	7	8	7	8	7	8	7	8	7	8
Actuated Green, G (s)	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
Effective Green, g (s)	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
Actuated g/C Ratio	0.27	0.27	0.27	0.22	0.22	0.27	0.22	0.27	0.22	0.27	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
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	815	815	815	815	815	815	815	815	815	815	815
vs Ratio Prot	c0.24	c0.24	c0.24	c0.20	c0.20	c0.24	c0.20	c0.24	c0.20	c0.24	c0.20
vs Ratio Perm	0.91	0.91	0.91	0.89	0.89	0.91	0.89	0.91	0.89	0.91	0.89
Uniform Delay, d1	22.7	22.7	22.7	24.3	24.3	22.7	24.3	22.7	24.3	22.7	24.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.6	12.6	12.6	13.0	13.0	12.6	13.0	12.6	13.0	12.6	13.0
Delay (s)	35.3	35.3	35.3	37.3	37.3	35.3	37.3	35.3	37.3	35.3	37.3
Level of Service	D	D	D	D	D	D	D	D	D	D	D
Approach Delay (s)	35.3	35.3	35.3	20.7	20.7	35.3	20.7	35.3	20.7	35.3	20.7
Approach LOS	D	D	D	C	C	D	C	D	C	D	C
Intersection Summary											
HCM Average Control Delay	27.6										
HCM Volume to Capacity ratio	0.89										
Actuated Cycle Length (s)	64.0										
Intersection Capacity Utilization	80.9%										
Analysis Period (min)	15										
c Critical Lane Group											

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

Existing + Project (Buildout) PM
12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Configurations	123	1300	0	0	1001	700	439	7	667	0	0
Volume (vph)	123	1300	0	0	1001	700	439	7	667	0	0
Ideal Flow (vphpl)	1000	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	0.95	0.95	0.95	0.95	0.95	0.91	0.95	0.95	0.95
Fr	1.00	1.00	1.00	1.00	0.85	1.00	0.87	0.85	1.00	1.00	1.00
Fr Protected	0.95	1.00	1.00	1.00	1.00	0.95	0.99	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3433	3539	3539	3539	1583	1691	1472	1504	1691	1472	1504
Satd. Flow (perm)	3433	3539	3539	3539	1583	1691	1472	1504	1691	1472	1504
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	137	1533	0	0	1112	867	488	8	741	0	0
RTOR Reduction (vph)	0	0	0	0	0	530	0	13	13	0	0
Lane Group Flow (vph)	137	1533	0	0	1112	337	429	395	387	0	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Permitted Phases	1	4	8	8	2	2	2	2	2	2	2
Actuated Green, G (s)	3.5	28.4	20.9	20.9	17.3	17.3	17.3	17.3	17.3	17.3	17.3
Effective Green, g (s)	3.5	28.4	20.9	20.9	17.3	17.3	17.3	17.3	17.3	17.3	17.3
Actuated g/C Ratio	0.07	0.53	0.39	0.39	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	224	1872	1377	616	542	474	485				
vs Ratio Prot	0.04	0.043	0.31	0.21	0.26	0.27	0.26				
vs Ratio Perm			0.81	0.55	0.79	0.83	0.80				
Uniform Delay, d1	24.4	10.5	14.6	12.7	16.6	16.9	16.6				
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Incremental Delay, d2	4.9	2.9	3.6	1.0	7.8	11.9	8.9				
Delay (s)	29.3	13.4	18.2	13.7	24.3	28.6	25.5				
Level of Service	C	B	B	B	C	C	C				
Approach Delay (s)	14.7	16.2	16.2	16.2	26.2	26.2	26.2				
Approach LOS	B	B	B	B	C	C	C				
Intersection Summary											
HCM Average Control Delay	18.2										
HCM Volume to Capacity ratio	0.82										
Actuated Cycle Length (s)	53.7										
Intersection Capacity Utilization	80.9%										
Analysis Period (min)	15										
c Critical Lane Group	A										

HCM Signalized Intersection Capacity Analysis
27: Valley Centre Drive & El Camino Real

Existing + Project (Buildout) PM
12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Configurations	38	30	28	476	42	129	75	946	214	204	1403
Volume (vph)	38	30	28	476	42	129	75	946	214	204	1403
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	0.95	0.91	0.95	0.95	0.91
Fr	1.00	0.99	0.95	1.00	0.99	0.95	1.00	0.97	1.00	1.00	0.95
Fr 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)	1681	1688	1604	1681	1613	1504	1770	1495	1770	1770	1604
Satd. Flow (perm)	1681	1688	1604	1681	1613	1504	1770	1495	1770	1770	1604
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)	42	33	31	529	24	143	83	1053	238	227	1559
RTOR Reduction (vph)	0	3	26	0	2	99	0	36	0	0	2
Lane Group Flow (vph)	38	37	2	286	279	30	83	1255	0	227	1585
Turn Type	Split	4	4	4	8	8	5	21	61	61	61
Permitted Phases	5	5	5	17	17	17	17	4	4	4	4
Actuated Green, G (s)	5.7	5.7	5.7	17.4	17.4	17.4	17.4	4.4	4.4	4.4	4.4
Effective Green, g (s)	5.7	5.7	5.7	17.4	17.4	17.4	17.4	4.4	4.4	4.4	4.4
Actuated g/C Ratio	0.08	0.08	0.08	0.23	0.23	0.23	0.23	0.06	0.06	0.06	0.06
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	127	126	114	388	373	348	103	2640	747	747	2142
vs Ratio Prot	0.02	0.02	0.02	0.17	0.17	0.17	0.02	0.05	0.13	0.13	0.03
vs Ratio Perm				0.90	0.90	0.90	0.75	0.08	0.81	0.81	0.74
Uniform Delay, d1	32.9	32.9	32.2	26.8	26.8	26.9	22.7	35.0	11.0	14.4	18.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	1.3	0.1	7.1	7.9	0.1	35.2	0.1	0.2	0.2	1.4
Delay (s)	34.2	34.2	32.3	34.0	34.9	27.0	70.2	11.1	11.2	14.6	19.7
Level of Service	C	C	C	C	C	C	E	B	B	B	B
Approach Delay (s)	33.7	33.7	33.7	33.7	33.7	33.7	33.7	14.7	14.7	14.7	14.7
Approach LOS	C	C	C	C	C	C	C	B	B	B	B
Intersection Summary											
HCM Average Control Delay	20.2										
HCM Volume to Capacity ratio	0.70										
Actuated Cycle Length (s)	75.3										
Intersection Capacity Utilization	66.1%										
Analysis Period (min)	15										
c Critical Lane Group	C										

HCM Signalized Intersection Capacity Analysis 28: Carmel Valley Road & El Camino Real

Existing + Project (Buildout) PM 12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Volume (vph)	0	0	0	166	807	170	341	1013	0	659	778
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	0.97	0.91	0.91	0.97	0.95	0.95	0.95	0.95	0.86	0.86	0.86
Flt. ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt. ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt. Protected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1610	3192	1441	1610	3192	1441	1610	3192	1441	1610	3192
Flt. Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1610	3192	1441	1610	3192	1441	1610	3192	1441	1610	3192
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)	547	1099	402	547	1099	402	547	1099	402	547	1099
RTOR Reduction (vph)	0	1	55	0	1	55	0	1	55	0	1
Lane Group Flow (vph)	482	1163	37	482	1163	37	482	1163	37	482	1163
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	4	4	4	4	4	4	4	4	4
Permitted Phases	3	8	8	3	8	8	3	8	8	3	8
Actuated Green, G (s)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Effective Green, g (s)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	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	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	647	1284	579	647	1284	579	647	1284	579	647	1284
v/s Ratio Prot	0.31	0.35	0.03	0.31	0.35	0.03	0.31	0.35	0.03	0.31	0.35
v/s Ratio Perm	0.76	0.91	0.06	0.76	0.91	0.06	0.76	0.91	0.06	0.76	0.91
Uniform Delay, d1	19.2	21.0	13.7	19.2	21.0	13.7	19.2	21.0	13.7	19.2	21.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.3	9.3	0.0	5.3	9.3	0.0	5.3	9.3	0.0	5.3	9.3
Delay (s)	24.5	30.3	13.7	24.5	30.3	13.7	24.5	30.3	13.7	24.5	30.3
Level of Service	C	C	B	C	C	B	C	C	B	C	C
Approach Delay (s)	27.6	27.6	0.0	27.6	27.6	0.0	27.6	27.6	0.0	27.6	27.6
Approach LOS	C	C	A	C	C	A	C	C	A	C	C
Intersection Summary											
HCM Average Control Delay	28.5										
HCM Volume to Capacity ratio	0.86										
Actuated Cycle Length (s)	74.6										
Intersection Capacity Utilization	106.3%										
Analysis Period (min)	15										
dt - Defect Right Lane - Record with 1 through lane as a right lane	c										
Critical Lane Group	c										

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

Existing + Project (Buildout) PM 12/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Volume (vph)	0	0	0	166	807	170	341	1013	0	659	778
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	0.97	0.91	0.91	0.97	0.95	0.95	0.95	0.95	0.86	0.86	0.86
Flt. ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt. ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt. Protected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1610	3192	1441	1610	3192	1441	1610	3192	1441	1610	3192
Flt. Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1610	3192	1441	1610	3192	1441	1610	3192	1441	1610	3192
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)	0	0	0	184	897	184	379	1126	0	732	864
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	184	897	105	379	1126	0	732	864
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	3	8	8	3	8	8	3	8	8	3	8
Permitted Phases	3	8	8	3	8	8	3	8	8	3	8
Actuated Green, G (s)	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3
Effective Green, g (s)	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3
Actuated g/C Ratio	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	806	1194	372	806	1194	372	806	1194	372	806	1194
v/s Ratio Prot	0.05	0.18	0.07	0.05	0.18	0.07	0.05	0.18	0.07	0.05	0.18
v/s Ratio Perm	0.23	0.75	0.28	0.23	0.75	0.28	0.23	0.75	0.28	0.23	0.75
Uniform Delay, d1	21.5	24.7	21.3	21.5	24.7	21.3	21.5	24.7	21.3	21.5	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
Incremental Delay, d2	0.1	2.7	0.4	0.1	2.7	0.4	0.1	2.7	0.4	0.1	2.7
Delay (s)	21.6	27.4	21.7	21.6	27.4	21.7	21.6	27.4	21.7	21.6	27.4
Level of Service	C	C	C	C	C	C	C	C	C	C	C
Approach Delay (s)	26.8	26.8	0.0	26.8	26.8	0.0	26.8	26.8	0.0	26.8	26.8
Approach LOS	C	C	A	C	C	A	C	C	A	C	C
Intersection Summary											
HCM Average Control Delay	20.9										
HCM Volume to Capacity ratio	0.86										
Actuated Cycle Length (s)	69.4										
Intersection Capacity Utilization	106.3%										
Analysis Period (min)	15										
dt - Defect Right Lane - Record with 1 through lane as a right lane	c										
Critical Lane Group	c										

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

Existing + Project (Buildout) PM
12/11/2011

Movement	EBL	EBT	WBL	WBT	WBR	SBL	SBR
Lane Configurations	EBL	EBT	WBL	WBT	WBR	SBL	SBR
Volume (vph)	66	381	0	364	94	30	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3431	1770	1770	1770	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3431	1770	1770	1770	1583
Peak-hour factor, P/H	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	73	434	0	404	104	33	51
RTOR Reduction (vph)	0	0	0	43	0	0	47
Lane Group Flow (vph)	73	434	0	465	0	33	4
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Permitted Phases	7	4	3	8	5	5	6
Actuated Green, G (s)	12	14.0	8.8	8.8	1.7	1.7	1.7
Effective Green, g (s)	1.2	14.0	8.8	8.8	1.7	1.7	1.7
Actuated g/C Ratio	0.05	0.59	0.37	0.37	0.07	0.07	0.07
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)	90	2081	1274	1274	127	114	114
v/s Ratio Prot	0.04	0.12	0.14	0.14	0.02	0.02	0.00
v/s Ratio Perm	0.81	0.21	0.36	0.36	0.26	0.09	0.09
v/c Ratio	11.1	2.3	5.4	5.4	10.4	10.2	10.2
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	40.5	0.0	0.2	0.2	1.1	0.1	0.1
Delay (s)	51.6	2.3	5.6	5.6	11.5	10.3	10.3
Level of Service	D	A	A	A	B	B	B
Approach Delay (s)	51.6	2.3	5.6	5.6	11.5	10.3	10.3
Approach LOS	A	A	A	A	B	B	B
Intersection Summary							
HCM Average Control Delay	7.8						
HCM Volume to Capacity ratio	0.40						
Actuated Cycle Length (s)	23.7						
Intersection Capacity Utilization	30.1%						
Analysis Period (min)	15						
c Critical Lane Group							

HCM Signalized Intersection Capacity Analysis 31: Valley Centre Drive & Carmel Creek Road

Existing + Project (Buildout) PM
12/11/2011

Movement	EBL	EBT	WBL	WBT	WBR	SBL	SBR
Lane Configurations	EBL	EBT	WBL	WBT	WBR	SBL	SBR
Volume (vph)	118	284	290	31	96	312	821
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.88	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
Satd. Flow (prot)	1770	2787	1583	1770	1756	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1094	2787	1583	1770	1756	3539	1583
Peak-hour factor, P/H	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	132	316	322	34	174	347	912
RTOR Reduction (vph)	0	0	254	0	34	0	80
Lane Group Flow (vph)	132	316	68	34	247	0	912
Turn Type	custom	custom	custom	Prot	Prot	Prot	Prot
Permitted Phases	4	4	4	3	8	2	2
Actuated Green, G (s)	12.6	12.6	12.6	1.5	18.1	15.1	21.1
Effective Green, g (s)	12.6	12.6	12.6	1.5	18.1	15.1	21.1
Actuated g/C Ratio	0.21	0.21	0.21	0.03	0.30	0.25	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)	231	568	334	44	532	448	1251
v/s Ratio Prot	0.12	0.11	0.04	0.02	0.14	0.20	0.26
v/s Ratio Perm	0.57	0.54	0.20	0.77	0.46	0.77	0.73
v/c Ratio	21.1	21.0	19.4	28.9	16.9	20.7	16.8
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.4	0.9	0.3	57.0	0.6	8.2	2.2
Delay (s)	24.5	21.9	19.7	58.9	17.5	29.3	19.0
Level of Service	C	C	B	F	B	C	B
Approach Delay (s)	24.5	21.9	19.7	58.9	17.5	29.3	19.0
Approach LOS	C	C	B	F	B	C	B
Intersection Summary							
HCM Average Control Delay	21.6						
HCM Volume to Capacity ratio	0.89						
Actuated Cycle Length (s)	58.7						
Intersection Capacity Utilization	64.3%						
Analysis Period (min)	15						
c Critical Lane Group							

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	4	4	4	0	0	0	0	0	0	4	4
Volume (vph)	908	0	92	0	0	0	342	43	348	107	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	0.95	0.95	1.00	0.95	0.97	0.95	0.95	0.95
Flt	1.00	1.00	0.85	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Flt Protected	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1681	1681	1681	3480	3480	3480	3433	3539	3433	3539	3539
Flt Permitted	0.95	0.95	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1681	1681	1681	3480	3480	3480	3433	3539	3433	3539	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1009	0	102	0	0	0	380	48	387	119	0
RTOR Reduction (vph)	0	0	64	0	0	0	22	0	0	0	0
Lane Group Flow (vph)	504	505	38	0	0	0	406	0	387	119	0
Turn Type	Spill	Perm	Perm				Prot				
Protected Phases	4	4	4				2				6
Permitted Phases											
Actuated Green, G (s)	16.2	16.2	16.2				10.8				19.8
Effective Green, g (s)	16.2	16.2	16.2				10.8				19.8
Actuated g/C Ratio	0.37	0.37	0.37				0.25				0.45
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)	619	619	593				854				1593
vs Ratio Prot	0.30	0.30	0.30				0.12				0.03
vs Ratio Perm											
W/C Ratio	0.81	0.82	0.66				0.48				0.99
Uniform Delay, d1	12.5	12.6	9.0				14.2				19.5
Progression Factor	1.00	1.00	1.00				1.00				1.00
Incremental Delay, d2	8.1	8.2	0.0				0.4				43.3
Delay (s)	20.6	20.7	9.0				14.6				62.8
Level of Service	C	C	A				B				E
Approach Delay (s)											
Approach LOS											
Intersection Summary											
HCM Average Control Delay											
HCM Volume to Capacity ratio											
Actuated Cycle Length (s)											
Intersection Capacity Utilization											
Analysis Period (min)											
c Critical Lane Group											

Movement	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
Volume (vph)	127	475	47	81	425	400	56	128	104	230	82	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.93	1.00	0.97	1.00	0.92
Flt	1.00	0.99	1.00	0.99	1.00	0.99	1.00	0.95	1.00	0.95	1.00	0.95
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1770	3492	1770	3282	3282	3282	1770	3433	3433	3433	1708	1708
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (perm)	1770	3492	1770	3282	3282	3282	1770	3433	3433	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)	141	528	52	101	472	444	62	142	116	256	88	72
RTOR Reduction (vph)	0	8	0	0	203	0	0	37	0	0	0	0
Lane Group Flow (vph)	141	572	0	101	713	0	62	221	0	256	80	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	1	6	5	2	7	4	3	8				
Permitted Phases												
Actuated Green, G (s)	8.6	20.6	7.6	19.4	4.9	15.4	8.7	19.2				
Effective Green, g (s)	8.6	20.6	7.6	19.4	4.9	15.4	8.7	19.2				
Actuated g/C Ratio	0.13	0.30	0.11	0.28	0.07	0.23	0.13	0.28				
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)	228	1053	197	932	127	392	437	480				
vs Ratio Prot	0.08	0.16	0.06	0.22	0.04	0.13	0.07	0.05				
vs Ratio Perm												
W/C Ratio	0.62	0.54	0.51	0.77	0.49	0.56	0.59	0.17				
Uniform Delay, d1	28.2	19.9	28.6	22.4	30.5	23.5	28.1	18.5				
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Incremental Delay, d2	4.9	0.6	2.2	3.8	2.9	1.9	2.0	0.2				
Delay (s)	33.1	20.5	30.9	26.2	33.4	25.3	30.1	18.7				
Level of Service	C	C	C	C	C	C	C	C				
Approach Delay (s)												
Approach LOS												
Intersection Summary												
HCM Average Control Delay												
HCM Volume to Capacity ratio												
Actuated Cycle Length (s)												
Intersection Capacity Utilization												
Analysis Period (min)												
c Critical Lane Group												

Movement	WB	WB	SEL	SET	NMT	NMT	NMT	NMT	SWR	SWR
Lane Configurations	0	0	283	494	621	0	190	147	266	0
Volume (vph)	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
Total Lost time (s)	0.97	0.95	0.95	1.00	0.97	1.00	0.95	1.00	0.95	1.00
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Flt	0.95	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3433	3539	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	3539	1583	3433	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
Adj. Flow (vph)	0	0	299	549	690	0	211	163	296	0
RTOR Reduction (vph)	0	0	0	0	0	0	136	0	243	0
Lane Group Flow (vph)	0	0	299	549	690	0	75	163	53	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	5	2	6	6	6	6	6	6	6	6
Permitted Phases	9.5	29.8	16.3	16.3	8.3	8.3	8.3	8.3	8.3	8.3
Actuated Green, G (s)	9.5	29.8	16.3	16.3	8.3	8.3	8.3	8.3	8.3	8.3
Effective Green, g (s)	0.21	0.65	0.35	0.35	0.18	0.18	0.18	0.18	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
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)	707	2288	1251	560	618	285	0.05	0.05	0.03	0.03
Lane Grp Cap (vph)	707	2288	1251	560	618	285	0.05	0.05	0.03	0.03
vs Ratio Prot	0.09	0.16	0.19	0.19	0.13	0.13	0.13	0.13	0.13	0.13
vs Ratio Perm	0.42	0.21	0.55	0.13	0.25	0.19	0.13	0.25	0.19	0.19
Uniform Delay, d1	15.9	3.4	12.0	10.1	16.3	16.0	10.1	16.3	16.0	16.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.1	0.5	0.1	0.2	0.3	0.1	0.2	0.3	0.3
Delay (s)	16.3	3.5	12.5	10.2	16.5	16.3	10.2	16.5	16.3	16.3
Level of Service	B	A	B	B	B	B	B	B	B	B
Approach Delay (s)	0.0	8.0	12.0	16.4	16.4	16.4	16.4	16.4	16.4	16.4
Approach LOS	A	A	B	B	B	B	B	B	B	B
Intersection Summary										
HCM Average Control Delay	11.4									
HCM Volume to Capacity ratio	0.45									
Actuated Cycle Length (s)	46.1									
Sum of lost time (s)	12.0									
Intersection Capacity Utilization	40.3%									
Analysis Period (min)	15									
c Critical Lane Group										

Movement	EB	EB	SEL	SET	SEL	SEL	SEL	SEL	SWR	SWR
Lane Configurations	0	0	283	494	621	0	190	147	266	0
Volume (vph)	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
Total Lost time (s)	0.97	0.95	0.95	1.00	0.97	1.00	0.95	1.00	0.95	1.00
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Flt	0.95	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3433	3539	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	3539	1583	3433	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
Adj. Flow (vph)	0	0	299	549	690	0	211	163	296	0
RTOR Reduction (vph)	0	0	0	0	0	0	136	0	243	0
Lane Group Flow (vph)	0	0	299	549	690	0	75	163	53	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	5	2	6	6	6	6	6	6	6	6
Permitted Phases	9.5	29.8	16.3	16.3	8.3	8.3	8.3	8.3	8.3	8.3
Actuated Green, G (s)	9.5	29.8	16.3	16.3	8.3	8.3	8.3	8.3	8.3	8.3
Effective Green, g (s)	0.21	0.65	0.35	0.35	0.18	0.18	0.18	0.18	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
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)	707	2288	1251	560	618	285	0.05	0.05	0.03	0.03
Lane Grp Cap (vph)	707	2288	1251	560	618	285	0.05	0.05	0.03	0.03
vs Ratio Prot	0.09	0.16	0.19	0.19	0.13	0.13	0.13	0.13	0.13	0.13
vs Ratio Perm	0.42	0.21	0.55	0.13	0.25	0.19	0.13	0.25	0.19	0.19
Uniform Delay, d1	15.9	3.4	12.0	10.1	16.3	16.0	10.1	16.3	16.0	16.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.1	0.5	0.1	0.2	0.3	0.1	0.2	0.3	0.3
Delay (s)	16.3	3.5	12.5	10.2	16.5	16.3	10.2	16.5	16.3	16.3
Level of Service	B	A	B	B	B	B	B	B	B	B
Approach Delay (s)	0.0	8.0	12.0	16.4	16.4	16.4	16.4	16.4	16.4	16.4
Approach LOS	A	A	B	B	B	B	B	B	B	B
Intersection Summary										
HCM Average Control Delay	11.4									
HCM Volume to Capacity ratio	0.45									
Actuated Cycle Length (s)	46.1									
Sum of lost time (s)	12.0									
Intersection Capacity Utilization	40.3%									
Analysis Period (min)	15									
c Critical Lane Group										

ALL-WAY STOP CONTROL ANALYSIS											
General Information			Site Information								
Analyst	Jacob Swin		Intersection		Carmel Creek Rd/Dell Mar Trail						
Agency/Co.	USAL		Municipality		City of San Diego						
Date Performed	3/4/2011		Analysis Year		2011						
Analysis Time Period	35 Existing + Project (EO) PM										
Project ID: 002407 - San Diego Corporate Center Lots											
East/West Street: Dell Mar Trail											
North/South Street: Carmel Creek Road											
Volume Adjustments and Site Characteristics											
Approach			Eastbound			Westbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T
Volumes (veh/h)	5	5	4	55	12	10	50	440	10		
% Through Left Lane											
Approach			Northbound			Southbound			Eastbound		
Movement	L	T	R	L	T	R	L	T	R	L	T
Volumes (veh/h)	12	770	100	15	50	50	440	10			
% Through Left Lane											
Saturation Headway Adjustment Worksheet											
Configuration	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2	L1
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Flow Rate (veh/h)	14	85	440	538	260	255	2	2	2	2	2
% Heavy Vehicles	2	1	2	2	2	2	2	2	2	2	2
No. Lanes	1	2	2	2	2	2	2	2	2	2	2
Segment Group	2	2	2	2	2	2	2	2	2	2	2
Duration, T	0.25										
Departure Headway and Service Time											
hd, initial value (s)	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.01	0.08	0.39	0.48	0.23	0.23	0.01	0.08	0.39	0.48	0.23
hd, final value (s)	6.74	6.63	5.53	5.37	6.07	6.01	6.74	6.63	5.53	5.37	6.07
x, final value	0.03	0.16	0.68	0.80	0.44	0.43	0.03	0.16	0.68	0.80	0.44
Move-up time, m (s)	2.0	2.0	2.0	2.3	2.3	2.3	2.0	2.0	2.0	2.3	2.3
Service Time, ts (s)	4.7	4.6	3.2	3.1	3.8	3.7	4.7	4.6	3.2	3.1	3.8
Capacity and Level of Service											
Eastbound			Westbound			Northbound			Southbound		
L1	L2	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	264	335	647	668	510	505	647	668	510	505	647
Delay (s/veh)	9.92	10.86	18.94	26.13	13.42	13.08	18.94	26.13	13.42	13.08	18.94
LOS	A	B	C	D	B	B	C	D	B	B	C
Approach Delay (s/veh)	9.92	10.86	22.89	22.89	13.25	13.25	22.89	22.89	13.25	13.25	22.89
LOS	A	B	C	C	B	B	C	C	B	B	C
Intersection Delay (s/veh)	19.02										
Intersection LOS	C										
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