

APPENDIX M

YEAR 2030 WITH PROJECT BUILD-OUT SYNCHRO WORKSHEETS

HCM Signalized Intersection Capacity Analysis

1: Via De La Valle & El Camino Real

Year 2030 + Project AM

12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	10	300	521	701	460	10	460	5	202	10	10	10
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	0.95	1.00	0.97	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Lane Util. Factor	1.00	1.00	0.85	1.00	1.00	1.00	1.00	0.85	0.85	0.85	0.85	0.85
Flt	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	0.95	1.00	0.95	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	3539	1583	3433	3528	1667	1667	1583	1750	1750	1750	1750
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.74	0.71	1.00	0.89	0.89	0.89	0.89
Satd. Flow (perm)	1770	3539	1583	3433	3528	1302	1251	1583	1579	1579	1579	1579
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)	11	422	579	779	511	11	511	6	224	11	11	11
RTOR Reduction (vph)	0	0	408	0	2	0	0	0	167	0	8	0
Lane Group Flow (vph)	11	422	171	779	520	0	261	256	57	0	25	0
Turn Type	Prot	Perm	Prot	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm
Protected Phases	7	4	3	8	2	2	6	6	6	6	6	6
Permitted Phases	4	2	2	6	6	6	6	6	6	6	6	6
Actuated Green, G (s)	0.8	17.4	17.4	14.6	31.2	14.9	14.9	14.9	14.9	14.9	14.9	14.9
Effective Green, g (s)	0.8	17.4	17.4	14.6	31.2	14.9	14.9	14.9	14.9	14.9	14.9	14.9
Actuated g/C Ratio	0.01	0.30	0.30	0.25	0.53	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
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	1045	468	851	1869	329	316	400	399	399	399	399
v/s Ratio Prot	0.01	c0.12	c0.23	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
v/s Ratio Perm	0.01	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
v/c Ratio	0.46	0.40	0.37	0.32	0.28	0.29	0.31	0.31	0.31	0.31	0.31	0.31
Uniform Delay, d1	28.8	16.6	16.4	21.5	7.6	20.6	20.7	17.0	16.7	16.7	16.7	16.7
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	13.2	0.3	0.5	14.3	0.1	12.3	14.5	0.2	0.1	0.1	0.1	0.1
Delay (s)	42.1	16.9	16.9	35.8	7.7	32.9	35.1	17.2	16.8	16.8	16.8	16.8
Level of Service	D	B	B	D	A	C	D	B	B	B	B	B
Approach Delay (s)	17.1	17.1	17.1	24.5	24.5	28.9	28.9	28.9	28.9	28.9	28.9	28.9
Approach LOS	B	B	B	C	C	C	C	C	C	C	C	C

Intersection Summary												
HCM Average Control Delay	23.1											
HCM Volume to Capacity ratio	0.69											
Actuated Cycle Length (s)	58.9											
Intersection Capacity Utilization	65.6%											
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis

2: San Dieguito Road & El Camino Real

Year 2030 + Project AM

12/1/2010

Movement	WBL	WBR	NBL	NBR	SBL	SBT	SBR
Lane Configurations	54	390	0	354	382	340	912
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)	0.97	1.00	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	1.00
Flt	0.95	1.00	1.00	1.00	0.95	1.00	0.95
Flt Protected	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1663	1583	1770	3539	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00	0.95
Satd. Flow (perm)	3433	1583	1663	1583	1770	3539	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	601	433	0	393	424	378	1013
RTOR Reduction (vph)	0	286	0	0	322	0	0
Lane Group Flow (vph)	601	147	0	393	102	378	1013
Turn Type	Perm	Prot	Perm	Prot	Perm	Prot	Perm
Protected Phases	1	3	1	3	1	3	1
Permitted Phases	1	3	1	3	1	3	1
Actuated Green, G (s)	23.0	23.0	16.3	16.3	16.4	23.0	23.0
Effective Green, g (s)	23.0	23.0	16.3	16.3	16.4	23.0	23.0
Actuated g/C Ratio	0.34	0.34	0.24	0.24	0.24	0.34	0.34
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)	1156	538	449	381	429	1202	1202
v/s Ratio Prot	0.18	c0.21	c0.21	c0.21	c0.21	c0.21	c0.21
v/s Ratio Perm	0.09	0.09	0.05	0.05	0.05	0.05	0.05
v/c Ratio	0.52	0.27	0.68	0.27	0.68	0.84	0.84
Uniform Delay, d1	17.9	16.3	24.7	20.9	24.7	20.7	20.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.3	17.1	0.4	18.6	5.5	5.5
Delay (s)	18.3	16.5	41.8	21.2	43.3	26.2	26.2
Level of Service	B	B	D	C	D	C	C
Approach Delay (s)	17.6	17.6	31.1	31.1	30.9	30.9	30.9
Approach LOS	B	B	C	C	C	C	C

Intersection Summary							
HCM Average Control Delay	26.7						
HCM Volume to Capacity ratio	0.66						
Actuated Cycle Length (s)	67.7						
Intersection Capacity Utilization	62.9%						
Analysis Period (min)	15						
c Critical Lane Group							

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
3: Derby Downs Road & El Camino Real

Year 2030 + Project AM
12/1/2010

Movement	WBL	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	TH		T	TH		T	TH
Volume (vph)	95	8	0	518	52	3	943
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0		4.0	4.0
Lane Util. Factor	0.97			0.95		1.00	0.95
Flt	0.99			0.99		1.00	1.00
Flt Protected	0.96			1.00		0.95	1.00
Satd. Flow (prot)	3414			3491		1770	3539
Flt Permitted	0.96			1.00		0.95	1.00
Satd. Flow (perm)	3414			3491		1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	106	9	0	576	58	3	1048
RTOR Reduction (vph)	8	0	0	11	0	0	0
Lane Group Flow (vph)	107	0	0	623	0	3	1048
Turn Type	Prot			Prot			
Protected Phases	0			5		2	
Permitted Phases							
Actuated Green, G (s)	3.4			17.7		0.6	
Effective Green, g (s)	3.4			17.7		0.6	
Actuated g/C Ratio	0.10			0.53		0.02	
Clearance Time (s)	4.0			4.0		4.0	
Vehicle Extension (s)	3.0			3.0		3.0	
Lane Grp Cap (vph)	344			1834		32	
v/s Ratio Prot	0.03			0.18		0.00	
v/s Ratio Perm							
v/c Ratio	0.31			0.34		0.09	
Uniform Delay, d1	14.1			4.6		18.3	
Progression Factor	1.00			1.00		1.00	
Incremental Delay, d2	0.5			0.1		1.3	
Delay (s)	14.6			4.7		17.6	
Level of Service	B			A		B	
Approach Delay (s)	14.6			4.7		2.9	
Approach LOS	B			A		A	
Intersection Summary							
HCM Average Control Delay	4.3			HCM Level of Service			A
HCM Volume to Capacity ratio	0.43						
Actuated Cycle Length (s)	33.7			Sum of lost time (s)			8.0
Intersection Capacity Utilization	36.1%			ICU Level of Service			A
Analysis Period (min)	15						
Critical Lane Group							

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

Year 2030 + Project AM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↵		↵	↵		↵	↕		↵	↕	
Volume (vph)	26	114	21	72	84	168	6	357	18	165	774	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Flt	1.00	0.98		1.00	0.90		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1820		1770	1576		1770	3514		1770	3475	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1820		1770	1576		1770	3514		1770	3475	
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)	29	127	23	80	93	187	7	397	20	183	860	119
RTOR Reduction (vph)	0	12	0	0	123	0	0	6	0	0	15	0
Lane Group Flow (vph)	29	138	0	80	157	0	7	411	0	183	964	0
Turn Type	Prot		Prot		Prot		Prot		Prot		Prot	
Protected Phases	1		1		1		1		1		1	
Permitted Phases												
Actuated Green, G (s)	0.8		0.9		2.6		0.7		15.0		5.3	
Effective Green, g (s)	0.8		0.9		2.6		0.7		15.0		5.3	
Actuated g/C Ratio	0.02		0.22		0.06		0.01		0.30		0.11	
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)	28		397		99		432		25		1054	
v/s Ratio Prot	0.02		0.08		0.05		0.09		0.00		0.12	
v/s Ratio Perm												
v/c Ratio	1.04		0.35		0.84		0.96		0.28		0.39	
Uniform Delay, d1	24.6		16.5		23.3		15.2		24.4		13.9	
Progression Factor	1.00		1.00		1.00		1.00		1.00		1.00	
Incremental Delay, d2	181.3		0.5		36.6		0.5		6.0		0.2	
Delay (s)	205.9		17.1		59.9		15.7		30.4		14.1	
Level of Service	F		B		E		B		C		B	
Approach Delay (s)			47.7		25.5		14.4				24.8	
Approach LOS			D		C		B				C	
Intersection Summary												
HCM Average Control Delay	24.8		HCM Level of Service		C							
HCM Volume to Capacity ratio	0.57											
Actuated Cycle Length (s)	50.0		Sum of lost time (s)		8.0							
Intersection Capacity Utilization	69.5%		ICU Level of Service		B							
Analysis Period (min)	15											
Critical Lane Group												

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

Year 2030 + Project AM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↑	↵	↵	↑	↵	↵	↑	↵	↵	↑	↵
Volume (vph)	6	85	79	106	141	41	41	381	59	42	874	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95
Flt.	1.00	1.00	0.85	1.00	0.97	1.00	1.00	0.98	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1799	1770	1770	3468	1770	3468	1770	3535
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1799	1770	1770	3468	1770	3468	1770	3535
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	7	94	86	118	157	46	46	423	66	47	971	8
RTOR Reduction (vph)	0	0	72	0	19	0	0	18	0	0	1	0
Lane Group Flow (vph)	7	94	16	118	184	0	46	471	0	47	978	0
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	1	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	0.6	8.7		0.7	3.5	11.6	1.2	19.7		1.2	19.7	
Effective Green, g (s)	0.6	8.7		0.7	3.5	11.6	1.2	19.7		1.2	19.7	
Actuated g/C Ratio	0.01	0.18		0.18	0.07	0.24	0.02	0.40		0.02	0.40	
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)	22	330		280	126	425	43	1391		43	1418	
v/s Ratio Prot	0.00	0.05		0.07	0.10	0.03	0.03	0.14		0.03	0.28	
v/s Ratio Perm			0.01									
v/c Ratio	0.32	0.28		0.06	0.94	0.43	0.07	0.34		0.09	0.39	
Uniform Delay, d1	24.0	17.5		16.8	22.7	16.0	24.0	10.2		24.0	12.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.2	0.5		0.1	60.2	0.7	158.5	0.1		165.9	1.4	
Delay (s)	32.2	18.0		16.9	82.9	16.7	182.5	10.3		189.9	13.6	
Level of Service	C	B		B	F	B	F	B		F	B	
Approach Delay (s)		10.0				41.0		25.1			21.7	
Approach LOS		B				D		C			C	
Intersection Summary												
HCM Average Control Delay	25.2			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.66			Sum of lost time (s)			16.0					
Actuated Cycle Length (s)	49.1			ICU Level of Service			A					
Intersection Capacity Utilization	50.3%			Analysis Period (min)			15					
c Critical Lane Group												

Baseline

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

Year 2030 + Project AM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SEB
Lane Configurations	↵	↗↗↗		↵	↗↗	↗↗↗		↗	↗	↗	↗	
Volume (vph)	130	1002	40	104	1164	244	80	60	172	492	40	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.95			1.00	1.00	0.95	0.95	
Flt	1.00	0.99		1.00	0.97			1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00	0.95	0.97	
Satd. Flow (prot)	1770	5056		1770	3447			1811	1583	1681	1635	
Flt Permitted	0.95	1.00		0.95	1.00			0.51	1.00	0.63	0.72	
Satd. Flow (perm)	1770	5056		1770	3447			956	1583	1120	1211	
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)	144	1113	44	116	1293	271	89	67	191	547	44	122
RTOR Reduction (vph)	0	5	0	0	22	0	0	0	127	0	24	0
Lane Group Flow (vph)	144	1162	0	116	1542	0	0	156	64	356	333	0
Turn Type	Prot			Prot			Perm		Perm		Perm	
Protected Phases	1	4		3	8		2	2		6	1	6
Permitted Phases							2		2		6	
Actuated Green, G (s)	5.6	33.3		7.6	35.3		26.7	26.7	26.7	26.7	26.7	
Effective Green, g (s)	5.6	33.3		7.6	35.3		26.7	26.7	26.7	26.7	26.7	
Actuated g/C Ratio	0.07	0.42		0.10	0.44		0.34	0.34	0.34	0.34	0.34	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
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)	125	2115		189	1529		321	531	376	406	406	
v/s Ratio Prot	0.08	0.23		0.07	0.45							
v/s Ratio Perm							0.16	0.04	0.32	0.27		
v/c Ratio	1.15	0.54		0.59	1.01		0.49	0.12	0.95	0.82		
Uniform Delay, d1	37.0	17.4		34.8	22.2		21.0	18.3	25.8	24.3		
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00		
Incremental Delay, d2	127.1	0.3		11.0	25.2		1.2	0.1	32.6	12.5		
Delay (s)	164.1	17.7		45.8	47.9		22.2	18.4	58.4	36.7		
Level of Service	F	B		D	D		C	B	E	D		
Approach Delay (s)		33.9			47.2			20.1			47.5	
Approach LOS		C			D			C			D	
Intersection Summary												
HCM Average Control Delay	40.7			HCM Level of Service			D					
HCM Volume to Capacity Ratio	0.94			Sum of lost time (s)			8.0					
Actuated Cycle Length (s)	79.6			ICU Level of Service			E					
Intersection Capacity Utilization	86.1%			Analysis Period (min)			15					
c Critical Lane Group												

Baseline

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

Year 2030 + Project AM
12/1/2010

	→		←		↔	
Movement	EBL	EBR	WBL	WBR	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↑	↑	↑↑	↑
Volume (veh/h)	1545	60	0	1607	0	202
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1717	67	0	1786	0	224
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	575			607		
pX, platoon unblocked			0.86		0.86	0.86
vC, conflicting volume			1783		2643	806
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1327		2331	0
IC, single (s)			4.1		6.0	6.9
IC, 2 stage (s)						
IC (s)			2.2		3.5	3.3
p0 queue free %			100		100	76
CM capacity (veh/h)			442		27	928
Direction Lane #	EBL	EBR	WBL	WBR	NBL	NBR
Volume Total	687	687	410	893	893	224
Volume Left	0	0	0	0	0	0
Volume Right	0	0	67	0	0	224
cSH	1700	1700	1700	1700	1700	928
Volume to Capacity	0.40	0.40	0.24	0.53	0.53	0.24
Queue Length 95th (ft)	0	0	0	0	0	24
Control Delay (s)	0.0	0.0	0.0	0.0	10.1	10.1
Lane LOS					B	B
Approach Delay (s)	0.0	0.0	0.0	0.0	10.1	10.1
Approach LOS					B	B
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			50.4%		ICU Level of Service	A
Analysis Period (min)			15			

Baseline

Synchro 7 - Report
Page 1

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

Year 2030 + Project AM
4/26/2011

	→		←		↔	
Movement	EBL	EBR	WBL	WBR	SBL	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑
Volume (vph)	0	1087	1058	0	1975	550
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0
Lane Util. Factor		0.95	0.95		0.97	0.91
Flt		1.00	1.00		0.99	0.85
Flt Protected		1.00	1.00		0.96	1.00
Satd. Flow (prot)		3539	3539		3416	1441
Flt Permitted		1.00	1.00		0.96	1.00
Satd. Flow (perm)		3539	3539		3416	1441
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1208	1176	0	1083	611
RTOR Reduction (vph)	0	0	0	0	8	41
Lane Group Flow (vph)	0	1208	1176	0	1161	484
Turn Type					Perm	
Protected Phases		2.6	6.2		4	
Permitted Phases					4	
Actuated Green, G (s)		41.4	41.4		25.6	25.6
Effective Green, g (s)		41.4	41.4		25.6	25.6
Actuated g/C Ratio		0.55	0.55		0.34	0.34
Clearance Time (s)					4.0	4.0
Vehicle Extension (s)					3.0	3.0
Lane Grp Cap (vph)		1954	1954		1166	492
v/s Ratio Prot		0.34	0.33		0.34	
v/s Ratio Perm						0.34
v/s Ratio		0.62	0.60		1.00	0.98
Uniform Delay, d1		11.4	11.3		24.6	24.5
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.6	0.5		25.2	35.9
Delay (s)		12.0	11.8		49.8	60.4
Level of Service		B	B		D	E
Approach Delay (s)		12.0	11.8		53.1	
Approach LOS		B	B		D	
Intersection Summary						
HCM Average Control Delay			29.0		HCM Level of Service	C
HCM Volume to Capacity ratio			0.76			
Actuated Cycle Length (s)			75.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			155.4%		ICU Level of Service	H
Analysis Period (min)			15			
Critical Lane Group						

Baseline

Synchro 7 - Report
Page 1

HCM Signalized Intersection Capacity Analysis

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

Year 2030 + Project AM

4/26/2011

Movement	EBL	EBT	EBR	NWBL	NWBT	NWBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵↵	↕↕			↕↕↕	↕	↵	↕	↵			
Volume (vph)	370	1802	0	0	1951	843	400	60	1300	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			
Lane Util. Factor	0.97	0.95			0.91	1.00	0.95	0.91	0.95			
Frt	1.00	1.00			1.00	0.85	1.00	0.87	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539			5085	1583	1681	1472	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539			5085	1583	1681	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	0.90
Adj. Flow (vph)	411	2002	0	0	2168	937	444	67	1444	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	319	0	3	3	0	0	0
Lane Group Flow (vph)	411	2002	0	0	2168	618	400	787	762	0	0	0
Turn Type	Prot				Perm	Split		Perm				
Protected Phases	5	2			6	8		8				
Permitted Phases					6			8				
Actuated Green, G (s)	12.0	61.0			45.0	45.0	51.0	51.0	51.0			
Effective Green, g (s)	12.0	61.0			45.0	45.0	51.0	51.0	51.0			
Actuated g/C Ratio	0.10	0.51			0.38	0.38	0.42	0.42	0.42			
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)	343	1799			1907	594	714	626	639			
v/s Ratio Prot	0.12	0.57			0.43	0.24	0.53					
v/s Ratio Perm						0.39		0.51				
v/c Ratio	1.20	1.11			1.14	1.04	0.56	1.26	1.19			
Uniform Delay, d1	54.0	29.5			37.5	37.5	26.0	34.5	34.5			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	114.0	59.2			68.6	48.0	1.0	128.5	101.6			
Delay (s)	168.0	88.7			106.1	85.5	27.0	163.0	136.1			
Level of Service	F	F			F	F	C	F	F			
Approach Delay (s)		102.2			99.9		124.6			0.0		
Approach LOS		F			F		F			A		
Intersection Summary												
HCM Average Control Delay	107.1				HCM Level of Service				F			
HCM Volume to Capacity ratio	1.18				Sum of lost time (s)				8.0			
Actuated Cycle Length (s)	120.0				ICU Level of Service				H			
Intersection Capacity Utilization	110.1%				Analysis Period (min)				15			
c Critical Lane Group												

Baseline

Synchro 7 - Report
Page 1

HCM Signalized Intersection Capacity Analysis

10: Del Mar Heights Road & High Bluff Drive

Year 2030 + Project AM

12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↑↑↑	↵	↵	↑↑↑	↵	↵	↵	↵	↵	↑	↵
Volume (vph)	120	1901	840	224	1951	124	290	30	62	152	70	400
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
Flt	1.00	1.00	0.85	1.00	0.99	1.00	0.90			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	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5040	3433	3180			1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00			0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5040	3433	3180			1770	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	133	2112	933	249	2168	139	322	33	69	169	78	444
RTOR Reduction (vph)	0	0	334	0	5	0	0	57	0	0	0	120
Lane Group Flow (vph)	133	2112	599	249	2301	0	322	45	0	169	78	324
Turn Type	Prot		Perm	Prot		Prot		Prot		Prot		Perm
Protected Phases				3		5		2		1		6
Permitted Phases			4									
Actuated Green, G (s)	11.2	55.0	55.0	19.0	62.8	13.0	23.1			16.9	27.0	27.0
Effective Green, g (s)	11.2	55.0	55.0	19.0	62.8	13.0	23.1			16.9	27.0	27.0
Actuated g/C Ratio	0.09	0.42	0.42	0.15	0.48	0.30	0.18			0.13	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
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)	152	2151	670	259	2435	343	565			230	387	329
v/s Ratio Prot	0.08	0.42		0.14	0.46	0.09	0.01			0.10	0.04	
v/s Ratio Perm			0.38									0.20
v/c Ratio	0.88	0.98	0.89	0.96	0.94	0.94	0.08			0.73	0.20	0.99
Uniform Delay, d1	58.7	37.0	34.8	55.1	32.0	58.1	44.6			54.4	42.6	51.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Incremental Delay, d2	38.8	15.3	14.3	45.1	8.5	32.7	0.1			11.5	0.3	45.4
Delay (s)	97.5	52.3	49.1	100.2	40.5	90.8	44.6			65.9	42.8	96.7
Level of Service	F	D	D	F	D	F	D			E	D	F
Approach Delay (s)		53.3			46.3		79.7				83.1	
Approach LOS		D			D		E				F	
Intersection Summary												
HCM Average Control Delay	55.3				HCM Level of Service				E			
HCM Volume to Capacity ratio	0.94				Sum of lost time (s)				12.0			
Actuated Cycle Length (s)	130.0				ICU Level of Service				E			
Intersection Capacity Utilization	83.5%				Analysis Period (min)				15			
Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
11: Del Mar Heights Road & Third Ave.

Year 2030 + Project AM
12/1/2010

Movement	EBT	EBR	WBT	WBR	NBT	NBR
Lane Configurations	↑↑↑	↑↑	↑↑	↑↑↑	↑↑	↑↑
Volume (vph)	1974	190	147	2182	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
Frt. Loss	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	1770	5085	3433	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	1770	5085	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2146	207	160	2372	93	73
RTOR Reduction (vph)	0	92	0	0	0	66
Lane Group Flow (vph)	2146	115	160	2372	93	7
Turn Type	Perm		Prot		Perm	
Protected Phases	4		3		8	
Permitted Phases	4				2	
Actuated Green, G (s)	32.3	32.3	8.0	44.3	5.7	5.7
Effective Green, g (s)	32.3	32.3	8.0	44.3	5.7	5.7
Actuated g/C Ratio	0.56	0.56	0.14	0.76	0.10	0.10
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)	2832	682	244	3884	337	156
v/s Ratio Prot	0.42		0.09		0.03	
v/s Ratio Perm	0.07				0.00	
v/c Ratio	0.76	0.13	0.66	0.61	0.28	0.05
Uniform Delay, d1	9.9	6.1	23.7	3.0	24.2	23.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	0.1	6.2	0.3	0.4	0.1
Delay (s)	11.1	6.2	29.9	3.3	24.7	23.8
Level of Service	B	A	C	A	C	C
Approach Delay (s)	10.6				24.3	
Approach LOS	B		A		C	
Intersection Summary						
HCM Average Control Delay	8.3			HCM Level of Service		A
HCM Volume to Capacity ratio	0.69					
Actuated Cycle Length (s)	58.0			Sum of lost time (s)		12.0
Intersection Capacity Utilization	59.6%			ICU Level of Service		B
Analysis Period (min)	15					
c - Critical Lane Group						

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
12: Del Mar Heights Road & First Ave.

Year 2030 + Project AM
12/1/2010

Movement	EBT	EBR	WBT	WBR	NBT	NBR
Lane Configurations	↑↑↑	↑	↑↑	↑↑↑	↑	↑
Volume (vph)	1883	158	158	2257	72	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	0.97	0.91	1.00	1.00
Frt. Loss	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	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2047	172	172	2453	78	78
RTOR Reduction (vph)	0	74	0	0	0	68
Lane Group Flow (vph)	2047	198	172	2453	78	10
Turn Type	Perm		Prot		Perm	
Protected Phases	4		3		8	
Permitted Phases	4				2	
Actuated Green, G (s)	28.5	28.5	3.4	35.9	6.2	6.2
Effective Green, g (s)	28.5	28.5	3.4	35.9	6.2	6.2
Actuated g/C Ratio	0.57	0.57	0.07	0.72	0.12	0.12
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2893	901	233	3844	219	196
v/s Ratio Prot	0.40		0.05	0.48	0.04	
v/s Ratio Perm		0.08				0.01
v/c Ratio	0.71	0.11	0.74	0.67	0.36	0.05
Uniform Delay, d1	7.8	5.0	22.9	3.9	20.1	19.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.1	11.5	0.5	1.0	0.1
Delay (s)	8.6	5.0	34.5	4.4	21.1	19.5
Level of Service	A	A	C	A	C	B
Approach Delay (s)	8.5			6.4	20.3	
Approach LOS	A			A	C	
Intersection Summary						
HCM Average Control Delay	7.7			HCM Level of Service		
HCM Volume to Capacity ratio	0.63			A		
Actuated Cycle Length (s)	50.1			Sum of lost time (s)		
Intersection Capacity Utilization	54.9%			ICU Level of Service		
Analysis Period (min)	15					
c - Critical Lane Group						

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
13: Del Mar Heights Road & El Camino Real

Year 2030 + Project AM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	T<T	T<T<T		T<T	T<T<T		T<T	T<T<T	T	T<T	T<T<T	
Volume (vph)	260	1096	584	306	1783	150	299	159	102	170	531	482
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	
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.91	1.00	0.97	0.91	
Flt	1.00	0.95		1.00	0.99		1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	4820		3433	5026		3433	5085	1583	3433	4722	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	4820		3433	5026		3433	5085	1583	3433	4722	
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)	289	1218	649	340	1981	167	332	177	113	189	590	536
RTOR Reduction (vph)	0	107	0	0	11	0	0	0	89	0	140	0
Lane Group Flow (vph)	289	1760	0	340	2137	0	332	177	24	189	906	0
Turn Type	Prot			Prot			Prot			Perm		
Protected Phases	7			3			5			2		
Permitted Phases										2		
Actuated Green, G (s)	8.5			10.2			9.6			19.5		
Effective Green, g (s)	8.5			10.2			9.6			19.5		
Actuated g/C Ratio	0.09			0.11			0.11			0.22		
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)	324			389			366			1102		
v/s Ratio Prot	0.08			0.10			0.10			0.03		
v/s Ratio Perm										0.02		
v/c Ratio	0.89			0.87			0.91			0.16		
Uniform Delay, d1	40.3			39.3			39.8			28.6		
Progression Factor	1.00			1.00			1.00			1.00		
Incremental Delay, d2	25.0			19.0			25.2			0.1		
Delay (s)	65.3			58.3			64.9			28.7		
Level of Service	E			E			E			C		
Approach Delay (s)	39.7			57.9			47.9			56.8		
Approach LOS	D			E			D			E		
Intersection Summary												
HCM Average Control Delay	50.8			HCM Level of Service			D					
HCM Volume to Capacity ratio	0.96											
Actuated Cycle Length (s)	90.0			Sum of lost time (s)			12.0					
Intersection Capacity Utilization	88.1%			ICU Level of Service			E					
Analysis Period (min)	15											
d1 - Defacto Right Lane - Recode with '1' though lane as a right lane												
c - Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
14: Del Mar Heights Road & Carmel Country Rd

Year 2030 + Project AM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT	↑↑↑		TT	↑↑↑		TT	↑↑↑		T	↑↑	
Volume (vph)	209	912	332	289	1529	170	466	200	240	200	310	282
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.91		1.00	0.95	
Flt	1.00	0.96		1.00	0.98		1.00	0.92		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	4882		3433	5009		3433	4669		1770	3286	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	4882		3433	5009		3433	4669		1770	3286	
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)	232	1013	369	321	1699	189	518	222	267	222	344	313
RTOR Reduction (vph)	0	73	0	0	15	0	0	164	0	0	134	0
Lane Group Flow (vph)	232	1309	0	321	1873	0	518	325	0	222	523	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	7.4	30.3		11.1	34.0		15.0	19.0		12.8	16.8	
Effective Green, g (s)	7.4	30.3		11.1	34.0		15.0	19.0		12.8	16.8	
Actuated g/C Ratio	0.08	0.34		0.12	0.38		0.17	0.21		0.14	0.19	
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	1658		427	1909		577	995		254	619	
v/s Ratio Prot	0.07	0.27		0.09	0.37		0.15	0.07		0.13	0.16	
v/s Ratio Perm												
v/c Ratio	0.81	0.79		0.75	0.98		0.90	0.33		0.87	0.85	
Uniform Delay, d1	40.2	26.6		37.7	27.3		36.3	29.7		37.4	34.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	16.1	2.6		7.3	16.3		16.6	0.2		26.5	10.3	
Delay (s)	56.4	29.2		45.0	43.6		52.9	29.9		63.9	45.2	
Level of Service	E	C		D	D		D	C		E	D	
Approach Delay (s)	33.1			43.8			41.7			50.0		
Approach LOS	C			D			D			D		
Intersection Summary												
HCM Average Control Delay	41.3			HCM Level of Service			D					
HCM Volume to Capacity ratio	0.92											
Actuated Cycle Length (s)	89.2			Sum of lost time (s)			16.0					
Intersection Capacity Utilization	83.5%			ICU Level of Service			E					
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 Dr.

Year 2030 + Project AM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	T			T			T			T		
Volume (vph)	212	932	134	81	1521	216	153	156	16	78	62	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Flt	1.00	0.98		1.00	0.98		1.00	0.99		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	4989		1770	4990		1770	1836		1770	1655	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	4989		1770	4990		1770	1836		1770	1655	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	236	1036	149	90	1690	240	170	173	18	87	69	200
RTOR Reduction (vph)	0	19	0	0	20	0	0	4	0	0	123	0
Lane Group Flow (vph)	236	1166	0	90	1910	0	170	187	0	87	146	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7			3			5			1		
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	13.0			7.5			9.6			5.8		
Effective Green, g (s)	13.0			7.5			9.6			5.8		
Actuated g/c Ratio	0.15			0.09			0.11			0.07		
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)	267			154			197			119		
v/s Ratio Prot	0.13			0.05			0.10			0.05		
v/s Ratio Perm	0.23			0.38			0.10			0.09		
v/c Ratio	0.88			0.58			0.86			0.73		
Uniform Delay, d1	35.9			37.9			37.7			39.5		
Progression Factor	1.00			1.00			1.00			1.00		
Incremental Delay, d2	27.3			5.6			30.0			20.5		
Delay (s)	63.2			43.5			67.7			60.0		
Level of Service	E			D			E			E		
Approach Delay (s)	23.9			34.9			49.3			43.6		
Approach LOS	C			C			D			D		
Intersection Summary												
HCM Average Control Delay	33.1			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.85											
Actuated Cycle Length (s)	86.3			Sum of lost time (s)			16.0					
Intersection Capacity Utilization	82.1%			ICU Level of Service			E					
Analysis Period (min)	15											
c Critical Lane Group												

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

Year 2030 + Project AM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↰↰		↰	↰↰↰		↰	↰		↰	↰	↰
Volume (vph)	166	808	35	67	1587	36	62	26	76	69	60	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Flt	1.00	0.99		1.00	1.00		1.00	0.89		1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5054		1770	5068		1770	1655		1770	1614	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5054		1770	5068		1770	1655		1770	1614	
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	898	39	74	1763	40	69	29	84	77	67	211
RTOR Reduction (vph)	0	5	0	0	3	0	0	64	0	0	191	0
Lane Group Flow (vph)	187	932	0	74	1800	0	69	49	0	77	427	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	9.3	31.3		6.6	28.6		3.6	18.8		6.6	21.8	
Effective Green, g (s)	9.3	31.3		6.6	28.6		3.6	18.8		6.6	21.8	
Actuated g/C Ratio	0.12	0.39		0.08	0.36		0.05	0.24		0.08	0.27	
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)	208	1995		147	1828		80	392		147	444	
v/s Ratio Prot	0.11	0.18		0.04	0.36		0.04	0.03		0.04	0.26	
v/s Ratio Perm												
v/c Ratio	0.90	0.47		0.50	0.90		0.88	0.12		0.52	0.96	
Uniform Delay, d1	34.5	17.8		34.8	25.1		37.6	23.8		34.8	28.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	35.6	0.2		2.7	17.4		57.0	0.1		3.3	32.9	
Delay (s)	70.1	18.0		37.5	42.6		94.6	23.9		38.2	61.3	
Level of Service	E	B		D	D		F	C		D	E	
Approach Delay (s)		26.7			42.4			50.7			58.7	
Approach LOS		C			D			D			E	
Intersection Summary												
HCM Average Control Delay	41.1			HCM Level of Service			D					
HCM Volume to Capacity ratio	1.01											
Actuated Cycle Length (s)	79.3			Sum of lost time (s)			20.0					
Intersection Capacity Utilization	91.3%			ICU Level of Service			F					
Analysis Period (min)	15											
Critical Lane Group												

Year 2030 + Project AM
12/1/2010

Baseline

Year 2030 + Project AM
12/1/2010

Baseline

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

Year 2030 + Project AM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	191	100	130	60	210	200	150	585	20	100	489	185
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	1.00
Flt	1.00	1.00	0.85	1.00	0.93	1.00	1.00	1.00	1.00	1.00	0.85	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1726	1770	3522	3522	3522	1770	3599	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1726	1770	3522	3522	3522	1770	3599	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)	212	111	144	67	233	222	167	660	22	111	543	206
RTOR Reduction (vph)	0	0	89	0	41	0	0	3	0	0	0	162
Lane Group Flow (vph)	212	111	55	67	414	0	167	669	0	111	543	44
Turn Type	Prot		Perm	Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)	13.4	28.6	28.6	5.6	20.8		9.0	18.9		6.4	16.3	16.3
Effective Green, g (s)	13.4	28.6	28.6	5.6	20.8		9.0	18.9		6.4	16.3	16.3
Actuated g/C Ratio	0.18	0.38	0.38	0.07	0.28		0.12	0.25		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
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)	314	706	600	131	476		211	882		150	764	342
v/s Ratio Prot	0.12	0.06		0.04	0.24		0.09	0.19		0.06	0.15	
v/s Ratio Perm			0.03									0.03
v/c Ratio	0.68	0.16	0.09	0.51	0.87		0.79	0.76		0.74	0.71	0.43
Uniform Delay, d1	29.0	15.5	15.1	33.6	26.1		32.3	26.2		33.7	27.4	23.9
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	5.6	0.1	0.1	3.3	15.4		18.1	3.8		17.7	3.1	0.2
Delay (s)	34.7	15.6	15.2	37.0	41.5		50.4	30.0		51.4	30.5	24.1
Level of Service	C	B	B	D	D		D	C		D	C	C
Approach Delay (s)	24.1			40.9			34.0			31.7		
Approach LOS	C			D			C			C		
Intersection Summary												
HCM Average Control Delay				32.9		HCM Level of Service				C		
HCM Volume to Capacity ratio				0.80								
Actuated Cycle Length (s)				75.5		Sum of lost time (s)				16.0		
Intersection Capacity Utilization				69.5%		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
20: Townsgate Drive & El Camino Real

Year 2030 + Project AM
12/1/2010

Movement	SELT	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	100	75	10	240	60	162	110	597	110	169	863	200
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	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.91		1.00	0.91	
Flt	1.00	0.98		1.00	1.00	0.85	1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1830		1770	1863	1583	1770	1867		1770	1942	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1830		1770	1863	1583	1770	1867		1770	1942	
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)	111	83	11	267	67	180	122	663	122	188	959	222
RTOR Reduction (vph)	0	8	0	0	0	144	0	36	0	0	51	0
Lane Group Flow (vph)	111	86	0	267	67	36	122	749	0	188	1130	0
Turn Type	Prot			Prot		Perm	Prot			Prot		
Protected Phases	6			5		2	7			9		8
Permitted Phases						2						
Actuated Green, G (s)	6.9	6.8		11.8	11.7	11.7	6.1	15.8		8.6	18.3	
Effective Green, g (s)	6.9	6.8		11.8	11.7	11.7	6.1	15.8		8.6	18.3	
Actuated g/C Ratio	0.12	0.12		0.20	0.20	0.20	0.10	0.27		0.15	0.31	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	207	211		354	369	314	183	1330		258	1533	
v/s Ratio Prot	0.06	0.05		0.15	0.04	0.07	0.15	0.11		0.11	0.23	
v/s Ratio Perm						0.02						
v/c Ratio	0.54	0.41		0.75	0.18	0.11	0.67	0.56		0.73	0.74	
Uniform Delay, d1	24.5	24.2		22.2	19.7	19.4	25.5	18.6		24.1	18.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.7	1.3		8.8	0.2	0.2	8.8	0.5		9.8	1.9	
Delay (s)	27.2	25.5		31.1	19.9	19.6	34.3	19.2		33.9	20.1	
Level of Service	C	C		C	B	B	C	B		C	C	
Approach Delay (s)	26.4			25.6			21.2			22.0		
Approach LOS	C			C			C			C		
Intersection Summary												
HCM Average Control Delay	22.7						HCM Level of Service					
HCM Volume to Capacity ratio	0.65						C					
Actuated Cycle Length (s)	59.0						Sum of lost time (s)					
Intersection Capacity Utilization	57.2%						ICU Level of Service					
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

Year 2030 + Project AM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	284	122	89	43	296	26	274	389	29	66	305	403
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Flt	1.00	1.00	0.85		0.99		1.00	0.99		1.00	0.91	
Flt Protected	0.95	1.00	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583		1834		1770	3503		1770	3237	
Flt Permitted	0.95	1.00	1.00		0.95		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583		1748		1770	3503		1770	3237	
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)	316	136	99	48	329	29	304	432	32	76	340	448
RTOR Reduction (vph)	0	0	51	0	3	0	0	6	0	0	283	0
Lane Group Flow (vph)	316	136	48	0	403	0	304	458	0	76	525	0
Turn Type	Prot		Perm	Perm			Prot			Prot		Perm
Protected Phases	7		4		8		5		2	4		6
Permitted Phases			4		8							
Actuated Green, G (s)	17.6	43.0	43.0		21.4		16.7	27.2		7.0	17.5	
Effective Green, g (s)	17.6	43.0	43.0		21.4		16.7	27.2		7.0	17.5	
Actuated g/C Ratio	0.20	0.48	0.48		0.24		0.19	0.30		0.08	0.20	
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)	349	898	763		419		331	1068		139	635	
v/s Ratio Prot	0.18	0.07			0.23		0.17	0.13		0.04	0.16	
v/s Ratio Perm			0.03									
v/c Ratio	0.91	0.15	0.06		0.96		0.92	0.49		0.55	0.89	
Uniform Delay, d1	35.0	12.9	12.3		33.5		35.6	24.8		39.6	34.4	
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	25.8	0.1	0.0		34.0		29.2	0.3		4.3	8.7	
Delay (s)	60.8	13.0	12.4		67.5		64.8	25.1		43.9	43.1	
Level of Service	E	B	B		E		E	C		D	D	
Approach Delay (s)		40.3			67.5			40.8			43.2	
Approach LOS		D			E			D			D	
Intersection Summary												
HCM Average Control Delay	45.7			HCM Level of Service						D		
HCM Volume to Capacity ratio	0.91											
Actuated Cycle Length (s)	89.2			Sum of lost time (s)						16.0		
Intersection Capacity Utilization	85.2%			ICU Level of Service						E		
Analysis Period (min)	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

Year 2030 + Project AM
12/1/2010

Movement	EBL	EBR	EBT	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	40	120	253	100	230	142	289	635	90	129	993	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97	0.97	0.97	0.91	1.00	0.91	1.00	0.91
Flt	1.00	0.85	0.85	1.00	0.94	0.94	1.00	0.98	1.00	0.98	1.00	0.99
Flt Protected	0.95	1.00	1.00	0.95	0.97	0.97	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	1583	1770	3305	3305	3433	4991	1770	5009	1770	5009
Flt Permitted	0.95	1.00	1.00	0.95	0.97	0.97	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	1583	1583	1770	3305	3305	3433	4991	1770	5009	1770	5009
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)	44	133	281	111	256	158	299	706	100	143	1103	122
RTOR Reduction (vph)	0	0	230	0	144	0	0	26	0	0	19	0
Lane Group Flow (vph)	44	133	51	111	270	0	299	780	0	143	1208	0
Turn Type	Perm			Perm			Split			Prot		
Protected Phases	2			2			6			7		
Permitted Phases	2			2			6			7		
Actuated Green, G (s)	10.0	10.0	10.0	5.0	5.0	7.0	17.1	17.1	7.0	17.1	17.1	17.1
Effective Green, g (s)	10.0	10.0	10.0	5.0	5.0	7.0	17.1	17.1	7.0	17.1	17.1	17.1
Actuated g/C Ratio	0.18	0.18	0.18	0.09	0.09	0.13	0.31	0.31	0.13	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)	321	287	287	161	300	436	1549	225	1555	225	1555	225
vs Ratio Prot	0.02	0.02	0.06	0.06	0.08	0.09	0.16	0.08	0.24	0.09	0.24	0.08
vs Ratio Perm	0.98	0.98	0.94	0.94	0.92	0.91	0.84	0.92	0.76	0.91	0.76	0.92
Uniform Delay, d1	18.9	20.2	19.1	24.3	24.8	23.0	15.5	22.8	17.3	23.0	15.5	22.8
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	0.2	1.2	0.3	11.6	28.1	4.4	0.3	5.8	2.5	4.4	0.3	5.8
Delay (s)	19.1	21.4	19.4	35.9	52.9	27.4	15.8	28.6	19.7	27.4	15.8	28.6
Level of Service	B	C	B	D	D	C	B	C	B	C	B	C
Approach Delay (s)	19.9	21.4	19.4	35.9	52.9	27.4	15.8	28.6	19.7	27.4	15.8	28.6
Approach LOS	B	C	B	D	D	C	B	C	B	C	B	C
Intersection Summary												
HCM Average Control Delay			24.4			HCM Level of Service			C			
HCM Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			55.1			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			57.0%			ICU Level of Service			B			
Analysis Period (min)			15									
Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Unsignalized Intersection Capacity Analysis
23: High Bluff Drive & Carmel Vista Road

Year 2030 + Project AM
12/1/2010

Movement	SE 1	SE 2	SE 3	SE 4	SE 5	SE 6	SE 7	SE 8	SE 9	SE 10	SE 11	SE 12
Lane Configurations	1	1	1	1	1	1	1	1	1	1	1	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Volume (vph)	62	7	87	15	31	17	145	36	2	4	19	228
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)	69	8	97	17	34	19	161	40	2	4	21	253
Direction, Lane #	SE 1	SE 2	SE 3	SE 4	SE 5	SE 6	SE 7	SE 8	SE 9	SE 10	SE 11	SE 12
Volume Total (vph)	77	97	70	203	279							
Volume Left (vph)	69	0	17	161	4							
Volume Right (vph)	0	97	19	2	253							
Had (s)	0.48	0.67	0.08	0.19	0.51							
Departure Headway (s)	6.2	5.1	5.3	5.1	4.3							
Degree Utilization, x	0.13	0.14	0.10	0.29	0.33							
Capacity (veh/h)	534	650	599	673	786							
Control Delay (s)	9.0	7.7	9.0	10.1	9.5							
Approach Delay (s)	8.2		9.0	10.1	9.5							
Approach LOS	A		A	B	A							
Intersection Summary												
Delay			9.3									
HCM Level of Service			A									
Intersection Capacity Utilization			45.6%									
Analysis Period (min)			15									

Baseline

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

Year 2030 + Project AM
12/1/2010

Movement	SEAL	SEB	SEB	SEB	WBL	WBL	WBR	WBR	NBL	NBL	NBR	NBR	SBL	SBL	SBR	
Lane Configurations		↑	↑		↑		↑	↑↑		↑↑			↑	↑↑		
Volume (vph)	52	90	117	201	62	24	30	298	82	15	777	141				
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			
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00		0.95				
Flt		1.00	0.85		0.99		1.00	0.97		1.00		0.98				
Flt Protected		0.98	1.00		0.97		0.95	1.00		0.95		1.00				
Satd. Flow (prot)		1829	1593		1779		1770	3425		1770		3458				
Flt Permitted		0.84	1.00		0.70		0.95	1.00		0.95		1.00				
Satd. Flow (perm)		1560	1583		1281		1770	3425		1770		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	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	58	100	130	223	69	27	33	331	91	17	863	157				
RTOR Reduction (vph)	0	0	88	0	5	0	0	39	0	0	24	0				
Lane Group Flow (vph)	0	158	42	0	314	0	33	383	0	17	996	0				
Turn Type	Perm		Perm	Perm			Prot			Prot						
Protected Phases	4	4			6		5	2		1	6					
Permitted Phases	4		4	B												
Actuated Green, G (s)	16.1	16.1			16.1		1.5	21.4		0.7	20.6					
Effective Green, g (s)	16.1	16.1			16.1		1.5	21.4		0.7	20.6					
Actuated g/C Ratio	0.32	0.32			0.32		0.03	0.43		0.01	0.41					
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)	500	508			411		53	1460		25	1419					
v/s Ratio Prot							0.02	0.11		0.01	0.29					
v/s Ratio Perm	0.10	0.03			0.24											
v/c Ratio	0.32	0.08			0.76		0.82	0.25		0.68	0.70					
Uniform Delay, d1	12.9	11.9			15.3		24.1	9.3		24.6	12.3					
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00					
Incremental Delay, d2	0.4	0.1			8.2		20.6	0.1		56.0	1.6					
Delay (s)	13.3	12.0			23.5		44.7	9.4		80.6	13.8					
Level of Service	B	B			C		D	A		F	B					
Approach Delay (s)	12.7				23.5			12.0			14.9					
Approach LOS	B				C			B			B					
Intersection Summary																
HCM Average Control Delay	15.3				HCM Level of Service				B							
HCM Volume to Capacity ratio	0.72															
Actuated Cycle Length (s)	50.2				Sum of lost time (s)				12.0							
Intersection Capacity Utilization	59.1%				ICU Level of Service				B							
Analysis Period (min)	15															
C Critical Lane Group																

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
25: Carmel Valley Road & I-5 SB Ramps

Year 2030 + Project AM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑					↑	↑	↑
Volume (vph)	0	661	350	650	650	0	0	0	0	390	3	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
Lane Util. Factor		0.95		0.97	0.95					0.95	0.91	0.95
Flt		0.95		1.00	1.00					1.00	0.99	0.95
Flt Protected		1.00		0.95	1.00					0.95	0.96	1.00
Satd. Flow (prot)		3355		3433	3539					1681	1602	1504
Flt Permitted		1.00		0.95	1.00					0.95	0.96	1.00
Satd. Flow (perm)		3355		3433	3539					1681	1602	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	734	389	722	722	0	0	0	0	422	3	167
RTOR Reduction (vph)	0	99	0	0	0	0	0	0	0	0	4	111
Lane Group Flow (vph)	0	1024	0	722	722	0	0	0	0	224	214	39
Turn Type				Prot						Prot		Perm
Protected Phases		4		8						6		6
Permitted Phases												6
Actuated Green, G (s)		23.0		16.7	43.7					18.0	18.0	18.0
Effective Green, g (s)		23.0		16.7	43.7					18.0	18.0	18.0
Actuated g/C Ratio		0.33		0.24	0.63					0.26	0.26	0.26
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)		1107		823	2219					434	414	388
v/s Ratio Prot		60.31		60.21	0.20					0.13	0.13	0.13
v/s Ratio Perm												0.03
v/c Ratio		0.92		0.88	0.33					0.52	0.52	0.10
Uniform Delay, d1		22.5		25.5	6.1					22.1	22.1	19.7
Progression Factor		1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		12.7		10.4	0.1					1.0	1.1	0.1
Delay (s)		35.2		35.9	6.2					23.2	23.2	19.8
Level of Service		D		D	A					C	C	B
Approach Delay (s)		35.2		21.1			0.0			22.3		
Approach LOS		D		C			A			C		
Intersection Summary												
HCM Average Control Delay	26.3			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.78											
Actuated Cycle Length (s)	69.7			Sum of lost time (s)			12.0					
Intersection Capacity Utilization	70.1%			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
26: Carmel Valley Road & I-5 NB Ramps

Year 2030 + Project AM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑			↑↑	↑↑	↑	↑	↑			
Volume (vph)	120	921	0	0	1396	270	250	5	850	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			
Lane Util. Factor	0.97	0.95			0.95	1.00	0.95	0.91	0.95			
Flt	1.00	1.00			1.00	0.85	1.00	0.86	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539			3539	1583	1681	1454	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539			3539	1583	1681	1454	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)	133	1023	0	0	1551	300	278	6	944	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	161	0	68	68	0	0	0
Lane Group Flow (vph)	133	1023	0	0	1551	139	250	419	423	0	0	0
Turn Type		Prot				Perm	Prot		Perm			
Protected Phases		7				8	5		2			
Permitted Phases												
Actuated Green, G (s)	4.6	45.6			37.0	37.0	26.4	26.4	26.4			
Effective Green, g (s)	4.6	45.6			37.0	37.0	26.4	26.4	26.4			
Actuated g/C Ratio	0.06	0.67			0.46	0.46	0.33	0.33	0.33			
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)	197	2017			1637	732	555	480	496			
v/s Ratio Prot	60.04	0.29			60.44	60.44	0.16	60.29	0.16			
v/s Ratio Perm						0.09			0.23			
v/c Ratio	0.68	0.51			0.95	0.19	0.45	0.67	0.65			
Uniform Delay, d1	37.0	10.4			20.6	12.7	21.1	25.2	25.0			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	8.8	0.2			11.9	0.1	0.6	16.0	13.4			
Delay (s)	45.8	10.6			32.5	12.8	21.7	41.2	38.4			
Level of Service	D	B			C	B	C	D	D			
Approach Delay (s)		14.7			29.3		36.1				0.0	
Approach LOS		B			C		D				A	
Intersection Summary												
HCM Average Control Delay	27.3			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.90											
Actuated Cycle Length (s)	80.0			Sum of lost time (s)			12.0					
Intersection Capacity Utilization	70.1%			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
27: Valley Centre Drive & El Camino Real

Year 2030 + Project AM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↕↕↕	↔	↔	↕↕↕	↔
Volume (vph)	50	30	50	740	20	182	90	1173	170	164	1119	30
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	1.00	0.91	1.00	0.91	1.00	0.91
Flt	1.00	0.97	0.85	1.00	0.99	0.85	1.00	0.98	1.00	1.00	1.00	1.00
Flt Protected	0.95	0.99	1.00	0.95	0.96	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1681	1629	1504	1681	1611	1504	1770	14989	1770	1770	5066	16066
Flt Permitted	0.95	0.97	1.00	0.95	0.96	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1681	1583	1504	1681	1611	1504	1770	14989	1770	1770	5066	16066
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	56	33	56	822	22	202	100	1303	189	182	1243	33
RTOR Reduction (vph)	0	6	26	0	3	50	0	29	0	0	4	0
Lane Group Flow (vph)	50	44	19	436	425	132	1100	1463	0	182	1272	0
Turn Type	Prot		Perm		Split		Perm		Prot		Prot	
Protected Phases	7		4		8		5		2		6	
Permitted Phases	7		4		8		5		2		6	
Actuated Green, G (s)	2.5	27.0	27.0	20.5	20.5	20.5	3.7	27.7	20.0	20.0	20.0	20.0
Effective Green, g (s)	2.5	27.0	27.0	20.5	20.5	20.5	3.7	27.7	20.0	20.0	20.0	20.0
Actuated g/C Ratio	0.04	0.43	0.43	0.33	0.33	0.33	0.06	0.44	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	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)	67	684	648	550	527	492	104	2204	565	1616	1616	1616
v/s Ratio Prot	c0.03	0.00	0.00	0.26	c0.26	c0.06	0.29	0.10	0.10	0.10	0.10	0.10
v/s Ratio Perm	0.03	0.03	0.01	0.09	0.09	0.09	0.06	0.29	0.10	0.10	0.10	c0.25
v/c Ratio	0.75	0.06	0.03	0.79	0.81	0.27	0.96	0.66	0.32	0.79	0.79	0.79
Uniform Delay, d1	29.8	10.5	10.3	19.2	19.3	15.6	29.4	13.8	16.2	19.4	19.4	19.4
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	35.8	0.0	0.0	7.7	8.8	0.3	75.5	0.8	0.3	2.6	2.6	2.6
Delay (s)	65.6	10.5	10.3	26.9	28.1	15.9	104.9	14.6	16.5	22.0	22.0	22.0
Level of Service	E	B	B	C	C	B	F	B	B	C	C	C
Approach Delay (s)	29.4		10.5		10.3		26.9		28.1		15.9	
Approach LOS	C		B		B		C		C		C	
Intersection Summary												
HCM Average Control Delay				22.2				HCM Level of Service				C
HCM Volume to Capacity ratio				0.81								
Actuated Cycle Length (s)				62.7				Sum of lost time (s)				16.0
Intersection Capacity Utilization				75.1%				ICU Level of Service				D
Analysis Period (min)				15								
l = Phase conflict between lane groups												
c = Critical Lane Group												

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

Year 2030 + Project AM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	0	0	0	640	610	260	400	1127	0	0	994	660	
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	
Lane Util. Factor				0.97	0.91	1.00	0.97	0.95			0.86	0.80	
Flt, ped/bikes				1.00	1.00	1.00	1.00	1.00			0.94	0.75	
Fltp, ped/bikes				1.00	1.00	1.00	1.00	1.00			1.00	1.00	
Flt				1.00	1.00	0.85	1.00	1.00			0.97	0.85	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (prot)				3433	5085	1583	3433	3539			4389	1023	
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (perm)				3433	5085	1583	3433	3539			4389	1023	
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	711	678	289	444	1252	0	0	1104	733	
RTOR Reduction (vph)	0	0	0	0	0	56	0	0	0	0	15	15	
Lane Group Flow (vph)	0	0	0	711	678	233	444	1252	0	0	1404	403	
Confl. Peds. (#/hr)												200	
Turn Type												Perm	
Protected Phases												6	
Permitted Phases												6	
Actuated Green, G (s)												26.8	26.8
Effective Green, g (s)												26.8	26.8
Actuated g/C Ratio												0.42	0.42
Clearance Time (s)												4.0	4.0
Vehicle Extension (s)												3.0	3.0
Lane Grp Cap (vph)												1826	426
v/s Ratio Prot												0.32	
v/s Ratio Perm													c0.39
v/c Ratio												0.77	0.95
Uniform Delay, d1												16.1	18.1
Progression Factor												1.00	1.00
Incremental Delay, d2												2.0	29.9
Delay (s)												18.1	48.0
Level of Service												B	D
Approach Delay (s)	0.0											24.9	
Approach LOS	A											C	
Intersection Summary													
HCM Average Control Delay			22.2			HCM Level of Service			G				
HCM Volume to Capacity ratio			0.90										
Actuated Cycle Length (s)			64.4			Sum of lost time (s)			12.0				
Intersection Capacity Utilization			105.3%			ICU Level of Service			G				
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

29: SR-56 EB on ramp & El Camino Real

Year 2030 + Project AM

12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↱↲	↲					↱↲		↵	↱↲↲	
Volume (vph)	800	930	1310	0	0	0	0	531	320	160	1490	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0		4.0	4.0	
Lane Util. Factor	0.91	0.86	0.91					0.86		1.00	0.81	
Flt	1.00	1.00	0.85					0.94		1.00	1.00	
Flt Protected	0.95	0.99	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1610	3162	1441					6046		1770	5085	
Flt Permitted	0.95	0.99	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1610	3162	1441					6046		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
Adj. Flow (vph)	889	1033	1441	0	0	0	0	590	356	178	1656	0
RTOR Reduction (vph)	0	2	2	0	0	0	0	61	0	0	0	0
Lane Group Flow (vph)	640	1314	308	0	0	0	0	885	0	178	1656	0
Turn Type	Prot		Perm							Prot		
Protected Phases	7							7		1		
Permitted Phases			4								6	
Actuated Green, G (s)	36.0	36.0	36.0					17.7		9.0	30.7	
Effective Green, g (s)	36.0	36.0	36.0					17.7		9.0	30.7	
Actuated g/C Ratio	0.48	0.48	0.48					0.24		0.12	0.41	
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)	776	1524	694					1433		213	2090	
v/s Ratio Prot	0.40	0.42						0.16		0.10	0.39	
v/s Ratio Perm			0.21									0.02
v/c Ratio	0.82	0.86	0.44					0.62		0.84	0.79	
Uniform Delay, d1	16.6	17.2	12.8					25.5		32.1	19.2	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	7.1	5.3	0.5					0.8		23.7	2.1	
Delay (s)	23.8	22.4	13.2					26.3		55.8	21.4	
Level of Service	C	C	B					C		E	C	
Approach Delay (s)		21.5		0.0				26.3			24.7	
Approach LOS		C		A				C			C	
Intersection Summary												
HCM Average Control Delay	23.6			HCM Level of Service				C				
HCM Volume to Capacity ratio	0.83											
Actuated Cycle Length (s)	74.7			Sum of lost time (s)				8.0				
Intersection Capacity Utilization	105.3%			ICU Level of Service				G				
Analysis Period (min)	15											
c : Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis

30: Valley Centre Drive & Carmel View Road

Year 2030 + Project AM

12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱
Volume (vph)	18	239	0	485	27	107	127		
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		
Lane Util. Factor	1.00	0.95		0.95	1.00	1.00	1.00		
Flt	1.00	1.00		0.99	1.00	1.00	0.85		
Flt Protected	0.95	1.00		1.00	0.95	1.00	0.95		
Satd. Flow (prot)	1770	3539		3511	1770	1583			
Flt Permitted	0.95	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	0.90		
Adj. Flow (vph)	20	266	0	539	30	119	141		
RTOR Reduction (vph)	0	0	0	8	0	0	110		
Lane Group Flow (vph)	20	266	0	561	0	119	31		
Turn Type	Prot		Prot				Perm		
Protected Phases	7		3				6		
Permitted Phases							6		
Actuated Green, G (s)	0.5	12.6		8.1			5.8		
Effective Green, g (s)	0.5	12.6		8.1			5.8		
Actuated g/C Ratio	0.02	0.48		0.31			0.22		
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)	34	1689		1077			389		
v/s Ratio Prot	0.01	0.08		0.16			0.07		
v/s Ratio Perm							0.02		
v/c Ratio	0.59	0.16		0.52			0.31		
Uniform Delay, d1	12.8	3.9		7.5			8.6		
Progression Factor	1.00	1.00		1.00			1.00		
Incremental Delay, d2	23.4	0.0		0.5			0.4		
Delay (s)	36.2	3.9		8.0			9.1		
Level of Service	D	A		A			A		
Approach Delay (s)		6.2		8.0			8.7		
Approach LOS		A		A			A		
Intersection Summary									
HCM Average Control Delay	7.7			HCM Level of Service				A	
HCM Volume to Capacity ratio	0.44								
Actuated Cycle Length (s)	26.4			Sum of lost time (s)				12.0	
Intersection Capacity Utilization	28.8%			ICU Level of Service				A	
Analysis Period (min)	15								
Critical Lane Group									

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
31: Valley Centre Drive & Carmel Creek Road

Year 2030 + Project AM
12/1/2010

Movement	EBL	EBR	EBL+R	WBL	WBR	WBL+R	NBL	NBR	NBL+R	SBL	SBT	SBR
Lane Configurations	←	→	←→	←	→	←→	←	→	←→	←	→	←→
Volume (vph)	65	220	180	300	555	95	380	571	354	465	230	395
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	0.88	1.00	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	0.98	1.00	1.00	0.85	1.00	1.00	0.85	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	2787	1583	1770	1822	1770	3539	1583	3433	3539	1583	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	2787	1583	1770	1822	1770	3539	1583	3433	3539	1583	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	72	244	200	333	617	106	422	634	393	517	256	439
RTOR Reduction (vph)	0	0	108	0	6	0	0	0	294	0	0	158
Lane Group Flow (vph)	72	244	92	333	717	0	422	634	99	517	256	261
Turn Type	Prot	custom	custom	Perm			Prot		Perm	Prot		Perm
Protected Phases	7			8			5			6		
Permitted Phases		4	4	8				2			6	6
Actuated Green, G (s)	5.4	50.6	50.6	41.2	41.2		26.4	27.4	27.4	19.5	20.5	20.5
Effective Green, g (s)	5.4	50.6	50.6	41.2	41.2		26.4	27.4	27.4	19.5	20.5	20.5
Actuated g/C Ratio	0.05	0.46	0.46	0.38	0.38		0.24	0.25	0.25	0.18	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
Vehicle Extension (s)	3.0	5.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	87	1288	732	666	686		427	886	396	611	663	296
vs Ratio Prot	0.04			0.39			0.24	0.18		0.15	0.07	
vs Ratio Perm		0.09	0.06	0.19				0.06				0.18
g/C Ratio	0.83	0.19	0.13	0.50	1.05		0.99	0.72	0.25	0.85	0.39	0.95
Uniform Delay, d1	51.6	17.4	16.8	26.2	34.2		41.4	37.5	32.8	43.5	39.0	44.0
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	44.8	0.1	0.1	0.6	46.9		40.0	2.8	0.3	10.5	0.4	39.0
Delay (s)	96.4	17.4	16.9	26.8	81.1		81.4	40.3	33.2	54.0	39.4	83.0
Level of Service	F	B	B	C	F		F	D	C	D	D	F
Approach Delay (s)				64.0			50.3			61.4		
Approach LOS				E			D			E		
Intersection Summary												
HCM Average Control Delay	54.2				HCM Level of Service				D			
HCM Volume to Capacity ratio	1.00											
Actuated Cycle Length (s)	109.5				Sum of lost time (s)				16.0			
Intersection Capacity Utilization	90.5%				ICU Level of Service				E			
Analysis Period (min)	15											
C: Critical Lane Group												

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

Year 2030 + Project AM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SWR
Lane Configurations												
Volume (vph)	750	0	319	0	0	0	0	351	105	250	360	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0		4.0	4.0	
Lane Util. Factor	0.95	0.95	1.00					0.95		0.97	0.95	
Flt	1.00	1.00	0.85					0.97		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1681	1583					3417		3433	3539	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1681	1681	1583					3417		3433	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)	833	0	354	0	0	0	0	390	117	278	400	0
RTOR Reduction (vph)	0	0	209	0	0	0	0	57	0	0	0	0
Lane Group Flow (vph)	416	417	145	0	0	0	0	450	0	278	400	0
Turn Type	Prot		Perm							Prot		
Protected Phases	7	4						2			6	
Permitted Phases			4									
Actuated Green, G (s)	20.1	20.1	20.1					12.1		5.0	21.1	
Effective Green, g (s)	20.1	20.1	20.1					12.1		5.0	21.1	
Actuated g/C Ratio	0.31	0.41	0.41					0.25		0.10	0.49	
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	
Lane Grp Cap (vph)	687	687	647					840		349	1518	
v/s Ratio Prot	0.25	0.25						0.13		0.08	0.11	
v/s Ratio Perm			0.09									
v/C Ratio	0.61	0.61	0.22					0.54		0.80	0.26	
Uniform Delay, d1	11.4	11.4	9.5					16.1		21.6	9.0	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	1.5	1.5	0.2					0.7		11.9	0.1	
Delay (s)	12.9	13.0	9.6					16.8		33.5	9.1	
Level of Service	B	B	A					B		C	A	
Approach Delay (s)		12.0			0.0			16.8			19.1	
Approach LOS		B			A			B			B	
Intersection Summary												
HCM Average Control Delay	15.0			HCM Level of Service			B					
HCM Volume to Capacity ratio	0.61											
Actuated Cycle Length (s)	49.2			Sum of lost time (s)			12.0					
Intersection Capacity Utilization	51.0%			ICU Level of Service			A					
Analysis Period (min)	15											
c : Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
33: Carmel Country Road & Carmel Canyon Road

Year 2030 + Project AM
12/1/2010

Movement	SELE	SELE	SELE	NWLE	NWLE	NWLE	NELE	NELE	NELE	SWLE	SWLE	SWLE
Lane Configurations	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰
Volume (vph)	148	501	42	159	346	575	46	110	234	610	157	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		0.97	1.00	
Flt	1.00	0.99		1.00	0.91		1.00	0.90		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3498		1770	3208		1770	1673		3433	1737	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3498		1770	3208		1770	1673		3433	1737	
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)	164	557	47	177	384	639	51	122	260	687	174	142
RTOR Reduction (vph)	0	9	0	0	410	0	0	102	0	0	37	0
Lane Group Flow (vph)	164	595	0	177	613	0	51	280	0	687	279	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	6		5	2		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	8.0	16.3		9.0	17.3		3.7	16.4		16.0	28.7	
Effective Green, g (s)	8.0	16.3		9.0	17.3		3.7	16.4		16.0	28.7	
Actuated g/C Ratio	0.41	0.22		0.12	0.23		0.05	0.22		0.22	0.39	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	192	774		216	753		89	372		745	676	
v/s Ratio Prot	0.09	0.17		0.10	0.19		0.03	0.17		0.20	0.16	
v/s Ratio Perm												
v/C Ratio	0.85	0.77		0.82	0.81		0.57	0.75		0.92	0.41	
Uniform Delay, d1	32.3	26.9		31.6	26.7		34.2	26.8		28.2	16.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	29.0	4.6		20.9	6.7		8.6	8.4		16.9	0.4	
Delay (s)	61.2	31.6		52.5	33.4		42.9	35.1		45.1	16.8	
Level of Service	E	C		D	C		D	D		D	B	
Approach Delay (s)		37.9			36.2			36.0			36.2	
Approach LOS		D			D			D			D	
Intersection Summary												
HCM Average Control Delay	36.6					HCM Level of Service			D			
HCM Volume to Capacity ratio	0.79											
Actuated Cycle Length (s)	73.7					Sum of lost time (s)			12.0			
Intersection Capacity Utilization	87.4%					ICU Level of Service			E			
Analysis Period (min)	15											
Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
34: SR-56 WB Ramp & Carmel Country Road

Year 2030 + Project AM
12/1/2010

Movement	WBL	WBR	SEL	SEB	NWL	NWR	NWB	SWL	SWR
Lane Configurations	TT	TT	TT	TT	TT	TT	TT	TT	TT
Volume (vph)	0	0	800	594	965	0	430	170	251
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	1.00	0.97	1.00	0.97	1.00
Flt	1.00	1.00	1.00	0.85	1.00	0.85	1.00	0.85	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	3539	3539	1583	3433	1583	3433	1583	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	3539	1583	3433	1583	3433	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	889	660	1072	0	478	189	279
RTOR Reduction (vph)	0	0	0	0	0	117	0	171	0
Lane Group Flow (vph)	0	0	889	660	1072	0	361	189	108
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	5	2	6	2	6	2	6	2	6
Permitted Phases									
Actuated Green, G (s)	21.9	53.1	27.2	53.1	27.2	21.9	53.1	27.2	21.9
Effective Green, g (s)	21.9	53.1	27.2	53.1	27.2	21.9	53.1	27.2	21.9
Actuated g/C Ratio	0.31	0.76	0.39	0.76	0.39	0.31	0.76	0.39	0.31
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1069	2673	1369	1196	449	612	1069	2673	1369
v/s Ratio Prot	0.26	0.19	0.30	0.23	0.07	0.26	0.19	0.30	0.23
v/s Ratio Perm									
v/c Ratio	0.83	0.25	0.78	0.30	0.42	0.18	0.83	0.25	0.78
Uniform Delay, d1	22.5	2.6	19.0	2.7	28.1	14.2	22.5	2.6	19.0
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	0.0	3.0	0.1	0.6	0.1	5.6	0.0	3.0
Delay (s)	28.1	2.6	22.0	2.9	28.7	14.3	28.1	2.6	22.0
Level of Service	C	A	C	A	C	B	C	A	C
Approach Delay (s)	0.0	17.3	16.1	20.1	0.0	17.3	16.1	20.1	0.0
Approach LOS	A	B	B	C	A	B	B	C	A
Intersection Summary									
HCM Average Control Delay	17.1			HCM Level of Service			B		
HCM Volume to Capacity ratio	0.74			Sum of lost time (s)			12.0		
Actuated Cycle Length (s)	70.3			ICU Level of Service			C		
Intersection Capacity Utilization	64.3%			Analysis Period (min)			15		
Analysis Period (min)	15			Critical Lane Group					

Baseline

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

Year 2030 + Project AM
12/1/2010

Movement	EBL	EBR	SEB	SEL	SEB	SEB	NWL	NWR	NWB	SWL	SWR
Lane Configurations	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
Volume (vph)	310	5	310	420	320	0	1200	250	0	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	0.95	1.00	0.95	1.00	0.85
Flt	1.00	1.00	0.85	1.00	1.00	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.95	1.00	0.95	1.00	1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (prot)	1681	1681	1583	3433	3539	3539	1681	1681	1583	3433	1583
Flt Permitted	0.95	0.95	1.00	0.95	1.00	1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (perm)	1681	1681	1583	3433	3539	3539	1681	1681	1583	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	344	6	344	467	356	0	1333	270	0	0	0
RTOR Reduction (vph)	0	0	280	0	0	0	0	154	0	0	0
Lane Group Flow (vph)	175	175	64	467	356	0	1333	124	0	0	0
Turn Type	Split	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											
Actuated Green, G (s)	12.1	12.1	12.1	10.0	44.0	29.0	29.0	12.1	12.1	12.1	12.1
Effective Green, g (s)	12.1	12.1	12.1	10.0	44.0	29.0	29.0	12.1	12.1	12.1	12.1
Actuated g/C Ratio	0.19	0.19	0.19	0.15	0.68	0.45	0.45	0.19	0.19	0.19	0.19
Clearance Time (s)	4.0	4.0	4.0	5.0	5.0	5.0	5.0	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)	312	312	294	527	2392	1577	705	312	312	294	527
v/s Ratio Prot	0.10	0.10	0.04	0.14	0.10	0.38	0.08	0.10	0.10	0.04	0.14
v/s Ratio Perm											
v/c Ratio	0.56	0.56	0.22	0.89	0.15	0.85	0.18	0.56	0.56	0.22	0.89
Uniform Delay, d1	24.1	24.1	22.5	27.0	3.8	16.1	10.9	24.1	24.1	22.5	27.0
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	2.3	2.3	0.4	16.3	0.0	4.4	0.1	2.3	2.3	0.4	16.3
Delay (s)	26.4	26.4	22.9	43.3	3.8	20.4	11.0	26.4	26.4	22.9	43.3
Level of Service	C	C	C	D	A	C	B	C	C	C	D
Approach Delay (s)	24.6	26.2	18.8	10.0	0.0	0.0	0.0	24.6	26.2	18.8	10.0
Approach LOS	C	C	B	A	A	A	A	C	C	B	A
Intersection Summary											
HCM Average Control Delay	22.0			HCM Level of Service			C				
HCM Volume to Capacity ratio	0.79			Sum of lost time (s)			14.0				
Actuated Cycle Length (s)	65.1			ICU Level of Service			C				
Intersection Capacity Utilization	65.5%			Analysis Period (min)			15				
Analysis Period (min)	15			Critical Lane Group							

Baseline

Synchro 7 - Report
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ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information			
Analyst	Jacob Swim			Intersection	Carmel Creek Rd./Del Mar Trail		
Agency/Co.	USAI			Jurisdiction	City of San Diego		
Date Performed	11/2/2010			Analysis Year	2030		
Analysis Time Period	35 Year 2030 + Project 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	T	R
Volume (veh/h)	10	10	10		202	2	25
%Thrus Left Lane							
Approach		Northbound			Southbound		
Movement	L	T	R		L	T	R
Volume (veh/h)	3	271	101		15	947	3
%Thrus Left Lane							
		Eastbound		Westbound		Northbound	
		L1	L2	L1	L2	L1	L2
Configuration		LTR		LTR		LT	TR
PHF		0.90		0.90		0.90	0.90
Flow Rate (veh/h)		33		253		153	263
% Heavy Vehicles		2		2		2	2
No. Lanes		1		1		2	2
Geometry Group		2		2		5	5
Duration, T		0.25					
Saturation Headway Adjustment Worksheet							
Prop. Left-Turns		0.3		0.9		0.0	0.0
Prop. Right-Turns		0.3		0.1		0.0	0.4
Prop. Heavy Vehicle		0.0		0.0		0.0	0.0
hLT-adj		0.2	0.2	0.2	0.2	0.5	0.5
hRT-adj		-0.6	-0.6	-0.6	-0.6	-0.7	-0.7
hHV-adj		1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed		-0.1		0.1		0.0	-0.3
Departure Headway and Service Time							
hd, initial value (s)		3.20		3.20		3.20	3.20
k, initial		0.03		0.22		0.14	0.23
hd, final value (s)		7.46		6.82		7.12	6.80
k, final value		0.07		0.48		0.30	0.50
Move-up time, m (s)		2.0		2.0		2.3	
Service Time, Is (s)		5.5		4.8		4.8	4.5
						4.0	4.0
Capacity and Level of Service							
		Eastbound		Westbound		Northbound	
		L1	L2	L1	L2	L1	L2
Capacity (veh/h)		283		503		403	513
Delay (s/veh)		11.01		15.95		12.88	16.04
LOS		B		C		B	C
Approach Delay (s/veh)		11.01		15.95		14.88	
LOS		B		C		B	
Intersection Delay (s/veh)							
Intersection LOS							

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HCM Signalized Intersection Capacity Analysis

1: Via De La Valle & El Camino Real

Year 2030 + Project PM

12/1/2010



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	↑↑	↑	↑↑	↑↑		↑	↑	↑		↑	
Volume (vph)	10	400	524	242	420	10	636	4	617	20	10	20
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	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		0.95	0.95	1.00		1.00	
Flt. s	1.00	1.00	0.95	1.00	1.00		1.00	1.00	0.95		0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.98	
Satd. Flow (prot)	1770	3539	1583	3433	3527		1681	1687	1583		1728	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.72	0.69	1.00		0.83	
Satd. Flow (perm)	1770	3539	1583	3433	3527		1276	1220	1583		1470	
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)	11	444	582	269	467	11	707	6	686	22	11	22
RTOR Reduction (vph)	0	0	391	0	2	0	0	0	307	0	15	0
Lane Group Flow (vph)	311	444	191	269	476	0	353	360	379	0	40	0
Turn Type	Prot		Perm	Prot		Perm		Perm		Perm		Perm
Protected Phases	4			3			2		2		6	
Permitted Phases			4				2		2		6	
Actuated Green, G (s)	17.2	18.8	18.8	7.1	24.7		19.5	19.5	19.5		19.5	
Effective Green, g (s)	1.2	18.8	18.8	7.1	24.7		19.5	19.5	19.5		19.5	
Actuated g/C Ratio	0.02	0.33	0.33	0.12	0.43		0.34	0.34	0.34		0.34	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0	
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)	37	1159	518	425	1518		433	414	538		499	
v/s Ratio Prot	0.01	c0.13		c0.08	0.19		0.28	c0.30	0.24		0.03	
v/s Ratio Perm			0.12				0.02	0.87	0.70		0.08	
v/s Ratio	0.30	0.38	0.37	0.63	0.31		0.02	0.87	0.70		0.08	
Uniform Delay, d1	27.7	14.8	14.8	23.9	10.8		17.3	17.8	18.4		12.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	4.5	0.2	0.4	3.1	0.1		11.2	17.4	4.2		0.1	
Delay (s)	32.1	15.1	15.2	27.0	10.9		28.6	35.1	22.6		12.9	
Level of Service	C	B	B	C	B		C	D	C		B	
Approach Delay (s)		15.3			16.7			26.4			12.9	
Approach LOS		B			B			C			B	
Intersection Summary												
HCM Average Control Delay	20.4				HCM Level of Service				C			
HCM Volume to Capacity ratio	0.63											
Actuated Cycle Length (s)	57.4				Sum of lost time (s)				12.0			
Intersection Capacity Utilization	62.6%				ICU Level of Service				B			
Analysis Period (min)	15											
d1 - Critical Lane Group												

Baseline

Synchro 7 - Report
Page 1

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

Year 2030 + Project PM
12/1/2010

Movement	SWBL	WBR	NBUL	NBT	NBR	SEBL	SEB
Lane Configurations	YY	↑	↓	↑	↑	↑	↑
Volume (vph)	292	130	0	941	417	370	397
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
Lane Util. Factor	0.97	1.00		1.00	1.00	1.00	0.95
Flt	1.00	0.85		1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583		1863	1583	1770	3539
Flt Permitted	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583		1863	1583	1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	307	126	0	991	439	389	416
RTOR Reduction (vph)	0	327	0	0	129	0	0
Lane Group Flow (vph)	307	126	0	991	310	389	416
Turn Type	Perm		Prot		Perm		Prot
Protected Phases	1		3		8		7
Permitted Phases	1		3		8		6
Actuated Green, G (s)	16.1		16.1		57.0		24.0
Effective Green, g (s)	16.1		16.1		57.0		24.0
Actuated g/C Ratio	0.15		0.15		0.52		0.22
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)	507		234		973		827
v/s Ratio Prot	0.09		0.09		0.53		0.22
v/s Ratio Perm	0.08		0.08		0.20		0.12
v/c Ratio	0.61		0.54		1.02		0.37
Uniform Delay, d1	43.5		43.0		26.0		15.5
Progression Factor	1.00		1.00		1.00		1.00
Incremental Delay, d2	2.0		2.4		33.6		0.3
Delay (s)	45.6		45.4		59.6		15.8
Level of Service	D		D		E		B
Approach Delay (s)	45.5		46.2		70.2		70.2
Approach LOS	D		D		E		E
Intersection Summary:							
HCM Average Control Delay	52.5		52.5		HCM Level of Service		D
HCM Volume to Capacity ratio	0.98		0.98		Sum of lost time (s)		12.0
Actuated Cycle Length (s)	109.1		109.1		ICU Level of Service		E
Intersection Capacity Utilization	88.4%		88.4%		Analysis Period (min)		15
c Critical Lane Group							

Baseline

Synchro 7 - Report
Page 2

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

Year 2030 + Project PM
12/1/2010

Movement	SWBL	WBR	NBUL	NBT	NBR	SEBL	SEB
Lane Configurations	YY			↑↑		↑	↑↑
Volume (vph)	71	7	0	1010	111	8	579
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0		4.0	4.0
Lane Util. Factor	0.97			0.95		1.00	0.95
Flt	0.99			0.99		1.00	1.00
Flt Protected	0.96			1.00		0.95	1.00
Satd. Flow (prot)	3409			3487		1770	3539
Flt Permitted	0.96			1.00		0.95	1.00
Satd. Flow (perm)	3409			3487		1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	79	8	0	1122	123	9	643
RTOR Reduction (vph)	7	0	0	10	0	0	0
Lane Group Flow (vph)	80	0	0	1235	0	9	643
Turn Type	Prot		Prot		Prot		
Protected Phases	6		5		2		6
Permitted Phases	6		5		2		6
Actuated Green, G (s)	3.2		3.2		22.0		0.6
Effective Green, g (s)	3.2		3.2		22.0		0.6
Actuated g/C Ratio	0.08		0.08		0.58		0.02
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)	289		2029		28		2490
v/s Ratio Prot	0.02		0.02		0.35		0.01
v/s Ratio Perm	0.26		0.26		0.32		0.26
v/c Ratio	0.26		0.26		0.32		0.26
Uniform Delay, d1	16.2		5.1		18.4		2.0
Progression Factor	1.00		1.00		1.00		1.00
Incremental Delay, d2	0.5		0.5		6.6		0.1
Delay (s)	16.7		5.6		25.0		2.1
Level of Service	B		A		C		A
Approach Delay (s)	16.7		5.6		25.0		2.4
Approach LOS	B		A		A		
Intersection Summary:							
HCM Average Control Delay	5.1		HCM Level of Service		A		
HCM Volume to Capacity ratio	0.57		Sum of lost time (s)		12.0		
Actuated Cycle Length (s)	37.8		ICU Level of Service		A		
Intersection Capacity Utilization	41.5%		Analysis Period (min)		15		
c Critical Lane Group							

Baseline

Synchro 7 - Report
Page 3

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

Year 2030 + Project PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	25	22	16	28	21	169	26	918	66	89	519	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.94		1.00	0.87		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1743		1770	1614		1770	3504		1770	3512	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1743		1770	1614		1770	3504		1770	3512	
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)	28	24	18	31	23	188	29	1020	73	99	576	31
RTOR Reduction (vph)	0	16	0	0	168	0	0	6	0	0	4	0
Lane Group Flow (vph)	28	26	0	31	43	0	29	1087	0	99	603	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	1.4	5.5		1.4	5.5		1.6	24.2		3.6	26.2	
Effective Green, g (s)	1.4	5.5		1.4	5.5		1.6	24.2		3.6	26.2	
Actuated g/C Ratio	0.03	0.11		0.03	0.11		0.03	0.48		0.07	0.52	
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)	49	189		49	175		66	1673		126	1815	
v/s Ratio Prot	0.02	0.01		0.02	0.03		0.02	0.31		0.06	0.17	
v/s Ratio Perm												
v/c Ratio	0.57	0.14		0.63	0.25		0.52	0.65		0.79	0.33	
Uniform Delay, d1	24.4	20.5		24.4	20.7		24.2	10.0		23.2	7.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	15.1	0.3		23.7	0.7		7.9	0.9		26.7	0.1	
Delay (s)	39.4	20.8		48.1	21.4		32.0	10.9		49.9	7.3	
Level of Service	D	C		D	C		C	B		D	A	
Approach Delay (s)	28.2			24.9			11.5			13.2		
Approach LOS	C			C			B			B		
Intersection Summary												
HCM Average Control Delay	14.1											
HCM Volume to Capacity ratio	0.59											
Actuated Cycle Length (s)	50.7											
Intersection Capacity Utilization	60.6%											
Analysis Period (min)	15											
C Critical Lane Group												

Baseline

Synchro 7 - Report
Page 4

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

Year 2030 + Project PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	8	42	36	57	30	21	48	1084	134	23	555	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	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.94		1.00	0.98		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1663	1583	1770	1748		1770	3481		1770	3530	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1663	1583	1770	1748		1770	3481		1770	3530	
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)	9	47	40	63	33		53	1204	149	26	617	11
RTOR Reduction (vph)	0	0	36	0	20		0	10	0	0	1	0
Lane Group Flow (vph)	9	47	4	63	38		53	1343	0	26	627	0
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	0.8	4.7	4.7	2.6	6.5		2.9	29.1		1.3	27.5	
Effective Green, g (s)	0.8	4.7	4.7	2.6	6.5		2.9	29.1		1.3	27.5	
Actuated g/C Ratio	0.01	0.09	0.09	0.05	0.12		0.05	0.54		0.02	0.51	
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)	26	163	139	86	212		96	1886		43	1808	
v/s Ratio Prot	0.01	0.03		0.04	0.02		0.03	0.39		0.01	0.16	
v/s Ratio Perm			0.00									
v/c Ratio	0.35	0.29	0.03	0.73	0.17		0.55	0.71		0.60	0.36	
Uniform Delay, d1	26.2	22.9	22.4	25.2	21.2		24.8	9.2		25.9	7.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.9	1.0	0.1	27.2	0.4		6.7	1.3		21.7	0.1	
Delay (s)	34.0	23.9	22.5	52.4	21.6		31.6	10.5		47.6	7.9	
Level of Service	C	C	C	D	C		C	B		D	A	
Approach Delay (s)	24.3			37.9			11.3			9.5		
Approach LOS	C			D			B			A		
Intersection Summary												
HCM Average Control Delay	12.7											
HCM Volume to Capacity ratio	0.61											
Actuated Cycle Length (s)	53.7											
Intersection Capacity Utilization	56.4%											
Analysis Period (min)	15											
C Critical Lane Group												

Baseline

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

Year 2030 + Project PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SEB
Lane Configurations	↖	↑↑↑		↖	↑↑			↑	↑	↖	↘	
Volume (vph)	150	1167	50	181	951	281	90	50	107	487	40	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		
Lane Util. Factor	1.00	0.91		1.00	0.95			1.00	1.00	0.95	0.95	
Flt	1.00	0.99		1.00	0.97			1.00	0.85	1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00	0.95	0.98	
Satd. Flow (prot)	1770	5054		1770	3418			1805	1583	1681	1620	
Flt Permitted	0.95	1.00		0.95	1.00			0.48	1.00	0.64	0.75	
Satd. Flow (perm)	1770	5054		1770	3418			886	1583	1127	1249	
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)	167	1297	56	201	1057	312	100	56	119	541	44	156
RTOR Reduction (vph)	0	6	0	0	34	0	0	0	78	0	33	0
Lane Group Flow (vph)	167	1347	0	201	1335	0	0	156	41	373	335	0
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Actuated Green, G (s)	8.6	27.6		12.0	31.0			27.6	27.6	27.6	27.6	
Effective Green, g (s)	8.6	27.6		12.0	31.0			27.6	27.6	27.6	27.6	
Actuated g/C Ratio	0.11	0.35		0.15	0.39			0.35	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)	192	1761		268	1338			309	552	393	435	
v/s Ratio Prot	0.09	0.27		0.11	0.30							
v/s Ratio Perm								0.18	0.03	0.33	0.27	
v/c Ratio	0.87	0.76		0.75	1.00			0.50	0.08	0.95	0.77	
Union Delay, d1	34.7	22.9		32.2	24.1			20.4	17.3	25.1	23.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	31.6	2.0		11.2	23.9			1.3	0.1	32.1	8.0	
Delay (s)	66.3	25.0		43.3	47.9			21.7	17.3	57.2	31.0	
Level of Service	E	C		D	D			C	B	E	C	
Approach Delay (s)	29.5			47.3			19.8			44.2		
Approach LOS	C			D			B			D		
Intersection Summary												
HCM Average Control Delay	38.3			HCM Level of Service			D					
HCM Volume to Capacity ratio	0.96											
Actuated Cycle Length (s)	79.2			Sum of lost time (s)			12.0					
Intersection Capacity Utilization	83.3%			ICU Level of Service			E					
Analysis Period (min)	15											
Critical Lane Group												

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

Year 2030 + Project PM
12/1/2010

	←		→		←		→		←		→		←		→		←		→	
Movement	EBT	EBB	WBT	WBB	NBT	NBB	EBT	EBB	WBT	WBB	NBT	NBB	EBT	EBB	WBT	WBB	NBT	NBB	EBT	EBB
Lane Configurations	↑↑↑	↑↑↑	↑↑	↑↑	↑↑	↑↑	↑↑↑	↑↑↑	↑↑	↑↑	↑↑	↑↑	↑↑↑	↑↑↑	↑↑	↑↑	↑↑	↑↑	↑↑↑	↑↑↑
Volume (veh/h)	1881	80	0	1744	0	127	1881	80	0	1744	0	127	1881	80	0	1744	0	127	1881	80
Sign Control	Free	Free	Free	Slop	Free	Slop	Free	Free	Free	Slop	Free	Slop	Free	Free	Free	Slop	Free	Slop	Free	Slop
Grade	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	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	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)	2090	89	0	1938	0	141	2090	89	0	1938	0	141	2090	89	0	1938	0	141	2090	89
Pedestrians																				
Lane Width (ft)																				
Walking Speed (ft/s)																				
Percent Blockage																				
Right turn flare (veh)																				
Median type	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None
Median storage (veh)																				
Upstream signal (ft)	575	807	807	575	575	807	807	575	575	807	807	575	575	807	807	575	575	807	807	575
pX, platoon unblocked		0.78	0.82	0.78		0.78	0.82	0.78		0.78	0.82	0.78		0.78	0.82	0.78		0.78	0.82	0.78
vC1, conflicting volume		2179	3103	1741		2179	3103	1741		2179	3103	1741		2179	3103	1741		2179	3103	1741
vC1, stage 1 conf vol																				
vC2, stage 2 conf vol																				
vCu, unblocked vol		1516	1503	0		1516	1503	0		1516	1503	0		1516	1503	0		1516	1503	0
IC, single (s)		6.8	6.8	6.8		6.8	6.8	6.8		6.8	6.8	6.8		6.8	6.8	6.8		6.8	6.8	6.8
IC, 2 stage (s)																				
IF (s)		2.2	3.5	3.3		2.2	3.5	3.3		2.2	3.5	3.3		2.2	3.5	3.3		2.2	3.5	3.3
pD queue free %		100	100	83		100	100	83		100	100	83		100	100	83		100	100	83
CM capacity (veh/h)		340	92	843		340	92	843		340	92	843		340	92	843		340	92	843
Intersection Summary																				
Volume Total	836				836				507				969				969			
Volume Left	0				0				0				0				0			
Volume Right	0				0				0				0				141			
cSH	1700				1700				1700				1700				843			
Volume to Capacity	0.49				0.49				0.30				0.57				0.57			
Queue Length 95th (ft)	0				0				0				0				15			
Control Delay (s)	0.0				0.0				0.0				0.0				10.1			
Lane LOS	B				B				B				B				B			
Approach Delay (s)	0.0				0.0				0.0				0.1				0.1			
Approach LOS	B				B				B				B				B			
Intersection Summary																				
Average Delay									0.3											
Intersection Capacity Utilization									52.7%								A			
Analysis Period (min)									15											

HCM Signalized Intersection Capacity Analysis
8: Del Mar Heights Rd. & I-5 SB Ramps

Year 2030 + Project PM
4/26/2011

Movement	EBL	EBT	WBL	WBR	SBL	SBR
Lane Configurations	↑↑	↑↑			↑↑↑	↑
Volume (vph)	0	1428	1344	0	931	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0
Lane Util. Factor		0.95	0.95		0.97	0.91
Flt		1.00	1.00		0.99	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3427	1441
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3427	1441
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1587	1493	0	1034	444
RTOR Reduction (vph)	0	0	0	0	4	24
Lane Group Flow (vph)	0	1587	1493	0	1074	376
Turn Type					Perm	
Protected Phases		2 6	6 2		4	
Permitted Phases						4
Actuated Green, G (s)		47.0	47.0		25.0	25.0
Effective Green, g (s)		47.0	47.0		25.0	25.0
Actuated g/C Ratio		0.59	0.59		0.31	0.31
Clearance Time (s)					4.0	4.0
Vehicle Extension (s)					3.0	3.0
Lane Grp Cap (vph)		2079	2079		1071	450
v/s Ratio Prot		0.45	0.42		0.31	
v/s Ratio Perm						0.26
v/c Ratio		0.78	0.72		1.00	0.84
Uniform Delay, d1		12.3	11.8		27.5	25.6
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		1.7	1.2		28.1	12.6
Delay (s)		14.1	13.0		55.6	38.2
Level of Service		B	B		E	D
Approach Delay (s)		14.1	13.0		50.9	
Approach LOS		B	B		D	
Intersection Summary						
HCM Average Control Delay	25.7			HCM Level of Service		C
HCM Volume to Capacity ratio	0.85					
Actuated Cycle Length (s)	80.0			Sum of lost time (s)		8.0
Intersection Capacity Utilization	148.5%			ICU Level of Service		H
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-5 NB Ramps

Year 2030 + Project PM
4/26/2011

Movement	SEBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SEBR
Lane Configurations	↵↵	↑↑			↑↑↑	↑	↵	↵↵	↑			
Volume (vph)	750	1891	0	0	1697	753	630	30	1072	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			
Lane Util. Factor	0.97	0.95			0.91	1.00	0.95	0.91	0.95			
Flt	1.00	1.00			1.00	0.85	1.00	0.87	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (prot)	3433	3539			5085	1583	1681	1473	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (perm)	3433	3539			5085	1583	1681	1473	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)	833	2101	0	0	1886	837	700	33	1191	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	327	0	4	4	0	0	0
Lane Group Flow (vph)	833	2101	0	0	1886	510	630	647	639	0	0	0
Turn Type	Prot				Perm		Spill		Perm			
Protected Phases	5		2		6		8		8		8	
Permitted Phases					6		8		8		8	
Actuated Green, G (s)	24.0		69.0		41.0		41.0		43.0		43.0	
Effective Green, g (s)	24.0		69.0		41.0		41.0		43.0		43.0	
Actuated g/C Ratio	0.20		0.57		0.34		0.34		0.36		0.36	
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)	687		2035		1737		541		602		528	
v/s Ratio Prot	0.24		0.59		0.37		0.37		0.44		0.44	
v/s Ratio Perm					0.32				0.42			
v/c Ratio	1.21		1.03		1.09		0.94		1.05		1.22	
Uniform Delay, d1	48.0		25.5		39.5		38.4		38.5		38.5	
Progression Factor	1.00		1.00		1.00		1.00		1.00		1.00	
Incremental Delay, d2	108.8		28.8		48.9		26.8		49.4		117.0	
Delay (s)	156.8		54.3		88.4		65.1		87.9		155.5	
Level of Service	F		D		F		E		F		F	
Approach Delay (s)	63.4		81.3		128.0						0.0	
Approach LOS	F		F		F		F		F		A	
Intersection Summary												
HCM Average Control Delay	94.0		HCM Level of Service		F							
HCM Volume to Capacity ratio	1.13											
Actuated Cycle Length (s)	120.0		Sum of lost time (s)		8.0							
Intersection Capacity Utilization	107.2%		ICU Level of Service		G							
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
10: Del Mar Heights Road & High Bluff Drive

Year 2030 + Project PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	↰	↑↑↑	↱	↰	↑↑↑	↱	↰	↑↑	↱	↰	↑
Volume (vph)	250	2700	300	71	1943	201	680	70	187	77	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	4.0	5.0	5.0
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
Flt	1.00	1.00	0.85	1.00	0.99	1.00	0.89	1.00	1.00	0.85	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5014	3433	3153	1770	1663	1583	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5014	3433	3153	1770	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
Adj. Flow (vph)	278	3000	333	79	2159	223	756	78	208	86	44
RTOR Reduction (vph)	0	0	69	0	8	0	0	100	0	0	164
Lane Group Flow (vph)	278	3000	284	79	2374	0	756	186	0	86	44
Turn Type	Prot		Perm	Prot			Prot			Prot	Perm
Protected Phases	7			3		8	5		2	1	
Permitted Phases			4								6
Actuated Green, G (s)	21.0	78.1	78.1	6.0	63.1		30.0	29.1		11.8	10.9
Effective Green, g (s)	21.0	78.1	78.1	6.0	63.1		30.0	29.1		11.8	10.9
Actuated g/C Ratio	0.15	0.55	0.55	0.04	0.44		0.21	0.20		0.08	0.08
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	5.0		4.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	260	2777	865	74	2212		720	642		146	142
v/s Ratio Prot	c0.16	c0.59		0.04	0.47		c0.22	0.06		0.05	0.02
v/s Ratio Perm			0.17								c0.04
v/c Ratio	1.07	1.08	0.31	1.07	1.07		1.05	0.29		0.59	0.31
Uniform Delay, d1	61.0	32.4	17.7	68.5	40.0		56.5	48.2		63.3	62.5
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	75.4	43.4	0.2	124.4	42.3		47.4	0.3		6.0	1.2
Delay (s)	136.4	75.8	17.9	192.9	82.2		103.9	48.5		69.2	63.7
Level of Service	F	E	B	F	F		F	D		E	E
Approach Delay (s)		75.2			85.8			88.7			66.7
Approach LOS		E			F			F			E
Intersection Summary											
HCM Average Control Delay	80.2			HCM Level of Service			F				
HCM Volume to Capacity ratio	1.00										
Actuated Cycle Length (s)	143.0			Sum of lost time (s)			13.0				
Intersection Capacity Utilization	93.8%			ICU Level of Service			F				
Analysis Period (min)	15										
c: Critical Lane Group											

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

Year 2030 + Project PM
12/1/2010

Movement	EBL	EBR	WBL	WBR	NBL	NBR	
Lane Configurations	↑↑↑	↑	↑	↑↑↑	↑↑	↑	
Volume (vph)	2633	221	172	2047	306	236	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	5.0	5.0	4.0	5.0	4.0	4.0	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	1.00	
Flt	1.00	0.85	1.00	1.00	1.00	0.85	
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (prot)	5085	1583	1770	5085	3433	1583	
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (perm)	5085	1583	1770	5085	3433	1583	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	2862	240	187	2225	333	259	
RTOR Reduction (vph)	0	97	0	0	0	153	
Lane Group Flow (vph)	2862	143	187	2225	333	106	
Turn Type			Prol	Prol		Perm	
Protected Phases	4	4	3	8	2		
Permitted Phases						2	
Actuated Green, G (s)	51.0	51.0	10.0	65.0	13.3	13.3	
Effective Green, g (s)	51.0	51.0	10.0	65.0	13.3	13.3	
Actuated g/C Ratio	0.58	0.58	0.11	0.74	0.15	0.15	
Clearance Time (s)	5.0	5.0	4.0	5.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	2971	925	203	3786	523	241	
v/s Ratio Prot	c0.56	c0.09	c0.11	0.44	c0.10		
v/s Ratio Perm						0.07	
v/c Ratio	0.96	0.15	0.92	0.59	0.64	0.44	
Uniform Delay, d1	17.3	8.3	38.3	5.1	34.7	33.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	9.5	0.1	41.6	0.2	2.5	1.3	
Delay (s)	26.7	8.4	79.9	5.3	37.3	34.9	
Level of Service	C	A	E	A	D	C	
Approach Delay (s)	25.3			11.1	36.2		
Approach LOS	C			B	D		
Intersection Summary							
HCM Average Control Delay	20.7			HCM Level of Service			C
HCM Volume to Capacity ratio	0.90						
Actuated Cycle Length (s)	87.3			Sum of lost time (s)			13.0
Intersection Capacity Utilization	80.0%			ICU Level of Service			D
Analysis Period (min)	15						
C: Critical Lane Group							

HCM Signalized Intersection Capacity Analysis
12: Del Mar Heights Road & First Ave.

Year 2030 + Project PM
12/1/2010

Movement	EBL	EBR	WBL	WBR	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↑	↑↑↑	↑↑	↑
Volume (vph)	2687	184	184	1964	255	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	4.0	5.0	4.0	4.0
Lane Util. Factor	0.91	1.00	0.97	0.91	0.97	1.00
Flt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	3433	5085	3433	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	3433	5085	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2921	200	200	2135	277	277
RTOR Reduction (vph)	0	77	0	0	0	96
Lane Group Flow (vph)	2921	123	200	2135	277	181
Turn Type	Prot		Prot	Perm		
Protected Phases	4	4	3	6	2	2
Permitted Phases	2					
Actuated Green, G (s)	53.1	53.1	6.2	63.3	14.0	14.0
Effective Green, g (s)	53.1	53.1	6.2	63.3	14.0	14.0
Actuated g/C Ratio	0.62	0.62	0.07	0.73	0.16	0.16
Clearance Time (s)	5.0	5.0	4.0	5.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3129	974	247	3730	557	257
v/s Ratio Prot	c0.57	c0.08	c0.06	c0.42	c0.08	
v/s Ratio Perm	c0.11					
v/c Ratio	0.93	0.13	0.01	0.57	0.50	0.70
Uniform Delay, d1	15.0	6.9	39.5	5.3	32.9	34.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.0	0.1	17.5	0.2	0.7	8.4
Delay (s)	21.0	7.0	57.0	5.5	33.6	42.6
Level of Service	C	A	E	A	C	D
Approach Delay (s)	20.1			9.9	38.1	
Approach LOS	C			A	D	
Intersection Summary						
HCM Average Control Delay	17.8			HCM Level of Service		
HCM Volume to Capacity Ratio	0.88			B		
Actuated Cycle Length (s)	86.3			Sum of lost time (s)		
Intersection Capacity Utilization	75.3%			ICU Level of Service		
Analysis Period (min)	15			D		
c Critical Lane Group						

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
13: Del Mar Heights Road & El Camino Real

Year 2030 + Project PM
12/1/2010

Movement	SEBL	EBL	EBR	WBL	WBR	NBL	NBR	SEBL	SEBR	SBL	SBR
Lane Configurations	↑↑	↑↑↑	↑	↑↑	↑↑↑	↑↑	↑↑↑	↑↑	↑↑	↑↑	↑↑
Volume (vph)	563	1947	618	201	1213	190	648	784	338	190	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0		4.0	5.0		4.0	5.0
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.91		0.97	0.91
Flt	1.00	0.96		1.00	0.96		1.00	1.00		1.00	0.91
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)	3433	4901		3433	4902		3433	5085		3433	4649
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (perm)	3433	4901		3433	4962		3433	5085		3433	4649
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	626	2163	607	223	1348	211	720	871	378	211	271
RTOR Reduction (vph)	0	38	0	0	14	0	0	0	93	0	161
Lane Group Flow (vph)	626	2812	0	223	1545	0	720	871	283	211	473
Turn Type	Prot			Prot			Prot		Perm		Prot
Protected Phases	7		4	3		8	5		2		6
Permitted Phases	2										
Actuated Green, G (s)	30.5		75.0	10.0		54.5	30.0		36.5	36.5	10.5
Effective Green, g (s)	30.5		75.0	10.0		54.5	30.0		36.5	36.5	10.5
Actuated g/C Ratio	0.20		0.50	0.07		0.36	0.20		0.24	0.24	0.07
Clearance Time (s)	4.0		5.0	4.0		5.0	4.0		5.0	5.0	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)	698		2451	229		1810	687		1237	385	240
v/s Ratio Prot	c0.18		c0.57	0.06		0.31	c0.21		0.17	0.06	c0.10
v/s Ratio Perm	0.18										
v/c Ratio	0.90		1.15	0.97		0.95	1.05		0.70	0.73	0.88
Uniform Delay, d1	58.2		37.5	69.9		44.1	60.0		51.8	52.3	69.1
Progression Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	14.2		71.6	51.7		4.1	47.6		1.8	7.1	28.4
Delay (s)	72.4		109.1	121.5		48.2	107.6		53.7	59.4	97.5
Level of Service	E		F	F		D	F		D	E	F
Approach Delay (s)			102.5			57.4			74.5		86.9
Approach LOS			F			E			E		F
Intersection Summary											
HCM Average Control Delay	84.1				HCM Level of Service				F		
HCM Volume to Capacity ratio	1.08										
Actuated Cycle Length (s)	150.0				Sum of lost time (s)				18.0		
Intersection Capacity Utilization	102.7%				ICU Level of Service				G		
Analysis Period (min)	15										
d Critical Lane Group											
c Critical Lane Group											

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
14: Del Mar Heights Road & Carmel Country Rd.

Year 2030 + Project PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑↑↓		↔	↑↑↓		↔	↑↑↓		↔	↑↑↓	
Volume (vph)	208	1756	643	85	825	120	523	300	175	200	250	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0		4.0	5.0		4.0	5.0	
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.91		1.00	0.95	
Flt	1.00	0.95		1.00	0.95		1.00	0.94		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	4881		3433	4989		3433	4805		1770	3311	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	4881		3433	4989		3433	4805		1770	3311	
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)	219	1848	677	89	868	126	551	316	104	211	263	199
RTOR Reduction (vph)	0	58	0	0	17	0	0	96	0	0	128	0
Lane Group Flow (vph)	219	2467	0	89	977	0	551	404	0	211	334	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	11.2	52.2		3.6	44.6		18.5	17.5		15.7	14.7	
Effective Green, g (s)	11.2	52.2		3.6	44.6		18.5	17.5		15.7	14.7	
Actuated g/C Ratio	0.10	0.49		0.03	0.42		0.17	0.15		0.15	0.14	
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	359	2381		116	2080		594	786		260	455	
v/s Ratio Prot	0.06	0.51		0.03	0.20		0.16	0.08		0.12	0.10	
v/s Ratio Perm												
v/C Ratio	0.61	1.04		0.77	0.47		0.93	0.51		0.81	0.73	
Uniform Delay, d1	45.8	27.4		51.3	22.6		43.6	40.9		44.2	44.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.1	28.5		25.6	0.2		20.7	0.6		17.2	6.1	
Delay (s)	48.9	55.9		76.9	22.8		64.3	41.4		61.5	50.4	
Level of Service	D	E		E	C		E	D		E	D	
Approach Delay (s)	55.4			27.2			53.4			53.8		
Approach LOS	E			C			D			D		
Intersection Summary												
HCM Average Control Delay	49.3											
HCM Volume to Capacity ratio	1.00											
Actuated Cycle Length (s)	107.0											
Intersection Capacity Utilization	94.5%											
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 Dr.

Year 2030 + Project PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑↑↓		↔	↑↑↓		↔	↑↑↓		↔	↑↑↓	
Volume (vph)	49	1799	176	8	974	23	101	14	45	99	8	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Flt	1.00	0.99		1.00	1.00		1.00	0.89		1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5017		1770	5067		1770	1651		1770	1627	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5017		1770	5067		1770	1651		1770	1627	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	54	1999	198	9	1082	26	112	16	50	43	9	48
RTOR Reduction (vph)	0	12	0	0	3	0	0	44	0	0	45	0
Lane Group Flow (vph)	54	2183	0	9	1105	0	112	22	0	43	12	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	3.3	33.1		0.7	30.5		5.8	7.4		2.2	3.8	
Effective Green, g (s)	3.3	33.1		0.7	30.5		5.8	7.4		2.2	3.8	
Actuated g/C Ratio	0.05	0.54		0.01	0.50		0.09	0.12		0.04	0.06	
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	95	2705		20	2517		167	199		63	101	
v/s Ratio Prot	0.03	0.44		0.01	0.22		0.06	0.01		0.02	0.01	
v/s Ratio Perm												
v/C Ratio	0.57	0.81		0.45	0.44		0.67	0.11		0.68	0.12	
Uniform Delay, d1	28.4	11.5		30.2	9.9		26.9	24.1		29.3	27.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.6	1.9		15.3	0.1		10.1	0.2		26.3	0.5	
Delay (s)	36.0	13.4		45.4	10.0		37.0	24.3		55.6	27.7	
Level of Service	D	B		D	B		D	C		E	C	
Approach Delay (s)	13.9			10.4			32.3			39.7		
Approach LOS	B			B			C			D		
Intersection Summary												
HCM Average Control Delay	14.4											
HCM Volume to Capacity ratio	0.72											
Actuated Cycle Length (s)	61.4											
Intersection Capacity Utilization	61.3%											
Analysis Period (min)	15											
c: Critical Lane Group												

Baseline

Synchro 7 - Report
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[illegible]

Movement	SE01	SE02	WB	NB	WB	NB
Lane Configurations	↑↑↑↑	↑↑↑↑	↑↑↑↑	↑↑↑↑	↑↑↑↑	↑↑
Volume (vph)	1351	300	753	610	170	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.91		1.00	0.91	0.97	1.00
FRT	0.97		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd Flow (prot)	4947		1770	5085	3433	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd Flow (perm)	4947		1770	5085	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj Flow (vph)	1501	333	170	678	189	456
RTOR Reduction (vph)	55	0	0	0	0	213
Lane Group Flow (vph)	1779	0	170	678	189	243
Turn Type	Prot		Perm			
Protected Phases	3		2			
Permitted Phases			2			
Actuated Green, G (s)	22.4		7.5	33.9	12.4	12.4
Effective Green, g (s)	22.4		7.5	33.9	12.4	12.4
Actuated g/C Ratio	0.41		0.14	0.62	0.23	0.23
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)	2041		244	3175	784	361
v/s Ratio Prot	0.36		0.10	0.13	0.06	
v/s Ratio Perm						c0.15
v/c Ratio	0.87		0.70	0.21	0.24	0.67
Uniform Delay, d1	14.6		22.3	4.4	17.1	19.1
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	4.4		8.4	0.0	0.2	4.9
Delay (s)	19.0		30.7	4.5	17.3	24.0
Level of Service	B		C	A	B	C
Approach Delay (s)	19.0			9.7	22.0	
Approach LOS	B			A	C	
Intersection Summary:						
HCM Average Control Delay	17.2		HCM Level of Service		B	
HCM Volume-to-Capacity ratio	0.78					
Actuated Cycle Length (s)	54.3		Sum of lost time (s)		12.0	
Intersection Capacity Utilization	64.8%		ICU Level of Service		C	
Analysis Period (min)	15					
c: Critical Lane Group						

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

Year 2030 + Project PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	255	51	51	228	37	301	184	1020	168	346	531	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0			4.0	4.0	
Lane Util. Factor	0.95	0.95		1.00	1.00	0.97	0.91			0.97	0.91	
Flt	1.00	0.96		1.00	0.85	1.00	0.98			1.00	0.98	
Flt Protected	0.95	0.98		0.96	1.00	0.95	1.00			0.95	1.00	
Satd. Flow (prot)	1681	1658		1786	1583	3433	4977			3433	4992	
Flt Permitted	0.95	0.98		0.96	1.00	0.95	1.00			0.95	1.00	
Satd. Flow (perm)	1681	1658		1786	1583	3433	4977			3433	4992	
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)	283	57	57	253	41	334	204	1133	187	384	590	82
RTOR Reduction (vph)	0	17	0	0	0	235	0	25	0	0	20	0
Lane Group Flow (vph)	201	179	0	204	199	204	1295	0	384	652	0	0
Turn Type	Split			Split		custom	Prot			Prot		
Protected Phases	2	2		6	6		3	6		7	7	
Permitted Phases						8						
Actuated Green, G (s)	14.9	14.9		16.8	25.2	9.3	25.2			11.8	27.7	
Effective Green, g (s)	14.9	14.9		16.8	25.2	9.3	25.2			11.8	27.7	
Actuated g/C Ratio	0.18	0.18		0.20	0.30	0.11	0.30			0.14	0.33	
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)	296	292		354	471	377	1481			478	1633	
v/s Ratio Prot	0.12	0.11		0.16		0.06	0.26			0.11	0.13	
v/s Ratio Perm					0.06							
v/c Ratio	0.68	0.61		0.83	0.21	0.54	0.87			0.80	0.40	
Uniform Delay, d1	32.7	32.2		32.6	22.3	35.7	28.3			35.3	22.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00			1.00	1.00	
Incremental Delay, d2	6.1	3.8		15.1	0.2	1.6	6.1			9.5	0.2	
Delay (s)	38.7	36.0		47.7	22.5	37.3	34.3			44.8	22.2	
Level of Service	D	D		D	C	D	C			D	C	
Approach Delay (s)		37.4			34.3		34.7				30.4	
Approach LOS		D			C		C				C	
Intersection Summary												
HCM Average Control Delay	33.7			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.80											
Actuated Cycle Length (s)	84.7			Sum of lost time (s)			16.0					
Intersection Capacity Utilization	84.6%			ICU Level of Service			C					
Analysis Period (min)	15											
c : Critical Lane Group												

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

Year 2030 + Project PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR									
Lane Configurations																					
Volume (vph)	275	130	190	30	80	120	150	898	10	190	636	134									
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900									
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	5.0		4.0	5.0	5.0									
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00									
Flt	1.00	1.00	0.85	1.00	0.91		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	1.00									
Satd. Flow (prot)	1770	1863	1583	1770	1695		1770	3532		1770	3539	1583									
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00									
Satd. Flow (perm)	1770	1863	1583	1770	1695		1770	3532		1770	3539	1583									
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90									
Adj. Flow (vph)	306	144	211	33	89	133	167	776	11	211	707	149									
RTOR Reduction (vph)	0	0	141	0	61	0	0	1	0	0	0	107									
Lane Group Flow (vph)	306	144	71	33	161	0	167	786	0	211	707	42									
Turn Type	Prot		Perm	Prot			Prot			Prot		Perm									
Protected Phases	7	4		3	6		5	2		1	6										
Permitted Phases			4									6									
Actuated Green, G (s)	17.4	26.2	26.2	3.3	14.1		11.1	22.4		12.5	23.8	23.8									
Effective Green, g (s)	17.4	26.2	26.2	3.3	14.1		11.1	22.4		12.5	23.8	23.8									
Actuated g/C Ratio	0.21	0.38	0.33	0.04	0.17		0.13	0.27		0.15	0.28	0.28									
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	5.0		4.0	5.0	5.0									
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0									
Lane Grp Cap (vph)	365	622	529	69	283		233	937		262	998	448									
v/s Ratio Prot	0.17	0.08		0.02	0.10		0.09	0.22		0.12	0.20										
v/s Ratio Perm			0.04									0.03									
v/c Ratio	0.84	0.23	0.13	0.48	0.57		0.72	0.84		0.81	0.71	0.69									
Uniform Delay, d1	32.2	20.3	19.6	39.7	32.4		35.1	29.3		34.8	27.2	22.3									
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00									
Incremental Delay, d2	15.4	0.2	0.1	5.1	2.6		10.0	6.7		16.3	2.3	0.1									
Delay (s)	47.6	20.5	19.7	44.9	35.0		45.2	36.0		51.1	29.5	22.4									
Level of Service	D	C	B	D	C		D	D		D	C	C									
Approach Delay (s)		32.7			36.3			37.6			32.8										
Approach LOS		C			D			D			C										
Intersection Summary																					
HCM Average Control Delay	34.6			HCM Level of Service			C														
HCM Volume to Capacity ratio	0.78																				
Actuated Cycle Length (s)	84.4			Sum of lost time (s)			18.0														
Intersection Capacity Utilization	71.9%			ICU Level of Service			C														
Analysis Period (min)	15																				
Critical Lane Group																					

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

Year 2030 + Project PM
12/1/2010

Movement	SE	SW	NS	NE	SE	SW	NS	NE	SE	SW	NS	NE
Lane Configurations	2	2	1	1	2	2	1	1	2	2	1	1
Volume (vph)	250	20	15	210	10	139	35	1410	240	188	801	50
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	0.91	1.00	0.91	1.00	0.91	1.00
Flt	1.00	0.93	1.00	1.00	0.85	1.00	0.98	1.00	0.98	1.00	0.98	1.00
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	1741	1770	1863	1583	1770	1770	1770	1770	1770	1770	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	1741	1770	1863	1583	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)	278	22	17	233	11	154	39	1567	267	209	890	56
RTOR Reduction (vph)	0	16	0	0	138	0	24	0	0	0	0	0
Lane Group Flow (vph)	278	23	0	233	11	154	39	1610	0	209	940	0
Turn Type	Prot	Prot	Prot	Perm	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	6	6	6	2	7	7	7	7	7	7	7	7
Permitted Phases	2	2	2	2	2	2	2	2	2	2	2	2
Actuated Green, G (s)	14.0	5.4	17.4	8.8	8.8	4.8	30.7	12.9	36.8	14.4	27.1	27.1
Effective Green, g (s)	14.0	5.4	17.4	8.8	8.8	4.8	30.7	12.9	36.8	14.4	27.1	27.1
Actuated g/C Ratio	0.17	0.07	0.21	0.11	0.11	0.06	0.37	0.16	0.47	0.23	0.44	0.44
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)	301	114	374	199	169	103	1853	277	2373	415	822	699
v/s Ratio Prot	c0.16	c0.01	0.13	0.01	0.02	c0.36	c0.12	0.19	0.15	0.08	0.13	0.13
v/s Ratio Perm												
v/c Ratio	0.92	0.20	0.62	0.06	0.10	0.38	0.98	0.76	0.40	0.79	0.33	0.06
Uniform Delay, d1	33.7	36.5	29.5	33.1	33.2	37.4	25.5	33.2	14.2	22.1	11.2	9.9
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	32.4	0.9	3.2	0.1	0.3	2.3	15.6	11.1	0.1	9.4	0.2	0.0
Delay (s)	66.1	37.3	32.7	33.2	33.5	39.7	41.1	44.3	14.3	31.5	11.4	9.9
Level of Service	E	D	C	C	C	D	D	D	B	C	B	A
Approach Delay (s)	62.6		33.0		41.0		19.7			20.6		30.4
Approach LOS	E		C		D		B			C		C
Intersection Summary												
HCM Average Control Delay	35.4				HCM Level of Service				D			
HCM Volume to Capacity ratio	0.86				Sum of lost time (s)				20.0			
Actuated Cycle Length (s)	82.4				ICU Level of Service				D			
Intersection Capacity Utilization	73.5%				Analysis Period (min)				15			
Critical Lane Group												

Baseline

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

Year 2030 + Project PM
12/1/2010

Movement	SE	SW	NS	NE	SE	SW	NS	NE	SE	SW	NS	NE
Lane Configurations	↖	↑	↗	↖	↖	↑	↗	↑	↖	↑	↗	↑
Volume (vph)	293	244	89	23	101	15	96	372	40	26	359	276
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	1.00	1.00	0.85	0.99	1.00	0.99	1.00	0.99	1.00	0.99	1.00	0.93
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	1863	1583	1820	1770	1770	1770	1770	1770	1770	1770	1770
Flt Permitted	0.95	1.00	1.00	0.89	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	1863	1583	1642	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)	326	271	99	26	112	17	107	413	44	29	399	307
RTOR Reduction (vph)	0	0	55	0	7	0	0	10	0	0	192	0
Lane Group Flow (vph)	326	271	144	0	148	0	107	447	0	29	514	0
Turn Type	Prot	Perm	Perm	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	8	6	5	2	6	5	2	6	5	2
Permitted Phases	4	8	8	7	5	20.8	1.5	16.8	1.5	16.8	1.5	16.8
Actuated Green, G (s)	14.4	27.1	27.1	8.7	5.5	20.8	1.5	16.8	1.5	16.8	1.5	16.8
Effective Green, g (s)	14.4	27.1	27.1	8.7	5.5	20.8	1.5	16.8	1.5	16.8	1.5	16.8
Actuated g/C Ratio	0.23	0.44	0.44	0.14	0.09	0.34	0.02	0.27	0.02	0.27	0.02	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	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)	415	822	699	233	159	1182	43	905	159	1182	43	905
v/s Ratio Prot	c0.18	0.15	0.06	0.08	c0.08	c0.13	0.02	c0.16	0.02	c0.16	0.02	c0.16
v/s Ratio Perm			0.03	c0.09								
v/c Ratio	0.79	0.33	0.06	0.64	0.67	0.38	0.67	0.57	0.67	0.57	0.67	0.57
Uniform Delay, d1	22.1	11.2	9.9	24.9	27.1	15.4	29.7	19.2	27.1	15.4	29.7	19.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.4	0.2	0.0	5.6	10.7	0.2	34.5	0.8	10.7	0.2	34.5	0.8
Delay (s)	31.5	11.4	9.9	30.4	37.8	15.6	64.2	20.0	37.8	15.6	64.2	20.0
Level of Service	C	B	A	C	D	B	E	B	D	B	E	B
Approach Delay (s)	20.6		30.4		19.8		21.7		20.6		21.7	
Approach LOS	C		C		B		C		C		C	
Intersection Summary												
HCM Average Control Delay	21.5				HCM Level of Service				C			
HCM Volume to Capacity ratio	0.70				Sum of lost time (s)				20.0			
Actuated Cycle Length (s)	61.4				ICU Level of Service				B			
Intersection Capacity Utilization	60.3%				Analysis Period (min)				15			
Analysis Period (min)	15				Critical Lane Group				6 - Critical Lane Group			

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
22: High Bluff Drive & El Camino Real

Year 2030 + Project PM
12/1/2010

Movement	EBL	EBR	EBR2	NWL	NWL2	NWR	NEL	NEL2	NER	SWL	SWL2	SWR
Lane Configurations	T	T	T	T	TT		TT	TTT		T	TTT	
Volume (vph)	80	300	490	110	180	179	277	1401	100	198	903	50
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	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97		0.97	0.91		1.00	0.91	
Flt	1.00	0.85	0.85	1.00	0.93		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1583	1583	1770	3262		3433	5035		1770	5045	
Flt Permitted	0.95	1.00	1.00	0.95	0.98		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1583	1583	1770	3262		3433	5035		1770	5045	
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)	89	333	544	122	200	199	308	1557	111	220	1003	55
RTOR Reduction (vph)	0	0	244	0	180	0	0	10	0	0	7	0
Lane Group Flow (vph)	09	333	300	122	219	0	308	1658	0	220	1052	0
Turn Type		Perm	Perm	Split			Prot			Prot		
Protected Phases	2			6	6		3	8		7	4	
Permitted Phases		2	2									
Actuated Green, G (s)	18.4	18.4	18.4	7.4	7.4		11.4	26.6		11.0	26.2	
Effective Green, g (s)	18.4	18.4	18.4	7.4	7.4		11.4	26.6		11.0	26.2	
Actuated g/C Ratio	0.23	0.23	0.23	0.09	0.09		0.14	0.34		0.14	0.33	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	410	367	367	165	304		493	1687		245	1665	
v/s Ratio Prot	0.05			0.07	0.07		0.09	0.33		0.12	0.21	
v/s Ratio Perm		0.21	0.19									
v/c Ratio	0.22	0.91	0.92	0.74	0.72		0.62	0.98		0.90	0.63	
Uniform Delay, d1	24.7	29.7	28.9	35.1	35.0		32.0	26.2		33.6	22.5	
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	25.2	13.3	15.9	7.9		2.5	17.9		31.6	0.8	
Delay (s)	24.9	54.8	42.2	50.9	42.9		34.5	44.0		65.2	23.3	
Level of Service	C	D	D	D	D		C	D		E	C	
Approach Delay (s)	45.0				44.8			42.5			40.5	
Approach LOS	D				D			D			C	
Intersection Summary												
HCM Average Control Delay			40.0		HCM Level of Service			D				
HCM Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			79.4		Sum of lost time (s)			12.0				
Intersection Capacity Utilization			68.8%		ICU Level of Service			C				
Analysis Period (min)			15									
c Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Unsignalized Intersection Capacity Analysis
23: High Bluff Drive & Carmel Vista Road

Year 2030 + Project PM
12/1/2010

Movement	SE	SE2	SE2	NW	NW2	NWR	NEL	NEL2	NE	SW	SW2	SWR
Lane Configurations	4			4			4			4		
Sign Control	Stop			Stop			Stop			Stop		
Volume (vph)	245	30	182	5	13	5	132	28	9	2	8	127
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)	272	33	202	6	14	6	147	31	10	2	9	141
Direction Lane	SE	SE2	SE2	NW	NW2	NWR	NEL	NEL2	NE	SW	SW2	SWR
Volume Total (vph)	306	202	26	188	152							
Volume Left (vph)	272	0	6	147	2							
Volume Right (vph)	0	202	6	10	141							
Head (s)	0.48	0.67	0.05	0.16	0.52							
Departure Headway (s)	5.9	4.8	5.6	5.6	5.0							
Degree Utilization	0.50	0.27	0.04	0.29	0.21							
Capacity (veh/h)	585	724	582	611	670							
Control Delay (s)	13.7	8.4	8.8	10.8	9.3							
Approach Delay (s)	11.5		8.8	10.8	9.3							
Approach LOS	B		A	D	A							
Intersection Summary												
Delay	10.9											
HCM Level of Service	B											
Intersection Capacity Utilization	49.5%			ICU Level of Service			A					
Analysis Period (min)	15											

Baseline

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

Year 2030 + Project PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4	7		4		7	4	7		4	7
Volume (vph)	117	50	71	56	26	9	109	784	135	6	375	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Flt	1.00	0.85		0.99	1.00		0.98	0.98		1.00	0.97	
Flt Protected	0.97	1.00		0.97	0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1800	1583		1783	1770	3460		1770	3460	1770	3443	
Flt Permitted	0.97	1.00		0.97	0.95	1.00		1.00		0.95	1.00	
Satd. Flow (perm)	1800	1583		1783	1770	3460		1770	3460	1770	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)	130	56	79	62	29	10	121	849	150	7	417	92
RTOR Reduction (vph)	0	0	67	0	5	0	0	15	0	0	20	0
Lane Group Flow (vph)	0	186	12	0	96	0	121	984	0	7	489	0
Turn Type	Split		Prot	Split		Prot		Prot		Prot		Prot
Protected Phases	4	4	4	8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	8.8	8.8		6.7	7.0		7.0	27.7		0.7	21.4	
Effective Green, g (s)	8.8	8.8		6.7	7.0		7.0	27.7		0.7	21.4	
Actuated g/C Ratio	0.15	0.15		0.11	0.12		0.12	0.46		0.01	0.36	
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)	264	233		199	207		1600			21	1230	
v/s Ratio Prot	0.10	0.01		0.05	0.07		0.07	0.28		0.00	0.14	
v/s Ratio Perm												
g/C Ratio	0.70	0.05		0.46	0.58		0.82			0.33	0.40	
Uniform Delay, d1	24.3	22.0		25.0	25.1		12.1			29.4	14.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00			1.00	1.00	
Incremental Delay, d2	8.3	0.1		1.8	4.2		0.7			9.1	0.2	
Delay (s)	32.6	22.0		26.8	29.2		12.8			38.5	14.6	
Level of Service	C	C		C	C		B			D	B	
Approach Delay (s)	29.4			26.8			14.6			16.0		
Approach LOS	C			C			B			B		
Intersection Summary												
HCM Average Control Delay	17.3				HCM Level of Service				B			
HCM Volume to Capacity ratio	0.59				Sum of lost time (s)				12.0			
Actuated Cycle Length (s)	59.9				ICU Level of Service				A			
Intersection Capacity Utilization	50.4%				Analysis Period (min)				15			
c : Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
25: Carmel Valley Road & I-5 SB Ramps

Year 2030 + Project PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑			↑↑			↑↑			↑↑		
Volume (vph)	0	865	450	650	940	0	0	0	0	350	1	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0		4.0		4.0		4.0		5.0	
Lane Util. Factor	0.95		0.97		0.95		0.95		0.91		0.95	
Flt	0.95		1.00		1.00		1.00		0.99		0.85	
Flt Protected	1.00		0.95		1.00		0.95		0.96		1.00	
Satd. Flow (prot)	3358		3433		3539		1681		1598		1504	
Flt Permitted	1.00		0.95		1.00		0.95		0.96		1.00	
Satd. Flow (perm)	3358		3433		3539		1681		1598		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	961	500	722	1044	0	0	0	0	389	1	200
RTOR Reduction (vph)	0	74	0	0	0	0	0	0	0	0	4	122
Lane Group Flow (vph)	0	1387	0	722	1044	0	0	0	0	206	200	58
Turn Type			Prot						Prot		Prot	
Protected Phases	4		3		8		1		6		6	
Permitted Phases												
Actuated Green, G (s)	37.0		20.7		62.7		19.0		19.0		18.0	
Effective Green, g (s)	37.0		20.7		62.7		19.0		19.0		18.0	
Actuated g/C Ratio	0.41		0.23		0.70		0.21		0.21		0.20	
Clearance Time (s)	5.0		4.0		4.0		4.0		5.0		5.0	
Vehicle Extension (s)	3.0		3.0		3.0		3.0		3.0		3.0	
Lane Grp Cap (vph)	1385		792		2474		356		338		302	
v/s Ratio Prot	0.41		0.21		0.29		0.12		0.13		0.04	
v/s Ratio Perm	1.00		0.91		0.42		0.58		0.59		0.19	
Uniform Delay, d1	26.4		33.6		5.8		31.8		31.9		29.8	
Progression Factor	1.00		1.00		1.00		1.00		1.00		1.00	
Incremental Delay, d2	24.5		14.7		0.1		2.3		2.8		0.3	
Delay (s)	50.9		48.3		5.9		34.0		34.6		30.1	
Level of Service	D		D		A		C		C		C	
Approach Delay (s)	50.9		23.2				0.0		33.0			
Approach LOS	D		C				A		C			
Intersection Summary												
HCM Average Control Delay	35.3		HCM Level of Service		D							
HCM Volume to Capacity ratio	0.89		Sum of lost time (s)		14.0							
Actuated Cycle Length (s)	89.7		ICU Level of Service		D							
Intersection Capacity Utilization	80.1%		Analysis Period (min)		15							
c : Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
26: Carmel Valley Road & I-5 NB Ramps

Year 2030 + Project PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	HT	HT			HT	HT	HT	HT	HT			
Volume (vph)	130	1114	0	0	694	420	580	10	850	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			
Lane Util. Factor	0.97	0.95			0.95	1.00	0.95	0.91	0.95			
Flt	1.00	1.00			1.00	0.85	1.00	0.88	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (prot)	3433	3539			3539	1583	1681	1477	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (perm)	3433	3539			3539	1583	1681	1477	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)	144	1238	0	0	771	467	644	11	944	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	327	0	12	12	0	0	0
Lane Group Flow (vph)	144	1238	0	0	771	140	654	514	507	0	0	0
Turn Type	Prot				Perm	Prot		Perm				
Protected Phases	7	4			8	7	5	7	5			
Permitted Phases					8			2				
Actuated Green, G (s)	3.5	25.4			17.9	17.9	26.5	26.5	26.5			
Effective Green, g (s)	3.5	25.4			17.9	17.9	26.5	26.5	26.5			
Actuated g/C Ratio	0.06	0.42			0.30	0.30	0.44	0.44	0.44			
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)	201	1501			1058	473	744	653	665			
v/s Ratio Prot	0.04	c0.35			0.22	0.73	0.33	c0.35				
v/s Ratio Perm					0.09			0.34				
v/c Ratio	0.72	0.82			0.73	0.30	0.74	0.79	0.76			
Uniform Delay, d1	27.7	15.3			18.8	16.1	13.9	14.3	14.1			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	11.5	3.8			2.5	0.4	4.1	6.3	5.2			
Delay (s)	39.2	19.1			21.4	16.5	17.9	20.5	19.2			
Level of Service	D	B			C	B	B	C	B			
Approach Delay (s)		21.2			19.5		19.2		19.0			
Approach LOS		C			B		B		A			
Intersection Summary												
HCM Average Control Delay	20.0				HCM Level of Service				B			
HCM Volume to Capacity ratio	0.81				Sum of lost time (s)				8.0			
Actuated Cycle Length (s)	59.9				ICU Level of Service				D			
Intersection Capacity Utilization	80.1%				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

Year 2030 + Project PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	T	T	T	T	T	T	T	T+T	T	T	T+T	T
Volume (vph)	110	80	80	520	80	287	110	1204	240	281	1632	100
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	1.00	0.91		1.00	0.91	
Flt	1.00	0.99	0.85	1.00	0.99	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	0.99	1.00	0.95	0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1681	1665	1504	1681	1619	1504	1770	4958		1770	5041	
Flt Permitted	0.95	0.90	1.00	0.95	0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1681	1515	1504	1681	1619	1504	1770	4958		1770	5041	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	122	89	89	576	89	319	122	1336	267	312	1813	111
RTOR Reduction (vph)	0	3	51	0	4	42	0	33	0	0	7	0
Lane Group Flow (vph)	109	108	29	347	348	245	122	1572	0	312	1917	0
Turn Type	Prot			Perm	Split		Perm	Prot			Prot	
Protected Phases	7	4		8	8		15	21		6		
Permitted Phases				4			8				6	
Actuated Green, G (s)	7.1	32.3	32.3	21.2	21.2	21.2	7.6	49.7		38.1	38.1	
Effective Green, g (s)	7.1	32.3	32.3	21.2	21.2	21.2	7.6	49.7		38.1	38.1	
Actuated g/C Ratio	0.08	0.36	0.36	0.24	0.24	0.24	0.08	0.55		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	
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)	133	556	540	396	381	354	149	2738		749	2134	
v/s Ratio Prot	c0.06	0.02		0.21	c0.22		c0.07	0.32		0.18		
v/s Ratio Perm		0.05	0.02				0.16			c0.38		
v/c Ratio	0.82	0.20	0.05	0.88	0.91	0.69	0.82	0.57		0.42	0.90	
Uniform Delay, d1	40.8	19.9	18.9	33.1	33.5	31.4	40.5	13.2		18.2	24.1	
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	31.0	0.2	0.0	19.0	25.6	5.7	28.2	0.3		0.4	5.5	
Delay (s)	71.8	20.1	18.9	52.1	59.3	37.2	68.7	13.5		18.5	29.6	
Level of Service	E	C	B	D	E	D	E	B		B	C	
Approach Delay (s)		38.5			50.3		17.4				29.1	
Approach LOS		D			D		B				C	
Intersection Summary												
HCM Average Control Delay	29.3				HCM Level of Service				C			
HCM Volume to Capacity ratio	0.89				Sum of lost time (s)				16.0			
Actuated Cycle Length (s)	90.0				ICU Level of Service				E			
Intersection Capacity Utilization	82.9%				Analysis Period (min)				15			
Phase conflict between lane groups												
c - Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
28: Carmel Valley Road & El Camino Real

Year 2030 + Project PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	GBR
Lane Configurations				↑↑	↑↑↑	↑	↑↑	↑↑		↑↑↑	↑	↑
Volume (vph)	0	0	0	220	100	200	500	1289	0	0	1478	544
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
Lane Util. Factor				0.97	0.91	1.00	0.97	0.95			0.86	0.86
Frpl, ped/bikes				1.00	1.00	1.00	1.00	1.00			0.98	0.89
Flpl, ped/bikes				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Flt				1.00	1.00	0.85	1.00	1.00			0.99	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	5085	1583	3433	3539			4676	5940
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	5085	1583	3433	3539			4676	5940
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	244	111	222	556	1432	0	0	1642	604
RTOR Reduction (vph)	0	0	0	0	0	88	0	0	0	0	7	125
Lane Group Flow (vph)	0	0	0	244	111	154	556	1432	0	0	1738	576
Confl. Peds. (#/hr)												200
Turn Type				Prot		Perm	Prot		Perm			Perm
Protected Phases				3	8		5	2			6	
Permitted Phases						8						6
Actuated Green, G (s)				12.8	12.8	12.8	16.4	64.1			43.7	43.7
Effective Green, g (s)				12.8	12.8	12.8	16.4	64.1			43.7	43.7
Actuated g/C Ratio				0.15	0.15	0.15	0.19	0.76			0.51	0.51
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)				518	757	239	669	2672			2407	404
v/s Ratio Prot				0.07	0.02		0.16	0.40			0.37	
v/s Ratio Perm						0.10						0.20
v/c Ratio				0.47	0.14	0.64	0.84	0.54			0.72	0.78
Uniform Delay, d1				33.0	31.3	33.9	33.0	4.3			15.9	16.7
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2				0.7	0.1	5.9	9.1	0.2			1.3	7.7
Delay (s)				33.6	31.4	39.8	42.1	4.5			17.0	24.4
Level of Service				C	C	D	D	A			B	B
Approach Delay (s)				0.0		35.6		15.0			18.6	
Approach LOS				A		D		B			B	
Intersection Summary												
HCM Average Control Delay				19.2								
HCM Volume to Capacity ratio				0.77								
Actuated Cycle Length (s)				84.9								
Intersection Capacity Utilization				118.5%								
Analysis Period (min)				15								
dr? Delayed Right Lane: Recode with 1 though lane as a right lane												
c Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
29: SR-56 EB on ramp & El Camino Real

Year 2030 + Project PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	GBR
Lane Configurations				↑↑	↑↑↑	↑	↑↑	↑↑		↑↑↑	↑	↑
Volume (vph)	740	1207	200	0	0	0	0	945	1000	384	1314	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	0.91	0.86	0.91					0.86			1.00	0.91
Flt	1.00	1.00	0.85					0.82			1.00	1.00
Flt Protected	0.95	1.00	1.00					1.00			0.95	1.00
Satd. Flow (prot)	1610	3184	1441					5914			1770	5085
Flt Permitted	0.95	1.00	1.00					1.00			0.95	1.00
Satd. Flow (perm)	1610	3184	1441					5914			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
Adj. Flow (vph)	822	1341	222	0	0	0	0	1050	1111	427	1460	0
RTOR Reduction (vph)	0	1	18	0	0	0	0	19	0	0	0	0
Lane Group Flow (vph)	707	1477	182	0	0	0	0	2142	0	0	1460	0
Turn Type	Prot		Perm							Prot		
Protected Phases	7	4						2		1		6
Permitted Phases			4									
Actuated Green, G (s)	55.0	55.0	55.0					45.0		28.0		77.0
Effective Green, g (s)	55.0	55.0	55.0					45.0		28.0		77.0
Actuated g/C Ratio	0.39	0.39	0.39					0.32		0.20		0.55
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)	633	1251	566					1901		354		2797
v/s Ratio Prot	0.44	0.46						0.36		0.24		0.29
v/s Ratio Perm			0.13									
v/c Ratio	1.12	1.18	0.32					2.07		1.21		0.52
Uniform Delay, d1	42.5	42.5	29.5					47.5		56.0		19.9
Progression Factor	1.00	1.00	1.00					1.00		1.00		1.00
Incremental Delay, d2	72.4	89.9	0.3					64.5		116.5		0.2
Delay (s)	114.9	132.4	29.9					112.0		172.5		20.1
Level of Service	F	F	C					F		F		C
Approach Delay (s)		118.6				0.0		112.0		54.6		
Approach LOS		F				A		F		D		
Intersection Summary												
HCM Average Control Delay		97.6										
HCM Volume to Capacity ratio		1.17										
Actuated Cycle Length (s)		140.0						12.0				
Intersection Capacity Utilization		118.5%										
Analysis Period (min)		15										
dr? Delayed Right Lane: Recode with 1 though lane as a right lane												
c Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
30: Valley Centre Drive & Carmel View Road

Year 2030 + Project PM
12/1/2010

Movement	EBE	EBT	WBU	WBT	WBR	SBE	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	75	441	0	410	107	34	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Flt	1.00	1.00	0.97	1.00	0.85	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	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)	83	490	0	456	119	38	58
RTOR Reduction (vph)	0	0	0	46	0	0	52
Lane Group Flow (vph)	83	490	0	529	0	38	0
Turn Type	Prot	Prot	Prot	Perm	Perm	Perm	Perm
Protected Phases	7	4	3	6	6	6	6
Permitted Phases				6	6	6	6
Actuated Green, G (s)	2.1	15.1	9.0	2.9	2.9	2.9	2.9
Effective Green, g (s)	2.1	15.1	9.0	2.9	2.9	2.9	2.9
Actuated g/C Ratio	0.08	0.58	0.35	0.11	0.11	0.11	0.11
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)	143	2055	1187	197	177	197	177
v/s Ratio Prot	0.05	0.14	0.15	0.02	0.02	0.02	0.02
v/s Ratio Perm				0.00	0.00	0.00	0.00
v/c Ratio	0.58	0.24	0.45	0.19	0.04	0.19	0.04
Uniform Delay, d1	11.5	2.7	6.6	10.5	10.3	10.5	10.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.9	0.1	0.3	0.5	0.1	0.5	0.1
Delay (s)	17.4	2.7	6.8	11.0	10.4	11.0	10.4
Level of Service	B	A	A	B	B	B	B
Approach Delay (s)	4.8	16.8	10.5	10.5	10.5	10.5	10.5
Approach LOS	A	A	B	B	B	B	B
Intersection Summary							
HCM Average Control Delay	6.2			HCM Level of Service		A	
HCM Volume to Capacity ratio	0.41						
Actuated Cycle Length (s)	26.0			Sum of lost time (s)		12.0	
Intersection Capacity Utilization	92.2%			ICU Level of Service		A	
Analysis Period (min)	15						
c Critical Lane Group							

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
31: Valley Centre Drive & Carmel Creek Road

Year 2030 + Project PM
12/1/2010

Movement	EBE	EBT	EBRT	WBT	WBR	SBE	SBR	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	112	300	330	160	273	86	400	1003
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	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00
Flt	1.00	0.85	0.85	1.00	0.96	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1770	2787	1583	1770	1796	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (perm)	1770	2787	1583	1770	1796	1770	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	124	333	367	167	303	96	444	1114
RTOR Reduction (vph)	0	0	305	0	10	0	0	155
Lane Group Flow (vph)	124	333	62	167	389	0	444	1114
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Perm	Perm
Protected Phases	7	4	4	7	8	5	2	6
Permitted Phases							2	6
Actuated Green, G (s)	8.4	18.5	18.5	13.2	23.3	30.9	37.3	31.4
Effective Green, g (s)	8.4	18.5	18.5	13.2	23.3	30.9	37.3	31.4
Actuated g/C Ratio	0.08	0.17	0.17	0.12	0.21	0.28	0.34	0.29
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)	135	469	266	212	380	497	1200	537
v/s Ratio Prot	0.07	0.09	0.09	0.09	0.22	0.25	0.31	0.22
v/s Ratio Perm		0.12	0.04				0.14	0.05
v/c Ratio	0.92	0.71	0.23	0.79	1.02	0.88	0.93	0.41
Uniform Delay, d1	50.5	43.2	39.6	47.0	43.4	38.0	35.1	28.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	52.8	5.0	0.4	17.4	52.2	18.1	12.3	0.5
Delay (s)	103.2	48.2	40.1	64.4	95.6	56.1	47.3	28.5
Level of Service	F	D	D	E	F	E	D	C
Approach Delay (s)					86.3		45.7	50.9
Approach LOS					F		D	D
Intersection Summary								
HCM Average Control Delay	53.3				HCM Level of Service		D	
HCM Volume to Capacity ratio	0.90							
Actuated Cycle Length (s)	110.0				Sum of lost time (s)		8.0	
Intersection Capacity Utilization	86.5%				ICU Level of Service		E	
Analysis Period (min)	15							
c Critical Lane Group								

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
32: SR-56 EB Ramps & Carmel Creek Road

Year 2030 + Project PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SWR
Lane Configurations	1	4	1				1	1		1	1	
Volume (vph)	1110	0	111	0	0	0	105	105	105	610	109	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0				4.0			4.0	4.0	
Lane Util. Factor	0.95	0.95	1.00				0.95			0.97	0.95	
Flt	1.00	1.00	0.85				0.92			1.00	1.00	
Flt Protected	0.95	0.95	1.00				1.00			0.95	1.00	
Satd. Flow (prot)	1681	1681	1583				3274			3433	3539	
Flt Permitted	0.95	0.95	1.00				1.00			0.95	1.00	
Satd. Flow (perm)	1681	1681	1583				3274			3433	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)	1233	0	123	0	0	0	117	117	117	678	121	0
RTOR Reduction (vph)	0	0	65	0	0	0	104	0	0	0	0	0
Lane Group Flow (vph)	616	617	58	0	0	0	130	0	0	678	121	0
Turn Type	Prot		Perm				Prot			Prot		
Protected Phases	3	4					2			1	6	
Permitted Phases			4									
Actuated Green, G (s)	33.1	33.1	33.1				8.1			17.3	29.4	
Effective Green, g (s)	33.1	33.1	33.1				8.1			17.3	29.4	
Actuated g/C Ratio	0.47	0.47	0.47				0.11			0.25	0.42	
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)	789	789	743				376			842	1476	
v/s Ratio Prot	0.37	0.37					0.04			0.20	0.03	
v/s Ratio Perm			0.04									
v/c Ratio	0.78	0.78	0.08				0.36			0.81	0.08	
Uniform Delay, d1	15.7	15.7	10.3				28.8			25.0	12.4	
Progression Factor	1.00	1.00	1.00				1.00			1.00	1.00	
Incremental Delay, d2	5.0	5.1	0.0				0.6			5.6	0.0	
Delay (s)	20.7	20.7	10.3				29.3			30.7	12.4	
Level of Service	C	C	B				C			C	B	
Approach Delay (s)		19.8		0.0			29.3			27.9		
Approach LOS		B		A			C			C		
Intersection Summary												
HCM Average Control Delay			23.4									
HCM Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			70.5									
Intersection Capacity Utilization			64.4%									
Analysis Period (min)			15									
c Critical Lane Group												

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

Year 2030 + Project PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SWR
Lane Configurations	1	1	1				1	1		1	1	
Volume (vph)	219	472	51				103	320	687	44	220	103
Ideal Flow (vphpl)	1900	1900	1900				1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0				4.0			4.0	4.0	
Lane Util. Factor	1.00	0.95					1.00	0.95		1.00	1.00	
Flt	1.00	0.99					1.00	0.90		1.00	0.95	
Flt Protected	0.95	1.00					0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3487					1770	3177		1770	1774	
Flt Permitted	0.95	1.00					0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3487					1770	3177		1770	1774	
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)	242	524	57				114	356	763	49	244	114
RTOR Reduction (vph)	0	11	0				0	262	0	0	22	0
Lane Group Flow (vph)	242	570	0				114	857	0	49	336	0
Turn Type	Prot						Prot			Prot		
Protected Phases	1	6					5	2		7	4	
Permitted Phases												
Actuated Green, G (s)	11.8	27.9					7.7	23.8		3.7	17.5	
Effective Green, g (s)	11.8	27.9					7.7	23.8		3.7	17.5	
Actuated g/C Ratio	0.16	0.37					0.10	0.31		0.05	0.23	
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)	276	1285					180	999		87	410	
v/s Ratio Prot	0.14	0.16					0.06	0.27		0.03	0.19	
v/s Ratio Perm												
v/c Ratio	0.89	0.44					0.63	0.10		0.56	0.82	
Uniform Delay, d1	31.2	18.0					32.6	24.4		35.2	27.6	
Progression Factor	1.00	1.00					1.00	1.00		1.00	1.00	
Incremental Delay, d2	25.3	0.2					7.1	7.4		8.1	12.0	
Delay (s)	56.5	18.3					39.7	31.8		43.3	39.6	
Level of Service	E	B					D	C		D	D	
Approach Delay (s)		29.5						32.5			40.1	
Approach LOS		C						C			D	
Intersection Summary												
HCM Average Control Delay								34.1				
HCM Volume to Capacity ratio								0.89				
Actuated Cycle Length (s)								75.7				
Intersection Capacity Utilization								80.8%				
Analysis Period (min)								15				
dr Defacto Right Lane: Recode with through lane as a right lane												
c Critical Lane Group												

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

Year 2030 + Project PM
12/1/2010

Movement	WLB	WBR	SE	SE	NWB	NWB	SWB	SWB
Lane Configurations			↑↑	↑↑	↑↑		↑↑	↑↑
Volume (vph)	0	0	390	622	810	0	270	275
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	5.0	4.0		4.0	4.0
Lane Util. Factor			0.97	0.95	0.95		1.00	0.97
Flt			1.00	1.00	1.00		0.85	1.00
Flt Protected			0.95	1.00	1.00		1.00	0.95
Satd. Flow (prot)			3433	3539	3539		1583	3433
Flt Permitted			0.95	1.00	1.00		1.00	0.95
Satd. Flow (perm)			3433	3539	3539		1583	3433
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	433	691	900	0	300	167
RTOR Reduction (vph)	0	0	0	0	0	0	186	0
Lane Group Flow (vph)	0	0	433	691	900	0	114	167
Turn Type			Prot				Perm	Perm
Protected Phases			5	2	6		4	
Permitted Phases							6	4
Actuated Green, G (s)			10.3	32.2	18.9		18.9	8.5
Effective Green, g (s)			10.3	32.2	18.9		18.9	8.5
Actuated g/C Ratio			0.21	0.65	0.38		0.38	0.17
Clearance Time (s)			4.0	5.0	4.0		4.0	4.0
Vehicle Extension (s)			3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)			711	2293	1346		602	587
v/s Ratio Prot			0.13	0.20	0.25		0.05	
v/s Ratio Perm							0.07	0.03
v/c Ratio			0.61	0.30	0.67		0.19	0.19
Uniform Delay, d1			17.9	3.8	12.8		10.3	18.0
Progression Factor			1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2			1.5	0.1	1.3		0.2	0.3
Delay (s)			19.4	3.9	14.1		10.4	18.0
Level of Service			B	A	B		B	B
Approach Delay (s)	0.0		9.9	13.2			16.1	
Approach LOS	A		A	B			B	
Intersection Summary								
HCM Average Control Delay	12.7				HCM Level of Service			
HCM Volume to Capacity ratio	0.57				B			
Actuated Cycle Length (s)	49.7				Sum of lost time (s)			
Intersection Capacity Utilization	47.8%				ICU Level of Service			
Analysis Period (min)	15							
c. Critical Lane Group								

Baseline

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

Year 2030 + Project PM
12/1/2010

Movement	EBL2	EBL2	EBR1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1	SEB1
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Baseline

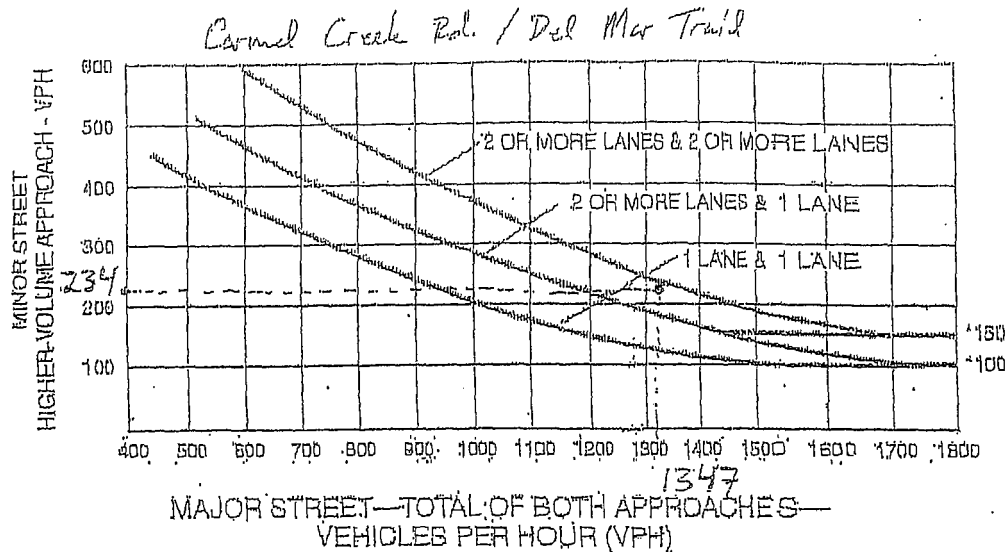
Synchro 7 - Report
Page 33

ALL-WAY STOP CONTROL ANALYSIS									
General Information					Site Information				
Analyst	Jacob Swin				Intersection	Carmel Creek Rd./Del Mar Trail			
Agency/Co.	USAI				Jurisdiction	City of San Diego			
Date Performed	11/2/2010				Analysis Year	2030			
Analysis Time Period	36 Year 2030 + Project PM								
Project ID 002407 - San Diego Corporate Center Lots									
East/West Street: Del Mar Trail					North/South Street: Carmel Creek Road				
Volume Adjustments and Site Characteristics									
Approach	Eastbound				Westbound				
Movement	L	T	R		L	T	R		
Volume (veh/h)	5	5	4		56	12	10		
% Thru Left Lane									
Approach	Northbound				Southbound				
Movement	L	T	R		L	T	R		
Volume (veh/h)	12	777	101		15	444	10		
% Thru Left Lane	50				50				
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Configuration	LTR		LTR		LT	TR	LT	TR	
PHF	0.90		0.90		0.90	0.90	0.90	0.90	
Flow Rate (veh/h)	14		86		444	544	262	257	
% Heavy Vehicles	2		2		2	2	2	2	
No. Lanes	1		1		2		2		
Geometry Group	2		2		5		5		
Duration, T	0.25								
Saturation Headway Adjustment Worksheet									
Prop. Left-Turns	0.4		0.7		0.0	0.0	0.1	0.0	
Prop. Right-Turns	0.3		0.1		0.0	0.2	0.0	0.0	
Prop. Heavy Vehicle	0.0		0.0		0.0	0.0	0.0	0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.5	0.5	0.5	0.5	
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.7	-0.7	-0.7	-0.7	
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	
hadj, computed	-0.1		0.1		0.0	-0.1	0.1	0.0	
Departure Headway and Service Time									
hd, initial value (s)	3.20		3.20		3.20	3.20	3.20	3.20	
k, initial	0.01		0.08		0.39	0.48	0.23	0.23	
hd, final value (s)	6.76		6.65		5.54	5.38	6.09	6.03	
k, final value	0.03		0.16		0.68	0.81	0.44	0.43	
Move-up time, m (s)	2.0		2.0		2.3		2.3		
Service Time, Is (s)	4.8		4.6		3.2	3.1	3.8	3.7	
Capacity and Level of Service									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Capacity (veh/h)	264		336		645	666	512	507	
Delay (s/veh)	9.95		10.90		19.32	27.14	13.55	13.21	
LOS	A		B		C	D	B	B	
Approach Delay (s/veh)	9.95		10.90		23.62		13.38		
LOS	A		B		C		B		
Intersection Delay (s/veh)	19.51								
Intersection LOS	C								

APPENDIX N

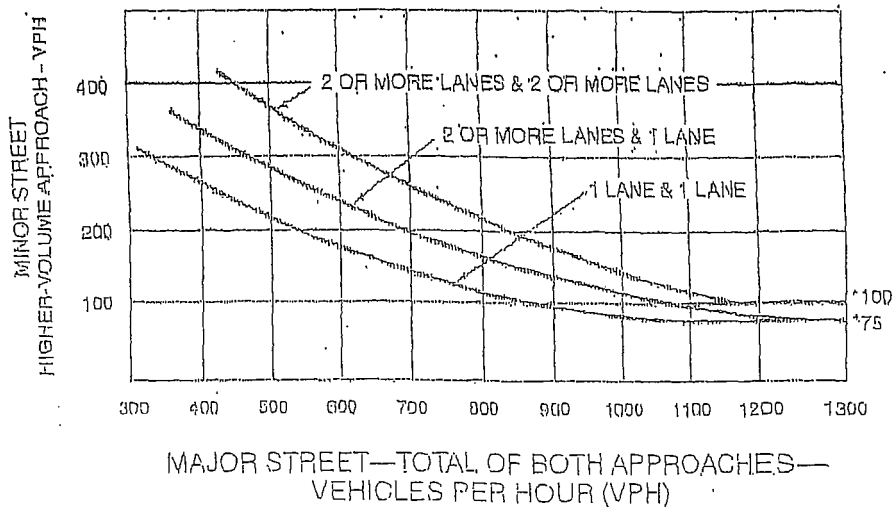
**SIGNAL WARRANTS / MITIGATION COST ESTIMATES / CONCEPTUAL STRIPING
LAYOUTS / INTERNAL STREET WORKSHEETS / MITIGATION SYNCHRO WORKSHEETS
/ QUEUING ANALYSIS WORKSHEETS / DEL MAR HEIGHTS WIDENING MEMO**

Figure 4C-3. Warrant 3, Peak Hour (AM)
NT+P (Project Phase 1)



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h OR ABOVE 40 mph ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower

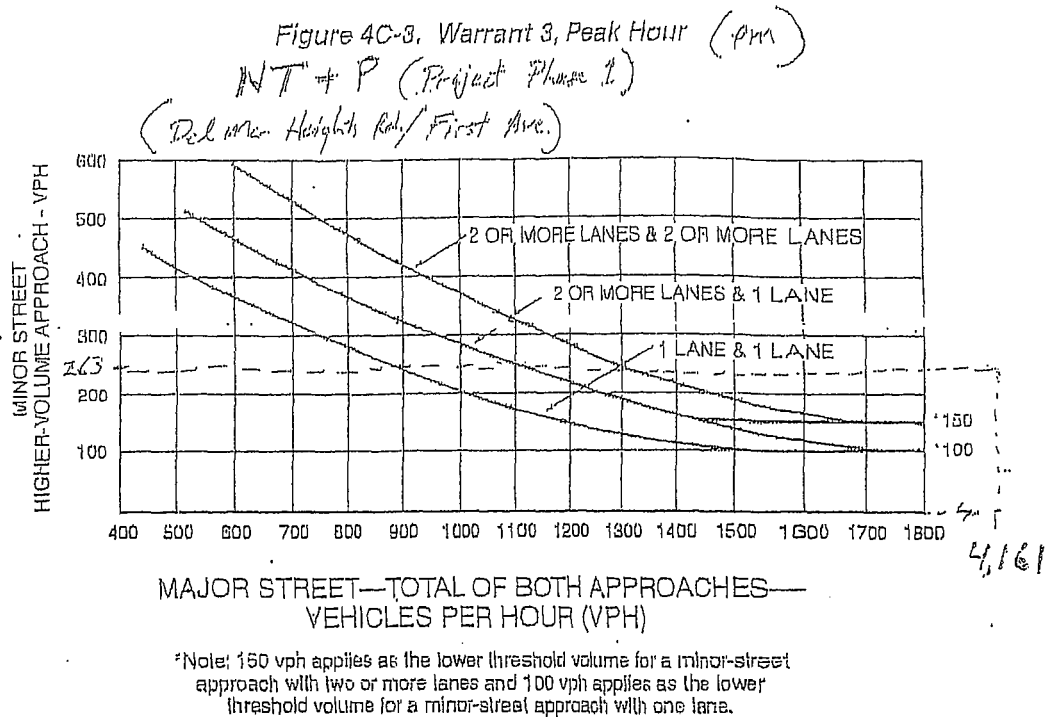
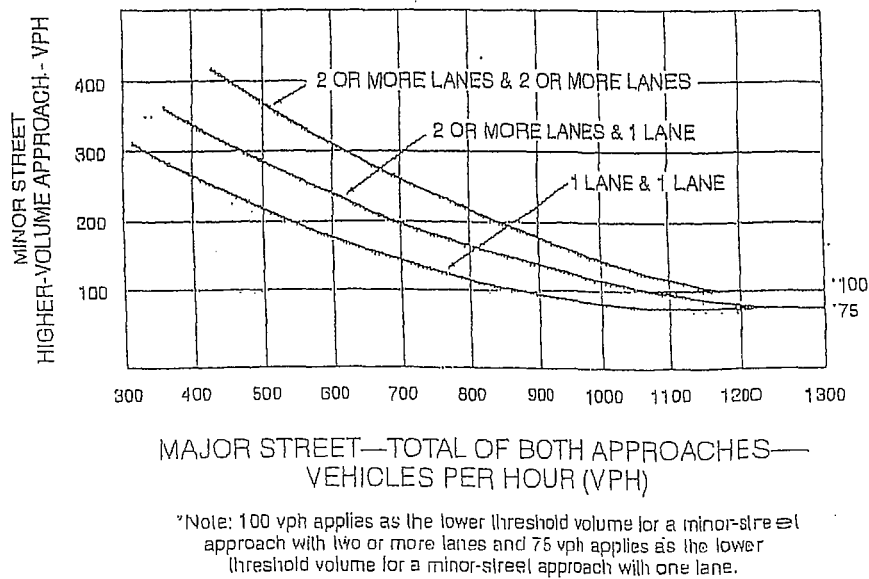


Figure 4C-4, Warrant 3, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h OR ABOVE 40 mph ON MAJOR STREET)



Summary of Fair Share Improvement Costs
August 18, 2009
J-15701

Opinions of Probable Costs

Intersections:

Del Mar Heights Road at High Bluff Drive:

Add dedicated right turn lane from northbound High Bluff Drive to eastbound Del Mar Heights Road and reconfigure striping for a triple left turn northbound High Bluff Drive to westbound Del Mar Heights Road.

Estimated Construction Costs:	\$ 108,153
10% Design Fees	10,815
10% Construction Management and Staking	10,815
Subtotal	<u>129,783</u>
20% Contingency	25,957
Total	<u>\$ 155,740</u>

Del Mar Heights Road at El Camino Real:

Add a dedicated right turn lane from eastbound Del Mar Heights Road to southbound El Camino Real.

Estimated Construction Costs:	\$ 321,824
10% Design Fee	32,182
10% Construction Management and Staking	32,182
Subtotal	<u>386,189</u>
20% Contingency	77,238
Total	<u>\$ 463,426</u>

El Camino Real at Via De La Valle:

Reconfigure intersection to allow temporary dual left turn lane for northbound El Camino Real to westbound Via De La Valle, and provided a dedicated right turn lane for northbound El Camino Real to eastbound Via De La Valle.

Estimated Construction Costs:	\$ 558,539
10% Design Fee	55,854
10% Construction Management and Staking	55,854
Subtotal	<u>670,246</u>
25% Contingency	167,562
Total	<u>\$ 837,808</u>

Del Mar Heights Road at Northbound I-5 On-Ramp:

Construct loop ramp in southeast quadrant on interchange for eastbound Del Mar Heights Road to northbound I-5.

Estimated Construction Costs:	\$ 1,201,760
12% Design Fee	144,211
12% Construction Management and Staking	144,211
Subtotal	<u>1,490,182</u>
25% Contingency	372,546
Total	<u>\$ 1,862,728</u>

El Camino Real at SR-56 Eastbound On-Ramp:

Re-stripe Carmel Valley Road eastbound at El Camino Real / SR-56 Eastbound On-Ramp to provide two left turn lanes, two thru lanes and one dedicated right turn lane.

Estimated Construction Costs:	\$ 100,000
10% Design Fee	10,000
10% Construction Management and Staking	10,000
Subtotal	<u>120,000</u>
20% Contingency	24,000
Total	<u>\$ 144,000</u>

Street Segments:

Del Mar Heights Road from Mango Drive to I-5 Northbound On-Ramp:

Provide one additional westbound and eastbound lane on Del Mar Heights Road from Mango Drive to Northbound I-5 On-Ramp by reconfiguring medians and widening where necessary.

Estimated Construction Costs:	\$ 239,724
10% Design Fee	23,972
10% Construction Management and Staking	23,972
Subtotal	<u>287,668</u>
20% Contingency	57,534
Total	<u>\$ 345,202</u>

Del Mar Heights Road from I-5 Northbound On-Ramp to High Bluff Drive:

Provide one additional westbound and eastbound lane on Del Mar Heights Road from Northbound I-5 On-Ramp to High Bluff Drive by reconfiguring the median and widening where necessary.

Estimated Construction Costs:	\$ 67,473
10% Design Fee	6,747
10% Construction Management and Staking	6,747
Subtotal	<u>80,967</u>
20% Contingency	16,193
Total	<u>\$ 97,161</u>

El Camino Real from Via De La Valle to San Dieguito Road:

Widen to a 4-lane major street and construct a new bridge over the San Dieguito River. This is a current City of San Diego Capital Improvement Project.

Estimated Construction Costs (includes contingencies):	\$ 22,442,000
10% Design Fee	2,244,200
10% Construction Management and Staking	2,244,200
Subtotal	<u>26,930,400</u>
FHWA Grant (80% of Participating cost estimate \$19,600,000)	<u><-15,680,000></u>
Total	<u>\$ 11,250,400</u>

El Camino Real from San Dieguito Road to Sea Country Lane:

Widen to a 4-lane major street. This is a current project under review by City staff. Final plans have been submitted for City review.

Estimated Construction Costs:	\$ 2,770,600
10% Design Fee	277,060
10% Construction Management and Staking	277,060
Subtotal	<u>3,224,720</u>
10% Contingency	322,472
Total	<u>\$ 3,547,192</u>

Via De La Valle from San Andres Drive to El Camino Real:

Widen to a 4-lane major street. This is a current City Capital Improvement Project that has been put on hold for several years.

Estimated Construction Costs (includes 25% contingencies)	\$ 15,800,000
(includes 15% soft costs)	
Total	<u>\$ 15,800,000</u>

One Paseo

I - 5 / Del Mar Heights Road Improvement Cost Estimate

Extend EB dual left turn lanes / Widen NB off ramp to include dual left & right turn lanes / Lengthen WB right turn
Modify EB approach for additional through lane just east of bridge / Modify NB on ramp to include HOV lane

#	Description	Quantity	Units	Unit Cost	Amount
1	Remove existing curb & gutter	2,562	LF	\$13.20	\$33,818.40
2	Remove existing sidewalk	4,610	SF	\$2.01	\$9,266.10
3	Remove / Replace existing utility boxes (3)	1	LS	\$30,000.00	\$30,000.00
4	Relocate existing underground utilities	1	LS	\$40,000.00	\$40,000.00
5	Remove existing median	5,369	SF	\$2.01	\$10,791.69
6	Tree Removal & Disposal	1	LS	\$500.00	\$500.00
7	Grading (Clear & Grub)	19,800	SF	\$0.72	\$14,256.00
8	Excavate & export	750	CY	\$44.28	\$33,210.00
9	Relocate existing guardrail for NB on-ramp	1	LS	\$5,000.00	\$5,000.00
10	Construct new 6" curb & gutter	1962	LF	\$22.00	\$43,164.00
11	Construct new sidewalk	4,610	SF	\$8.00	\$36,880.00
12	Construct new ped ramp	3	Each	\$1,900.00	\$5,700.00
13	Construct new median	1,240	SF	\$8.25	\$10,230.00
14	Construct new 6" AC berm	570	LF	\$13.53	\$7,712.10
15	New 4" AC pavement	23,311	SF	\$2.94	\$68,534.34
16	New 12" CTB paving	23,311	SF	\$2.69	\$62,706.59
17	New Striping / Signing / Pavement Markings	1	LS	\$120,000.00	\$120,000.00
18	New Overhead Sign Structure - Double Post	1	LS	\$100,000.00	\$100,000.00
19	New Overhead Sign Structure - Single Post	1	LS	\$50,000.00	\$50,000.00
20	New Overhead Sign Lighting	1	LS	\$40,000.00	\$40,000.00
21	Ramp Meter Modification	1	LS	\$30,000.00	\$30,000.00
22	Traffic Signal Modification	1	LS	\$100,000.00	\$100,000.00
23	Stage Construction (10% of total cost)	1	LS	\$83,783.00	\$83,783.00
				TOTAL	\$935,552.22

DESIGN FEE

#	Description	Amount
1	Improvement Plans	\$65,000
2	Traffic Signal Modification Plans	\$7,500
3	Pavement & Delineation Plans	\$3,000
4	Sign Plans	\$3,000
5	Quantity Sheets	\$2,000
6	Overhead Sign Plans	\$1,500
7	Sign Calculations	\$1,500
8	Sign Quantity	\$1,000
9	Ramp Meter Modification	\$5,000
10	Overhead Lighting Plan	\$4,000
11	Stage Construction Plans	\$16,000
		TOTAL
		\$109,500

Total Cost	
Construction Cost	\$935,552
Design Fee	\$109,500
TOTAL	\$1,045,052

NOTE: Preliminary opinion of cost based on conceptual plans which are subject to significant change based on agency review and approval.

One Paseo

Del Mar Heights Road / High Bluff Drive Improvement Cost Estimate

Modify Eastbound and Westbound Left Turn Lanes to Dual Left Turn lanes

#	Description	Quantity	Units	Unit Cost	Amount
1	Remove existing curb & gutter in the medians	950	LF	\$3.30	\$3,135.00
2	Remove existing median	3,087	SF	\$2.01	\$6,204.87
3	New 4" AC pavement	3,087	SF	\$2.94	\$9,075.78
4	New 12" CTB paving	3,087	SF	\$2.69	\$8,304.03
5	New Striping / Signing / Pavement Markings	1	LS	\$30,000.00	\$30,000.00
6	Traffic Signal Modification	1	LS	\$120,000.00	\$120,000.00
7	Stage Construction (10% of total cost)	1	LS	\$17,672.00	\$17,672.00
				TOTAL	\$194,392

DESIGN FEE

#	Description	Amount
1	Improvement Plans	\$20,000
2	Traffic Signal Modification Plans	\$5,500
3	Signing and Striping Plans	\$3,000
4	Stage Construction Plans	\$4,000
		TOTAL
		\$32,500

EB & WB Dual Left Turns Only

Total Estimated Cost	
Construction Cost	\$194,392
Design Fee	\$32,500
TOTAL	\$226,892

NOTE: Preliminary opinion of cost based on conceptual plans which are subject to significant change based on agency review and approval.

Opinion of Probable Cost - Provided by Rick Engineering - August 2009

Add dedicated right turn lane from northbound High Bluff Drive to eastbound Del Mar Heights Road and reconfigure striping for a triple left turn northbound High Bluff Drive to westbound Del Mar Heights Road.

Estimated Cost of NB Right Turn and Triple Left Striping - \$155,740

TOTAL ESTIMATED COST - \$155,740 + \$226,892 = \$382,632

One Paseo

El Camino Real / SR-56 EB On-Ramp Improvement Cost Estimate

Widen EB approach to provide 2 left, 2 thru with a shared right, and 1 dedicated right turn lane

#	Description	Quantity	Units	Unit Cost	Amount
1	Remove existing curb & gutter	100	LF	\$3.30	\$330.00
2	Remove existing sidewalk	800	SF	\$2.01	\$1,608.00
3	Grading (Clear & Grub)	3,200	SF	\$0.72	\$2,304.00
4	Construct new 6" curb and gutter	100	LF	\$22.00	\$2,200.00
5	Construct new sidewalk	800	SF	\$8.00	\$6,400.00
6	New 4" AC pavement	3,200	SF	\$2.94	\$9,408.00
7	New 12" CTB paving	3,200	SF	\$2.69	\$8,608.00
8	Construct new ped ramps	2	Each	\$1,900.00	\$3,800.00
9	Construct new 6" AC berm	200	LF	\$13.53	\$2,706.00
10	New Striping / Signing / Pavement Markings	1	LS	\$25,000.00	\$25,000.00
11	Traffic Signal Modification	1	LS	\$120,000.00	\$120,000.00
12	New Overhead Sign	1	LS	\$60,000.00	\$60,000.00
13	Stage Construction (10% of total cost)	1	LS	\$24,236.00	\$24,236.00
TOTAL					\$266,600

DESIGN FEE

#	Description	Amount
1	Improvement Plans	\$20,000
2	Traffic Signal Modification Plans	\$5,500
3	Pavement and Delineation Plans	\$2,000
4	Signing Plans	\$2,000
5	Stage Construction Plans	\$4,000
6	Overhead Sign Plans	\$2,000
7	Quantity for Sign	\$1,000
8	Quantity for Striping	\$1,000
9	Overhead Sign Calculations	\$1,000
TOTAL		\$38,500

Total Estimated Cost	
Construction Cost	\$266,600
Design Fee	\$38,500
TOTAL	\$305,100

NOTE: Preliminary opinion of cost based on conceptual plans which are subject to significant change based on agency review and approval.

ONE PASEO

Fair Share Contribution Calculations

16-May-11

El Camino Real / SR-56 Eastbound on-ramp:

$$\frac{\text{Project Only}}{\text{Year 2030+P - Existing}} \Rightarrow \frac{134}{10,331 - 6,568} \Rightarrow \frac{134}{3,763} \Rightarrow 0.035 = 3.5\%$$

Via de la Valle (San Andres Drive to El Camino Real-West):

$$\frac{\text{Project Only}}{\text{Year 2030+P - Existing}} \Rightarrow \frac{539}{33639 - 24,400} \Rightarrow \frac{539}{9,239} \Rightarrow 0.058 = 5.8\%$$

Fair Share Cost: \$15,800,000 x 5.8% = \$916,400

Note: The City of San Diego calculated the fair share as: 539 ADT x \$5,692.61 per ADT = \$3,068,317

Therefore, the fair share percentage shows 19.4%

$$\frac{\$3,068,317}{\$15,800,000} \Rightarrow = 19.4\%$$

I-5 Southbound (Loop) on-ramp / Del Mar Heights Road:

$$\text{AM (Demand-veh/hr)} \quad \frac{\text{Project Only}}{\text{Year 2030+P - Existing}} \Rightarrow \frac{45}{660 - 406} \Rightarrow \frac{45}{254} \Rightarrow 0.177 = 17.7\%$$

$$\text{PM (Demand-veh/hr)} \quad \frac{\text{Project Only}}{\text{Year 2030+P - Existing}} \Rightarrow \frac{151}{551 - 242} \Rightarrow \frac{151}{309} \Rightarrow 0.488 = 48.8\%$$

$$\text{Weighted Average (AM \& PM)} \Rightarrow \frac{45 + 151}{254 + 309} \Rightarrow \frac{196}{563} \Rightarrow 0.348 = 34.8\%$$

One Pass
Fair Share Percentages

Del Mar Heights Rd. / High Bluff Dr.

$$\begin{array}{l} \text{PM} \\ \text{peak} \\ \text{hour} \end{array} \quad \begin{array}{c} \text{PO} \\ 2030 - \text{Existing} \end{array} = \frac{1,319}{6,719 - 4,613} = \frac{1,319}{2,106} = \boxed{62.6\%}$$

Del Mar Heights Rd. / El Camino Real

$$\begin{array}{l} \text{PM} \\ \text{Peak} \\ \text{Hour} \end{array} \quad \begin{array}{c} \text{PO} \\ 2030 - \text{Existing} \end{array} = \frac{1,398}{7,263 - 4,526} = \frac{1,398}{2,737} = \boxed{51.1\%}$$

Del Mar Heights Rd. / I-5 NB Ramps

$$\begin{array}{l} \text{PM} \\ \text{Peak} \\ \text{Hour} \end{array} \quad \begin{array}{c} \text{PO} \\ 2030 - \text{Existing} \end{array} = \frac{674}{6,823 - 4,885} = \frac{674}{1,938} = \boxed{34.7\%}$$

I-5 NB Ramp Meter / Del Mar Heights Rd.

$$\begin{array}{l} \text{PM} \\ \text{Demand} \end{array} \quad \begin{array}{c} \text{PO} \\ 2030 - \text{Existing} \end{array} = \frac{77}{752 - 516} = \frac{77}{236} = \boxed{32.6\%}$$

CITY OF SAN DIEGO FACILITIES FINANCING PROGRAM

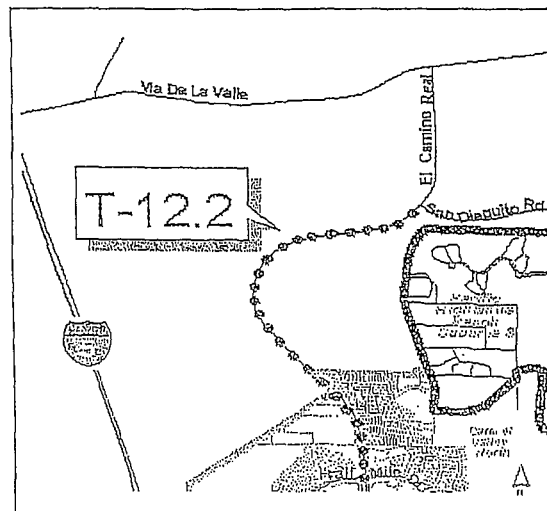
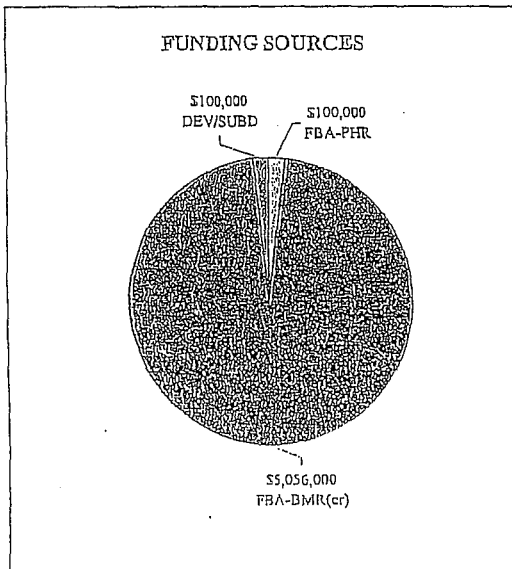
TITLE: EL CAMINO REAL WIDENING (Half Mile Drive to San Dieguito Road)

DEPARTMENT: ENGINEERING & CAPITAL PROJECTS
CIP or JO #: 52-767.0

PROJECT: T-12.2
COUNCIL DISTRICT: 1
COMMUNITY PLAN: PHR

SOURCE	FUNDING:	EXPENDED	CONT APPROP	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
FBA-PHR	\$100,000		\$100,000					
FBA-BMR(cr)	\$5,056,000	\$4,256,000						
FBA-TH								
FBA-DMM								
FBA-RP								
DEV. ADV								
DEV/SUBD	\$100,000		\$100,000					
COUNTY								
STATE								
OTHER								
UNIDEN								
TOTAL	\$5,256,000	\$4,256,000	\$200,000	\$0	\$0	\$0	\$0	\$0

SOURCE	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
FBA-PHR								
FBA-BMR(cr)		\$800,000						
FBA-TH								
FBA-DMM								
FBA-RP								
DEV. ADV								
DEV/SUBD								
COUNTY								
STATE								
OTHER								
UNIDEN								
TOTAL	\$0	\$800,000	\$0	\$0	\$0	\$0	\$0	\$0



CONTACT: Larry VanWey

TELEPHONE: (619) 533-3005

EMAIL: lvnw@sanidiego.gov

CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

TITLE: EL CAMINO REAL WIDENING (Half Mile Drive to San Dieguito Road)

DEPARTMENT: ENGINEERING & CAPITAL PROJECTS
CIP or JO #: 52-767.0

PROJECT: T-12.2
COUNCIL DISTRICT: 1
COMMUNITY PLAN: PHR

DESCRIPTION:

COMPLETE CONSTRUCTION OF EXISTING EL CAMINO REAL BETWEEN HALF MILE DRIVE AND SAN DIEGUITO ROAD AS A 4-LANE MAJOR STREET WITHIN THE EXISTING, GRADED RIGHT OF WAY. THE ESTIMATED COST INCLUDES ENVIRONMENTAL ANALYSIS AND ALIGNMENT STUDIES FOR THE ENTIRE LENGTH OF EL CAMINO REAL (HALF MILE DRIVE TO VIA DE LA VALLE).

JUSTIFICATION:

THIS PROJECT IS REQUIRED IN ORDER TO ACCOMMODATE THE ADDITIONAL TRAFFIC GENERATED AS A RESULT OF DEVELOPMENT IN THE SURROUNDING COMMUNITIES, INCLUDING PACIFIC HIGHLANDS RANCH, AS WELL AS THE EXISTING SUB-REGIONAL TRAFFIC NEEDS.

FUNDING ISSUES:

ALL PRORATA FUNDING DISTRIBUTION SHALL BE BASED ON THE SHARE OF TRAFFIC CONTRIBUTED BY EACH COMMUNITY OR PROJECT, EXCEPT PACIFIC HIGHLANDS RANCH (FBA) WILL BE LIMITED TO \$100,000 TOWARD FUNDING THE PRELIMINARY ENGINEERING FOR THE WILDLIFE UNDERCROSSING.

COSTS IN FY 2014 ARE FOR CONSTRUCTION OF CURB, GUTTER AND SIDEWALK ON THE WEST SIDE OF THE ROADWAY. THESE IMPROVEMENTS WOULD NORMALLY BE INSTALLED BY THE FRONTING PROPERTY OWNER. THE FBA WILL FUND THESE IMPROVEMENTS SHOULD THE FRONTING PROPERTY REMAIN UNDEVELOPED AT THAT TIME.

FRONTAGE PROPERTY INCLUDES APNs:

304-161-42; 304-010-42-43; 304-010-35; 299-043-13-15; 299-043-10; 299-040-46&48
299-040-36-37; 304-020-13; 299-040-33&35; 304-020-15-16; AND 304-020-18-19

NOTES:

PARDEE HAS CONTRIBUTED \$100,000 TOWARDS THE COST OF A WILDLIFE UNDERCROSSING AS PART OF THE TERMS OF ITS DEVELOPMENT AGREEMENT.

REFERENCE: BLACK MOUNTAIN RANCH PUBLIC FACILITIES FINANCING PLAN PROJECT T-29.1.

SCHEDULE:

COMPLETION IN FY 2014.

CONTACT: Larry VanWey

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CITY OF SAN DIEGO FACILITIES FINANCING PROGRAM

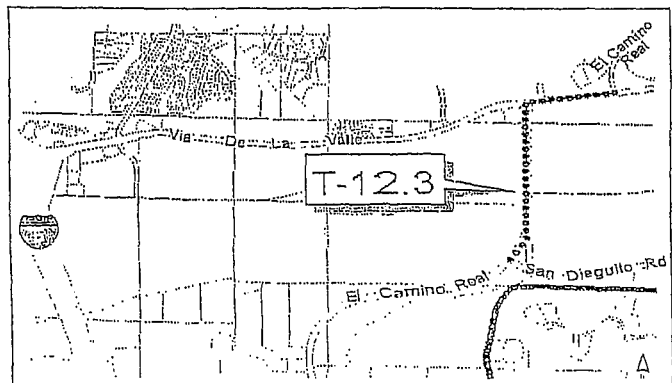
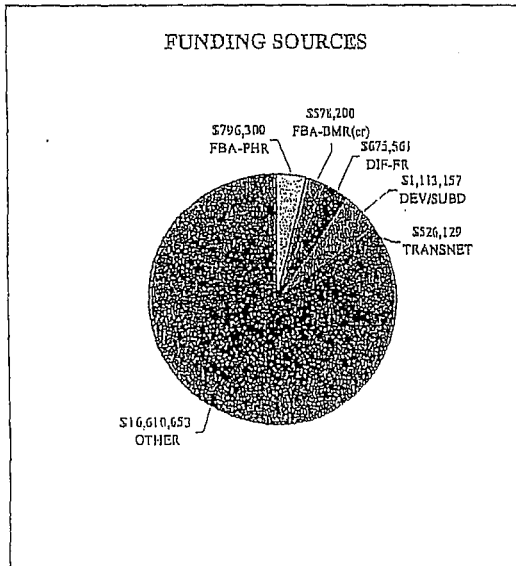
TITLE: EL CAMINO REAL WIDENING (San Dieguito Road to Via de la Valle)

DEPARTMENT: ENGINEERING & CAPITAL PROJECTS
CIP or JO #: 52-479.0

PROJECT: T-12.3
COUNCIL DISTRICT: 1
COMMUNITY PLAN: PHR

SOURCE	FUNDING:	EXPENDED	CONT APPROP	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
FBA-PHR	\$796,300			\$796,300				
FBA-BMR(cr)	\$578,200			\$578,200				
FBA-TH								
FBA-DMM								
DIF-FR	\$675,561	\$675,561						
DEV. ADV								
DEV/SUBD	\$1,113,157			\$1,113,157				
COUNTY								
TRANSNET	\$526,129	\$226,129		\$300,000				
OTHER	\$16,610,653			\$10,000,000	\$6,610,653			
UNIDEN								
TOTAL	\$20,300,000	\$901,690	\$0	\$12,787,657	\$6,610,653	\$0	\$0	\$0

SOURCE	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
FBA-PHR								
FBA-BMR(cr)								
FBA-TH								
FBA-DMM								
DIF-FR								
DEV. ADV								
DEV/SUBD								
COUNTY								
TRANSNET								
OTHER								
UNIDEN								
TOTAL	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0



CONTACT: ABI PALASEYED

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CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

TITLE: EL CAMINO REAL WIDENING (San Dieguito Road to Via de la Valle)

DEPARTMENT: ENGINEERING & CAPITAL PROJECTS
CIP or JO #: 52-479.0

PROJECT: T-12.3
COUNCIL DISTRICT: 1
COMMUNITY PLAN: PHR

DESCRIPTION:

IMPROVE EL CAMINO REAL BETWEEN SAN DIEGUITO ROAD AND VIA DE LA VALLE AS A 4-LANE MAJOR STREET. REPLACE THE EXISTING EL CAMINO REAL BRIDGE OVER THE SAN DIEGUITO RIVER WITH A NEW 4-LANE BRIDGE. WIDENING OF VIA DE LA VALLE TO FOUR LANES BETWEEN WEST EL CAMINO REAL AND EAST EL CAMINO REAL.
SEE COMPANION PROJECT T-12.2.

JUSTIFICATION:

THIS PROJECT IS REQUIRED IN ORDER TO ACCOMMODATE TRAFFIC THAT IS GENERATED BY NEW DEVELOPMENT IN THE SURROUNDING COMMUNITIES INCLUDING PACIFIC HIGHLANDS RANCH. THE EXISTING SUB-REGIONAL TRAFFIC ALSO CREATES THE NEED FOR THE PROJECT.

FUNDING ISSUES:

DMHE (PARDEE): \$1,113,157

OTHERS:

HIGHWAY BRIDGE REPLACEMENT AND REPAIR FUND: \$10,000,000
RSTP (SURFACE TRANSPORTATION PROGRAM): \$6,610,653

FRONTAGE PROPERTY INCLUDES APNs:

302-090-31; 302-261-01-02; 304-020-19; 304-020-16;
302-090-11; 302-210-60; 302-090-28; AND 302-210-29&30

NOTES:

ALL PRORATA FUNDING DISTRIBUTION SHALL BE BASED ON THE SHARE OF TRAFFIC CONTRIBUTED BY EACH COMMUNITY OR PROJECT. THIS PROJECT, CURRENTLY IN THE ENVIRONMENTAL REVIEW PROCESS, MAY HAVE MODIFICATIONS TO SCOPE AND/OR FUNDING.

REFERENCE:

FY 2006 BLACK MOUNTAIN RANCH PUBLIC FACILITIES FINANCING PLAN T-29.2

SCHEDULE:

PROJECT COMPLETION IN FY 2011

CONTACT: ABI PALASEYED

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E-MAIL: Analaseyed@sanidiego.gov

CITY OF SAN DIEGO FACILITIES FINANCING PROGRAM

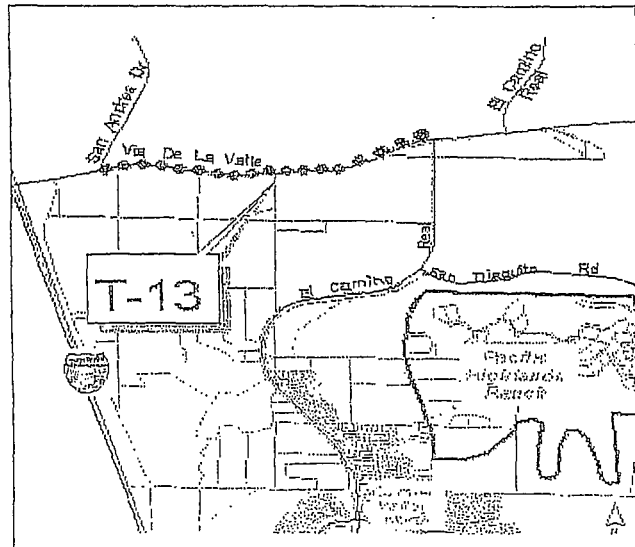
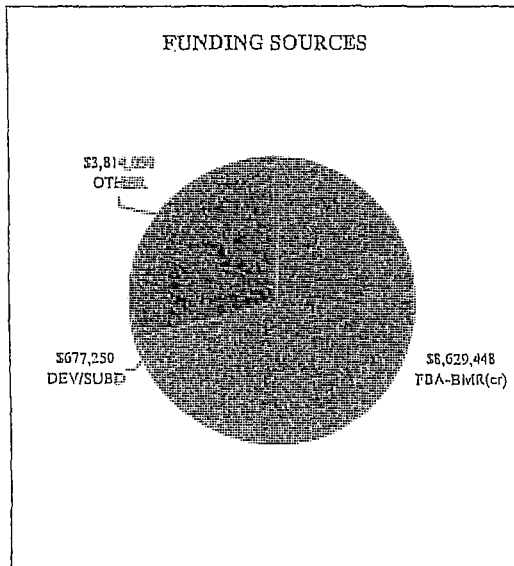
TITLE: VIA DE LA VALLE (FOUR LANES)

DEPARTMENT: ENGINEERING & CAPITAL PROJECTS
CIP or JO #: N/A

PROJECT: T-13
COUNCIL DISTRICT: 1
COMMUNITY PLAN: PHR

SOURCE	FUNDING:	EXPENDED	CONT APPROP	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
FBA-PHR					\$8,629,448			
FBA-BMR(cr)	\$8,629,448							
FBA-TH								
FBA-DMM								
FBA-RP			\$1,808,700	\$10,634,798	-\$12,443,498			
DEV. ADV				\$677,250				
DEV/SUBD	\$677,250							
COUNTY								
STATE								
OTHER	\$3,814,050				\$3,814,050			
UNIDEN								
TOTAL	\$13,120,748	\$0	\$1,808,700	\$11,312,048	\$0	\$0	\$0	\$0

SOURCE	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
FBA-PHR								
FBA-BMR(cr)								
FBA-TH								
FBA-DMM								
FBA-RP								
DEV. ADV								
DEV/SUBD								
COUNTY								
STATE								
OTHER								
UNIDEN								
TOTAL	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0



CONTACT: Larry VanWay

TELEPHONE: (619) 533-3005

EMAIL: lvnway@sanidiego.gov

CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

TITLE: VIA DE LA VALLE (FOUR LANES)

DEPARTMENT: ENGINEERING & CAPITAL PROJECTS
CIP or JO #: N/A

PROJECT: T-13
COUNCIL DISTRICT: 1
COMMUNITY PLAN: PHR

DESCRIPTION:

RECONSTRUCT EXISTING VIA DE LA VALLE BETWEEN SAN ANDREAS DRIVE AND EL CAMINO REAL WEST TO A 4-LANE MAJOR STREET TO ACCOMMODATE EXISTING AND PROJECTED SUB-REGIONAL TRAFFIC. INCLUDES MODIFICATION OF TRAFFIC SIGNALS AT SAN ANDREAS DRIVE AND EL CAMINO REAL WEST AS REQUIRED AND RELOCATION OF EXISTING OVERHEAD UTILITIES TO UNDERGROUND LOCATIONS. INCLUDES RESTRIPIING VIA DE LA VALLE BETWEEN SAN ANDREAS DRIVE AND I-5 TO 6 LANES.

REFERENCE:

FY 2006 BLACK MOUNTAIN RANCH PUBLIC FACILITIES FINANCING PLAN T-32.1

JUSTIFICATION:

THIS PROJECT IS REQUIRED TO ACCOMMODATE THE ADDITIONAL TRAFFIC GENERATED AS A RESULT OF DEVELOPMENT IN THE SURROUNDING COMMUNITIES.

FUNDING ISSUES:

DEVELOPER ADVANCE IS FROM BLACK MOUNTAIN RANCH LLC. DEL MAR HIGHLANDS ESTATES, A NON-PHASE SHIFT DEVELOPMENT WITHIN PACIFIC HIGHLANDS RANCH, HAS A SUBDIVISION OBLIGATION TO CONTRIBUTE \$677,250 TOWARD THE COST OF THIS FACILITY.

NOTES:

ABSENT DEVELOPMENT ALONG THE FRONTAGE OF THIS ROADWAY, BLACK MOUNTAIN RANCH IS CURRENTLY SHOWN AS BEING THE PRIMARY FUNDING SOURCE FOR THIS PROJECT. SHOULD DEVELOPMENT OCCUR ALONG THE FRONTAGE OF THIS ROADWAY, THOSE PROPERTY OWNERS WILL EITHER DIRECTLY FUND THOSE IMPROVEMENTS OR REIMBURSE BLACK MOUNTAIN RANCH FOR THEIR PRORATA SHARE OF THE COST OF THOSE IMPROVEMENTS.

FRONTAGE PROPERTY INCLUDES APNs:

298-590-11&12; 298-300-46&51; 302-090-11; 302-210-52&60; 302-090-07;
302-210-58&59; AND 302-210-25,26&29

SCHEDULE:

COMPLETION IN FY 2008.

CONTACT: Larry VanWey

TELEPHONE: (619) 533-3005

EMAIL: lvnw@cityofsandiego.gov

OUT ONLY - Project Boulevard

Living Spaces

Unit 1 = 587 (147)
 Unit 2 = 578 (157)
 Unit 3 = 622 (157)
 Unit 4 = 730 (157)

Block A (147)

Residential = 313 (77)
 Retail = 273 (77)

Block C (157)

Residential = 489 (127)
 Retail = 133 (37)

Master Plan Summary

Phase/Block	Commercial/Office	Residential	Public/Community	Other	Total
Block A	0	313	0	0	313
Block B	0	587	0	0	587
Block C	0	489	0	0	489
Block D	0	622	0	0	622
Phase 1 Total	0	1991	0	0	1991
Phase 2 Total	0	133	0	0	133
Grand Total	0	2124	0	0	2124

Notes: 1. All figures are approximate and subject to change. 2. The total number of units is 2124. 3. The total number of residential units is 1991. 4. The total number of commercial units is 133.

Project Name: Project Boulevard

Project Location: [Location]

Project Size: [Size]

Project Status: [Status]

Project Date: [Date]

Project Author: [Author]

Project Reviewer: [Reviewer]

Project Approver: [Approver]

Project Sign-off: [Sign-off]

Project Date: [Date]

Project Version: [Version]

Project File Name: [File Name]

Project File Path: [File Path]

Project File Size: [File Size]

Project File Type: [File Type]

Project File Extension: [File Extension]

TABLE 1-30

Intersection Levels of Service With & Without Mitigation

Near Term + Project (Phase 1 & 2)

Number	Intersection	Control	Without Mitigation				With Mitigation			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
9	Del Mar Heights Road / I-5 NB Ramps*	Signalized	49.8	D	50.5	D	43.4	D	46.4	D
10	Del Mar Heights Road / High Bluff Drive*	Signalized	31.3	D	56.2	E	20.5	C	27.8	C
11	Del Mar Heights Road / Third Avenue*	Signalized	6.5	A	13.5	B	5.5	A	12.5	B
12	Del Mar Heights Road / First Avenue*	Signalized	6.0	A	15.6	B	5.0	A	10.0	B
13	Del Mar Heights Road / El Camino Real*	Signalized	34.5	C	59.1	E	34.2	C	45.6	D
29	El Camino Real / SR-56 EB On-Ramp	Signalized	18.6	B	35.1	D	18.3	B	28.0	C
36	Carmel Creek Road / Del Mar Trail**	Signalized	52.0	F	23.8	C	16.9	B	9.9	A

Near Term + Project (Build-out)

Number	Intersection	Control	Without Mitigation				With Mitigation			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
9	Del Mar Heights Road / I-5 NB Ramps*	Signalized	49.2	D	56.1	E	49.0	D	55.4	E
10	Del Mar Heights Road / High Bluff Drive*	Signalized	34.2	D	57	E	21.6	C	31.7	C
11	Del Mar Heights Road / Third Avenue*	Signalized	8.5	A	21.4	C	6.9	A	14.8	B
12	Del Mar Heights Road / First Avenue*	Signalized	7.9	A	25.3	C	7.0	A	12.7	B
13	Del Mar Heights Road / El Camino Real*	Signalized	37.4	D	62.9	E	34.5	C	49.7	D
29	El Camino Real / SR-56 EB On-Ramp	Signalized	18.8	B	35.8	D	18.5	B	28.8	C
36	Carmel Creek Road / Del Mar Trail**	Signalized	53.5	F	25.1	D	16.9	B	9.9	A

Year 2030 + Project (Build-out)

Number	Intersection	Control	Without Mitigation				With Mitigation			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
9	Del Mar Heights Road / I-5 NB Ramps*	Signalized	107.1	F	94.0	F	96.1	F	78.2	E
10	Del Mar Heights Road / High Bluff Drive*	Signalized	55.3	E	80.2	F	32.6	C	43.4	D
11	Del Mar Heights Road / Third Avenue*	Signalized	8.3	A	20.7	C	7.4	A	19.7	B
12	Del Mar Heights Road / First Avenue*	Signalized	7.7	A	20.9	C	8.6	A	17.5	B
13	Del Mar Heights Road / El Camino Real*	Signalized	50.8	D	84.1	F	44.9	D	50.2	D
29	El Camino Real / SR-56 EB On-Ramp	Signalized	23.6	C	97.6	F	23.5	C	53.4	D
36	Carmel Creek Road / Del Mar Trail**	Signalized	48.3	E	23.6	C	18.8	B	10.0	A

Notes:

LOS = Level of Service

* = Signals are coordinated.

Orange indicates unacceptable level of service.

**Intersection #36 is two-way stop controlled without mitigation.

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

Neur Term +Project (Ph. 1&2) AM
With Mitigation 12/4/2011



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBL	EBT			EBT	EBR	EBL	EBT	EBR			
Volume (vph)	231	1493	0	0	1525	843	384	59	1078	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	6.3			6.3	6.3	5.6	5.6	5.6			
Lane Util. Factor	0.97	0.95			0.91	1.00	0.95	0.95	0.88			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.96	1.00			
Satd. Flow (prot)	3433	3539			5085	1583	1681	1707	2787			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.96	1.00			
Satd. Flow (perm)	3433	3539			5085	1583	1681	1707	2787			
Peak-hour factor, PHF	0.95	0.95	0.95	0.90	0.95	0.95	0.95	0.95	0.95	0.90	0.90	0.90
Adj. Flow (vph)	243	1572	0	0	1605	887	404	62	1135	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	478	0	0	14	0	0	0
Lane Group Flow (vph)	243	1572	0	0	1605	409	230	236	1121	0	0	0
Turn Type	Prot			Perm			Split	Perm				
Protected Phases	5	2			6		8	8				
Permitted Phases						6			8			
Actuated Green, G (s)	11.5	58.7			42.0	42.0	49.4	49.4	49.4			
Effective Green, g (s)	11.5	58.7			42.0	42.0	49.4	49.4	49.4			
Actuated g/C Ratio	0.10	0.49			0.35	0.35	0.41	0.41	0.41			
Clearance Time (s)	5.2	6.3			6.3	6.3	5.6	5.6	5.6			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	329	1731			1780	554	692	703	1147			
v/s Ratio Prot	0.07	0.44			0.32		0.14	0.14				
v/s Ratio Perm						0.26			0.40			
v/c Ratio	0.74	0.91			0.90	0.74	0.33	0.34	0.98			
Uniform Delay, d1	52.8	28.2			37.0	34.2	24.1	24.1	34.7			
Progression Factor	0.82	1.37			0.60	1.71	1.00	1.00	1.00			
Incremental Delay, d2	5.4	5.7			4.9	5.1	0.3	0.3	21.0			
Delay (s)	48.8	44.4			27.1	63.5	24.3	24.4	55.8			
Level of Service	D	D			C	E	C	C	E			
Approach Delay (s)		45.0			40.1			46.6			0.0	
Approach LOS		D			D			D			A	
Intersection Summary												
HCM Average Control Delay	43.4				HCM Level of Service				D			
HCM Volume to Capacity ratio	0.94											
Actuated Cycle Length (s)	120.0				Sum of lost time (s)				11.9			
Intersection Capacity Utilization	88.9%				ICU Level of Service				E			
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

10: Del Mar Heights Road & High Bluff Drive

Near Term+Project (Ph. 1&2) AM
With Mitigation 3/2/2012

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	111	1756	694	103	1970	69	201	10	40	108	59	312
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91		0.94	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		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	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5059		4990	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5059		4990	1863	1583	1770	1863	1583
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)	117	1848	731	108	2074	73	212	11	42	114	62	328
RTOR Reduction (vph)	0	0	157	0	2	0	0	0	40	0	0	253
Lane Group Flow (vph)	117	1848	574	108	2145	0	212	11	2	114	62	75
Turn Type	Prot	pm+ov		Prot			Prot	Perm		Prot	Over	
Protected Phases	7	4	5	3	8		5	2		1	6	7
Permitted Phases			4						2			
Actuated Green, G (s)	12.1	74.9	86.6	9.2	72.0		11.7	7.0	7.0	12.9	8.2	12.1
Effective Green, g (s)	12.1	74.9	86.6	9.2	72.0		11.7	7.0	7.0	12.9	8.2	12.1
Actuated g/C Ratio	0.10	0.62	0.72	0.08	0.60		0.10	0.06	0.06	0.11	0.07	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
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)	346	3174	1195	263	3035		487	109	92	190	127	160
v/s Ratio Prot	0.03	c0.36	0.05	0.03	c0.42		0.04	0.01		c0.06	c0.03	c0.05
v/s Ratio Perm			0.32						0.00			
v/c Ratio	0.34	0.58	0.48	0.41	0.71		0.44	0.10	0.03	0.60	0.49	0.47
Uniform Delay, d1	50.2	13.3	7.1	52.8	16.7		51.0	53.5	53.3	51.1	53.9	50.9
Progression Factor	0.90	1.30	1.96	1.36	0.48		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.3	0.1	0.9	1.3		0.6	0.4	0.1	5.2	2.9	2.2
Delay (s)	45.5	17.6	14.1	72.8	9.3		51.7	53.9	53.4	56.3	56.8	53.1
Level of Service	D	B	B	E	A		D	D	D	E	E	D
Approach Delay (s)		17.9			12.3			52.0			54.3	
Approach LOS		B			B			D			D	

Intersection Summary

HCM Average Control Delay	20.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	72.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

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

New Term +Project (Ph. 1&2) AM
With Mitigation 12/4/2011

	→	↘	↙	←	↗	↖
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	TTT	T	T	TTT	TT	T
Volume (vph)	1936	165	128	2127	50	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	14
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	1770	5085	3433	1689
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	1770	5085	3433	1689
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2038	174	135	2239	53	41
RTOR Reduction (vph)	0	28	0	0	0	39
Lane Group Flow (vph)	2038	146	135	2239	53	2
Turn Type	Perm		Prot	Perm		Perm
Protected Phases	4		3	8		2
Permitted Phases	4					2
Actuated Green, G (s)	87.3	87.3	14.5	105.8	6.2	6.2
Effective Green, g (s)	87.3	87.3	14.5	105.8	6.2	6.2
Actuated g/C Ratio	0.73	0.73	0.12	0.88	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)	3699	1152	214	4483	177	87
v/s Ratio Prot	c0.40		c0.08	0.44	c0.02	
v/s Ratio Perm		0.09				0.00
v/c Ratio	0.55	0.13	0.63	0.50	0.30	0.02
Uniform Delay, d1	7.4	4.9	50.2	1.5	54.8	54.0
Progression Factor	0.41	0.20	0.95	1.49	1.00	1.00
Incremental Delay, d2	0.5	0.2	5.1	0.3	1.0	0.1
Delay (s)	3.6	1.2	53.0	2.6	55.8	54.1
Level of Service	A	A	D	A	E	D
Approach Delay (s)	3.4			5.4	55.1	
Approach LOS	A			A	E	
Intersection Summary						
HCM Average Control Delay			5.5		HCM Level of Service	A
HCM Volume to Capacity ratio			0.55			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	12.0
Intersection Capacity Utilization			57.8%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis
12: Del Mar Heights Road & First Ave.

Near Term +Project (Ph. 1&2) AM
With Mitigation 12/4/2011

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	TTT	T	TTT	TTT	T	T
Volume (vph)	1837	137	137	2213	41	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	0.97	0.91	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	3433	5085	1770	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	3433	5085	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1997	149	149	2405	45	45
RTOR Reduction (vph)	0	34	0	0	0	42
Lane Group Flow (vph)	1997	115	149	2405	45	3
Turn Type	Perm		Prot	Perm		
Protected Phases	4		3	8	2	
Permitted Phases		4			2	
Actuated Green, G (s)	90.1	90.1	10.5	104.6	7.4	7.4
Effective Green, g (s)	90.1	90.1	10.5	104.6	7.4	7.4
Actuated g/C Ratio	0.75	0.75	0.09	0.87	0.06	0.06
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)	3818	1189	300	4432	109	98
v/s Ratio Prot	0.39		0.04	0.47	0.03	
v/s Ratio Perm		0.07				0.00
v/c Ratio	0.52	0.10	0.50	0.54	0.41	0.03
Uniform Delay, d1	6.1	4.0	52.2	1.9	54.2	52.9
Progression Factor	0.40	0.56	0.87	1.11	1.00	1.00
Incremental Delay, d2	0.4	0.1	0.9	0.3	2.5	0.1
Delay (s)	2.9	2.4	46.6	2.4	56.7	53.0
Level of Service	A	A	D	A	E	D
Approach Delay (s)	2.9			5.0	54.9	
Approach LOS	A			A	D	
Intersection Summary						
HCM Average Control Delay			5.0	HCM Level of Service		A
HCM Volume to Capacity ratio			0.53			
Actuated Cycle Length (s)			120.0	Sum of lost time (s)		8.0
Intersection Capacity Utilization			52.8%	ICU Level of Service		A
Analysis Period (min)			15			
c Critical Lane Group						

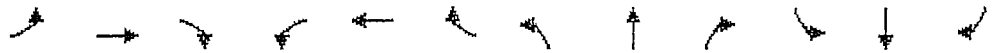
HCM Signalized Intersection Capacity Analysis 13: Del Mar Heights Road & El Camino Real

Near Term +Project (Ph. 1&2) AM
With Mitigation 12/4/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (vph)	231	962	498	261	1590	95	284	109	90	164	348	435
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	14	12	12	12	12	12	14	12	12	12
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	0.91	1.00	0.97	0.91		0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5085	1689	3433	5042		3433	5085	1689	3433	4661	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5085	1689	3433	5042		3433	5085	1689	3433	4661	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	243	1013	524	275	1674	100	302	116	96	178	378	473
RTOR Reduction (vph)	0	0	176	0	5	0	0	0	76	0	164	0
Lane Group Flow (vph)	243	1013	348	275	1769	0	302	116	20	178	687	0
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	12.2	53.8	53.8	14.1	55.7		14.1	25.6	25.6	10.5	22.0	
Effective Green, g (s)	12.2	53.8	53.8	14.1	55.7		14.1	25.6	25.6	10.5	22.0	
Actuated g/C Ratio	0.10	0.45	0.45	0.12	0.46		0.12	0.21	0.21	0.09	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	
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)	349	2280	757	403	2340		403	1085	360	300	855	
v/s Ratio Prot	0.07	0.20		c0.08	c0.35		c0.09	c0.02		0.05	c0.15	
v/s Ratio Perm			0.21						0.01			
v/c Ratio	0.70	0.44	0.46	0.68	0.76		0.75	0.11	0.06	0.59	1.04dr	
Uniform Delay, d1	52.1	22.8	23.0	50.8	26.5		51.2	38.0	37.6	52.7	46.9	
Progression Factor	1.31	0.44	0.60	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.2	0.5	1.8	4.7	2.3		7.5	0.0	0.1	3.1	5.5	
Delay (s)	73.4	10.7	15.6	55.5	28.9		58.7	38.0	37.7	55.8	52.4	
Level of Service	E	B	B	E	C		E	D	D	E	D	
Approach Delay (s)		20.7			32.4			50.1			53.0	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM Average Control Delay			34.2				HCM Level of Service			C		
HCM Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			77.4%				ICU Level of Service			D		
Analysis Period (min)			15									
dr Defacto Right Lane. Recode with 1 though lane as a right lane.												
c Critical Lane Group												

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

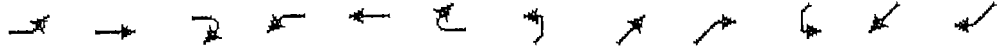
Near Term +Project (Ph. 1&2) AM
With Mitigation 12/4/2011



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	👉	👉👉	👉👉					👉👉👉		👉	👉👉👉	
Volume (vph)	651	943	317	0	0	0	0	409	227	149	750	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0		4.0	4.0	
Lane Util. Factor	0.91	0.91	0.88					0.86		1.00	0.91	
Frt	1.00	1.00	0.85					0.95		1.00	1.00	
Flt Protected	0.95	0.99	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1610	3369	2787					6065		1770	5085	
Flt Permitted	0.95	0.99	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1610	3369	2787					6065		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
Adj. Flow (vph)	723	1048	352	0	0	0	0	454	252	166	833	0
RTOR Reduction (vph)	0	0	113	0	0	0	0	135	0	0	0	0
Lane Group Flow (vph)	571	1200	239	0	0	0	0	571	0	166	833	0
Turn Type	Prot		Perm							Prot		
Protected Phases	7	4						2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	30.2	30.2	30.2					12.9		11.5	28.4	
Effective Green, g (s)	30.2	30.2	30.2					12.9		11.5	28.4	
Actuated g/C Ratio	0.45	0.45	0.45					0.19		0.17	0.43	
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)	730	1528	1264					1175		306	2168	
v/s Ratio Prot	0.35	0.36						0.09		0.09	0.16	
v/s Ratio Perm			0.09									
v/c Ratio	0.78	0.79	0.19					0.49		0.54	0.38	
Uniform Delay, d1	15.4	15.4	10.9					23.9		25.1	13.1	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	5.5	2.7	0.1					0.3		2.0	0.1	
Delay (s)	20.9	18.2	11.0					24.2		27.1	13.2	
Level of Service	C	B	B					C		C	B	
Approach Delay (s)		17.7			0.0			24.2			15.5	
Approach LOS		B			A			C			B	
Intersection Summary												
HCM Average Control Delay	18.3			HCM Level of Service			B					
HCM Volume to Capacity ratio	0.66											
Actuated Cycle Length (s)	66.6			Sum of lost time (s)			12.0					
Intersection Capacity Utilization	97.2%			ICU Level of Service			F					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
36: Del Mar Trail & Carmel Creek Road

Near Term +Project (Ph. 1&2) AM
With Mitigation 12/4/2011

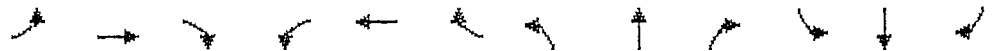


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↔			↔			↗ ↘			↗ ↘		
Volume (vph)	10	10	10	206	2	26	3	271	103	15	960	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0			4.0			4.0		
Lane Util. Factor	1.00			1.00			1.00			1.00		
Frt	0.96			0.98			1.00			1.00		
Flt Protected	0.98			0.96			0.95			0.95		
Satd. Flow (prot)	1750			1757			1770			1770		
Flt Permitted	0.98			0.96			0.95			0.95		
Satd. Flow (perm)	1750			1757			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)	11	11	11	229	2	29	3	301	114	17	1067	3
RTOR Reduction (vph)	0	10	0	0	4	0	0	31	0	0	0	0
Lane Group Flow (vph)	0	23	0	0	256	0	3	384	0	17	1070	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	6			2			7			3		
Permitted Phases							4			8		
Actuated Green, G (s)	3.7			17.5			0.5			1.5		
Effective Green, g (s)	3.7			17.5			0.5			1.5		
Actuated g/C Ratio	0.05			0.26			0.01			0.02		
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)	95			450			13			39		
v/s Ratio Prot	c0.01			c0.15			0.00			c0.01		
v/s Ratio Perm							0.11			0.30		
w/c Ratio	0.24			0.57			0.23			0.44		
Uniform Delay, d1	31.0			22.2			33.8			33.0		
Progression Factor	1.00			1.00			1.00			1.00		
Incremental Delay, d2	1.3			1.7			8.9			7.6		
Delay (s)	32.3			23.8			42.7			40.6		
Level of Service	C			C			D			D		
Approach Delay (s)	32.3			23.8			12.7			16.4		
Approach LOS	C			C			B			B		

Intersection Summary			
HCM Average Control Delay	16.9	HCM Level of Service	B
HCM Volume-to-Capacity ratio	0.57		
Actuated Cycle Length (s)	68.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

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

New Terms +Project(Ph 1&2) PM
With Mitigation 12/4/2011



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4	4			4	4	4	4	4			
Volume (vph)	242	1671	0	0	1455	1005	649	24	937	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	14	12	12	14	12	12	12
Total Lost time (s)	5.2	6.3			6.3	6.3	5.6	5.6	5.6			
Lane Util. Factor	0.97	0.95			0.95	1.00	0.95	0.95	0.88			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.96	1.00			
Satd. Flow (prot)	3433	3539			5309	1689	1681	1691	2972			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.96	1.00			
Satd. Flow (perm)	3433	3539			5309	1689	1681	1691	2972			
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)	255	1759	0	0	1532	1058	683	25	986	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	436	0	0	16	0	0	0
Lane Group Flow (vph)	255	1759	0	0	1532	622	355	353	970	0	0	0
Turn Type	Prot				Perm	Split		Perm				
Protected Phases	5	2			6	8	8					
Permitted Phases						6		8				
Actuated Green, G (s)	14.2	66.8			47.4	47.4	41.3	41.3	41.3			
Effective Green, g (s)	14.2	66.8			47.4	47.4	41.3	41.3	41.3			
Actuated g/C Ratio	0.12	0.56			0.39	0.39	0.34	0.34	0.34			
Clearance Time (s)	5.2	6.3			6.3	6.3	5.6	5.6	5.6			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	406	1970			2097	667	579	582	1023			
v/s Ratio Prot	0.07	0.50			0.29		0.21	0.21				
v/s Ratio Perm						0.37			0.33			
v/c Ratio	0.63	0.89			0.73	0.93	0.61	0.61	0.95			
Uniform Delay, d1	50.4	23.4			30.9	34.8	32.7	32.6	38.3			
Progression Factor	0.94	0.93			0.98	2.39	1.00	1.00	1.00			
Incremental Delay, d2	2.4	5.4			1.5	15.7	1.9	1.8	16.8			
Delay (s)	49.7	27.2			31.6	98.9	34.6	34.4	55.1			
Level of Service	D	C			C	F	C	C	E			
Approach Delay (s)		30.0			59.1		46.5				0.0	
Approach LOS		C			E		D				A	

Intersection Summary												
HCM Average Control Delay		46.4		HCM Level of Service		D						
HCM Volume to Capacity ratio		0.91										
Actuated Cycle Length (s)		120.0		Sum of lost time (s)		11.9						
Intersection Capacity Utilization		102.0%		ICU Level of Service		G						
Analysis Period (min)		15										
c Critical Lane Group												

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

Near Term+Project(Ph 1&2) PM

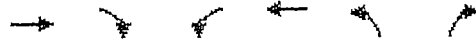
With Mitigation 3/2/2012

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	249	2381	259	53	1850	67	637	67	160	50	30	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	14	12	12	12	12	12	14	12	12	14
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	0.91		*0.96	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		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	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1689	3433	5058		5096	1863	1689	1770	1863	1689
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1689	3433	5058		5096	1863	1689	1770	1863	1689
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)	262	2506	273	56	1947	71	671	71	168	53	32	86
RTOR Reduction (vph)	0	0	54	0	2	0	0	0	144	0	0	81
Lane Group Flow (vph)	262	2506	219	56	2016	0	671	71	24	53	32	5
Turn Type	Prot	pm+ov		Prot			Prot	Perm		Prot	Perm	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4						2			6
Actuated Green, G (s)	17.7	72.5	91.1	6.3	61.1		18.6	17.3	17.3	7.9	6.6	6.6
Effective Green, g (s)	17.7	72.5	91.1	6.3	61.1		18.6	17.3	17.3	7.9	6.6	6.6
Actuated g/C Ratio	0.15	0.60	0.76	0.05	0.51		0.16	0.14	0.14	0.07	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)	506	3072	1339	180	2575		790	269	243	117	102	93
v/s Ratio Prot	c0.08	c0.49	0.03	0.02	0.40		c0.13	c0.04		0.03	0.02	
v/s Ratio Perm			0.10						0.01			0.00
v/c Ratio	0.52	0.82	0.16	0.31	0.78		0.85	0.26	0.10	0.45	0.31	0.05
Uniform Delay, d1	47.2	18.5	4.0	54.8	24.0		49.3	45.7	44.6	54.0	54.5	53.7
Progression Factor	1.02	1.04	0.95	1.19	0.82		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	1.4	0.0	0.9	2.2		8.5	0.5	0.2	2.8	1.8	0.2
Delay (s)	48.4	20.6	3.8	65.9	21.9		57.8	46.2	44.8	56.7	56.3	54.0
Level of Service	D	C	A	E	C		E	D	D	E	E	D
Approach Delay (s)		21.5			23.1			54.5			55.3	
Approach LOS		C			C			D			E	

Intersection Summary			
HCM Average Control Delay	27.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

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

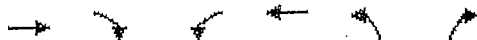
New Term +Project(Ph 1&2) PM
With Mitigation 12/4/2011



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	TTT	T	T	TTT	TT	T
Volume (vph)	2506	137	107	1935	231	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	4.0	5.0	4.0	4.0
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	1770	5085	3433	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	1770	5085	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2724	149	116	2103	251	196
RTOR Reduction (vph)	0	34	0	0	0	173
Lane Group Flow (vph)	2724	115	116	2103	251	23
Turn Type		Prot	Prot		Perm	
Protected Phases	4	4	3	8	2	
Permitted Phases					2	
Actuated Green, G (s)	80.1	80.1	12.9	97.0	14.0	14.0
Effective Green, g (s)	80.1	80.1	12.9	97.0	14.0	14.0
Actuated g/C Ratio	0.67	0.67	0.11	0.81	0.12	0.12
Clearance Time (s)	5.0	5.0	4.0	5.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3394	1057	190	4110	401	185
v/s Ratio Prot	0.54	0.07	0.07	0.41	0.07	
v/s Ratio Perm						0.01
v/c Ratio	0.80	0.11	0.61	0.51	0.63	0.12
Uniform Delay, d1	14.3	7.2	51.2	3.8	50.5	47.5
Progression Factor	0.59	0.93	1.05	1.35	1.00	1.00
Incremental Delay, d2	1.4	0.1	5.1	0.4	3.0	0.3
Delay (s)	9.9	6.8	58.8	5.5	53.5	47.8
Level of Service	A	A	E	A	D	D
Approach Delay (s)	9.7			8.3	51.0	
Approach LOS	A			A	D	
Intersection Summary						
HCM Average Control Delay		12.5		HCM Level of Service		B
HCM Volume to Capacity ratio		0.76				
Actuated Cycle Length (s)		120.0		Sum of lost time (s)		13.0
Intersection Capacity Utilization		71.8%		ICU Level of Service		C
Analysis Period (min)		15				
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis
12: Del Mar Heights Road & First Ave.

New Term +Project(Ph 1&2) PM
With Mitigation 12/4/2011



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	AAA	P	PP	AAA	PP	P
Volume (vph)	2572	114	114	1848	193	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	4.0	5.0	4.0	4.0
Lane Util. Factor	0.91	1.00	0.97	0.91	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	3433	5085	3433	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	3433	5085	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2796	124	124	2009	210	210
RTOR Reduction (vph)	0	25	0	0	0	137
Lane Group Flow (vph)	2796	99	124	2009	210	73
Turn Type		Prot	Prot		Perm	
Protected Phases	4	4	3	8	2	
Permitted Phases						2
Actuated Green, G (s)	84.2	84.2	9.7	97.9	13.1	13.1
Effective Green, g (s)	84.2	84.2	9.7	97.9	13.1	13.1
Actuated g/C Ratio	0.70	0.70	0.08	0.82	0.11	0.11
Clearance Time (s)	5.0	5.0	4.0	5.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3568	1111	278	4149	375	173
v/s Ratio Prot	0.55	0.06	0.04	0.40	0.06	
v/s Ratio Perm						0.05
v/c Ratio	0.78	0.09	0.45	0.48	0.56	0.42
Uniform Delay, d1	11.9	5.7	52.6	3.4	50.7	49.9
Progression Factor	0.48	0.91	0.99	0.92	1.00	1.00
Incremental Delay, d2	1.1	0.1	0.9	0.3	1.9	1.7
Delay (s)	6.8	5.3	52.9	3.4	52.6	51.6
Level of Service	A	A	D	A	D	D
Approach Delay (s)	6.7			6.3	52.1	
Approach LOS	A			A	D	
Intersection Summary						
HCM Average Control Delay			10.0	HCM Level of Service		
HCM Volume to Capacity ratio			0.74	B		
Actuated Cycle Length (s)			120.0	Sum of lost time (s)		
Intersection Capacity Utilization			69.1%	ICU Level of Service		
Analysis Period (min)			15	C		
c Critical Lane Group						

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

New Term +Project(Ph 1&2) PM
With Mitigation 12/4/2011



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (vph)	503	1713	490	153	938	181	613	446	308	151	169	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	5.0	5.0	4.0	5.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91		0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	4962		3433	5085	1583	3433	4648	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5085	1583	3433	4962		3433	5085	1583	3433	4648	
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)	529	1803	516	161	987	191	645	469	324	159	178	239
RTOR Reduction (vph)	0	0	273	0	22	0	0	0	102	0	215	0
Lane Group Flow (vph)	529	1803	243	161	1156	0	645	469	222	159	202	0
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	22.4	56.4	56.4	9.5	43.5		25.2	26.7	26.7	9.4	10.9	
Effective Green, g (s)	22.4	56.4	56.4	9.5	43.5		25.2	26.7	26.7	9.4	10.9	
Actuated g/C Ratio	0.19	0.47	0.47	0.08	0.36		0.21	0.22	0.22	0.08	0.09	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	5.0	5.0	4.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	641	2390	744	272	1799		721	1131	352	269	422	
v/s Ratio Prot	c0.15	c0.35		0.05	0.23		c0.19	c0.09		0.05	0.04	
v/s Ratio Perm			0.15						c0.14			
v/c Ratio	0.83	0.75	0.33	0.59	0.64		0.89	0.41	0.63	0.59	0.48	
Uniform Delay, d1	46.9	26.1	19.9	53.4	31.8		46.1	40.0	42.2	53.4	51.9	
Progression Factor	1.09	1.13	4.40	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.5	1.4	0.7	3.4	1.8		13.6	0.2	3.7	3.5	0.9	
Delay (s)	56.8	30.8	88.3	56.8	33.6		59.7	40.2	45.9	56.9	52.7	
Level of Service	E	C	F	E	C		E	D	D	E	D	
Approach Delay (s)		46.0			36.4			50.2			53.9	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	45.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

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

Near Term +Project(Ph 1&2) PM
With Mitigation 12/4/2011

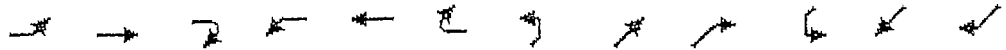


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↰	↰↰					↑↑↑		↰	↰↰↰	
Volume (vph)	537	1031	133	0	0	0	0	914	442	385	645	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0		4.0	4.0	
Lane Util. Factor	0.91	0.91	0.88					0.86		1.00	0.91	
Frt	1.00	1.00	0.85					0.95		1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1610	3382	2787					6095		1770	5085	
Flt Permitted	0.95	1.00	1.00					1.00		0.17	1.00	
Satd. Flow (perm)	1610	3382	2787					6095		324	5085	
Peak-hour factor, PHF	0.95	0.95	0.95	0.90	0.90	0.90	0.90	0.95	0.95	0.95	0.95	0.90
Adj. Flow (vph)	565	1085	140	0	0	0	0	962	465	405	679	0
RTOR Reduction (vph)	0	0	90	0	0	0	0	44	0	0	0	0
Lane Group Flow (vph)	508	1142	50	0	0	0	0	1383	0	405	679	0
Turn Type	pm+pt		Perm					pm+pt				
Protected Phases	7		4					2		1		6
Permitted Phases	4		4							6		
Actuated Green, G (s)	25.0		25.0					19.0		36.7		36.7
Effective Green, g (s)	25.0		25.0					19.0		36.7		36.7
Actuated g/C Ratio	0.36		0.36					0.27		0.53		0.53
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)	577		1213					1661		455		2677
v/s Ratio Prot	0.32		0.34					0.23		0.18		0.13
v/s Ratio Perm			0.02							0.29		
v/c Ratio	0.88		0.94					0.96dr		0.89		0.25
Uniform Delay, d1	20.9		21.6					23.9		15.8		9.0
Progression Factor	1.00		1.00					1.00		1.00		1.00
Incremental Delay, d2	14.6		14.1					3.7		19.1		0.1
Delay (s)	35.5		35.7					27.6		34.8		9.1
Level of Service	D		D					C		C		A
Approach Delay (s)			34.0			0.0		27.6				18.7
Approach LOS			C			A		C				B

Intersection Summary			
HCM Average Control Delay	28.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	69.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	100.0%	ICU Level of Service	G
Analysis Period (min)	15		
dr Defacto Right Lane. Recode with 1 though lane as a right lane			
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
36: Del Mar Trail & Carmel Creek Road

New Term +Project(Ph 1&2) PM
With Mitigation 12/4/2011



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Volume (vph)	5	5	4	57	12	10	12	777	103	15	439	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	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.97			0.98		1.00	0.98		1.00	1.00	
Flt Protected		0.98			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1767			1767		1770	3477		1770	3528	
Flt Permitted		0.98			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1767			1767		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	0.90
Adj. Flow (vph)	6	6	4	63	13	11	13	863	114	17	488	11
RTOR Reduction (vph)	0	4	0	0	3	0	0	7	0	0	1	0
Lane Group Flow (vph)	0	12	0	0	84	0	13	970	0	17	498	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	6	6		2	2		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)		0.8			7.0		0.8	25.1		0.8	25.1	
Effective Green, g (s)		0.8			7.0		0.8	25.1		0.8	25.1	
Actuated g/C Ratio		0.02			0.14		0.02	0.51		0.02	0.51	
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)		28			249		28	1756		28	1782	
v/s Ratio Prot		0.01			0.05		0.01	0.28		0.01	0.14	
v/s Ratio Perm												
v/c Ratio		0.43			0.34		0.46	0.55		0.61	0.28	
Uniform Delay, d1		24.2			19.3		24.2	8.4		24.3	7.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		10.3			0.8		11.7	0.4		32.0	0.1	
Delay (s)		34.5			20.1		35.9	8.8		56.3	7.2	
Level of Service		C			C		D	A		E	A	
Approach Delay (s)		34.5			20.1			9.2			8.8	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM Average Control Delay	9.9			HCM Level of Service			A					
HCM Volume to Capacity ratio	0.51											
Actuated Cycle Length (s)	49.7			Sum of lost time (s)			16.0					
Intersection Capacity Utilization	39.7%			ICU Level of Service			A					
Analysis Period (min)	15											
c Critical Lane Group												

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

Near Term +Project(BO) AM
With Mitigation 12/4/2011



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TH	TH			THH	T	T	T	TH			
Volume (vph)	231	1524	0	0	1569	962	384	59	1104	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	6.3			6.3	6.3	5.6	5.6	5.6			
Lane Util. Factor	0.97	0.95			0.91	1.00	0.95	0.95	0.88			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.96	1.00			
Satd. Flow (prot)	3433	3539			5085	1583	1681	1707	2787			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.96	1.00			
Satd. Flow (perm)	3433	3539			5085	1583	1681	1707	2787			
Peak-hour factor, PHF	0.95	0.95	0.95	0.90	0.95	0.95	0.95	0.95	0.95	0.90	0.90	0.90
Adj. Flow (vph)	243	1604	0	0	1652	1013	404	62	1162	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	478	0	0	12	0	0	0
Lane Group Flow (vph)	243	1604	0	0	1652	535	230	236	1150	0	0	0
Turn Type	Prot					Perm	Split		Perm			
Protected Phases	5		2			6	8	8				
Permitted Phases						6			8			
Actuated Green, G (s)	11.5	58.7			42.0	42.0	49.4	49.4	49.4			
Effective Green, g (s)	11.5	58.7			42.0	42.0	49.4	49.4	49.4			
Actuated g/C Ratio	0.10	0.49			0.35	0.35	0.41	0.41	0.41			
Clearance Time (s)	5.2	6.3			6.3	6.3	5.6	5.6	5.6			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	329	1731			1780	554	692	703	1147			
v/s Ratio Prot	0.07	0.45			0.32		0.14	0.14				
v/s Ratio Perm						0.34			0.41			
v/c Ratio	0.74	0.93			0.93	0.97	0.33	0.34	1.00			
Uniform Delay, d1	52.8	28.6			37.5	38.3	24.1	24.1	35.3			
Progression Factor	0.82	1.37			0.62	1.59	1.00	1.00	1.00			
Incremental Delay, d2	5.4	6.9			5.9	21.0	0.3	0.3	27.1			
Delay (s)	48.8	46.1			29.1	82.0	24.3	24.4	62.4			
Level of Service	D	D			C	F	C	C	E			
Approach Delay (s)		46.5			49.2			51.5			0.0	
Approach LOS		D			D			D			A	
Intersection Summary												
HCM Average Control Delay			49.0		HCM Level of Service			D				
HCM Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			120.0		Sum of lost time (s)			11.9				
Intersection Capacity Utilization			92.6%		ICU Level of Service			F				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

10: Del Mar Heights Road & High Bluff Drive

Near Term+Project(BO) AM

With Mitigation 3/2/2012

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	111	1813	694	109	2052	75	201	10	45	113	59	312
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91		0.94	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		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	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5058		4990	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5058		4990	1863	1583	1770	1863	1583
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)	117	1908	731	115	2160	79	212	11	47	119	62	328
RTOR Reduction (vph)	0	0	158	0	2	0	0	0	44	0	0	253
Lane Group Flow (vph)	117	1908	573	115	2237	0	212	11	3	119	62	75
Turn Type	Prot	pm+ov		Prot			Prot	Perm		Prot	Over	
Protected Phases	7	4	5	3	8		5	2		1	6	7
Permitted Phases			4						2			
Actuated Green, G (s)	12.1	74.5	86.3	9.5	71.9		11.8	6.6	6.6	13.4	8.2	12.1
Effective Green, g (s)	12.1	74.5	86.3	9.5	71.9		11.8	6.6	6.6	13.4	8.2	12.1
Actuated g/C Ratio	0.10	0.62	0.72	0.08	0.60		0.10	0.06	0.06	0.11	0.07	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
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)	346	3157	1191	272	3031		491	102	87	198	127	160
v/s Ratio Prot	0.03	c0.38	0.05	0.03	c0.44		0.04	0.01		c0.07	c0.03	c0.05
v/s Ratio Perm			0.31						0.00			
v/c Ratio	0.34	0.60	0.48	0.42	0.74		0.43	0.11	0.03	0.60	0.49	0.47
Uniform Delay, d1	50.2	13.8	7.2	52.6	17.3		50.9	53.9	53.7	50.8	53.9	50.9
Progression Factor	0.91	1.27	2.06	1.07	0.66		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.3	0.1	0.9	1.4		0.6	0.5	0.1	5.1	2.9	2.2
Delay (s)	45.8	17.8	15.0	57.0	12.9		51.6	54.4	53.8	55.8	56.8	53.1
Level of Service	D	B	B	E	B		D	D	D	E	E	D
Approach Delay (s)		18.2			15.0			52.1			54.2	
Approach LOS		B			B			D			D	
Intersection Summary												
HCM Average Control Delay	21.6			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.68											
Actuated Cycle Length (s)	120.0			Sum of lost time (s)			16.0					
Intersection Capacity Utilization	74.5%			ICU Level of Service			D					
Analysis Period (min)	15											
c Critical Lane Group												

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

Near Term +Project(BO) AM
With Mitigation 12/4/2011



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	TTT	T	T	TTT	TTT	T
Volume (vph)	1974	190	147	2182	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
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	1770	5085	3433	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	1770	5085	3433	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2078	200	155	2297	91	71
RTOR Reduction (vph)	0	51	0	0	0	66
Lane Group Flow (vph)	2078	149	155	2297	91	5
Turn Type		Perm	Prot		Perm	
Protected Phases	4		3	8	2	
Permitted Phases		4			2	
Actuated Green, G (s)	83.7	83.7	15.7	103.4	8.6	8.6
Effective Green, g (s)	83.7	83.7	15.7	103.4	8.6	8.6
Actuated g/C Ratio	0.70	0.70	0.13	0.86	0.07	0.07
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3547	1104	232	4382	246	113
v/s Ratio Prot	0.41		0.09	0.45	0.03	
v/s Ratio Perm		0.09				0.00
v/c Ratio	0.59	0.13	0.67	0.52	0.37	0.05
Uniform Delay, d1	9.3	6.1	49.7	2.1	53.1	51.9
Progression Factor	0.40	0.13	1.16	1.08	1.00	1.00
Incremental Delay, d2	0.6	0.2	6.0	0.4	0.9	0.2
Delay (s)	4.3	1.0	63.8	2.6	54.1	52.0
Level of Service	A	A	E	A	D	D
Approach Delay (s)	4.0			6.5	53.2	
Approach LOS	A			A	D	
Intersection Summary						
HCM Average Control Delay	6.9		HCM Level of Service		A	
HCM Volume to Capacity ratio	0.58					
Actuated Cycle Length (s)	120.0		Sum of lost time (s)		12.0	
Intersection Capacity Utilization	59.6%		ICU Level of Service		B	
Analysis Period (min)	15					
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis
12: Del Mar Heights Road & First Ave.

New Term +Project(BO) AM
With Mitigation 12/4/2011



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	TTT	T	TTT	TTT	T	T
Volume (vph)	1883	158	158	2257	72	72
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	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2047	172	172	2453	78	78
RTOR Reduction (vph)	0	44	0	0	0	71
Lane Group Flow (vph)	2047	128	172	2453	78	7
Turn Type		Perm	Prot		Perm	
Protected Phases	4		3	8	2	
Permitted Phases		4			2	
Actuated Green, G (s)	86.1	86.1	11.3	101.4	10.6	10.6
Effective Green, g (s)	86.1	86.1	11.3	101.4	10.6	10.6
Actuated g/C Ratio	0.72	0.72	0.09	0.85	0.09	0.09
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3648	1136	323	4297	156	140
v/s Ratio Prot			0.05	0.48	0.04	
v/s Ratio Perm		0.08			0.00	
v/c Ratio	0.56	0.11	0.53	0.57	0.50	0.05
Uniform Delay, d1	8.0	5.2	51.8	2.8	52.2	50.1
Progression Factor	0.23	0.00	0.85	1.97	1.00	1.00
Incremental Delay, d2	0.5	0.2	1.1	0.3	2.5	0.1
Delay (s)	2.4	0.2	45.0	5.8	54.7	50.2
Level of Service	A	A	D	A	D	D
Approach Delay (s)	2.2			8.4	52.5	
Approach LOS	A			A	D	

Intersection Summary			
HCM Average Control Delay	7.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		
c. Critical Lane Group			

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

Near Term +Project(BO) AM
With Mitigation 12/4/2011

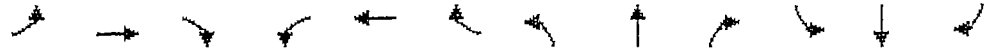


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	👉👉	👉👉👉	👉	👉👉	👉👉👉		👉👉	👉👉👉	👉	👉👉	👉👉	
Volume (vph)	239	1013	514	269	1623	95	312	113	98	164	333	459
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91		0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	5043		3433	5085	1583	3433	4643	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5085	1583	3433	5043		3433	5085	1583	3433	4643	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	252	1066	541	283	1708	100	332	120	104	178	362	499
RTOR Reduction (vph)	0	0	181	0	5	0	0	0	81	0	161	0
Lane Group Flow (vph)	252	1066	360	283	1803	0	332	120	23	178	700	0
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	12.4	52.9	52.9	14.3	54.8		14.5	26.3	26.3	10.5	22.3	
Effective Green, g (s)	12.4	52.9	52.9	14.3	54.8		14.5	26.3	26.3	10.5	22.3	
Actuated g/C Ratio	0.10	0.44	0.44	0.12	0.46		0.12	0.22	0.22	0.09	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	
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)	355	2242	698	409	2303		415	1114	347	300	863	
v/s Ratio Prot	0.07	0.21		0.08	0.36		0.10	0.02		0.05	0.15	
v/s Ratio Perm			0.23						0.01			
v/c Ratio	0.71	0.48	0.52	0.69	0.78		0.80	0.11	0.07	0.59	1.10	
Uniform Delay, d1	52.1	23.7	24.3	50.7	27.6		51.3	37.5	37.1	52.7	46.8	
Progression Factor	1.31	0.36	0.53	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.4	0.6	2.3	5.0	2.7		10.6	0.0	0.1	3.1	5.8	
Delay (s)	73.9	9.1	15.1	55.7	30.3		61.9	37.5	37.2	55.8	52.7	
Level of Service	E	A	B	E	C		E	D	D	E	D	
Approach Delay (s)		19.6			33.7			52.0			53.2	
Approach LOS		B			C			D			D	

Intersection Summary			
HCM Average Control Delay	34.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	79.3%	ICU Level of Service	D
Analysis Period (min)	15		
dr Defacto Right Lane. Recode with 1 though lane as a right lane.			
c Critical Lane Group			

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

Near Term +Project(BO) AM
With Mitigation 12/4/2011



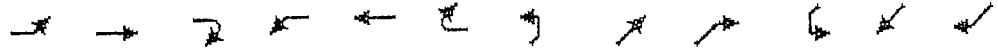
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↰	↰↰					↑↑↑		↰	↰↰↰	
Volume (vph)	651	943	317	0	0	0	0	412	227	154	755	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0		4.0	4.0	
Lane Util. Factor	0.91	0.91	0.88					0.86		1.00	0.91	
Frt.	1.00	1.00	0.85					0.95		1.00	1.00	
Flt Protected	0.95	0.99	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1610	3369	2787					6067		1770	5085	
Flt Permitted	0.95	0.99	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1610	3369	2787					6067		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
Adj. Flow (vph)	723	1048	352	0	0	0	0	458	252	171	839	0
RTOR Reduction (vph)	0	0	111	0	0	0	0	130	0	0	0	0
Lane-Group Flow (vph)	571	1200	241	0	0	0	0	580	0	171	839	0
Turn Type	Prot		Perm							Prot		
Protected Phases	7	4						2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	30.2	30.2	30.2					13.0		11.6	28.6	
Effective Green, g (s)	30.2	30.2	30.2					13.0		11.6	28.6	
Actuated g/C Ratio	0.45	0.45	0.45					0.19		0.17	0.43	
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)	728	1523	1260					1181		307	2177	
v/s Ratio Prot	0.35	0.36						0.10		0.10	0.16	
v/s Ratio Perm			0.09									
v/c Ratio	0.78	0.79	0.19					0.49		0.56	0.39	
Uniform Delay, d1	15.5	15.6	11.0					24.0		25.2	13.1	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	5.5	2.8	0.1					0.3		2.2	0.1	
Delay (s)	21.1	18.4	11.0					24.3		27.4	13.2	
Level of Service	C	B	B					C		C	B	
Approach Delay (s)		17.9			0.0			24.3			15.6	
Approach LOS		B			A			C			B	

Intersection Summary		
HCM Average Control Delay	18.5	HCM Level of Service B
HCM Volume to Capacity ratio	0.67	
Actuated Cycle Length (s)	66.8	Sum of lost time (s) 12.0
Intersection Capacity Utilization	97.2%	ICU Level of Service F
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
36: Del Mar Trail & Carmel Creek Road

Near Term

+Project(BO) AM
With Mitigation 12/4/2011



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↔			↔			↔			↔		
Volume (vph)	10	10	10	206	2	26	3	276	103	15	966	3
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		
Lane Util. Factor	1.00			1.00			1.00			1.00		
Frt	0.96			0.98			1.00			1.00		
Flt Protected	0.98			0.96			0.95			0.95		
Satd. Flow (prot)	1750			1757			1770			1770		
Flt Permitted	0.98			0.96			0.95			0.95		
Satd. Flow (perm)	1750			1757			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)	11	11	11	229	2	29	3	307	114	17	1073	3
RTOR Reduction (vph)	0	10	0	0	4	0	0	29	0	0	0	0
Lane Group Flow (vph)	0	23	0	0	256	0	3	392	0	17	1076	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	6			2			7			3		
Permitted Phases												
Actuated Green, G (s)	3.7			17.5			0.5			1.5		
Effective Green, g (s)	3.7			17.5			0.5			1.5		
Actuated g/C Ratio	0.05			0.26			0.01			0.02		
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)	94			448			13			39		
v/s Ratio Prot	0.01			0.15			0.00			0.01		
v/s Ratio Perm												
v/c Ratio	0.24			0.57			0.23			0.44		
Uniform Delay, d1	31.1			22.3			33.9			33.1		
Progression Factor	1.00			1.00			1.00			1.00		
Incremental Delay, d2	1.3			1.8			8.9			7.6		
Delay (s)	32.4			24.1			42.8			40.7		
Level of Service	C			C			D			D		
Approach Delay (s)	32.4			24.1			12.7			16.4		
Approach LOS	C			C			B			B		

Intersection Summary			
HCM Average Control Delay	16.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	68.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

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

New Term +Project (BO) PM
With Mitigation 12/4/2011



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBL	EBT			WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (vph)	242	1772	0	0	1545	1043	649	24	1024	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	14	12	12	13	12	12	12
Total Lost time (s)	5.2	6.3			6.3	6.3	5.6	5.6	5.6			
Lane Util. Factor	0.97	0.95			*0.98	1.00	0.95	0.95	*0.95			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.96	1.00			
Satd. Flow (prot)	3433	3539			5476	1689	1681	1691	3109			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.96	1.00			
Satd. Flow (perm)	3433	3539			5476	1689	1681	1691	3109			
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)	255	1865	0	0	1626	1098	683	25	1078	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	434	0	0	14	0	0	0
Lane Group Flow (vph)	255	1865	0	0	1626	664	355	353	1064	0	0	0
Turn Type	Prot				Perm	Split		Perm				
Protected Phases	5	2			6	8	8					
Permitted Phases						6		8				
Actuated Green, G (s)	14.2	66.7			47.3	47.3	41.4	41.4	41.4			
Effective Green, g (s)	14.2	66.7			47.3	47.3	41.4	41.4	41.4			
Actuated g/C Ratio	0.12	0.56			0.39	0.39	0.34	0.34	0.34			
Clearance Time (s)	5.2	6.3			6.3	6.3	5.6	5.6	5.6			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap. (vph)	406	1967			2158	666	580	583	1073			
v/s Ratio Prot	0.07	0.53			0.30		0.21	0.21				
v/s Ratio Perm						0.39			0.34			
v/c Ratio	0.63	0.95			0.75	1.00	0.61	0.61	0.99			
Uniform Delay, d1	50.4	25.0			31.3	36.3	32.6	32.5	39.1			
Progression Factor	0.92	0.93			1.41	2.41	1.00	1.00	1.00			
Incremental Delay, d2	2.5	9.6			1.5	26.6	1.9	1.8	25.4			
Delay (s)	49.1	32.8			45.8	114.0	34.6	34.3	64.5			
Level of Service	D	C			D	F	C	C	E			
Approach Delay (s)		34.8			73.3			52.6			0.0	
Approach LOS		C			E			D			A	

Intersection Summary

HCM Average Control Delay	55.4	HCM Level of Service	E
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.9
Intersection Capacity Utilization	104.3%	ICU Level of Service	G
Analysis Period (min)	15		

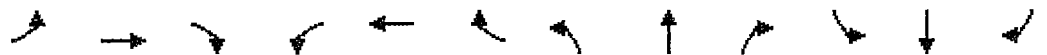
c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

10: Del Mar Heights Road & High Bluff Drive

Near Term+Project (BO) PM

With Mitigation 3/2/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	249	2569	259	66	2016	80	637	67	175	65	30	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	14
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	0.91		*0.96	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		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	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5056		5096	1863	1583	1770	1863	1689
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5056		5096	1863	1583	1770	1863	1689
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)	262	2704	273	69	2122	84	671	71	184	68	32	86
RTOR Reduction (vph)	0	0	59	0	3	0	0	0	154	0	0	81
Lane Group Flow (vph)	262	2704	214	69	2203	0	671	71	30	68	32	5
Turn Type	Prot		pm+ov	Prot			Prot		Perm	Prot		Prot
Protected Phases	7	4	5	3	8		5	2		1	6	6
Permitted Phases			4						2			
Actuated Green, G (s)	14.8	68.8	90.8	6.6	60.6		22.0	19.8	19.8	8.8	6.6	6.6
Effective Green, g (s)	14.8	68.8	90.8	6.6	60.6		22.0	19.8	19.8	8.8	6.6	6.6
Actuated g/C Ratio	0.12	0.57	0.76	0.06	0.50		0.18	0.16	0.16	0.07	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)	423	2915	1251	189	2553		934	307	261	130	102	93
v/s Ratio Prot	c0.08	c0.53	0.03	0.02	0.44		c0.13	c0.04		0.04	0.02	0.00
v/s Ratio Perm			0.10						0.02			
v/c Ratio	0.62	0.93	0.17	0.37	0.86		0.72	0.23	0.12	0.52	0.31	0.05
Uniform Delay, d1	49.9	23.3	4.1	54.7	26.1		46.1	43.5	42.7	53.6	54.5	53.7
Progression Factor	1.06	0.84	0.93	1.06	1.17		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	3.3	0.0	1.0	3.5		2.7	0.4	0.2	3.8	1.8	0.2
Delay (s)	54.1	22.9	3.8	58.7	34.0		48.8	43.9	42.9	57.3	56.3	54.0
Level of Service	D	C	A	E	C		D	D	D	E	E	D
Approach Delay (s)		23.9			34.7			47.2			55.6	
Approach LOS		C			C			D			E	

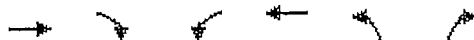
Intersection Summary

HCM Average Control Delay	31.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	81.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

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

New Term +Project (BO) PM
With Mitigation 12/4/2011

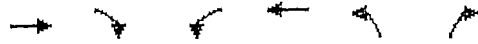


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	AAA	P	P	AAA	PP	P
Volume (vph)	2633	221	172	2047	306	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	4.0	5.0	4.0	4.0
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	1770	5085	3433	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	1770	5085	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2862	240	187	2225	333	259
RTOR Reduction (vph)	0	58	0	0	0	181
Lane Group Flow (vph)	2862	182	187	2225	333	78
Turn Type		Prot	Prot		Perm	
Protected Phases	4	4	3	8	2	
Permitted Phases					2	
Actuated Green, G (s)	74.9	74.9	16.0	94.9	16.1	16.1
Effective Green, g (s)	74.9	74.9	16.0	94.9	16.1	16.1
Actuated g/C Ratio	0.62	0.62	0.13	0.79	0.13	0.13
Clearance Time (s)	5.0	5.0	4.0	5.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3174	988	236	4021	461	212
v/s Ratio Prot	0.56	0.11	0.11	0.44	0.10	
v/s Ratio Perm					0.05	
v/c Ratio	0.90	0.18	0.79	0.55	0.72	0.37
Uniform Delay, d1	19.4	9.6	50.4	4.7	49.8	47.3
Progression Factor	0.54	0.10	1.12	0.69	1.00	1.00
Incremental Delay, d2	2.7	0.2	14.5	0.5	5.5	1.1
Delay (s)	13.2	1.2	70.8	3.7	55.8	48.4
Level of Service	B	A	E	A	E	D
Approach Delay (s)	12.2			8.9	52.3	
Approach LOS	B			A	D	

Intersection Summary			
HCM Average Control Delay	14.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
12: Del Mar Heights Road & First Ave.

New Term +Project (BO) PM
With Mitigation 12/4/2011

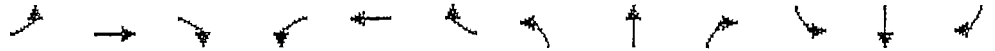


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	TTT	T	TTT	TTT	TTT	T
Volume (vph)	2687	184	184	1964	255	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	4.0	5.0	4.0	4.0
Lane Util. Factor	0.91	1.00	0.97	0.91	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	3433	5085	3433	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	3433	5085	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2921	200	200	2135	277	277
RTOR Reduction (vph)	0	45	0	0	0	132
Lane Group Flow (vph)	2921	155	200	2135	277	145
Turn Type	Prot		Prot	Perm		
Protected Phases	4	4	3	8	2	
Permitted Phases						2
Actuated Green, G (s)	79.4	79.4	11.5	94.9	16.1	16.1
Effective Green, g (s)	79.4	79.4	11.5	94.9	16.1	16.1
Actuated g/C Ratio	0.66	0.66	0.10	0.79	0.13	0.13
Clearance Time (s)	5.0	5.0	4.0	5.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3365	1047	329	4021	461	212
v/s Ratio Prot	0.57	0.10	0.06	0.42	0.08	
v/s Ratio Perm						0.09
w/c Ratio	0.87	0.15	0.61	0.53	0.60	0.68
Uniform Delay, d1	16.1	7.6	52.1	4.5	48.9	49.5
Progression Factor	0.36	0.63	0.94	1.30	1.00	1.00
Incremental Delay, d2	1.5	0.1	2.3	0.4	2.2	8.7
Delay (s)	7.3	4.9	51.0	6.2	51.1	58.2
Level of Service	A	A	D	A	D	E
Approach Delay (s)	7.1			10.1	54.7	
Approach LOS	A			B	D	

Intersection Summary		
HCM Average Control Delay	12.7	HCM Level of Service B
HCM Volume to Capacity ratio	0.81	
Actuated Cycle Length (s)	120.0	Sum of lost time (s) 13.0
Intersection Capacity Utilization	75.3%	ICU Level of Service D
Analysis Period (min)	15	
c Critical Lane Group		

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

New Term +Project (BO) PM
With Mitigation 12/4/2011



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	FF	FF	F	FF	FF		FF	FF	F	FF	FF	
Volume (vph)	520	1817	546	182	1046	181	672	455	325	151	178	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	14	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	5.0	5.0	4.0	5.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91		0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5085	1689	3433	4973		3433	5085	1583	3433	4644	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5085	1689	3433	4973		3433	5085	1583	3433	4644	
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)	547	1913	575	192	1101	191	707	479	342	159	187	257
RTOR Reduction (vph)	0	0	316	0	20	0	0	0	87	0	217	0
Lane Group Flow (vph)	547	1913	259	192	1273	0	707	479	255	159	227	0
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	22.4	54.0	54.0	10.4	42.0		26.0	28.2	28.2	9.4	11.6	
Effective Green, g (s)	22.4	54.0	54.0	10.4	42.0		26.0	28.2	28.2	9.4	11.6	
Actuated g/C Ratio	0.19	0.45	0.45	0.09	0.35		0.22	0.24	0.24	0.08	0.10	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	5.0	5.0	4.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane-Grp Cap. (vph)	641	2288	760	298	1741		744	1195	372	269	449	
v/s Ratio Prot	0.16	0.38		0.06	0.26		0.21	0.09		0.05	0.05	
v/s Ratio Perm			0.15						0.16			
v/c Ratio	0.85	0.84	0.34	0.64	0.73		0.95	0.40	0.68	0.59	0.51	
Uniform Delay, d1	47.2	29.1	21.4	53.0	34.1		46.4	38.8	41.8	53.4	51.5	
Progression Factor	1.18	1.16	4.47	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.6	1.9	0.6	4.7	2.7		21.6	0.2	5.2	3.5	0.9	
Delay (s)	61.1	35.6	96.3	57.7	36.8		68.0	39.0	47.0	56.9	52.4	
Level of Service	E	D	F	E	D		E	D	D	E	D	
Approach Delay (s)		51.7			39.5			54.2			53.6	
Approach LOS		D			D			D			D	

Intersection Summary												
HCM Average Control Delay		49.7		HCM Level of Service		D						
HCM Volume to Capacity ratio		0.81										
Actuated Cycle Length (s)		120.0		Sum of lost time (s)		8.0						
Intersection Capacity Utilization		83.4%		ICU Level of Service		E						
Analysis Period (min)		15										
c Critical Lane Group												

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

New Term +Project (BO) PM
With Mitigation 12/4/2011

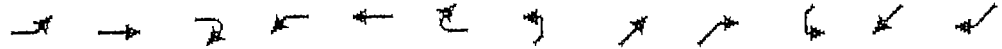


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	537	1031	133	0	0	0	0	924	442	385	654	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0		4.0	4.0	
Lane Util. Factor	0.91	0.91	0.88					0.86		1.00	0.91	
Frt	1.00	1.00	0.85					0.95		1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1610	3382	2787					6097		1770	5085	
Flt Permitted	0.95	1.00	1.00					1.00		0.16	1.00	
Satd. Flow (perm)	1610	3382	2787					6097		298	5085	
Peak-hour factor, PHF	0.95	0.95	0.95	0.90	0.90	0.90	0.90	0.95	0.95	0.95	0.95	0.90
Adj. Flow (vph)	565	1085	140	0	0	0	0	973	465	405	688	0
RTOR Reduction (vph)	0	0	89	0	0	0	0	43	0	0	0	0
Lane Group Flow (vph)	508	1142	51	0	0	0	0	1395	0	405	688	0
Turn Type	pm+pt		Perm							pm+pt		
Protected Phases	7	4						2		1	6	
Permitted Phases	4		4							6		
Actuated Green, G (s)	26.9	26.9	26.9					21.0		39.6	39.6	
Effective Green, g (s)	26.9	26.9	26.9					21.0		39.6	39.6	
Actuated g/C Ratio	0.36	0.36	0.36					0.28		0.53	0.53	
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)	581	1221	1006					1719		447	2703	
v/s Ratio Prot	0.32	c0.34						0.23		c0.18	0.14	
v/s Ratio Perm			0.02							c0.30		
v/c Ratio	0.87	0.94	0.05					0.94		0.91	0.25	
Uniform Delay, d1	22.2	23.0	15.5					24.9		17.8	9.5	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	13.7	13.1	0.0					3.0		21.6	0.1	
Delay (s)	36.0	36.0	15.5					27.9		39.4	9.5	
Level of Service	D	D	B					C		D	A	
Approach Delay (s)		34.4			0.0			27.9			20.6	
Approach LOS		C			A			C			C	

Intersection Summary			
HCM Average Control Delay	28.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	74.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	100.2%	ICU Level of Service	G
Analysis Period (min)	15		
dr Defacto Right Lane. Recode with 1 though lane as a right lane.			
c Critical Lane Group.			

HCM Signalized Intersection Capacity Analysis
36: Del Mar Trail & Carmel Creek Road

New Term +Project (BO) PM
With Mitigation 12/4/2011



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	5	5	4	57	12	10	12	792	103	15	452	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	
Lane Util. Factor	1.00		1.00		1.00		0.95		1.00		0.95	
Frt	0.97		0.98		1.00		0.98		1.00		1.00	
Flt Protected	0.98		0.97		0.95		1.00		0.95		1.00	
Satd. Flow (prot)	1767		1767		1770		3478		1770		3528	
Flt Permitted	0.98		0.97		0.95		1.00		0.95		1.00	
Satd. Flow (perm)	1767		1767		1770		3478		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	0.90
Adj. Flow (vph)	6	6	4	63	13	11	13	880	114	17	502	11
RTOR Reduction (vph)	0	4	0	0	3	0	0	7	0	0	1	0
Lane Group Flow (vph)	0	12	0	0	84	0	13	987	0	17	512	0
Turn Type	Split		Split		Prot		Prot		Prot		Prot	
Protected Phases	6		2		3		8		7		4	
Permitted Phases												
Actuated Green, G (s)	0.8		7.0		0.8		25.5		0.8		25.5	
Effective Green, g (s)	0.8		7.0		0.8		25.5		0.8		25.5	
Actuated g/C Ratio	0.02		0.14		0.02		0.51		0.02		0.51	
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)	28		247		28		1770		28		1796	
v/s Ratio Prot	0.01		0.05		0.01		0.28		0.01		0.15	
v/s Ratio Perm												
v/c Ratio	0.43		0.34		0.46		0.56		0.61		0.29	
Uniform Delay, d1	24.4		19.5		24.4		8.4		24.5		7.1	
Progression Factor	1.00		1.00		1.00		1.00		1.00		1.00	
Incremental Delay, d2	10.3		0.8		11.7		0.4		32.0		0.1	
Delay (s)	34.7		20.3		36.1		8.8		56.5		7.2	
Level of Service	C		C		D		A		E		A	
Approach Delay (s)	34.7		20.3		9.2		8.7					
Approach LOS	C		C		A		A				A	

Intersection Summary			
HCM Average Control Delay	9.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	50.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	40.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

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

Year 2030+Project AM
With Mitigation 12/4/2011



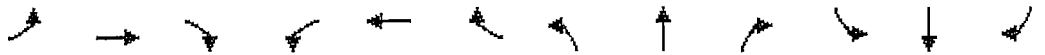
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	370	1802	0	0	1951	843	400	60	1300	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	6.3			6.3	6.3	5.6	5.6	5.6			
Lane Util. Factor	0.97	0.95			0.91	1.00	0.95	0.95	0.88			
Flt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.96	1.00			
Satd. Flow (prot)	3433	3539			5085	1583	1681	1706	2787			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.96	1.00			
Satd. Flow (perm)	3433	3539			5085	1583	1681	1706	2787			
Peak-hour factor, PHF	0.95	0.95	0.95	0.90	0.95	0.95	0.95	0.95	0.95	0.90	0.90	0.90
Adj. Flow (vph)	389	1897	0	0	2054	887	421	63	1368	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	444	0	0	7	0	0	0
Lane Group Flow (vph)	389	1897	0	0	2054	443	240	244	1361	0	0	0
Turn Type	Prot				Perm		Split		Perm			
Protected Phases	5	2			6		8	8				
Permitted Phases						6			8			
Actuated Green, G (s)	11.8	61.7			44.7	44.7	46.4	46.4	46.4			
Effective Green, g (s)	11.8	61.7			44.7	44.7	46.4	46.4	46.4			
Actuated g/C Ratio	0.10	0.51			0.37	0.37	0.39	0.39	0.39			
Clearance Time (s)	5.2	6.3			6.3	6.3	5.6	5.6	5.6			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	338	1820			1894	590	650	660	1078			
v/s Ratio Prot	0.11	0.54			0.40		0.14	0.14				
v/s Ratio Perm						0.28			0.49			
v/c Ratio	1.15	1.04			1.08	0.75	0.37	0.37	1.26			
Uniform Delay, d1	54.1	29.2			37.6	32.8	26.3	26.3	36.8			
Progression Factor	0.98	0.92			1.22	2.94	1.00	1.00	1.00			
Incremental Delay, d2	95.3	32.5			44.3	5.3	0.4	0.4	125.5			
Delay (s)	148.3	59.2			90.2	101.5	26.7	26.7	162.3			
Level of Service	F	E			F	F	C	C	F			
Approach Delay (s)		74.4			93.6			126.9			0.0	
Approach LOS		E			F			F			A	

Intersection Summary			
HCM Average Control Delay	96.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.9
Intersection Capacity Utilization	105.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

10: Del Mar Heights Road & High Bluff Drive

Year 2030+Project AM
With Mitigation 1/9/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	120	1901	840	224	1951	124	290	30	62	152	70	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	14	12	12	12	12	12	14	12	12	14
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	0.91		0.94	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		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	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1689	3433	5040		4990	1863	1689	1770	1863	1689
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1689	3433	5040		4990	1863	1689	1770	1863	1689
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)	126	2001	884	236	2054	131	305	32	65	160	74	421
RTOR Reduction (vph)	0	0	108	0	5	0	0	0	60	0	0	184
Lane Group Flow (vph)	126	2001	776	236	2180	0	305	32	5	160	74	237
Turn Type	Prot		pm+ov	Prot			Prot		Perm	Prot		Over
Protected Phases	7	4	5	3	8		5	2		1	6	7
Permitted Phases			4						2			
Actuated Green, G (s)	22.0	67.6	82.2	13.0	58.6		14.6	8.6	8.6	14.8	8.8	22.0
Effective Green, g (s)	22.0	67.6	82.2	13.0	58.6		14.6	8.6	8.6	14.8	8.8	22.0
Actuated g/C Ratio	0.18	0.56	0.68	0.11	0.49		0.12	0.07	0.07	0.12	0.07	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)	629	2865	1213	372	2461		607	134	121	218	137	310
v/s Ratio Prot	0.04	0.39	c0.08	0.07	c0.43		0.06	0.02		0.09	c0.04	c0.14
v/s Ratio Perm			0.38						0.00			
v/c Ratio	0.20	0.70	0.64	0.63	0.89		0.50	0.24	0.04	0.73	0.54	0.77
Uniform Delay, d1	41.5	18.9	10.6	51.2	27.7		49.3	52.6	51.9	50.7	53.6	46.5
Progression Factor	1.03	1.03	0.93	0.97	1.28		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0	0.1	0.1	3.1	4.5		0.7	0.9	0.1	12.0	4.3	10.7
Delay (s)	42.7	19.6	10.0	52.5	39.9		50.0	53.5	52.0	62.7	57.9	57.3
Level of Service	D	B	A	D	D		D	D	D	E	E	E
Approach Delay (s)		17.7			41.1			50.6			58.7	
Approach LOS		B			D			D			E	

Intersection Summary												
HCM Average Control Delay		32.6		HCM Level of Service						C		
HCM Volume to Capacity ratio		0.75										
Actuated Cycle Length (s)		120.0		Sum of lost time (s)					8.0			
Intersection Capacity Utilization		80.7%		ICU Level of Service					D			
Analysis Period (min)		15										

c Critical Lane Group

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

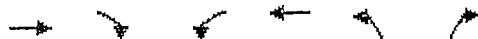
Year 2030+Project AM
With Mitigation 12/4/2011



Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	444	4	4	444	44	4	
Volume (vph)	1954	206	160	2128	90	70	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	1.00	
Frt	1.00	0.85	1.00	1.00	1.00	0.85	
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (prot)	5085	1583	1770	5085	3433	1583	
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (perm)	5085	1583	1770	5085	3433	1583	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	2124	224	174	2313	98	76	
RTOR Reduction (vph)	0	51	0	0	0	70	
Lane Group Flow (vph)	2124	173	174	2313	98	6	
Turn Type		Perm	Prot		Perm		
Protected Phases	4		3	8	2		
Permitted Phases		4			2		
Actuated Green, G (s)	82.1	82.1	17.1	103.2	8.8	8.8	
Effective Green, g (s)	82.1	82.1	17.1	103.2	8.8	8.8	
Actuated g/C Ratio	0.68	0.68	0.14	0.86	0.07	0.07	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	3479	1083	252	4373	252	116	
v/s Ratio Prot	c0.42		c0.10	0.45	c0.03		
v/s Ratio Perm		0.11				0.00	
w/C Ratio	0.61	0.16	0.69	0.53	0.39	0.05	
Uniform Delay, d1	10.3	6.7	48.9	2.2	53.0	51.7	
Progression Factor	0.43	0.16	1.05	1.18	1.00	1.00	
Incremental Delay, d2	0.6	0.2	6.7	0.4	1.0	0.2	
Delay (s)	5.0	1.3	58.3	2.9	54.0	51.9	
Level of Service	A	A	E	A	D	D	
Approach Delay (s)	4.7			6.8	53.1		
Approach LOS	A			A	D		
Intersection Summary							
HCM Average Control Delay			7.4	HCM Level of Service			A
HCM Volume to Capacity ratio			0.61				
Actuated Cycle Length (s)			120.0	Sum of lost time (s)			12.0
Intersection Capacity Utilization			60.0%	ICU Level of Service			B
Analysis Period (min)			15				
c Critical Lane Group							

HCM Signalized Intersection Capacity Analysis
12: Del Mar Heights Road & First Ave.

Year 2030+Project AM
With Mitigation 12/4/2011



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	TTT	T	TTT	TTT	T	T
Volume (vph)	1852	172	172	2213	75	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	0.97	0.91	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	3433	5085	1770	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	3433	5085	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2013	187	187	2405	82	82
RTOR Reduction (vph)	0	49	0	0	0	75
Lane Group Flow (vph)	2013	138	187	2405	82	7
Turn Type	Perm		Prot	Perm		
Protected Phases	4		3	8	2	
Permitted Phases		4				2
Actuated Green, G (s)	85.3	85.3	11.8	101.1	10.9	10.9
Effective Green, g (s)	85.3	85.3	11.8	101.1	10.9	10.9
Actuated g/C Ratio	0.71	0.71	0.10	0.84	0.09	0.09
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3615	1125	338	4284	161	144
v/s Ratio Prot	0.40		0.05	0.47	0.05	
v/s Ratio Perm		0.09				0.00
v/c Ratio	0.56	0.12	0.55	0.56	0.51	0.05
Uniform Delay, d1	8.3	5.5	51.6	2.8	52.0	49.8
Progression Factor	0.87	2.27	0.85	1.09	1.00	1.00
Incremental Delay, d2	0.5	0.2	0.8	0.2	2.5	0.1
Delay (s)	7.7	12.7	44.8	3.3	54.5	50.0
Level of Service	A	B	D	A	D	D
Approach Delay (s)	8.1			6.3	52.3	
Approach LOS	A			A	D	

Intersection Summary			
HCM Average Control Delay	8.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

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

Year 2030+Project AM
With Mitigation 12/4/2011



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔↔↔	↔	↔↔	↔↔↔		↔↔	↔↔↔	↔	↔↔	↔↔↔	
Volume (vph)	260	1096	584	306	1783	150	299	159	102	170	531	482
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	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91		0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	5026		3433	5085	1583	3433	4722	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5085	1583	3433	5026		3433	5085	1583	3433	4722	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	274	1154	615	322	1877	158	318	169	109	185	577	524
RTOR Reduction (vph)	0	0	168	0	8	0	0	0	80	0	112	0
Lane Group Flow (vph)	274	1154	447	322	2027	0	318	169	29	185	989	0
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	9.7	47.4	47.4	14.2	51.9		13.0	31.7	31.7	10.7	29.4	
Effective Green, g (s)	9.7	47.4	47.4	14.2	51.9		13.0	31.7	31.7	10.7	29.4	
Actuated-g/C Ratio	0.08	0.39	0.39	0.12	0.43		0.11	0.26	0.26	0.09	0.24	
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)	278	2009	625	406	2174		372	1343	418	306	1157	
v/s Ratio Prot	0.08	0.23		0.09	0.40		0.09	0.03		0.05	0.21	
v/s Ratio Perm			0.28						0.02			
v/c Ratio	0.99	0.57	0.72	0.79	0.93		0.85	0.13	0.07	0.60	1.05dr	
Uniform Delay, d1	55.1	28.4	30.6	51.5	32.4		52.6	33.6	33.1	52.6	43.3	
Progression Factor	1.14	0.93	0.92	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	45.4	1.0	5.9	10.2	8.8		17.2	0.0	0.1	3.4	6.4	
Delay (s)	108.0	27.4	33.9	61.7	41.2		69.7	33.6	33.2	56.0	49.6	
Level of Service	F	C	C	E	D		E	C	C	E	D	
Approach Delay (s)		40.2			44.0			52.8			50.6	
Approach LOS		D			D			D			D	

Intersection Summary												
HCM Average Control Delay		44.9		HCM Level of Service						D		
HCM Volume to Capacity ratio		0.87										
Actuated Cycle Length (s)		120.0		Sum of lost time (s)						12.0		
Intersection Capacity Utilization		88.1%		ICU Level of Service						E		
Analysis Period (min)		15										
dr Defacto-Right Lane. Recode with 1 though lane as a right lane.												
c Critical Lane Group												

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

Year 2030+Project AM
With Mitigation 12/4/2011



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	800	930	310	0	0	0	0	531	320	160	1490	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	14	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0	4.0					4.0		4.0	4.0	
Lane Util. Factor	0.91	0.91	0.88					0.86		1.00	0.91	
Frt	1.00	1.00	0.85					0.94		1.00	1.00	
Flt Protected	0.95	0.99	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1610	3356	2972					6046		1770	5085	
Flt Permitted	0.95	0.99	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1610	3356	2972					6046		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
Adj. Flow (vph)	889	1033	344	0	0	0	0	590	356	178	1656	0
RTOR Reduction (vph)	0	0	8	0	0	0	0	111	0	0	0	0
Lane Group Flow (vph)	622	1300	336	0	0	0	0	835	0	178	1656	0
Turn Type	Prot		Perm							Prot		
Protected Phases	7	4						2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	35.1	35.1	35.1					18.6		12.7	35.3	
Effective Green, g (s)	35.1	35.1	35.1					18.6		12.7	35.3	
Actuated g/C Ratio	0.45	0.45	0.45					0.24		0.16	0.45	
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)	721	1502	1331					1434		287	2290	
v/s Ratio Prot	0.39	c0.39						0.14		0.10	c0.33	
v/s Ratio Perm			0.11									
v/c Ratio	0.86	0.87	0.25					0.58		0.62	0.72	
Uniform Delay, d1	19.5	19.5	13.5					26.5		30.6	17.6	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	10.4	5.5	0.1					0.6		4.1	1.2	
Delay (s)	29.9	25.0	13.6					27.1		34.7	18.7	
Level of Service	C	C	B					C		C	B	
Approach Delay (s)		24.6			0.0			27.1			20.3	
Approach LOS		C			A			C			C	

Intersection Summary

HCM Average Control Delay	23.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	78.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	103.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
36: Del Mar Trail & Carmel Creek Road

Year 2030+Project AM
With Mitigation 12/4/2011

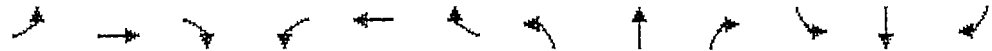


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↔			↔			↔			↔		
Volume (vph)	10	10	10	202	2	25	3	271	101	15	947	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0			4.0			4.0		
Lane Util. Factor	1.00			1.00			1.00			1.00		
Frt.	0.96			0.99			1.00			1.00		
Flt Protected	0.98			0.96			0.95			0.95		
Satd. Flow (prot)	1750			1758			1770			1770		
Flt Permitted	0.98			0.96			0.95			0.95		
Satd. Flow (perm)	1750			1758			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)	11	11	11	224	2	28	3	301	112	17	1052	3
RTOR Reduction (vph)	0	10	0	0	4	0	0	29	0	0	0	0
Lane Group Flow (vph)	0	23	0	0	250	0	3	384	0	17	1055	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	6			2			7			3		
Permitted Phases							4			8		
Actuated Green, G (s)	3.7			17.0			0.5			0.6		
Effective Green, g (s)	3.7			17.0			0.5			0.6		
Actuated g/C Ratio	0.05			0.25			0.01			0.01		
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)	96			444			13			16		
v/s Ratio Prot	c0.01			c0.14			0.00			c0.01		
v/s Ratio Perm												
v/c Ratio	0.24			0.56			0.23			1.06		
Uniform Delay, d1	30.4			21.9			33.2			33.4		
Progression Factor	1.00			1.00			1.00			1.00		
Incremental Delay, d2	1.3			1.6			8.9			246.4		
Delay (s)	31.7			23.6			42.1			279.8		
Level of Service	C			C			D			F		
Approach Delay (s)	31.7			23.6			12.0			19.9		
Approach LOS	C			C			B			B		

Intersection Summary			
HCM Average Control Delay	18.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	67.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

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

Year 2030+Project PM
With Mitigation 12/4/2011



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	🚗🚗	🚗🚗			🚗🚗🚗	🚗	🚗	🚗	🚗🚗			
Volume (vph)	750	1891	0	0	1697	753	630	30	1072	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	6.3			6.3	6.3	5.6	5.6	5.6			
Lane Util. Factor	0.97	0.95			0.91	1.00	0.95	0.95	0.88			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.96	1.00			
Satd. Flow (prot)	3433	3539			5085	1583	1681	1693	2787			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.96	1.00			
Satd. Flow (perm)	3433	3539			5085	1583	1681	1693	2787			
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)	789	1991	0	0	1786	793	663	32	1128	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	396	0	0	12	0	0	0
Lane Group Flow (vph)	789	1991	0	0	1786	397	345	350	1116	0	0	0
Turn Type	Prot					Perm	Split		Perm			
Protected Phases	5	2			6		8	8				
Permitted Phases						6			8			
Actuated Green, G (s)	21.8	69.7			42.7	42.7	38.4	38.4	38.4			
Effective Green, g (s)	21.8	69.7			42.7	42.7	38.4	38.4	38.4			
Actuated g/C Ratio	0.18	0.58			0.36	0.36	0.32	0.32	0.32			
Clearance Time (s)	5.2	6.3			6.3	6.3	5.6	5.6	5.6			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	624	2056			1809	563	538	542	892			
v/s Ratio Prot	c0.23	c0.56			0.35		0.21	0.21				
v/s Ratio Perm						0.25			c0.40			
v/c Ratio	1.26	0.97			0.99	0.71	0.64	0.65	1.25			
Uniform Delay, d1	49.1	24.1			38.4	33.3	34.9	35.0	40.8			
Progression Factor	0.96	0.97			0.89	2.09	1.00	1.00	1.00			
Incremental Delay, d2	130.4	12.8			11.2	3.2	2.6	2.6	122.5			
Delay (s)	177.8	36.1			45.4	72.8	37.5	37.6	163.3			
Level of Service	F	D			D	E	D	D	F			
Approach Delay (s)		76.3			53.8			115.4			0.0	
Approach LOS		E			D			F			A	
Intersection Summary												
HCM Average Control Delay			78.2		HCM Level of Service			E				
HCM Volume to Capacity ratio			1.09									
Actuated Cycle Length (s)			120.0		Sum of lost time (s)			10.8				
Intersection Capacity Utilization			100.5%		ICU Level of Service			G				
Analysis Period (min)			15									
c Critical Lane Group												

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

Year 2030+Project PM
With Mitigation 1/12/2012

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SEB
Lane Configurations												
Volume (vph)	250	2700	300	71	1943	201	680	70	187	77	40	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	14	12	12	12	12	12	14	12	12	14
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	0.91		0.96	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		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	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1689	3433	5014		5096	1863	1689	1770	1863	1689
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1689	3433	5014		5096	1863	1689	1770	1863	1689
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)	263	2842	316	75	2045	212	716	74	197	81	42	211
RTOR Reduction (vph)	0	0	93	0	10	0	0	0	152	0	0	73
Lane Group Flow (vph)	263	2842	223	75	2247	0	716	74	45	81	42	138
Turn Type	Prot	pm+ov		Prot			Prot	Perm		Prot	Perm	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4						2			6
Actuated Green, G (s)	11.7	64.4	84.2	5.4	58.1		19.8	24.7	24.7	9.5	14.4	14.4
Effective Green, g (s)	11.7	64.4	84.2	5.4	58.1		19.8	24.7	24.7	9.5	14.4	14.4
Actuated g/C Ratio	0.10	0.54	0.70	0.05	0.48		0.16	0.21	0.21	0.08	0.12	0.12
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
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)	335	2729	1241	154	2428		841	383	348	140	224	203
v/s Ratio Prot	c0.08	c0.56	0.03	0.02	0.45		c0.14	0.04		0.05	0.02	
v/s Ratio Perm			0.10						0.03			c0.08
v/c Ratio	0.79	1.04	0.18	0.49	0.93		0.85	0.19	0.13	0.58	0.19	0.68
Uniform Delay, d1	52.9	27.8	6.1	55.9	28.9		48.7	39.4	38.9	53.3	47.5	50.6
Progression Factor	0.99	1.05	1.58	0.96	0.82		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.4	22.4	0.0	2.0	6.5		8.3	0.2	0.2	5.7	0.4	8.7
Delay (s)	55.6	51.5	9.7	55.5	30.3		57.0	39.7	39.1	59.0	47.9	59.3
Level of Service	E	D	A	E	C		E	D	D	E	D	E
Approach Delay (s)	47.9				31.1		52.1				57.8	
Approach LOS	D				C		D				E	
Intersection Summary												
HCM Average Control Delay	43.4				HCM Level of Service				D			
HCM Volume to Capacity ratio	0.95											
Actuated Cycle Length (s)	120.0				Sum of lost time (s)				16.0			
Intersection Capacity Utilization	85.1%				ICU Level of Service				E			
Analysis Period (min)	15											
c Critical Lane Group												

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

Year 2030+Project PM
With Mitigation 12/4/2011

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	2556	214	166	2000	302	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	4.0	5.0	4.0	4.0
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	1770	5085	3433	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	1770	5085	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2778	233	180	2174	328	255
RTOR Reduction (vph)	0	57	0	0	0	182
Lane Group Flow (vph)	2778	176	180	2174	328	73
Turn Type		Prot	Prot		Perm	
Protected Phases	4	4	3	8	2	
Permitted Phases						2
Actuated Green, G (s)	75.3	75.3	15.7	95.0	16.0	16.0
Effective Green, g (s)	75.3	75.3	15.7	95.0	16.0	16.0
Actuated g/C-Ratio	0.63	0.63	0.13	0.79	0.13	0.13
Clearance Time (s)	5.0	5.0	4.0	5.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3191	993	232	4026	458	211
v/s Ratio Prot	0.55	0.11	0.10	0.43	0.10	
v/s Ratio Perm						0.05
v/c Ratio	0.87	0.18	0.78	0.54	0.72	0.35
Uniform Delay, d1	18.3	9.4	50.4	4.5	49.8	47.2
Progression Factor	1.10	2.34	1.18	0.80	1.00	1.00
Incremental Delay, d2	1.3	0.1	12.6	0.4	5.3	1.0
Delay (s)	21.5	22.0	72.0	4.1	55.1	48.2
Level of Service	C	C	E	A	E	D
Approach Delay (s)	21.5			9.3	52.1	
Approach LOS	C			A	D	
Intersection Summary						
HCM Average Control Delay	19.7			HCM Level of Service		B
HCM Volume to Capacity ratio	0.83					
Actuated Cycle Length (s)	120.0			Sum of lost time (s)		13.0
Intersection Capacity Utilization	78.0%			ICU Level of Service		D
Analysis Period (min)	15					
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis 12: Del Mar Heights Road & First Ave.

Year 2030+Project PM
With Mitigation 12/4/2011



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	AAA	A	AAA	AAA	A	A
Volume (vph)	2613	178	178	1914	252	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	4.0	5.0	4.0	4.0
Lane Util. Factor	0.91	1.00	0.97	0.91	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	3433	5085	1770	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	3433	5085	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2840	193	193	2080	274	274
RTOR Reduction (vph)	0	44	0	0	0	174
Lane Group Flow (vph)	2840	149	193	2080	274	100
Turn Type		Prot	Prot		Perm	
Protected Phases	4	4	3	8	2	
Permitted Phases					2	
Actuated Green, G (s)	72.8	72.8	12.0	88.8	22.2	22.2
Effective Green, g (s)	72.8	72.8	12.0	88.8	22.2	22.2
Actuated g/C Ratio	0.61	0.61	0.10	0.74	0.18	0.18
Clearance Time (s)	5.0	5.0	4.0	5.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3085	960	343	3763	327	293
v/s Ratio Prot	c0.56	0.09	0.06	c0.41	c0.15	
v/s Ratio Perm						0.06
v/c Ratio	0.92	0.16	0.56	0.55	0.84	0.34
Uniform Delay, d1	21.0	10.3	51.5	6.9	47.2	42.6
Progression Factor	0.63	0.95	1.07	0.92	1.00	1.00
Incremental Delay, d2	3.1	0.2	1.0	0.3	16.8	0.7
Delay (s)	16.5	10.1	55.9	6.6	64.0	43.3
Level of Service	B	B	E	A	E	D
Approach Delay (s)	16.1			10.7	53.6	
Approach LOS	B			B	D	

Intersection Summary			
HCM Average Control Delay	17.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

13: Del Mar Heights Road & El Camino Real

Year 2030+Project PM
With Mitigation 12/4/2011



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	563	1947	618	201	1213	190	648	784	338	190	244	327
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	14	12	12	12	12	12	14	12	12	12
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	5.0	5.0	4.0	5.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91		0.97	0.91	1.00	0.98	0.95	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5085	1689	3433	4982		3433	5085	1689	3468	4853	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5085	1689	3433	4982		3433	5085	1689	3468	4853	
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)	593	2049	651	212	1277	200	682	825	356	200	257	344
RTOR Reduction (vph)	0	0	315	0	17	0	0	0	92	0	205	0
Lane Group Flow (vph)	593	2049	336	212	1460	0	682	825	264	200	396	0
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	22.7	53.0	53.0	9.0	39.3		25.6	30.4	30.4	9.6	14.4	
Effective Green, g (s)	22.7	53.0	53.0	9.0	39.3		25.6	30.4	30.4	9.6	14.4	
Actuated g/C Ratio	0.19	0.44	0.44	0.08	0.33		0.21	0.25	0.25	0.08	0.12	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	5.0	5.0	4.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	649	2246	746	257	1632		732	1288	428	277	582	
v/s Ratio Prot	0.17	0.40		0.06	0.29		0.20	0.16		0.06	0.08	
v/s Ratio Perm			0.20						0.16			
v/c Ratio	0.91	0.91	0.45	0.82	0.89		0.93	0.64	0.62	0.72	0.89dr	
Uniform Delay, d1	47.7	31.3	23.4	54.7	38.4		46.3	39.9	39.7	53.9	50.6	
Progression Factor	1.18	1.10	2.82	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	10.2	3.9	1.0	18.9	8.0		18.6	1.1	2.6	8.9	3.3	
Delay (s)	66.5	38.4	66.8	73.7	46.4		64.9	41.0	42.3	62.8	53.9	
Level of Service	E	D	E	E	D		E	D	D	E	D	
Approach Delay (s)		49.1			49.8			50.0			56.1	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM Average Control Delay	50.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	89.3%	ICU Level of Service	E
Analysis Period (min)	15		
dr Defacto Right Lane. Recode with 1 though lane as a right lane.			
c Critical Lane Group			

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

Year 2030+Project PM
With Mitigation 11/18/2011



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↰	↰↰					↑↑↑		↰	↰↰↰	
Volume (vph)	740	1207	200	0	0	0	0	945	1000	384	1314	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0		4.0	4.0	
Lane Util. Factor	0.91	*0.98	0.88					0.86		1.00	*0.97	
Frt	1.00	1.00	0.85					0.92		1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1610	3636	2787					5914		1770	5421	
Flt Permitted	0.95	1.00	1.00					1.00		0.12	1.00	
Satd. Flow (perm)	1610	3636	2787					5914		219	5421	
Peak-hour factor, PHF	0.95	0.95	0.95	0.90	0.90	0.90	0.90	0.95	0.95	0.95	0.95	0.90
Adj. Flow (vph)	779	1271	211	0	0	0	0	995	1053	404	1383	0
RTOR Reduction (vph)	0	0	38	0	0	0	0	20	0	0	0	0
Lane Group Flow (vph)	662	1388	173	0	0	0	0	2028	0	404	1383	0
Turn Type	pm+pt		Perm							pm+pt		
Protected Phases	7	4						2		1	6	
Permitted Phases	4		4							6		
Actuated Green, G (s)	33.0	33.0	33.0					30.0		48.0	48.0	
Effective Green, g (s)	33.0	33.0	33.0					30.0		48.0	48.0	
Actuated g/C Ratio	0.37	0.37	0.37					0.34		0.54	0.54	
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)	597	1348	1033					1993		362	2924	
v/s Ratio Prot	c0.41	0.38						0.34		c0.18	0.26	
v/s Ratio Perm			0.06							c0.43		
v/c Ratio	1.11	1.03	0.17					1.87dr		1.12	0.47	
Uniform Delay, d1	28.0	28.0	18.8					29.5		25.8	12.7	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	70.4	32.4	0.1					24.7		82.5	0.1	
Delay (s)	98.4	60.4	18.9					54.2		108.3	12.8	
Level of Service	F	E	B					D		F	B	
Approach Delay (s)		67.7			0.0			54.2			34.4	
Approach LOS		E			A			D			C	

Intersection Summary												
HCM Average Control Delay		53.4	HCM Level of Service		D							
HCM Volume to Capacity ratio		1.09										
Actuated Cycle Length (s)		89.0	Sum of lost time (s)		8.0							
Intersection Capacity Utilization		117.1%	ICU Level of Service		H							
Analysis Period (min)		15										
dr = Defacto Right Lane. Recode with 1 though lane as a right lane.												
c = Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
36: Del Mar Trail & Carmel Creek Road

Year 2030+Project PM
With Mitigation 12/4/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	5	5	4	56	12	10	12	777	101	15	444	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	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.97			0.98		1.00	0.98		1.00	1.00	
Flt Protected		0.98			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1767			1767		1770	3478		1770	3528	
Flt Permitted		0.98			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1767			1767		1770	3478		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	0.90
Adj. Flow (vph)	6	6	4	62	13	11	13	863	112	17	493	11
RTOR Reduction (vph)	0	4	0	0	3	0	0	6	0	0	1	0
Lane Group Flow (vph)	0	12	0	0	83	0	13	969	0	17	503	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	6	6		2	2		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)		0.8			7.2		0.8	25.0		0.8	25.0	
Effective Green, g (s)		0.8			7.2		0.8	25.0		0.8	25.0	
Actuated g/C Ratio		0.02			0.14		0.02	0.50		0.02	0.50	
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)		28			255		28	1746		28	1771	
v/s Ratio Prot		0.01			0.05		0.01	0.28		0.01	0.14	
v/s Ratio Perm												
v/c Ratio		0.43			0.32		0.46	0.55		0.61	0.28	
Uniform Delay, d1		24.3			19.1		24.3	8.6		24.3	7.2	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		10.3			0.7		11.7	0.4		32.0	0.1	
Delay (s)		34.6			19.9		36.0	8.9		56.3	7.3	
Level of Service		C			B		D	A		E	A	
Approach Delay (s)		34.6			19.9		9.3			8.9		
Approach LOS		C			B		A			A		
Intersection Summary												
HCM Average Control Delay	10.0			HCM Level of Service			A					
HCM Volume to Capacity ratio	0.50											
Actuated Cycle Length (s)	49.8			Sum of lost time (s)			16.0					
Intersection Capacity Utilization	39.5%			ICU Level of Service			A					
Analysis Period (min)	15											
c Critical Lane Group												

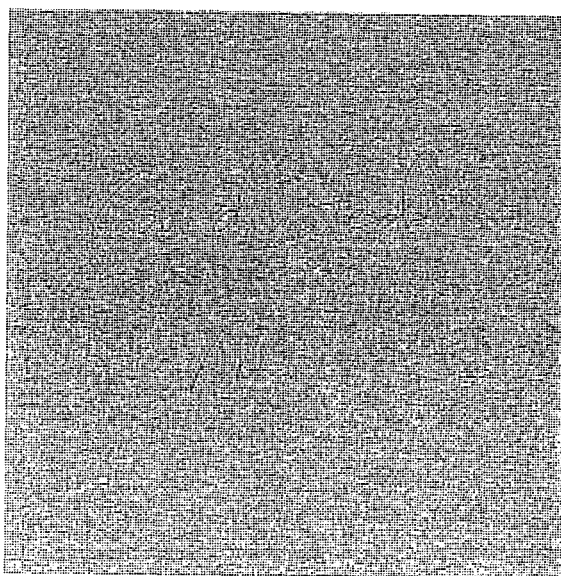
Queues
9: Del Mar Heights Road & I-15 NB Ramps

Year 2030+Project AM
4/28/2011



Lane Group	EBL	EBT	WBt	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	389	1897	2054	887	240	244	1368
V/c Ratio	1.15	1.04	1.08	0.86	0.37	0.37	1.26
Control Delay	142.3	59.7	89.7	27.5	28.4	28.4	157.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	142.3	59.7	89.7	27.5	28.4	28.4	157.6
Queue Length 50th (ft)	185	845	663	402	137	141	756
Queue Length 95th (ft)	m#285	#975	#762	m480	212	214	#908
Internal Link Dist. (ft)		584	1026			911	
Turn Bay Length (ft)	300			850			
Base Capacity (vph)	338	1820	1894	1034	650	660	1085
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced V/c Ratio	1.15	1.04	1.08	0.86	0.37	0.37	1.26

Intersection Summary	
	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.



Queues
10: Del Mar Heights Road & High Bluff Drive

Year 2030+Project AM
4/28/2011



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	126	2001	884	236	2185	305	32	65	160	74	421	
v/c Ratio	0.20	0.71	0.71	0.57	0.88	0.50	0.21	0.34	0.72	0.47	0.89	
Control Delay	45.6	21.7	5.6	54.9	36.6	51.4	52.8	16.7	69.1	61.5	46.0	
Queue Delay	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	45.6	21.7	5.6	54.9	37.1	51.4	52.8	16.7	69.1	61.5	46.0	
Queue Length 50th (ft)	42	450	212	89	495	79	24	40	120	56	166	
Queue Length 95th (ft)	m41	m402	m148	#149	547	106	53	42	193	103	#431	
Internal Link Dist (ft)		1026			489		3060			1111		
Turn Bay Length (ft)	200		225	225		300			150			
Base Capacity (vph)	639	2826	1281	413	2476	790	235	305	254	267	473	
Starvation Cap Reductn	0	0	0	0	66	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.20	0.71	0.69	0.57	0.91	0.39	0.11	0.21	0.63	0.28	0.89	

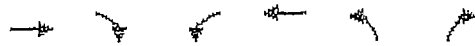
Intersection Summary												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												
m Volume for 95th percentile queue is metered by upstream signal.												

Queues
11: Del Mar Heights Road & Third Ave.

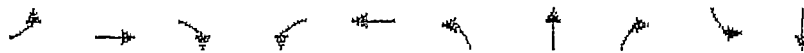
Year 2030+Project AM
4/28/2011



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	2124	224	174	2313	98	76
v/c Ratio	0.61	0.20	0.69	0.53	0.39	0.41
Control Delay	3.8	0.3	63.0	2.7	57.1	18.1
Queue Delay	0.1	0.0	0.0	0.4	0.0	0.0
Total Delay	3.9	0.3	63.0	3.2	57.1	18.1
Queue Length 50th (ft)	59	1	130	116	38	0
Queue Length 95th (ft)	74	0	196	161	64	48
Internal Link Dist (ft)	489			505	388	
Turn Bay Length (ft)		200	250			
Base Capacity (vph)	3484	1141	339	4373	486	289
Starvation Cap Reductn	247	0	0	1328	0	0
Spillback Cap Reductn	0	0	0	426	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.20	0.51	0.76	0.20	0.26
Intersection Summary						



Lane Group	EBL	EBR	WBL	WBR	NBL	NBR
Lane Group Flow (vph)	2013	187	187	2405	82	82
v/c Ratio	0.56	0.16	0.55	0.56	0.51	0.38
Control Delay	4.0	0.6	57.5	3.6	62.3	15.4
Queue Delay	0.0	0.0	0.0	0.4	0.0	0.0
Total Delay	4.0	0.6	57.5	4.0	62.3	15.4
Queue Length 50th (ft)	60	0	72	150	62	10
Queue Length 95th (ft)	95	12	107	226	111	47
Internal Link Dist (ft)	505			583	209	
Turn Bay Length (ft)		200	150			
Base Capacity (vph)	3613	1174	430	4284	310	345
Starvation Cap Reductn	127	0	0	1090	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.16	0.43	0.75	0.26	0.24
Intersection Summary						



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	274	1154	615	322	2035	318	169	109	185	1101	
v/c Ratio	0.99	0.57	0.77	0.80	0.98	0.86	0.13	0.22	0.60	1.05	dr
Control Delay	112.1	28.0	22.6	66.5	41.1	74.8	34.1	7.5	61.0	45.8	
Queue Delay	0.0	0.0	1.2	0.0	4.4	0.0	0.0	0.0	0.0	0.0	
Total Delay	112.1	28.0	23.8	66.5	45.5	74.8	34.1	7.5	61.0	45.8	
Queue Length 50th (ft)	124	171	132	126	535	126	36	0	71	262	
Queue Length 95th (ft)	#216	264	261	#188	#618	#203	56	45	110	320	
Internal Link Dist (ft)		583			574		823			805	
Turn Bay Length (ft)	300		365	275		300		250	300		
Base Capacity (vph)	277	2014	794	418	2185	372	1341	498	332	1292	
Starvation Cap Reductn	0	0	56	0	113	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.99	0.57	0.83	0.77	0.98	0.85	0.13	0.22	0.56	0.85	

Intersection Summary											
Volume exceeds capacity, queue is theoretically infinite.											
Queue shown is maximum after two cycles.											
# 95th percentile volume exceeds capacity, queue may be longer.											
Queue shown is maximum after two cycles.											
d. Defacto Right Lane. Recode with 1 through lane as a right lane.											

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

Year 2030+Project PM
With Mitigation 12/11/2011



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	789	1991	1786	793	345	350	1128
v/c Ratio	0.89	0.90	1.10	0.95	0.74	0.74	1.42
Control Delay	51.9	25.3	87.6	37.0	50.1	50.4	230.7
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Total Delay	51.9	25.5	87.6	37.0	50.1	50.4	230.7
Queue Length 50th (ft)	286	666	613	443	255	260	667
Queue Length 95th (ft)	#372	788	m#701	m#539	374	380	#815
Internal Link Dist (ft)		584	1026			911	
Turn Bay Length (ft)	400			850			
Base Capacity (vph)	938	2203	1631	838	468	471	793
Starvation Cap Reductn	0	15	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.91	1.10	0.95	0.74	0.74	1.42

Intersection Summary							
-	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.						
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.						
m	Volume for 95th percentile queue is metered by upstream signal.						

Coordinated PM

Queues
10: Del Mar Heights Road & High Bluff Drive

Year 2030+Project PM
4/28/2011



Lane Group	EBL	EBL	EBL	WBL	WBL	NBL	NBL	NBL	SBL	SBL	SBL
Lane Group Flow (vph)	263	2842	316	75	2257	716	74	197	81	42	211
v/c Ratio	0.78	1.00	0.25	0.39	0.90	0.94	0.20	0.42	0.51	0.19	0.81
Control Delay	56.8	37.1	1.6	54.7	31.3	71.0	43.1	9.9	62.5	47.7	53.6
Queue Delay	0.0	0.0	0.0	0.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.8	37.1	1.6	54.7	34.9	71.0	43.1	9.9	62.5	47.7	53.6
Queue Length 50th (ft)	103	899	12	26	407	192	49	5	61	29	98
Queue Length 95th (ft)	m#104	m#820	m11	m51	442	#268	95	71	109	63	#184
Internal Link Dist (ft)		1026			509		3060			1111	
Turn Bay Length (ft)	175		225	175		300			150		
Base Capacity (vph)	339	2839	1252	190	2508	764	368	464	251	279	307
Starvation Cap Reductn	0	0	0	0	184	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	1.00	0.25	0.39	0.97	0.94	0.20	0.42	0.32	0.15	0.69

Intersection Summary											
Volume exceeds capacity, queue is theoretically infinite											
Queue shown is maximum after two cycles.											
# 95th percentile volume exceeds capacity, queue may be longer											
Queue shown is maximum after two cycles.											
m Volume for 95th percentile queue is metered by upstream signal											

Queues
11: Del Mar Heights Road & Third Ave.

Year 2030+Project PM
4/28/2011



Lane Group	EBT	EBR	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	2778	233	180	2174	328	255
v/c Ratio	0.87	0.22	0.78	0.54	0.72	0.65
Control Delay	22.8	9.1	76.6	3.5	59.1	19.0
Queue Delay	0.4	0.0	0.0	0.0	0.0	0.0
Total Delay	23.2	9.1	76.6	3.6	59.1	19.1
Queue Length 50th (ft)	429	54	149	139	126	31
Queue Length 95th (ft)	m439	m58	#243	150	174	117
Internal Link Dist (ft)	509			519	388	
Turn Bay Length (ft)		200	250			
Base Capacity (vph)	3194	1051	253	4027	515	416
Starvation Cap Reductn	105	0	0	168	0	0
Spillback Cap Reductn	37	0	0	0	0	2
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.22	0.71	0.56	0.64	0.62

Intersection Summary						
#	95th percentile volume exceeds capacity; queue may be longer					
	Queue shown is maximum after two cycles.					
m	Volume for 95th percentile queue is metered by upstream signal					

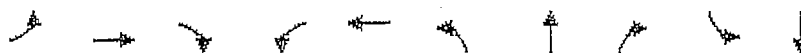


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	2840	193	193	2080	274	274
v/c Ratio	0.84	0.18	0.59	0.52	0.60	0.80
Control Delay	9.8	2.9	45.6	6.6	54.2	38.8
Queue Delay	0.6	0.0	0.0	0.2	0.0	0.2
Total Delay	10.4	2.9	45.6	6.7	54.2	38.9
Queue Length 50th (ft)	201	12	75	213	105	92
Queue Length 95th (ft)	211	m14	m85	m235	142	185
Internal Link Dist (ft)	519			549	209	
Turn Bay Length (ft)		200	150			
Base Capacity (vph)	3378	1096	351	4029	601	404
Starvation Cap Reductn	41	0	0	776	0	0
Spillback Cap Reductn	207	0	0	0	0	6
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.18	0.55	0.64	0.46	0.69

Intersection Summary
m: Volume for 95th percentile queue is metered by upstream signal

Queues
13: Del Mar Heights Road & El Camino Real

Year 2030+Project PM
4/28/2011



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	593	2049	651	212	1477	682	825	356	200	601	
v/c Ratio	0.92	0.91	0.64	0.84	0.90	0.93	0.64	0.72	0.72	0.87	
Control Delay	66.6	40.1	12.0	83.7	46.6	66.6	42.1	35.0	69.5	38.6	
Queue Delay	0.0	2.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	66.6	42.8	12.3	83.7	46.6	66.6	42.1	35.0	69.5	38.6	
Queue Length 50th (ft)	253	472	120	92	400	268	205	164	79	101	
Queue Length 95th (ft)	m#332	513	m#222	#173	#497	#376	251	276	#127	146	
Internal Link Dist (ft)		549			574		830			805	
Turn Bay Length (ft)	216		365	275		300		250	300		
Base Capacity (vph)	651	2246	1014	251	1646	744	1364	515	280	822	
Starvation Cap Reductn	0	118	65	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.91	0.96	0.69	0.84	0.90	0.92	0.60	0.69	0.71	0.73	

Intersection Summary

Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.



E-MEMO

ATTN: Bob Little – Kilroy Realty

E-Mail: ▼

rlittle@kilroyrealty.com

FROM: Andrew P. Schlaefli

TOTAL PAGES (Including
Cover): 6

DATE: August 30, 2011

TIME: 3:16:03 PM JOB NUMBER: 002407

SUBJECT: Del Mar Heights Road South Side Widening

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As requested we have field checked and determined that widening along the south side of Del Mar Heights Road is not feasible because of:

- A. Impacts to the gas station.
- B. Existing office building proximity.
- C. Grade differences.

Following is a discussion of a series of photos we took to illustrate the problems with widening.

Photo Page 1 looking west along the South Side of Del Mar Heights Road to the I-5 Northbound ramp. As shown in this photo, widening of the area west of the gas station to the ramps is feasible.

Photo Page 2 looking East along the South Side of Del Mar Heights Road to the Shell Station. As shown, a drainage channel in Caltrans R/W and the Shell Station limit the ability to widen.

Photo Page 3 & 4 looking East along the South Side of Del Mar Heights Road. Shown are the exit driveway, pump islands and landscaping adjacent to the station. The distance from the curb face to the drive aisle curb is 15 feet. From the drive aisle curb to the pump island curb the distance is 20 feet.

Photo Page 5 looking West at the entrance driveway. As shown, transformers and service cabinets for electrical (white) and irrigation (green) are located at this drive. These utilities service the service station and are located on their property.

Photo Pages 6 & 7 South Side of Del Mar Heights Road looking west and east respectively. These photos show the grade difference and proximation of buildings just east of the Shell Station property. The building is located 35 feet from the curb face of Del Mar Heights Road.

Photo Pages 8 & 9 South side of Del Mar Heights Road looking east and west respectively at the right turn lane to High Bluff. The building is located 30 feet from the curb face of the turn lane.

It is clear that a building set back variance would be required to accommodate a street widening to add another lane. The service station would be severely impacted. Photo pages 10 and 11 show the full tank location and filler access covers. With a widening, the tanks may be too close to the roadway and the entire service station may have to be acquired.



Photo Page 1

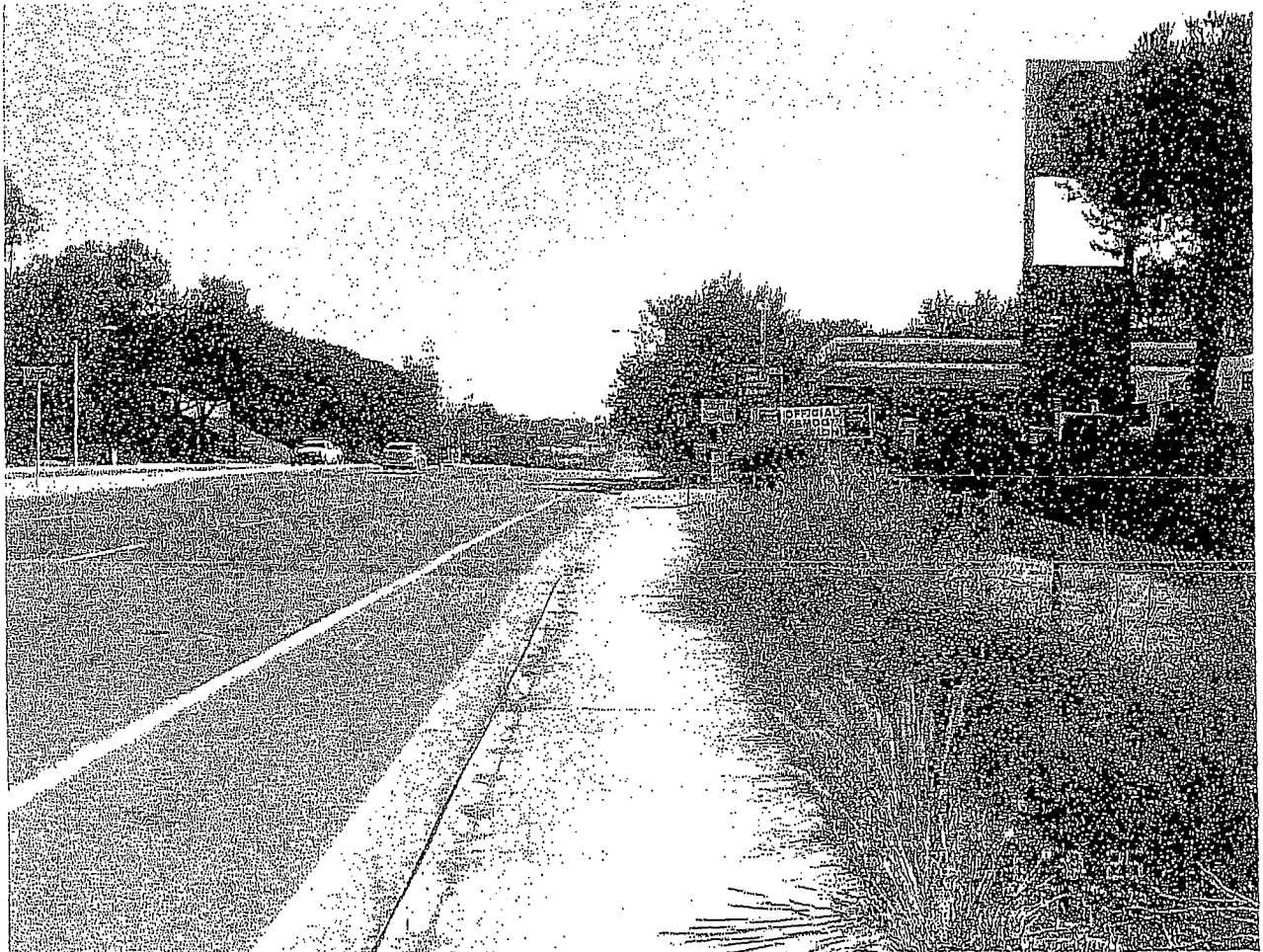


Photo Page 2



Photo Page 3 & 4



Photo Page 5

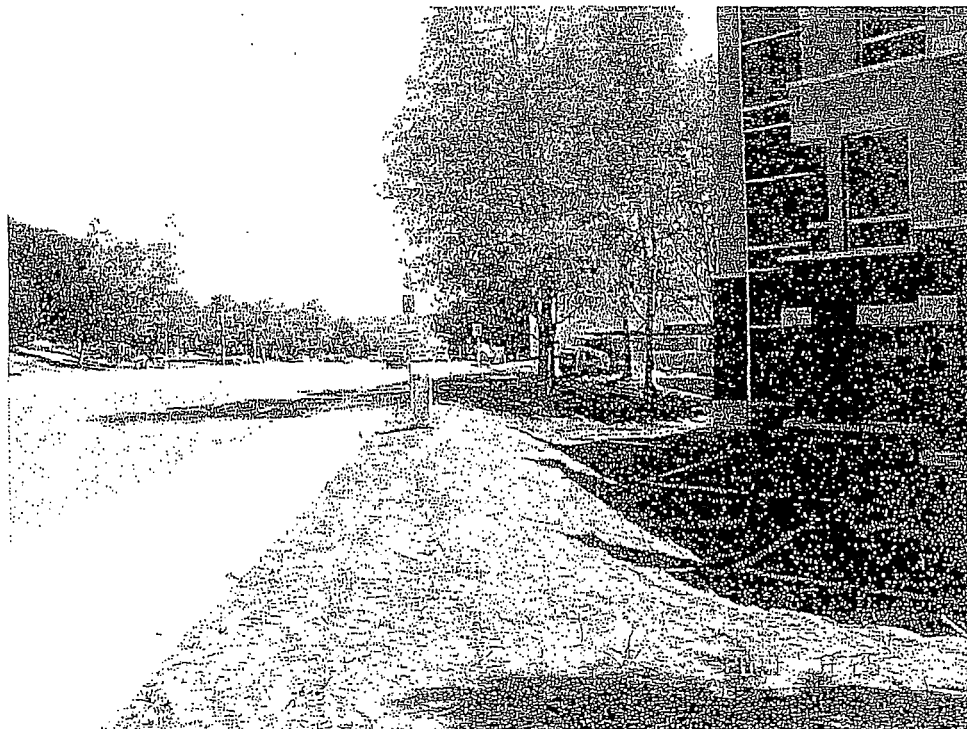
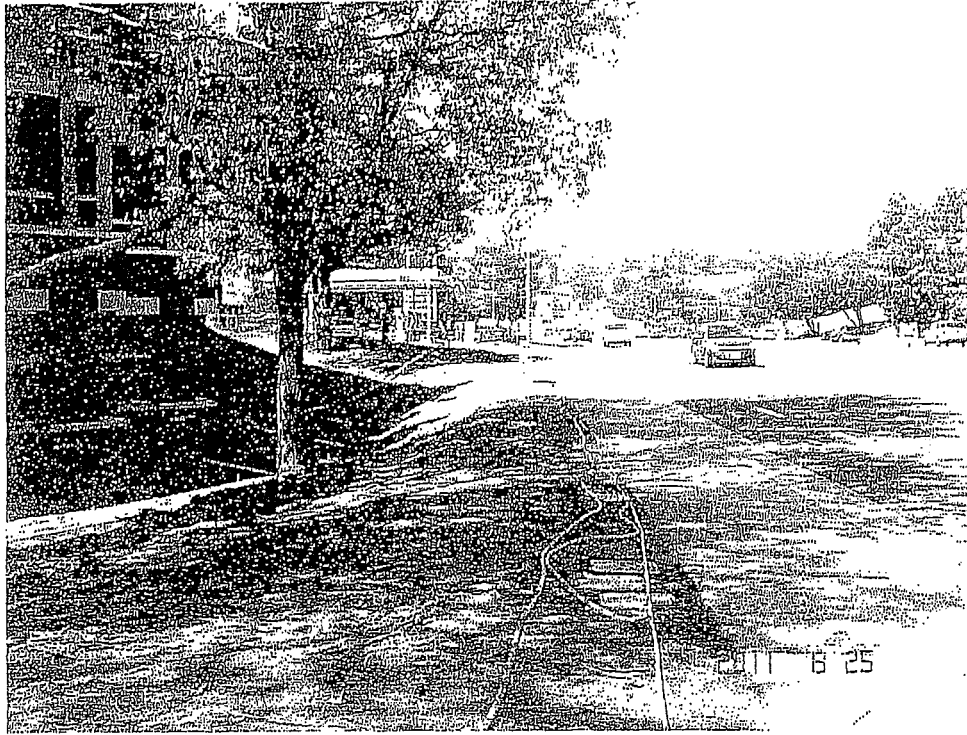


Photo Page 6 & 7

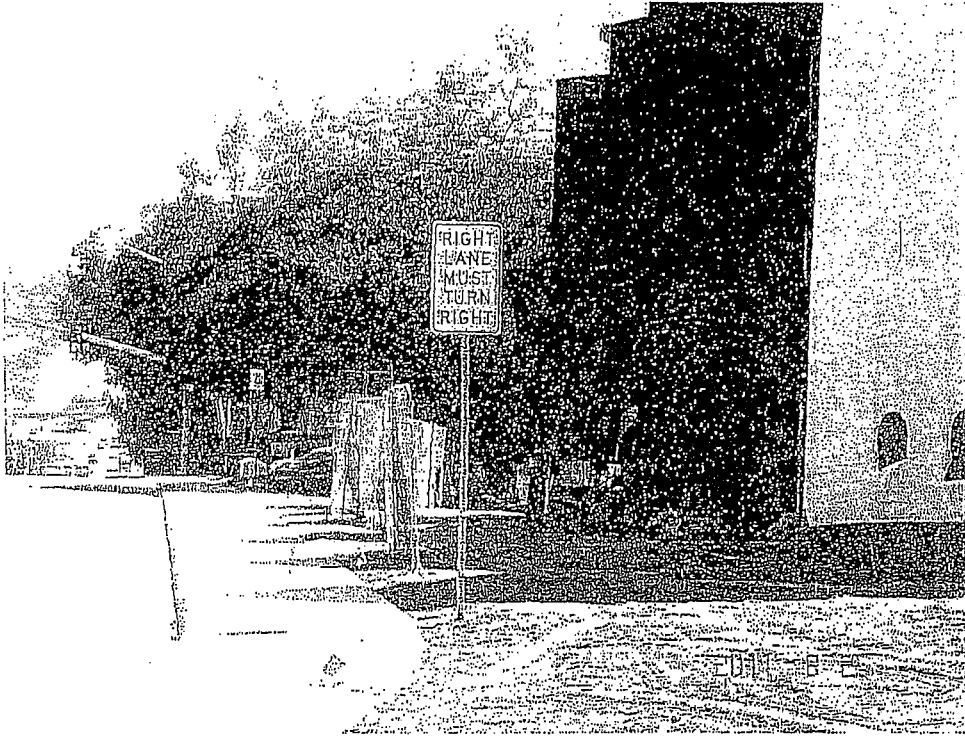


Photo Page 8 & 9

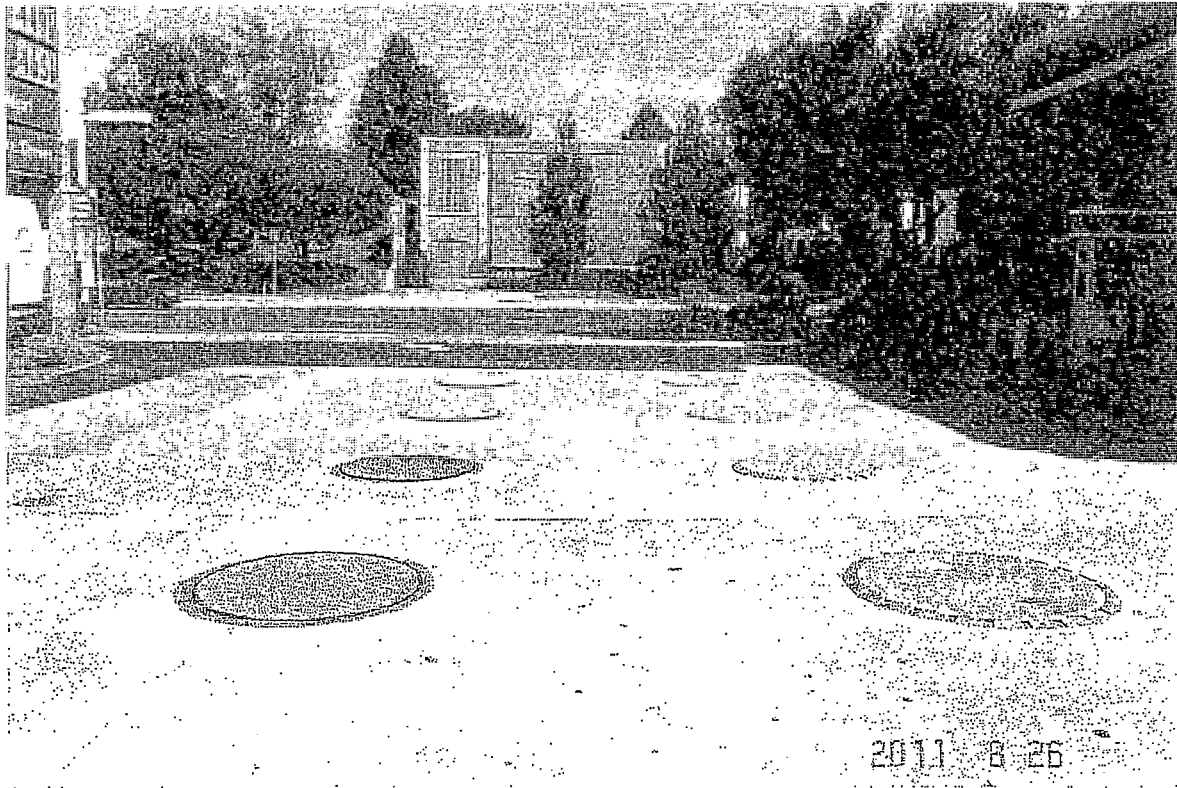
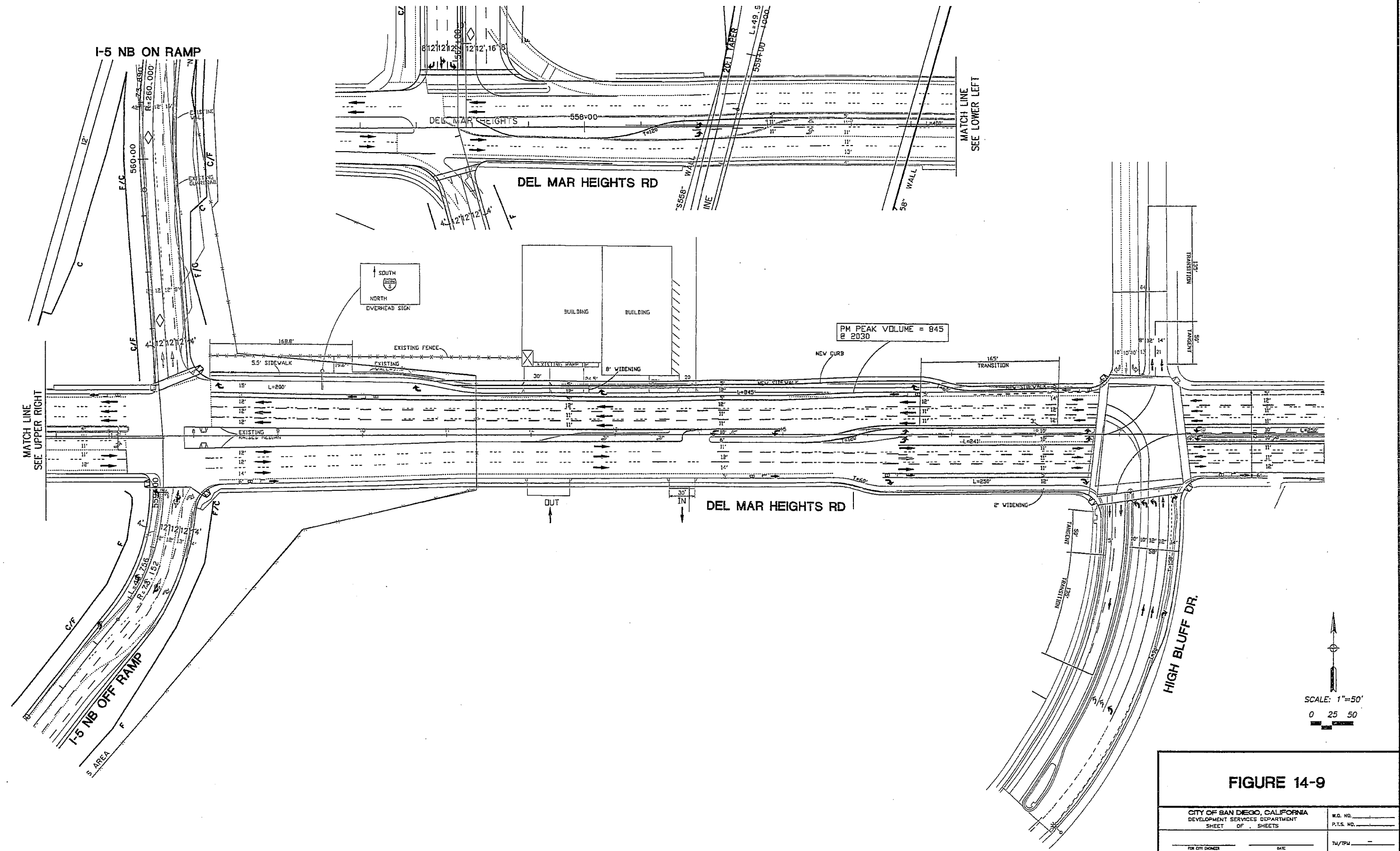
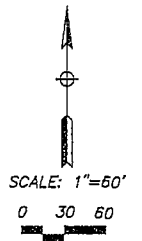
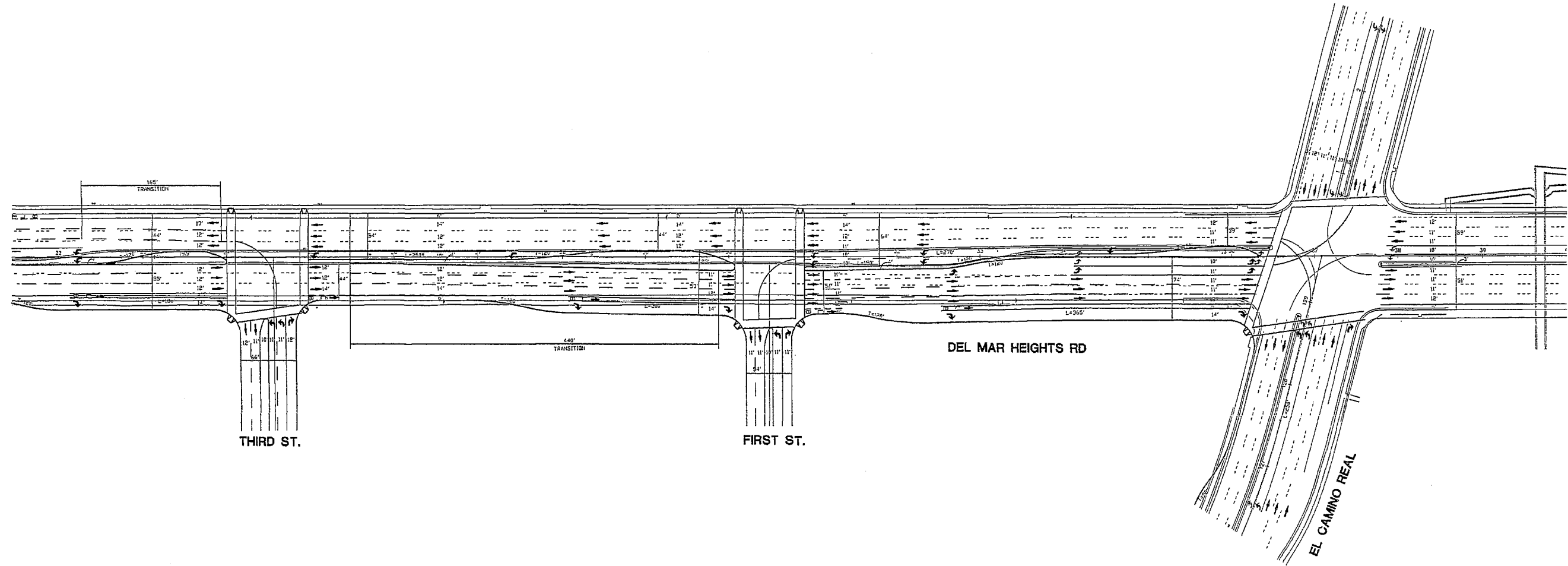


Photo Page 10





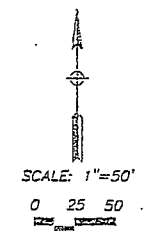
NOTE: PRELIMINARY OPINION OF COST BASED ON CONCEPTUAL PLANS WHICH ARE SUBJECT TO SIGNIFICANT CHANGE BASED ON AGENCY REVIEW AND APPROVAL.

CONCEPTUAL LAYOUT
FOR DISCUSSION PURPOSES ONLY
NOT BASED ON A SURVEY

URBAN SYSTEMS ASSOCIATES, INC.
4540 KEARNY VILLA ROAD, SUITE 106
SAN DIEGO, CA 92123, (619) 590-4911

FIGURE 14-10

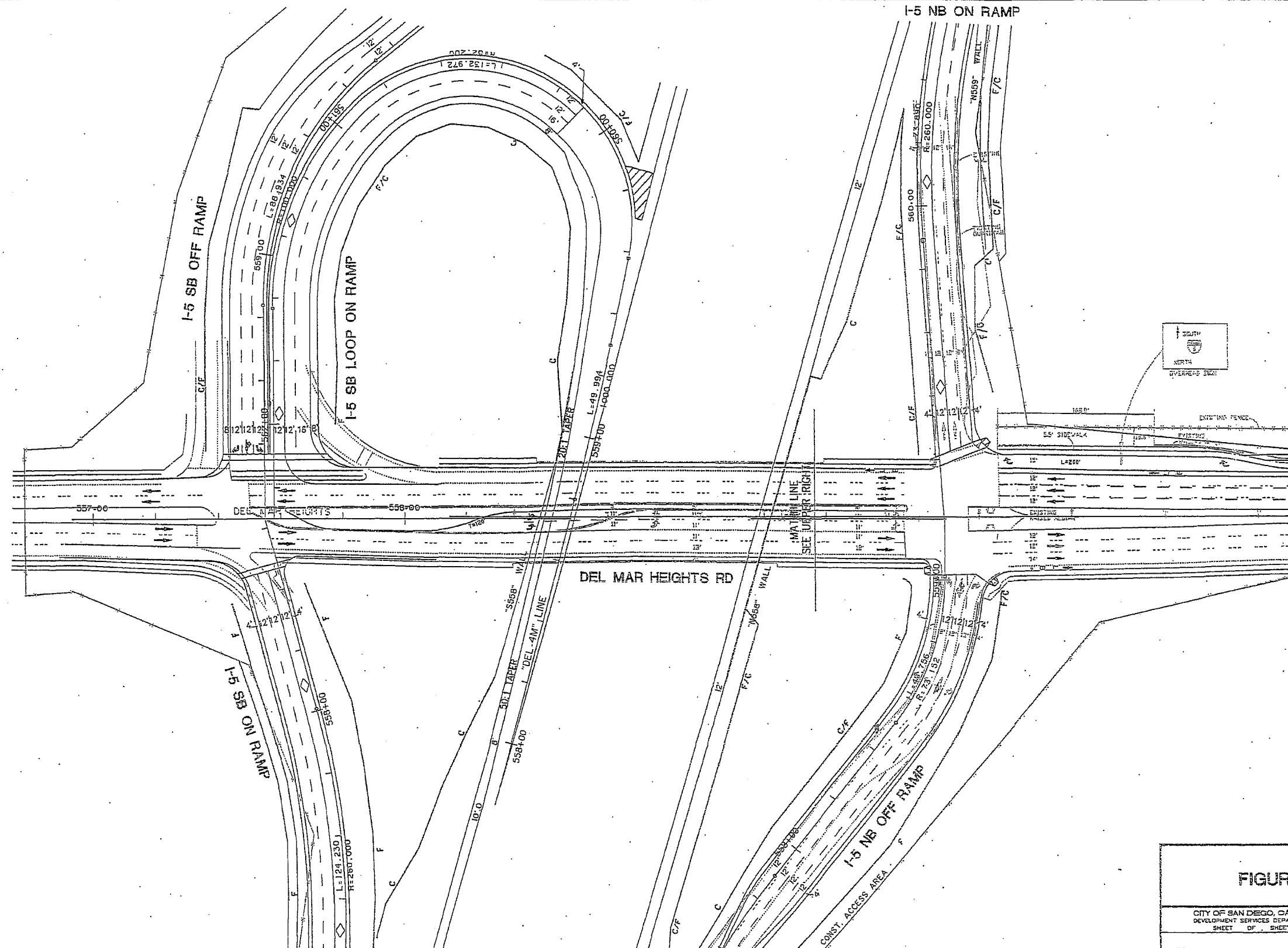
CITY OF SAN DIEGO, CALIFORNIA DEVELOPMENT SERVICES DEPARTMENT SHEET OF SHEETS					W.G. NO. _____ P.T.S. NO. _____
FOR CITY ENGINEER _____ DATE _____					TM/TFW _____
DESCRIPTION	BY	APPROVED	DATE	FILED	PD _____ EDT _____
ORIGINAL	USA/				
CONTRACTOR _____ DATE STARTED _____ INSPECTOR _____ DATE COMPLETED _____					WAD 14 COORDINATES _____ LAMBERT COORDINATES _____



CITY OF SAN DIEGO, CALIFORNIA					W.O. NO. _____	
DEVELOPMENT SERVICES DEPARTMENT					P.T.S. NO. _____	
SHEET OF SHEETS						
_____ DATE _____					TJ/TJH _____	
DESCRIPTION		BY	APPROVED	DATE	FILED	
ORIGINAL	USA1					PID _____
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CONTRACTOR _____		DATE STARTED _____				
NOPECOR _____		DATE COMPLETED _____				

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NOTE: PRELIMINARY OPINION OF COST BASED ON CONCEPTUAL PLANS WHICH ARE SUBJECT TO SIGNIFICANT CHANGE BASED ON AGENCY REVIEW AND APPROVAL.

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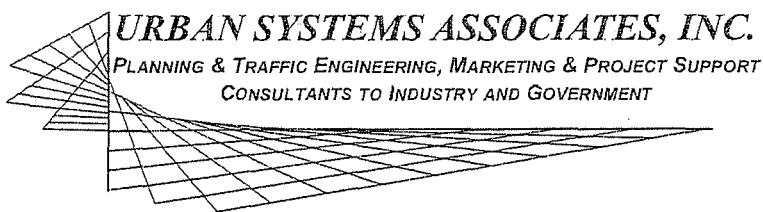
FIGURE 19-2C

CITY OF SAN DIEGO, CALIFORNIA DEVELOPMENT SERVICES DEPARTMENT SHEET OF SHEETS				W.D. NO.	
DATE				P.T.S. NO.	
DESCRIPTION	BY	APPROVED	DATE	FILED	
ORIGINAL	USAI				
DATE STARTED				DATE COMPLETED	
CONTRACTOR				W.D. NO.	
SUPERVISOR				W.D. NO.	



APPENDIX O

CONSTRUCTION TRAFFIC IMPACT ANALYSIS



E-MEMO

ATTN:

Bob Little – Kilroy Realty

E-Mail: ▼

rlittle@kilroyrealty.com

FROM:

Andrew P. Schlaefli & Jacob D. Swim

TOTAL PAGES (Including 5 + (40)
Cover): Attachments

DATE:

March 5, 2012

TIME: 9:22:42 AM

JOB NUMBER: 002407

SUBJECT: *One Paseo - Construction Traffic Analysis*

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INTRODUCTION AND METHODOLOGY:

The purpose of this memo is to discuss the impacts of construction traffic as a result of the proposed One Paseo project. A total of five construction phases were evaluated for traffic impacts which included Phase 1, Phase 2, Phase 3, Phase 1&2, and Phase 1-3. Each construction phase is consistent with the project phasing outlined in the Development Summary, see **Attachment 1**. Phase 1&2 indicates these two phases would be constructed together. Phase 1-3 implies all three construction phases would be combined. Two scenarios were evaluated for each phase: Existing with Construction Traffic and Near Term with Construction Traffic. The existing with construction traffic scenario evaluates the baseline condition with construction traffic by phase. And the Near Term with construction traffic evaluated existing with cumulative projects in the area along with construction traffic by phase. These two scenarios were analyzed based on the assumption the proposed project would begin construction of Phase 1 in 2013, Phase 2 would begin in 2014, and Phase 3 would begin in 2015. Existing with construction traffic by phase and Near Term with construction traffic by phase was analyzed on seven (7) street segments, five (5) intersections, and two (2) freeway segments. The study area for the construction analysis was based on the assumed truck routes exporting and importing materials to the site via Del Mar Heights Road and Interstate 5. The construction phasing, duration of construction, workers, deliveries, and import/export by phase was provided by Whiting-Turner, see attached email dated October 20, 2011. **Attachment 2** shows the proposed employee parking, construction trailers, truck routes and load sites. As shown, trucks would turn right into the site at Third Avenue and then exit at the signalized access at First Avenue.

A distribution of construction traffic for employees is shown on **Attachment 3**. The distribution is based on our experience with similar projects and familiarity with the Carmel Valley area. As shown, 60% of employee traffic is assumed to be coming from the west on Del Mar Heights Road. This assumption is based on the close proximity the I-5 freeway is to the project site. 50% (25% north and 25% south) of the construction employees are assumed to use the I-5 freeway to access the project since there are many residential communities both north and south of the Del Mar Heights Road interchange. Just east of First Avenue at Del Mar Heights Road, 40% of construction employees are assumed to enter/exit the site. Of the 40%, 10% come from the east on Del Mar

Heights Road, 5% from the north on El Camino Real, and 25% from the south on El Camino Real. These employees are assumed to be already in the Carmel Valley area or nearby surrounding communities.

Attachment 4 illustrates the distribution of truck (import/export) and delivery traffic on a daily basis. Based on our experience with similar construction projects, the haul routes are designed to access nearby material sources (mines). The project site is located in a primarily residential and commercial area where no mines are located. Based on location of nearby mines in the San Diego area, the I-5 would be the most likely route to the project site. As shown in **Attachment 4**, 100% of the truck & delivery traffic is assumed to use Del Mar Heights Road from the west and then 50% travel north and 50% south on Interstate 5. To accommodate trucks leaving the site, a signal is proposed at First Avenue and Del Mar Heights Road for construction access. Without a signal at Third Avenue, a dedicated right turn lane in the eastbound direction would provide trucks and delivery vehicles a deceleration lane to minimize stops and enhance traffic safety during construction along the Del Mar Heights corridor.

To determine Near Term traffic impacts during construction, a percentage of cumulative projects by phase were assumed as shown in **Attachment 5**. The project's trip generation daily traffic was broken down by phase to determine the amount of cumulative projects built by a particular phase. For example, the project development in Phase 1 generates 9,888 average daily trips (ADT) which is approximately 37% of the projects total 26,961 (Project ADT). Therefore, in Phase 1, an assumed 37% of cumulative projects in the area would be constructed and included in the roadway network. For Phase 2, an assumed 66% of cumulative project would be built. Phase 3 assumes 100% of cumulative projects in the area are built.

If construction traffic causes a roadway facility or intersection that operates acceptably to operate unacceptably, then the project has a significant impact. Two criteria must be met to determine a significant impact and before mitigation is proposed. First, the intersection or street segment must have an unacceptable level of service (LOS), i.e. E or F. Second, the amount of construction traffic must be significant based on the application of criteria discussed below and illustrated in Table 4-2 of the traffic study. For an intersection, if the change in delay is greater than 2 seconds or 1 second and the level of service is "E" or "F" respectively, then the intersection construction impacts would be considered significant. For a street segment, if the change in volume to capacity ratio (V/C ratio) exceeds 0.02 or 0.01, and the level of service is "E" or "F" respectively, then the street segment would be considered significantly impacted.

CONSTRUCTION TRAFFIC (PHASE 1):

Attachment 6 shows the trip generation table for traffic generated by employees, material deliveries, and trucks importing and exporting in phase 1. Construction traffic in this phase would generate 1,775 ADT with 130 AM peak hour trips and 118 PM peak hour trips. The material deliveries and truck imports/exports are converted from trucks to autos using an auto equivalency of 2.5 per Exhibit 21-9 in the Highway Capacity Manual 2000.

Existing With Construction Traffic (Phase 1):

The Existing with construction traffic in phase 1 was evaluated. **Attachment 7** shows the Existing with and without construction street segment comparison in phase 1. As shown, all segments operate at acceptable levels of service, i.e. D or better. **Attachment 8** shows the Existing with and without construction intersection comparison in phase 1. Five (5) intersections were evaluated on Del Mar Heights Road from the I-5 SB ramps to El Camino Real. As shown in the table, all intersections operate at acceptable levels of service and no

significant impacts occur as a result of construction traffic in phase 1. The freeway segments north and south of Del Mar Heights Road on Interstate 5 were evaluated and operate at acceptable levels of service as shown in the freeway level of service summary table, see **Attachment 9**. As shown, no impacts occur as a result of construction traffic in phase 1.

Near Term With Construction Traffic (Phase 1):

The Near Term without construction traffic volumes in phase 1 were developed by assuming 37% of cumulative projects were built. Construction traffic volumes in phase 1 were then added to Near Term volumes to derive the Near Term with construction traffic volumes and evaluate construction traffic impacts. The Near Term street segment comparison table shows no significant impacts, see **Attachment 10**. For intersection impacts, **Attachment 11** shows all intersections are projected to operate at acceptable levels of service with and without construction traffic in phase 1, therefore, no significant impacts. On the I-5 freeway segments analyzed, **Attachment 12** shows no significant impacts as a result of construction traffic in phase 1.

CONSTRUCTION TRAFFIC (PHASE 2):

The construction traffic in phase 2 generates 1,265 ADT with 84 AM peak hour trips and 77 PM peak hour trips, see **Attachment 13**.

Existing With Construction Traffic (Phase 2):

Street segment volumes for construction traffic in phase 2 were added to existing traffic volumes and evaluated. As shown in **Attachment 14**, all segments evaluated operate at level of service "D" or better. Intersections were analyzed and there are no significant impacts as a result of construction traffic in phase 2, see **Attachment 15**. The intersection of Del Mar Heights Road at Third Avenue is analyzed based on construction of Block A being part of phase 2. A freeway level of service summary shows both segments on I-5 operate at acceptable levels of service and there are no significant impacts as shown in **Attachment 16**.

Near Term With Construction Traffic (Phase 2):

The Near Term with construction traffic volumes were developed by adding the Near Term volumes (Existing + 66% of cumulative projects) to the construction traffic volumes in phase 2. The street segment level of service comparison shows no significant street segment impacts, see **Attachment 17**. The intersection comparison table shows all intersections operating at acceptable levels of service and therefore, no significant impacts as shown in **Attachment 18**. The freeway segments on I-5 are operating at acceptable levels of service with no significant impacts, see **Attachment 19**.

CONSTRUCTION TRAFFIC (PHASE 3):

The construction traffic in phase 3 generates 1,369 ADT with 93 AM peak hour trips and 86 PM peak hour trips, see **Attachment 20**.

Existing With Construction Traffic (Phase 3):

The Existing with construction traffic in phase 3 was derived by adding construction traffic volumes in phase 3 to existing volumes. All street segments in **Attachment 21** currently operate at acceptable levels of service with and without construction traffic in phase 3. **Attachment 22** shows all intersections operating at acceptable levels of service and no significant impacts. The two segments on I-5 in phase 3 of construction operate at acceptable levels of service and show no significant impacts in **Attachment 23**.

Near Term With Construction Traffic (Phase 3):

The Near Term without construction traffic volumes in phase 3 assumed 100% of cumulative projects in the area were built. Construction traffic volumes from phase 3 were added to Near Term without construction traffic volumes to get the Near Term with construction traffic volumes. **Attachment 24** shows all street segments operate at level of service "D" or better. As shown on **Attachment 25**, there are no significant impacts at intersections as a result of construction traffic in phase 3. Freeway segments are operating at acceptable levels of service as shown in **Attachment 26**.

CONSTRUCTION TRAFFIC (PHASE 1 & 2):

As previously mentioned, construction traffic in phase 1 & 2 assumes these phases are built together. Phase 1 & 2 includes the construction of Blocks D, E, and A as shown in the Development Summary Table (**Attachment 1**). Since the construction of Block A is adjacent to the First Avenue entrance, it is assumed in this analysis that a signal is installed at First Avenue for construction access under this phasing scenario. **Attachment 27** shows the trip generation table for construction phase 1 & 2. As shown, the construction traffic would generate 1,975 ADT with 138 AM peak hour trips and 126 PM peak hour trips.

Existing With Construction Traffic (Phase 1 & 2):

The existing with and without construction traffic street segment comparison table for phase 1 & 2 shows no unacceptable level of service on any street segments, therefore, no significant segment impacts, see **Attachment 28**. **Attachment 29** shows the intersection comparison table for construction phase 1 & 2. As shown, there are no significant impacts to intersections evaluated. Freeway segments operate at acceptable levels of service, see **Attachment 30**.

Near Term With Construction Traffic (Phase 1 & 2):

The Near Term without construction traffic volumes in phase 1 & 2 were developed by assuming 66% of cumulative projects were built. The Near Term street segment comparison table shows all segments operate at level of service "D" or better, and therefore, no significant impacts, see **Attachment 31**. For intersection impacts, **Attachment 32** shows all intersections are projected to operate at acceptable levels of service, i.e. D or better, with and without construction traffic in phase 1 & 2, therefore, no significant impacts. On the I-5 freeway segments analyzed, **Attachment 33** shows no significant impacts as a result of construction traffic in phase 1 & 2.

CONSTRUCTION TRAFFIC (PHASE 1 - 3):

Construction traffic in phases 1-3 assumes all three phases are built together, not sequentially. This phasing assumes the intersection of First Avenue and Del Mar Heights Road is signalized for construction access. The construction traffic in phases 1-3 generates 2,175 ADT with 146 AM peak hour trips and 134 PM peak hour trips, see **Attachment 34**.

Existing With Construction Traffic (Phase 1 - 3):

Attachment 35 shows no significant impacts in the street segment comparison table. No significant intersection impacts occur in phases 1-3 as a result of construction traffic, see **Attachment 36**. On the I-5 freeway segments, **Attachment 37** shows no significant impacts.

Near Term With Construction Traffic (Phase 1 - 3):

The Near Term analysis for construction traffic in phases 1-3 assumes 100% cumulative projects are built and included in the roadway network. A significant impact occurs on Del Mar Heights Road between I-5 NB ramps and High Bluff Drive in the street segment comparison table as shown in **Attachment 38**. All intersections are projected to operate at acceptable levels of service in **Attachment 39**. **Attachment 40** shows no significant impacts to freeway segments as a result of construction traffic from all three construction phases.

CONCLUSIONS AND RECOMMENDATIONS:

The only construction traffic significant impact is a segment impact on Del Mar Heights Road between the I-5 NB ramps and High Bluff Drive. This significant impact on Del Mar Heights Road occurs under the analyzed construction (Phase 1-3) scenario. A significant impact resulting from project construction traffic only occurs if the additional trips cause the segment to exceed the City's significance thresholds and the segments operates at an unacceptable level of service.

ATTACHMENT 1

ONE PASEO – A Main Street for Carmel Valley DEVELOPMENT SUMMARY							
Phase/Block	Commercial Retail (Sq. Ft.*)		Commercial Office (Sq. Ft.*)		Hotel (No. of Rooms)	Residential (MF Units)	Total*
	Retail	Cinema **	Corporate Office	Professional Office***			
<i>Phase 1</i>							
Block D	61,190	---	270,000	21,000	---	---	352,190
Block E	39,460	---	245,000	---	---	---	284,460
<i>Phase 1 Total</i>	<i>100,650</i>	<i>---</i>	<i>515,000</i>	<i>21,000</i>	<i>---</i>	<i>---</i>	<i>636,650</i>
<i>Phase 2</i>							
Block A	65,610	---	---	---	---	194	65,610 + 194 MF units
<i>Phase 2 Total</i>	<i>65,610</i>	<i>---</i>	<i>---</i>	<i>---</i>		<i>194</i>	<i>65,610 + 194 MF units</i>
<i>Phase 3</i>							
Block B	38,940	---	---	---	150	181	38,940 + 150 hotel rooms + 181 MF units
Block C	14,800	---	---	---		233	14,800 + 233 MF units
Block D	---	50,000	---	---	---		50,000
<i>Phase 3 Total</i>	<i>53,740</i>	<i>50,000</i>	<i>---</i>	<i>---</i>	<i>---</i>	<i>414</i>	<i>103,740 + 418 MF units</i>
Total*	220,000	50,000	515,000	21,000	150	608	806,000 Sq. Ft + 150 hotel rooms + 608 MF units

*Gross Leasable Area (excludes parking structures covered in Gross Floor Area calculations). Density transfers permitted in accordance with procedures described in the Precise Plan.

**Cinema consists of up to 10 screens with a maximum total of 1,200 seats.

***Professional Office (located on Main Street).

Jake Swim

From: Likins, Steven [Steven.Likins@Whiting-Turner.com]
 Sent: Thursday, October 20, 2011 10:17 AM
 To: jake@urbansystems.net
 Subject: Construction Analysis
 Jake -

Per your June 24, 2011 memo, please see our responses below.

- Construction Phases - The project is divided into three phases
- Construction Duration by Phase - Phase I (28 months), Phase II (22 months) & Phase III (31 months). The project would take a total of 81 months to build, if phases are built sequentially. If Phase I and II were combined, it would also take 28 months. If all phases were combined, it would take 40 months to complete.
- Number of Workers by Phase - Whiting-Turner estimated that a project built sequentially would likely have a maximum of 400 employees per day and generally average approximately 300 employees per day. If Phase I and II were combined, they would likely have a maximum of 700 employees per day and generally average approximately 400 employees per day. If all phases were combined, they would likely have a maximum of 800 employees and generally average approximately 500 employees per day.
- Number of Material Deliveries by Phase - On average, the project would result in 25 deliveries per day. The peak would occur during export operation, but during the export operation there won't be many workers on the site.
- Amount of Import & Export by Phase - Phase I - 243,670 cu. yds., Phase II - 118,800 cu. yds. and Phase III - 141,500 cu. yds. Each truck trip can accommodate 10 cu. yds. per trip. As an example, Phase I export (i.e. trucks on the street) is 110 days (22 weeks x 5 days) or roughly 210 round trips per day (24,260 trips / 110 days). Assuming a round trip is about 20 minutes (depends on distance to export site) there would be about 9-10 trucks running round trips for 110 work days (i.e. Mon-Fri). If you combine Phases I and II, that would add another 9-10 trucks for about 60 days. And, if all three phases are combined, Phase III export would occur after phase I and II so we'd still be doing 210 trips per day (420 for 55 of those while doing phase II) but we'd be adding 55 days of export.
- Construction Hours - Monday-Friday (The Municipal Code allows from 7:00 AM-7:00 PM but these hours may be further restricted by the site development permit).
- Construction Shifts, if any - None anticipated
- Written Description of construction activities by phase - Each phase is basically the same; shoring, excavation, site utilities, below grade parking garage, vertical steel, concrete or wood structural frame, glass, plaster, metal panel or stone exterior enclosure, HVAC, Plumbing, Electrical, interior drywall and finishes (floor finishes, ceilings, walls, doors) exterior hardscape and landscape

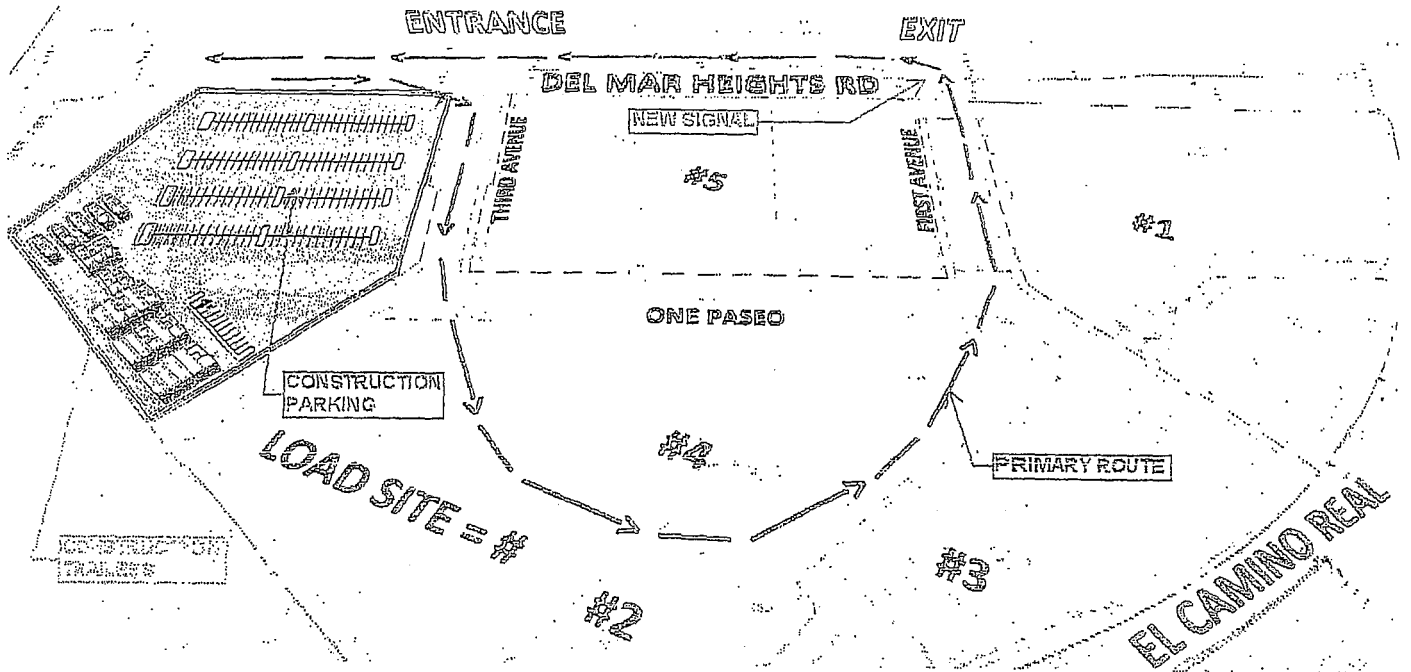
Please advise if you have any questions.

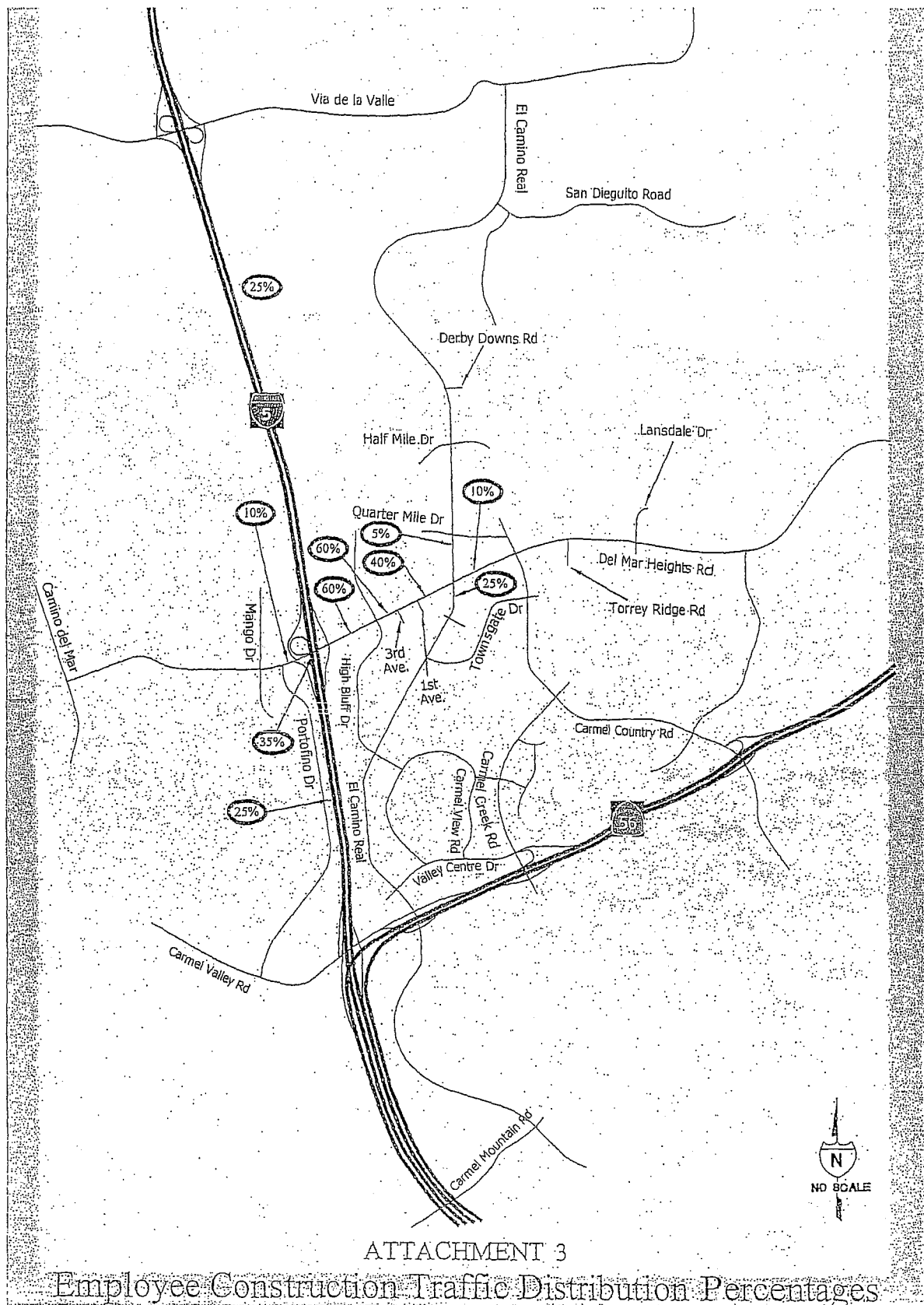
Thanks

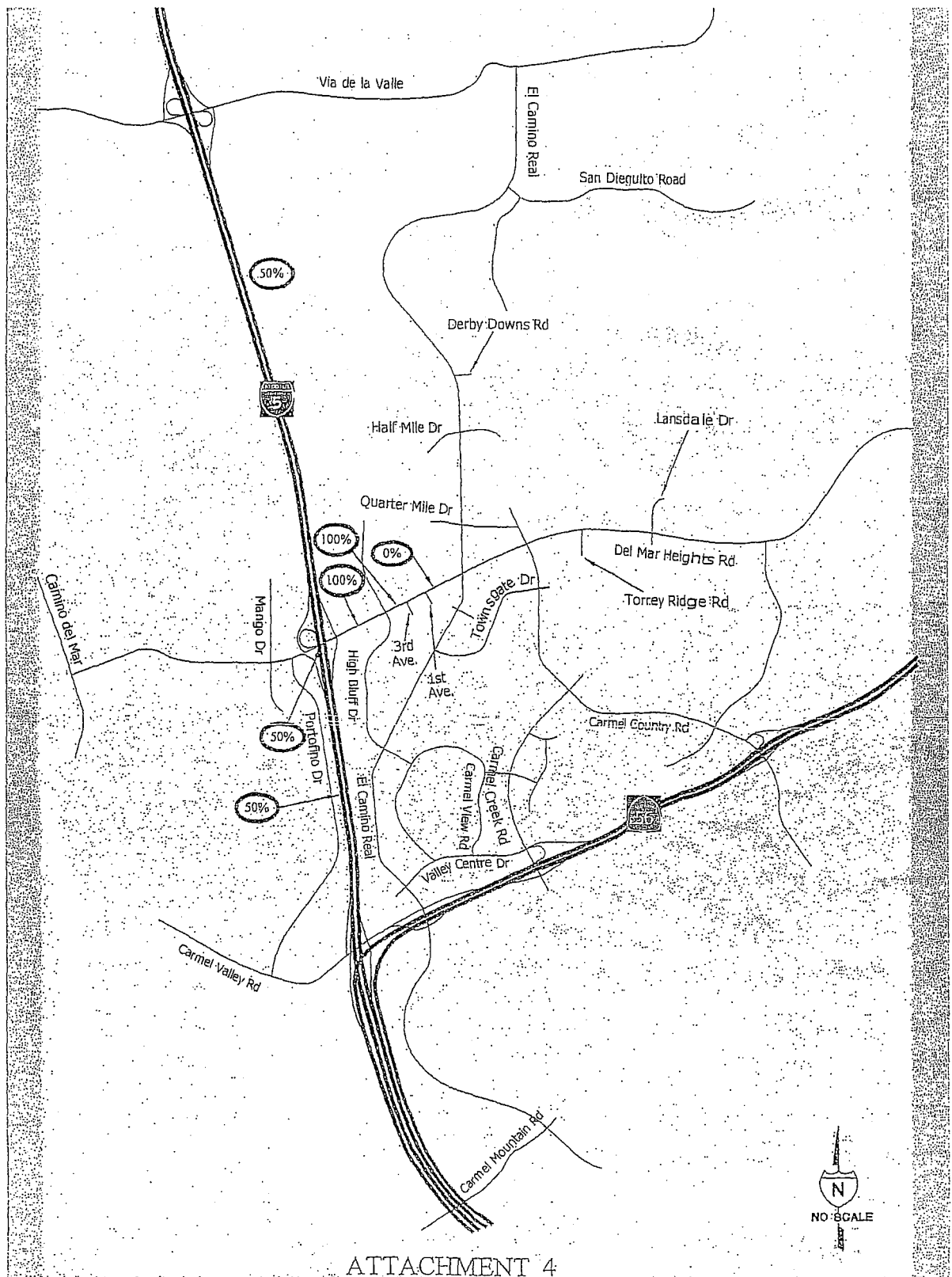
Steve Likins | Vice President
 THE WHITING-TURNER CONTRACTING COMPANY
 San Diego Office | 440 Stevens Avenue Suite 270 Solana Beach CA 92075
 T: (858) 792-0600 | F: (858) 792-9600 | C: (949) 289-7492
www.whiting-turner.com

10/20/2011

ATTACHMENT 2







ATTACHMENT 4
Truck & Delivery Construction Traffic Distribution Percentages

Attachment 5

One Paseo Construction Analysis

Construction Phases	Construction Duration	Project's Trip Generation ADT by phase	Percentage of ADT by phase	Assumed Percentage of Cumulative Projects
Phase 1	28 months	9,888 ADT	37%	37%
Phase 2	22 months	17,812 ADT	66%	66%
Phase 3	31 months	26,961 ADT	100%	100%
Phase 1 & 2	28 months	17,812 ADT	66%	66%
Phase 1-3	40 months	26,961 ADT	100%	100%

Source: Whiting-Turner

ATTACHMENT 6
One Paseo Trip Generation Table
Construction Traffic

PHASE 1

Purpose	Number	Auto Equivalency	Equivalent Autos	Trip	ADT	AM Peak Hour						PM Peak Hour					
						%*	#	In	: Out	In	Out	%*	#	In	: Out	In	Out
Employees	300 Autos	N/A	300	2 /Auto	600	4%	24	9	: 1	22	2	4%	24	2	: 8	5	19
Material Deliveries	25 Trucks	2.5	62.5	2 /Auto	125	9%	11	4	: 6	5	7	8%	10	5	: 5	5	5
Truck Imports/Exports	210 Trucks	2.5	525	2 /Auto	1,050	9%	95	4	: 6	38	57	8%	84	5	: 5	42	42
TOTAL					1,775		130			64	66		118			52	66

Notes:

Passenger-Car equivalents for Trucks is 2.5 per Exhibit 21-9 in the Highway Capacity Manual 2000

Typical Work Hours 7AM to 3:30PM.

For Employee Peak Hour In/Out Ratios, a 4% AM and PM peak is assumed based on the AM peak counts beginning at 7:30AM and the majority of employee shifts ending at 3:30PM, which is prior to the PM peak counts beginning at 5:00PM.

For Material Deliveries and Truck Imports/Exports, the Truck Terminal land use peak hour splits were used based on the City of San Diego Trip Generation Manual, May 2003.

ATTACHMENT 7

Existing Without & Existing With Construction (Phase 1) Street Segment Comparison

Road	Segment	Class.	Existing			Existing + Construction (Phase 1)			$\Delta V/C$	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	I-5 Southbound Ramps and I-5 Northbound Ramps	5-PA	D	40,090	0.802	D	40,888	0.818	0.016	NO
	I-5 Northbound Ramps to High Bluff Drive	PA	D	51,625	0.860	D	53,160	0.886	0.026	NO
	High Bluff Drive to First Avenue	PA	C	37,910	0.632	C	39,445	0.657	0.026	NO
	First Avenue to El Camino Real	PA	C	37,910	0.632	C	38,150	0.636	0.004	NO
	El Camino Real to Carmel Country Road	PA	B	32,674	0.545	B	32,734	0.546	0.001	NO
El Camino Real	Quarter Mile Drive to Del Mar Heights Road	4-M	A	14,925	0.373	A	14,955	0.374	0.001	NO
	Del Mar Heights Road to Townsgate Drive	6-M	A	14,731	0.295	A	14,881	0.298	0.003	NO

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

$\Delta V/C$ = Change in V/C ratio

PA = 6 lane Primary Arterial

5-PA = 5 lane Primary Arterial with LOS E capacity of 50,000 ADT

4-M=4 lane Major

6-M = 6 lane Major

ATTACHMENT 8

Existing & Existing + Construction Traffic (Phase 1) Intersection Summary

#	Intersection	Existing				Existing + Construction Traffic (Phase 1)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	Del Mar Heights Road / I-5 SB Ramps	22.5	C	20.3	C	22.7	C	0.2	No	21.0	C	0.7	No
2	Del Mar Heights Road / I-5 NB Ramps	35.1	D	37.5	D	35.2	D	0.1	No	37.8	D	0.3	No
3	Del Mar Heights Road / High Bluff Drive	26.1	C	28.9	C	26.8	C	0.7	No	29.9	C	1.0	No
4	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	3.4	A	N/A	No	4.7	A	N/A	No
5	Del Mar Heights Road / El Camino Real	27.2	C	26.9	C	28.0	C	0.8	No	27.1	C	0.2	No

Notes:

LOS = Level of Service

Δ = Change

S = Significant

D = Delay

DNE = Does Not Exist

N/A = Not Applicable

ATTACHMENT 9

Existing With & Without Construction Traffic (Phase 1)

Freeway Level of Service Summary

Segment	Dir.	Existing		Existing + Construction (Phase 1)		Δ	Sig.?
		V/C	LOS	V/C	LOS		
I-5							
Via De La Valle/Del Mar Heights Rd.	NB	0.6447	C	0.6453	C	0.0006	NO
Via De La Valle/Del Mar Heights Rd.	SB	0.6655	C	0.6661	C	0.0006	NO
Del Mar Heights Rd./ SR-56	NB	0.5565	B	0.5570	B	0.0005	NO
Del Mar Heights Rd./ SR-56	SB	0.5744	B	0.5749	B	0.0005	NO

Legend:

Dir.= Direction

V/C= Volume to Capacity Ratio

LOS= Level of Service

Sig.?= Is this significant?

ATTACHMENT 10

Near Term With & Without Construction (Phase 1) Street Segment Comparison

Road	Segment	Class.	Near Term			Near Term + Construction (Phase 1)			$\Delta V/C$	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	I-5 Southbound Ramps and I-5 Northbound Ramps	5-PA	D	40,090	0.802	D	40,888	0.818	0.016	<i>NO</i>
	I-5 Northbound Ramps to High Bluff Drive	PA	D	52,217	0.870	D	53,752	0.896	0.026	<i>NO</i>
	High Bluff Drive to First Avenue	PA	C	38,502	0.642	C	40,037	0.667	0.026	<i>NO</i>
	First Avenue to El Camino Real	PA	C	38,502	0.642	C	38,742	0.646	0.004	<i>NO</i>
	El Camino Real to Carmel Country Road	PA	B	32,674	0.545	B	32,734	0.546	0.001	<i>NO</i>
El Camino Real	Quarter Mile Drive to Del Mar Heights Road	4-M	A	14,925	0.373	A	14,955	0.374	0.001	<i>NO</i>
	Del Mar Heights Road to Townsgate Drive	6-M	A	15,412	0.308	A	15,562	0.311	0.003	<i>NO</i>

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

$\Delta V/C$ = Change in V/C ratio

PA = 6 lane Primary Arterial

5-PA = 5 lane Primary Arterial with LOS E capacity of 50,000 ADT

4-M=4 lane Major

6-M = 6 lane Major

NT+P Comp (Phase 1)

ATTACHMENT 11

Near Term With & Without Construction Traffic Intersection Summary

Phase 1

#	Intersection	Near Term				Near Term + Construction Traffic (Phase 1)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	Del Mar Heights Road / I-5 SB Ramps	21	C	21.7	C	23.2	C	2.2	N	22.0	C	0.3	N
2	Del Mar Heights Road / I-5 NB Ramps	34.6	C	36.7	D	35.5	D	0.9	N	37.6	D	0.9	N
3	Del Mar Heights Road / High Bluff Drive	28.1	C	31.4	C	29	C	0.9	N	31.6	C	0.2	N
4	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	3.5	A	0.0	N	4.9	A	0.0	N
5	Del Mar Heights Road / El Camino Real	27.7	C	27.9	C	28.2	C	0.5	N	28.5	C	0.6	N

Notes:

LOS = Level of Service

Δ = Change

S = Significant

D= Delay

ATTACHMENT 12

Near Term With & Without Construction Traffic

Freeway Level of Service Summary

Phase 1

Segment	Dir.	Near Term		Near Term + Construction (Phase 1)		Δ	Sig.?
		V/C	LOS	V/C	LOS		
I-5							
Via De La Valle/Del Mar Heights Rd.	NB	0.6460	C	0.6466	C	0.0006	NO
Via De La Valle/Del Mar Heights Rd.	SB	0.6667	C	0.6674	C	0.0006	NO
Del Mar Heights Rd./ SR-56	NB	0.5576	B	0.5581	B	0.0005	NO
Del Mar Heights Rd./ SR-56	SB	0.5755	B	0.5761	B	0.0005	NO

Legend:

Dir.= Direction

V/C= Volume to Capacity Ratio

LOS= Level of Service

Sig.?= Is this significant?

ATTACHMENT 13
One Paseo Trip Generation Table
Construction Traffic

PHASE 2

Purpose	Number	Auto Equivalency	Equivalent Autos	Trip	ADT	AM Peak Hour						PM Peak Hour					
						%*	#	In	:	Out	In	Out	%*	#	In	:	Out
Employees	300 Autos	N/A	300	2 /Auto	600	4%	24	9	:	1	22	2	4%	24	2	:	8
Material Deliveries	25 Trucks	2.5	62.5	2 /Auto	125	9%	11	4	:	6	5	7	8%	10	5	:	5
Truck Imports/Exports	108 Trucks	2.5	270	2 /Auto	540	9%	49	4	:	6	19	29	8%	43	5	:	5
TOTAL					1,265		84				46	38		77			31
																	46

Notes:

Passenger-Car equivalents for Trucks is 2.5 per Exhibit 21-9 in the Highway Capacity Manual 2000

Typical Work Hours 7AM to 3:30PM.

For Employee Peak Hour In/Out Ratios, a 4% AM and PM peak is assumed based on the AM peak counts beginning at 7:30AM and the majority of employee shifts ending at 3:30PM, which is prior to the PM peak counts beginning at 5:00PM.

For Material Deliveries and Truck Imports/Exports, the Truck Terminal land use peak hour splits were used based on the City of San Diego Trip Generation Manual, May 2003.

ATTACHMENT 14

Existing Without & Existing With Construction (Phase 2) Street Segment Comparison

Road	Segment	Class.	Existing			Existing + Construction (Phase 2)			$\Delta V/C$	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	I-5 Southbound Ramps and I-5 Northbound Ramps	5-PA	D	40,090	0.802	D	40,633	0.813	0.011	NO
	I-5 Northbound Ramps to High Bluff Drive	PA	D	51,625	0.860	D	52,650	0.878	0.017	NO
	High Bluff Drive to First Avenue	PA	C	37,910	0.632	C	38,935	0.649	0.017	NO
	First Avenue to El Camino Real	PA	C	37,910	0.632	C	38,150	0.636	0.004	NO
	El Camino Real to Carmel Country Road	PA	B	32,674	0.545	B	32,734	0.546	0.001	NO
El Camino Real	Quarter Mile Drive to Del Mar Heights Road	4-M	A	14,925	0.373	A	14,955	0.374	0.001	NO
	Del Mar Heights Road to Townsgate Drive	6-M	A	14,731	0.295	A	14,881	0.298	0.003	NO

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

$\Delta V/C$ = Change in V/C ratio

PA = 6 lane Primary Arterial

5-PA = 5 lane Primary Arterial with LOS E capacity of 50,000 ADT

4-M=4 lane Major

6-M = 6 lane Major

ATTACHMENT 15

Existing & Existing + Construction Traffic (Phase 2) Intersection Summary

#	Intersection	Existing				Existing + Construction Traffic (Phase 2)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	Del Mar Heights Road / I-5 SB Ramps	22.5	C	20.3	C	22.7	C	0.2	No	20.9	C	0.6	No
2	Del Mar Heights Road / I-5 NB Ramps	35.1	D	37.5	D	35.2	D	0.1	No	37.6	D	0.1	No
3	Del Mar Heights Road / High Bluff Drive	26.1	C	28.9	C	26.5	C	0.4	No	29.9	C	1.0	No
4	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	3	A	N/A	No	3.9	A	N/A	No
5	Del Mar Heights Road / El Camino Real	27.2	C	26.9	C	27.5	C	0.3	No	27.0	C	0.1	No

Notes:

LOS = Level of Service

Δ = Change

S = Significant

D = Delay

DNE = Does Not Exist

N/A = Not Applicable

ATTACHMENT 16

Existing With & Without Construction Traffic (Phase 2)

Freeway Level of Service Summary

Segment	Dir.	Existing		Existing + Construction (Phase 2)		Δ	Sig.?
		V/C	LOS	V/C	LOS		
I-5							
Via De La Valle/Del Mar Heights Rd.	NB	0.6447	C	0.6452	C	0.0004	NO
Via De La Valle/Del Mar Heights Rd.	SB	0.6655	C	0.6660	C	0.0004	NO
Del Mar Heights Rd./ SR-56	NB	0.5565	B	0.5568	B	0.0004	NO
Del Mar Heights Rd./ SR-56	SB	0.5744	B	0.5748	B	0.0004	NO

Legend:

Dir.= Direction
 V/C= Volume to Capacity Ratio
 LOS= Level of Service
 Sig.?= Is this significant?

ATTACHMENT 17

Near Term With & Without Construction (Phase 2) Street Segment Comparison

Road	Segment	Class.	Near Term			Near Term + Construction (Phase 2)			$\Delta V/C$	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	I-5 Southbound Ramps and I-5 Northbound Ramps	5-PA	D	40,090	0.802	D	40,633	0.813	0.011	<i>NO</i>
	I-5 Northbound Ramps to High Bluff Drive	PA	D	52,682	0.878	D	53,707	0.895	0.017	<i>NO</i>
	High Bluff Drive to First Avenue	PA	C	38,967	0.649	C	39,992	0.667	0.017	<i>NO</i>
	First Avenue to El Camino Real	PA	C	38,967	0.649	C	39,207	0.653	0.004	<i>NO</i>
	El Camino Real to Carmel Country Road	PA	B	32,674	0.545	B	32,734	0.546	0.001	<i>NO</i>
El Camino Real	Quarter Mile Drive to Del Mar Heights Road	4-M	A	14,925	0.373	A	14,955	0.374	0.001	<i>NO</i>
	Del Mar Heights Road to Townsgate Drive	6-M	A	15,946	0.319	A	16,096	0.322	0.003	<i>NO</i>

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

$\Delta V/C$ = Change in V/C ratio

PA = 6 lane Primary Arterial

5-PA = 5 lane Primary Arterial with LOS E capacity of 50,000 ADT

4-M=4 lane Major

6-M = 6 lane Major

NT+P Comp (Phase 2)

ATTACHMENT 18

Near Term With & Without Construction Traffic Intersection Summary Phase 2

#	Intersection	Near Term				Near Term + Construction Traffic (Phase 2)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	Del Mar Heights Road / I-5 SB Ramps	21.2	C	21.9	C	23.6	C	2.4	N	22.1	C	0.2	N
2	Del Mar Heights Road / I-5 NB Ramps	36.8	D	37.6	D	37.5	D	0.7	N	38.0	D	0.4	N
3	Del Mar Heights Road / High Bluff Drive	28.2	C	31.6	C	28.8	C	0.6	N	31.8	C	0.2	N
4	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	3.3	A	0.0	N	4.0	A	0.0	N
5	Del Mar Heights Road / El Camino Real	27.9	C	30.8	C	28.3	C	0.4	N	31.4	C	0.6	N

Notes:

LOS = Level of Service

Δ = Change

S = Significant

D= Delay

DNE = Does not Exist

ATTACHMENT 19

Near Term With & Without Construction Traffic

Freeway Level of Service Summary

Phase 2

Segment	Dir.	Near Term		Near Term + Construction (Phase 2)		Δ	Sig.?
		V/C	LOS	V/C	LOS		
I-5							
Via De La Valle/Del Mar Heights Rd.	NB	0.6469	C	0.6474	C	0.0004	NO
Via De La Valle/Del Mar Heights Rd.	SB	0.6677	C	0.6681	C	0.0004	NO
Del Mar Heights Rd./ SR-56	NB	0.5585	B	0.5589	B	0.0004	NO
Del Mar Heights Rd./ SR-56	SB	0.5764	B	0.5768	B	0.0004	NO

Legend:

Dir.= Direction

V/C= Volume to Capacity Ratio

LOS= Level of Service

Sig.?= Is this significant?

ATTACHMENT 20
One Paseo Trip Generation Table
Construction Traffic

PHASE 3

Purpose	Number	Auto Equivalency	Equivalent Autos	Trip	ADT	AM Peak Hour						PM Peak Hour					
						%	#	In	:	Out	In	Out	%	#	In	:	Out
Employees	300 Autos	N/A	300	2 /Auto	600	4%	24	9	:	1	22	2	4%	24	2	:	8
Material Deliveries	25 Trucks	2.5	62.5	2 /Auto	125	9%	11	4	:	6	5	7	8%	10	5	:	5
Truck Imports/Exports	129 Trucks	2.5	322	2 /Auto	644	9%	58	4	:	6	23	35	8%	52	5	:	5
TOTAL					1,369		93				49	44		86			36
																	50

Notes:

Passenger-Car equivalents for Trucks is 2.5 per Exhibit 21-9 in the Highway Capacity Manual 2000

Typical Work Hours 7AM to 3:30PM.

For Employee Peak Hour In/Out Ratios, a 4% AM and PM peak is assumed based on the AM peak counts beginning at 7:30AM and the majority of employee shifts ending at 3:30PM, which is prior to the PM peak counts beginning at 5:00PM.

For Material Deliveries and Truck Imports/Exports, the Truck Terminal land use peak hour splits were used based on the City of San Diego Trip Generation Manual, May 2003.

ATTACHMENT 21

Existing Without & Existing With Construction (Phase 3) Street Segment Comparison

Road	Segment	Class.	Existing			Existing + Construction (Phase 3)			$\Delta V/C$	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	I-5 Southbound Ramps and I-5 Northbound Ramps	5-PA	D	40,090	0.802	D	40,684	0.814	0.012	NO
	I-5 Northbound Ramps to High Bluff Drive	PA	D	51,625	0.860	D	52,754	0.879	0.019	NO
	High Bluff Drive to First Avenue	PA	C	37,910	0.632	C	39,039	0.651	0.019	NO
	First Avenue to El Camino Real	PA	C	37,910	0.632	C	38,150	0.636	0.004	NO
	El Camino Real to Carmel Country Road	PA	B	32,674	0.545	B	32,734	0.546	0.001	NO
El Camino Real	Quarter Mile Drive to Del Mar Heights Road	4-M	A	14,925	0.373	A	14,955	0.374	0.001	NO
	Del Mar Heights Road to Townsgate Drive	6-M	A	14,731	0.295	A	14,881	0.298	0.003	NO

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

$\Delta V/C$ = Change in V/C ratio

PA = 6 lane Primary Arterial

5-PA = 5 lane Primary Arterial with LOS E capacity of 50,000 ADT

4-M=4 lane Major

6-M = 6 lane Major

ATTACHMENT 22

Existing & Existing + Construction Traffic (Phase 3) Intersection Summary

#	Intersection	Existing				Existing + Construction Traffic (Phase 3)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	Del Mar Heights Road / I-5 SB Ramps	22.5	C	20.3	C	22.8	C	0.3	No	20.9	C	0.6	No
2	Del Mar Heights Road / I-5 NB Ramps	35.1	D	37.5	D	35.3	D	0.2	No	37.9	D	0.4	No
3	Del Mar Heights Road / High Bluff Drive	26.1	C	28.9	C	26.6	C	0.5	No	29.9	C	1.0	No
4	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	3.0	A	N/A	No	4.4	A	N/A	No
5	Del Mar Heights Road / El Camino Real	27.2	C	26.9	C	27.8	C	0.6	No	27.0	C	0.1	No

Notes:

LOS = Level of Service

Δ = Change

S = Significant

D = Delay

DNE = Does Not Exist

N/A = Not Applicable

ATTACHMENT 23

Existing With & Without Construction Traffic (Phase 3)

Freeway Level of Service Summary

Segment	Dir.	Existing		Existing + Construction (Phase 3)		Δ	Sig.?
		V/C	LOS	V/C	LOS		
I-5							
Via De La Valle/Del Mar Heights Rd.	NB	0.6447	C	0.6452	C	0.0005	NO
Via De La Valle/Del Mar Heights Rd.	SB	0.6655	C	0.6660	C	0.0005	NO
Del Mar Heights Rd./ SR-56	NB	0.5565	B	0.5569	B	0.0004	NO
Del Mar Heights Rd./ SR-56	SB	0.5744	B	0.5748	B	0.0004	NO

Legend:

Dir.= Direction

V/C= Volume to Capacity Ratio

LOS= Level of Service

Sig.?= Is this significant?

ATTACHMENT 24

Near Term With & Without Construction (Phase 3) Street Segment Comparison

Road	Segment	Class.	Near Term			Near Term + Construction (Phase 3)			$\Delta V/C$	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	I-5 Southbound Ramps and I-5 Northbound Ramps	5-PA	D	40,090	0.802	D	40,684	0.814	0.012	<i>NO</i>
	I-5 Northbound Ramps to High Bluff Drive	PA	D	53,226	0.887	D	54,355	0.906	0.019	<i>NO</i>
	High Bluff Drive to First Avenue	PA	C	39,511	0.659	C	40,640	0.677	0.019	<i>NO</i>
	First Avenue to El Camino Real	PA	C	39,511	0.659	C	39,751	0.663	0.004	<i>NO</i>
	El Camino Real to Carmel Country Road	PA	B	32,674	0.545	B	32,734	0.546	0.001	<i>NO</i>
El Camino Real	Quarter Mile Drive to Del Mar Heights Road	4-M	A	14,925	0.373	A	14,955	0.374	0.001	<i>NO</i>
	Del Mar Heights Road to Townsgate Drive	6-M	A	16,572	0.331	A	16,722	0.334	0.003	<i>NO</i>

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

$\Delta V/C$ = Change in V/C ratio

PA = 6 lane Primary Arterial

5-PA = 5 lane Primary Arterial with LOS E capacity of 50,000 ADT

4-M=4 lane Major

6-M = 6 lane Major

NT+P Comp (Phase 3)

ATTACHMENT 25

Near Term With & Without Construction Traffic Intersection Summary Phase 3

#	Intersection	Near Term				Near Term + Construction Traffic (Phase 3)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	Del Mar Heights Road / I-5 SB Ramps	21.6	C	22.1	C	23.3	C	1.7	N	22.4	C	0.3	N
2	Del Mar Heights Road / I-5 NB Ramps	40.6	D	38.6	D	41.9	D	1.3	N	39.3	D	0.7	N
3	Del Mar Heights Road / High Bluff Drive	28.4	C	32.1	C	29.0	C	0.6	N	32.5	C	0.4	N
4	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	3.2	A	0.0	N	4.5	A	0.0	N
5	Del Mar Heights Road / El Camino Real	28.4	C	36.7	D	28.9	C	0.5	N	37.7	D	1.0	N

Notes:

LOS = Level of Service

Δ = Change

S = Significant

D= Delay

DNE = Does not Exist

ATTACHMENT 26

Near Term With & Without Construction Traffic

Freeway Level of Service Summary

Phase 3

Segment	Dir.	Near Term		Near Term + Construction (Phase 3)		Δ	Sig.?
		V/C	LOS	V/C	LOS		
I-5							
Via De La Valle/Del Mar Heights Rd.	NB	0.6481	C	0.6485	C	0.0005	NO
Via De La Valle/Del Mar Heights Rd.	SB	0.6688	C	0.6693	C	0.0005	NO
Del Mar Heights Rd./ SR-56	NB	0.5596	B	0.5599	B	0.0004	NO
Del Mar Heights Rd./ SR-56	SB	0.5774	B	0.5779	B	0.0004	NO

Legend:

Dir.= Direction

V/C= Volume to Capacity Ratio

LOS= Level of Service

Sig.?= Is this significant?

ATTACHMENT 27
One Paseo Trip Generation Table
Construction Traffic

PHASES 1 & 2 Combined

Purpose	Number	Auto Equivalency	Equivalent Autos	Trip	ADT	AM Peak Hour						PM Peak Hour					
						%	#	In	Out	In	Out	%	#	In	Out	In	Out
Employees	400 Autos	N/A	400	2 /Auto	800	4%	32	9	1	29	3	4%	32	2	8	6	26
Material Deliveries	25 Trucks	2.5	62.5	2 /Auto	125	9%	11	4	6	5	7	8%	10	5	5	5	5
Truck Imports/Exports	210 Trucks	2.5	525	2 /Auto	1,050	9%	95	4	6	38	57	8%	84	5	5	42	42
TOTAL					1,975		138			71	67		126			53	73

Notes:

Passenger-Car equivalents for Trucks is 2.5 per Exhibit 21-9 in the Highway Capacity Manual 2000

Typical Work Hours 7AM to 3:30PM.

For Employee Peak Hour In/Out Ratios, a 4% AM and PM peak is assumed based on the AM peak counts beginning at 7:30AM and the majority of employee shifts ending at 3:30PM, which is prior to the PM peak counts beginning at 5:00PM.

For Material Deliveries and Truck Imports/Exports, the Truck Terminal land use peak hour splits were used based on the City of San Diego Trip Generation Manual, May 2003.

ATTACHMENT 28

Existing Without & Existing With Construction (Phase 1 & 2) Street Segment Comparison

Road	Segment	Class.	Existing			Existing + Construction (Phase 1 & 2)			Δ V/C	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	I-5 Southbound Ramps and I-5 Northbound Ramps	5-PA	D	40,090	0.802	D	40,958	0.819	0.017	NO
	I-5 Northbound Ramps to High Bluff Drive	PA	D	51,625	0.860	D	53,280	0.888	0.028	NO
	High Bluff Drive to First Avenue	PA	C	37,910	0.632	C	39,565	0.659	0.028	NO
	First Avenue to El Camino Real	PA	C	37,910	0.632	C	38,230	0.637	0.005	NO
	El Camino Real to Carmel Country Road	PA	B	32,674	0.545	B	32,754	0.546	0.001	NO
El Camino Real	Quarter Mile Drive to Del Mar Heights Road	4-M	A	14,925	0.373	A	14,965	0.374	0.001	NO
	Del Mar Heights Road to Townsgate Drive	6-M	A	14,731	0.295	A	14,931	0.299	0.004	NO

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

Δ V/C= Change in V/C ratio

PA = 6 lane Primary Arterial

5-PA = 5 lane Primary Arterial with LOS E capacity of 50,000 ADT

4-M=4 lane Major

6-M = 6 lane Major

ATTACHMENT 29

Existing & Existing + Construction Traffic (Phase 1 & 2) Intersection Summary

#	Intersection	Existing				Existing + Construction Traffic (Phase 1 & 2)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	Del Mar Heights Road / I-5 SB Ramps	22.5	C	20.3	C	23.4	C	0.9	No	21.0	C	0.7	No
2	Del Mar Heights Road / I-5 NB Ramps	35.1	D	37.5	D	35.9	C	0.8	No	38.2	C	0.7	No
3	Del Mar Heights Road / High Bluff Drive	26.1	C	28.9	C	26.8	C	0.7	No	30.0	C	1.1	No
4	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	4.4	A	N/A	No	6.1	A	N/A	No
5	Del Mar Heights Road / El Camino Real	27.2	C	26.9	C	27.9	C	0.7	No	27.0	C	0.1	No

Notes:

LOS = Level of Service

Δ = Change

S = Significant

D = Delay

DNE = Does Not Exist

N/A = Not Applicable

ATTACHMENT 30

Existing With & Without Construction Traffic (Phase 1 & 2)

Freeway Level of Service Summary

Segment	Dir.	Existing		Existing + Construction (Phase 1 & 2)		Δ	Sig.?
		V/C	LOS	V/C	LOS		
I-5							
Via De La Valle/Del Mar Heights Rd.	NB	0.6447	C	0.6454	C	0.0007	NO
Via De La Valle/Del Mar Heights Rd.	SB	0.6655	C	0.6662	C	0.0007	NO
Del Mar Heights Rd./ SR-56	NB	0.5565	B	0.5570	B	0.0006	NO
Del Mar Heights Rd./ SR-56	SB	0.5744	B	0.5750	B	0.0006	NO

Legend:

Dir.= Direction

V/C= Volume to Capacity Ratio

LOS= Level of Service

Sig.?= Is this significant?

ATTACHMENT 31

Near Term With & Without Construction (Phase 1 & 2) Street Segment Comparison

Road	Segment	Class.	Near Term			Near Term + Construction (Phase 1 & 2)			$\Delta V/C$	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	I-5 Southbound Ramps and I-5 Northbound Ramps	5-PA	D	40,090	0.802	D	40,958	0.819	0.017	<i>NO</i>
	I-5 Northbound Ramps to High Bluff Drive	PA	D	52,682	0.878	D	54,337	0.906	0.028	<i>NO</i>
	High Bluff Drive to First Avenue	PA	C	38,967	0.649	C	40,622	0.677	0.028	<i>NO</i>
	First Avenue to El Camino Real	PA	C	38,967	0.649	C	39,287	0.655	0.005	<i>NO</i>
	El Camino Real to Carmel Country Road	PA	B	32,674	0.545	B	32,754	0.546	0.001	<i>NO</i>
El Camino Real	Quarter Mile Drive to Del Mar Heights Road	4-M	A	14,925	0.373	A	14,965	0.374	0.001	<i>NO</i>
	Del Mar Heights Road to Townsgate Drive	6-M	A	15,946	0.319	A	16,146	0.323	0.004	<i>NO</i>

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

$\Delta V/C$ = Change in V/C ratio

PA = 6 lane Primary Arterial

5-PA = 5 lane Primary Arterial with LOS E capacity of 50,000 ADT

4-M=4 lane Major

6-M = 6 lane Major

NT+P Comp (Phase 1&2)

ATTACHMENT 32

Near Term With & Without Construction Traffic Intersection Summary Phase 1 & 2

#	Intersection	Near Term				Near Term + Constr. Traffic (Phase 1&2)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	Del Mar Heights Road / I-5 SB Ramps	21.2	C	21.9	C	24.1	C	2.9	N	22.2	C	0.3	N
2	Del Mar Heights Road / I-5 NB Ramps	36.8	D	37.6	D	38.1	D	1.3	N	38.5	D	0.9	N
3	Del Mar Heights Road / High Bluff Drive	28.2	C	31.6	C	29.2	C	1.0	N	32.1	C	0.5	N
4	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	4.4	A	0.0	N	5.7	A	0.0	N
5	Del Mar Heights Road / El Camino Real	27.9	C	30.8	C	28.7	C	0.8	N	31.9	C	1.1	N

Notes:

LOS = Level of Service

Δ = Change

S = Significant

D= Delay

DNE = Does not Exist

ATTACHMENT 33

Near Term With & Without Construction Traffic

Freeway Level of Service Summary

Phase 1 & 2

Segment	Dir.	Near Term		Near Term + Construction (Phase 1&2)		Δ	Sig.?
		V/C	LOS	V/C	LOS		
I-5							
Via De La Valle/Del Mar Heights Rd.	NB	0.6469	C	0.6476	C	0.0007	NO
Via De La Valle/Del Mar Heights Rd.	SB	0.6677	C	0.6684	C	0.0007	NO
Del Mar Heights Rd./ SR-56	NB	0.5585	B	0.5591	B	0.0006	NO
Del Mar Heights Rd./ SR-56	SB	0.5764	B	0.5770	B	0.0006	NO

Legend:

Dir.= Direction

V/C= Volume to Capacity Ratio

LOS= Level of Service

Sig.?= Is this significant?

ATTACHMENT 34
One Paseo Trip Generation Table
Construction Traffic

PHASES 1 - 3 Combined

Purpose	Number	Auto Equivalency	Equivalent Autos	Trip	ADT	AM Peak Hour						PM Peak Hour					
						%	#	In	: Out	In	Out	%	#	In	: Out	In	Out
Employees	500 Autos	N/A	500	2 /Auto	1,000	4%	40	9	: 1	36	4	4%	40	2	: 8	8	32
Material Deliveries	25 Trucks	2.5	62.5	2 /Auto	125	9%	11	4	: 6	5	7	8%	10	5	: 5	5	5
Truck Imports/Exports	210 Trucks	2.5	525	2 /Auto	1,050	9%	95	4	: 6	38	57	8%	84	5	: 5	42	42
TOTAL					2,175		146			78	67		134			55	79

Notes:

Passenger-Car equivalents for Trucks is 2.5 per Exhibit 21-9 in the Highway Capacity Manual 2000

Typical Work Hours 7AM to 3:30PM.

For Employee Peak Hour In/Out Ratios, a 4% AM and PM peak is assumed based on the AM peak counts beginning at 7:30AM and the majority of employee shifts ending at 3:30PM, which is prior to the PM peak counts beginning at 5:00PM.

For Material Deliveries and Truck Imports/Exports, the Truck Terminal land use peak hour splits were used based on the City of San Diego Trip Generation Manual, May 2003.

ATTACHMENT 35

Existing Without & Existing With Construction (Phase 1 - 3) Street Segment Comparison

Road	Segment	Class.	Existing			Existing + Construction (Phase 1 - 3)			$\Delta V/C$	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	I-5 Southbound Ramps and I-5 Northbound Ramps	5-PA	D	40,090	0.802	D	41,028	0.821	0.019	NO
	I-5 Northbound Ramps to High Bluff Drive	PA	D	51,625	0.860	D	53,400	0.890	0.030	NO
	High Bluff Drive to First Avenue	PA	C	37,910	0.632	C	39,685	0.661	0.030	NO
	First Avenue to El Camino Real	PA	C	37,910	0.632	C	38,310	0.639	0.007	NO
	El Camino Real to Carmel Country Road	PA	B	32,674	0.545	B	32,774	0.546	0.002	NO
El Camino Real	Quarter Mile Drive to Del Mar Heights Road	4-M	A	14,925	0.373	A	14,975	0.374	0.001	NO
	Del Mar Heights Road to Townsgate Drive	6-M	A	14,731	0.295	A	14,981	0.300	0.005	NO

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

$\Delta V/C$ = Change in V/C ratio

PA = 6 lane Primary Arterial

5-PA = 5 lane Primary Arterial with LOS E capacity of 50,000 ADT

4-M=4 lane Major

6-M = 6 lane Major

ATTACHMENT 36

Existing & Existing + Construction Traffic (Phase 1-3) Intersection Summary

#	Intersection	Existing				Existing + Construction Traffic (Phase 1-3)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	Del Mar Heights Road / I-5 SB Ramps	22.5	C	20.3	C	22.8	C	0.3	No	21.0	C	0.7	No
2	Del Mar Heights Road / I-5 NB Ramps	35.1	D	37.5	D	35.8	C	0.7	No	38.2	C	0.7	No
3	Del Mar Heights Road / High Bluff Drive	26.1	C	28.9	C	26.8	C	0.7	No	30.0	C	1.1	No
4	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	3.4	A	N/A	No	4.9	A	N/A	No
5	Del Mar Heights Road / El Camino Real	27.2	C	26.9	C	28.8	C	1.6	No	28.2	C	1.3	No

Notes:

LOS = Level of Service

Δ = Change

S = Significant

D = Delay

DNE = Does Not Exist

N/A = Not Applicable

ATTACHMENT 37

Existing With & Without Construction Traffic (Phase 1 - 3)

Freeway Level of Service Summary

Segment	Dir.	Existing		Existing + Construction (Phase 1 - 3)		Δ	Sig.?
		V/C	LOS	V/C	LOS		
I-5							
Via De La Valle/Del Mar Heights Rd.	NB	0.6447	C	0.6455	C	0.0007	NO
Via De La Valle/Del Mar Heights Rd.	SB	0.6655	C	0.6663	C	0.0008	NO
Del Mar Heights Rd./ SR-56	NB	0.5565	B	0.5571	B	0.0006	NO
Del Mar Heights Rd./ SR-56	SB	0.5744	B	0.5751	B	0.0006	NO

Legend:

Dir.= Direction

V/C= Volume to Capacity Ratio

LOS= Level of Service

Sig.? = Is this significant?

ATTACHMENT 38

Near Term With & Without Construction (Phase 1 - 3) Street Segment Comparison

Road	Segment	Class.	Near Term			Near Term + Construction (Phase 1 - 3)			$\Delta V/C$	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	I-5 Southbound Ramps and I-5 Northbound Ramps	5-PA	D	40,090	0.802	D	41,028	0.821	0.019	<i>NO</i>
	I-5 Northbound Ramps to High Bluff Drive	PA	D	53,226	0.887	E	55,001	0.917	0.030	<i>YES</i>
	High Bluff Drive to First Avenue	PA	C	39,511	0.659	C	41,286	0.688	0.030	<i>NO</i>
	First Avenue to El Camino Real	PA	C	39,511	0.659	C	39,911	0.665	0.007	<i>NO</i>
	El Camino Real to Carmel Country Road	PA	B	32,674	0.545	B	32,774	0.546	0.002	<i>NO</i>
El Camino Real	Quarter Mile Drive to Del Mar Heights Road	4-M	A	14,925	0.373	A	14,975	0.374	0.001	<i>NO</i>
	Del Mar Heights Road to Townsgate Drive	6-M	A	16,572	0.331	A	16,822	0.336	0.005	<i>NO</i>

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

$\Delta V/C$ = Change in V/C ratio

PA = 6 lane Primary Arterial

5-PA = 5 lane Primary Arterial with LOS E capacity of 50,000 ADT

4-M=4 lane Major

6-M = 6 lane Major

ATTACHMENT 39

Near Term With & Without Construction Traffic Intersection Summary Phases 1 - 3

#	Intersection	Near Term				Near Term + Constr. Traffic (Phase 1-3)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	Del Mar Heights Road / I-5 SB Ramps	20.3	C	21.0	C	24.4	C	4.1	N	22.5	C	1.5	N
2	Del Mar Heights Road / I-5 NB Ramps	32.0	C	34.8	C	42.3	D	10.3	N	39.8	D	5.0	N
3	Del Mar Heights Road / High Bluff Drive	26.8	C	30.0	C	29.4	C	2.6	N	32.6	C	2.6	N
4	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	3.6	A	0.0	N	5.0	A	0.0	N
5	Del Mar Heights Road / El Camino Real	26.7	C	26.0	C	29.2	C	2.5	N	28.4	C	2.4	N

Notes:

LOS = Level of Service

Δ = Change

S = Significant

D= Delay

DNE = Does not Exist

ATTACHMENT 40

Near Term With & Without Construction Traffic

Freeway Level of Service Summary

Phase 1 - 3

Segment	Dir.	Near Term		Near Term + Construction (Phase 1-3)		Δ	Sig.?
		V/C	LOS	V/C	LOS		
I-5							
Via De La Valle/Del Mar Heights Rd.	NB	0.6481	C	0.6488	C	0.0007	NO
Via De La Valle/Del Mar Heights Rd.	SB	0.6688	C	0.6696	C	0.0008	NO
Del Mar Heights Rd./ SR-56	NB	0.5596	B	0.5602	B	0.0006	NO
Del Mar Heights Rd./ SR-56	SB	0.5774	B	0.5781	B	0.0006	NO

Legend:

Dir.= Direction

V/C= Volume to Capacity Ratio

LOS= Level of Service

Sig.?= Is this significant?

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

Existing + Construction (Phase 1) AM
12/9/2011

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	↑
Volume (vph)	0	665	990	0	865	326
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3	6.3		5.6	5.6
Lane Util. Factor		0.95	0.95		0.97	0.91
Flt		1.00	1.00		0.99	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3429	1441
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3429	1441
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	739	1109	0	961	362
RTOR Reduction (vph)	0	0	0	0	3	51
Lane Group Flow (vph)	0	739	1109	0	994	275
Turn Type						Perm
Protected Phases	2.6		6.2		4	
Permitted Phases						4
Actuated Green, G (s)	46.8		46.8		27.2	27.2
Effective Green, g (s)	46.8		46.8		27.2	27.2
Actuated g/C Ratio	0.54		0.54		0.32	0.32
Clearance Time (s)						5.6
Vehicle Extension (s)						3.0
Lane Grp Cap (vph)	1928		1928		1086	456
v/s Ratio Prot	0.21		0.31		0.29	
v/s Ratio Perm						0.19
v/c Ratio	0.38		0.58		0.92	0.60
Uniform Delay, d1	11.2		13.0		28.2	24.8
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	0.1		0.4		11.7	2.2
Delay (s)	11.4		13.4		40.0	27.0
Level of Service	B		B		D	C
Approach Delay (s)	11.4		13.4		36.8	
Approach LOS	B		B		D	
Intersection Summary						
HCM Average Control Delay	22.7		HCM Level of Service		C	
HCM Volume to Capacity ratio	0.70					
Actuated Cycle Length (s)	85.9		Sum of lost time (s)		11.9	
Intersection Capacity Utilization	63.1%		ICU Level of Service		B	
Analysis Period (min)	15					
c Critical Lane Group						

Baseline

Synchro 7 - Report
Page 1

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

Existing + Construction (Phase 1) AM
12/9/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	224	1286	0	0	1434	902	373	0	779	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			
Lane Util. Factor	0.97	0.95			0.91	1.00	0.95	0.91	0.95			
Flt	1.00	1.00			1.00	0.85	1.00	0.86	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539			5085	1583	1681	1457	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539			5085	1583	1681	1457	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)	249	1429	0	0	1593	1002	414	0	866	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	388	0	20	20	0	0	0
Lane Group Flow (vph)	249	1429	0	0	1593	614	373	437	430	0	0	0
Turn Type	Prot			Prot			Split		Prot			
Protected Phases	5			2			6		6		8	
Permitted Phases												
Actuated Green, G (s)	14.0		69.3		51.3		51.3		42.7		42.7	
Effective Green, g (s)	14.0		69.3		51.3		51.3		42.7		42.7	
Actuated g/C Ratio	0.12		0.58		0.43		0.43		0.36		0.36	
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)	401		2044		2174		677		598		518	
v/s Ratio Prot	0.07		0.40		0.31		0.39		0.22		0.30	
v/s Ratio Perm												
v/c Ratio	0.62		0.70		0.73		0.91		0.62		0.84	
Uniform Delay, d1	50.5		18.0		28.6		32.1		32.0		35.6	
Progression Factor	1.00		1.00		1.00		1.00		1.00		1.00	
Incremental Delay, d2	3.0		2.0		2.2		18.1		2.0		11.9	
Delay (s)	53.5		20.0		30.9		50.2		34.0		47.5	
Level of Service	D		B		C		D		C		D	
Approach Delay (s)	24.9		36.3		42.1		42.1		42.1		42.1	
Approach LOS	C		D		D		D		D		A	
Intersection Summary												
HCM Average Control Delay	35.2				HCM Level of Service				D			
HCM Volume to Capacity ratio	0.86											
Actuated Cycle Length (s)	120.0				Sum of lost time (s)				12.0			
Intersection Capacity Utilization	90.5%				ICU Level of Service				E			
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

Synchro 7 - Report
Page 1

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

Existing + Construction (Phase 1) AM
12/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↲	↑↑↑	↲	↲	↑↑↑	↲	↲	↑↑	↲	↲	↑	↲
Volume (vph)	108	1217	674	92	1829	59	195	10	13	79	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
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		0.97	0.95		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.92		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	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5061		3433	3242		1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5061		3433	3242		1770	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	120	1352	749	102	2032	66	217	11	14	88	63	337
RTOR Reduction (vph)	0	0	378	0	4	0	0	12	0	0	0	136
Lane Group Flow (vph)	120	1352	371	102	2094	0	217	13	0	88	63	201
Turn Type	Prot		Prot	Prot			Prot			Prot		Prot
Protected Phases	7	4	4	3	8		5	2		1	6	6
Permitted Phases												
Actuated Green, G (s)	7.9	41.3	41.3	6.7	40.1		7.0	11.1		12.9	17.0	17.0
Effective Green, g (s)	7.9	41.3	41.3	6.7	40.1		7.0	11.1		12.9	17.0	17.0
Actuated g/C Ratio	0.09	0.47	0.47	0.08	0.46		0.08	0.13		0.15	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
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)	159	2386	743	135	2306		273	409		259	360	308
v/s Ratio Prot	0.07	0.27	0.23	0.06	0.41		0.06	0.00		0.05	0.03	0.33
v/s Ratio Perm												
v/c Ratio	0.75	0.57	0.50	0.76	0.91		0.79	0.03		0.34	0.16	0.66
Uniform Delay, d1	39.1	16.9	16.2	39.8	22.2		39.8	33.7		33.7	29.6	32.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	18.2	0.3	0.5	21.1	5.7		14.7	0.0		0.8	0.2	5.0
Delay (s)	57.3	17.2	16.7	60.9	27.9		54.5	33.8		34.5	29.9	37.9
Level of Service	E	B	B	E	C		D	C		C	C	D
Approach Delay (s)		19.2			29.5			52.3			36.2	
Approach LOS		B			C			D			D	
Intersection Summary												
HCM Average Control Delay	26.8			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.82											
Actuated Cycle Length (s)	88.0			Sum of lost time (s)			18.0					
Intersection Capacity Utilization	71.0%			ICU Level of Service			C					
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

Synchro 7 - Report
Page 1

HCM Signalized Intersection Capacity Analysis
4: Del Mar Heights Road & First Ave.

Existing + Construction (Phase 1) AM
12/9/2011

Movement	EBL	EBR	WBL	WBR	NBL	NBR
Lane Configurations	↑↑↑	↑	↓	↑↑↑	↓	↑
Volume (vph)	1271	38	26	1951	40	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	0.97	0.91	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	3433	5085	1770	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	3433	5085	1770	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1412	42	29	2168	44	29
RTOR Reduction (vph)	0	11	0	0	0	27
Lane Group Flow (vph)	1412	31	29	2168	44	2
Turn Type	Perm		Prot		Perm	
Protected Phases	4		3		2	
Permitted Phases	4				2	
Actuated Green, G (s)	47.6	47.6	1.8	53.4	4.0	4.0
Effective Green, g (s)	47.6	47.6	1.8	53.4	4.0	4.0
Actuated g/C Ratio	0.73	0.73	0.03	0.82	0.06	0.06
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)	3701	1152	94	4152	108	97
v/s Ratio Prot	0.28		0.01	0.43	0.02	
v/s Ratio Perm		0.02				0.00
v/c Ratio	0.38	0.03	0.31	0.52	0.41	0.02
Uniform Delay, d1	3.4	2.5	31.2	1.9	29.6	28.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	1.9	0.1	2.5	0.1
Delay (s)	3.4	2.5	33.1	2.0	32.1	28.9
Level of Service	A	A	C	A	C	C
Approach Delay (s)	3.4			2.4	30.8	
Approach LOS	A			A	C	
Intersection Summary						
HCM Average Control Delay	3.4		HCM Level of Service		A	
HCM Volume to Capacity ratio	0.51					
Actuated Cycle Length (s)	65.4		Sum of lost time (s)		8.0	
Intersection Capacity Utilization	47.7%		ICU Level of Service		A	
Analysis Period (min)	15					
c Critical Lane Group						

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
5: Del Mar Heights Road & El Camino Real

Existing + Construction (Phase 1) AM
12/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT	TT		TT	TT		TT	TT		TT	TT	
Volume (vph)	217	874	211	188	1346		92	222	99	76	159	287
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	
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.91	1.00	0.97	0.91	
Flt	1.00	0.97		1.00	0.99		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	4937		3433	5037		3433	5085	1583	3433	4638	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	4937		3433	5037		3433	5085	1583	3433	4638	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	241	971	234	209	1496	102	247	110	84	177	319	453
RTOR Reduction (vph)	0	52	0	0	10	0	0	0	69	0	206	0
Lane Group Flow (vph)	241	1153	0	209	1588	0	247	110	15	177	566	0
Turn Type	Prot			Prot			Prot		Prot		Perm	
Protected Phases	7	4		3	8		5	2	2		6	
Permitted Phases												
Actuated Green, G (s)	8.7	24.3		9.3	24.9		7.0	13.3	13.3	9.5	15.8	
Effective Green, g (s)	8.7	24.3		9.3	24.9		7.0	13.3	13.3	9.5	15.8	
Actuated g/C Ratio	0.12	0.34		0.13	0.34		0.10	0.18	0.18	0.13	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)	413	1657		441	1732		332	934	291	450	1012	
v/s Ratio Prot	c0.07	0.23		0.06	c0.32		c0.07	0.02	0.01	0.05	c0.12	
v/s Ratio Perm												
v/c Ratio	0.58	0.70		0.47	0.92		0.74	0.12	0.05	0.39	0.56	
Uniform Delay, d1	30.1	20.8		29.3	22.8		31.8	24.7	24.4	28.8	25.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.1	1.3		0.8	8.1		8.7	0.1	0.1	0.6	0.7	
Delay (s)	32.2	22.1		30.1	30.8		40.6	24.7	24.4	29.4	25.9	
Level of Service	C	C		C	C		D	C	C	C	C	
Approach Delay (s)		23.8			30.7			33.5			26.5	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay		28.0										
HCM Volume to Capacity ratio		0.65										
Actuated Cycle Length (s)		72.4										
Intersection Capacity Utilization		68.6%										
Analysis Period (min)		15										
c - Critical Lane Group												

Baseline

Synchro 7 - Report
Page 1

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

Existing + Construction (Phase 1) PM
12/9/2011

Movement	EBL	EBT	WBL	WBR	SBL	SBR
Lane Configurations		TT	TT		TT	TT
Volume (vph)	0	880	1140	0	862	290
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3	6.3		5.6	5.6
Lane Util. Factor		0.95	0.95		0.97	0.91
Flt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3430	1441
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3430	1441
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	978	1267	0	958	322
RTOR Reduction (vph)	0	0	0	0	3	25
Lane Group Flow (vph)	0	978	1267	0	987	265
Turn Type					Perm	
Protected Phases		2.6	6.2		4	
Permitted Phases						4
Actuated Green, G (s)		45.7	45.7		28.8	28.8
Effective Green, g (s)		45.7	45.7		28.8	28.8
Actuated g/C Ratio		0.53	0.53		0.33	0.33
Clearance Time (s)					5.6	5.6
Vehicle Extension (s)					3.0	3.0
Lane Grp Cap (vph)		1872	1872		1143	480
v/s Ratio Prot		0.28	c0.96		c0.29	
v/s Ratio Perm						0.18
v/c Ratio		0.52	0.68		0.86	0.55
Uniform Delay, d1		13.2	14.9		27.0	23.5
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.3	1.0		7.0	1.4
Delay (s)		13.5	15.9		33.9	24.9
Level of Service		B	B		C	C
Approach Delay (s)		13.5	15.9		31.9	
Approach LOS		B	B		C	
Intersection Summary						
HCM Average Control Delay		21.0				
HCM Volume to Capacity ratio		0.75				
Actuated Cycle Length (s)		86.4				
Intersection Capacity Utilization		68.5%				
Analysis Period (min)		15				
c - Critical Lane Group						

Baseline

Synchro 7 - Report
Page 1

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

Existing + Construction (Phase 1) PM
12/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	235	1491	0	0	1040	813	615	10	762	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			
Lane Util. Factor	0.97	0.95			0.91	1.00	0.95	0.91	0.95			
Flt	1.00	1.00			1.00	0.85	1.00	0.90	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (prot)	3433	3539			5085	1583	1681	1497	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (perm)	3433	3539			5085	1583	1681	1497	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)	261	1646	0	0	1156	903	683	11	847	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	497	0	3	3	0	0	0
Lane Group Flow (vph)	261	1646	0	0	1156	406	540	507	488	0	0	0
Turn Type	Prot					Prot	Split		Prot			
Protected Phases	5	2			6	6	8	8	8			
Permitted Phases												
Actuated Green, G (s)	14.4	60.0			41.6	41.6	52.0	52.0	52.0			
Effective Green, g (s)	14.4	60.0			41.6	41.6	52.0	52.0	52.0			
Actuated g/C Ratio	0.12	0.50			0.35	0.35	0.43	0.43	0.43			
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)	412	1770			1783	549	728	649	652			
v/s Ratio Prot	0.08	0.47			0.23	0.26	0.32	0.34	0.32			
v/s Ratio Perm												
v/c Ratio	0.63	0.93			0.66	0.74	0.74	0.78	0.75			
Uniform Delay, d1	50.3	28.0			33.1	34.5	28.4	29.1	28.5			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	3.2	10.2			1.9	8.7	4.1	6.1	4.7			
Delay (s)	53.5	38.2			35.1	43.2	32.5	35.2	33.2			
Level of Service	D	D			D	D	C	D	C			
Approach Delay (s)		40.3				38.6		33.6			0.0	
Approach LOS		D				D		C			A	
Intersection Summary												
HCM Average Control Delay	37.8					HCM Level of Service			D			
HCM Volume to Capacity ratio	0.86											
Actuated Cycle Length (s)	120.0					Sum of lost time (s)			8.0			
Intersection Capacity Utilization	92.1%					ICU Level of Service			F			
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
3: Del Mar Heights Road & High Bluff Drive

Existing + Construction (Phase 1) PM
12/9/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			  			  	
Volume (vph)	242	2015	251	15	1180	28	618	65	134	27	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
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		0.97	0.95		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.90		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	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5068		3433	3181		1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5068		3433	3181		1770	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	269	2239	279	17	1311	31	687	72	149	30	32	89
RTOR Reduction (vph)	0	0	96	0	2	0	0	111	0	0	0	83
Lane Group Flow (vph)	269	2239	183	17	1340	0	687	110	0	30	32	6
Turn Type	Prot		Prot	Prot			Prot			Prot		Prot
Protected Phases	7	4	4	9	8		5	2		1	6	6
Permitted Phases												
Actuated Green, G (s)	17.4	53.0	53.0	1.7	37.3		22.2	25.1		3.9	6.8	6.8
Effective Green, g (s)	17.4	53.0	53.0	1.7	37.3		22.2	25.1		3.9	6.8	6.8
Actuated g/C Ratio	0.17	0.53	0.53	0.02	0.37		0.22	0.25		0.04	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
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)	309	2703	842	30	1896		764	801		69	127	108
v/s Ratio Prot	0.15	0.44	0.12	0.04	0.26		0.20	0.03		0.02	0.02	0.00
v/s Ratio Perm												
v/c Ratio	0.87	0.83	0.22	0.57	0.71		0.90	0.14		0.43	0.25	0.06
Uniform Delay, d1	40.1	19.5	12.4	48.6	26.5		37.7	28.9		46.8	44.0	43.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	22.4	2.2	0.1	22.3	1.2		13.4	0.1		4.3	1.0	0.2
Delay (s)	62.5	21.8	12.5	70.9	27.8		51.0	29.0		51.2	45.1	43.7
Level of Service	E	C	B	E	C		D	C		D	D	D
Approach Delay (s)		24.8			28.3			45.7			45.5	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM Average Control Delay	29.9					HCM Level of Service			C			
HCM Volume to Capacity ratio	0.80											
Actuated Cycle Length (s)	99.7					Sum of lost time (s)			12.0			
Intersection Capacity Utilization	76.6%					ICU Level of Service			D			
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
4: Del Mar Heights Road & First Ave.

Existing + Construction (Phase 1) PM
12/9/2011

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↑	↑↑↑	↑	↑
Volume (vph)	2145	31	21	1189	40	26
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)	2383	34	23	1321	44	29
RTOR Reduction (vph)	0	10	0	0	0	27
Lane Group Flow (vph)	2383	24	23	1321	44	2
Turn Type	Perm		Prot	Perm		
Protected Phases	4		3	2		
Permitted Phases	4			2		
Actuated Green, G (s)	38.5	38.5	0.6	43.1	4.1	4.1
Effective Green, g (s)	38.5	38.5	0.6	43.1	4.1	4.1
Actuated g/C Ratio	0.70	0.70	0.01	0.78	0.07	0.07
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3547	1104	37	3970	131	118
v/s Ratio Prot	0.47		0.01	0.26		
v/s Ratio Perm	0.67		0.01	0.02		
γ/c Ratio	0.67	0.02	0.62	0.33	0.34	0.02
Uniform Delay, d1	4.8	2.6	27.2	1.8	24.3	23.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.0	28.2	0.0	1.5	0.1
Delay (s)	5.3	2.6	55.4	1.8	25.8	23.7
Level of Service	A	A	E	A	C	C
Approach Delay (s)	5.2			2.8	25.0	
Approach LOS	A			A	C	
Intersection Summary						
HCM Average Control Delay	4.7			HCM Level of Service		A
HCM Volume to Capacity ratio	0.65					
Actuated Cycle Length (s)	55.2			Sum of lost time (s)		12.0
Intersection Capacity Utilization	51.4%			ICU Level of Service		A
Analysis Period (min)	15					
c Critical Lane Group						

Baseline

Synchro 7 - Report
Page 1

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

Existing + Construction (Phase 1) PM
12/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↖↗↘		↖↗	↖↗↘		↖↗	↖↗↘	↖	↖↗	↖↗↘	↖
Volume (vph)	442	1358	361	102	746	176	270	394	238	147	146	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.91	1.00	0.97	0.91	
Flt	1.00	0.97		1.00	0.97		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	4925		3433	4939		3433	5085	1583	3433	4649	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	4925		3433	4939		3433	5085	1583	3433	4649	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	491	1509	401	113	829	196	300	438	264	163	162	216
RTOR Reduction (vph)	0	44	0	0	44	0	0	0	217	0	181	0
Lane Group Flow (vph)	491	1866	0	113	981	0	300	438	47	163	197	0
Turn Type	Prot			Prot			Prot		Prot	Prot		
Protected Phases	7	4		3	8		5	2	2	1	6	
Permitted Phases	7	4		3	8		5	2	2	1	6	
Actuated Green, G (s)	15.4	33.7		6.5	24.8		8.2	13.8	13.8	6.8	12.4	
Effective Green, g (s)	15.4	33.7		6.5	24.8		8.2	13.8	13.8	6.8	12.4	
Actuated g/C Ratio	0.20	0.44		0.08	0.32		0.11	0.18	0.18	0.09	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)	688	2161		291	1595		367	914	284	304	751	
v/s Ratio Prot	0.14	0.38		0.03	0.20		0.09	0.09	0.09	0.05	0.04	
v/s Ratio Perm	0.71	0.86		0.39	0.62		0.82	0.48	0.17	0.54	0.26	
Uniform Delay, d1	28.6	19.5		33.3	22.0		33.6	28.3	26.6	33.5	28.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.5	3.8		0.9	0.7		13.2	0.4	0.3	1.8	0.2	
Delay (s)	32.2	23.3		34.1	22.7		46.7	28.7	26.9	35.3	28.4	
Level of Service	C	C		C	C		D	C	C	D	C	
Approach Delay (s)	25.1			23.8			33.6			50.5		
Approach LOS	C			C			C			C		
Intersection Summary												
HCM Average Control Delay	27.1		HCM Level of Service		C							
HCM Volume to Capacity ratio	0.74											
Actuated Cycle Length (s)	76.8		Sum of lost time (s)		12.0							
Intersection Capacity Utilization	65.8%		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
1: Del Mar Heights Rd. & I-15 SB Ramps

Near Term + Const. (Phase 1) AM
3/5/2012

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑↑	↑
Volume (vph)	0	687	1028	0	910	336
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3	6.3		5.6	5.6
Lane Util. Factor		0.95	0.95		0.97	0.91
Flt		1.00	1.00		0.99	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3429	1441
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3429	1441
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	763	1142	0	1011	373
RTOR Reduction (vph)	0	0	0	0	3	41
Lane Group Flow (vph)	0	763	1142	0	1045	295
Turn Type					Perm	
Protected Phases		2 6	6 2		4	
Permitted Phases						4
Actuated Green, G (s)		46.2	46.2		29.0	29.0
Effective Green, g (s)		46.2	46.2		29.0	29.0
Actuated g/C Ratio		0.53	0.53		0.33	0.33
Clearance Time (s)					5.6	5.6
Vehicle Extension (s)					3.0	3.0
Lane Grp Cap (vph)		1877	1877		1142	480
v/s Ratio Prot		0.22	0.32		0.30	
v/s Ratio Perm						0.20
v/c Ratio		0.41	0.61		0.92	0.62
Uniform Delay, d1		12.2	14.2		27.9	24.4
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.1	0.6		11.3	2.3
Delay (s)		12.4	14.7		39.1	26.7
Level of Service		B	B		D	C
Approach Delay (s)		12.4	14.7		36.1	
Approach LOS		B	B		D	
Intersection Summary						
HCM Average Control Delay	23.2		HCM Level of Service		C	
HCM Volume to Capacity ratio	0.73					
Actuated Cycle Length (s)	87.1		Sum of lost time (s)		11.9	
Intersection Capacity Utilization	65.0%		ICU Level of Service		C	
Analysis Period (min)	15					
c Critical Lane Group						

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

Near Term + Const. (Phase 1) AM
3/5/2012

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	231	1324	0	0	1482	931	384	22	849	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			
Lane Util. Factor	0.97	0.95			0.91	1.00	0.95	0.91	0.95			
Flt	1.00	1.00			1.00	0.85	1.00	0.87	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539			5085	1583	1681	1468	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539			5085	1583	1681	1468	1504			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	257	1471	0	0	1647	1034	427	24	943	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	454	0	20	20	0	0	0
Lane Group Flow (vph)	257	1471	0	0	1647	580	384	490	480	0	0	0
Turn Type	Prot					Prot	Split		Prot			
Protected Phases	5	2			6	6	8	8	8			
Permitted Phases												
Actuated Green, G (s)	10.3	68.4			54.1	54.1	43.6	43.6	43.6			
Effective Green, g (s)	10.3	68.4			54.1	54.1	43.6	43.6	43.6			
Actuated g/C Ratio	0.09	0.57			0.45	0.45	0.36	0.36	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)	295	2017			2292	714	611	533	546			
v/s Ratio Prot	0.07	0.42			0.32	0.37	0.23	0.33	0.32			
v/s Ratio Perm												
v/c Ratio	0.87	0.73			0.72	0.81	0.63	0.92	0.88			
Uniform Delay, d1	54.2	19.0			26.8	28.6	31.5	36.5	35.7			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	23.3	2.4			2.0	9.8	2.0	21.0	15.0			
Delay (s)	77.5	21.3			28.7	38.4	33.5	57.5	50.7			
Level of Service	E	C			C	D	C	E	D			
Approach Delay (s)		29.7			32.5			48.5			0.0	
Approach LOS		C			C			D			A	
Intersection Summary												
HCM Average Control Delay	35.5				HCM Level of Service				D			
HCM Volume to Capacity ratio	0.86											
Actuated Cycle Length (s)	120.0				Sum of lost time (s)				12.0			
Intersection Capacity Utilization	94.1%				ICU Level of Service				F			
Analysis Period (min)	15											
c Critical Lane Group												

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

Near Term + Const. (Phase 1) AM
3/5/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑↑↑	↗	↔	↑↑↑	↗	↔	↑↑	↗	↔	↑	↗
Volume (vph)	111	1322	694	95	1890	61	201	10	13	81	59	312
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.97	0.95	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	1.00	0.92	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5061	3433	3242	1770	1863	1583	1583	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5061	3433	3242	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)	123	1469	771	106	2100	68	223	11	14	90	66	347
RTOR Reduction (vph)	0	0	375	0	4	0	0	12	0	0	0	134
Lane Group Flow (vph)	123	1469	396	106	2164	0	223	13	0	90	66	213
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												
Actuated Green, G (s)	8.0	41.3	41.3	6.7	40.0	7.0	11.2	13.2	17.4	17.4	17.4	17.4
Effective Green, g (s)	8.0	41.3	41.3	6.7	40.0	7.0	11.2	13.2	17.4	17.4	17.4	17.4
Actuated g/C Ratio	0.09	0.47	0.47	0.08	0.45	0.08	0.13	0.15	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	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	2376	740	134	2290	272	411	264	367	312	312	312
v/s Ratio Prot	c0.07	0.29	0.25	0.06	c0.43	c0.06	0.00	0.05	0.04	c0.13	c0.13	c0.13
v/s Ratio Perm												
v/c Ratio	0.77	0.62	0.54	0.79	0.95	0.82	0.03	0.34	0.18	0.68	0.68	0.68
Uniform Delay, d1	39.3	17.6	16.7	40.2	23.1	40.1	33.8	33.7	29.6	32.9	32.9	32.9
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	19.6	0.5	0.7	26.4	9.0	17.3	0.0	0.8	0.2	6.0	6.0	6.0
Delay (s)	58.9	18.1	17.5	66.6	32.1	57.4	33.9	34.5	29.8	39.0	39.0	39.0
Level of Service	E	B	B	E	C	E	C	C	C	C	D	D
Approach Delay (s)	20.0			33.7		55.0		37.0				
Approach LOS	C			C		D		D				

Intersection Summary			
HCM Average Control Delay	29.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	88.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	72.9%	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
4: Del Mar Heights Road & First Ave.

Near Term + Const. (Phase 1) AM
3/5/2012

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↔	↑↑↑	↔	↗
Volume (vph)	1571	38	26	2039	40	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	0.97	0.91	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	3433	5085	1770	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	3433	5085	1770	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1746	42	29	2266	44	29
RTOR Reduction (vph)	0	11	0	0	0	27
Lane Group Flow (vph)	1746	31	29	2266	44	2
Turn Type	Penn	Prot	Prot	Penn	Prot	Prot
Protected Phases	4	3	8	2	2	2
Permitted Phases						
Actuated Green, G (s)	50.6	50.6	1.9	56.5	4.1	4.1
Effective Green, g (s)	50.6	50.6	1.9	56.5	4.1	4.1
Actuated g/C Ratio	0.74	0.74	0.03	0.82	0.06	0.06
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)	3751	1168	95	4188	106	95
v/s Ratio Prot	0.34	0.01	c0.45	c0.02	c0.02	c0.02
v/s Ratio Perm						
v/c Ratio	0.47	0.03	0.31	0.54	0.42	0.02
Uniform Delay, d1	3.6	2.4	32.7	1.9	31.1	30.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	1.8	0.1	2.6	0.1
Delay (s)	3.7	2.4	34.5	2.1	33.7	30.4
Level of Service	A	A	C	A	C	C
Approach Delay (s)	3.7		2.5	32.4		
Approach LOS	A		A	C		

Intersection Summary			
HCM Average Control Delay	3.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	68.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Baseline

Synchro 7 - Report
Page 1

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

Near Term + Const. (Phase 1) AM
3/5/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	223	900	286	198	1386	95	236	103	79	164	302	420
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	
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.91	1.00	0.97	0.91	
Frt	1.00	0.96		1.00	0.99		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	4901		3433	5036		3433	5085	1583	3433	4642	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	4901		3433	5036		3433	5085	1583	3433	4642	
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)	248	1000	318	220	1540	106	262	114	88	182	336	467
RTOR Reduction (vph)	0	75	0	0	10	0	0	0	71	0	161	0
Lane Group Flow (vph)	248	1243	0	220	1636	0	262	114	17	182	642	0
Turn Type	Prot			Prot			Prot		Prot	Prot		
Protected Phases	7	4		3	8		5	2	2	1	6	
Permitted Phases												
Actuated Green, G (s)	7.0	25.2		8.8	27.0		7.0	14.1	14.1	9.7	16.8	
Effective Green, g (s)	7.0	25.2		8.8	27.0		7.0	14.1	14.1	9.7	16.8	
Actuated 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)	326	1674		409	1842		326	972	302	451	1057	
v/s Ratio Prot	0.07	0.25		0.06	0.32		0.08	0.02	0.01	0.05	0.14	
v/s Ratio Perm												
v/c Ratio	0.76	0.74		0.54	0.89		0.80	0.12	0.06	0.40	0.92	
Uniform Delay, d1	32.6	21.4		30.6	22.0		32.7	24.7	24.4	29.4	25.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	10.0	1.8		1.4	5.6		13.4	0.1	0.1	0.6	1.0	
Delay (s)	42.6	23.3		32.0	27.6		46.1	24.8	24.5	30.0	26.5	
Level of Service	D	C		C	C		D	C	C	C	C	
Approach Delay (s)		26.3			28.1			36.7			27.2	
Approach LOS		C			C			D			C	

Intersection Summary												
HCM Average Control Delay		28.2		HCM Level of Service				C				
HCM Volume to Capacity ratio		0.73										
Actuated Cycle Length (s)		73.8		Sum of lost time (s)				12.0				
Intersection Capacity Utilization		70.6%		ICU Level of Service				C				
Analysis Period (min)		15										
dr Defacto Right Lane. Recode with 1 through lane as a right lane.												
c Critical Lane Group												

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

Near Term + Construction (Phase 1) PM
3/5/2012

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Volume (vph)	0	910	1185	0	897	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3	6.3		5.6	5.6
Lane Util. Factor		0.95	0.95		0.97	0.91
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3430	1441
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3430	1441
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1011	1317	0	997	332
RTOR Reduction (vph)	0	0	0	0	3	22
Lane Group Flow (vph)	0	1011	1317	0	1027	277
Turn Type					Perm	
Protected Phases		2.6	6.2		4	
Permitted Phases						4
Actuated Green, G (s)		45.7	45.7		29.8	29.8
Effective Green, g (s)		45.7	45.7		29.8	29.8
Actuated g/C Ratio		0.52	0.52		0.34	0.34
Clearance Time (s)					5.6	5.6
Vehicle Extension (s)					3.0	3.0
Lane Grp Cap (vph)		1850	1850		1169	491
v/s Ratio Prot		0.29	0.37		0.30	
v/s Ratio Perm						0.19
v/c Ratio		0.55	0.71		0.88	0.56
Uniform Delay, d1		13.9	15.8		27.1	23.5
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.3	1.3		7.7	1.5
Delay (s)		14.3	17.2		34.8	25.0
Level of Service		B	B		C	C
Approach Delay (s)		14.3	17.2		32.6	
Approach LOS		B	B		C	

Intersection Summary					
HCM Average Control Delay		22.0		HCM Level of Service	C
HCM Volume to Capacity ratio		0.78			
Actuated Cycle Length (s)		87.4		Sum of lost time (s)	11.9
Intersection Capacity Utilization		70.5%		ICU Level of Service	C
Analysis Period (min)		15			
c Critical Lane Group					

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

Near Term + Construction (Phase 1) PM
3/5/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	242	1527	0	0	1122	863	639	15	796	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			
Lane Util. Factor	0.97	0.95			0.91	1.00	0.95	0.91	0.95			
Frt	1.00	1.00			1.00	0.85	1.00	0.90	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (prot)	3433	3539			5085	1583	1681	1499	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (perm)	3433	3539			5085	1583	1681	1499	1504			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	269	1697	0	0	1247	959	710	17	884	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	523	0	6	6	0	0	0
Lane Group Flow (vph)	269	1697	0	0	1247	436	561	531	507	0	0	0
Turn Type	Prot				Prot	Split		Prot				
Protected Phases	5	2			6	6	8	8	8			
Permitted Phases												
Actuated Green, G (s)	11.5	62.6			47.1	47.1	49.4	49.4	49.4			
Effective Green, g (s)	11.5	62.6			47.1	47.1	49.4	49.4	49.4			
Actuated g/C Ratio	0.10	0.52			0.39	0.39	0.41	0.41	0.41			
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)	329	1846			1996	621	692	617	619			
v/s Ratio Prot	0.08	c0.48			0.25	0.28	0.33	c0.35	0.34			
v/s Ratio Perm												
v/c Ratio	0.82	0.92			0.62	0.70	0.81	0.86	0.82			
Uniform Delay, d1	53.2	26.4			29.3	30.6	31.2	32.2	31.3			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	14.5	8.9			1.5	6.5	7.2	11.8	8.3			
Delay (s)	67.7	35.3			30.8	37.1	38.3	44.0	39.7			
Level of Service	E	D			C	D	D	D	D			
Approach Delay (s)		39.7			33.5			40.6		0.0		
Approach LOS		D			C			D		A		
Intersection Summary												
HCM Average Control Delay		37.6										
HCM Volume to Capacity ratio		0.89										
Actuated Cycle Length (s)		120.0										
Intersection Capacity Utilization		96.5%										
Analysis Period (min)		15										
c Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
3: Del Mar Heights Road & High Bluff Drive

Near Term + Construction (Phase 1) PM
3/5/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	249	2091	259	15	1280	29	637	67	138	28	30	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		0.97	0.95		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.90		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	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5069		3433	3181		1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5069		3433	3181		1770	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	277	2323	288	17	1422	32	708	74	153	31	33	91
RTOR Reduction (vph)	0	0	94	0	2	0	0	115	0	0	0	85
Lane Group Flow (vph)	277	2323	194	17	1452	0	708	112	0	31	33	6
Turn Type	Prot		Prot	Prot			Prot			Prot		Prot
Protected Phases	7	4	4	3	8		5	2		1	6	6
Permitted Phases												
Actuated Green, G (s)	17.7	53.8	53.8	1.7	37.8		22.2	25.1		3.9	6.8	6.8
Effective Green, g (s)	17.7	53.8	53.8	1.7	37.8		22.2	25.1		3.9	6.8	6.8
Actuated g/C Ratio	0.18	0.54	0.54	0.02	0.38		0.22	0.25		0.04	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
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)	312	2722	847	30	1907		758	794		69	126	107
v/s Ratio Prot	c0.16	c0.46	0.12	0.01	0.29		c0.21	0.04		0.02	c0.02	0.00
v/s Ratio Perm												
v/c Ratio	0.89	0.85	0.23	0.57	0.76		0.93	0.14		0.45	0.26	0.06
Uniform Delay, d1	40.4	20.0	12.4	49.0	27.4		38.4	29.3		47.2	44.5	43.9
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	24.8	2.8	0.1	22.3	1.8		18.4	0.1		4.6	1.1	0.2
Delay (s)	65.2	22.8	12.5	71.3	29.3		56.9	29.4		51.8	45.6	44.1
Level of Service	E	C	B	E	C		E	C		D	D	D
Approach Delay (s)		25.8			29.7			50.2			46.0	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM Average Control Delay		31.6								C		
HCM Volume to Capacity ratio		0.82										
Actuated Cycle Length (s)		100.5								12.0		
Intersection Capacity Utilization		78.6%								D		
Analysis Period (min)		15										
c Critical Lane Group												

Baseline

Synchro 7 - Report
Page 1

HCM Signalized Intersection Capacity Analysis
4: Del Mar Heights Road & First Ave.

Near Term + Construction (Phase 1) PM
3/5/2012

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↑	↑↑↑	↑	↑
Volume (vph)	2272	31	21	1475	40	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	0.97	0.91	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	3433	5085	1770	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	3433	5085	1770	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2524	34	23	1639	44	29
RTOR Reduction (vph)	0	10	0	0	0	27
Lane Group Flow (vph)	2524	24	23	1639	44	2
Turn Type	Perm		Prot		Perm	
Protected Phases	4		3		2	
Permitted Phases	4				2	
Actuated Green, G (s)	38.9	38.9	0.6	43.5	4.2	4.2
Effective Green, g (s)	38.9	38.9	0.6	43.5	4.2	4.2
Actuated g/C Ratio	0.70	0.70	0.01	0.78	0.08	0.08
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3551	1106	37	3971	133	119
v/s Ratio Prot	c0.50		0.01	c0.32	c0.02	
v/s Ratio Perm		0.01				0.00
v/c Ratio	0.71	0.02	0.62	0.41	0.33	0.02
Uniform Delay, d1	5.0	2.6	27.4	2.0	24.4	23.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.0	28.2	0.1	1.5	0.1
Delay (s)	5.7	2.6	55.7	2.0	25.9	23.9
Level of Service	A	A	E	A	C	C
Approach Delay (s)	5.7			2.8	25.1	
Approach LOS	A			A	C	

Intersection Summary					
HCM Average Control Delay	4.9	HCM Level of Service	A		
HCM Volume to Capacity ratio	0.68				
Actuated Cycle Length (s)	55.7	Sum of lost time (s)	12.0		
Intersection Capacity Utilization	53.9%	ICU Level of Service	A		
Analysis Period (min)	15				
c Critical Lane Group					

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

Near Term + Construction (Phase 1) PM
3/5/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑↑		↑↑	↑↑↑		↑↑	↑↑↑	↑	↑↑	↑↑↑	
Volume (vph)	455	1399	388	106	768	181	344	411	250	151	152	200
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	
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.91	1.00	0.97	0.91	
Frt	1.00	0.97		1.00	0.97		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	4920		3433	4940		3433	5085	1583	3433	4652	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	4920		3433	4940		3433	5085	1583	3433	4652	
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)	506	1554	431	118	853	201	382	457	278	168	169	222
RTOR Reduction (vph)	0	51	0	0	41	0	0	0	121	0	191	0
Lane Group Flow (vph)	506	1934	0	118	1013	0	382	457	157	168	200	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7			3			5			2		
Permitted Phases	4			8			2			1		
Actuated Green, G (s)	16.5	40.4		4.6	28.5		10.1	15.1	15.1	6.7	11.7	
Effective Green, g (s)	16.5	40.4		4.6	28.5		10.1	15.1	15.1	6.7	11.7	
Actuated g/C Ratio	0.20	0.49		0.06	0.34		0.12	0.18	0.18	0.08	0.14	
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)	684	2401		191	1700		419	927	289	278	657	
v/s Ratio Prot	c0.15	c0.39		0.03	0.21		c0.11	0.09	c0.10	0.05	0.04	
v/s Ratio Perm												
v/c Ratio	0.74	0.81		0.62	0.60		0.91	0.49	0.54	0.60	0.30	
Uniform Delay, d1	31.1	17.9		38.2	22.4		35.9	30.4	30.7	36.8	31.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.2	2.1		5.8	0.6		23.8	0.4	2.1	3.7	0.3	
Delay (s)	35.3	19.9		44.1	23.0		59.7	30.8	32.8	40.5	32.2	
Level of Service	D	B		D	C		E	C	C	D	C	
Approach Delay (s)		23.1			25.1			41.2			34.7	
Approach LOS		C			C			D			C	

Intersection Summary											
HCM Average Control Delay	28.5	HCM Level of Service	C								
HCM Volume to Capacity ratio	0.75										
Actuated Cycle Length (s)	82.8	Sum of lost time (s)	12.0								
Intersection Capacity Utilization	69.6%	ICU Level of Service	C								
Analysis Period (min)	15										
c Critical Lane Group											

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

Existing + Construction (Phase 2) AM
12/9/2011

Movement	EBL	EBT	WBT	WBR	SBT	SBR
Lane Configurations	←	↑↑	↑↑	←	↑↑	↑
Volume (vph)	0	664	995	0	860	326
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3	6.3		5.6	5.6
Lane Util. Factor		0.95	0.95		0.97	0.91
Flt		1.00	1.00		0.99	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3429	1441
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3429	1441
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	738	1106	0	956	362
RTOR Reduction (vph)	0	0	0	0	3	51
Lane Group Flow (vph)	0	738	1106	0	989	275
Turn Type					Perm	
Protected Phases		2.6	6.2		4	
Permitted Phases					4	
Actuated Green, G (s)		47.2	47.2		27.2	
Effective Green, g (s)		47.2	47.2		27.2	
Actuated g/C Ratio		0.55	0.55		0.32	
Clearance Time (s)					5.6	
Vehicle Extension (s)					3.0	
Lane Grp Cap (vph)		1936	1936		1081	454
v/s Ratio Prot		0.21	0.31		0.29	
v/s Ratio Perm					0.19	
v/c Ratio		0.38	0.52		0.92	
Uniform Delay, d1		11.2	12.9		28.4	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		0.1	0.4		11.8	
Delay (s)		11.3	13.3		40.2	
Level of Service		B	B		D	
Approach Delay (s)		11.3	13.3		37.0	
Approach LOS		B	B		D	
Intersection Summary						
HCM Average Control Delay		22.7			HCM Level of Service	C
HCM Volume to Capacity ratio		0.70				
Actuated Cycle Length (s)		86.3			Sum of lost time (s)	11.9
Intersection Capacity Utilization		62.9%			ICU Level of Service	B
Analysis Period (min)		15				
c Critical Lane Group						

Baseline

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

Existing + Construction (Phase 2) AM
12/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	↑↑	←	←	↑↑	↑	←	↑↑	←	←	↑↑	↑
Volume (vph)	224	1280	0	0	1424	896	373	0	774	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			
Lane Util. Factor	0.97	0.95			0.91	1.00	0.95	0.91	0.95			
Flt	1.00	1.00			1.00	0.85	1.00	0.86	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539			5085	1583	1681	1457	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539			5085	1583	1681	1457	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)	249	1422	0	0	1582	996	414	0	860	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	422	0	10	10	0	0	0
Lane Group Flow (vph)	249	1422	0	0	1582	574	373	444	437	0	0	0
Turn Type	Prot				Prot	Split			Prot			
Protected Phases	5	2			6	6	8	8	8			
Permitted Phases												
Actuated Green, G (s)	12.3	65.4			49.1	49.1	46.6	46.6	46.6			
Effective Green, g (s)	12.3	65.4			49.1	49.1	46.6	46.6	46.6			
Actuated g/C Ratio	0.10	0.55			0.41	0.41	0.39	0.39	0.39			
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)	352	1929			2081	648	653	566	584			
v/s Ratio Prot	0.07	0.40			0.31	0.36	0.22	0.30	0.29			
v/s Ratio Perm												
v/c Ratio	0.71	0.74			0.78	0.89	0.57	0.78	0.75			
Uniform Delay, d1	52.1	20.8			30.4	32.8	28.8	32.3	31.6			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	6.4	2.6			2.7	16.3	1.2	7.0	5.2			
Delay (s)	58.5	23.3			33.1	49.1	30.1	39.3	36.8			
Level of Service	E	C			C	D	C	D	D			
Approach Delay (s)	28.6				39.3			35.7				
Approach LOS	C				D			D				A
Intersection Summary												
HCM Average Control Delay		35.2										
HCM Volume to Capacity ratio		0.84										
Actuated Cycle Length (s)		120.0										
Intersection Capacity Utilization		90.1%										
Analysis Period (min)		15										
c Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
3: Del Mar Heights Road & High Bluff Drive

Existing + Construction (Phase 2) AM
12/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↰↰	↰	↰	↰↰↰		↰↰	↰↰		↰	↰	↰
Volume (vph)	108	1206	674	92	1812	59	195	10	13	79	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
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		0.97	0.95		1.00	1.00	1.00
Flt	1.00	1.00	0.85	1.00	1.00		1.00	0.92		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	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5061		3433	3242		1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5061		3433	3242		1770	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	120	1340	749	102	2013	66	217	11	14	88	63	337
RTOR Reduction (vph)	0	0	378	0	4	0	0	12	0	0	0	136
Lane Group Flow (vph)	120	1340	371	102	2075	0	217	13	0	88	63	201
Turn Type	Prot		Prot	Prot			Prot			Prot		Prot
Protected Phases	7	4	4	3	8		5	2		1	6	6
Permitted Phases												
Actuated Green, G (s)	7.9	41.3	41.3	6.7	40.1		7.0	11.1		12.9	17.0	17.0
Effective Green, g (s)	7.9	41.3	41.3	6.7	40.1		7.0	11.1		12.9	17.0	17.0
Actuated g/C Ratio	0.09	0.47	0.47	0.08	0.46		0.08	0.13		0.15	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
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)	159	2386	743	135	2306		273	409		259	360	306
v/s Ratio Prot	0.07	0.26	0.23	0.06	0.41		0.06	0.00		0.05	0.03	0.13
v/s Ratio Perm												
v/c Ratio	0.75	0.56	0.50	0.76	0.90		0.79	0.03		0.34	0.18	0.66
Uniform Delay, d1	39.1	16.8	16.2	39.8	22.1		39.8	33.7		33.7	29.6	32.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	18.2	0.3	0.5	21.1	5.2		14.7	0.0		0.8	0.2	5.0
Delay (s)	57.3	17.1	16.7	60.9	27.3		54.5	33.8		34.5	29.9	37.9
Level of Service	E	B	B	E	C		D	C		C	C	D
Approach Delay (s)		19.2			28.9			52.3			36.2	
Approach LOS		B			C			D			D	
Intersection Summary												
HCM Average Control Delay	26.5			HCM Level of Service				C				
HCM Volume to Capacity ratio	0.82											
Actuated Cycle Length (s)	88.0			Sum of lost time (s)				16.0				
Intersection Capacity Utilization	70.6%			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
4: Del Mar Heights Road & Third Ave.

Existing + Construction (Phase 2) AM
12/9/2011

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰	↰	↰	↰	↰	↰
Volume (vph)	1271	27	18	1951	23	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	1.00
Flt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	1770	5085	3433	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	1770	5085	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1412	30	20	2168	26	17
RTOR Reduction (vph)	0	10	0	0	0	16
Lane Group Flow (vph)	1412	20	20	2168	26	1
Turn Type	Perm	Prot	Prot	Perm	Perm	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4			2	
Actuated Green, G (s)	32.1	32.1	1.0	37.1	2.1	2.1
Effective Green, g (s)	32.1	32.1	1.0	37.1	2.1	2.1
Actuated g/C Ratio	0.68	0.68	0.02	0.79	0.04	0.04
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)	3458	1077	38	3997	153	70
v/s Ratio Prot	0.28		0.01	0.43	0.01	
v/s Ratio Perm		0.01			0.00	
v/c Ratio	0.41	0.02	0.53	0.54	0.17	0.01
Uniform Delay, d1	3.3	2.4	22.9	1.9	21.7	21.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	12.5	0.2	0.5	0.1
Delay (s)	3.4	2.5	35.4	2.0	22.2	21.6
Level of Service	A	A	D	A	C	C
Approach Delay (s)	3.4			2.3	22.0	
Approach LOS	A			A	C	
Intersection Summary						
HCM Average Control Delay	3.0	HCM Level of Service				
HCM Volume to Capacity ratio	0.52					
Actuated Cycle Length (s)	47.2	Sum of lost time (s)				
Intersection Capacity Utilization	47.7%	ICU Level of Service				
Analysis Period (min)	15					
c Critical Lane Group						

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
5: Del Mar Heights Road & El Camino Real

Existing + Construction (Phase 2) AM
12/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEB	SEB	SEB
Lane Configurations	HT	HT	HT	HT	HT	HT	HT	HT	HT	HT	HT	HT
Volume (vph)	216	871	205	188	1345	92	217	99	76	159	287	407
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	
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.91	1.00	0.97	0.91	
Flt	1.00	0.97		1.00	0.99		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	4940		3433	5037		3433	5085	1583	3433	4638	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	4940		3433	5037		3433	5085	1583	3433	4638	
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)	240	968	228	209	1494	102	241	110	84	177	319	452
RTOR Reduction (vph)	0	47	0	0	10	0	0	0	69	0	218	0
Lane Group Flow (vph)	240	1149	0	209	1586	0	241	110	15	177	553	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		8			5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	8.7	24.2		9.6	25.1		7.0	13.1	13.1	9.4	15.5	
Effective Green, g (s)	8.7	24.2		9.6	25.1		7.0	13.1	13.1	9.4	15.5	
Actuated g/C Ratio	0.12	0.33		0.13	0.35		0.10	0.18	0.18	0.13	0.21	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	413	1653		456	1749		332	921	287	446	994	
v/s Ratio Prot	0.07	0.23		0.06	0.31		0.07	0.02	0.01	0.05	0.12	
v/s Ratio Perm												
v/c Ratio	0.58	0.69		0.46	0.91		0.73	0.12	0.05	0.40	0.56	
Uniform Delay, d1	30.1	20.9		28.9	22.5		31.7	24.8	24.5	28.8	25.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.1	1.3		0.7	7.2		7.7	0.1	0.1	0.6	0.7	
Delay (s)	32.2	22.1		29.7	29.7		39.4	24.8	24.5	29.4	26.0	
Level of Service	C	C		C	C		D	C	C	C	C	
Approach Delay (s)		23.8			29.7			32.8			26.6	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay		27.5										
HCM Volume to Capacity ratio		0.65										
Actuated Cycle Length (s)		72.3							8.0			
Intersection Capacity Utilization		68.4%							C			
Analysis Period (min)		15										
c Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
1: Del Mar Heights Rd. & I-15 SB Ramps

Existing + Construction (Phase 2) PM
12/9/2011

Movement	EBL	EBT	WBT	WBR	SEB	SEB
Lane Configurations	HT	HT	HT	HT	HT	HT
Volume (vph)	0	878	1138	0	857	290
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3	6.3		5.6	5.6
Lane Util. Factor		0.95	0.95		0.97	0.91
Flt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3430	1441
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3430	1441
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	976	1264	0	952	322
RTOR Reduction (vph)	0	0	0	0	3	25
Lane Group Flow (vph)	0	976	1264	0	981	265
Turn Type					Perm	
Protected Phases		2.6	6.2		4	
Permitted Phases						4
Actuated Green, G (s)		45.7	45.7		28.7	28.7
Effective Green, g (s)		45.7	45.7		28.7	28.7
Actuated g/C Ratio		0.53	0.53		0.33	0.33
Clearance Time (s)					5.6	5.6
Vehicle Extension (s)					3.0	3.0
Lane Grp Cap (vph)		1874	1874		1141	479
v/s Ratio Prot		0.28	0.36		0.29	
v/s Ratio Perm						0.18
v/c Ratio		0.52	0.67		0.88	0.56
Uniform Delay, d1		13.2	14.9		26.9	23.5
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.3	1.0		6.8	1.4
Delay (s)		13.4	15.8		33.7	24.9
Level of Service		B	B		C	C
Approach Delay (s)		13.4	15.8		31.7	
Approach LOS		B	B		C	
Intersection Summary						
HCM Average Control Delay		20.9				
HCM Volume to Capacity ratio		0.76				
Actuated Cycle Length (s)		86.3				11.9
Intersection Capacity Utilization		68.3%				C
Analysis Period (min)		15				
c Critical Lane Group						

Baseline

Synchro 7 - Report
Page 1

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

Existing + Construction (Phase 2) PM
12/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕		↔	↕	↔	↔	↕	↔	↔	↕	↔
Volume (vph)	235	1474	0	0	1033	807	615	10	757	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			
Lane Util. Factor	0.97	0.95			0.91	1.00	0.95	0.91	0.95			
Frt	1.00	1.00			1.00	0.85	1.00	0.90	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (prot)	3433	3539			5085	1583	1681	1499	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (perm)	3433	3539			5085	1583	1681	1499	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)	261	1638	0	0	1148	897	683	11	841	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	526	0	3	3	0	0	0
Lane Group Flow (vph)	261	1638	0	0	1148	371	533	511	485	0	0	0
Turn Type	Prot				Prot	Split		Prot				
Protected Phases	5	2			6	6	8	8				
Permitted Phases												
Actuated Green, G (s)	12.5	58.8			42.3	42.3	53.2	53.2	53.2			
Effective Green, g (s)	12.5	58.8			42.3	42.3	53.2	53.2	53.2			
Actuated g/C Ratio	0.10	0.49			0.35	0.35	0.44	0.44	0.44			
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)	358	1734			1792	558	745	665	667			
v/s Ratio Prot	0.08	c0.45			0.23	0.23	0.32	c0.34	0.32			
v/s Ratio Perm												
v/c Ratio	0.73	0.94			0.64	0.67	0.72	0.77	0.73			
Uniform Delay, d1	52.1	29.1			32.5	32.9	27.2	28.2	27.4			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	7.3	12.0			1.8	6.2	3.3	5.3	4.0			
Delay (s)	59.4	41.0			34.3	39.0	30.5	33.5	31.4			
Level of Service	E	D			C	D	C	C	C			
Approach Delay (s)		43.5			36.4		31.8		0.0			
Approach LOS		D			D		C		A			
Intersection Summary												
HCM Average Control Delay	37.6				HCM Level of Service				D			
HCM Volume to Capacity ratio	0.86											
Actuated Cycle Length (s)	120.0				Sum of lost time (s)				8.0			
Intersection Capacity Utilization	91.7%				ICU Level of Service				F			
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

Synchro 7 - Report
Page 1

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

Existing + Construction (Phase 2) PM
12/9/2011

Movement\	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	242	2003	251	15	1167	28	618	65	134	27	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
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.90		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	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5067		3433	3181		1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5067		3433	3181		1770	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	269	2226	279	17	1297	31	687	72	149	30	32	89
RTOR Reduction (vph)	0	0	96	0	2	0	0	111	0	0	0	83
Lane Group Flow (vph)	269	2226	183	17	1326	0	687	110	0	30	32	6
Turn Type	Prot		Prot	Prot		Prot				Prot		Prot
Protected Phases	7	4	4	3	8		5	2		1	6	6
Permitted Phases												
Actuated Green, G (s)	17.3	52.9	52.9	1.7	37.3		22.2	25.1		3.9	6.8	6.8
Effective Green, g (s)	17.3	52.9	52.9	1.7	37.3		22.2	25.1		3.9	6.8	6.8
Actuated g/C Ratio	0.17	0.53	0.53	0.02	0.37		0.22	0.25		0.04	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
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)	307	2701	841	30	1898		765	802		69	127	108
v/s Ratio Prot	c0.15	c0.44	0.12	0.01	0.26		c0.20	0.03		0.02	c0.02	0.00
v/s Ratio Perm												
v/c Ratio	0.88	0.82	0.22	0.57	0.70		0.90	0.14		0.43	0.25	0.06
Uniform Delay, d1	40.1	19.5	12.4	48.6	26.4		37.6	28.9		46.8	44.0	43.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	23.2	2.2	0.1	22.3	1.1		13.3	0.1		4.3	1.0	0.2
Delay (s)	63.3	21.6	12.5	70.8	27.5		50.9	28.9		51.1	45.0	43.6
Level of Service	E	C	B	E	C		D	C		D	D	D
Approach Delay (s)		24.8			28.1			45.5			45.4	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM Average Control Delay	29.9				HCM Level of Service				C			
HCM Volume to Capacity ratio	0.79											
Actuated Cycle Length (s)	99.6				Sum of lost time (s)				12.0			
Intersection Capacity Utilization	76.3%				ICU Level of Service				D			
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

Synchro 7 - Report
Page 1

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

Existing + Construction (Phase 2) PM
12/9/2011

Movement	EBT	EBR	WBT	WBR	NBT	NBR
Lane Configurations	↑↑↑	↑	↑	↑↑↑	↑↑	↑
Volume (vph)	2145	19	13	1189	27	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	1.00
Flt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	1770	5085	3433	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	1770	5085	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2383	21	14	1321	30	20
RTOR Reduction (vph)	0	6	0	0	0	19
Lane Group Flow (vph)	2383	15	14	1321	30	1
Turn Type	Perm		Prot		Perm	
Protected Phases	4		3		2	
Permitted Phases	4				2	
Actuated Green, G (s)	38.4	38.4	0.6	43.0	2.2	2.2
Effective Green, g (s)	38.4	38.4	0.6	43.0	2.2	2.2
Actuated g/C Ratio	0.72	0.72	0.01	0.81	0.04	0.04
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)	3670	1143	20	4110	142	65
v/s Ratio Prot	c0.47		0.01	c0.26	c0.01	
v/s Ratio Perm		0.01				0.00
v/c Ratio	0.65	0.01	0.70	0.32	0.21	0.01
Uniform Delay, d1	3.9	2.1	26.2	1.3	24.7	24.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.0	73.4	0.0	0.7	0.1
Delay (s)	4.3	2.1	99.7	1.4	25.4	24.5
Level of Service	A	A	F	A	C	C
Approach Delay (s)	4.3			2.4	25.1	
Approach LOS	A			A	C	
Intersection Summary						
HCM Average Control Delay	3.9			HCM Level of Service		A
HCM Volume to Capacity ratio	0.63					
Actuated Cycle Length (s)	53.2			Sum of lost time (s)		12.0
Intersection Capacity Utilization	51.4%			ICU Level of Service		A
Analysis Period (min)	15					
c Critical Lane Group						

Baseline

Synchro 7 - Report
Page 1

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

Existing + Construction (Phase 2) PM
12/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵↵	↵↵↵		↵↵	↵↵↵		↵↵	↵↵↵	↵	↵↵	↵↵↵	
Volume (vph)	441	1356	355	102	744	176	265	394	238	147	146	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.91	1.00	0.97	0.91	
Flt	1.00	0.97		1.00	0.97		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	4927		3433	4939		3433	5085	1583	3433	4651	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	4927		3433	4939		3433	5085	1583	3433	4651	
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)	490	1507	394	113	827	196	294	438	264	163	162	214
RTOR Reduction (vph)	0	41	0	0	43	0	0	0	216	0	179	0
Lane Group Flow (vph)	490	1860	0	113	980	0	294	438	48	163	197	0
Turn Type	Prot			Prot			Prot		Prot	Prot		
Protected Phases	7	4		3	8		5	2	2	1	6	
Permitted Phases												
Actuated Green, G (s)	16.0	32.9		6.5	23.4		8.2	13.8	13.8	6.8	12.4	
Effective Green, g (s)	16.0	32.9		6.5	23.4		8.2	13.8	13.8	6.8	12.4	
Actuated g/C Ratio	0.21	0.43		0.09	0.31		0.11	0.18	0.18	0.09	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)	723	2133		294	1521		370	923	287	307	759	
v/s Ratio Prot	0.14	0.38		0.03	0.20		0.09	0.09	0.03	0.05	0.04	
v/s Ratio Perm												
v/c Ratio	0.68	0.87		0.38	0.84		0.79	0.47	0.47	0.53	0.26	
Uniform Delay, d1	27.6	19.6		32.9	22.7		33.1	27.9	26.2	33.1	27.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.5	4.2		0.8	0.9		11.2	0.4	0.3	1.8	0.2	
Delay (s)	30.2	23.9		33.7	23.7		44.3	28.2	26.5	34.8	28.0	
Level of Service	C	C		C	C		D	C	C	C	C	
Approach Delay (s)		25.2			24.7			32.5			30.0	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay	27.0			HCM Level of Service					C			
HCM Volume to Capacity ratio	0.74											
Actuated Cycle Length (s)	76.0			Sum of lost time (s)					12.0			
Intersection Capacity Utilization	65.5%			ICU Level of Service					C			
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

Synchro 7 - Report
Page 1

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

Near Term + Construction (Phase 2) AM
3/5/2012

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	↑
Volume (vph)	0	688	1025	0	920	336
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3	6.3		5.6	5.6
Lane Util. Factor		0.95	0.95		0.97	0.91
Flt		1.00	1.00		0.99	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3429	1441
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3429	1441
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	764	1139	0	1022	373
RTOR Reduction (vph)	0	0	0	0	3	41
Lane Group Flow (vph)	0	764	1139	0	1056	295
Turn Type					Perm	
Protected Phases		2 6	6 2		4	
Permitted Phases						4
Actuated Green, G (s)		46.2	46.2		29.1	29.1
Effective Green, g (s)		46.2	46.2		29.1	29.1
Actuated g/C Ratio		0.53	0.53		0.33	0.33
Clearance Time (s)					5.6	5.6
Vehicle Extension (s)					3.0	3.0
Lane Grp Cap (vph)		1875	1875		1144	481
v/s Ratio Prot		0.22	0.32		0.31	
v/s Ratio Perm						0.20
v/c Ratio		0.41	0.61		0.92	0.61
Uniform Delay, d1		12.3	14.2		28.0	24.3
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.1	0.6		12.2	2.3
Delay (s)		12.4	14.8		40.2	26.7
Level of Service		B	B		D	C
Approach Delay (s)		12.4	14.8		36.9	
Approach LOS		B	B		D	
Intersection Summary						
HCM Average Control Delay		23.6		HCM Level of Service		C
HCM Volume to Capacity ratio		0.73				
Actuated Cycle Length (s)		87.2		Sum of lost time (s)		11.9
Intersection Capacity Utilization		65.4%		ICU Level of Service		C
Analysis Period (min)		15				
c Critical Lane Group						

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

Near Term + Construction (Phase 2) AM
3/5/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑			↑↑↑	↑	↑	↑	↑			
Volume (vph)	231	1318	0	0	1476	927	384	39	881	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			
Lane Util. Factor	0.97	0.95			0.91	1.00	0.95	0.91	0.95			
Flt	1.00	1.00			1.00	0.85	1.00	0.87	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539			5085	1583	1681	1476	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539			5085	1583	1681	1476	1504			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	257	1464	0	0	1640	1030	427	43	979	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	430	0	20	20	0	0	0
Lane Group Flow (vph)	257	1464	0	0	1640	800	384	516	509	0	0	0
Turn Type	Prot					Prot	Split			Prot		
Protected Phases	5	2			6	6	8	8	8			
Permitted Phases												
Actuated Green, G (s)	10.3	67.7			53.4	53.4	44.3	44.3	44.3			
Effective Green, g (s)	10.3	67.7			53.4	53.4	44.3	44.3	44.3			
Actuated g/C Ratio	0.09	0.56			0.44	0.44	0.37	0.37	0.37			
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)	295	1997			2263	704	621	545	555			
v/s Ratio Prot	0.07	0.41			0.32	0.38	0.23	0.35	0.34			
v/s Ratio Perm												
v/c Ratio	0.87	0.73			0.72	0.85	0.62	0.95	0.92			
Uniform Delay, d1	54.2	19.4			27.3	29.8	30.9	36.7	36.1			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	23.3	2.4			2.1	12.5	1.8	25.6	20.0			
Delay (s)	77.5	21.9			29.3	42.3	32.8	62.3	56.0			
Level of Service	E	C			C	D	C	E	E			
Approach Delay (s)		30.2			34.3		52.2				0.0	
Approach LOS		C			C		D				A	
Intersection Summary												
HCM Average Control Delay		37.5										D
HCM Volume to Capacity ratio		0.89										
Actuated Cycle Length (s)		120.0										12.0
Intersection Capacity Utilization		94.6%										F
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis Near Term + Construction (Phase 2) AM
3: Del Mar Heights Road & High Bluff Drive 3/5/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	111	1365	694	95	1880	61	201	10	13	81	59	312
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		0.97	0.95		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.92		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	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5061		3433	3242		1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5061		3433	3242		1770	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	123	1517	771	106	2089	68	223	11	14	90	66	347
RTOR Reduction (vph)	0	0	375	0	4	0	0	12	0	0	0	134
Lane Group Flow (vph)	123	1517	396	106	2153	0	223	13	0	90	66	213
Turn Type	Prot		Prot	Prot			Prot			Prot		Prot
Protected Phases	7	4	4	3	8		5	2		1	6	6
Permitted Phases												
Actuated Green, G (s)	8.0	41.3	41.3	6.7	40.0		7.0	11.2		13.2	17.4	17.4
Effective Green, g (s)	8.0	41.3	41.3	6.7	40.0		7.0	11.2		13.2	17.4	17.4
Actuated g/C Ratio	0.09	0.47	0.47	0.08	0.45		0.08	0.13		0.15	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
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)	160	2376	740	134	2290		272	411		264	367	312
v/s Ratio Prot	c0.07	0.30	0.25	0.06	c0.43		c0.06	0.00		0.05	0.04	c0.13
v/s Ratio Perm												
v/c Ratio	0.77	0.64	0.54	0.79	0.94		0.82	0.03		0.34	0.18	0.68
Uniform Delay, d1	39.3	17.9	16.7	40.2	23.1		40.1	33.8		33.7	29.6	32.9
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	19.6	0.6	0.7	26.4	8.5		17.3	0.0		0.8	0.2	6.0
Delay (s)	58.9	18.5	17.5	66.6	31.6		57.4	33.9		34.5	29.8	39.0
Level of Service	E	B	B	E	C		E	C		C	C	D
Approach Delay (s)		20.2			33.2			55.0			37.0	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM Average Control Delay		28.8										
HCM Volume to Capacity ratio		0.85										
Actuated Cycle Length (s)		88.4						16.0				
Intersection Capacity Utilization		72.7%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis Near Term + Construction (Phase 2) AM
4: Del Mar Heights Road & Third Ave. 3/5/2012

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Volume (vph)	1625	27	18	2045	23	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	1770	5085	3433	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	1770	5085	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1806	30	20	2272	26	17
RTOR Reduction (vph)	0	10	0	0	0	16
Lane Group Flow (vph)	1806	21	20	2272	26	1
Turn Type		Perm	Prot			Perm
Protected Phases	4		3	8	2	
Permitted Phases		4				2
Actuated Green, G (s)	32.8	32.8	1.0	37.8	2.2	2.2
Effective Green, g (s)	32.8	32.8	1.0	37.8	2.2	2.2
Actuated g/C Ratio	0.68	0.68	0.02	0.79	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)	3475	1082	37	4004	157	73
v/s Ratio Prot	0.36		0.01	c0.45	c0.01	
v/s Ratio Perm		0.01				0.00
v/c Ratio	0.52	0.02	0.54	0.57	0.17	0.01
Uniform Delay, d1	3.7	2.4	23.3	2.0	22.0	21.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	15.1	0.2	0.5	0.1
Delay (s)	3.9	2.4	38.4	2.1	22.5	21.9
Level of Service	A	A	D	A	C	C
Approach Delay (s)	3.8			2.5	22.3	
Approach LOS	A			A	C	
Intersection Summary						
HCM Average Control Delay		3.3				
HCM Volume to Capacity ratio		0.55				
Actuated Cycle Length (s)		48.0				8.0
Intersection Capacity Utilization		49.5%				
Analysis Period (min)		15				
c Critical Lane Group						

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

Near Term + Construction (Phase 2) AM
3/5/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑		↔↔	↑↑↑		↔↔	↑↑↑		↔↔	↑↑↑	
Volume (vph)	222	897	334	202	1385	95	237	103	79	164	306	419
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	
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.91	1.00	0.97	0.91	
Frt	1.00	0.96		1.00	0.99		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	4878		3433	5036		3433	5085	1583	3433	4644	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	4878		3433	5036		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	0.90
Adj. Flow (vph)	247	997	371	224	1539	106	263	114	88	182	340	466
RTOR Reduction (vph)	0	88	0	0	10	0	0	0	71	0	161	0
Lane Group Flow (vph)	247	1280	0	224	1635	0	263	114	17	182	645	0
Turn Type	Prot			Prot			Prot		Prot	Prot		
Protected Phases	7	4		3	8		5	2	2	1	6	
Permitted Phases												
Actuated Green, G (s)	7.0	25.2		8.8	27.0		7.0	14.1	14.1	9.7	16.8	
Effective Green, g (s)	7.0	25.2		8.8	27.0		7.0	14.1	14.1	9.7	16.8	
Actuated 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)	326	1666		409	1842		326	972	302	451	1057	
v/s Ratio Prot	c0.07	0.26		0.07	c0.32		c0.08	0.02	0.01	0.05	c0.14	
v/s Ratio Perm												
v/c Ratio	0.76	0.77		0.55	0.89		0.81	0.12	0.06	0.40	0.92dr	
Uniform Delay, d1	32.6	21.7		30.6	22.0		32.7	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	9.7	2.2		1.5	5.6		13.6	0.1	0.1	0.6	1.1	
Delay (s)	42.2	23.9		32.1	27.6		46.3	24.8	24.5	30.0	26.6	
Level of Service	D	C		C	C		D	C	C	C	C	
Approach Delay (s)		26.7			28.1			36.9			27.2	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM Average Control Delay	28.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	73.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		
dr = Defacto Right Lane. Recode with 1 though lane as a right lane.			
c = Critical Lane Group			

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

Near Term + Construction (Phase 2) PM
3/5/2012

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↔↔	↔
Volume (vph)	0	910	1192	0	900	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3	6.3		5.6	5.6
Lane Util. Factor		0.95	0.95		0.97	0.91
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3430	1441
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3430	1441
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1011	1324	0	1000	332
RTOR Reduction (vph)	0	0	0	0	3	21
Lane Group Flow (vph)	0	1011	1324	0	1030	278
Turn Type						Perm
Protected Phases		2 6	6 2		4	
Permitted Phases						4
Actuated Green, G (s)		45.7	45.7		29.8	29.8
Effective Green, g (s)		45.7	45.7		29.8	29.8
Actuated g/C Ratio		0.52	0.52		0.34	0.34
Clearance Time (s)					5.6	5.6
Vehicle Extension (s)					3.0	3.0
Lane Grp Cap (vph)		1850	1850		1169	491
v/s Ratio Prot		0.29	c0.37		c0.30	
v/s Ratio Perm						0.19
v/c Ratio		0.55	0.72		0.88	0.57
Uniform Delay, d1		13.9	15.9		27.1	23.5
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.3	1.3		8.0	1.5
Delay (s)		14.3	17.2		35.2	25.0
Level of Service		B	B		D	C
Approach Delay (s)		14.3	17.2		32.9	
Approach LOS		B	B		C	

Intersection Summary				
HCM Average Control Delay	22.1	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.78			
Actuated Cycle Length (s)	87.4	Sum of lost time (s)	11.9	
Intersection Capacity Utilization	70.5%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
2: Del Mar Heights Road & I-15 NB Ramps
Near Term + Construction (Phase 2) PM
3/5/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	242	1523	0	0	1156	877	644	20	800	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			
Lane Util. Factor	0.97	0.95			0.91	1.00	0.95	0.91	0.95			
Frt	1.00	1.00			1.00	0.85	1.00	0.90	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (prot)	3433	3539			5085	1583	1681	1501	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (perm)	3433	3539			5085	1583	1681	1501	1504			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	269	1692	0	0	1284	974	716	22	889	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	514	0	6	6	0	0	0
Lane Group Flow (vph)	269	1692	0	0	1284	460	566	530	519	0	0	0
Turn Type	Prot				Prot	Split		Prot				
Protected Phases	5	2			6	6	8	8	8			
Permitted Phases												
Actuated Green, G (s)	11.4	62.6			47.2	47.2	49.4	49.4	49.4			
Effective Green, g (s)	11.4	62.6			47.2	47.2	49.4	49.4	49.4			
Actuated g/C Ratio	0.10	0.52			0.39	0.39	0.41	0.41	0.41			
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)	326	1846			2000	623	692	618	619			
v/s Ratio Prot	0.08	c0.48			0.25	0.29	0.34	c0.35	0.35			
v/s Ratio Perm												
v/c Ratio	0.83	0.92			0.64	0.74	0.82	0.86	0.84			
Uniform Delay, d1	53.3	26.3			29.5	31.1	31.3	32.1	31.7			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	15.5	8.7			1.6	7.6	7.5	11.3	9.7			
Delay (s)	68.8	35.0			31.1	38.7	38.8	43.4	41.4			
Level of Service	E	D			C	D	D	D	D			
Approach Delay (s)		39.6			34.4			41.2		0.0		
Approach LOS		D			C			D		A		
Intersection Summary												
HCM Average Control Delay		38.0										
HCM Volume to Capacity ratio		0.89										
Actuated Cycle Length (s)		120.0						8.0				
Intersection Capacity Utilization		97.7%						F				
Analysis Period (min)		15										
c Critical Lane Group												

Baseline

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HCM Signalized Intersection Capacity Analysis
3: Del Mar Heights Road & High Bluff Drive
Near Term + Construction (Phase 2) PM
3/5/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	249	2092	259	15	1319	29	637	67	138	28	30	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5069	3433	3181		1770	1863	1583	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	1770	5085	1583	1770	5069	3433	3181		1770	1863	1583	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	277	2324	288	17	1466	32	708	74	153	31	33	91
RTOR Reduction (vph)	0	0	94	0	2	0	0	115	0	0	0	85
Lane Group Flow (vph)	277	2324	194	17	1496	0	708	112	0	31	33	6
Turn Type	Prot		Prot	Prot			Prot			Prot		Prot
Protected Phases	7	4	4	3	8		5	2		1	6	6
Permitted Phases												
Actuated Green, G (s)	17.7	54.0	54.0	1.7	38.0		22.2	25.1		3.9	6.8	6.8
Effective Green, g (s)	17.7	54.0	54.0	1.7	38.0		22.2	25.1		3.9	6.8	6.8
Actuated g/C Ratio	0.18	0.54	0.54	0.02	0.38		0.22	0.25		0.04	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
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)	311	2727	849	30	1913		757	793		69	126	107
v/s Ratio Prot	c0.16	c0.46	0.12	0.01	0.30		c0.21	0.04		0.02	c0.02	0.00
v/s Ratio Perm												
v/c Ratio	0.89	0.85	0.23	0.57	0.78		0.94	0.14		0.45	0.26	0.06
Uniform Delay, d1	40.6	19.9	12.3	49.1	27.7		38.5	29.4		47.3	44.6	44.0
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	25.6	2.8	0.1	22.3	2.2		18.6	0.1		4.6	1.1	0.2
Delay (s)	66.1	22.7	12.5	71.4	29.8		57.2	29.5		51.9	45.7	44.2
Level of Service	E	C	B	E	C		E	C		D	D	D
Approach Delay (s)		25.9			30.3			50.4			46.0	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM Average Control Delay			31.8							C		
HCM Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			100.7							12.0		
Intersection Capacity Utilization			78.6%							D		
Analysis Period (min)			15									
c Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
4: Del Mar Heights Road & Third Ave.

Near Term + Construction (Phase 2) PM
3/5/2012

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑	↑↑↑	↑↑	↑
Volume (vph)	2285	19	13	1527	27	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	1770	5085	3433	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	1770	5085	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2539	21	14	1697	30	20
RTOR Reduction (vph)	0	6	0	0	0	19
Lane Group Flow (vph)	2539	15	14	1697	30	1
Turn Type	Perm		Prot	Perm		
Protected Phases	4		3	8		
Permitted Phases	4			2		
Actuated Green, G (s)	38.9	38.9	0.6	43.5	2.3	2.3
Effective Green, g (s)	38.9	38.9	0.6	43.5	2.3	2.3
Actuated g/C Ratio	0.72	0.72	0.01	0.81	0.04	0.04
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)	3677	1145	20	4111	147	68
v/s Ratio Prot	c0.50		0.01	c0.33	c0.01	
v/s Ratio Perm		0.01				0.00
v/c Ratio	0.69	0.01	0.70	0.41	0.20	0.01
Uniform Delay, d1	4.1	2.1	26.5	1.5	24.9	24.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.0	73.4	0.1	0.7	0.1
Delay (s)	4.7	2.1	100.0	1.5	25.6	24.7
Level of Service	A	A	F	A	C	C
Approach Delay (s)	4.7			2.4	25.2	
Approach LOS	A			A	C	
Intersection Summary						
HCM Average Control Delay			4.0	HCM Level of Service		A
HCM Volume to Capacity ratio			0.67			
Actuated Cycle Length (s)			53.8	Sum of lost time (s)		12.0
Intersection Capacity Utilization			54.1%	ICU Level of Service		A
Analysis Period (min)			15			
c Critical Lane Group						

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

Near Term + Construction (Phase 2) PM
3/5/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙↘	↑↑↓		↙↘	↑↑↓		↙↘	↑↑↑	↗	↙↘	↑↑↗	
Volume (vph)	454	1397	395	107	766	181	391	416	253	151	153	199
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	
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.91	1.00	0.97	0.91	
Frt	1.00	0.97		1.00	0.97		1.00	1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	4917		3433	4940		3433	5085	1583	3433	4654	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	4917		3433	4940		3433	5085	1583	3433	4654	
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)	504	1552	439	119	851	201	434	462	281	168	170	221
RTOR Reduction (vph)	0	52	0	0	41	0	0	0	121	0	190	0
Lane Group Flow (vph)	504	1939	0	119	1011	0	434	462	160	168	201	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7			3			5			2		
Permitted Phases	4			8			2			1		
Actuated Green, G (s)	16.5	40.4		4.6	28.5		10.1	15.2	15.2	6.7	11.8	
Effective Green, g (s)	16.5	40.4		4.6	28.5		10.1	15.2	15.2	6.7	11.8	
Actuated g/C Ratio	0.20	0.49		0.06	0.34		0.12	0.18	0.18	0.08	0.14	
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)	683	2396		190	1698		418	932	290	277	662	
v/s Ratio Prot	c0.15	c0.39		0.03	0.20		c0.13	0.09	c0.10	0.05	0.04	
v/s Ratio Perm												
v/c Ratio	0.74	0.81		0.63	0.60		1.04	0.50	0.55	0.61	0.30	
Uniform Delay, d1	31.2	18.0		38.3	22.4		36.4	30.4	30.8	36.8	31.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.2	2.1		6.3	0.6		54.3	0.4	2.3	3.7	0.3	
Delay (s)	35.3	20.1		44.6	23.0		90.7	30.8	33.0	40.6	32.1	
Level of Service	D	C		D	C		F	C	C	D	C	
Approach Delay (s)		23.2			25.2			53.4			34.7	
Approach LOS		C			C			D			C	
Intersection Summary												
HCM Average Control Delay		31.4		HCM Level of Service						C		
HCM Volume to Capacity ratio		0.76										
Actuated Cycle Length (s)		82.9		Sum of lost time (s)						12.0		
Intersection Capacity Utilization		71.1%		ICU Level of Service						C		
Analysis Period (min)		15										
c Critical Lane Group												

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

Existing + Construction (Phase 3) AM
12/9/2011

Movement	EBL	EBT	WBL	WBR	SBL	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Volume (vph)	0	664	995	0	861	326
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3	6.3		5.6	5.6
Lane Util. Factor		0.95	0.95		0.97	0.91
Flt		1.00	1.00		0.99	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3429	1441
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3429	1441
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	738	1106	0	957	362
RTOR Reduction (vph)	0	0	0	0	3	51
Lane Group Flow (vph)	0	738	1106	0	990	275
Turn Type					Perm	
Protected Phases		2 6	6 2		4	
Permitted Phases					4	
Actuated Green, G (s)		47.2	47.2		27.2	27.2
Effective Green, g (s)		47.2	47.2		27.2	27.2
Actuated g/C Ratio		0.55	0.55		0.32	0.32
Clearance Time (s)					5.6	5.6
Vehicle Extension (s)					3.0	3.0
Lane Grp Cap (vph)		1936	1936		1081	454
v/s Ratio Prot		0.24	0.31		0.29	
v/s Ratio Perm					0.19	
v/c Ratio		0.38	0.57		0.92	0.60
Uniform Delay, d1		11.2	12.9		28.5	25.0
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.1	0.4		11.8	2.3
Delay (s)		11.3	13.3		40.3	27.3
Level of Service		B	B		D	C
Approach Delay (s)		11.3	13.3		37.1	
Approach LOS		B	B		D	
Intersection Summary						
HCM Average Control Delay		22.8			HCM Level of Service	C
HCM Volume to Capacity ratio		0.70				
Actuated Cycle Length (s)		86.3			Sum of lost time (s)	11.9
Intersection Capacity Utilization		62.9%			ICU Level of Service	B
Analysis Period (min)		15				
c Critical Lane Group						

Baseline

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

Existing + Construction (Phase 3) AM
12/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑		↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Volume (vph)	224	1281	0	0	1426	897	373	0	775	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			
Lane Util. Factor	0.97	0.95			0.91	1.00	0.95	0.91	0.95			
Flt	1.00	1.00			1.00	0.85	1.00	0.86	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539			5085	1583	1681	1457	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539			5085	1583	1681	1457	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)	249	1423	0	0	1584	997	414	0	861	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	422	0	10	10	0	0	0
Lane Group Flow (vph)	249	1423	0	0	1584	575	373	444	438	0	0	0
Turn Type	Prot				Prot	Split		Prot				
Protected Phases	5	2			6	6	8	8	8			
Permitted Phases												
Actuated Green, G (s)	12.3	65.4			49.1	49.1	46.6	46.6	46.6			
Effective Green, g (s)	12.3	65.4			49.1	49.1	46.6	46.6	46.6			
Actuated g/C Ratio	0.10	0.55			0.41	0.41	0.39	0.39	0.39			
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)	352	1929			2081	648	653	566	584			
v/s Ratio Prot	0.07	0.40			0.31	0.36	0.22	0.30	0.29			
v/s Ratio Perm												
v/c Ratio	0.71	0.74			0.76	0.89	0.57	0.78	0.75			
Uniform Delay, d1	52.1	20.8			30.4	32.9	28.8	32.3	31.7			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	6.4	2.6			2.7	16.5	1.2	7.0	5.2			
Delay (s)	58.5	23.3			33.1	49.4	30.1	39.3	36.9			
Level of Service	E	C			C	D	C	D	D			
Approach Delay (s)		28.6			39.4			35.7				0.0
Approach LOS		C			D			D				A
Intersection Summary												
HCM Average Control Delay		35.3			HCM Level of Service			D				
HCM Volume to Capacity ratio		0.84										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			12.0				
Intersection Capacity Utilization		90.2%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

Baseline

Synchro 7 - Report
Page 1

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

Existing + Construction (Phase 3) AM
12/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↲	↑↑↑	↲	↲	↑↑↑		↲↲	↑↑		↲	↑	↲
Volume (vph)	108	1209	674	92	1815	59	195	10	13	79	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
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		0.97	0.95		1.00	1.00	1.00
Flt	1.00	1.00	0.85	1.00	1.00		1.00	0.92		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	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5061		3433	3242		1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5061		3433	3242		1770	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	120	1343	749	102	2017	66	217	11	14	88	63	337
RTOR Reduction (vph)	0	0	378	0	4	0	0	12	0	0	0	136
Lane Group Flow (vph)	120	1343	371	102	2079	0	217	13	0	88	63	201
Turn Type	Prot		Prot	Prot			Prot			Prot		Prot
Protected Phases	7	4	4	3	8		5	2		1	6	6
Permitted Phases												
Actuated Green, G (s)	7.9	41.3	41.3	6.7	40.1		7.0	11.1		12.9	17.0	17.0
Effective Green, g (s)	7.9	41.3	41.3	6.7	40.1		7.0	11.1		12.9	17.0	17.0
Actuated g/C Ratio	0.09	0.47	0.47	0.08	0.46		0.08	0.13		0.15	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
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)	159	2386	743	135	2306		273	409		259	380	306
v/s Ratio Prot	0.07	0.26	0.23	0.06	0.41		0.06	0.00		0.05	0.03	0.13
v/s Ratio Perm												
v/c Ratio	0.75	0.56	0.50	0.76	0.90		0.79	0.03		0.34	0.18	0.66
Uniform Delay, d1	39.1	16.8	16.2	39.8	22.1		39.8	33.7		33.7	29.6	32.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	18.2	0.3	0.5	21.1	5.4		14.7	0.0		0.8	0.2	5.0
Delay (s)	57.3	17.1	16.7	60.9	27.5		54.5	33.8		34.5	29.9	37.8
Level of Service	E	B	B	E	C		D	C		C	C	D
Approach Delay (s)		19.2			29.1			52.3			36.2	
Approach LOS		B			C			D			D	
Intersection Summary												
HCM Average Control Delay	26.6					HCM Level of Service					C	
HCM Volume to Capacity ratio	0.82											
Actuated Cycle Length (s)	88.0					Sum of lost time (s)					16.0	
Intersection Capacity Utilization	70.7%					ICU Level of Service					C	
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

Synchro 7 - Report
Page 1

HCM Signalized Intersection Capacity Analysis
4: Del Mar Heights Road & First Ave.

Existing + Construction (Phase 3) AM
12/9/2011

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↙↘	↑↑↑	↑	↑
Volume (vph)	1271	30	20	1951	26	18
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)	1412	33	22	2168	29	20
RTOR Reduction (vph)	0	9	0	0	0	19
Lane Group Flow (vph)	1412	24	22	2168	29	1
Turn Type		Perm	Prot			Perm
Protected Phases	4		3	8	2	
Permitted Phases		4				2
Actuated Green, G (s)	47.4	47.4	1.8	53.2	3.6	3.6
Effective Green, g (s)	47.4	47.4	1.8	53.2	3.6	3.6
Actuated g/C Ratio	0.73	0.73	0.03	0.82	0.06	0.06
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)	3720	1158	95	4175	98	88
v/s Ratio Prot	0.28		0.01	0.43	0.02	
v/s Ratio Perm		0.02				0.00
v/c Ratio	0.38	0.02	0.23	0.52	0.30	0.01
Uniform Delay, d1	3.2	2.4	30.8	1.8	29.4	28.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	1.3	0.1	1.7	0.1
Delay (s)	3.3	2.4	32.1	1.9	31.1	29.0
Level of Service	A	A	C	A	C	C
Approach Delay (s)	3.3			2.2	30.2	
Approach LOS	A			A	C	
Intersection Summary						
HCM Average Control Delay	3.0			HCM Level of Service		A
HCM Volume to Capacity ratio	0.51					
Actuated Cycle Length (s)	64.8			Sum of lost time (s)		8.0
Intersection Capacity Utilization	47.7%			ICU Level of Service		A
Analysis Period (min)	15					
c Critical Lane Group						

Baseline

Synchro 7 - Report
Page 1

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

Existing + Construction (Phase 3) AM
12/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	SSR
Lane Configurations	←	↑	→	←	↑	→	←	↑	→	←	↑	→
Volume (vph)	216	871	206	188	1345	92	218	99	76	159	287	407
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	1.00	0.97	0.91	0.91
Frt	1.00	0.97	1.00	0.99	1.00	0.99	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	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4939	3433	5037	3433	5085	1583	3433	4638	3433	4638	4638
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	4939	3433	5037	3433	5085	1583	3433	4638	3433	4638	4638
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)	240	968	229	209	1494	102	242	110	84	177	319	452
RTOR Reduction (vph)	0	50	0	0	10	0	0	0	67	0	183	0
Lane Group Flow (vph)	240	1147	0	209	1586	0	242	110	17	177	588	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	7.0	23.4		9.4	25.8		8.7	14.8	14.8	9.6	15.7	
Effective Green, g (s)	7.0	23.4		9.4	25.8		8.7	14.8	14.8	9.6	15.7	
Actuated g/C Ratio	0.10	0.32		0.13	0.35		0.12	0.20	0.20	0.13	0.21	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	328	1579		441	1775		408	1028	320	450	995	
v/s Ratio Prot	0.07	0.23		0.06	0.31		0.07	0.02	0.01	0.05	0.13	
v/s Ratio Perm												
v/c Ratio	0.73	0.73		0.47	0.89		0.59	0.11	0.05	0.39	0.88	
Uniform Delay, d1	32.2	22.1		29.6	22.4		30.6	23.8	23.5	29.1	25.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	8.2	1.7		0.8	6.2		2.3	0.0	0.1	0.6	0.9	
Delay (s)	40.3	23.8		30.4	28.6		32.9	23.9	23.6	29.7	26.8	
Level of Service	D	C		C	C		C	C	C	C	C	
Approach Delay (s)		26.5			28.8			28.8			27.3	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay		27.8										
HCM Volume to Capacity ratio		0.65										
Actuated Cycle Length (s)		73.2							8.0			
Intersection Capacity Utilization		68.5%							C			
Analysis Period (min)		15										
d. Defacto Right Lane, Recode with 1 through lane as a right lane.												
c Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
1: Del Mar Heights Rd. & I-15 SB Ramps

Existing + Construction (Phase 3) PM
12/9/2011

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	←	↑	↑	→	←	→
Volume (vph)	0	879	1138	0	858	290
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3	6.3		5.6	5.6
Lane Util. Factor		0.95	0.95		0.97	0.91
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3430	1441
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3430	1441
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	977	1264	0	953	322
RTOR Reduction (vph)	0	0	0	0	3	25
Lane Group Flow (vph)	0	977	1264	0	982	265
Turn Type						Perm
Protected Phases		2.6	6.2		4	
Permitted Phases						4
Actuated Green, G (s)		45.7	45.7		28.7	28.7
Effective Green, g (s)		45.7	45.7		28.7	28.7
Actuated g/C Ratio		0.53	0.53		0.33	0.33
Clearance Time (s)					5.6	5.6
Vehicle Extension (s)					3.0	3.0
Lane Grp Cap (vph)		1874	1874		1141	479
v/s Ratio Prot		0.28	0.36		0.29	
v/s Ratio Perm						0.18
v/c Ratio		0.52	0.67		0.86	0.55
Uniform Delay, d1		13.2	14.9		26.9	23.5
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.3	1.0		6.8	1.4
Delay (s)		13.5	15.8		33.8	24.9
Level of Service		B	B		C	C
Approach Delay (s)		13.5	15.8		31.8	
Approach LOS		B	B		C	
Intersection Summary						
HCM Average Control Delay		20.9				
HCM Volume to Capacity ratio		0.75				
Actuated Cycle Length (s)		86.3				11.9
Intersection Capacity Utilization		68.4%				C
Analysis Period (min)		15				
c Critical Lane Group						

Baseline

Synchro 7 - Report
Page 1

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

Existing + Construction (Phase 3) PM
12/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱		↰	↑	↱	↕	↱			
Volume (vph)	235	1475	0	0	1034	808	615	10	758	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			
Lane Util. Factor	0.97	0.92			0.91	1.00	0.95	0.92	0.95			
Friction	1.00	1.00			1.00	0.85	1.00	0.90	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (prot)	3433	3427			5085	1583	1681	1515	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (perm)	3433	3427			5085	1583	1681	1515	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)	261	1639	0	0	1149	898	683	11	842	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	479	0	13	13	0	0	0
Lane Group Flow (vph)	261	1639	0	0	1149	419	533	502	475	0	0	0
Turn Type	Prot				Prot	Split			Prot			
Protected Phases	5	2			6	6	8	8	6			
Permitted Phases												
Actuated Green, G (s)	8.3	68.3			56.0	56.0	43.7	43.7	43.7			
Effective Green, g (s)	8.3	68.3			56.0	56.0	43.7	43.7	43.7			
Actuated g/C Ratio	0.07	0.57			0.47	0.47	0.36	0.36	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)	237	1951			2373	739	612	552	548			
v/s Ratio Prot	0.08	0.48			0.23	0.26	0.32	0.33	0.32			
v/s Ratio Perm												
v/c Ratio	1.10	0.84			0.48	0.57	0.87	0.91	0.87			
Uniform Delay, d1	55.8	21.3			22.0	23.2	35.5	36.3	35.5			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	88.2	4.6			0.7	3.1	12.9	18.9	13.6			
Delay (s)	144.1	25.9			22.8	26.3	48.4	55.2	49.0			
Level of Service	F	C			C	C	D	E	D			
Approach Delay (s)		42.1			24.3		50.9			0.0		
Approach LOS		D			C		D			A		
Intersection Summary												
HCM Average Control Delay	37.9					HCM Level of Service			D			
HCM Volume to Capacity ratio	0.88											
Actuated Cycle Length (s)	120.0					Sum of lost time (s)			8.0			
Intersection Capacity Utilization	91.8%					ICU Level of Service			F			
Analysis Period (min)	15											
c - Critical Lane Group												

Baseline

Synchro 7 - Report
Page 1

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

Existing + Construction (Phase 3) PM
12/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↕↕↕	↵	↵	↕↕↕		↵↵	↕↕		↵	↕	↵
Volume (vph)	242	2005	251	15	1170	28	618	65	134	27	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
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		0.97	0.95		1.00	1.00	1.00
Fr	1.00	1.00	0.85	1.00	1.00		1.00	0.90		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	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5068		3433	3181		1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5068		3433	3181		1770	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	269	2228	279	17	1300	31	687	72	149	30	32	89
RTOR Reduction (vph)	0	0	96	0	2	0	0	111	0	0	0	83
Lane Group Flow (vph)	269	2228	183	17	1329	0	687	110	0	30	32	86
Turn Type	Prot		Prot	Prot			Prot			Prot		Prot
Protected Phases	7	4	4	3	8		5	2		1	6	6
Permitted Phases												
Actuated Green, G (s)	17.3	52.9	52.9	1.7	37.3		22.2	25.1		3.9	6.8	6.8
Effective Green, g (s)	17.3	52.9	52.9	1.7	37.3		22.2	25.1		3.9	6.8	6.8
Actuated g/C Ratio	0.17	0.53	0.53	0.02	0.37		0.22	0.25		0.04	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
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)	307	2701	841	30	1898		765	802		69	127	108
v/s Ratio Prot	0.15	0.44	0.12	0.01	0.26		0.20	0.03		0.02	0.02	0.00
v/s Ratio Perm												
v/c Ratio	0.88	0.82	0.22	0.57	0.70		0.90	0.14		0.43	0.25	0.06
Uniform Delay, d1	40.1	19.5	12.4	48.6	26.4		37.6	28.9		46.8	44.0	43.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	23.2	2.2	0.1	22.3	1.2		13.3	0.1		4.3	1.0	0.2
Delay (s)	63.3	21.7	12.5	70.8	27.6		50.9	28.9		51.1	45.0	43.6
Level of Service	E	C	B	E	C		D	C		D	D	D
Approach Delay (s)		24.8			28.1			45.5			45.4	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM Average Control Delay	29.9					HCM Level of Service			C			
HCM Volume to Capacity ratio	0.79											
Actuated Cycle Length (s)	99.6					Sum of lost time (s)			12.0			
Intersection Capacity Utilization	76.4%					ICU Level of Service			D			
Analysis Period (min)	15											
c - Critical Lane Group												

Baseline

Synchro 7 - Report
Page 1

HCM Signalized Intersection Capacity Analysis
4: Del Mar Heights Road & First Ave.

Existing + Construction (Phase 3) PM
12/9/2011

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↑	↑↑↑	↑	↑
Volume (vph)	2145	21	14	1189	30	20
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)	2383	23	16	1321	33	22
RTOR Reduction (vph)	0	7	0	0	0	20
Lane Group Flow (vph)	2383	16	16	1321	33	2
Turn Type		Perm	Prot		Perm	
Protected Phases	4		3	8	2	
Permitted Phases		4				2
Actuated Green, G (s)	38.4	38.4	0.6	43.0	3.9	3.9
Effective Green, g (s)	38.4	38.4	0.6	43.0	3.9	3.9
Actuated g/C Ratio	0.70	0.70	0.01	0.78	0.07	0.07
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3557	1107	38	3983	126	112
v/s Ratio Prot	c0.47		0.00	c0.26	c0.02	
v/s Ratio Perm		0.01				0.00
v/c Ratio	0.67	0.01	0.42	0.33	0.26	0.01
Uniform Delay, d1	4.7	2.5	27.0	1.7	24.1	23.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.0	7.4	0.0	1.1	0.1
Delay (s)	5.2	2.5	34.3	1.8	25.2	23.8
Level of Service	A	A	C	A	C	C
Approach Delay (s)	5.1			2.2	24.7	
Approach LOS	A			A	C	
Intersection Summary						
HCM Average Control Delay	4.4			HCM Level of Service		
HCM Volume to Capacity ratio	0.64			A		
Actuated Cycle Length (s)	54.9			Sum of lost time (s)		
Intersection Capacity Utilization	51.4%			ICU Level of Service		
Analysis Period (min)	15					
c Critical Lane Group						

Baseline

Synchro 7 - Report
Page 1

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

Existing + Construction (Phase 3) PM
12/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵↵	↵↵↵		↵↵	↵↵↵		↵↵	↵↵↵	↵	↵↵	↵↵↵	
Volume (vph)	441	1356	356	302	745	176	266	394	238	147	146	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.91	1.00	0.97	0.91	
Flt	1.00	0.97		1.00	0.97		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	4927		3433	4939		3433	5085	1583	3433	4651	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	4927		3433	4939		3433	5085	1583	3433	4651	
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)	490	1507	396	113	828	196	296	438	264	163	162	214
RTOR Reduction (vph)	0	45	0	0	41	0	0	0	216	0	179	0
Lane Group Flow (vph)	490	1858	0	113	983	0	296	438	48	163	197	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		2	1	6
Permitted Phases												
Actuated Green, G (s)	15.9	31.8		6.4	22.3		8.2	13.7	13.7	6.7	12.2	
Effective Green, g (s)	15.9	31.8		6.4	22.3		8.2	13.7	13.7	6.7	12.2	
Actuated g/C Ratio	0.21	0.43		0.09	0.30		0.11	0.18	0.18	0.09	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)	732	2100		295	1476		377	934	291	308	761	
v/s Ratio Prot	0.14	0.38		0.03	0.20		0.09	0.09	0.03	0.05	0.04	
v/s Ratio Perm												
v/c Ratio	0.67	0.88		0.38	0.67		0.79	0.47	0.17	0.53	0.26	
Uniform Delay, d1	26.9	19.7		32.2	22.9		32.3	27.2	25.6	32.4	27.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.3	4.9		0.8	1.1		10.3	0.4	0.3	1.6	0.2	
Delay (s)	29.3	24.6		33.1	24.0		42.6	27.6	25.9	34.1	27.4	
Level of Service	C	C		C	C		D	C	C	C	C	
Approach Delay (s)		25.5			24.9			31.6			29.4	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay	27.0			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.74			Sum of lost time (s)			12.0					
Actuated Cycle Length (s)	74.6			ICU Level of Service			C					
Intersection Capacity Utilization	65.6%			Analysis Period (min)			15					
c Critical Lane Group												

Baseline

Synchro 7 - Report
Page 1

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

Near Term + Construction (Phase 3) AM
3/5/2012

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Volume (vph)	0	690	1025	0	939	336
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3	6.3		5.6	5.6
Lane Util. Factor		0.95	0.95		0.97	0.91
Frt		1.00	1.00		0.99	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3430	1441
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3430	1441
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	767	1139	0	1043	373
RTOR Reduction (vph)	0	0	0	0	3	37
Lane Group Flow (vph)	0	767	1139	0	1077	299
Turn Type					Perm	
Protected Phases		2.6	6.2		4	
Permitted Phases						4
Actuated Green, G (s)		45.4	45.4		30.1	30.1
Effective Green, g (s)		45.4	45.4		30.1	30.1
Actuated g/C Ratio		0.52	0.52		0.34	0.34
Clearance Time (s)					5.6	5.6
Vehicle Extension (s)					3.0	3.0
Lane Grp Cap (vph)		1838	1838		1181	496
v/s Ratio Prot		0.22	0.32		0.31	
v/s Ratio Perm						0.21
v/c Ratio		0.42	0.62		0.91	0.60
Uniform Delay, d1		12.9	14.9		27.4	23.7
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.2	0.6		10.7	2.1
Delay (s)		13.0	15.5		38.1	25.8
Level of Service		B	B		D	C
Approach Delay (s)		13.0	15.5		35.1	
Approach LOS		B	B		D	
Intersection Summary						
HCM Average Control Delay		23.3			HCM Level of Service	C
HCM Volume to Capacity ratio		0.74				
Actuated Cycle Length (s)		87.4			Sum of lost time (s)	11.9
Intersection Capacity Utilization		66.0%			ICU Level of Service	C
Analysis Period (min)		15				
c Critical Lane Group						

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

Near Term + Construction (Phase 3) AM
3/5/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	231	1319	0	0	1483	930	384	59	926	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			
Lane Util. Factor	0.97	0.95			0.91	1.00	0.95	0.91	0.95			
Frt	1.00	1.00			1.00	0.85	1.00	0.88	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539			5085	1583	1681	1484	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539			5085	1583	1681	1484	1504			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	257	1466	0	0	1648	1033	427	66	1029	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	395	0	20	20	0	0	0
Lane Group Flow (vph)	257	1466	0	0	1648	638	384	552	546	0	0	0
Turn Type	Prot					Prot	Split		Prot			
Protected Phases	5	2			6	6	8	8	8			
Permitted Phases												
Actuated Green, G (s)	10.2	67.6			53.4	53.4	44.4	44.4	44.4			
Effective Green, g (s)	10.2	67.6			53.4	53.4	44.4	44.4	44.4			
Actuated g/C Ratio	0.08	0.56			0.44	0.44	0.37	0.37	0.37			
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)	292	1994			2263	704	622	549	556			
v/s Ratio Prot	0.07	0.41			0.32	0.40	0.23	0.37	0.36			
v/s Ratio Perm												
v/c Ratio	0.88	0.74			0.73	0.91	0.62	1.01	0.98			
Uniform Delay, d1	54.3	19.5			27.3	31.0	30.9	37.8	37.4			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	25.0	2.5			2.1	17.5	1.8	39.7	33.3			
Delay (s)	79.3	22.0			29.4	48.5	32.7	77.5	70.7			
Level of Service	E	C			C	D	C	E	E			
Approach Delay (s)		30.5			36.8			63.7			0.0	
Approach LOS		C			D			E			A	
Intersection Summary												
HCM Average Control Delay		41.9										
HCM Volume to Capacity ratio		0.94										
Actuated Cycle Length (s)		120.0									12.0	
Intersection Capacity Utilization		95.8%									F	
Analysis Period (min)		15										
c Critical Lane Group												

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

Near Term + Construction (Phase 3) AM
3/5/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	111	1431	694	95	1890	61	201	10	13	81	59	312
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		0.97	0.95		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.92		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	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5061		3433	3242		1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5061		3433	3242		1770	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	123	1590	771	106	2100	68	223	11	14	90	66	347
RTOR Reduction (vph)	0	0	375	0	4	0	0	12	0	0	0	134
Lane Group Flow (vph)	123	1590	396	106	2164	0	223	13	0	90	66	213
Turn Type	Prot		Prot	Prot			Prot			Prot		Prot
Protected Phases	7	4	4	3	8		5	2		1	6	6
Permitted Phases												
Actuated Green, G (s)	8.0	41.3	41.3	6.7	40.0		7.0	11.2		13.2	17.4	17.4
Effective Green, g (s)	8.0	41.3	41.3	6.7	40.0		7.0	11.2		13.2	17.4	17.4
Actuated g/C Ratio	0.09	0.47	0.47	0.08	0.45		0.08	0.13		0.15	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
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)	160	2376	740	134	2290		272	411		264	367	312
v/s Ratio Prot	c0.07	0.31	0.25	0.06	c0.43		c0.06	0.00		0.05	0.04	c0.13
v/s Ratio Perm												
v/c Ratio	0.77	0.67	0.54	0.79	0.95		0.82	0.03		0.34	0.18	0.68
Uniform Delay, d1	39.3	18.3	16.7	40.2	23.1		40.1	33.8		33.7	29.6	32.9
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	19.6	0.7	0.7	26.4	9.0		17.3	0.0		0.8	0.2	6.0
Delay (s)	58.9	19.0	17.5	66.6	32.1		57.4	33.9		34.5	29.8	39.0
Level of Service	E	B	B	E	C		E	C		C	C	D
Approach Delay (s)		20.5			33.7			55.0			37.0	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	29.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	88.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4: Del Mar Heights Road & First Ave.

Near Term + Construction (Phase 3) AM
3/5/2012

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Volume (vph)	1689	30	20	2052	26	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	0.97	0.91	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	3433	5085	1770	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	3433	5085	1770	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1877	33	22	2280	29	20
RTOR Reduction (vph)	0	9	0	0	0	19
Lane Group Flow (vph)	1877	24	22	2280	29	1
Turn Type		Perm	Prot			Perm
Protected Phases	4		3	8	2	
Permitted Phases		4				2
Actuated Green, G (s)	50.6	50.6	1.9	56.5	3.7	3.7
Effective Green, g (s)	50.6	50.6	1.9	56.5	3.7	3.7
Actuated g/C Ratio	0.74	0.74	0.03	0.83	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)	3773	1174	96	4213	96	86
v/s Ratio Prot	0.37		0.01	c0.45	c0.02	
v/s Ratio Perm		0.02				0.00
v/c Ratio	0.50	0.02	0.23	0.54	0.30	0.01
Uniform Delay, d1	3.6	2.3	32.4	1.8	31.0	30.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	1.2	0.1	1.8	0.1
Delay (s)	3.7	2.3	33.7	2.0	32.8	30.6
Level of Service	A	A	C	A	C	C
Approach Delay (s)	3.7			2.3	31.9	
Approach LOS	A			A	C	

Intersection Summary			
HCM Average Control Delay	3.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	68.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

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

Near Term + Construction (Phase 3) AM
3/5/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑↑	↘	↔	↑↑	↘	↔	↑↑	↘	↔	↑↑	↘
Volume (vph)	222	897	399	206	1385	95	245	104	79	164	312	419
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	
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.91	1.00	0.97	0.91	
Frt	1.00	0.95		1.00	0.99		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	4851		3433	5036		3433	5085	1583	3433	4648	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	4851		3433	5036		3433	5085	1583	3433	4648	
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)	247	997	443	229	1539	106	272	116	88	182	347	466
RTOR Reduction (vph)	0	105	0	0	10	0	0	0	71	0	160	0
Lane Group Flow (vph)	247	1335	0	229	1635	0	272	116	17	182	653	0
Turn Type	Prot			Prot			Prot		Prot		Prot	
Protected Phases	7	4		3	8		5	2	2	1	6	
Permitted Phases												
Actuated Green, G (s)	7.0	25.2		8.9	27.1		7.0	14.2	14.2	9.7	16.9	
Effective Green, g (s)	7.0	25.2		8.9	27.1		7.0	14.2	14.2	9.7	16.9	
Actuated 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	1652		413	1844		325	976	304	450	1062	
v/s Ratio Prot	c0.07	0.28		0.07	c0.32		c0.08	0.02	0.01	0.05	c0.14	
v/s Ratio Perm												
v/c Ratio	0.76	0.81		0.55	0.89		0.84	0.12	0.06	0.40	0.92	
Uniform Delay, d1	32.7	22.2		30.7	22.0		32.9	24.7	24.4	29.5	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	10.0	3.0		1.6	5.6		16.8	0.1	0.1	0.6	1.1	
Delay (s)	42.7	25.2		32.3	27.6		49.8	24.8	24.5	30.1	26.7	
Level of Service	D	C		C	C		D	C	C	C	C	
Approach Delay (s)		27.8			28.1			39.0			27.3	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM Average Control Delay	28.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	74.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

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

Near Term + Construction (Phase 3) PM
3/5/2012

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↔	↘
Volume (vph)	0	914	1203	0	910	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3	6.3		5.6	5.6
Lane Util. Factor		0.95	0.95		0.97	0.91
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3430	1441
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3430	1441
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1016	1337	0	1011	332
RTOR Reduction (vph)	0	0	0	0	3	20
Lane Group Flow (vph)	0	1016	1337	0	1041	279
Turn Type						Perm
Protected Phases		2.6	6.2		4	
Permitted Phases						4
Actuated Green, G (s)		45.7	45.7		30.0	30.0
Effective Green, g (s)		45.7	45.7		30.0	30.0
Actuated g/C Ratio		0.52	0.52		0.34	0.34
Clearance Time (s)					5.6	5.6
Vehicle Extension (s)					3.0	3.0
Lane Grp Cap (vph)		1846	1846		1175	493
v/s Ratio Prot		0.29	c0.38		c0.30	
v/s Ratio Perm						0.19
v/c Ratio		0.55	0.72		0.89	0.57
Uniform Delay, d1		14.1	16.1		27.2	23.5
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.4	1.4		8.3	1.5
Delay (s)		14.4	17.5		35.5	25.0
Level of Service		B	B		D	C
Approach Delay (s)		14.4	17.5		33.1	
Approach LOS		B	B		C	

Intersection Summary			
HCM Average Control Delay	22.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	87.6	Sum of lost time (s)	11.9
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

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

Near Term + Construction (Phase 3) PM
3/5/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔	↔	↔	↔	↔			
Volume (vph)	242	1526	0	0	1205	902	649	24	811	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			
Lane Util. Factor	0.97	0.95			0.91	1.00	0.95	0.91	0.95			
Frt	1.00	1.00			1.00	0.85	1.00	0.90	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (prot)	3433	3539			5085	1583	1681	1503	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (perm)	3433	3539			5085	1583	1681	1503	1504			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	269	1696	0	0	1339	1002	721	27	901	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	509	0	6	6	0	0	0
Lane Group Flow (vph)	269	1696	0	0	1339	493	570	541	526	0	0	0
Turn Type	Prot				Prot	Split		Prot				
Protected Phases	5	2			6	6	8	8	8			
Permitted Phases												
Actuated Green, G (s)	11.3	62.2			46.9	46.9	49.8	49.8	49.8			
Effective Green, g (s)	11.3	62.2			46.9	46.9	49.8	49.8	49.8			
Actuated g/C Ratio	0.09	0.52			0.39	0.39	0.42	0.42	0.42			
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)	323	1834			1987	619	698	624	624			
v/s Ratio Prot	0.08	c0.48			0.26	0.31	0.34	c0.36	0.35			
v/s Ratio Perm												
v/c Ratio	0.83	0.92			0.67	0.80	0.82	0.87	0.84			
Uniform Delay, d1	53.4	26.7			30.2	32.3	31.1	32.1	31.6			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	16.6	9.4			1.8	10.2	7.3	12.2	10.1			
Delay (s)	70.0	36.2			32.1	42.5	38.4	44.2	41.7			
Level of Service	E	D			C	D	D	D	D			
Approach Delay (s)		40.8			36.6			41.4		0.0		
Approach LOS		D			D			D		A		

Intersection Summary			
HCM Average Control Delay	39.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	99.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

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

Near Term + Construction (Phase 3) PM
3/5/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	249	2110	259	15	1383	29	637	67	138	28	30	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		0.97	0.95		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.90		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	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5070		3433	3181		1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5070		3433	3181		1770	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	277	2344	288	17	1537	32	708	74	153	31	33	91
RTOR Reduction (vph)	0	0	93	0	2	0	0	115	0	0	0	85
Lane Group Flow (vph)	277	2344	195	17	1567	0	708	112	0	31	33	6
Turn Type	Prot		Prot	Prot			Prot			Prot		Prot
Protected Phases	7	4	4	3	8		5	2		1	6	6
Permitted Phases												
Actuated Green, G (s)	17.7	54.6	54.6	1.7	38.6		22.1	25.1		3.9	6.9	6.9
Effective Green, g (s)	17.7	54.6	54.6	1.7	38.6		22.1	25.1		3.9	6.9	6.9
Actuated g/C Ratio	0.17	0.54	0.54	0.02	0.38		0.22	0.25		0.04	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
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)	309	2741	853	30	1932		749	788		68	127	108
v/s Ratio Prot	c0.16	c0.46	0.12	0.01	0.31		c0.21	0.04		0.02	c0.02	0.00
v/s Ratio Perm												
v/c Ratio	0.90	0.86	0.23	0.57	0.81		0.95	0.14		0.46	0.26	0.06
Uniform Delay, d1	40.9	20.0	12.3	49.4	28.1		39.0	29.7		47.7	44.8	44.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	26.5	2.8	0.1	22.3	2.7		20.5	0.1		4.8	1.1	0.2
Delay (s)	67.4	22.8	12.4	71.7	30.8		59.5	29.8		52.4	45.9	44.4
Level of Service	E	C	B	E	C		E	C		D	D	D
Approach Delay (s)		26.0		31.2				52.3			46.3	
Approach LOS		C		C				D			D	

Intersection Summary			
HCM Average Control Delay	32.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	101.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4: Del Mar Heights Road & First Ave.

Near Term + Construction (Phase 3) PM
3/5/2012

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↑	↑↑↑	↑	↑
Volume (vph)	2301	21	14	1588	30	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	0.97	0.91	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	3433	5085	1770	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	3433	5085	1770	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2557	23	16	1764	33	22
RTOR Reduction (vph)	0	7	0	0	0	20
Lane Group Flow (vph)	2557	16	16	1764	33	2
Turn Type	Perm		Prot	Perm		
Protected Phases	4		3	2		
Permitted Phases	4		3	2		
Actuated Green, G (s)	39.4	39.4	0.7	44.1	3.9	3.9
Effective Green, g (s)	39.4	39.4	0.7	44.1	3.9	3.9
Actuated g/C Ratio	0.70	0.70	0.01	0.79	0.07	0.07
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3578	1114	43	4004	123	110
v/s Ratio Prot	c0.50		0.00	c0.35	c0.02	
v/s Ratio Perm		0.01				0.00
v/c Ratio	0.71	0.01	0.37	0.44	0.27	0.01
Uniform Delay, d1	4.9	2.5	27.4	1.9	24.7	24.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.0	5.4	0.1	1.2	0.1
Delay (s)	5.6	2.5	32.8	2.0	25.9	24.3
Level of Service	A	A	C	A	C	C
Approach Delay (s)	5.6			2.3	25.2	
Approach LOS	A			A	C	
Intersection Summary						
HCM Average Control Delay	4.5		HCM Level of Service		A	
HCM Volume to Capacity ratio	0.69		Sum of lost time (s)		12.0	
Actuated Cycle Length (s)	56.0		ICU Level of Service		A	
Intersection Capacity Utilization	54.5%		Analysis Period (min)		15	
c Critical Lane Group						

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

Near Term + Construction (Phase 3) PM
3/5/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↱	↰↱↲		↰↱	↰↱↲		↰↱	↰↱↲	↱	↰↱	↰↱↲	
Volume (vph)	454	1397	411	108	767	181	453	421	257	151	154	199
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	
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.91	1.00	0.97	0.91	
Frt	1.00	0.97		1.00	0.97		1.00	1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	4912		3433	4940		3433	5085	1583	3433	4655	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	4912		3433	4940		3433	5085	1583	3433	4655	
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)	504	1552	457	120	852	201	503	468	286	168	171	221
RTOR Reduction (vph)	0	54	0	0	41	0	0	0	121	0	189	0
Lane Group Flow (vph)	504	1955	0	120	1012	0	503	468	165	168	203	0
Turn Type	Prot			Prot			Prot		Prot	Prot		
Protected Phases	7	4		3	8		5	2	2	1	6	
Permitted Phases												
Actuated Green, G (s)	16.5	40.4		4.6	28.5		10.1	15.4	15.4	6.7	12.0	
Effective Green, g (s)	16.5	40.4		4.6	28.5		10.1	15.4	15.4	6.7	12.0	
Actuated g/C Ratio	0.20	0.49		0.06	0.34		0.12	0.19	0.19	0.08	0.14	
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)	682	2388		190	1694		417	942	293	277	672	
v/s Ratio Prot	c0.15	c0.40		0.03	0.20		c0.15	0.09	c0.10	0.05	0.04	
v/s Ratio Perm												
v/c Ratio	0.74	0.82		0.63	0.60		1.21	0.50	0.56	0.61	0.30	
Uniform Delay, d1	31.3	18.2		38.4	22.6		36.5	30.4	30.8	36.9	31.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.2	2.3		6.7	0.6		113.5	0.4	2.5	3.7	0.3	
Delay (s)	35.5	20.5		45.1	23.1		150.0	30.8	33.3	40.7	32.1	
Level of Service	D	C		D	C		F	C	C	D	C	
Approach Delay (s)		23.5			25.4			79.0			34.6	
Approach LOS		C			C			E			C	
Intersection Summary												
HCM Average Control Delay	37.7			HCM Level of Service			D					
HCM Volume to Capacity ratio	0.84			Sum of lost time (s)			16.0					
Actuated Cycle Length (s)	83.1			ICU Level of Service			D					
Intersection Capacity Utilization	73.2%			Analysis Period (min)			15					
c Critical Lane Group												

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

Existing + Construction (Phase 1&2) AM
12/9/2011

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Volume (vph)	0	666	998	0	867	326
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3	6.3		5.6	5.6
Lane Util. Factor		0.95	0.95		0.97	0.91
Flt		1.00	1.00		0.99	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3429	1441
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3429	1441
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	740	1109	0	963	362
RTOR Reduction (vph)	0	0	0	0	3	54
Lane Group Flow (vph)	0	740	1109	0	996	272
Turn Type					Perm	
Protected Phases		2.6	0.2		4	
Permitted Phases					4	
Actuated Green, G (s)		47.3	47.3		26.8	26.8
Effective Green, g (s)		47.3	47.3		26.8	26.8
Actuated g/C Ratio		0.55	0.55		0.31	0.31
Clearance Time (s)					5.6	5.6
Vehicle Extension (s)					3.0	3.0
Lane Grp Cap (vph)		1946	1946		1069	449
v/s Ratio Prot		0.21	0.31		0.29	
v/s Ratio Perm					0.19	
v/c Ratio		0.38	0.57		0.93	0.80
Uniform Delay, d1		11.0	12.7		28.7	25.1
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.1	0.4		14.0	2.3
Delay (s)		11.1	13.1		42.8	27.4
Level of Service		B	B		D	C
Approach Delay (s)		11.1	13.1		39.0	
Approach LOS		B	B		D	
Intersection Summary						
HCM Average Control Delay		23.4			HCM Level of Service	C
HCM Volume to Capacity ratio		0.70				
Actuated Cycle Length (s)		86.0			Sum of lost time (s)	11.9
Intersection Capacity Utilization		63.1%			ICU Level of Service	B
Analysis Period (min)		15				
c Critical Lane Group						

Baseline

Synchro 7 - Report
Page 1

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

Existing + Construction (Phase 1&2) AM
12/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑		↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Volume (vph)	224	1289	0	0	1434	903	373	0	781	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			
Lane Util. Factor	0.97	0.95			0.91	0.95	0.91	0.95	0.91			
Flt	1.00	1.00			1.00	0.85	1.00	0.88	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539			5085	1583	1681	1457	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539			5085	1583	1681	1457	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)	249	1432	0	0	1593	1003	414	0	868	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	449	0	31	31	0	0	0
Lane Group Flow (vph)	249	1432	0	0	1593	554	373	427	420	0	0	0
Turn Type	Prot					Prot	Split		Prot			
Protected Phases	5	2			6	6	8	8	8			
Permitted Phases												
Actuated Green, G (s)	7.1	74.1			63.0	63.0	37.9	37.9	37.9			
Effective Green, g (s)	7.1	74.1			63.0	63.0	37.9	37.9	37.9			
Actuated g/C Ratio	0.06	0.62			0.52	0.52	0.32	0.32	0.32			
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)	203	2185			2670	831	531	460	475			
v/s Ratio Prot	0.07	0.40			0.31	0.35	0.22	0.29	0.28			
v/s Ratio Perm												
v/c Ratio	1.23	0.66			0.60	0.67	0.70	0.93	0.88			
Uniform Delay, d1	56.4	14.7			19.7	20.8	36.1	39.7	39.0			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	137.6	1.6			1.0	4.2	4.2	24.8	17.4			
Delay (s)	194.0	16.3			20.7	25.0	40.3	64.5	56.3			
Level of Service	F	B			C	C	D	E	E			
Approach Delay (s)		42.0			22.4			54.6				0.0
Approach LOS		D			C			D				A
Intersection Summary												
HCM Average Control Delay		35.9										D
HCM Volume to Capacity ratio		0.77										
Actuated Cycle Length (s)		120.0										8.0
Intersection Capacity Utilization		90.6%										E
Analysis Period (min)		15										
c Critical Lane Group												

Baseline

Synchro 7 - Report
Page 1

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

Existing + Construction (Phase 1&2) AM
12/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑	↗	↖	↑↑↑	↗	↖	↑↑	↗	↖	↑	↗
Volume (vph)	108	1222	674	92	1829	59	195	10	13	79	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
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		0.97	0.95		1.00	1.00	1.00
Flt	1.00	1.00	0.85	1.00	1.00		1.00	0.92		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	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5061		3433	3242		1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5061		3433	3242		1770	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	120	1358	749	102	2032	66	217	11	14	88	63	337
RTOR Reduction (vph)	0	0	378	0	4	0	0	12	0	0	0	136
Lane Group Flow (vph)	120	1358	371	102	2094	0	217	13	0	88	63	201
Turn Type	Prot		Prot	Prot			Prot			Prot		Prot
Protected Phases	7	4	4	3	8		5	2		1	6	6
Permitted Phases												
Actuated Green, G (s)	7.9	41.3	41.3	6.7	40.1		7.0	11.1		12.9	17.0	17.0
Effective Green, g (s)	7.9	41.3	41.3	6.7	40.1		7.0	11.1		12.9	17.0	17.0
Actuated g/C Ratio	0.09	0.47	0.47	0.08	0.46		0.08	0.13		0.15	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
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)	159	2386	743	135	2306		273	409		259	360	306
v/s Ratio/Prot	0.07	0.27	0.23	0.06	0.41		0.06	0.00		0.05	0.03	0.13
v/s Ratio Perm												
v/c Ratio	0.76	0.57	0.50	0.76	0.91		0.79	0.03		0.34	0.18	0.66
Uniform Delay, d1	39.1	16.9	16.2	39.8	22.2		39.8	33.7		33.7	29.6	32.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	18.2	0.3	0.5	21.1	5.7		14.7	0.0		0.8	0.2	5.0
Delay (s)	57.3	17.2	16.7	60.9	27.9		54.5	33.8		34.5	29.9	37.9
Level of Service	E	B	B	E	C		D	C		C	C	D
Approach Delay (s)		19.2			29.5			52.3			36.2	
Approach LOS		B			C			D			D	
Intersection Summary												
HCM Average Control Delay	26.8			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.82			Sum of lost time (s)			16.0					
Actuated Cycle Length (s)	88.0			ICU Level of Service			C					
Intersection Capacity Utilization	71.0%			Analysis Period (min)			15					
Analysis Period (min)	15			Critical Lane Group			c					

Baseline

Synchro 7 - Report
Page 1

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

Existing + Construction (Phase 1&2) AM
12/9/2011

	→	↖	↗	↖	↗	↖
Movement	EBL	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↖	↖	↑↑↑	↖	↖
Volume (vph)	1271	43	28	1951	40	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	1.00
Flt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	1770	5085	3433	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	1770	5085	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1412	48	31	2168	44	30
RTOR Reduction (vph)	0	16	0	0	0	28
Lane Group Flow (vph)	1412	32	31	2168	44	2
Turn Type		Perm	Prot		Perm	
Protected Phases	4		3	8	2	
Permitted Phases		4				2
Actuated Green, G (s)	32.1	32.1	1.0	37.1	3.4	3.4
Effective Green, g (s)	32.1	32.1	1.0	37.1	3.4	3.4
Actuated g/C Ratio	0.66	0.66	0.02	0.76	0.07	0.07
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3366	1048	36	3890	241	111
v/s Ratio Prot	0.28		0.02	0.43	0.01	
v/s Ratio Perm		0.02				0.00
v/c Ratio	0.42	0.03	0.86	0.56	0.18	0.02
Uniform Delay, d1	3.8	2.8	23.7	2.3	21.2	21.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	95.3	0.2	0.4	0.1
Delay (s)	3.9	2.8	119.0	2.5	21.6	21.1
Level of Service	A	A	F	A	C	C
Approach Delay (s)	3.9			4.2	21.4	
Approach LOS	A			A	C	
Intersection Summary						
HCM Average Control Delay	4.4			HCM Level of Service		
HCM Volume to Capacity ratio	0.53			Sum of lost time (s)		
Actuated Cycle Length (s)	48.5			ICU Level of Service		
Intersection Capacity Utilization	47.7%			Analysis Period (min)		
Analysis Period (min)	15			Critical Lane Group		
c Critical Lane Group						

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
5: Del Mar Heights Road & El Camino Real

Existing + Construction (Phase 1&2) AM
12/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↑		↰	↑↑↑		↰	↑↑↑	↱	↰	↑↑↑	
Volume (vph)	217	874	212	188	1347	92	224	99	76	159	287	409
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	
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.91	1.00	0.97	0.91	
Frict.	1.00	0.97		1.00	0.99		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	4936		3433	5037		3433	5085	1583	3433	4637	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	4936		3433	5037		3433	5085	1583	3433	4637	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	241	971	236	209	1497	102	249	110	84	177	319	454
RTOR Reduction (vph)	0	49	0	0	10	0	0	0	69	0	217	0
Lane Group Flow (vph)	241	1158	0	209	1589	0	249	110	15	177	556	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		2	1	6
Permitted Phases												
Actuated Green, G (s)	8.7	24.1		9.7	25.1		7.0	13.2	13.2	9.5	15.7	
Effective Green, g (s)	8.7	24.1		9.7	25.1		7.0	13.2	13.2	9.5	15.7	
Actuated g/C Ratio	0.12	0.33		0.13	0.35		0.10	0.18	0.18	0.13	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)	412	1641		459	1744		331	926	288	450	1004	
v/s Ratio Prot	0.07	0.23		0.06	0.32		0.07	0.02	0.01	0.05	0.12	
v/s Ratio Perm												
v/c Ratio	0.58	0.71		0.46	0.91		0.75	0.12	0.05	0.39	0.55	
Uniform Delay, d1	30.2	21.1		29.0	22.6		31.9	24.8	24.5	28.9	25.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.1	1.4		0.7	7.6		9.3	0.1	0.1	0.6	0.7	
Delay (s)	32.3	22.5		29.7	30.3		41.2	24.8	24.6	29.4	25.9	
Level of Service	C	C		C	C		D	C	C	C	C	
Approach Delay (s)		24.1			30.2			34.0			26.6	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay	27.9					HCM Level of Service					C	
HCM Volume to Capacity ratio	0.65											
Actuated Cycle Length (s)	72.5					Sum of lost time (s)					8.0	
Intersection Capacity Utilization	68.7%					ICU Level of Service					C	
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

Synchro 7 - Report
Page 1

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

Existing + Construction (Phase 1&2) PM
12/9/2011

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	↑
Volume (vph)	0	880	1140	0	862	290
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3	6.3		5.6	5.6
Lane Util. Factor		0.95	0.95		0.97	0.91
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3430	1441
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3430	1441
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	978	1267	0	958	322
RTOR Reduction (vph)	0	0	0	0	3	25
Lane Group Flow (vph)	0	978	1267	0	967	265
Turn Type					Perm	
Protected Phases		2.6	6.2		4	
Permitted Phases						4
Actuated Green, G (s)		45.7	45.7		28.8	28.8
Effective Green, g (s)		45.7	45.7		28.8	28.8
Actuated g/C Ratio		0.53	0.53		0.33	0.33
Clearance Time (s)					5.6	5.6
Vehicle Extension (s)					3.0	3.0
Lane Grp Cap (vph)		1872	1872		1143	480
v/s Ratio Prot		0.28	0.36		0.29	
v/s Ratio Perm						0.18
v/c Ratio		0.52	0.69		0.86	0.55
Uniform Delay, d1		13.2	14.9		27.0	23.5
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.3	1.0		7.0	1.4
Delay (s)		13.5	15.9		33.9	24.9
Level of Service		B	B		C	C
Approach Delay (s)		13.5	15.9		31.9	
Approach LOS		B	B		C	
Intersection Summary						
HCM Average Control Delay	21.0			HCM Level of Service		
HCM Volume to Capacity ratio	0.75			Sum of lost time (s)		
Actuated Cycle Length (s)	86.4			11.9		
Intersection Capacity Utilization	68.5%			ICU Level of Service		
Analysis Period (min)	15					
c Critical Lane Group						

Baseline

Synchro 7 - Report
Page 1

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

Existing + Construction (Phase 1&2) PM
12/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	↑	→	←	↑	→	←	↑	→	←	↑	→
Volume (vph)	235	1482	0	0	1042	814	615	10	762	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			
Lane Util. Factor	0.97	0.95			0.91	1.00	0.95	0.91	0.95			
Frt	1.00	1.00			1.00	0.85	1.00	0.90	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (prot)	3433	3539			5085	1583	1681	1497	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (perm)	3433	3539			5085	1583	1681	1497	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)	261	1647	0	0	1158	904	683	11	847	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	564	0	2	2	0	0	0
Lane Group Flow (vph)	261	1647	0	0	1158	340	540	508	489	0	0	0
Turn Type	Prot				Prot	Split		Prot				
Protected Phases	5	2			6	6	8	8	8			
Permitted Phases												
Actuated Green, G(s)	13.8	58.5			40.7	40.7	53.5	53.5	53.5			
Effective Green, g(s)	13.8	58.5			40.7	40.7	53.5	53.5	53.5			
Actuated g/C Ratio	0.12	0.49			0.34	0.34	0.45	0.45	0.45			
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)	395	1725			1725	537	749	667	671			
v/s Ratio Prot	0.08	0.47			0.23	0.21	0.32	0.34	0.32			
v/s Ratio Perm												
v/c Ratio	0.66	0.95			0.67	0.63	0.72	0.76	0.73			
Uniform Delay, d1	50.9	29.5			33.9	33.4	27.2	27.9	27.3			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	4.1	13.3			2.1	5.6	3.4	5.1	4.0			
Delay (s)	55.0	42.8			36.0	39.0	30.6	33.0	31.2			
Level of Service	D	D			D	D	C	C	C			
Approach Delay (s)	44.5				37.3		31.6		0.0			
Approach LOS	D				D		C		A			

Intersection Summary			
HCM Average Control Delay	38.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	92.2%	ICU Level of Service	F
Analysis Period (min)	15		
c: Critical Lane Group			

Baseline

Synchro 7 - Report
Page 1

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

Existing + Construction (Phase 1&2) PM
12/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	↑	→	←	↑	→	←	↑	→	←	↑	→
Volume (vph)	242	2016	251	15	1184	28	618	65	134	27	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
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
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.90	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5068		3433	3181	1770	1863	1583	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5068		3433	3181	1770	1863	1583	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	269	2240	279	17	1316	31	687	72	149	30	32	89
RTOR Reduction (vph)	0	0	96	0	2	0	0	111	0	0	0	83
Lane Group Flow (vph)	269	2240	183	17	1345	0	687	110	0	30	32	6
Turn Type	Prot		Prot	Prot			Prot			Prot		Prot
Protected Phases	7	4	4	3	8		5	2		1	6	6
Permitted Phases												
Actuated Green, G(s)	17.4	53.0	53.0	1.7	37.3		22.2	25.1		3.9	6.8	6.8
Effective Green, g(s)	17.4	53.0	53.0	1.7	37.3		22.2	25.1		3.9	6.8	6.8
Actuated g/C Ratio	0.17	0.53	0.53	0.02	0.37		0.22	0.25		0.04	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
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)	309	2703	842	30	1896		764	801		69	127	108
v/s Ratio Prot	0.15	0.44	0.12	0.01	0.27		0.20	0.03		0.02	0.02	0.00
v/s Ratio Perm												
v/c Ratio	0.87	0.83	0.22	0.57	0.71		0.90	0.14		0.43	0.25	0.06
Uniform Delay, d1	40.1	19.5	12.4	48.6	26.6		37.7	28.9		46.8	44.0	43.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	22.4	2.2	0.1	22.3	1.2		13.4	0.1		4.3	1.0	0.2
Delay (s)	62.5	21.8	12.5	70.9	27.8		51.0	29.0		51.2	45.1	43.7
Level of Service	E	C	B	E	C		D	C		D	D	D
Approach Delay (s)	24.8			28.4			45.7			45.5		
Approach LOS	C			C			D			D		

Intersection Summary			
HCM Average Control Delay	30.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	99.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		
c: Critical Lane Group			

Baseline

Synchro 7 - Report
Page 1

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

Existing + Construction (Phase 1&2) PM
12/9/2011

Movement	EBL	EBR	WBL	WBT	NBL	NBR
Lane Configurations	AAA	T		AAA	TT	T
Volume (vph)	2145	32	21	1189	44	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	1770	5085	3433	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	1770	5085	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2383	36	23	1321	49	32
RTOR Reduction (vph)	0	11	0	0	0	30
Lane Group Flow (vph)	2383	25	23	1321	49	2
Turn Type	Perm		Prot	Perm		
Protected Phases	4		3	2		
Permitted Phases	4			2		
Actuated Green, G (s)	38.4	38.4	0.6	43.0	3.6	3.6
Effective Green, g (s)	38.4	38.4	0.6	43.0	3.6	3.6
Actuated g/C Ratio	0.70	0.70	0.01	0.79	0.07	0.07
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3576	1113	19	4005	226	104
v/s Ratio Prot	c0.47		c0.01	0.26	c0.01	
v/s Ratio Perm		0.02				0.00
v/c Ratio	0.67	0.02	1.21	0.33	0.22	0.02
Uniform Delay, d1	4.5	2.4	27.0	1.7	24.2	23.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.0	279.4	0.0	0.5	0.1
Delay (s)	5.0	2.5	306.4	1.7	24.6	23.9
Level of Service	A	A	F	A	C	C
Approach Delay (s)	5.0			6.9	24.4	
Approach LOS	A			A	C	
Intersection Summary						
HCM Average Control Delay	6.1			HCM Level of Service		
HCM Volume to Capacity ratio	0.64			A		
Actuated Cycle Length (s)	54.6			Sum of lost time (s)		
Intersection Capacity Utilization	51.4%			ICU Level of Service		
Analysis Period (min)	15					
c Critical Lane Group						

Baseline

Synchro 7 - Report
Page 1

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

Existing + Construction (Phase 1&2) PM
12/9/2011

	←	→	↖	↗	↘	↙	↕	↖	↗	↘	↙	↕
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↖↖↖		↖↗	↖↖↖		↖↗	↖↖↖	↖	↖↗	↖↖↖	
Volume (vph)	443	1358	362	102	746	176	270	394	238	147	146	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.91	1.00	0.97	0.91	
Frt	1.00	0.97		1.00	0.97		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	4925		3433	4939		3433	5085	1583	3433	4649	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	4925		3433	4939		3433	5085	1583	3433	4649	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	492	1509	402	113	829	196	300	438	264	163	162	216
RTOR Reduction (vph)	0	45	0	0	42	0	0	0	216	0	183	0
Lane Group Flow (vph)	492	1866	0	113	983	0	300	438	48	163	195	0
Turn Type	Prot		Prot		Prot		Prot		Prot		Prot	
Protected Phases	7		4		3		5		2		6	
Permitted Phases												
Actuated Green, G (s)	15.5	32.5		6.5	23.5		9.2	13.8	13.8	7.0	11.6	
Effective Green, g (s)	15.5	32.5		6.5	23.5		9.2	13.8	13.8	7.0	11.6	
Actuated g/C Ratio	0.20	0.43		0.09	0.31		0.12	0.18	0.18	0.09	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)	702	2112		294	1531		417	926	288	317	711	
v/s Ratio Prot	c0.14	c0.38		0.03	0.20		c0.09	c0.09	0.03	0.05	0.04	
v/s Ratio Perm												
v/c Ratio	0.70	0.88		0.38	0.64		0.72	0.47	0.17	0.51	0.27	
Uniform Delay, d1	28.0	19.9		32.8	22.5		32.1	27.7	26.2	32.8	28.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.2	4.8		0.8	0.9		5.9	0.4	0.3	1.4	0.2	
Delay (s)	31.2	24.7		33.6	23.5		37.9	28.1	26.4	34.2	28.6	
Level of Service	C	C		C	C		D	C	C	C	C	
Approach Delay (s)		26.0			24.5			30.6			30.3	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay	27.0				HCM Level of Service				C			
HCM Volume to Capacity ratio	0.74											
Actuated Cycle Length (s)	75.8				Sum of lost time (s)				12.0			
Intersection Capacity Utilization	65.9%				ICU Level of Service				C			
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

Synchro 7 - Report
Page 1

HCM Signalized Intersection Capacity Analysis Near Term + Construction (Phase 1&2) AM
1: Del Mar Heights Rd. & I-15 SB Ramps 3/5/2012

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	↑
Volume (vph)	0	690	1028	0	927	336
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3	6.3		5.6	5.6
Lane Util. Factor		0.95	0.95		0.97	0.91
Frt		1.00	1.00		0.99	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3429	1441
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3429	1441
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	767	1142	0	1030	373
RTOR Reduction (vph)	0	0	0	0	3	41
Lane Group Flow (vph)	0	767	1142	0	1064	295
Turn Type					Perm	
Protected Phases		2 6	6 2		4	
Permitted Phases						4
Actuated Green, G (s)		46.5	46.5		29.2	29.2
Effective Green, g (s)		46.5	46.5		29.2	29.2
Actuated g/C Ratio		0.53	0.53		0.33	0.33
Clearance Time (s)					5.6	5.6
Vehicle Extension (s)					3.0	3.0
Lane Grp Cap (vph)		1879	1879		1143	480
v/s Ratio Prot		0.22	0.32		0.31	
v/s Ratio Perm						0.20
v/c Ratio		0.41	0.61		0.93	0.62
Uniform Delay, d1		12.3	14.2		28.2	24.5
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.1	0.6		13.3	2.3
Delay (s)		12.5	14.8		41.5	26.8
Level of Service		B	B		D	C
Approach Delay (s)		12.5	14.8		38.0	
Approach LOS		B	B		D	
Intersection Summary						
HCM Average Control Delay		24.1		HCM Level of Service		C
HCM Volume to Capacity ratio		0.73				
Actuated Cycle Length (s)		87.6		Sum of lost time (s)		11.9
Intersection Capacity Utilization		65.6%		ICU Level of Service		C
Analysis Period (min)		15				
c Critical Lane Group						

Baseline

Synchro 7 - Report
Page 1

HCM Signalized Intersection Capacity Analysis Near Term + Construction (Phase 1&2) AM
2: Del Mar Heights Road & I-15 NB Ramps 3/5/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑↑	↑		↑	↑			
Volume (vph)	231	1327	0	0	1486	934	384	39	888	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			
Lane Util. Factor	0.97	0.95			0.91	1.00	0.95	0.91	0.95			
Frt	1.00	1.00			1.00	0.85	1.00	0.87	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539			5085	1583	1681	1475	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539			5085	1583	1681	1475	1504			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	257	1474	0	0	1651	1038	427	43	987	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	431	0	20	20	0	0	0
Lane Group Flow (vph)	257	1474	0	0	1651	607	384	520	513	0	0	0
Turn Type	Prot				Prot	Split		Prot				
Protected Phases	5	2			6	6	8	8	8			
Permitted Phases												
Actuated Green, G (s)	10.3	67.5			53.2	53.2	44.5	44.5	44.5			
Effective Green, g (s)	10.3	67.5			53.2	53.2	44.5	44.5	44.5			
Actuated g/C Ratio	0.09	0.56			0.44	0.44	0.37	0.37	0.37			
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)	295	1991			2254	702	623	547	558			
v/s Ratio Prot	0.07	0.42			0.32	0.38	0.23	0.35	0.34			
v/s Ratio Perm												
v/c Ratio	0.87	0.74			0.73	0.86	0.62	0.95	0.92			
Uniform Delay, d1	54.2	19.7			27.5	30.2	30.8	36.7	36.1			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	23.3	2.5			2.1	13.4	1.8	26.7	20.6			
Delay (s)	77.5	22.2			29.7	43.6	32.6	63.4	56.7			
Level of Service	E	C			C	D	C	E	E			
Approach Delay (s)		30.4			35.1			52.8			0.0	
Approach LOS		C			D			D			A	
Intersection Summary												
HCM Average Control Delay		38.1		HCM Level of Service								
HCM Volume to Capacity ratio		0.90										
Actuated Cycle Length (s)		120.0		Sum of lost time (s)								
Intersection Capacity Utilization		95.1%		ICU Level of Service								
Analysis Period (min)		15										
c Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis Near Term + Construction (Phase 1&2) AM
3: Del Mar Heights Road & High Bluff Drive 3/5/2012

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		  			  		 	 			 		 
Volume (vph)	111	1381	694	95	1897	61	201	10	13	81	59	312	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		0.97	0.95		1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.92		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	1.00	
Satd. Flow (prot)	1770	5085	1583	1770	5061		3433	3242		1770	1863	1583	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	1770	5085	1583	1770	5061		3433	3242		1770	1863	1583	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	123	1534	771	106	2108	68	223	11	14	90	66	347	
RTOR Reduction (vph)	0	0	375	0	4	0	0	12	0	0	0	134	
Lane Group Flow (vph)	123	1534	396	106	2172	0	223	13	0	90	66	213	
Turn Type	Prot		Prot	Prot			Prot			Prot		Prot	
Protected Phases	7	4	4	3	8		5	2		1	6	6	
Permitted Phases													
Actuated Green, G (s)	8.0	41.3	41.3	6.7	40.0		7.0	11.2		13.2	17.4	17.4	
Effective Green, g (s)	8.0	41.3	41.3	6.7	40.0		7.0	11.2		13.2	17.4	17.4	
Actuated g/C Ratio	0.09	0.47	0.47	0.08	0.45		0.08	0.13		0.15	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	
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)	160	2376	740	134	2290		272	411		264	367	312	
v/s Ratio Prot	c0.07	0.30	0.25	0.06	c0.43		c0.06	0.00		0.05	0.04	c0.13	
v/s Ratio Perm													
v/c Ratio	0.77	0.65	0.54	0.79	0.95		0.82	0.03		0.34	0.18	0.68	
Uniform Delay, d1	39.3	18.0	16.7	40.2	23.2		40.1	33.8		33.7	29.6	32.9	
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	19.6	0.6	0.7	26.4	9.3		17.3	0.0		0.8	0.2	6.0	
Delay (s)	58.9	18.6	17.5	66.6	32.5		57.4	33.9		34.5	29.8	39.0	
Level of Service	E	B	B	E	C		E	C		C	C	D	
Approach Delay (s)		20.3			34.1			55.0			37.0		
Approach LOS		C			C			D			D		
Intersection Summary													
HCM Average Control Delay	29.2				HCM Level of Service				C				
HCM Volume to Capacity ratio	0.85												
Actuated Cycle Length (s)	88.4				Sum of lost time (s)				16.0				
Intersection Capacity Utilization	73.1%				ICU Level of Service				D				
Analysis Period (min)	15												
c Critical Lane Group													

Baseline

Synchro 7 - Report
Page 1

HCM Signalized Intersection Capacity Analysis Near Term + Construction (Phase 1&2) AM
4: Del Mar Heights Road & Third Ave. 3/5/2012

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑↑	↑		↑↑↑↑	↑	↑
Volume (vph)	1625	43	28	2045	40	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	1770	5085	3433	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	1770	5085	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1806	48	31	2272	44	30
RTOR Reduction (vph)	0	16	0	0	0	28
Lane Group Flow (vph)	1806	32	31	2272	44	2
Turn Type		Perm	Prot		Perm	
Protected Phases	4		3	8	2	
Permitted Phases		4			2	
Actuated Green, G (s)	32.7	32.7	1.1	37.8	3.5	3.5
Effective Green, g (s)	32.7	32.7	1.1	37.8	3.5	3.5
Actuated g/C Ratio	0.66	0.66	0.02	0.77	0.07	0.07
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3373	1050	39	3899	244	112
v/s Ratio Prot	0.36		0.02	c0.45	c0.01	
v/s Ratio Perm		0.02				0.00
v/c Ratio	0.54	0.03	0.79	0.58	0.18	0.02
Uniform Delay, d1	4.3	2.9	24.0	2.4	21.6	21.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.0	68.4	0.2	0.4	0.1
Delay (s)	4.5	2.9	92.4	2.6	21.9	21.4
Level of Service	A	A	F	A	C	C
Approach Delay (s)	4.5			3.9	21.7	
Approach LOS	A			A	C	
Intersection Summary						
HCM Average Control Delay	4.4			HCM Level of Service		A
HCM Volume to Capacity ratio	0.55					
Actuated Cycle Length (s)	49.3			Sum of lost time (s)		8.0
Intersection Capacity Utilization	49.5%			ICU Level of Service		A
Analysis Period (min)	15					
c Critical Lane Group						

Baseline

Synchro 7 - Report
Page 1

HCM Signalized Intersection Capacity Analysis Near Term + Construction (Phase 1&2) AM
5: Del Mar Heights Road & El Camino Real 3/5/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↔		↔↔	↑↑↔		↔↔	↑↑↑	↔	↔↔	↑↑↔	
Volume (vph)	223	900	341	202	1387	95	244	103	79	164	306	421
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0		
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.91	1.00	0.97	0.91	
Frt	1.00	0.96		1.00	0.99		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	4876		3433	5036		3433	5085	1583	3433	4643	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	4876		3433	5036		3433	5085	1583	3433	4643	
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)	248	1000	379	224	1541	106	271	114	88	182	340	468
RTOR Reduction (vph)	0	89	0	0	10	0	0	0	71	0	160	0
Lane Group Flow (vph)	248	1290	0	224	1637	0	271	114	71	182	548	0
Turn Type	Prot			Prot			Prot		Prot	Prot		
Protected Phases	7	4		3	8		5	2	2	1	6	
Permitted Phases												
Actuated Green, G (s)	7.0	25.2		8.8	27.0		7.0	14.2	14.2	9.7	16.9	
Effective Green, g (s)	7.0	25.2		8.8	27.0		7.0	14.2	14.2	9.7	16.9	
Actuated 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	1663		409	1840		325	977	304	451	1062	
v/s Ratio Prot	c0.07	0.26		0.07	c0.33		c0.08	0.02	0.01	0.05	c0.14	
v/s Ratio Perm												
v/c Ratio	0.76	0.78		0.55	0.89		0.83	0.12	0.06	0.40	0.92dr	
Uniform Delay, d1	32.6	21.8		30.7	22.0		32.9	24.7	24.4	29.4	25.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	10.2	2.3		1.5	5.7		16.6	0.1	0.1	0.6	1.0	
Delay (s)	42.8	24.2		32.2	27.8		49.4	24.7	24.5	30.0	26.6	
Level of Service	D	C		C	C		D	C	C	C	C	
Approach Delay (s)		27.0			28.3			38.8			27.2	
Approach LOS		C			C			D			C	

Intersection Summary												
HCM Average Control Delay		28.7		HCM Level of Service		C						
HCM Volume to Capacity ratio		0.74										
Actuated Cycle Length (s)		73.9		Sum of lost time (s)		12.0						
Intersection Capacity Utilization		71.0%		ICU Level of Service		C						
Analysis Period (min)		15										
dr Defacto Right Lane. Recode with 1 though lane as a right lane.												
c Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis Near Term + Construction (Phase 1&2) PM
1: Del Mar Heights Rd. & I-15 SB Ramps 3/5/2012

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↔↔	↔↔
Volume (vph)	0	912	1194	0	905	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3	6.3		5.6	5.6
Lane Util. Factor		0.95	0.95		0.97	0.91
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3430	1441
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3430	1441
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1013	1327	0	1006	332
RTOR Reduction (vph)	0	0	0	0	3	21
Lane Group Flow (vph)	0	1013	1327	0	1036	278
Turn Type					Perm	
Protected Phases		2.6	6.2		4	
Permitted Phases						4
Actuated Green, G (s)		45.7	45.7		29.9	29.9
Effective Green, g (s)		45.7	45.7		29.9	29.9
Actuated g/C Ratio		0.52	0.52		0.34	0.34
Clearance Time (s)					5.6	5.6
Vehicle Extension (s)					3.0	3.0
Lane Grp Cap (vph)		1848	1848		1172	492
v/s Ratio Prot		0.29	c0.37		c0.30	
v/s Ratio Perm						0.19
v/c Ratio		0.55	0.72		0.88	0.56
Uniform Delay, d1		14.0	16.0		27.2	23.5
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.3	1.4		8.2	1.5
Delay (s)		14.3	17.3		35.4	25.0
Level of Service		B	B		D	C
Approach Delay (s)		14.3	17.3		33.0	
Approach LOS		B	B		C	

Intersection Summary					
HCM Average Control Delay		22.2		HCM Level of Service	C
HCM Volume to Capacity ratio		0.78			
Actuated Cycle Length (s)		87.5		Sum of lost time (s)	11.9
Intersection Capacity Utilization		70.7%		ICU Level of Service	C
Analysis Period (min)		15			
c Critical Lane Group					

Baseline

Synchro 7 - Report
Page 1

HCM Signalized Intersection Capacity Analysis Near Term + Construction (Phase 1&2) PM
2: Del Mar Heights Road & I-15 NB Ramps 3/5/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔↔			↔↔↔	↔	↔	↔	↔			
Volume (vph)	242	1531	0	0	1165	884	644	20	805	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			
Lane Util. Factor	0.97	0.95			0.91	1.00	0.95	0.91	0.95			
Frt	1.00	1.00			1.00	0.85	1.00	0.90	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (prot)	3433	3539			5085	1583	1681	1501	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (perm)	3433	3539			5085	1583	1681	1501	1504			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	269	1701	0	0	1294	982	716	22	894	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	515	0	6	6	0	0	0
Lane Group Flow (vph)	269	1701	0	0	1294	467	566	533	521	0	0	0
Turn Type	Prot				Prot	Split		Prot				
Protected Phases	5	2			6	8	8	8				
Permitted Phases												
Actuated Green, G (s)	11.4	62.5			47.1	47.1	49.5	49.5	49.5			
Effective Green, g (s)	11.4	62.5			47.1	47.1	49.5	49.5	49.5			
Actuated g/C Ratio	0.10	0.52			0.39	0.39	0.41	0.41	0.41			
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)	326	1843			1996	621	693	619	620			
v/s Ratio Prot	0.08	c0.48			0.25	0.29	0.34	c0.36	0.35			
v/s Ratio Perm												
v/c Ratio	0.83	0.92			0.65	0.75	0.82	0.86	0.84			
Uniform Delay, d1	53.3	26.5			29.7	31.4	31.2	32.1	31.7			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	15.5	9.2			1.6	8.2	7.4	11.8	10.0			
Delay (s)	68.8	35.8			31.3	39.6	38.6	43.9	41.7			
Level of Service	E	D			C	D	D	D	D			
Approach Delay (s)		40.3				34.9		41.4		0.0		
Approach LOS		D				C		D		A		

Intersection Summary			
HCM Average Control Delay	38.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	98.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis Near Term + Construction (Phase 1&2) PM
3: Del Mar Heights Road & High Bluff Drive 3/5/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔↔	↔	↔	↔↔↔	↔	↔↔	↔	↔	↔	↔	↔
Volume (vph)	249	2105	259	15	1336	29	637	67	138	28	30	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		0.97	0.95		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.90		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	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5069		3433	3181		1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5069		3433	3181		1770	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	277	2339	288	17	1484	32	708	74	153	31	33	91
RTOR Reduction (vph)	0	0	94	0	2	0	0	115	0	0	0	85
Lane Group Flow (vph)	277	2339	194	17	1514	0	708	112	0	31	33	6
Turn Type	Prot		Prot	Prot			Prot			Prot		Prot
Protected Phases	7	4	4	3	8		5	2		1	6	6
Permitted Phases												
Actuated Green, G (s)	17.7	54.1	54.1	1.7	38.1		22.1	25.1		3.9	6.9	6.9
Effective Green, g (s)	17.7	54.1	54.1	1.7	38.1		22.1	25.1		3.9	6.9	6.9
Actuated g/C Ratio	0.18	0.54	0.54	0.02	0.38		0.22	0.25		0.04	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
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)	311	2729	850	30	1916		753	792		68	128	108
v/s Ratio Prot	c0.16	c0.46	0.12	0.01	0.30		c0.21	0.04		0.02	c0.02	0.00
v/s Ratio Perm												
v/c Ratio	0.89	0.86	0.23	0.57	0.79		0.94	0.14		0.46	0.26	0.06
Uniform Delay, d1	40.6	20.0	12.3	49.2	27.8		38.7	29.5		47.4	44.5	43.9
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	25.6	2.9	0.1	22.3	2.3		19.6	0.1		4.8	1.1	0.2
Delay (s)	66.2	22.9	12.5	71.4	30.1		58.3	29.5		52.2	45.6	44.1
Level of Service	E	C	B	E	C		E	C		D	D	D
Approach Delay (s)		26.0			30.6			51.4			46.1	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	32.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	100.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis Near Term + Construction (Phase 1&2) PM
4: Del Mar Heights Road & Third Ave. 3/5/2012

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑	↑↑↑	↑↑	↑
Volume (vph)	2285	32	21	1527	44	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	1770	5085	3433	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	1770	5085	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2539	36	23	1697	49	32
RTOR Reduction (vph)	0	11	0	0	0	30
Lane Group Flow (vph)	2539	25	23	1697	49	2
Turn Type	Perm		Prot	Perm		
Protected Phases	4		3	8		
Permitted Phases	4			2		
Actuated Green, G (s)	38.8	38.8	0.7	43.5	3.7	3.7
Effective Green, g (s)	38.8	38.8	0.7	43.5	3.7	3.7
Actuated g/C Ratio	0.70	0.70	0.01	0.79	0.07	0.07
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3574	1113	22	4007	230	106
v/s Ratio Prot	c0.50		0.01	c0.33	c0.01	
v/s Ratio Perm		0.02				0.00
v/c Ratio	0.71	0.02	1.05	0.42	0.21	0.02
Uniform Delay, d1	4.9	2.5	27.3	1.9	24.4	24.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.0	206.7	0.1	0.5	0.1
Delay (s)	5.5	2.5	233.9	1.9	24.8	24.1
Level of Service	A	A	F	A	C	C
Approach Delay (s)	5.5			5.0	24.6	
Approach LOS	A			A	C	
Intersection Summary						
HCM Average Control Delay	5.7		HCM Level of Service		A	
HCM Volume to Capacity ratio	0.68					
Actuated Cycle Length (s)	55.2		Sum of lost time (s)		12.0	
Intersection Capacity Utilization	54.1%		ICU Level of Service		A	
Analysis Period (min)	15					
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis Near Term + Construction (Phase 1&2) PM
5: Del Mar Heights Road & El Camino Real 3/5/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↑↑↖		↖↖	↑↑↖		↖↖	↑↑↖	↑	↖↖	↑↑↖	
Volume (vph)	456	1399	402	107	768	181	396	416	253	151	153	200
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	
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.91	1.00	0.97	0.91	
Frst	1.00	0.97		1.00	0.97		1.00	1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	4915		3433	4940		3433	5085	1583	3433	4653	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	4915		3433	4940		3433	5085	1583	3433	4653	
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)	507	1554	447	119	853	201	440	462	281	168	170	222
RTOR Reduction (vph)	0	53	0	0	41	0	0	0	121	0	190	0
Lane Group Flow (vph)	507	1948	0	119	1013	0	440	462	160	168	202	0
Turn Type	Prot			Prot			Prot		Prot	Prot		
Protected Phases	7	4		3	8		5	2	2	1	6	
Permitted Phases												
Actuated Green, G (s)	16.5	40.4		4.6	28.5		10.1	15.2	15.2	6.7	11.8	
Effective Green, g (s)	16.5	40.4		4.6	28.5		10.1	15.2	15.2	6.7	11.8	
Actuated g/C Ratio	0.20	0.49		0.06	0.34		0.12	0.18	0.18	0.08	0.14	
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)	683	2395		190	1698		418	932	290	277	662	
v/s Ratio Prot	c0.15	c0.40		0.03	0.21		c0.13	0.09	c0.10	0.05	0.04	
v/s Ratio Perm												
v/c Ratio	0.74	0.81		0.63	0.60		1.05	0.50	0.55	0.61	0.30	
Uniform Delay, d1	31.2	18.0		38.3	22.5		36.4	30.4	30.8	36.8	31.9	
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	2.2		6.3	0.6		58.5	0.4	2.3	3.7	0.3	
Delay (s)	35.6	20.3		44.6	23.0		94.9	30.8	33.0	40.6	32.1	
Level of Service	D	C		D	C		F	C	C	D	C	
Approach Delay (s)		23.4			25.2			55.2			34.7	
Approach LOS		C			C			E			C	
Intersection Summary												
HCM Average Control Delay	31.9			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.77											
Actuated Cycle Length (s)	82.9			Sum of lost time (s)			12.0					
Intersection Capacity Utilization	71.4%			ICU Level of Service			C					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
1: Del Mar Heights Road & I-15 SB Ramps

Existing + Construction (Phase 1-3) AM
12/9/2011

Movement	EBL	EBT	WBL	WBR	SBL	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Volume (vph)	0	666	998	0	867	326
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3	6.3		5.6	5.6
Lane Util. Factor		0.95	0.95		0.97	0.91
Flt		1.00	1.00		0.99	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3429	1441
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3429	1441
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	740	1109	0	963	362
RTOR Reduction (vph)	0	0	0	0	3	51
Lane Group Flow (vph)	0	740	1109	0	996	275
Turn Type					Perm	
Protected Phases		2.6	6.2		4	
Permitted Phases						4
Actuated Green, G (s)		46.8	46.8		27.2	27.2
Effective Green, g (s)		46.8	46.8		27.2	27.2
Actuated g/C Ratio		0.54	0.54		0.32	0.32
Clearance Time (s)					5.6	5.6
Vehicle Extension (s)					3.0	3.0
Lane Grp Cap (vph)		1928	1928		1086	456
v/s Ratio Prot		0.21	0.31		0.29	
v/s Ratio Perm						0.19
v/c Ratio		0.38	0.58		0.92	0.60
Uniform Delay, d1		11.3	13.0		28.3	24.8
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.1	0.4		11.9	2.2
Delay (s)		11.4	13.4		40.2	27.0
Level of Service		B	B		D	C
Approach Delay (s)		11.4	13.4		97.0	
Approach LOS		B	B		D	
Intersection Summary						
HCM Average Control Delay		22.8			HCM Level of Service	C
HCM Volume to Capacity ratio		0.70				
Actuated Cycle Length (s)		85.9			Sum of lost time (s)	11.9
Intersection Capacity Utilization		63.1%			ICU Level of Service	B
Analysis Period (min)		15				
c: Critical Lane Group						

Baseline

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

Existing + Construction (Phase 1-3) AM
12/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑		↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Volume (vph)	224	1289	0	0	1434	903	373	0	781	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
Lane Util. Factor	0.97	0.95			0.91	1.00	0.95	0.91	0.95			
Flt	1.00	1.00			1.00	0.85	1.00	0.85	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539			5085	1583	1681	1457	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539			5085	1583	1681	1457	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)	249	1432	0	0	1593	1003	414	0	868	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	422	0	10	10	0	0	0
Lane Group Flow (vph)	249	1432	0	0	1593	581	373	448	441	0	0	0
Turn Type	Prot					Prot	Split			Prot		
Protected Phases	5	2			6	6	8	8	8			
Permitted Phases												
Actuated Green, G (s)	12.2	65.1			48.9	48.9	46.9	46.9	46.9			
Effective Green, g (s)	12.2	65.1			48.9	48.9	46.9	46.9	46.9			
Actuated g/C Ratio	0.10	0.54			0.41	0.41	0.39	0.39	0.39			
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)	349	1920			2072	645	657	569	588			
v/s Ratio Prot	0.07	0.40			0.31	0.37	0.22	0.33	0.29			
v/s Ratio Perm												
v/c Ratio	0.71	0.75			0.77	0.90	0.57	0.79	0.75			
Uniform Delay, d1	52.2	21.1			30.7	33.3	28.6	32.2	31.5			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	6.8	2.7			2.8	18.0	1.1	7.1	5.2			
Delay (s)	59.0	23.8			33.5	51.2	29.7	39.2	36.7			
Level of Service	E	C			C	D	C	D	D			
Approach Delay (s)		28.0			40.3			35.6				0.0
Approach LOS		C			D			D				A
Intersection Summary												
HCM Average Control Delay		35.8								HCM Level of Service		D
HCM Volume to Capacity ratio		0.84										
Actuated Cycle Length (s)		120.0								Sum of lost time (s)		12.0
Intersection Capacity Utilization		90.6%								ICU Level of Service		E
Analysis Period (min)		15										
c: Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
3: Del Mar Heights Road & High Bluff Drive

Existing + Construction (Phase 1-3) AM
12/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEB	SEB	SEB
Lane Configurations	↵	↑↑↑	↵	↵	↑↑↑	↵	↵	↑↑	↵	↵	↵	↵
Volume (vph)	108	1222	674	92	1829	59	195	10	13	79	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	1.00
Flt	1.00	1.00	0.85	1.00	1.00	1.00	0.92	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5061	3433	3242	1770	1863	1583	1583	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5061	3433	3242	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)	120	1358	749	102	2032	66	217	11	14	88	63	337
RTOR Reduction (vph)	0	0	378	0	4	0	0	12	0	0	0	136
Lane Group Flow (vph)	120	1358	749	102	2094	0	217	13	0	88	63	201
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												
Actuated Green, G (s)	7.9	41.3	41.3	6.7	40.1	7.0	11.1	12.9	17.0	17.0	17.0	17.0
Effective Green, g (s)	7.9	41.3	41.3	6.7	40.1	7.0	11.1	12.9	17.0	17.0	17.0	17.0
Actuated g/C Ratio	0.09	0.47	0.47	0.08	0.46	0.08	0.13	0.15	0.19	0.19	0.19	0.19
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	159	2386	743	135	2306	273	409	259	380	306	306	306
v/s Ratio Prot	0.07	0.27	0.23	0.06	0.41	0.06	0.00	0.05	0.03	0.13	0.13	0.13
v/s Ratio Perm												
v/c Ratio	0.75	0.57	0.50	0.76	0.91	0.79	0.03	0.34	0.18	0.66	0.66	0.66
Uniform Delay, d1	39.1	16.9	16.2	39.8	22.2	39.8	33.7	33.7	29.6	32.8	32.8	32.8
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	18.2	0.3	0.5	21.1	5.7	14.7	0.0	0.8	0.2	5.0	5.0	5.0
Delay (s)	57.3	17.2	16.7	60.9	27.9	54.5	33.8	34.5	29.9	37.9	37.9	37.9
Level of Service	E	B	B	E	C	D	C	C	C	C	C	C
Approach Delay (s)	19.2			29.5		52.3		36.2				
Approach LOS	B			C		D		D				
Intersection Summary												
HCM Average Control Delay	26.8			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.82			Sum of lost time (s)			16.0					
Actuated Cycle Length (s)	88.0			ICU Level of Service			C					
Intersection Capacity Utilization	71.0%			Analysis Period (min)			15					
c Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
4: Del Mar Heights Road & First Ave.

Existing + Construction (Phase 1-3) AM
12/9/2011

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↑	↑↑↑	↑	↑
Volume (vph)	1271	43	28	1951	40	27
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)	1412	48	31	2168	44	30
RTOR Reduction (vph)	0	13	0	0	0	28
Lane Group Flow (vph)	1412	35	31	2168	44	2
Turn Type	Perm		Prot	Perm		
Protected Phases	4	3		8	2	
Permitted Phases	4		2			
Actuated Green, G (s)	47.6	47.6	1.8	53.4	4.0	4.0
Effective Green, g (s)	47.6	47.6	1.8	53.4	4.0	4.0
Actuated g/C Ratio	0.73	0.73	0.03	0.82	0.06	0.06
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)	3701	1152	94	4152	108	97
v/s Ratio Prot	0.28		0.01	0.43	0.02	
v/s Ratio Perm		0.02				0.00
v/c Ratio	0.38	0.03	0.33	0.52	0.41	0.02
Uniform Delay, d1	3.4	2.5	31.2	1.9	28.6	28.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	2.1	0.1	2.5	0.1
Delay (s)	3.4	2.5	33.3	2.0	32.1	28.9
Level of Service	A	A	C	A	C	C
Approach Delay (s)	3.4			2.5	30.8	
Approach LOS	A			A	C	
Intersection Summary						
HCM Average Control Delay	3.4			HCM Level of Service		A
HCM Volume to Capacity ratio	0.51					
Actuated Cycle Length (s)	65.4			Sum of lost time (s)		8.0
Intersection Capacity Utilization	47.7%			ICU Level of Service		A
Analysis Period (min)	15					
c Critical Lane Group						

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis Existing + Construction (Phase 1-3) AM
5: Del Mar Heights Road & El Camino Real 12/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	HT	HT		HT	HT		HT	HT		HT	HT	
Volume (vph)	217	874	212	188	1347	92	224	99	78	159	287	409
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.91		0.97	0.91	
Flt	1.00	0.97		1.00	0.99		1.00	1.00		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	4936		3433	5037		3433	5085		3433	4637	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	4936		3433	5037		3433	5085		3433	4637	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	241	971	236	209	1497	102	249	110	84	177	319	454
RTOR Reduction (vph)	0	48	0	0	10	0	0	0	69	0	262	0
Lane Group Flow (vph)	241	1159	0	209	1589	0	249	110	15	177	511	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	9.7	24.0		9.6	23.9		7.0	12.5		9.3	14.8	
Effective Green, g (s)	9.7	24.0		9.6	23.9		7.0	12.5		9.3	14.8	
Actuated g/C Ratio	0.14	0.34		0.13	0.33		0.10	0.18		0.13	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)	466	1659		462	1686		337	890		277	447	
v/s Ratio Prot	0.07	0.23		0.06	0.32		0.07	0.02		0.05	0.11	
v/s Ratio Perm												
v/c Ratio	0.52	0.70		0.45	0.94		0.74	0.12		0.40	0.53	
Uniform Delay, d1	28.7	20.6		28.5	23.1		31.3	24.8		28.5	25.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	1.3		0.7	11.1		8.2	0.1		0.6	0.6	
Delay (s)	29.6	21.9		29.2	34.2		39.5	24.9		29.1	25.8	
Level of Service	C	C		C	C		D	C		C	C	
Approach Delay (s)		23.2			33.6			33.1			26.4	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay		28.8										
HCM Volume to Capacity ratio		0.68										
Actuated Cycle Length (s)		71.4										
Intersection Capacity Utilization		68.7%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis Existing + Construction (Phase 1-3) PM
1: Del Mar Heights Road & I-15 SB Ramps 12/9/2011

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		HT	HT		HT	HT
Volume (vph)	0	880	1140	0	862	290
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3	6.3		5.6	5.6
Lane Util. Factor		0.95	0.95		0.97	0.91
Flt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3430	1441
Flt Permitted		1.00	1.00		0.85	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	978	1267	0	958	322
RTOR Reduction (vph)	0	0	0	0	3	25
Lane Group Flow (vph)	0	978	1267	0	987	265
Turn Type					Perm	
Protected Phases		2.6	6.2		4	
Permitted Phases						
Actuated Green, G (s)		45.7	45.7		28.8	28.8
Effective Green, g (s)		45.7	45.7		28.8	28.8
Actuated g/C Ratio		0.53	0.53		0.33	0.33
Clearance Time (s)					5.6	5.6
Vehicle Extension (s)					3.0	3.0
Lane Grp Cap (vph)		1872	1872		1143	480
v/s Ratio Prot		0.28	0.36		0.29	
v/s Ratio Perm						0.18
v/c Ratio		0.52	0.68		0.86	0.55
Uniform Delay, d1		13.2	14.9		27.0	23.5
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.3	1.0		7.0	1.4
Delay (s)		13.5	15.9		33.9	24.9
Level of Service		B	B		C	C
Approach Delay (s)		13.5	15.9		31.9	
Approach LOS		B	B		C	
Intersection Summary						
HCM Average Control Delay		21.0				
HCM Volume to Capacity ratio		0.75				
Actuated Cycle Length (s)		86.4				
Intersection Capacity Utilization		68.5%				
Analysis Period (min)		15				
c Critical Lane Group						

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

Existing + Construction (Phase 1-3) PM
12/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	235	1482	0	0	1042	814	615	10	762	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			
Lane Util. Factor	0.97	0.95			0.91	1.00	0.95	0.91	0.95			
Frt	1.00	1.00			1.00	0.85	1.00	0.90	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (prot)	3433	3539			5085	1583	1681	1497	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (perm)	3433	3539			5085	1583	1681	1497	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)	261	1647	0	0	1158	904	683	11	847	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	528	0	2	2	0	0	0
Lane Group Flow (vph)	261	1647	0	0	1158	376	540	508	489	0	0	0
Turn Type	Prot					Prot	Split		Prot			
Protected Phases	5	2			6	6	8	8	8			
Permitted Phases												
Actuated Green, G (s)	12.4	58.5			42.1	42.1	53.5	53.5	53.5			
Effective Green, g (s)	12.4	58.5			42.1	42.1	53.5	53.5	53.5			
Actuated g/C Ratio	0.10	0.49			0.35	0.35	0.45	0.45	0.45			
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)	355	1725			1784	555	749	667	671			
v/s Ratio Prot	0.08	0.47			0.23	0.24	0.32	0.34	0.32			
v/s Ratio Perm												
v/c Ratio	0.74	0.95			0.65	0.68	0.72	0.76	0.73			
Uniform Delay, d1	52.2	29.5			32.7	33.2	27.2	27.9	27.3			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	7.7	13.3			1.8	6.5	3.4	5.1	4.0			
Delay (s)	59.9	42.8			34.6	39.7	30.6	33.0	31.2			
Level of Service	E	D			C	D	C	C	C			
Approach Delay (s)		45.1			36.8		31.6				0.0	
Approach LOS		D			D		C				A	
Intersection Summary												
HCM Average Control Delay	38.2				HCM Level of Service				D			
HCM Volume to Capacity ratio	0.86				Sum of lost time (s)				8.0			
Actuated Cycle Length (s)	120.0				ICU Level of Service				E			
Intersection Capacity Utilization	92.2%				Analysis Period (min)				15			
c - Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
3: Del Mar Heights Road & High Bluff Drive

Existing + Construction (Phase 1-3) PM
12/9/2011

	←	→	↶	↷	↵	↶	↷	↵	↶	↷	↵	↶
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↵↵↵	↵	↵	↵↵↵		↵↵	↵↵		↵	↵	↵
Volume (vph)	242	2016	251	15	1184	28	618	65	134	27	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
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		0.97	0.95		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.90		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	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5068		3433	3181		1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5068		3433	3181		1770	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	269	2240	279	17	1316	31	687	72	149	30	32	89
RTOR Reduction (vph)	0	0	96	0	2	0	0	111	0	0	0	83
Lane Group Flow (vph)	269	2240	183	17	1345	0	687	110	0	30	32	6
Turn Type	Prot		Prot	Prot			Prot			Prot		Prot
Protected Phases	7	4	4	3	8		5	2		1	6	6
Permitted Phases												
Actuated Green, G (s)	17.4	53.0	53.0	1.7	37.3		22.2	25.1		3.9	6.8	6.8
Effective Green, g (s)	17.4	53.0	53.0	1.7	37.3		22.2	25.1		3.9	6.8	6.8
Actuated g/C Ratio	0.17	0.53	0.53	0.02	0.37		0.22	0.25		0.04	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
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)	309	2703	842	30	1896		764	801		69	127	108
v/s Ratio Prot	0.15	0.44	0.12	0.01	0.27		0.20	0.03		0.02	0.02	0.00
v/s Ratio Perm												
v/c Ratio	0.87	0.83	0.22	0.57	0.71		0.90	0.14		0.43	0.25	0.06
Uniform Delay, d1	40.1	19.5	12.4	48.6	26.6		37.7	28.9		46.8	44.0	43.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	22.4	2.2	0.1	22.3	1.2		13.4	0.1		4.3	1.0	0.2
Delay (s)	62.5	21.8	12.5	70.9	27.8		51.0	29.0		51.2	45.1	43.7
Level of Service	E	C	B	E	C		D	C		D	D	D
Approach Delay (s)		24.8			28.4			45.7			45.5	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM Average Control Delay	30.0					HCM Level of Service			C			
HCM Volume to Capacity ratio	0.80					Sum of lost time (s)			12.0			
Actuated Cycle Length (s)	99.7					ICU Level of Service			D			
Intersection Capacity Utilization	76.6%					Analysis Period (min)			15			
c - Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
4: Del Mar Heights Road & First Ave.

Existing + Construction (Phase 1-3) PM
12/9/2011

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↑	↑↑↑	↑	↑
Volume (vph)	2145	32	21	1189	44	29
Ideal Flow (vptpl)	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)	2383	36	23	1321	49	32
RTOR Reduction (vph)	0	11	0	0	0	30
Lane Group Flow (vph)	2383	25	23	1321	49	2
Turn Type	Perm		Prot	Perm		
Protected Phases	4	3		8	2	
Permitted Phases	4		2			
Actuated Green, G (s)	38.5	38.5	0.6	43.1	4.3	4.3
Effective Green, g (s)	38.5	38.5	0.6	43.1	4.3	4.3
Actuated g/C Ratio	0.69	0.69	0.01	0.78	0.08	0.08
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3534	1100	37	3956	137	123
v/s Ratio Prot	0.47		0.01	0.26	0.03	
v/s Ratio Perm		0.02				0.00
v/c Ratio	0.67	0.02	0.62	0.33	0.36	0.02
Uniform Delay, d1	4.9	2.6	27.3	1.8	24.2	23.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.0	28.2	0.1	1.6	0.1
Delay (s)	5.4	2.6	55.5	1.9	25.8	23.7
Level of Service	A	A	E	A	C	C
Approach Delay (s)	5.3			2.6	25.0	
Approach LOS	A			A	C	
Intersection Summary						
HCM Average Control Delay	4.9			HCM Level of Service		A
HCM Volume to Capacity ratio	0.65					
Actuated Cycle Length (s)	55.4			Sum of lost time (s)		12.0
Intersection Capacity Utilization	51.4%			ICU Level of Service		A
Analysis Period (min)	15					
c. Critical Lane Group						

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
5: Del Mar Heights Road & El Camino Real

Existing + Construction (Phase 1-3) PM
12/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↱		↰	↑↑↱		↰	↑↑↑	↱	↰	↑↑↱	
Volume (vph)	443	1358	362	102	746	176	270	394	238	147	146	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.91	1.00	0.97	0.91	
Flt	1.00	0.97		1.00	0.97		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	4925		3433	4939		3433	5085	1583	3433	4649	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	4925		3433	4939		3433	5085	1583	3433	4649	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	492	1509	402	113	829	196	300	438	264	163	162	216
RTOR Reduction (vph)	0	44	0	0	43	0	0	0	216	0	178	0
Lane Group Flow (vph)	492	1867	0	113	982	0	300	438	48	163	200	0
Turn Type	Prot			Prot			Prot		Prot	Prot		
Protected Phases	7	4		3	8		5	2	2	1	6	
Permitted Phases												
Actuated Green, G (s)	16.0	33.5		6.5	24.0		7.2	13.8	13.8	6.8	13.4	
Effective Green, g (s)	16.0	33.5		6.5	24.0		7.2	13.8	13.8	6.8	13.4	
Actuated g/C Ratio	0.21	0.44		0.08	0.31		0.09	0.18	0.18	0.09	0.17	
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)	717	2154		291	1547		323	916	285	305	813	
v/s Ratio Prot	0.14	0.38		0.03	0.20		0.09	0.09	0.03	0.05	0.04	
v/s Ratio Perm												
v/c Ratio	0.69	0.87		0.99	0.63		0.93	0.48	0.17	0.53	0.25	
Uniform Delay, d1	28.0	19.5		33.2	22.5		34.4	28.2	26.5	33.4	27.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.7	4.0		0.9	0.9		31.8	0.4	0.3	1.8	0.2	
Delay (s)	30.7	23.5		34.0	23.4		66.3	28.6	26.8	35.2	27.4	
Level of Service	C	C		C	C		E	C	C	D	C	
Approach Delay (s)		25.0			24.5			39.4			29.7	
Approach LOS		C			C			D			C	
Intersection Summary												
HCM Average Control Delay	28.2						HCM Level of Service					
HCM Volume to Capacity ratio	0.74						C					
Actuated Cycle Length (s)	76.6						Sum of lost time (s)					
Intersection Capacity Utilization	65.9%						ICU Level of Service					
Analysis Period (min)	15						C					
c Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis Near Term + Construction (Phase 1-3) AM
1: Del Mar Heights Rd. & I-15 SB Ramps 3/5/2012

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↕	↕		↕	↕
Volume (vph)	0	693	1028	0	947	336
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3	6.3		5.6	5.6
Lane Util. Factor		0.95	0.95		0.97	0.91
Frt		1.00	1.00		0.99	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3430	1441
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3430	1441
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	770	1142	0	1052	373
RTOR Reduction (vph)	0	0	0	0	3	40
Lane Group Flow (vph)	0	770	1142	0	1086	296
Turn Type					Perm	
Protected Phases		2 6	6 2		4	
Permitted Phases						4
Actuated Green, G (s)		46.1	46.1		29.6	29.6
Effective Green, g (s)		46.1	46.1		29.6	29.6
Actuated g/C Ratio		0.53	0.53		0.34	0.34
Clearance Time (s)					5.6	5.6
Vehicle Extension (s)					3.0	3.0
Lane Grp Cap (vph)		1862	1862		1159	487
v/s Ratio Prot		0.22	0.32		0.32	
v/s Ratio Perm						0.21
v/c Ratio		0.41	0.61		0.94	0.61
Uniform Delay, d1		12.6	14.5		28.1	24.2
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.1	0.6		13.8	2.1
Delay (s)		12.7	15.1		41.9	26.3
Level of Service		B	B		D	C
Approach Delay (s)		12.7	15.1		38.2	
Approach LOS		B	B		D	
Intersection Summary						
HCM Average Control Delay		24.4			HCM Level of Service	C
HCM Volume to Capacity ratio		0.74				
Actuated Cycle Length (s)		87.6			Sum of lost time (s)	11.9
Intersection Capacity Utilization		66.3%			ICU Level of Service	C
Analysis Period (min)		15				
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis Near Term + Construction (Phase 1-3) AM
2: Del Mar Heights Road & I-15 NB Ramps 3/5/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕	↕			↕	↕	↕	↕	↕			
Volume (vph)	231	1329	0	0	1492	936	384	59	934	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			
Lane Util. Factor	0.97	0.95			0.91	1.00	0.95	0.91	0.95			
Frt	1.00	1.00			1.00	0.85	1.00	0.88	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539			5085	1583	1681	1483	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539			5085	1583	1681	1483	1504			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	257	1477	0	0	1658	1040	427	66	1038	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	400	0	19	19	0	0	0
Lane Group Flow (vph)	257	1477	0	0	1658	640	384	557	552	0	0	0
Turn Type	Prot					Prot	Split		Prot			
Protected Phases	5	2			6	6	8	8	8			
Permitted Phases												
Actuated Green, G (s)	10.0	67.0			53.0	53.0	45.0	45.0	45.0			
Effective Green, g (s)	10.0	67.0			53.0	53.0	45.0	45.0	45.0			
Actuated g/C Ratio	0.08	0.56			0.44	0.44	0.38	0.38	0.38			
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)	286	1976			2246	699	630	556	564			
v/s Ratio Prot	0.07	0.42			0.33	0.40	0.23	0.38	0.37			
v/s Ratio Perm												
v/c Ratio	0.90	0.75			0.74	0.92	0.61	1.00	0.98			
Uniform Delay, d1	54.5	20.1			27.8	31.4	30.4	37.5	37.0			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	28.3	2.6			2.2	18.7	1.7	38.4	32.0			
Delay (s)	82.8	22.7			30.0	50.0	32.1	75.9	69.0			
Level of Service	F	C			C	D	C	E	E			
Approach Delay (s)		31.6			37.7			62.3				0.0
Approach LOS		C			D			E				A
Intersection Summary												
HCM Average Control Delay		42.3							D			
HCM Volume to Capacity ratio		0.95										
Actuated Cycle Length (s)		120.0							12.0			
Intersection Capacity Utilization		96.3%							F			
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis Near Term + Construction (Phase 1-3) AM
3: Del Mar Heights Road & High Bluff Drive 3/5/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	111	1448	694	95	1904	61	201	10	13	81	59	312
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.97	0.95	1.00	1.00	1.00	0.85	1.00
Frt	1.00	1.00	0.85	1.00	1.00	1.00	0.92	1.00	1.00	1.00	0.85	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5062	3433	3242	1770	1863	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5062	3433	3242	1770	1863	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)	123	1609	771	106	2116	68	223	11	14	90	66	347
RTOR Reduction (vph)	0	0	375	0	4	0	0	12	0	0	0	134
Lane Group Flow (vph)	123	1609	396	106	2180	0	223	13	0	90	66	213
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												
Actuated Green, G (s)	8.0	41.3	41.3	6.7	40.0	7.0	11.2	13.2	17.4	17.4	17.4	17.4
Effective Green, g (s)	8.0	41.3	41.3	6.7	40.0	7.0	11.2	13.2	17.4	17.4	17.4	17.4
Actuated g/C Ratio	0.09	0.47	0.47	0.08	0.45	0.08	0.13	0.15	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	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)	180	2376	740	134	2290	272	411	264	367	312	312	312
v/s Ratio Prot	c0.07	0.32	0.25	0.06	c0.43	c0.06	0.00	0.05	0.04	c0.13	c0.13	c0.13
v/s Ratio Perm												
v/c Ratio	0.77	0.68	0.54	0.79	0.95	0.82	0.03	0.34	0.18	0.68	0.68	0.68
Uniform Delay, d1	39.3	18.4	16.7	40.2	23.3	40.1	33.8	33.7	29.6	32.9	32.9	32.9
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	19.6	0.8	0.7	26.4	9.9	17.3	0.0	0.8	0.2	6.0	6.0	6.0
Delay (s)	58.9	19.1	17.5	66.6	33.1	57.4	33.9	34.5	29.8	39.0	39.0	39.0
Level of Service	E	B	B	E	C	E	C	C	C	C	D	D
Approach Delay (s)		20.6			34.7		55.0		37.0			
Approach LOS		C			C		D		D			
Intersection Summary												
HCM Average Control Delay		29.4										
HCM Volume to Capacity ratio		0.85										
Actuated Cycle Length (s)		88.4										
Intersection Capacity Utilization		73.2%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis Near Term + Construction (Phase 1-3) AM
4: Del Mar Heights Road & First Ave. 3/5/2012

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Volume (vph)	1689	47	31	2052	40	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	0.97	0.91	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	3433	5085	1770	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	3433	5085	1770	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1877	52	34	2280	44	30
RTOR Reduction (vph)	0	14	0	0	0	28
Lane Group Flow (vph)	1877	38	34	2280	44	2
Turn Type	Perm	Prot	Prot	Perm	Perm	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4				2
Actuated Green, G (s)	50.9	50.9	1.9	56.8	4.1	4.1
Effective Green, g (s)	50.9	50.9	1.9	56.8	4.1	4.1
Actuated g/C Ratio	0.74	0.74	0.03	0.82	0.06	0.06
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)	3757	1169	95	4192	105	94
v/s Ratio Prot	0.37		0.01	c0.45	c0.02	
v/s Ratio Perm		0.02				0.00
v/c Ratio	0.50	0.03	0.36	0.54	0.42	0.02
Uniform Delay, d1	3.7	2.4	32.9	1.9	31.3	30.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	2.3	0.1	2.7	0.1
Delay (s)	3.8	2.4	35.2	2.1	33.9	30.6
Level of Service	A	A	D	A	C	C
Approach Delay (s)	3.8			2.6	32.6	
Approach LOS	A			A	C	
Intersection Summary						
HCM Average Control Delay		3.6				
HCM Volume to Capacity ratio		0.54				
Actuated Cycle Length (s)		68.9				8.0
Intersection Capacity Utilization		49.6%				A
Analysis Period (min)		15				
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis Near Term + Construction (Phase 1-3) AM
5: Del Mar Heights Road & El Camino Real 3/5/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔↔		↔↔	↔↔		↔↔	↔↔	↔	↔↔	↔↔	
Volume (vph)	223	900	405	206	1388	95	253	104	79	164	312	421
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0		
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.91	1.00	0.97	0.91	
Frt	1.00	0.95		1.00	0.99		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	4849		3433	5036		3433	5085	1583	3433	4647	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	4849		3433	5036		3433	5085	1583	3433	4647	
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)	248	1000	450	229	1542	106	281	116	88	182	347	468
RTOR Reduction (vph)	0	106	0	0	10	0	0	0	71	0	160	0
Lane Group Flow (vph)	248	1344	0	229	1638	0	281	116	17	182	655	0
Turn Type	Prot			Prot			Prot		Prot	Prot		
Protected Phases	7	4		3	8		5	2	2	1	6	
Permitted Phases												
Actuated Green, G (s)	7.0	25.2		8.9	27.1		7.0	14.2	14.2	9.7	16.9	
Effective Green, g (s)	7.0	25.2		8.9	27.1		7.0	14.2	14.2	9.7	16.9	
Actuated 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	1651		413	1844		325	976	304	450	1061	
v/s Ratio Prot	c0.07	0.28		0.07	c0.33		c0.08	0.02	0.01	0.05	c0.14	
v/s Ratio Perm												
v/c Ratio	0.76	0.81		0.55	0.89		0.86	0.12	0.06	0.40	0.92	dr
Uniform Delay, d1	32.7	22.3		30.7	22.0		33.0	24.7	24.4	29.5	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	10.2	3.2		1.6	5.6		20.5	0.1	0.1	0.6	1.1	
Delay (s)	42.9	25.5		32.3	27.7		53.6	24.8	24.5	30.1	26.7	
Level of Service	D	C		C	C		D	C	C	C	C	
Approach Delay (s)		28.0			28.2			41.4			27.3	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM Average Control Delay	29.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	74.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		
dr Defacto Right Lane. Recode with 1 though lane as a right lane.			
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis Near Term + Construction (Phase 1-3) PM
1: Del Mar Heights Road & I-15 SB Ramps 3/5/2012

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔↔	↔↔		↔↔	↔
Volume (vph)	0	916	1206	0	915	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3	6.3		5.6	5.6
Lane Util. Factor		0.95	0.95		0.97	0.91
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3431	1441
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3431	1441
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1018	1340	0	1017	332
RTOR Reduction (vph)	0	0	0	0	3	20
Lane Group Flow (vph)	0	1018	1340	0	1047	279
Turn Type					Perm	
Protected Phases		2 6	6 2		4	
Permitted Phases					4	
Actuated Green, G (s)		45.7	45.7		30.1	30.1
Effective Green, g (s)		45.7	45.7		30.1	30.1
Actuated g/C Ratio		0.52	0.52		0.34	0.34
Clearance Time (s)					5.6	5.6
Vehicle Extension (s)					3.0	3.0
Lane Grp Cap (vph)		1844	1844		1178	495
v/s Ratio Prot		0.29	c0.38		c0.31	
v/s Ratio Perm						0.19
v/c Ratio		0.55	0.73		0.89	0.56
Uniform Delay, d1		14.1	16.2		27.2	23.4
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.4	1.5		8.5	1.5
Delay (s)		14.5	17.6		35.7	24.9
Level of Service		B	B		D	C
Approach Delay (s)		14.5	17.6		33.3	
Approach LOS		B	B		C	

Intersection Summary			
HCM Average Control Delay	22.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	87.7	Sum of lost time (s)	11.9
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis Near Term + Construction (Phase 1-3) PM
2: Del Mar Heights Road & I-15 NB Ramps 3/5/2012

	↖	→	↙	↔	↗	↖	↗	↖	↗	↖	↗	↖
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑			↑↑↑↑	↗	↖	↔	↗			
Volume (vph)	242	1533	0	0	1216	910	649	24	816	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			
Lane Util. Factor	0.97	0.95			0.91	1.00	0.95	0.91	0.95			
Frt	1.00	1.00			1.00	0.85	1.00	0.90	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (prot)	3433	3539			5085	1583	1681	1500	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (perm)	3433	3539			5085	1583	1681	1500	1504			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	269	1703	0	0	1351	1011	721	27	907	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	509	0	6	6	0	0	0
Lane Group Flow (vph)	269	1703	0	0	1351	502	577	546	520	0	0	0
Turn Type	Prot					Prot	Split		Prot			
Protected Phases	5	2			6	6	8	8	8			
Permitted Phases												
Actuated Green, G (s)	11.2	62.1			46.9	46.9	49.9	49.9	49.9			
Effective Green, g (s)	11.2	62.1			46.9	46.9	49.9	49.9	49.9			
Actuated g/C Ratio	0.09	0.52			0.39	0.39	0.42	0.42	0.42			
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)	320	1831			1987	619	699	624	625			
v/s Ratio Prot	0.08	0.48			0.27	0.32	0.34	0.36	0.35			
v/s Ratio Perm												
v/c Ratio	0.84	0.93			0.68	0.81	0.83	0.88	0.83			
Uniform Delay, d1	53.5	26.9			30.3	32.6	31.2	32.2	31.3			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	17.7	9.9			1.9	11.0	7.9	13.0	9.3			
Delay (s)	71.2	36.9			32.2	43.6	39.1	45.2	40.6			
Level of Service	E	D			C	D	D	D	D			
Approach Delay (s)		41.6			37.1			41.6		0.0		
Approach LOS		D			D			D		A		
Intersection Summary												
HCM Average Control Delay	39.8				HCM Level of Service				D			
HCM Volume to Capacity ratio	0.91											
Actuated Cycle Length (s)	120.0				Sum of lost time (s)				8.0			
Intersection Capacity Utilization	100.2%				ICU Level of Service				G			
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

Synchro 7 - Report
Page 1

HCM Signalized Intersection Capacity Analysis Near Term + Construction (Phase 1-3) PM
3: Del Mar Heights Road & High Bluff Drive 3/5/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑	↗	↖	↑↑↑	↗	↖	↑↑	↗	↖	↑	↗
Volume (vph)	249	2122	259	15	1400	29	637	67	138	28	30	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		0.97	0.95		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.90		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	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5070		3433	3181		1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5070		3433	3181		1770	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	277	2358	288	17	1556	32	708	74	153	31	33	91
RTOR Reduction (vph)	0	0	92	0	2	0	0	115	0	0	0	85
Lane Group Flow (vph)	277	2358	196	17	1586	0	708	112	0	31	33	6
Turn Type	Prot		Prot	Prot			Prot			Prot		Prot
Protected Phases	7	4	4	3	8		5	2		1	6	6
Permitted Phases												
Actuated Green, G (s)	17.7	54.8	54.8	1.7	38.8		22.1	25.1		3.9	6.9	6.9
Effective Green, g (s)	17.7	54.8	54.8	1.7	38.8		22.1	25.1		3.9	6.9	6.9
Actuated g/C Ratio	0.17	0.54	0.54	0.02	0.38		0.22	0.25		0.04	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
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)	309	2745	855	30	1938		747	787		68	127	108
v/s Ratio Prot	c0.16	c0.46	0.12	0.01	0.31		c0.21	0.04		0.02	c0.02	0.00
v/s Ratio Perm												
v/c Ratio	0.90	0.86	0.23	0.57	0.82		0.95	0.14		0.46	0.26	0.06
Uniform Delay, d1	41.0	20.0	12.3	49.5	28.2		39.1	29.8		47.8	44.9	44.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	26.5	2.9	0.1	22.3	2.8		20.9	0.1		4.8	1.1	0.2
Delay (s)	67.5	22.9	12.4	71.8	31.0		60.1	29.9		52.5	46.0	44.5
Level of Service	E	C	B	E	C		E	C		D	D	D
Approach Delay (s)		26.1			31.4			52.7			46.4	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM Average Control Delay	32.6				HCM Level of Service				C			
HCM Volume to Capacity ratio	0.83											
Actuated Cycle Length (s)	101.5				Sum of lost time (s)				12.0			
Intersection Capacity Utilization	79.2%				ICU Level of Service				D			
Analysis Period (min)	15											
c Critical Lane Group												

Baseline

Synchro 7 - Report
Page 1

HCM Signalized Intersection Capacity Analysis Near Term + Construction (Phase 1-3) PM
4: Del Mar Heights Road & First Ave. 3/5/2012

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↑	↑↑↑	↑	↑
Volume (vph)	2301	33	22	1588	47	32
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)	2557	37	24	1764	52	36
RTOR Reduction (vph)	0	11	0	0	0	33
Lane Group Flow (vph)	2557	26	24	1764	52	3
Turn Type		Perm	Prot		Perm	
Protected Phases	4		3	8	2	
Permitted Phases		4			2	
Actuated Green, G (s)	39.6	39.6	0.6	44.2	4.3	4.3
Effective Green, g (s)	39.6	39.6	0.6	44.2	4.3	4.3
Actuated g/C Ratio	0.70	0.70	0.01	0.78	0.08	0.08
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3564	1110	36	3978	135	120
v/s Ratio Prot	c0.50		0.01	c0.35	c0.03	
v/s Ratio Perm		0.02			0.00	
v/c Ratio	0.72	0.02	0.67	0.44	0.39	0.02
Uniform Delay, d1	5.1	2.6	27.9	2.0	24.8	24.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.0	38.0	0.1	1.8	0.1
Delay (s)	5.8	2.6	65.8	2.1	26.7	24.2
Level of Service	A	A	E	A	C	C
Approach Delay (s)	5.7			3.0	25.7	
Approach LOS	A			A	C	
Intersection Summary						
HCM Average Control Delay		5.0		HCM Level of Service		A
HCM Volume to Capacity ratio		0.70				
Actuated Cycle Length (s)		56.5		Sum of lost time (s)		12.0
Intersection Capacity Utilization		54.5%		ICU Level of Service		A
Analysis Period (min)		15				
c Critical Lane Group						

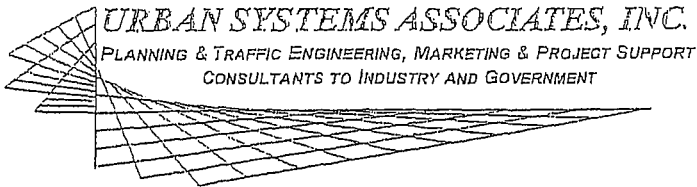
HCM Signalized Intersection Capacity Analysis Near Term + Construction (Phase 1-3) PM
5: Del Mar Heights Road & El Camino Real 3/5/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑↑		↑↑	↑↑↑		↑↑	↑↑↑		↑↑	↑↑↑	
Volume (vph)	456	1400	419	108	769	181	458	421	257	151	154	200
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
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.91	1.00	0.97	0.91	
Flt	1.00	0.97		1.00	0.97		1.00	1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	4909		3433	4940		3433	5085	1583	3433	4654	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	4909		3433	4940		3433	5085	1583	3433	4654	
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)	507	1556	466	120	854	201	509	468	286	168	171	222
RTOR Reduction (vph)	0	55	0	0	41	0	0	0	121	0	190	0
Lane Group Flow (vph)	507	1967	0	120	1014	0	509	468	165	168	203	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2	2	1	6	
Permitted Phases												
Actuated Green, G (s)	16.5	40.4		4.6	28.5		10.1	15.4	15.4	6.7	12.0	
Effective Green, g (s)	16.5	40.4		4.6	28.5		10.1	15.4	15.4	6.7	12.0	
Actuated g/C Ratio	0.20	0.49		0.06	0.34		0.12	0.19	0.19	0.08	0.14	
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)	682	2387		190	1694		417	942	293	277	672	
v/s Ratio Prot	c0.15	c0.40		0.03	0.21		c0.15	0.09	c0.10	0.05	0.04	
v/s Ratio Perm												
v/c Ratio	0.74	0.82		0.63	0.60		1.22	0.50	0.56	0.61	0.30	
Uniform Delay, d1	31.3	18.3		38.4	22.6		36.5	30.4	30.8	36.9	31.8	
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	2.4		6.7	0.6		119.2	0.4	2.5	3.7	0.3	
Delay (s)	35.7	20.7		45.1	23.1		155.7	30.8	33.3	40.7	32.1	
Level of Service	D	C		D	C		F	C	C	D	C	
Approach Delay (s)		23.7			25.4			81.7			34.6	
Approach LOS		C			C			F			C	
Intersection Summary												
HCM Average Control Delay		38.4		HCM Level of Service						D		
HCM Volume to Capacity ratio		0.84										
Actuated Cycle Length (s)		83.1		Sum of lost time (s)						16.0		
Intersection Capacity Utilization		73.6%		ICU Level of Service						D		
Analysis Period (min)		15										
c Critical Lane Group												

APPENDIX P

ADAPTIVE TRAFFIC CONTROL

- **MEMO TO CITY STAFF**



E-MEMO

ATTN: Victoria Huffman & Ann Gonsalves— City of San Diego
E-Mail: ▼
vhuffman@sanidiego.gov
agonsalves@sanidiego.gov

FROM: Andrew P. Schlaefli  TOTAL PAGES (Including Cover): 5

DATE: August 30, 2011 TIME: 3:04:38 PM JOB NUMBER: 002407

SUBJECT: Adaptive Traffic Control

Confidential Communications

This transmittal is intended for the recipient named above. Unless otherwise expressly indicated, this entire communication is confidential and privileged information. If you are not the intended recipient, do not disclose, copy, distribute or use this information. If you received this transmission in error, please notify us immediately by telephone, at our expense and destroy the information.

Recently you asked that we provide some basic information regarding Adaptive Traffic Control. Traffic signal systems for controlling vehicles at intersections has become increasingly more efficient due to new technology improvements. Most recently a significant improvement in control technology due to communications, information feedback and software has occurred. These most recent improvements are generally referred to as "ADAPTIVE TRAFFIC CONTROL SYSTEMS" (ATCS).

The process which is common to all ATCS typically include:

- Data collection from sensors to describe traffic signal conditions and changes.
- The evaluation of alternative signal timing strategies.
- Implementation of the best strategy.
- Continuous recycling through the steps described above to optimize flow.

The hardware and software used for ATCS uses existing traffic cabinet hardware so implementation is typically rather simple, cost effective and efficient. Costs vary for different systems but typically they may range from \$25,000.00 to \$50,000.00 per intersection. Therefore a high volume corridor of eight to ten intersections such as Del Mar Heights Road could cost from \$250,000.00 to \$500,000.00 depending on communications requirements. This cost does NOT include the cost of any transportation control center or other communications to the control center. Monitoring or other elements may also affect costs.

Implementation and monitoring of ATCS throughout the country have shown that:

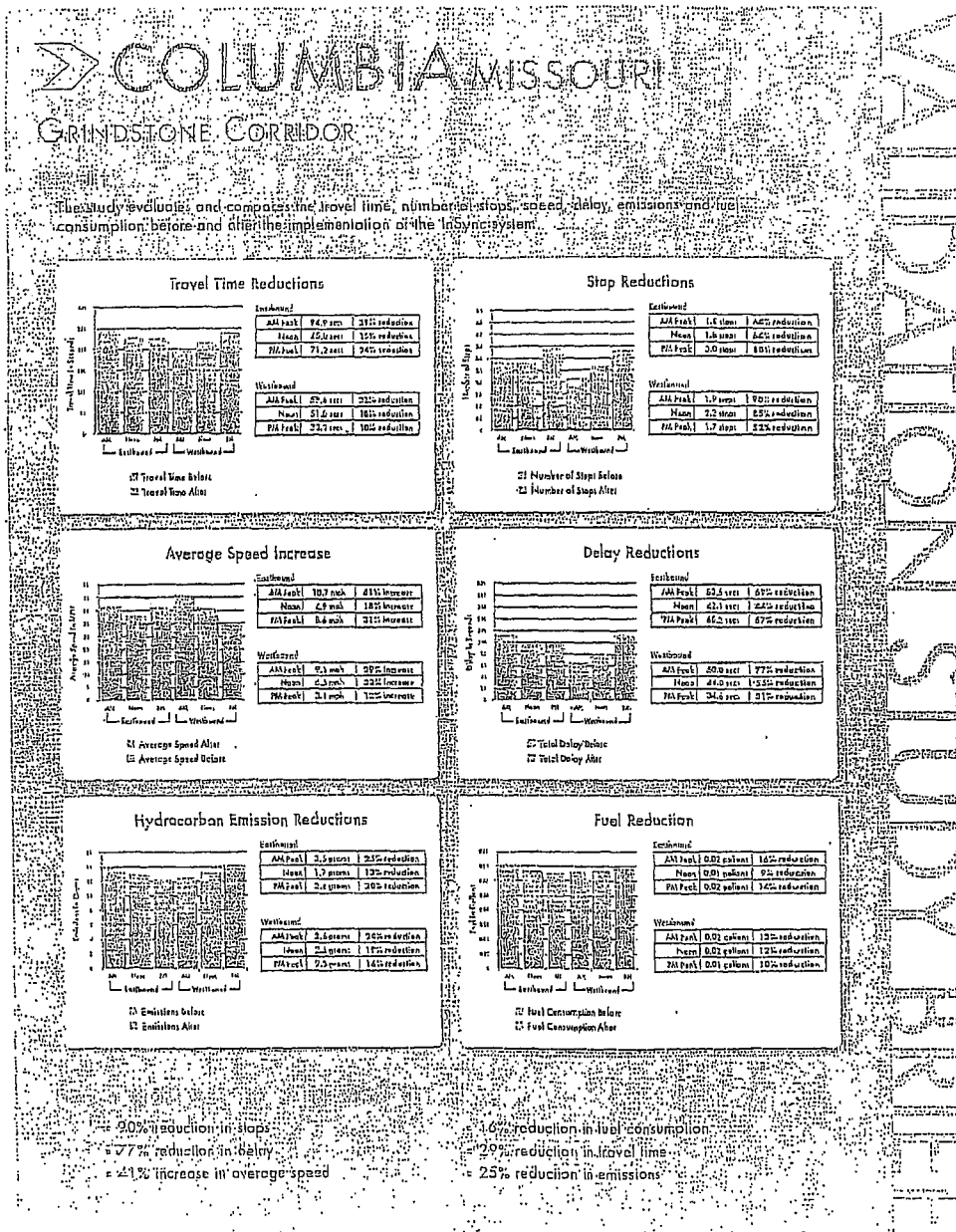
- Travel time along a corridor may be reduced by 30%.
- Emissions are typically reduced by 30%.
- Stops are reduced by up to 90%.
- Fuel consumption is reduced by 20%.

Attachments 1, 2 and 3 summarize these expected benefits for three actual road corridors in Georgia and Missouri for a second generation type of adaptive traffic control system. Although not evaluated for these systems it is clear that the safety, efficiency, and travel time savings also result in improved traffic flow and throughput along a corridor. This equates to a 10-15% improvement in capacity. Therefore a ATCS corridor improvement can be counted on to mitigate additional traffic from a proposed project or improve an existing deficiency along a corridor.

Cc: Bob Little

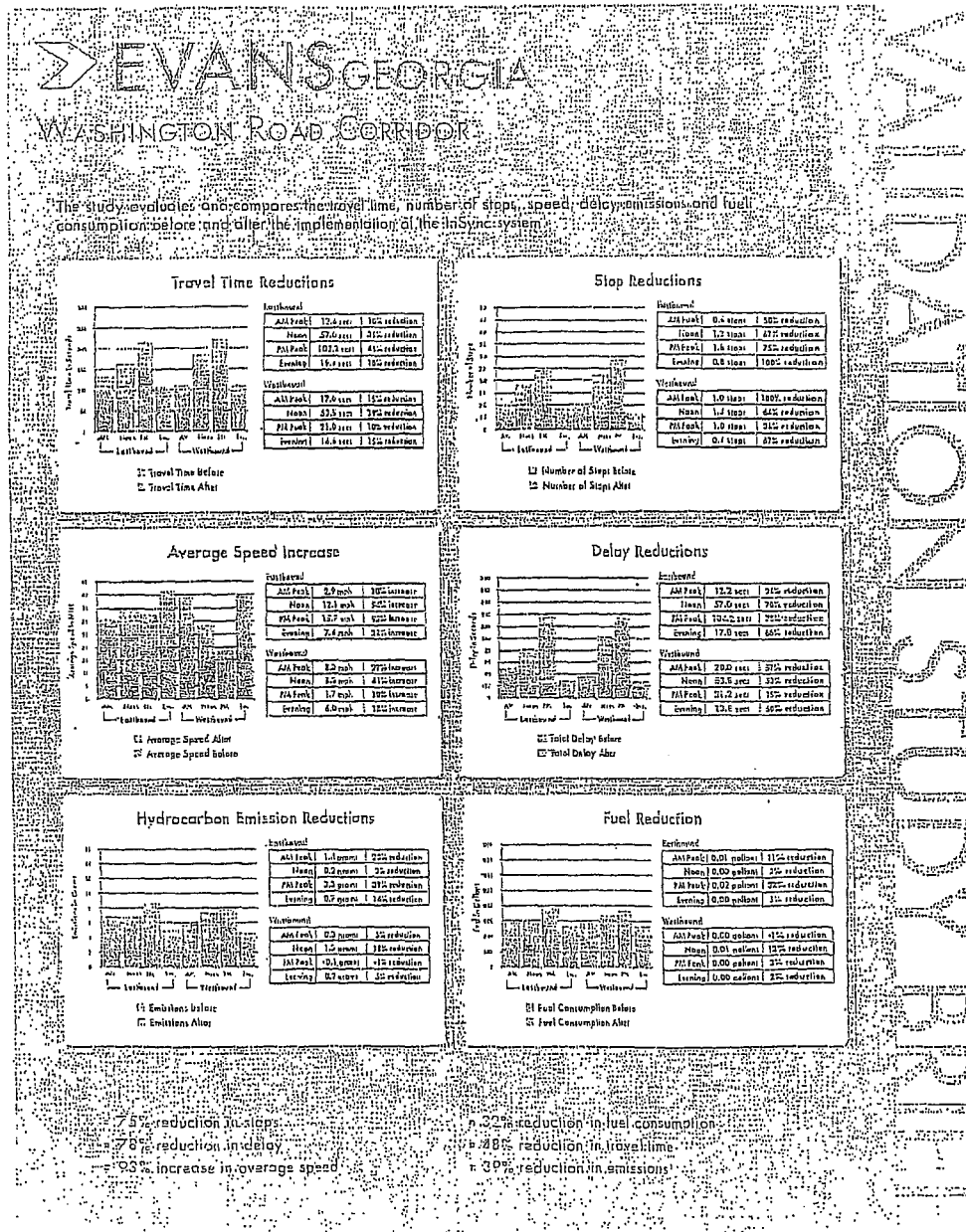
Attachment 1

ATCS Performance



Attachment 2

ATCS Performance



Attachment 3

ATCS Performance

LEE'S SUMMIT MISSOURI

MISSOURI ROUTE 291

Missouri Route 291 is a 2.53 mile long arterial corridor with 12 traffic signals between I-470 and US-50. This study compares the operation of the Route 291 corridor under its existing timing scheme with its operation under the InSync adaptive traffic control system. The original timing scheme was designed to progress the traffic northbound during the AM peak and southbound during the PM peak.

Reduce stop, travel time, delay and fuel consumption along the artery by optimizing traffic signal operations using InSync.

Some of the challenges of operating Route 291 include the short peak periods occurring when northbound schools are dismissed, new development, high volume seasonal demands from nearby shopping centers, odd spacing of intersections and random fluctuations in traffic volume.

Rhythm Engineering installed the adaptive traffic signal system at 12 signals along the 2.53 mile corridor in late March 2009. By mid-April, Rhythm Engineering had configured the system, monitored its performance and made the appropriate adjustments to the system to optimize traffic flow.

Field data were collected along the study corridor during three study periods. The first was conducted in November 2008, prior to installation of the InSync system. Data were collected between April/May 2009 (approximately one month after system installation) and then in September 2009 (approximately 5 months after system installation). Each study was conducted during normal weekday travel conditions to ensure similar travel conditions between the two study periods. The corridor has an ADT (average daily traffic) of approximately 25,779 vehicles.

Travel time and travel time index were collected throughout the corridor in both directions during four time-of-day periods: AM peak (before 8:00 AM), midday (between 12:00 PM and 3:00 PM), PM peak (between 3:00 PM and 6:00 PM), and off-peak (between 6:00 PM and 12:00 AM). The study was conducted during the following conditions: in which the driver was attempting to travel with the flow of traffic according to the signal to pass as many cars as they are passed by without having to stop. The travel times collected are representative of the travel time of the average vehicle traveling through the corridor.

Data were collected by driving the corridor utilizing GPS equipment and software, collecting data, then processing the data using TC Travel Utility. Because there were no statistically significant differences between the two study periods after installation, all of the interpolated data was pooled for analysis.

Calculations are based on an ADT of 25,779 vehicles and an assumption that the change impacts 70% of the ADT. All calculations are based on normal weekday travel and the results indicate approximate benefits to drivers.

	DAILY BENEFIT	ANNUAL BENEFIT
Vehicle Hours of Travel (reduction)	364 hours	94,805 hours
Fuel Consumption (decrease)	131 gallons	34,250 gallons
Stops (eliminated)	36,239 stops	9,447,913 stops
Total Economic Benefit (Fuel: \$2.59/gal; Stops: \$0.10/stop; Time: \$15.00/hr)	\$9,407	\$2,452,493

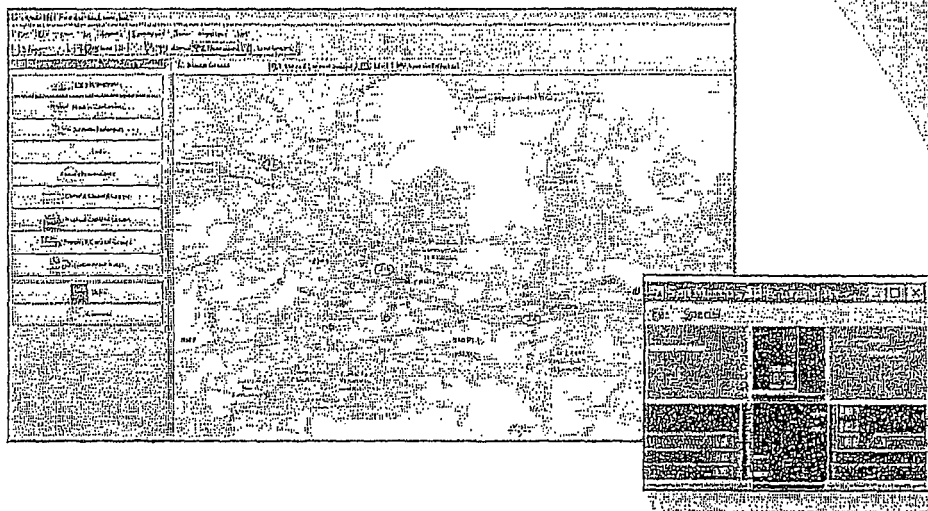
This graphic shows the location of the study area within Lee's Summit, Missouri. The map highlights the corridor along Missouri Route 291, showing its proximity to major highways like I-470 and US-50. The study area is marked with green lines and dots, indicating the locations of the 12 traffic signals where the InSync system was deployed.

ADATCS was installed in 2009 at 12 signals along a 2.53 mile arterial corridor. The system was installed in late March 2009 and has been operating since then. The system is designed to optimize traffic flow by adjusting signal timing based on real-time traffic conditions.

Project Manager: Thomas Evans
District Traffic Engineer: MadDOT
Tel: 6.622.0221
thomas.evans@madot.mn.gov

QuicTrac™

Adaptive Signal Control Software



Overview

McCain's *QuicTrac*™ adaptive control, a component of *QuicNet Pro*™ central software, coordinates traffic signals along a corridor based on prevailing conditions, smoothing traffic flow and enhancing arterial performance. By reducing the number of stops and delays, this innovative, cost-effective solution expedites travel times, minimizes congestion, and reduces fuel consumption and emissions. Best of all, in today's eco-conscious political climate, *QuicTrac* software provides a vehicle for securing federal funds under an increasing number of legislative and funding initiatives that require a positive environmental impact.

Benefits

- Improves arterial performance by adjusting to real-time traffic demand
- Field-proven system for reducing delays up to 46%
- Boosts intersection efficiency and mobility
- Minimizes congestion and emissions
- Positively impacts the environment helping to secure federal funds under green legislation
- Compatible with 170 and 2070 controllers
- Easy-to-use Windows based software

Product Description

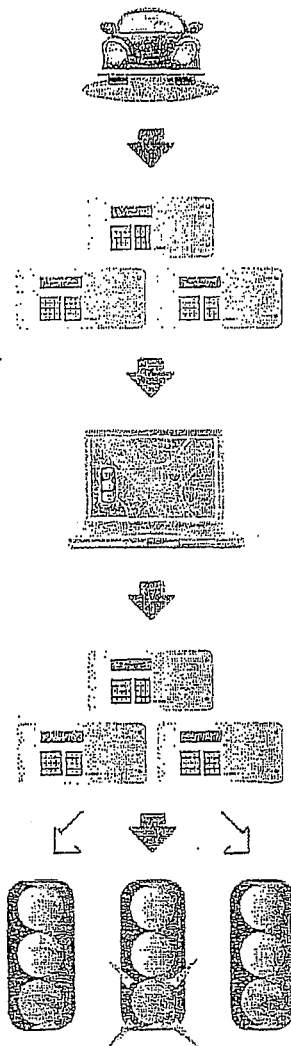
McCain's *QuicTrac* adaptive control software is a field-proven solution for real-time actuated signal control along a corridor. Resulting in fewer accidents, less congestion, smoother traffic flow, decreased pollution, and happier drivers!

QuicTrac software collects data from a modest number of field detectors - loop or video - requiring only enough detectors to obtain a reasonable sampling of speed along the corridor. Acquired data is then analyzed using McCain's proprietary algorithms, calculating optimum cycle lengths, splits and offsets based on prevailing traffic conditions.

Compatible with Model 170 or 2070 controllers, *QuicTrac* adaptive control requires no special hardware. Best of all, as an integral part of *QuicNet Pro* central software, training is minimal and *QuicNet Pro* software users can be brought up to speed in a matter of hours.

McCain®
www.mccain-inc.com

QuicTrac Adaptive Control



Traffic Conditions Established

Field detectors, loop or video, collect data on prevailing traffic conditions.

Modest system detector requirements demand only enough detectors to reasonably sample speed along the corridor.

Local Controllers Collect Volume Data

Local controllers collect data from field detectors which are then sent to the *QuicTrac* software module of *QuicNet* central control software.

Optimal Signal Timing Calculated for Corridor

QuicTrac adaptive control software utilizes McCain's proprietary algorithms to analyze data from the controller network to calculate optimum signal timing along the entire corridor to expedite traffic flow in the desired direction.

QuicTrac software then distributes cycle lengths back to the individual local controllers.

New Split Patterns Calculated

Local controllers utilize cycle length data received from *QuicTrac* software to determine new split patterns.

Signal Timing Optimized

Signal timing is adjusted to expedite traffic flow along the corridor creating fewer stops, yielding less congestion and accidents, and reducing harmful emissions.

System Specifications

Compatibility

- Multiple communication channels
- Model 170 or 2070 controllers

System Requirements

- *QuicNet Pro* central software (see separate data sheet)
- Field detectors, existing or new installation, video or loop technology. Exact number required based on corridor length and number of signals.

Installation

- As a component of *QuicNet Pro* central software, the installation process for *QuicTrac* adaptive control is quick and seamless.

To learn more about
McCain's Integrated Traffic
Solutions, please contact
info@mccain-inc.com or
call (760) 727-8100

McCain

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McCain Dramatically Reduces Congestion on the Second Busiest Arterial in San Diego County

QuicTrac™ Adaptive Control Delivers Delay Reductions up to 44% on San Marcos Boulevard.

EXECUTIVE SUMMARY:

San Marcos Achieves "Smart Corridor" through Optimized, Real-Time Traffic Signal Control

The City of San Marcos transformed San Marcos Boulevard, it's most congested arterial, into a "smart corridor" through the successful implementation of QuicTrac adaptive signal control, resulting in maximum benefits for the motoring public at a minimal cost to the City.

Data was collected across the Boulevard's four peak travel times, yielding dramatic results up to:

- 46.0% less delay
- 39.1% fewer stops
- 7.8% less fuel consumption
- \$645,000 in first year benefits

THE SITUATION:

High Volume Arterial with Increasing Congestion and Delays Impacted by Schools & Businesses

San Marcos Boulevard is the second busiest surface arterial in San Diego County, with an average daily traffic volume of 22,000 - 46,000. Comprised of both major and minor intersections, the corridor intersects a major highway, and is lined with businesses and schools.

Even with a previously coordinated traffic signal plan in place, the City still experienced significant congestion during four peak travel periods:

- Morning Peak (AM)
- Midday Peak (MD)
- Evening Peak (PM)
- School Hours / Off Peak (OFF)

Project at a Glance

CORRIDOR

San Marcos Boulevard faced several challenges:

- 22,000 - 46,000 average daily traffic
- Four peak periods
- Significant congestion levels
- Major & minor intersections

SOLUTION

McCain's QuicTrac adaptive control software optimized traffic flow by making real-time adjustments to signal coordination based on demand.

TOP BENEFITS / RESULTS

- ✓ Delay reductions as high as 46%
- ✓ Lifetime benefit-cost ratio of 8:1
- ✓ Minimal displacement to traffic going opposite the optimized direction of traffic
- ✓ \$645,000 in benefits to the public during the first year of operation
- ✓ Delivered maximum public benefit at minimal cost



THE SOLUTION:

Optimize Signal Coordination Based on Prevailing Conditions with QuicTrac Adaptive Control

An adaptive control system was identified as the optimum solution to improve traffic flow on the corridor. FHWA studies show that adaptive systems have an average of 10% or more improvements in performance metrics including travel time, delay, stops, emissions and fuel consumption.

System Selection: After researching available technologies, the City of San Marcos selected McCain's QuicTrac adaptive control for reasons that include:

- Compatible with City's existing controllers
- Cost-effective and easy to setup & maintain
- Provides real-time signal adjustments

System Deployment: The corridor was configured into three adaptive groups for optimum performance.

The overall system deployment utilized existing infrastructure, loop and video detectors, and controllers, where available. Communications and infrastructure upgrades were completed, as needed, along the corridor.

THE RESULTS:

Significantly Reduced Vehicle Delays, Stops, and Fuel Consumption Earns San Marcos Top Honors

Results showed significant improvements in travel time, delay, and corridor speed, far exceeding expectations. With a benefit-cost ratio of 8:1, the system has succeeded in offering a maximum benefit to the public at a minimal cost to the City.

Traveling eastbound, the most congested direction, during the Boulevard's four peak periods produced an average:

- 29.7% less delay



- 19.6% fewer stops
- 10.4% reduced travel times
- 11.8% speed increase

The City of San Marcos has been recognized for their "Smart Corridor" project locally and nationally as a showcase for the benefits of ITS solutions. As a technology leader in Southern California, the City is well positioned for future ITS deployments including Connected Vehicle Research.

Results at a Glance

AVERAGE REDUCTION IN DELAY: 29.7%

Peak Period	Delay	Stops	Travel Time	Fuel Consumption
AM (7:00 a.m. - 9:00 a.m.)	19.1%	12.5%	2.7%	4.5%
MD (11:30 a.m. - 2:00 p.m.)	31.5%	16.7%	13.6%	18.3%
PM (3:00 p.m. - 6:00 p.m.)	46.0%	39.1%	13.2%	15.7%
OFF (9:00 a.m. - 11:30 a.m.)	22.3%	10%	12.2%	13.1%

Temecula Implements Citywide Adaptive Traffic Signal Control to Optimize Traffic Flow

QuicTrac™ Adaptive Software Reduces Arterial Congestion and Residual Queuing on Freeways, Promoting Mobility for City Residents.

EXECUTIVE SUMMARY:

Temecula Significantly Improves Traffic Flow to Enhance Quality of Life for Residents

The City of Temecula deployed *QuicTrac* adaptive control software on seven major arterials, including 83 signalized intersections spanning 18 miles, to reduce congestion and improve traffic flow.

Significant improvements in mobility were achieved through three main initiatives. First, new signal timing plans were engineered to reflect current demand. Next, communication was established with Caltrans' signals to integrate corridors with the freeway. Lastly, adaptive control technology was implemented to ensure perpetual optimization of arterials, allowing signals to optimize signal timing on-the-fly to meet demand. Citywide results included:

- 29% fewer stops during peak periods
- 17% improvement in speed
- 14% reduction in travel time

THE SITUATION:

Hefty Commute Times and Congestion Plagued the City's Primary Arterials and Freeway Interchanges

Temecula's major corridors connect the City's residential communities to commercial districts, institutions and the region's primary interstate, the I-15 freeway.

Existing signal coordination did not respond to prevailing traffic conditions causing unnecessary congestion. In addition, the lack of communication with I-15 signal interchanges caused traffic to backup on the off-ramps, causing residual queuing during the morning and evening rush hours:

- Morning Peak (7:00 AM - 9:00 AM)
- Evening Peak (4:00 PM - 6:00 PM)

Project at a Glance

PROJECT SCOPE

Seven major arterials spanning 18 miles of roadway, connecting residential communities, commercial districts, and the freeway

Two peak periods

Significant congestion levels

Traffic backup on off-ramps

Major intersections that include freeway access

SOLUTION

McCain's *QuicTrac* adaptive control software optimized traffic signal coordination for 83 signalized intersections, including 7 Caltrans signals, smoothing traffic flow and enhancing freeway access.

TOP BENEFITS/RESULTS

- ✓ Achieved communication with Caltrans signals and minimized queuing at freeway ramps
- ✓ Lifetime benefit-to-cost ratio of 30:1
- ✓ 81.3% of intersections showed reduction in delays during peak periods
- ✓ Minimal displacement to traffic traveling opposite to the optimized direction of traffic
- ✓ Delivered maximum public benefit at minimal cost

THE SOLUTION:

Establish Communications with Caltrans' Signals & Optimize Coordination with *QuicTrac* Adaptive

McCain's *QuicTrac* adaptive control software was implemented to lower congestion and maximize thoroughfare with a system that is easy to understand, and simple to set up and maintain. It was selected for its proven local success and ability to maximize use of Temecula's existing infrastructure - detectors, controllers, and central control software.

System Deployment: Each arterial was evaluated for current conditions highlighting necessary infrastructure improvements (i.e. separating loop detectors to provide lane-by-lane vehicular data) and signal timing plan updates. New traffic volume counts were collected and analyzed to engineer new coordination plans that served as the base parameters for adaptive operations.

At the major freeway access points, yellow yield or one-way communication with Caltrans' signals was established. Coordination plans were then implemented to clear traffic from the ramp signals onto the main corridors to minimize queuing down the ramps, whereas normal coordination emphasizes only movement along the corridor.

THE RESULTS:

Temecula Residents Experience Reduced Commute Times and Improved Quality of Life

Temecula successfully achieved their goal of improving the quality of life for residents by reducing commute times and smog producing vehicle emissions.

Results varied on an arterial by arterial basis, yielding significant citywide improvements in travel time (14%) and corridor speeds (17%), as well as reductions in stops (29%) that far exceeded expectations.

Results also showed enhancements in the level of service (LOS), measured in delay per vehicle (sec/veh), for each intersection during AM and PM peaks.

- 81.3% showed improvements in delay
- 30.6% improved by a full grade or more (LOS)

In addition, the optimization of traffic flow made a positive impact on commuter's wallets and the environment.

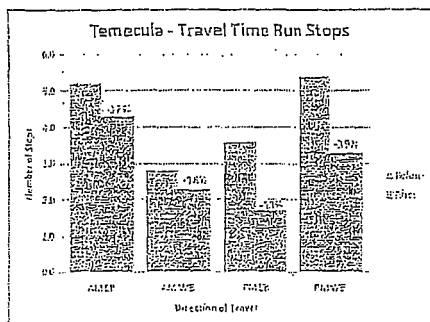
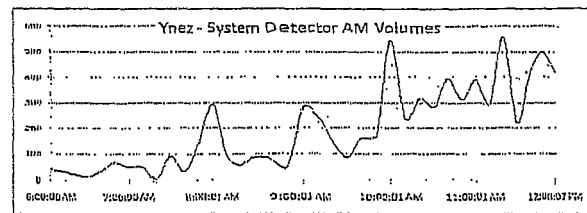
- \$2.6 million in annual travel time savings
- \$437,000 in annual fuel costs saved

With a benefit-to-cost ratio of 30:1, the system has succeeded in offering a maximum benefit to the public at a minimal cost to the City.

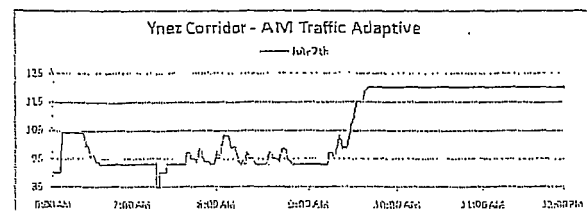
The City of Temecula has joined the ranks of cities recognized nationwide for their advanced traffic solutions.

Results at a Glance

Project Outcome	Benefits
Average Speed Increase	17%
Average Decrease in Travel Time	14%
Benefit-to-Cost Ratio	30:1
First Year Fuel Savings	120,000 gal
First Year Emissions Reduction	14,000 lbs.



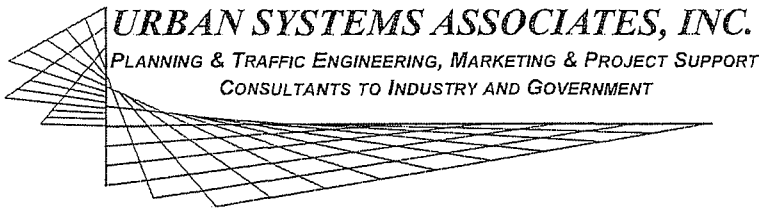
Temecula Citywide Travel Time Run Stops



Ynez Corridor - Real Time Cycle Length and Volume Comparison

APPENDIX Q

DEIR PROJECT ALTERNATIVE ANALYSIS



E-MEMO

ATTN: Tim Belzman – Helix Environmental
FROM: Andrew P. Schlaefli & Jacob Swim
DATE: March 5, 2012
SUBJECT: One Paseo – EIR Alternatives Traffic Analysis

E-Mail: ▼
Timb@helixepi.com

TOTAL PAGES (Incl. Cover): 8 + (38) Attachments

TIME: 1:47:57 PM **JOB NUMBER:** 002407

Confidential Communications

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The purpose of this memo is to present the traffic analysis results of the five (5) alternatives in the Environmental Impact Report (EIR). The five (5) alternatives included in the EIR and evaluated from a traffic perspective are the following: No Project/No Development Alternative 1, No Project/Development Under Existing Plans Alternative 2, Commercial Only Alternative 3, Medical Office/Senior Housing Alternative 4, and the No Retail Alternative 5. For each EIR alternative, the difference in daily and peak hour trip generation (alternative vs. proposed) was utilized to determine whether the impacted streets, intersections, and ramps would or would not be significantly impacted based on the reduction in trips from each alternative. Only the significantly impacted streets, intersections, and ramps that would occur under the proposed project were evaluated. The analyzed alternatives would not result in any new significant traffic impacts because trips are less than the proposed project. The Existing with Project, Near Term with Project and Long Term Cumulative (Year 2030) with Project scenarios were evaluated for each alternative. For Alternatives 2 – 5, two phases were analyzed (Phases 1&2 and Build-out) under Existing with Project, Near Term with Project and Long Term Cumulative (Year 2030) with Project conditions. Alternative 1 assumes no development occurs.

If project traffic from the EIR alternatives causes a roadway facility or intersection that operates acceptably to operate unacceptably, then the project has a significant impact. Two criteria must be met to determine a significant impact and before project mitigation is proposed. First, the intersection or street segment must have an unacceptable level of service (LOS), i.e. E or F. Second, the amount of project traffic must be significant based on the application of criteria discussed below and illustrated in Table 4-2 of the traffic study. For an

intersection, if the change in delay is greater than 2 seconds or 1 second and the level of service is "E" or "F" respectively, then the intersection project impacts would be considered significant. For a street segment, if the change in volume to capacity ratio (V/C ratio) exceeds 0.02 or 0.01, and the level of service is "E" or "F" respectively, then the street segment would be considered significantly impacted. A ramp meter would be significant if the change in delay is greater than 2 minutes or 1 minute for LOS "E" and "F" respectively using the most restrictive meter rate method.

No Project / No Development (Alternative 1)

This alternative assumes the project does not proceed and the site remains vacant and graded as it currently exists with no development. Since no development occurs in this alternative, then it would not generate additional traffic and therefore not have any significant traffic impacts. In the Near Term without Project and Long Term Cumulative (Year 2030) without Project scenarios, traffic would remain the same as shown in the Traffic Impact Analysis with a few intersections and street segments projected to operate at LOS E and F.

No Project / Development Under Existing Plans (Alternative 2)

This alternative assumes developing the site to include approximately 500,000 square feet of corporate and multi-tenant office under the current land use and zoning of the Community Plan. The 500,000 square feet of corporate and multi-tenant office would generate 6,497 average daily trips (ADT) with 895 AM peak hour trips and 935 PM peak hour trips, see **Attachment 1**. The alternative represents an approximately 76% reduction in ADT with a 42% reduction in AM trips and 68% reduction in PM trips compared to the proposed project.

In the Existing with Project condition, potentially significant direct traffic impacts on street segments would occur under Alternative 2 on El Camino Real between Via de la Valle to San Dieguito Road and Via de la Valle between San Andres Drive to El Camino Real (West). These same significant impacts occur for the proposed project as well due to the failing levels of service at these locations. As shown in **Attachment 2**, the segment of El Camino Real between the Via de la Valle and San Dieguito Road is operating at level of service "F" in the existing condition. On El Camino Real between Via de la Valle to San Dieguito Road, this roadway operates at an unacceptable level of service "F" in the existing condition. Therefore, any minor project traffic added to this roadway could potentially cause a significant direct impact. Since the project under Alternative 2 is smaller

compared to the proposed project, only one phase is analyzed in each scenario. In Alternative 2, the project shows a change in v/c of 0.013 which is still above the threshold for significance, i.e. (0.01). The street segment of Via de la Valle between San Andres Drive to El Camino Real (W) remains a significant direct impact as a result of the change in v/c ratio over 0.01 since the segment operates at LOS "F". As shown in **Attachment 3**, the intersection of Carmel Creek Road at Del Mar Trail is reduced from a change in delay of 4.6 seconds (Proposed Project) to 2.7 seconds as a result of the No Project/Development under Existing Plan alternative project. However, the change in delay is still higher than 2.0 seconds for intersections operating at LOS "E". Therefore, this intersection remains a significant direct impact. In the Existing with Project condition, there are no significant impacts to the freeway main-lanes or ramp meters, so no analysis is needed.

In the Near Term condition, potentially significant traffic impacts on street segments would occur on Del Mar Heights Road between I-5 NB ramps and High Bluff Drive, El Camino Real between Via de la Valle and San Dieguito Road as well as Via De La Valle between San Andres Drive to El Camino Real (West). See **Attachment 4**. The Near Term with Project (Phase 1 & 2) scenario from the proposed project was used to compare the alternative project in the Near Term scenario. The entire alternative is assumed to be constructed in this scenario and analyzed as such. As shown in **Attachment 4**, the segments on El Camino Real and Via de la Valle have a change in v/c of 0.013. Consequently, these segments remain significant under Alternative 2 because the segments operate at LOS "F" and above the allowable v/c change of 0.01. Del Mar Heights Road has a change in v/c of 0.042 which is above the allowable change in v/c for significance. For intersections in the Near Term condition, potentially significant traffic impacts would occur under Alternative 2 at three locations: Del Mar Heights Rd at High Bluff Drive; Del Mar Heights Rd at El Camino Real; and Carmel Creek Rd at Del Mar Trail. See **Attachment 5** for the calculations. These significant intersection impacts were also identified for the proposed project. Impacts to these intersections are reduced by the Alternative 2 project, however, they remain significant. Since no significant traffic impacts occur on ramp meters or freeway mainlines in the Near Term scenario for the proposed project, this alternative did not analyze any ramp meters or freeway mainlines. In comparison to the proposed project in the Near Term condition, Alternative 2 would result in the same potentially significant traffic impacts to roadway segments and intersections.

In the Long Term Cumulative (Year 2030) condition, potentially significant traffic impacts on street segments would occur on El Camino Real between Via de la Valle and San Dieguito Road as well as Via de la Valle between San Andres Drive to El Camino Real (West) as shown in **Attachment 6**. A level of service analysis

was used for Alternative 2 in the Existing, Near Term and Long Term Cumulative (Year 2030) scenarios. As previously mentioned, both street segments exceed the threshold of significance. Impacts to the same two street segments remain significant under Alternative 2 as compared to the proposed project. For intersections in the Long Term Cumulative (Year 2030) condition, potentially significant traffic impacts would occur at five locations under Alternative 2: Del Mar Heights Rd at I-5 NB ramps; Del Mar Heights Rd at High Bluff Drive; Del Mar Heights Rd at El Camino Real; El Camino Real at SR-56 EB on-ramp; and Carmel Creek Rd at Del Mar Trail, see **Attachment 7**. The calculations on significantly impacted intersections show the change in delay is significant notwithstanding the 42% reduction in AM peak trips and 68% reduction in PM peak trips. As shown, the impacts to the intersections remain the same under Alternative 2 as compared to the proposed project. For ramp meters, three significant traffic impacts occur at Del Mar Heights Rd at I-5 SB and NB on-ramps, see **Attachment 8**. The calculations below the table show all three impacts have a change in delay greater than 2 minutes which is considered a significant impact for Alternative 2. No significant traffic impacts occur on freeway mainlines for Alternative 2 in the Year 2030 condition. In comparison to the proposed project in the Year 2030 condition, Alternative 2 would result in the same potentially significant traffic impacts to roadway segments, intersections and freeway on-ramps. However, of the analyzed alternatives, Alternative 2 has the least amount of impact to the study area intersections, streets segments, and freeway ramps due to the reduction in trip generation compared to the proposed project.

Commercial Only (Alternative 3)

The Commercial Only alternative assumes developing the site to include 245,000 square feet corporate office; 291,000 square feet multi-tenant office; 220,000 square feet community shopping center; and a 10 screen (1,200 seats) cinema. No residential uses or hotel would be constructed in Alternative 3. **Attachment 9** shows the Commercial Only alternative would generate 22,843 average daily trips (ADT) with 1,217 AM peak hour trips and 2,544 PM peak hour trips. Alternative 3 represents an approximately 15% reduction in ADT with a 21% reduction in AM trips and 13% reduction in PM trips compared to the proposed project.

In the Existing with Project (Phases 1 & 2) condition, potentially significant direct traffic impacts on street segments would occur on Del Mar Heights Road between the I-5 NB ramps and High Bluff Drive, El Camino Real between Via de la Valle to San Dieguito Road, and Via de la Valle between San Andres Drive to El Camino Real (West). As shown in **Attachment 10**, all three significantly impacted segments operate at unacceptable levels of service today. Therefore, adding almost any amount of project traffic to these three

roadways that cause the segment to exceed the significance thresholds would result in a significant impact. Two of the street segments are reduced to a change in v/c ratio of 0.031 in comparison to the proposed project. However, all three segments remain significantly impacted under Alternative 3. **Attachment 11** illustrates the comparison of Existing and Existing with Project in the build-out scenario. The 15% reduction in ADT for the Commercial Only alternative is not enough to eliminate any significant impacts. However, they would lessen the severity of the impacts on two of the segments to a change in v/c ratio of 0.046 in the build-out scenario. As shown in **Attachment 12**, the intersection of Carmel Creek Road at Del Mar Trail is reduced from a change in delay of 2.9 seconds (Proposed Project) to 2.3 seconds as a result of the Commercial Only alternative project. However, the change in delay is still higher than 2.0 seconds for intersections operating at LOS "E", so therefore, this intersection remains a significant direct impact. A similar comparison in the Existing with Project at build-out is illustrated in **Attachment 13**. Since there are no significant impacts to the freeway main-lanes or ramp meters in the proposed project in the Existing with Project (Build-out) scenario, the Commercial Only alternative did not analyze any freeway main-lanes or ramp meters. Because the Commercial Only alternative generates lesser trips than the proposed project and no significant impacts occur as a result of the proposed project, we conclude that no new significant impacts would occur under Alternative 3 in the Existing with Project scenario.

In the Near Term condition, three segments are shown on **Attachment 14** to be significantly impacted. The Near Term with Project (Phase 1 & 2) from the proposed project was used to compare Alternative 3 in the Near Term scenario. The Commercial Only alternative has only a 15% reduction in ADT compared to the proposed project, therefore, the change in impacted street segments is only reduced slightly, see **Attachment 15**. For intersections in the Near Term condition, potentially significant traffic impacts would occur at three locations: Del Mar Heights Rd at High Bluff Drive; Del Mar Heights Rd at El Camino Real; and Carmel Creek Rd at Del Mar Trail. **Attachment 16** demonstrates that the AM reduction is 21% and the PM reduction is 13% for the Commercial Only alternative. The traffic impact analysis shows no significant impacts to freeway main-lanes or ramp meters in the Near Term scenarios as a result of the proposed project. Based on this analysis and the Commercial Only alternative having lesser trips than the proposed project, no analysis to freeway main-lanes or ramp meters was necessary under Alternative 3.

Attachment 17 identifies five (5) intersections in the Long Term Cumulative (Year 2030) condition that operate at unacceptable levels of service and have significant impacts. With a 21% AM peak hour reduction

and a 13% PM peak hour reduction, all five intersections remain a significant impact. Ramp meters were also evaluated to determine if the Commercial Only alternative would reduce and/or remove a significant impact. As shown in **Attachment 18**, the I-5 SB loop on ramp at Del Mar Heights Road in the AM peak hour is reduced to 5.8, however, remains a significant impact. No significant traffic impacts occur on freeway mainlines for Alternative 3 in the Long Term Cumulative (Year 2030) condition.

Medical Office / Senior Housing (Alternative 4)

The Medical Office / Senior Housing alternative assumes developing the site to include 425,000 square feet of medical office and 600 senior housing dwelling units. **Attachment 19** shows the medical office / senior housing alternative would generate 23,650 average daily trips (ADT) with 1,467 AM peak hour trips and 2,365 PM peak hour trips. Alternative 4 represents an approximately 12% reduction in ADT with a 5% reduction in AM trips and 19% reduction in PM trips compared to the proposed project.

Attachment 20 and **Attachment 21** illustrates the Existing with Project street segment comparison tables. The calculations represent a 12% reduction in ADT. The level of significance is only reduced to a change in v/c ratio of 0.048 in the Build-out scenario. All three segments remain a significant impact based on the criteria mentioned earlier. Only one intersection is evaluated in Alternative 4 as shown in **Attachment 22** and **Attachment 23** because there is only one significant intersection impact in the Existing with Project (Build-out) scenario. Since the reduction in the AM peak hour is only 5%, the intersection remains a significant impact showing a change in delay of 2.7 seconds in the Existing with Project (Phase 1&2) scenario and a change in delay of 4.4 seconds in the Existing with Project (Build-out) scenario. As previously mentioned, the impact to this intersection remains significant under Alternative 4.

The Near Term street segment comparison table in **Attachment 24** shows three segments operate at unacceptable levels of service and are significantly impacted. With an ADT reduction of 12%, Alternative 4 reduces the impacts to these segments but the impacts remain significant. **Attachment 25** shows a similar reduction in the v/c ratio for the Long Term Cumulative (Year 2030) condition.

For intersections, the Medical Office / Senior Housing alternative reduces the AM peak hour traffic by 5% and the PM peak hour traffic by 19%. The Near Term intersection calculations are demonstrated on **Attachment 26** and the Long Term Cumulative (Year 2030) intersection calculations are shown on **Attachment 27**. All of the significantly impacted intersections under the proposed project remain significantly impacted under Alternative 4.

Attachment 28 illustrates the ramp meter analysis and calculations used in the AM peak hour and PM peak hour. The same reduction used for intersections is also used for ramp meters to determine if the ramps remain a significant impact with the Medical Office / Senior Housing alternative. As shown, both ramps remain a significant impact under Alternative 4.

No Retail (Alternative 5)

Alternative 5, the No Retail alternative assumes developing the site to include 245,000 square feet corporate office; 270,000 square feet multi-tenant office; a 150 room hotel; and 608 multi-family dwelling units. **Attachment 29** shows this alternative would generate 10,480 average daily trips (ADT) with 1,142 AM peak hour trips and 1,270 PM peak hour trips. Alternative 5 represents an approximately 61% reduction in ADT with a 26% reduction in AM trips and 57% reduction in PM trips compared to the proposed project.

The street segment comparison in the Existing with Project scenarios is provided in **Attachment 30** and **Attachment 31**. A 61% reduction in the v/c ratio is used to determine if the reduction would remove a significant impact to any of the three street segments. In **Attachment 30**, on El Camino Real and Via de la Valle, the reduction shows 0.014 in the change in v/c. If the change in v/c was less than 0.01 on these two segments, there would be no significant impact. The impacts to these three segments are reduced more than Alternative 3 and 4 segments were reduced in this scenario, however, they remain significant.

The intersection summary in the Existing with Project scenario shows only one intersection to be evaluated, see **Attachment 32** and **Attachment 33**. Only one intersection is evaluated based on the proposed project causing a significant impact at this location in the Existing with Project scenario. With an AM peak hour reduction of 26%, the intersection of Carmel Creek Road at Del Mar Trail remains a significant impact.

In the Near Term scenario, the street segments are shown to be reduced to a change in v/c of 0.014 on two segments, see **Attachment 34**. For Long Term Cumulative (Year 2030) street segments, the change in v/c is reduced on El Camino Real and Via de la Valle from 0.054 to 0.021 which is more of a reduction than Alternative 3 and 4, see **Attachment 35**. On Del Mar Heights Road, the change in v/c ratio is reduced from 0.175 to 0.069. These street segments remain significantly impacted under Alternative 5.

Attachment 36 shows three intersections in the Near Term scenario that remain a significant impact even with the AM peak hour reduction of 26% and the PM reduction of 57%. In the Long Term Cumulative (Year 2030) intersection comparison table, the level of significance is reduced by over half (57%) in the PM peak hour, however, remain a significant impact, see **Attachment 37**.

Attachment 38 illustrates the ramp meter analysis and calculations used in the AM peak hour and PM peak hour. The same reduction used for intersections is also used for ramp meters to determine if the ramps remain a significant impact. As shown, both ramps remain a significant impact as a result of Alternative 5.

ATTACHMENT 1

One Paseo Project Trip Generation

EIR Alternative 2 - No Project / Development Under Existing Plans

Use	Amount	Trip	ADT	AM Peak Hour					PM Peak Hour				
				%*	#	In : Out	In	Out	%*	#	In : Out	In	Out
Corporate Office	250,000 SF	10 /KSF	2,500	15%	375	9 : 1	338	38	15%	375	1 : 9	38	338
Multi-Tenant Office	125,000 SF	$Ln(T) = 0.756$ $Ln(x) + 3.95$	1,999	13%	260	9 : 1	234	26	14%	280	2 : 8	56	224
Multi-Tenant Office	125,000 SF	$Ln(T) = 0.756$ $Ln(x) + 3.95$	1,999	13%	260	9 : 1	234	26	14%	280	2 : 8	56	224
TOTAL			6,497		895		805	89		935		149	785
Proposed Project			26,961		1538		1057	481		2932		1231	1701
EIR Alternative Reduction %			76%		42%		24%	81%		68%		88%	54%

Notes:

* = Source: City of San Diego Trip Generation Manual, May 2003

KSF = 1,000 Square Foot

ATTACHMENT 2

Existing & Existing With Project Street Segment Comparison

EIR Alternative 2 - No Project / Development Under Existing Plans

Road	Segment	Class.	Existing			Existing + Project			Δ V/C	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	B	21,314	0.474	B	21,899	0.487	0.013	NO
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	36,086	0.722	C	36,866	0.737	0.016	NO
	I-5 Southbound Ramps and I-5 Northbound Ramps	5-PA	D	40,090	0.802	C	41,454	0.829	0.027	NO
	I-5 Northbound Ramps to High Bluff Drive	PA	D	51,625	0.860	D	54,159	0.903	0.042	NO
	High Bluff Drive to Third Avenue	PA	C	37,910	0.632	D	40,834	0.681	0.049	NO
	Third Avenue to First Avenue	PA	C	37,910	0.632	C	40,574	0.676	0.044	NO
	First Avenue to El Camino Real	PA	C	37,910	0.632	C	40,574	0.676	0.044	NO
	El Camino Real to Carmel Country Road	PA	B	32,674	0.545	B	34,428	0.574	0.029	NO
	Carmel Country Road to Torrey Ridge Road	PA	A	21,658	0.361	A	22,503	0.375	0.014	NO
	Torrey Ridge Road to Lansdale Drive	PA	A	19,071	0.318	A	19,656	0.328	0.010	NO
	Lansdale Drive to Carmel Canyon Road	PA	A	15,188	0.253	A	15,513	0.259	0.005	NO
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	15,579	1.039	F	15,774	1.052	0.013	YES
	San Dieguito Road to Derby Downs Road	4-M	A	13,915	0.348	A	14,175	0.354	0.006	NO
	Derby Downs Road to Half Mile Drive	4-M	B	15,333	0.383	B	15,593	0.390	0.006	NO
	Half Mile Drive to Quarter Mile Drive	4-M	A	13,516	0.338	A	13,841	0.346	0.008	NO
	Quarter Mile Drive to Del Mar Heights Road	4-M	A	14,925	0.373	B	15,315	0.383	0.010	NO
	Del Mar Heights Road to Townsgate Drive	6-M	A	14,731	0.295	A	16,030	0.321	0.026	NO
	Townsgate Drive to High Bluff Drive	6-M	A	15,425	0.309	A	16,270	0.325	0.017	NO
	High Bluff Drive to Valley Centre Drive	6-M	A	19,364	0.387	A	19,949	0.399	0.012	NO
Carmel Country Road	Valley Centre Drive to Carmel Valley Road	5-M	C	27,589	0.613	C	27,979	0.622	0.009	NO
	Del Mar Heights Road to Townsgate Drive	4-M	B	15,932	0.398	B	16,582	0.415	0.016	NO
	Townsgate Drive to Carmel Creek Road	4-M	A	13,878	0.347	A	14,398	0.360	0.013	NO
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,137	0.328	A	13,462	0.337	0.008	NO
Carmel Canyon Road	Carmel Canyon Road to SR-56 Westbound Ramps	4-M	B	20,553	0.514	B	20,813	0.520	0.006	NO
	Del Mar Heights Road to Carmel Country Road	4-M	A	12,224	0.306	A	12,354	0.309	0.003	NO
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	A	11,206	0.280	A	11,401	0.285	0.005	NO
	Carmel Grove Road to SR-56 Westbound Ramps	4-M	A	14,862	0.372	B	15,057	0.376	0.005	NO
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	B	10,875	0.363	B	10,940	0.365	0.002	NO
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	43,375	0.723	C	43,505	0.725	0.002	NO
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	C	9,842	0.656	D	10,037	0.669	0.013	NO
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	24,400	2.440	F	24,530	2.453	0.013	YES

Notes:

Alternative 2 - 6,497 ADT = 76% Reduction from the Proposed Project

Used LOS analysis on the three significantly impacted segments and they all remain significantly impacted after the reduction in ADT.

E+P (Buildout) Comparison

ATTACHMENT 3

Existing & Existing + Project Intersection Summary

EIR Alternative 2 - No Project / Development Under Existing Plans

#	Intersection	Existing				Existing + Project							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	27.7	C	30.0	C	28.7	C	1.0	No	33.5	C	3.5	No
2	El Camino Real / San Dieguito Road	16.6	B	23.8	C	17.0	B	0.4	No	26.4	C	2.6	No
3	El Camino Real / Derby Downs Road	4.3	A	3.3	A	4.3	A	0.0	No	5.0	A	1.7	No
4	El Camino Real / Half Mile Drive	19.6	B	16.8	B	20.9	C	1.3	No	18.9	B	2.1	No
5	El Camino Real / Quarter Mile Drive	20.0	B	14.0	B	20.4	C	0.4	No	14.4	B	0.4	No
6	Del Mar Heights Road / Mango Drive	31.7	C	29.7	C	32.9	C	1.2	No	33.4	C	3.7	No
7	Del Mar Heights Road / Portofino Drive	9.3	A	9.1	A	9.6	A	0.3	No	9.4	A	0.3	No
8	Del Mar Heights Road / I-5 SB Ramps	22.5	C	20.3	C	25.1	C	2.6	No	25.9	C	5.6	No
9	Del Mar Heights Road / I-5 NB Ramps	35.1	D	37.5	D	40.4	D	5.3	No	51.3	D	13.8	No
10	Del Mar Heights Road / High Bluff Drive	26.1	C	28.9	C	29.1	C	3.0	No	47.2	D	18.3	No
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	8.7	A	N/A	No	21.2	C	N/A	No
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	7.7	A	N/A	No	22.0	C	N/A	No
13	Del Mar Heights Road / El Camino Real	27.2	C	26.9	C	33.6	C	6.4	No	45.5	D	18.6	No
14	Del Mar Heights Road / Carmel Country Rd	22.1	C	24.3	C	26.5	C	4.4	No	36.5	D	12.2	No
15	Del Mar Heights Road / Torrey Ridge Drive	22.7	C	14.9	B	25.3	C	2.6	No	15.4	B	0.5	No
16	Del Mar Heights Road / Lansdale Drive	20.4	C	19.8	B	22.9	C	2.5	No	27.6	C	7.8	No
17	Del Mar Heights Road / Carmel Canyon Rd	13.4	B	9.8	A	13.6	B	0.2	No	10.0	A	0.2	No
18	El Camino Real / Del Mar Highlands Town Ctr.	7.2	A	12.4	B	19.1	B	11.9	No	28.7	C	16.3	No
19	Carmel Country Road / Townsgate Drive	25.8	C	20.2	C	26.9	C	1.1	No	22.7	C	2.5	No
20	El Camino Real / Townsgate Drive	18.2	B	13.0	B	18.8	B	0.6	No	14.1	B	1.1	No
21	Carmel Country Road / Carmel Creek Rd	45.3	D	23.2	C	49.2	D	3.9	No	27.7	C	4.5	No
22	El Camino Real / High Bluff Drive	25.2	C	27.9	C	25.8	C	0.6	No	31.8	C	3.9	No
23	Carmel View Road / High Bluff Drive	8.3	A	9.0	A	8.7	A	0.4	No	9.8	A	0.8	No
24	Carmel Creek Road / Carmel Grove Rd	26.8	C	17.2	B	26.8	C	0.0	No	17.4	B	0.2	No
25	Carmel Valley Road / I-5 SB Ramps	19.6	B	27.0	C	20.1	C	0.5	No	27.6	C	0.6	No
26	Carmel Valley Road / I-5 NB Ramps	12.6	B	18.2	B	12.6	B	0.0	No	18.2	B	0.0	No
27	El Camino Real / Valley Centre Drive	20.9	C	19.7	B	21.1	C	0.2	No	20.2	C	0.5	No
28	El Camino Real / Carmel Valley Rd	14.0	B	16.8	B	14.9	B	0.9	No	20.9	C	4.1	No
29	El Camino Real / SR-56 EB On Ramp	15.4	B	24.4	C	16.1	B	0.7	No	26.5	C	2.1	No
30	Carmel View Road / Valley Centre Drive	6.7	A	7.8	A	6.7	A	0.0	No	7.8	A	0.0	No
31	Carmel Creek Road / SR-56 WB Ramp	37.0	D	20.7	C	39.4	D	2.4	No	21.6	C	0.9	No
32	Carmel Creek Road / SR-56 EB Ramps	11.6	B	19.5	B	11.7	B	0.1	No	26.0	C	6.5	No
33	Carmel Country Road / Carmel Canyon Rd	31.9	C	23.2	C	32.3	C	0.4	No	25.5	C	2.3	No
34	Carmel Country Road / SR-56 WB Ramps	15.7	B	10.9	B	15.8	B	0.1	No	11.4	B	0.5	No
35	Carmel Country Road / SR-56 EB Ramps	13.4	B	11.5	B	13.4	B	0.0	No	12.1	B	0.6	No
36	Carmel Creek Road / Del Mar Trail	41.6	E	20.1	C	46.2	E	4.6	Yes	22.9	C	2.8	No

Notes:

AM Peak Reduction for Alternative 2 = 42%

Int. #36 - $4.6 \times 0.42 = 1.93$, $4.6 - 1.93 = 2.67$ (Intersection remains significant)

Please note there is no phasing for this alternative.

ATTACHMENT 4

Near Term With & Without Project Street Segment Comparison

EIR Alternative 2 - No Project / Development Under Existing Plans

Road	Segment	Class.	Near Term			Near Term + Project			$\Delta V/C$	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	B	21,953	0.488	B	22,538	0.501	0.013	NO
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	37,169	0.743	C	37,948	0.759	0.016	NO
	I-5 SB Ramps and I-5 NB Ramps	5-PA	D	41,213	0.824	D	42,577	0.852	0.027	NO
	I-5 Northbound Ramps to High Bluff Drive	PA	D	54,775	0.913	E	57,309	0.955	0.042	YES
	High Bluff Drive to Third Avenue	PA	C	40,648	0.677	C	43,572	0.726	0.049	NO
	Third Avenue to First Avenue	PA	C	40,648	0.677	C	43,312	0.722	0.044	NO
	First Avenue to El Camino Real	PA	C	40,648	0.677	C	43,312	0.722	0.044	NO
	El Camino Real to Carmel Country Road	PA	B	33,654	0.561	C	35,408	0.590	0.029	NO
	Carmel Country Road to Torrey Ridge Road	PA	A	22,308	0.372	A	23,152	0.386	0.014	NO
	Torrey Ridge Road to Lansdale Drive	PA	A	19,643	0.327	A	20,228	0.337	0.010	NO
	Lansdale Drive to Carmel Canyon Road	PA	A	15,644	0.261	A	15,968	0.266	0.005	NO
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	16,235	1.082	F	16,430	1.095	0.013	YES
	San Dieguito Road to Derby Downs Road	4-M	A	14,332	0.358	A	14,592	0.365	0.006	NO
	Derby Downs Road to Half Mile Drive	4-M	B	15,793	0.395	B	16,053	0.401	0.006	NO
	Half Mile Drive to Quarter Mile Drive	4-M	A	13,921	0.348	A	14,246	0.356	0.008	NO
	Quarter Mile Drive to Del Mar Heights Road	4-M	B	15,373	0.384	B	15,763	0.394	0.010	NO
	Del Mar Heights Road to Townsgate Drive	6-M	A	17,014	0.340	A	17,988	0.360	0.019	NO
	Townsgate Drive to High Bluff Drive	6-M	A	16,662	0.333	A	17,506	0.350	0.017	NO
	High Bluff Drive to Valley Centre Drive	6-M	B	21,035	0.421	B	21,620	0.432	0.012	NO
	Valley Centre Drive to Carmel Valley Road	5-M	C	30,131	0.670	C	30,520	0.678	0.009	NO
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	4-M	B	16,410	0.410	B	17,060	0.426	0.016	NO
	Townsgate Drive to Carmel Creek Road	4-M	A	14,294	0.357	A	14,814	0.370	0.013	NO
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,531	0.338	A	13,856	0.346	0.008	NO
	Carmel Canyon Road to SR-56 WB Ramps	4-M	C	21,170	0.529	C	21,429	0.536	0.006	NO
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Rd.	4-M	A	12,591	0.315	A	12,721	0.318	0.003	NO
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	A	11,542	0.289	A	11,737	0.293	0.005	NO
	Carmel Grove Road to SR-56 WB Ramps	4-M	B	15,933	0.398	B	16,128	0.403	0.005	NO
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	B	11,826	0.394	B	11,891	0.396	0.002	NO
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	45,968	0.766	C	46,098	0.768	0.002	NO
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	D	10,137	0.676	D	10,332	0.689	0.013	NO
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	26,732	2.673	F	26,862	2.686	0.013	YES

Notes:

Alternative 2 = 6,497 ADT = 76% Reduction from the Proposed Project

Used LOS analysis on the three significantly impacted segments and they all remain significantly impacted after the reduction in ADT.

ATTACHMENT 5

Near Term With & Without Project Intersection Summary

EIR Alternative 2 - No Project / Development Under Existing Plans

#	Intersection	Near Term				Near Term + Project							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	31.4	C	38.8	D	32.2	C	0.8	N	42.5	D	3.7	N
2	El Camino Real / San Dieguito Road	16.9	B	25.2	C	17.3	B	0.4	N	26.9	C	1.7	N
3	El Camino Real / Derby Downs Road	4.3	A	4.5	A	4.3	A	0.0	N	5.0	A	0.5	N
4	El Camino Real / Half Mile Drive	20.6	B	18.0	B	21.8	C	1.2	N	18.5	B	0.5	N
5	El Camino Real / Quarter Mile Drive	20.6	C	15.1	B	20.6	C	0.0	N	16.4	B	1.3	N
6	Del Mar Heights Road / Mango Drive	33.3	C	31.4	C	34.5	C	1.2	N	34.3	C	2.9	N
7	Del Mar Heights Road / Portofino Drive	9.4	A	9.2	A	9.6	A	0.2	N	9.4	A	0.2	N
8	Del Mar Heights Road / I-5 SB Ramps	24.8	C	23	C	28.7	C	3.9	N	27.8	C	4.8	N
9	Del Mar Heights Road / I-5 NB Ramps	39.6	D	38.3	D	49.8	D	10.2	N	50.5	D	12.2	N
10	Del Mar Heights Road / High Bluff Drive	28.5	C	32.1	C	31.3	C	2.8	N	56.2	E	24.1	Y
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	6.5	A	0.0	N	13.5	B	0.0	N
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	6	A	0.0	N	15.6	B	0.0	N
13	Del Mar Heights Road / El Camino Real	29.9	C	29.5	C	34.5	C	4.6	N	59.1	E	29.6	Y
14	Del Mar Heights Road / Carmel Country Rd	22.9	C	21.1	C	26.4	C	3.5	N	25.6	C	4.5	N
15	Del Mar Heights Road / Torrey Ridge Drive	23.6	C	11.9	B	26.0	C	2.4	N	11.9	B	0.0	N
16	Del Mar Heights Road / Lansdale Drive	19.0	B	17.6	B	20.4	C	1.4	N	18.4	B	0.8	N
17	Del Mar Heights Road / Carmel Canyon Rd	13.8	B	10.2	B	14.0	B	0.2	N	10.2	B	0.0	N
18	El Camino Real / Del Mar Highlands Town Ctr.	6.8	A	13.5	B	14.3	B	7.5	N	27.5	C	14.0	N
19	Carmel Country Road / Townsgate Drive	26.5	C	21.8	C	27.4	C	0.9	N	22.6	C	0.8	N
20	El Camino Real / Townsgate Drive	21.3	C	20.7	C	21.3	C	0.0	N	20.9	C	0.2	N
21	Carmel Country Road / Carmel Creek Rd	58.6	E	24.1	C	60.4	E	1.8	N	27.4	C	3.3	N
22	El Camino Real / High Bluff Drive	21.1	C	26.2	C	21.6	C	0.5	N	29.0	C	2.8	N
23	Carmel View Road / High Bluff Drive	8.4	A	9.1	A	8.7	A	0.3	N	9.7	A	0.6	N
24	Carmel Creek Road / Carmel Grove Rd	27.8	C	17.5	B	27.8	C	0.0	N	17.7	B	0.2	N
25	Carmel Valley Road / I-5 SB Ramps	22.6	C	32.1	C	22.8	C	0.2	N	32.6	C	0.5	N
26	Carmel Valley Road / I-5 NB Ramps	13.6	B	20.4	C	14.1	B	0.5	N	20.6	C	0.2	N
27	El Camino Real / Valley Centre Drive	24.6	C	23.2	C	32.7	C	8.1	N	29.8	C	6.6	N
28	El Camino Real / Carmel Valley Rd	14.8	B	19.2	B	15	B	0.2	N	19.8	B	0.6	N
29	El Camino Real / SR-56 EB On Ramp	18.0	B	32.3	C	18.6	B	0.6	N	35.1	D	2.8	N
30	Carmel View Road / Valley Centre Drive	7.4	A	8.3	A	7.4	A	0.0	N	8.3	A	0.0	N
31	Carmel Creek Road / SR-56 WB Ramp	45.7	D	27	C	46.6	D	0.9	N	30.6	C	3.6	N
32	Carmel Creek Road / SR-56 EB Ramps	12.5	B	27.4	C	12.6	B	0.1	N	27.6	C	0.2	N
33	Carmel Country Road / Carmel Canyon Rd	33.1	C	25.6	C	35.9	D	2.8	N	25.6	C	0.0	N
34	Carmel Country Road / SR-56 WB Ramps	16.2	B	10.9	B	16.2	B	0.0	N	12.3	B	1.4	N
35	Carmel Country Road / SR-56 EB Ramps	14.1	B	11.7	B	14.3	B	0.2	N	12.1	B	0.4	N
36	Carmel Creek Road / Del Mar Trail	47.9	E	21.7	C	52.0	F	4.1	Y	23.8	C	2.1	N

Notes:

AM Peak Reduction for Alternative 2 = 42%

PM Peak Reduction for Alternative 2 = 68%

Int #10 - $24.1 \times 0.68 = 16.4$, $24.1 - 16.4 = 7.7$ sec. (Intersection remains significant)

Int #13 - $29.6 \times 0.68 = 20.1$, $29.6 - 20.1 = 9.5$ sec. (Intersection remains significant)

Int #36 - $4.1 \times 0.42 = 1.7$, $4.1 - 1.7 = 2.4$ sec. (Intersection remains significant)

ATTACHMENT 6

Year 2030 Without & Year 2030 With Project Street Segment Comparison

EIR Alternative 2 - No Project / Development Under Existing Plans

Road	Segment	Class.	Year 2030			Year 2030 + Project			$\Delta V/C$	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	D	39,580	0.880	D	41,639	0.930	0.050	NO
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	39,580	0.792	D	40,360	0.807	0.016	NO
	I-5 SB Ramps and I-5 NB Ramps	5-PA	C	37,820	0.756	D	39,184	0.784	0.027	NO
	I-5 Northbound Ramps to High Bluff Drive	PA	D	51,800	0.863	D	54,334	0.906	0.042	NO
	High Bluff Drive to Third Avenue	PA	C	42,770	0.713	C	45,694	0.762	0.049	NO
	Thirth Avenue to First Avenue	PA	C	42,770	0.713	D	45,434	0.757	0.044	NO
	First Avenue to El Camino Real	PA	C	42,770	0.713	D	45,434	0.757	0.044	NO
	El Camino Real to Carmel Country Road	PA	C	38,370	0.640	C	40,254	0.671	0.031	NO
	Carmel Country Road to Torrey Ridge Road	PA	B	34,400	0.573	C	35,245	0.587	0.014	NO
	Torrey Ridge Road to Lansdale Drive	PA	B	34,400	0.573	B	34,985	0.583	0.010	NO
	Lansdale Drive to Carmel Canyon Road	PA	B	34,400	0.573	B	34,725	0.579	0.005	NO
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	31,320	2.088	F	31,515	2.101	0.013	YES
	San Dieguito Road to Derby Downs Road	4-M	C	29,000	0.725	C	29,260	0.731	0.006	NO
	Derby Downs Road to Half Mile Drive	4-M	C	29,000	0.725	C	29,260	0.731	0.006	NO
	Half Mile Drive to Quarter Mile Drive	4-M	C	29,000	0.725	C	29,325	0.733	0.008	NO
	Quarter Mile Drive to Del Mar Heights Road	4-M	C	29,000	0.725	C	29,390	0.735	0.010	NO
	Del Mar Heights Road to Townsgate Drive	6-M	B	23,000	0.460	B	24,299	0.486	0.026	NO
	Townsgate Drive to High Bluff Drive	6-M	B	26,000	0.520	B	26,845	0.537	0.017	NO
	High Bluff Drive to Valley Centre Drive	6-M	C	35,620	0.712	C	36,205	0.724	0.012	NO
	Valley Centre Drive to Carmel Valley Road	5-M	D	36,470	0.810	D	36,860	0.819	0.009	NO
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	4-M	C	22,280	0.557	C	22,930	0.573	0.016	NO
	Townsgate Drive to Carmel Creek Road	4-M	B	18,800	0.470	B	19,320	0.483	0.013	NO
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,590	0.340	A	13,915	0.348	0.008	NO
	Carmel Canyon Road to SR-56 WB Ramps	4-M	C	26,000	0.650	C	26,260	0.656	0.006	NO
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Rd.	4-M	A	13,000	0.325	A	13,130	0.328	0.003	NO
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	B	15,000	0.375	B	15,195	0.380	0.005	NO
	Carmel Grove Road to SR-56 WB Ramps	4-M	B	17,000	0.425	B	17,195	0.430	0.005	NO
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	D	20,000	0.667	D	20,065	0.669	0.002	NO
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	43,020	0.717	C	43,150	0.719	0.002	NO
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	D	11,700	0.780	D	11,895	0.793	0.013	NO
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	33,100	3.310	F	33,230	3.323	0.013	YES

Notes:

Alternative 2 - 6,497 ADT = 76% Reduction from the Proposed Project

Used LOS analysis on the three significantly impacted segments and they all remain significantly impacted after the reduction in ADT.

Year 2030 Comp (Buildout)

ATTACHMENT 7

Year 2030 With & Without Project (Buildout) Intersection Summary

EIR Alternative 2 - No Project / Development Under Existing Plans

#	Intersection	Year 2030				Year 2030 + Project (Buildout)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	22.2	C	19.1	B	23.1	C	0.9	No	20.4	C	1.3	No
2	El Camino Real / San Dieguito Road	24.2	C	47.2	D	26.7	C	2.5	No	52.5	D	5.3	No
3	El Camino Real / Derby Downs Road	4.3	A	5.1	A	4.3	A	0.0	No	5.1	A	0.0	No
4	El Camino Real / Half Mile Drive	22.9	C	14.0	B	24.8	C	1.9	No	14.1	B	0.1	No
5	El Camino Real / Quarter Mile Drive	20.6	C	12.1	B	25.2	C	4.6	No	12.7	B	0.6	No
6	Del Mar Heights Road / Mango Drive	36.8	D	29.3	C	39.6	D	2.8	No	35.7	D	6.4	No
7	Del Mar Heights Road / Portofino Drive	9.8	A	9.6	A	10.1	B	0.3	No	10.1	B	0.5	No
8	Del Mar Heights Road / I-5 SB Ramps	26.1	C	22.4	C	29	C	2.9	No	25.7	C	3.3	No
9	Del Mar Heights Road / I-5 NB Ramps	71.5	E	55.5	E	107.1	F	35.6	Yes	94.0	F	38.5	Yes
10	Del Mar Heights Road / High Bluff Drive	44.0	D	40.1	D	55.3	E	11.3	Yes	80.2	F	40.1	Yes
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	8.3	A	0.0	No	20.7	C	0.0	No
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	7.7	A	0.0	No	20.9	C	0.0	No
13	Del Mar Heights Road / El Camino Real	35.0	C	41.5	D	50.8	D	15.8	No	84.1	F	42.6	Yes
14	Del Mar Heights Road / Carmel Country Rd	33.6	C	34.1	C	41.3	D	7.7	No	49.3	D	15.2	No
15	Del Mar Heights Road / Torrey Ridge Drive	29.5	C	11.9	B	33.1	C	3.6	No	14.4	B	2.5	No
16	Del Mar Heights Road / Lansdale Drive	32.7	C	18.7	B	41.1	D	8.4	No	20.9	C	2.2	No
17	Del Mar Heights Road / Cannel Canyon Rd	29.4	C	16.0	B	29.8	C	0.4	No	17.2	B	1.2	No
18	El Camino Real / Del Mar Highlands Town Ctr.	6.2	A	14.2	B	17.4	B	11.2	No	33.7	C	19.5	No
19	Carmel Country Road / Townsgate Drive	32.0	C	29.8	C	32.9	C	0.9	No	34.6	C	4.8	No
20	El Camino Real / Townsgate Drive	22.5	C	24.3	C	22.7	C	0.2	No	35.4	D	11.1	No
21	Carmel Country Road / Carmel Creek Rd	41.5	D	19.7	B	45.7	D	4.2	No	21.5	C	1.8	No
22	El Camino Real / High Bluff Drive	22.9	C	33.6	C	24.4	C	1.5	No	40.0	D	6.4	No
23	Carmel View Road / High Bluff Drive	8.9	A	9.8	A	9.3	A	0.4	No	10.9	B	1.1	No
24	Carmel Creek Road / Carmel Grove Rd	15.3	B	11.4	B	15.3	B	0.0	No	17.3	B	5.9	No
25	Carmel Valley Road / I-5 SB Ramps	25.3	C	30.9	C	26.3	C	1.0	No	35.3	D	4.4	No
26	Carmel Valley Road / I-5 NB Ramps	26.8	C	19.6	B	27.3	C	0.5	No	20.0	B	0.4	No
27	El Camino Real / Valley Centre Drive	22.0	C	27.4	C	22.2	C	0.2	No	29.3	C	1.9	No
28	El Camino Real / Carmel Valley Rd	22.0	C	17.6	B	22.2	C	0.2	No	19.2	B	1.6	No
29	El Camino Real / SR-56 EB On Ramp	23.1	C	89.0	F	23.6	C	0.5	No	97.6	F	8.6	Yes
30	Carmel View Road / Valley Centre Drive	7.7	A	6.2	A	7.7	A	0.0	No	6.2	A	0.0	No
31	Carmel Creek Road / SR-56 WB Ramp	47.0	D	42.6	D	54.2	D	7.2	No	53.3	D	10.7	No
32	Carmel Creek Road / SR-56 EB Ramps	15.0	B	22.9	C	15.0	B	0.0	No	23.4	C	0.5	No
33	Carmel Country Road / Cannel Canyon Rd	34.5	C	33.4	C	36.6	D	2.1	No	34.1	C	0.7	No
34	Carmel Country Road / SR-56 WB Ramps	17.1	B	9.9	A	17.1	B	0.0	No	12.7	B	2.8	No
35	Carmel Country Road / SR-56 EB Ramps	20.1	C	18.2	B	22.0	C	1.9	No	18.7	B	0.5	No
36	Carmel Creek Road / Del Mar Trail	43.3	E	20.6	C	48.3	E	5.0	Yes	23.6	C	3.0	No

Notes:

AM Peak Reduction for Alternative 2 = 42%
PM Peak Reduction for Alternative 2 = 68%

#9 AM) $35.6 \times 0.42 = 15.3$; $35.6 - 15.3 = 20.3$ sec. (Intersection remains significant)
#9 PM) $38.5 \times 0.68 = 26.2$; $38.5 - 26.2 = 12.3$ sec. (Intersection remains significant)
#10 AM) $11.3 \times 0.42 = 4.7$; $11.3 - 4.7 = 6.6$ sec. (Intersection remains significant)
#10 PM) $40.1 \times 0.68 = 27.2$; $40.1 - 27.2 = 12.9$ sec. (Intersection remains significant)
#13 PM) $42.6 \times 0.68 = 28.9$; $42.6 - 28.9 = 13.7$ sec. (Intersection remains significant)
#29 (PM) $8.6 \times 0.68 = 5.8$; $8.6 - 5.8 = 2.8$ sec. (Intersection remains significant)
#36 (AM) $5.0 \times 0.42 = 2.1$; $5.0 - 2.1 = 2.9$ sec. (Intersection remains significant)

ATTACHMENT 8
Year 2030 With & Without Project Ramp Meter Analysis
 EIR Alternative 2 - No Project / Development Under Existing Plans

Most Restrictive Meter Rate

Location		Year 2030		Year 2030 With Project (Buildout)		▽	S
		Delay (Min)	Queue (Ft)	Delay (Min)	Queue (Ft)		
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound Loop)	AM	40.27	7,163	47.61	8,468	7.34	YES
	PM	5.22	928	29.84	5,307	24.62	YES
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	0.00	0	0.00	0	0.00	NO
	PM	0.00	0	0.00	0	0.00	NO
Del Mar Heights Rd. / I-5 NB on Ramp	AM	0.00	0	1.37	392	1.37	NO
	PM	8.30	2,378	16.04	4,597	7.74	YES
El Camino Real / SR-56 EB on Ramp	AM	0.00	0	0.00	0	0.00	NO
	PM	3.93	2,277	4.78	2,770	0.85	NO
Carmel Country Rd. / SR-56 EB on Ramp	AM	0.00	0	0.00	0	0.00	NO
	PM	0.00	0	0.00	0	0.00	NO

AM Peak Reduction = 42%
 PM Peak Reduction = 68%

DMH / I-5 SB AM: $7.34 \times 0.42 = 3.08$, $7.34 - 3.08 = 4.26$ (Remains a significant impact)
 DMH / I-5 SB PM: $24.62 \times 0.68 = 16.74$, $24.62 - 16.74 = 7.88$ (Remains a significant impact)
 DMH / I-5 NB PM: $7.74 \times 0.68 = 5.26$, $7.74 - 5.26 = 2.48$ (Remains a significant impact)

15 Minute Max. Meter Rate

Location		Year 2030		Year 2030 With Project (Buildout)		V	S
		Delay (Min)	Queue (Ft)	Delay (Min)	Queue (Ft)		
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound Loop)	AM	15.0	3,567	20.5	4,872	5.5	YES
	PM	15.0	2,320	43.3	6,699	28.3	YES
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	15.0	2,291	15.0	2,291	0.0	NO
	PM	15.0	1,740	15.0	1,740	0.0	NO
Del Mar Heights Rd. / I-5 NB on Ramp	AM	15.0	3,393	17.8	4,031	2.8	YES
	PM	15.0	3,915	23.6	6,148	8.6	YES
El Camino Real / SR-56 EB on Ramp	AM	15.0	4,060	15.5	4,205	0.5	NO
	PM	15.0	7,415	16.0	7,903	1.0	NO
Carmel Country Rd. / SR-56 EB on Ramp	AM	15.0	1,914	16.1	2,059	1.1	NO
	PM	15.0	1,711	19.3	2,204	4.3	NO

Notes:

Δ = Change in Delay (minutes)

S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS E is 2 min.

S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS F is 1 min.

ATTACHMENT 9
One Paseo Trip Generation Table
EIR Alternative 3 - Commercial Only

Proposed Project

Use	Amount	Trip	ADT	AM Peak Hour						PM Peak Hour					
				%*	#	In	Out	In	Out	%*	#	In	Out	In	Out
Corporate Office	245,000 SF	10 /KSF	2,450	15%	368	9	1	331	37	15%	368	1	9	37	331
Multi-Tenant Office	291,000 SF	$\ln(T) = 0.756$ $\ln(x) + 3.95$	3,786	13%	492	9	1	443	49	14%	530	2	8	106	424
Community Shopping Center	220,000 SF	Blended Rate**	14,781	3%	443	6	4	266	177	10%	1,478	5	5	739	739
Cinema ¹	10 screens	220 /screen	2,200	0%	0	0	0	0	0	24	240	41	59	98	142
TOTAL			23,217		1,303			1,040	264		2,616			980	1,635

Mixed Use Reductions

Use	Amount	Trip	ADT	AM Peak Hour						PM Peak Hour							
				%*	#	In	Out	In	Out	%*	#	In	Out	In	Out		
Corporate Office	245,000 SF	10 /KSF	2,450	15%	368	9	:	1	331	37	15%	368	1	:	9	37	331
Multi-Tenant Office	291,000 SF	$\ln(T) = 0.756$ $\ln(x) + 3.95$	3,786	13%	492	9	:	1	443	49	14%	530	2	:	8	106	424
Commercial Office Mixed-Use Reduction %			3%		5%				5%	5%		4%				4%	4%
Sub-Total Commercial Office Mixed-Use Reduction			187		43				39	4		36				6	30
Community Shopping Center	220,000 SF	Blended Rate**	14,781	3%	443	6	:	4	266	177	10%	1,478	5	:	5	739	739
Cinema ¹	10 screens	220 /screen	2,200	0%	0	0	:	0	0	0	24	240	41	:	59	98	142
Commercial Retail Mixed-Use Reduction			187		43				39	4		36				6	30
Sub-Total Commercial Retail Mixed-Use Reduction			16,794		400				227	173		1,682				831	851
TOTAL MIXED-USE REDUCTION			374		86				78	8		72				12	60

Notes:

* = Source: City of San Diego Trip Generation Manual, May 2003

** = Blended Rate: 100,650sf @ 40/ksf = 4,026 ADT & 30,000sf @ 150/ksf = 4,500 ADT & 89,350sf @ 70/ksf = 6,255 ADT, so the total is 14,781 ADT, similar to the Proposed Project.

¹ = Cinema trip rate is based on ITE's Trip Generation, 8th edition, Land Use 443. Phasing options for a cinema ranging from 8 to 10 screens is discussed in Section 14.0

KSF = 1,000 Square Foot

ATTACHMENT 9

One Paseo Trip Generation Table

EIR Alternative 3 - Commercial Only

NET NEW TRIPS

Condition	ADT	AM Peak Hour			PM Peak Hour		
		#	In	Out	#	In	Out
Proposed Project	23,217	1,303	1,040	264	2,616	980	1,635
Mixed Use Reductions	374	86	78	8	72	12	60
TOTAL	22,843	1,217	962	255	2,544	968	1,575
Proposed Project	26,961	1538	1057	481	2932	1231	1701
EIR Alternative Reduction %	15%	21%	9%	47%	13%	21%	7%

ATTACHMENT 10

Existing & Existing With Project (Phase 1 & 2) Street Segment Comparison

EIR Alternative 3 - Commercial Only

Road	Segment	Class.	Existing			Existing + Project (Phase 1 & 2)			$\Delta V/C$	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	B	21,314	0.474	B	22,917	0.509	0.036	NO
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	36,086	0.722	C	38,223	0.764	0.043	NO
	I-5 Southbound Ramps and I-5 Northbound Ramps	5-PA	D	40,090	0.802	D	43,831	0.877	0.075	NO
	I-5 Northbound Ramps to High Bluff Drive	PA	D	51,625	0.860	E	58,572	0.976	0.116	YES
	High Bluff Drive to Third Avenue	PA	C	37,910	0.632	C	45,925	0.765	0.134	NO
	Third Avenue to First Avenue	PA	C	37,910	0.632	C	45,213	0.754	0.122	NO
	First Avenue to El Camino Real	PA	C	37,910	0.632	C	45,213	0.754	0.122	NO
	El Camino Real to Carmel Country Road	PA	B	32,674	0.545	C	37,483	0.625	0.080	NO
	Carmel Country Road to Torrey Ridge Road	PA	A	21,658	0.361	A	23,974	0.400	0.039	NO
	Torrey Ridge Road to Lansdale Drive	PA	A	19,071	0.318	A	20,674	0.345	0.027	NO
	Lansdale Drive to Carmel Canyon Road	PA	A	15,188	0.253	A	16,079	0.268	0.015	NO
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	15,579	1.039	F	16,113	1.074	0.036	YES
	San Dieguito Road to Derby Downs Road	4-M	A	13,915	0.348	A	14,627	0.366	0.018	NO
	Derby Downs Road to Half Mile Drive	4-M	B	15,333	0.383	B	16,045	0.401	0.018	NO
	Half Mile Drive to Quarter Mile Drive	4-M	A	13,516	0.338	A	14,407	0.360	0.022	NO
	Quarter Mile Drive to Del Mar Heights Road	4-M	A	14,925	0.373	B	15,994	0.400	0.027	NO
	Del Mar Heights Road to Townsgate Drive	6-M	A	14,731	0.295	A	17,403	0.348	0.053	NO
	Townsgate Drive to High Bluff Drive	6-M	A	15,425	0.309	A	17,741	0.355	0.046	NO
	High Bluff Drive to Valley Centre Drive	6-M	A	19,364	0.387	B	20,967	0.419	0.032	NO
Carmel Country Road	Valley Centre Drive to Carmel Valley Road	5-M	C	27,589	0.613	C	28,658	0.637	0.024	NO
	Del Mar Heights Road to Townsgate Drive	4-M	B	15,932	0.398	B	17,713	0.443	0.045	NO
	Townsgate Drive to Carmel Creek Road	4-M	A	13,878	0.347	B	15,303	0.383	0.036	NO
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,137	0.328	A	14,028	0.351	0.022	NO
Carmel Canyon Road	Carmel Canyon Road to SR-56 Westbound Ramps	4-M	B	20,553	0.514	C	21,265	0.532	0.018	NO
	Del Mar Heights Road to Carmel Country Road	4-M	A	12,224	0.306	A	12,580	0.315	0.009	NO
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	A	11,206	0.280	A	11,740	0.294	0.013	NO
	Carmel Grove Road to SR-56 Westbound Ramps	4-M	A	14,862	0.372	B	15,396	0.385	0.013	NO
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	B	10,875	0.363	B	11,053	0.368	0.006	NO
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	43,375	0.723	C	43,731	0.729	0.006	NO
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	C	9,842	0.656	D	10,376	0.692	0.036	NO
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	24,400	2.440	F	24,756	2.476	0.036	YES

Alternative 3 - 22,843 ADT = 15% Reduction from the Proposed Project

Segment #1) $0.116 \times 0.15 = 0.017$; $0.116 - 0.017 = 0.099$ (Segment remains significant)

Segment #2) $0.036 \times 0.15 = 0.005$; $0.036 - 0.005 = 0.031$ (Segment remains significant)

Segment #3) $0.036 \times 0.15 = 0.005$; $0.036 - 0.005 = 0.031$ (Segment remains significant)

E+P (Phase 1&2) Comparison

ATTACHMENT 11

Existing & Existing With Project (Buildout) Street Segment Comparison

EIR Alternative 3 - Commercial Only

Road	Segment	Class.	Existing			Existing + Project (Buildout)			$\Delta V/C$	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	B	21,314	0.474	B	23,740	0.528	0.054	NO
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	36,086	0.722	C	39,321	0.786	0.065	NO
	I-5 Southbound Ramps and I-5 Northbound Ramps	5-PA	D	40,090	0.802	D	45,752	0.915	0.113	NO
	I-5 Northbound Ramps to High Bluff Drive	PA	D	51,625	0.860	F	62,140	1.036	0.175	YES
	High Bluff Drive to Third Avenue	PA	C	37,910	0.632	D	50,042	0.834	0.202	NO
	Third Avenue to First Avenue	PA	C	37,910	0.632	C	48,964	0.816	0.184	NO
	First Avenue to El Camino Real	PA	C	37,910	0.632	C	48,964	0.816	0.184	NO
	El Camino Real to Carmel Country Road	PA	B	32,674	0.545	C	39,953	0.666	0.121	NO
	Carmel Country Road to Torrey Ridge Road	PA	A	21,658	0.361	B	25,163	0.419	0.058	NO
	Torrey Ridge Road to Lansdale Drive	PA	A	19,071	0.318	A	21,497	0.358	0.040	NO
	Lansdale Drive to Carmel Canyon Road	PA	A	15,188	0.253	A	16,536	0.276	0.022	NO
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	15,579	1.039	F	16,388	1.093	0.054	YES
	San Dieguito Road to Derby Downs Road	4-M	A	13,915	0.348	A	14,993	0.375	0.027	NO
	Derby Downs Road to Half Mile Drive	4-M	B	15,333	0.383	B	16,411	0.410	0.027	NO
	Half Mile Drive to Quarter Mile Drive	4-M	A	13,516	0.338	A	14,864	0.372	0.034	NO
	Quarter Mile Drive to Del Mar Heights Road	4-M	A	14,925	0.373	B	16,543	0.414	0.040	NO
	Del Mar Heights Road to Townsgate Drive	6-M	A	14,731	0.295	B	20,123	0.402	0.108	NO
	Townsgate Drive to High Bluff Drive	6-M	A	15,425	0.309	A	18,930	0.379	0.070	NO
	High Bluff Drive to Valley Centre Drive	6-M	A	19,364	0.387	B	21,790	0.436	0.049	NO
Carmel Country Road	Valley Centre Drive to Carmel Valley Road	5-M	C	27,589	0.613	C	29,207	0.649	0.036	NO
	Del Mar Heights Road to Townsgate Drive	4-M	B	15,932	0.398	B	18,628	0.466	0.067	NO
	Townsgate Drive to Carmel Creek Road	4-M	A	13,878	0.347	B	16,035	0.401	0.054	NO
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,137	0.328	A	14,485	0.362	0.034	NO
Carmel Canyon Road	Carmel Canyon Road to SR-56 Westbound Ramps	4-M	B	20,553	0.514	C	21,631	0.541	0.027	NO
	Del Mar Heights Road to Carmel Country Road	4-M	A	12,224	0.306	A	12,763	0.319	0.013	NO
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	A	11,206	0.280	A	12,015	0.300	0.020	NO
	Carmel Grove Road to SR-56 Westbound Ramps	4-M	A	14,862	0.372	B	15,671	0.392	0.020	NO
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	B	10,875	0.363	B	11,145	0.371	0.009	NO
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	43,375	0.723	C	43,914	0.732	0.009	NO
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	C	9,842	0.656	D	10,651	0.710	0.054	NO
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	24,400	2.440	F	24,939	2.494	0.054	YES

Alternative 3 - 22,843 ADT = 15% Reduction from the Proposed Project

Segment #1) $0.175 \times 0.15 = 0.026$; $0.175 - 0.026 = 0.149$ (Segment remains significant)Segment #2) $0.054 \times 0.15 = 0.008$; $0.054 - 0.008 = 0.046$ (Segment remains significant)Segment #3) $0.054 \times 0.15 = 0.008$; $0.054 - 0.008 = 0.046$ (Segment remains significant)

E+P (Buildout) Comparison

ATTACHMENT 12

Existing & Existing + Project (Phase 1 & 2) Intersection Summary

EIR Alternative 3 - Commercial Only

#	Intersection	Existing				Existing + Project (Phase 1 & 2)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	27.7	C	30.0	C	28.4	C	0.7	No	32.6	C	2.6	No
2	El Camino Real / San Dieguito Road	16.6	B	23.8	C	16.8	B	0.2	No	25.8	C	2.0	No
3	El Camino Real / Derby Downs Road	4.3	A	3.3	A	4.3	A	0.0	No	4.6	A	1.3	No
4	El Camino Real / Half Mile Drive	19.6	B	16.8	B	20.6	C	1.0	No	17.8	B	1.0	No
5	El Camino Real / Quarter Mile Drive	20.0	B	14.0	B	20.1	C	0.1	No	15.1	B	1.1	No
6	Del Mar Heights Road / Mango Drive	31.7	C	29.7	C	32.5	C	0.8	No	32.3	C	2.6	No
7	Del Mar Heights Road / Portofino Drive	9.3	A	9.1	A	9.5	A	0.2	No	9.3	A	0.2	No
8	Del Mar Heights Road / I-5 SB Ramps	22.5	C	20.3	C	24.8	C	2.3	No	24.0	C	3.7	No
9	Del Mar Heights Road / I-5 NB Ramps	35.1	D	37.5	D	37.7	D	2.6	No	41.2	D	3.7	No
10	Del Mar Heights Road / High Bluff Drive	26.1	C	28.9	C	27.4	C	1.3	No	40.4	D	11.5	No
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	6.8	A	N/A	No	14.1	B	N/A	No
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	6.0	A	N/A	No	15.8	B	N/A	No
13	Del Mar Heights Road / El Camino Real	27.2	C	26.9	C	32.2	C	5.0	No	37.3	D	10.4	No
14	Del Mar Heights Road / Carmel Country Rd	22.1	C	24.3	C	25.5	C	3.4	No	28.6	C	4.3	No
15	Del Mar Heights Road / Torrey Ridge Drive	22.7	C	14.9	B	25.1	C	2.4	No	16.2	B	1.3	No
16	Del Mar Heights Road / Lansdale Drive	20.4	C	19.8	B	22.1	C	1.7	No	23.8	C	4.0	No
17	Del Mar Heights Road / Carmel Canyon Rd	13.4	B	9.8	A	13.6	B	0.2	No	9.9	A	0.1	No
18	El Camino Real / Del Mar Highlands Town Ctr.	7.2	A	12.4	B	17.9	B	10.7	No	26.1	C	13.7	No
19	Carmel Country Road / Townsgate Drive	25.8	C	20.2	C	26.6	C	0.8	No	22.1	C	1.9	No
20	El Camino Real / Townsgate Drive	18.2	B	13.0	B	18.6	B	0.4	No	13.7	B	0.7	No
21	Carmel Country Road / Carmel Creek Rd	45.3	D	23.2	C	47.7	D	2.4	No	25.7	C	2.5	No
22	El Camino Real / High Bluff Drive	25.2	C	27.9	C	25.8	C	0.6	No	30.1	C	2.2	No
23	Carmel View Road / High Bluff Drive	8.3	A	9.0	A	8.6	A	0.3	No	9.5	A	0.5	No
24	Carmel Creek Road / Carmel Grove Rd	26.8	C	17.2	B	26.8	C	0.0	No	17.3	B	0.1	No
25	Carmel Valley Road / I-5 SB Ramps	19.6	B	27.0	C	20.1	C	0.5	No	27.9	C	0.9	No
26	Carmel Valley Road / I-5 NB Ramps	12.6	B	18.2	B	12.6	B	0.0	No	18.4	B	0.2	No
27	El Camino Real / Valley Centre Drive	20.9	C	19.7	B	21.0	C	0.1	No	20.2	C	0.5	No
28	El Camino Real / Carmel Valley Rd	14.0	B	16.8	B	14.9	B	0.9	No	20.6	C	3.8	No
29	El Camino Real / SR-56 EB On Ramp	15.4	B	24.4	C	15.7	B	0.3	No	26.0	C	1.6	No
30	Carmel View Road / Valley Centre Drive	6.7	A	7.8	A	6.7	A	0.0	No	7.8	A	0.0	No
31	Carmel Creek Road / SR-56 WB Ramp	37.0	D	20.7	C	39.0	D	2.0	No	21.5	C	0.8	No
32	Carmel Creek Road / SR-56 EB Ramps	11.6	B	19.5	B	11.8	B	0.2	No	25.6	C	6.1	No
33	Carmel Country Road / Carmel Canyon Rd	31.9	C	23.2	C	32.2	C	0.3	No	25.2	C	2.0	No
34	Carmel Country Road / SR-56 WB Ramps	15.7	B	10.9	B	15.8	B	0.1	No	11.3	B	0.4	No
35	Carmel Country Road / SR-56 EB Ramps	13.4	B	11.5	B	13.4	B	0.0	No	11.9	B	0.4	No
36	Carmel Creek Road / Del Mar Trail	41.6	E	20.1	C	44.5	E	2.9	Yes	21.9	C	1.8	No

AM Peak Reduction % = 21%

Int. 36) $2.9 \times 0.21 = 0.6$; $2.9 - 0.6 = 2.3$ sec. (Intersection remains significant)

ATTACHMENT 13

Existing & Existing + Project (Buildout) Intersection Summary

EIR Alternative 3 - Commercial Only

#	Intersection	Existing				Existing + Project (Buildout)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		A	S ?	PM Peak Hour		A	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	27.7	C	30.0	C	28.7	C	1.0	No	33.5	C	3.5	No
2	El Camino Real / San Dieguito Road	16.6	B	23.8	C	17.0	B	0.4	No	26.4	C	2.6	No
3	El Camino Real / Derby Downs Road	4.3	A	3.3	A	4.3	A	0.0	No	5.0	A	1.7	No
4	El Camino Real / Half Mile Drive	19.6	B	16.8	B	20.9	C	1.3	No	18.9	B	2.1	No
5	El Camino Real / Quarter Mile Drive	20.0	B	14.0	B	20.4	C	0.4	No	14.4	B	0.4	No
6	Del Mar Heights Road / Mango Drive	31.7	C	29.7	C	32.9	C	1.2	No	33.4	C	3.7	No
7	Del Mar Heights Road / Portofino Drive	9.3	A	9.1	A	9.6	A	0.3	No	9.4	A	0.3	No
8	Del Mar Heights Road / I-5 SB Ramps	22.5	C	20.3	C	25.1	C	2.6	No	25.9	C	5.6	No
9	Del Mar Heights Road / I-5 NB Ramps	35.1	D	37.5	D	40.4	D	5.3	No	51.3	D	13.8	No
10	Del Mar Heights Road / High Bluff Drive	26.1	C	28.9	C	29.1	C	3.0	No	47.2	D	18.3	No
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	8.7	A	N/A	No	21.2	C	N/A	No
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	7.7	A	N/A	No	22.0	C	N/A	No
13	Del Mar Heights Road / El Camino Real	27.2	C	26.9	C	33.6	C	6.4	No	45.5	D	18.6	No
14	Del Mar Heights Road / Carmel Country Rd	22.1	C	24.3	C	26.5	C	4.4	No	36.5	D	12.2	No
15	Del Mar Heights Road / Torrey Ridge Drive	22.7	C	14.9	B	25.3	C	2.6	No	15.4	B	0.5	No
16	Del Mar Heights Road / Lansdale Drive	20.4	C	19.8	B	22.9	C	2.5	No	27.6	C	7.8	No
17	Del Mar Heights Road / Carmel Canyon Rd	13.4	B	9.8	A	13.6	B	0.2	No	10.0	A	0.2	No
18	El Camino Real / Del Mar Highlands Town Ctr.	7.2	A	12.4	B	19.1	B	11.9	No	28.7	C	16.3	No
19	Carmel Country Road / Townsgate Drive	25.8	C	20.2	C	26.9	C	1.1	No	22.7	C	2.5	No
20	El Camino Real / Townsgate Drive	18.2	B	13.0	B	18.8	B	0.6	No	14.1	B	1.1	No
21	Carmel Country Road / Carmel Creek Rd	45.3	D	23.2	C	49.2	D	3.9	No	27.7	C	4.5	No
22	El Camino Real / High Bluff Drive	25.2	C	27.9	C	25.8	C	0.6	No	31.8	C	3.9	No
23	Carmel View Road / High Bluff Drive	8.3	A	9.0	A	8.7	A	0.4	No	9.8	A	0.8	No
24	Carmel Creek Road / Carmel Grove Rd	26.8	C	17.2	B	26.8	C	0.0	No	17.4	B	0.2	No
25	Carmel Valley Road / I-5 SB Ramps	19.6	B	27.0	C	20.1	C	0.5	No	27.6	C	0.6	No
26	Carmel Valley Road / I-5 NB Ramps	12.6	B	18.2	B	12.6	B	0.0	No	18.2	B	0.0	No
27	El Camino Real / Valley Centre Drive	20.9	C	19.7	B	21.1	C	0.2	No	20.2	C	0.5	No
28	El Camino Real / Carmel Valley Rd	14.0	B	16.8	B	14.9	B	0.9	No	20.9	C	4.1	No
29	El Camino Real / SR-56 EB On Ramp	15.4	B	24.4	C	16.1	B	0.7	No	26.5	C	2.1	No
30	Carmel View Road / Valley Centre Drive	6.7	A	7.8	A	6.7	A	0.0	No	7.8	A	0.0	No
31	Carmel Creek Road / SR-56 WB Ramp	37.0	D	20.7	C	39.4	D	2.4	No	21.6	C	0.9	No
32	Carmel Creek Road / SR-56 EB Ramps	11.6	B	19.5	B	11.7	B	0.1	No	26.0	C	6.5	No
33	Carmel Country Road / Carmel Canyon Rd	31.9	C	23.2	C	32.3	C	0.4	No	25.5	C	2.3	No
34	Carmel Country Road / SR-56 WB Ramps	15.7	B	10.9	B	15.8	B	0.1	No	11.4	B	0.5	No
35	Carmel Country Road / SR-56 EB Ramps	13.4	B	11.5	B	13.4	B	0.0	No	12.1	B	0.6	No
36	Carmel Creek Road / Del Mar Trail	41.6	E	20.1	C	46.2	E	4.6	Yes	22.9	C	2.8	No

AM Peak Reduction % = 21%

Int. 36) $4.6 \times 0.21 = 0.9$; $4.6 - 0.9 = 3.7$ sec. (Intersection remains significant)

ATTACHMENT 14

Near Term With & Without Project Street Segment Comparison Phase 1 & 2

EIR Alternative 3 - Commercial Only

Road	Segment	Class.	Near Term			Near Term + Project (Phase 1 & 2)			$\Delta V/C$	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	B	21,953	0.488	B	23,557	0.523	0.036	NO
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	37,169	0.743	C	39,306	0.786	0.043	NO
	I-5 SB Ramps and I-5 NB Ramps	5-PA	D	41,213	0.824	D	44,953	0.899	0.075	NO
	I-5 Northbound Ramps to High Bluff Drive	PA	D	54,775	0.913	F	61,721	1.029	0.116	YES
	High Bluff Drive to Third Avenue	PA	C	40,648	0.677	C	48,664	0.811	0.134	NO
	Thirth Avenue to First Avenue	PA	C	40,648	0.677	C	47,951	0.799	0.122	NO
	First Avenue to El Camino Real	PA	C	40,648	0.677	C	47,951	0.799	0.122	NO
	El Camino Real to Carmel Country Road	PA	B	33,654	0.561	C	38,463	0.641	0.080	NO
	Carmel Country Road to Torrey Ridge Road	PA	A	22,308	0.372	A	24,623	0.410	0.039	NO
	Torrey Ridge Road to Lansdale Drive	PA	A	19,643	0.327	A	21,246	0.354	0.027	NO
	Lansdale Drive to Carmel Canyon Road	PA	A	15,644	0.261	A	16,534	0.276	0.015	NO
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	16,235	1.082	F	16,770	1.118	0.036	YES
	San Dieguito Road to Derby Downs Road	4-M	A	14,332	0.358	B	15,045	0.376	0.018	NO
	Derby Downs Road to Half Mile Drive	4-M	B	15,793	0.395	B	16,505	0.413	0.018	NO
	Half Mile Drive to Quarter Mile Drive	4-M	A	13,921	0.348	A	14,812	0.370	0.022	NO
	Quarter Mile Drive to Del Mar Heights Road	4-M	B	15,373	0.384	B	16,441	0.411	0.027	NO
	Del Mar Heights Road to Townsgate Drive	6-M	A	17,014	0.340	A	19,686	0.394	0.053	NO
	Townsgate Drive to High Bluff Drive	6-M	A	16,662	0.333	A	18,977	0.380	0.046	NO
	High Bluff Drive to Valley Centre Drive	6-M	B	21,035	0.421	B	22,638	0.453	0.032	NO
	Valley Centre Drive to Carmel Valley Road	5-M	C	30,131	0.670	C	31,199	0.693	0.024	NO
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	4-M	B	16,410	0.410	B	18,191	0.455	0.045	NO
	Townsgate Drive to Carmel Creek Road	4-M	A	14,294	0.357	B	15,719	0.393	0.036	NO
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,531	0.338	A	14,422	0.361	0.022	NO
	Carmel Canyon Road to SR-56 WB Ramps	4-M	C	21,170	0.529	C	21,882	0.547	0.018	NO
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Rd.	4-M	A	12,591	0.315	A	12,947	0.324	0.009	NO
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	A	11,542	0.289	A	12,077	0.302	0.013	NO
	Carmel Grove Road to SR-56 WB Ramps	4-M	B	15,933	0.398	B	16,467	0.412	0.013	NO
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	B	11,826	0.394	B	12,004	0.400	0.006	NO
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	45,968	0.766	C	46,324	0.772	0.006	NO
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	D	10,137	0.676	D	10,672	0.711	0.036	NO
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	26,732	2.673	F	27,088	2.709	0.036	YES

Alternative 3 = 22,843 ADT = 15% Reduction from the Proposed Project

Segment #1) $0.116 \times 0.15 = 0.017$; $0.116 - 0.017 = 0.099$ (Segment remains significant)

Segment #2) $0.036 \times 0.15 = 0.005$; $0.036 - 0.005 = 0.031$ (Segment remains significant)

Segment #3) $0.036 \times 0.15 = 0.005$; $0.036 - 0.005 = 0.031$ (Segment remains significant)

Near Term Comp (Phase 1&2)

ATTACHMENT 15

Year 2030 Without & Year 2030 With Project (Buildout) Street Segment Comparison

EIR Alternative 3 - Commercial Only

Road	Segment	Class.	Year 2030			Year 2030 + Project (Buildout)			$\Delta V/C$	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	D	39,580	0.880	D	41,639	0.930	0.050	NO
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	39,580	0.792	D	42,815	0.856	0.065	NO
	I-5 SB Ramps and I-5 NB Ramps	5-PA	C	37,820	0.756	D	43,482	0.870	0.113	NO
	I-5 Northbound Ramps to High Bluff Drive	PA	D	51,800	0.863	F	62,315	1.039	0.175	YES
	High Bluff Drive to Third Avenue	PA	C	42,770	0.713	D	54,902	0.915	0.202	NO
	Third Avenue to First Avenue	PA	C	42,770	0.713	D	53,824	0.897	0.184	NO
	First Avenue to El Camino Real	PA	C	42,770	0.713	D	53,824	0.897	0.184	NO
	El Camino Real to Carmel Country Road	PA	C	38,370	0.640	C	46,189	0.770	0.130	NO
	Carmel Country Road to Torrey Ridge Road	PA	B	34,400	0.573	C	37,905	0.632	0.058	NO
	Torrey Ridge Road to Lansdale Drive	PA	B	34,400	0.573	C	36,826	0.614	0.040	NO
	Lansdale Drive to Carmel Canyon Road	PA	B	34,400	0.573	C	35,748	0.596	0.022	NO
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	31,320	2.088	F	32,129	2.142	0.054	YES
	San Dieguito Road to Derby Downs Road	4-M	C	29,000	0.725	D	30,078	0.752	0.027	NO
	Derby Downs Road to Half Mile Drive	4-M	C	29,000	0.725	D	30,078	0.752	0.027	NO
	Half Mile Drive to Quarter Mile Drive	4-M	C	29,000	0.725	D	30,348	0.759	0.034	NO
	Quarter Mile Drive to Del Mar Heights Road	4-M	C	29,000	0.725	D	30,618	0.765	0.040	NO
	Del Mar Heights Road to Townsgate Drive	6-M	B	23,000	0.460	C	28,392	0.568	0.108	NO
	Townsgate Drive to High Bluff Drive	6-M	B	26,000	0.520	C	29,505	0.590	0.070	NO
	High Bluff Drive to Valley Centre Drive	6-M	C	35,620	0.712	C	38,046	0.761	0.049	NO
	Valley Centre Drive to Carmel Valley Road	5-M	D	36,470	0.810	D	38,088	0.846	0.036	NO
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	4-M	C	22,280	0.557	C	24,976	0.624	0.067	NO
	Townsgate Drive to Carmel Creek Road	4-M	B	18,800	0.470	B	20,957	0.524	0.054	NO
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,590	0.340	A	14,938	0.373	0.034	NO
	Carmel Canyon Road to SR-56 WB Ramps	4-M	C	26,000	0.650	C	27,078	0.677	0.027	NO
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Rd.	4-M	A	13,000	0.325	A	13,539	0.338	0.013	NO
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	B	15,000	0.375	B	15,809	0.395	0.020	NO
	Carmel Grove Road to SR-56 WB Ramps	4-M	B	17,000	0.425	B	17,809	0.445	0.020	NO
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	D	20,000	0.667	D	20,270	0.676	0.009	NO
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	43,020	0.717	C	43,559	0.726	0.009	NO
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	D	11,700	0.780	D	12,509	0.834	0.054	NO
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	33,100	3.310	F	33,639	3.364	0.054	YES

Alternative 3 - 22,843 ADT = 15% Reduction from the Proposed Project

Segment #1) $0.175 \times 0.15 = 0.026$; $0.175 - 0.026 = 0.149$ (Segment remains significant)

Segment #2) $0.054 \times 0.15 = 0.008$; $0.054 - 0.008 = 0.046$ (Segment remains significant)

Segment #3) $0.054 \times 0.15 = 0.008$; $0.054 - 0.008 = 0.046$ (Segment remains significant)

Year 2030 Comp (Buildout)

ATTACHMENT 16

Near Term With & Without Project (Phase 1 & 2) Intersection Summary

EIR Alternative 3 - Commercial Only

#	Intersection	Near Term				Near Term + Project (Phase 1 & 2)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	31.4	C	38.8	D	32.2	C	0.8	N	42.5	D	3.7	N
2	El Camino Real / San Dieguito Road	16.9	B	25.2	C	17.3	B	0.4	N	26.9	C	1.7	N
3	El Camino Real / Derby Downs Road	4.3	A	4.5	A	4.3	A	0.0	N	5.0	A	0.5	N
4	El Camino Real / Half Mile Drive	20.6	B	18.0	B	21.8	C	1.2	N	18.5	B	0.5	N
5	El Camino Real / Quarter Mile Drive	20.6	C	15.1	B	20.6	C	0.0	N	16.4	B	1.3	N
6	Del Mar Heights Road / Mango Drive	33.3	C	31.4	C	34.5	C	1.2	N	34.3	C	2.9	N
7	Del Mar Heights Road / Portofino Drive	9.4	A	9.2	A	9.6	A	0.2	N	9.4	A	0.2	N
8	Del Mar Heights Road / I-5 SB Ramps	24.8	C	23	C	28.7	C	3.9	N	27.8	C	4.8	N
9	Del Mar Heights Road / I-5 NB Ramps	39.6	D	38.3	D	49.8	D	10.2	N	50.5	D	12.2	N
10	Del Mar Heights Road / High Bluff Drive	28.5	C	32.1	C	31.3	C	2.8	N	56.2	E	24.1	Y
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	6.5	A	0.0	N	13.5	B	0.0	N
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	6	A	0.0	N	15.6	B	0.0	N
13	Del Mar Heights Road / El Camino Real	29.9	C	29.5	C	34.5	C	4.6	N	59.1	E	29.6	Y
14	Del Mar Heights Road / Carmel Country Rd	22.9	C	21.1	C	26.4	C	3.5	N	25.6	C	4.5	N
15	Del Mar Heights Road / Torrey Ridge Drive	23.6	C	11.9	B	26.0	C	2.4	N	11.9	B	0.0	N
16	Del Mar Heights Road / Lansdale Drive	19.0	B	17.6	B	20.4	C	1.4	N	18.4	B	0.8	N
17	Del Mar Heights Road / Carmel Canyon Rd	13.8	B	10.2	B	14.0	B	0.2	N	10.2	B	0.0	N
18	El Camino Real / Del Mar Highlands Town Ctr.	6.8	A	13.5	B	14.3	B	7.5	N	27.5	C	14.0	N
19	Carmel Country Road / Townsgate Drive	26.5	C	21.8	C	27.4	C	0.9	N	22.6	C	0.8	N
20	El Camino Real / Townsgate Drive	21.3	C	20.7	C	21.3	C	0.0	N	20.9	C	0.2	N
21	Carmel Country Road / Carmel Creek Rd	58.6	E	24.1	C	60.4	E	1.8	N	27.4	C	3.3	N
22	El Camino Real / High Bluff Drive	21.1	C	26.2	C	21.6	C	0.5	N	29.0	C	2.8	N
23	Carmel View Road / High Bluff Drive	8.4	A	9.1	A	8.7	A	0.3	N	9.7	A	0.6	N
24	Carmel Creek Road / Carmel Grove Rd	27.8	C	17.5	B	27.8	C	0.0	N	17.7	B	0.2	N
25	Carmel Valley Road / I-5 SB Ramps	22.6	C	32.1	C	22.8	C	0.2	N	32.6	C	0.5	N
26	Carmel Valley Road / I-5 NB Ramps	13.6	B	20.4	C	14.1	B	0.5	N	20.6	C	0.2	N
27	El Camino Real / Valley Centre Drive	24.6	C	23.2	C	32.7	C	8.1	N	29.8	C	6.6	N
28	El Camino Real / Carmel Valley Rd	14.8	B	19.2	B	15	B	0.2	N	19.8	B	0.6	N
29	El Camino Real / SR-56 EB On Ramp	18.0	B	32.3	C	18.6	B	0.6	N	35.1	D	2.8	N
30	Carmel View Road / Valley Centre Drive	7.4	A	8.3	A	7.4	A	0.0	N	8.3	A	0.0	N
31	Carmel Creek Road / SR-56 WB Ramp	45.7	D	27	C	46.6	D	0.9	N	30.6	C	3.6	N
32	Carmel Creek Road / SR-56 EB Ramps	12.5	B	27.4	C	12.6	B	0.1	N	27.6	C	0.2	N
33	Carmel Country Road / Carmel Canyon Rd	33.1	C	25.6	C	35.9	D	2.8	N	25.6	C	0.0	N
34	Carmel Country Road / SR-56 WB Ramps	16.2	B	10.9	B	16.2	B	0.0	N	12.3	B	1.4	N
35	Carmel Country Road / SR-56 EB Ramps	14.1	B	11.7	B	14.3	B	0.2	N	12.1	B	0.4	N
36	Carmel Creek Road / Del Mar Trail	47.9	E	21.7	C	52.0	F	4.1	Y	23.8	C	2.1	N

AM Peak Reduction for Alternative 3 = 21%

PM Peak Reduction for Alternative 3 = 13%

Int #10) $24.1 \times 0.13 = 3.1$; $24.1 - 3.1 = 21.0$ sec. (Intersection remains significant)

Int #13) $29.6 \times 0.13 = 3.8$; $29.6 - 3.8 = 25.8$ sec. (Intersection remains significant)

Int #36) $4.1 \times 0.21 = 0.8$; $4.1 - 0.8 = 3.3$ sec. (Intersection remains significant)

ATTACHMENT 17

Year 2030 With & Without Project (Buildout) Intersection Summary

EIR Alternative 3 - Commercial Only

#	Intersection	Year 2030				Year 2030 + Project (Buildout)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	22.2	C	19.1	B	23.1	C	0.9	No	20.4	C	1.3	No
2	El Camino Real / San Dieguito Road	24.2	C	47.2	D	26.7	C	2.5	No	52.5	D	5.3	No
3	El Camino Real / Derby Downs Road	4.3	A	5.1	A	4.3	A	0.0	No	5.1	A	0.0	No
4	El Camino Real / Half Mile Drive	22.9	C	14.0	B	24.8	C	1.9	No	14.1	B	0.1	No
5	El Camino Real / Quarter Mile Drive	20.6	C	12.1	B	25.2	C	4.6	No	12.7	B	0.6	No
6	Del Mar Heights Road / Mango Drive	36.8	D	29.3	C	39.6	D	2.8	No	35.7	D	6.4	No
7	Del Mar Heights Road / Portofino Drive	9.8	A	9.6	A	10.1	B	0.3	No	10.1	B	0.5	No
8	Del Mar Heights Road / I-5 SB Ramps	26.1	C	22.4	C	29	C	2.9	No	25.7	C	3.3	No
9	Del Mar Heights Road / I-5 NB Ramps	71.5	B	55.5	E	107.1	F	35.6	Yes	94.0	F	38.5	Yes
10	Del Mar Heights Road / High Bluff Drive	44.0	D	40.1	D	55.3	E	11.3	Yes	80.2	F	40.1	Yes
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	8.3	A	0.0	No	20.7	C	0.0	No
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	7.7	A	0.0	No	20.9	C	0.0	No
13	Del Mar Heights Road / El Camino Real	35.0	C	41.5	D	50.8	D	15.8	No	84.1	F	42.6	Yes
14	Del Mar Heights Road / Carmel Country Rd	33.6	C	34.1	C	41.3	D	7.7	No	49.3	D	15.2	No
15	Del Mar Heights Road / Torrey Ridge Drive	29.5	C	11.9	B	33.1	C	3.6	No	14.4	B	2.5	No
16	Del Mar Heights Road / Lansdale Drive	32.7	C	18.7	B	41.1	D	8.4	No	20.9	C	2.2	No
17	Del Mar Heights Road / Carmel Canyon Rd	29.4	C	16.0	B	29.8	C	0.4	No	17.2	B	1.2	No
18	El Camino Real / Del Mar Highlands Town Ctr.	6.2	A	14.2	B	17.4	B	11.2	No	33.7	C	19.5	No
19	Carmel Country Road / Townsgate Drive	32.0	C	29.8	C	32.9	C	0.9	No	34.6	C	4.8	No
20	El Camino Real / Townsgate Drive	22.5	C	24.3	C	22.7	C	0.2	No	35.4	D	11.1	No
21	Carmel Country Road / Carmel Creek Rd	41.5	D	19.7	B	45.7	D	4.2	No	21.5	C	1.8	No
22	El Camino Real / High Bluff Drive	22.9	C	33.6	C	24.4	C	1.5	No	40.0	D	6.4	No
23	Carmel View Road / High Bluff Drive	8.9	A	9.8	A	9.3	A	0.4	No	10.9	B	1.1	No
24	Carmel Creek Road / Carmel Grove Rd	15.3	B	11.4	B	15.3	B	0.0	No	17.3	B	5.9	No
25	Carmel Valley Road / I-5 SB Ramps	25.3	C	30.9	C	26.3	C	1.0	No	35.3	D	4.4	No
26	Carmel Valley Road / I-5 NB Ramps	26.8	C	19.6	B	27.3	C	0.5	No	20.0	B	0.4	No
27	El Camino Real / Valley Centre Drive	22.0	C	27.4	C	22.2	C	0.2	No	29.3	C	1.9	No
28	El Camino Real / Carmel Valley Rd	22.0	C	17.6	B	22.2	C	0.2	No	19.2	B	1.6	No
29	El Camino Real / SR-56 EB On Ramp	23.1	C	35.0	F	23.6	C	0.5	No	97.6	F	8.6	Yes
30	Carmel View Road / Valley Centre Drive	7.7	A	6.2	A	7.7	A	0.0	No	6.2	A	0.0	No
31	Carmel Creek Road / SR-56 WB Ramp	47.0	D	42.6	D	54.2	D	7.2	No	53.3	D	10.7	No
32	Carmel Creek Road / SR-56 EB Ramps	15.0	B	22.9	C	15.0	B	0.0	No	23.4	C	0.5	No
33	Carmel Country Road / Carmel Canyon Rd	34.5	C	33.4	C	36.6	D	2.1	No	34.1	C	0.7	No
34	Carmel Country Road / SR-56 WB Ramps	17.1	B	9.9	A	17.1	B	0.0	No	12.7	B	2.8	No
35	Carmel Country Road / SR-56 EB Ramps	20.1	C	18.2	B	22.0	C	1.9	No	18.7	B	0.5	No
36	Carmel Creek Road / Del Mar Trail	43.3	E	20.6	C	48.3	E	5.0	Yes	25.6	C	3.0	No

Notes:

AM Peak Reduction for Alternative 3 = 21%
PM Peak Reduction for Alternative 3 = 13%

#9 AM) $35.6 \times 0.21 = 7.5$; $35.6 - 7.5 = 28.1$ sec. (Intersection remains significant)
#9 PM) $38.5 \times 0.13 = 5.0$; $38.5 - 5.0 = 33.5$ sec. (Intersection remains significant)
#10 AM) $11.3 \times 0.21 = 2.4$; $11.3 - 2.4 = 8.9$ sec. (Intersection remains significant)
#10 PM) $40.1 \times 0.13 = 5.2$; $40.1 - 5.2 = 34.9$ sec. (Intersection remains significant)
#13 PM) $42.6 \times 0.13 = 5.5$; $42.6 - 5.5 = 37.1$ sec. (Intersection remains significant)
#29 (PM) $8.6 \times 0.13 = 1.1$; $8.6 - 1.1 = 7.5$ sec. (Intersection remains significant)
#36 (AM) $5.0 \times 0.21 = 1.0$; $5.0 - 1.0 = 4.0$ sec. (Intersection remains significant)

ATTACHMENT 18
Year 2030 With & Without Project Ramp Meter Analysis
EIR Alternative 3 - Commercial Only

Most Restrictive Meter Rate

Location		Year 2030		Year 2030 With Project (Buildout)		Δ	S
		Delay (Min)	Queue (Ft)	Delay (Min)	Queue (Ft)		
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound Loop)	AM	40.27	7,163	47.61	8,468	7.34	YES
	PM	5.22	928	29.84	5,307	24.62	YES
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	0.00	0	0.00	0	0.00	NO
	PM	0.00	0	0.00	0	0.00	NO
Del Mar Heights Rd. / I-5 NB on Ramp	AM	0.00	0	1.37	392	1.37	NO
	PM	8.30	2,378	16.04	4,597	7.74	YES
El Camino Real / SR-56 EB on Ramp	AM	0.00	0	0.00	0	0.00	NO
	PM	3.93	2,277	4.78	2,770	0.85	NO
Carmel Country Rd. / SR-56 EB on Ramp	AM	0.00	0	0.00	0	0.00	NO
	PM	0.00	0	0.00	0	0.00	NO

AM Peak Reduction = 21%
PM Peak Reduction = 13%

DMH / I-5 SB AM: $7.34 \times 0.21 = 1.54$; $7.34 - 1.54 = 5.8$ (Remains a significant impact)
DMH / I-5 SB PM: $24.62 \times 0.13 = 3.20$; $24.62 - 3.20 = 21.4$ (Remains a significant impact)
DMH / I-5 NB PM: $7.74 \times 0.13 = 1.0$; $7.74 - 1.0 = 6.7$ (Remains a significant impact)

15 Minute Max. Meter Rate

Location		Year 2030		Year 2030 With Project (Buildout)		Δ	S
		Delay (Min)	Queue (Ft)	Delay (Min)	Queue (Ft)		
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound Loop)	AM	15.0	3,567	20.5	4,872	5.5	YES
	PM	15.0	2,320	43.3	6,699	28.3	YES
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	15.0	2,291	15.0	2,291	0.0	NO
	PM	15.0	1,740	15.0	1,740	0.0	NO
Del Mar Heights Rd. / I-5 NB on Ramp	AM	15.0	3,393	17.8	4,031	2.8	YES
	PM	15.0	3,915	23.6	6,148	8.6	YES
El Camino Real / SR-56 EB on Ramp	AM	15.0	4,060	15.5	4,205	0.5	NO
	PM	15.0	7,415	16.0	7,903	1.0	NO
Carmel Country Rd. / SR-56 EB on Ramp	AM	15.0	1,914	16.1	2,059	1.1	NO
	PM	15.0	1,711	19.3	2,204	4.3	NO

Notes:

Δ = Change in Delay (minutes)

S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and free-way LOS E is 2 min.

S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and free-way LOS F is 1 min.

ATTACHMENT 19

One Paseo Trip Generation Table

EIR Alternative 4 - Medical Office / Senior Housing

Proposed Project

Use	Amount	Trip	ADT	AM Peak Hour						PM Peak Hour					
				%*	#	In	: Out	In	Out	%*	#	In	: Out	In	Out
Medical Office	425,000 SF	50 /KSF	21,250	6%	1,275	8	: 2	1,020	255	10%	2,125	3	: 7	638	1,488
Senior Housing	600 DU	4 /DU	2,400	8%	192	2	: 8	38	154	10%	240	7	: 3	168	72
TOTAL			23,650		1,467			1,058	409		2,365			806	1,560
Proposed Project			26,961		1,538			1,057	481		2,932			1,231	1,701
EIR Alternative Reduction %			12%		5%			0.01%	15%		19%			34%	8%

Notes:

* = Source: City of San Diego Trip Generation Manual, May 2003

DU = Dwelling Unit

KSF = 1,000 Square Foot

ATTACHMENT 20

Existing & Existing With Project (Phase 1 & 2) Street Segment Comparison

EIR Alternative 4 - Medical Office / Senior Housing

Road	Segment	Class.	Existing			Existing + Project (Phase 1 & 2)			$\Delta V/C$	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	B	21,314	0.474	B	22,917	0.509	0.036	NO
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	36,086	0.722	C	38,223	0.764	0.043	NO
	I-5 Southbound Ramps and I-5 Northbound Ramps	5-PA	D	40,090	0.802	D	43,831	0.877	0.075	NO
	I-5 Northbound Ramps to High Bluff Drive	PA	D	51,625	0.860	E	58,572	0.976	0.116	YES
	High Bluff Drive to Third Avenue	PA	C	37,910	0.632	C	45,925	0.765	0.134	NO
	Third Avenue to First Avenue	PA	C	37,910	0.632	C	45,213	0.754	0.122	NO
	First Avenue to El Camino Real	PA	C	37,910	0.632	C	45,213	0.754	0.122	NO
	El Camino Real to Carmel Country Road	PA	B	32,674	0.545	C	37,483	0.625	0.080	NO
	Carmel Country Road to Torrey Ridge Road	PA	A	21,658	0.361	A	23,974	0.400	0.039	NO
	Torrey Ridge Road to Lansdale Drive	PA	A	19,071	0.318	A	20,674	0.345	0.027	NO
	Lansdale Drive to Carmel Canyon Road	PA	A	15,188	0.253	A	16,079	0.268	0.015	NO
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	15,579	1.039	F	16,113	1.074	0.036	YES
	San Dieguito Road to Derby Downs Road	4-M	A	13,915	0.348	A	14,627	0.366	0.018	NO
	Derby Downs Road to Half Mile Drive	4-M	B	15,333	0.383	B	16,045	0.401	0.018	NO
	Half Mile Drive to Quarter Mile Drive	4-M	A	13,516	0.338	A	14,407	0.360	0.022	NO
	Quarter Mile Drive to Del Mar Heights Road	4-M	A	14,925	0.373	B	15,994	0.400	0.027	NO
	Del Mar Heights Road to Townsgate Drive	6-M	A	14,731	0.295	A	17,403	0.348	0.053	NO
	Townsgate Drive to High Bluff Drive	6-M	A	15,425	0.309	A	17,741	0.355	0.046	NO
	High Bluff Drive to Valley Centre Drive	6-M	A	19,364	0.387	B	20,967	0.419	0.032	NO
	Valley Centre Drive to Carmel Valley Road	5-M	C	27,589	0.613	C	28,658	0.637	0.024	NO
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	4-M	B	15,932	0.398	B	17,713	0.443	0.045	NO
	Townsgate Drive to Carmel Creek Road	4-M	A	13,878	0.347	B	15,303	0.383	0.036	NO
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,137	0.328	A	14,028	0.351	0.022	NO
	Carmel Canyon Road to SR-56 Westbound Ramps	4-M	B	20,553	0.514	C	21,265	0.532	0.018	NO
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Road	4-M	A	12,224	0.306	A	12,580	0.315	0.009	NO
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	A	11,206	0.280	A	11,740	0.294	0.013	NO
	Carmel Grove Road to SR-56 Westbound Ramps	4-M	A	14,862	0.372	B	15,396	0.385	0.013	NO
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	B	10,875	0.363	B	11,053	0.368	0.006	NO
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	43,375	0.723	C	43,731	0.729	0.006	NO
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	C	9,842	0.656	D	10,376	0.692	0.036	NO
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	24,400	2.440	F	24,756	2.476	0.036	YES

Alternative 4 - 23,650 ADT = 12% Reduction from the Proposed Project

Segment #1) $0.116 \times 0.12 = 0.014$; $0.116 - 0.014 = 0.102$ (Segment remains significant)

Segment #2) $0.036 \times 0.12 = 0.004$; $0.036 - 0.004 = 0.032$ (Segment remains significant)

Segment #3) $0.036 \times 0.12 = 0.004$; $0.036 - 0.004 = 0.032$ (Segment remains significant)

E+P (Phase 1&2) Comparison

ATTACHMENT 21

Existing & Existing With Project (Buildout) Street Segment Comparison

EIR Alternative 4 - Medical Office / Senior Housing

Road	Segment	Class.	Existing			Existing + Project (Buildout)			$\Delta V/C$	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	B	21,314	0.474	B	23,740	0.528	0.054	NO
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	36,086	0.722	C	39,321	0.786	0.065	NO
	I-5 Southbound Ramps and I-5 Northbound Ramps	5-PA	D	40,090	0.802	D	45,752	0.915	0.113	NO
	I-5 Northbound Ramps to High Bluff Drive	PA	D	51,625	0.860	F	62,140	1.036	0.175	YES
	High Bluff Drive to Third Avenue	PA	C	37,910	0.632	D	50,042	0.834	0.202	NO
	Third Avenue to First Avenue	PA	C	37,910	0.632	C	48,964	0.816	0.184	NO
	First Avenue to El Camino Real	PA	C	37,910	0.632	C	48,964	0.816	0.184	NO
	El Camino Real to Carmel Country Road	PA	B	32,674	0.545	C	39,953	0.666	0.121	NO
	Carmel Country Road to Torrey Ridge Road	PA	A	21,658	0.361	B	25,163	0.419	0.058	NO
	Torrey Ridge Road to Lansdale Drive	PA	A	19,071	0.318	A	21,497	0.358	0.040	NO
	Lansdale Drive to Carmel Canyon Road	PA	A	15,188	0.253	A	16,536	0.276	0.022	NO
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	15,579	1.039	F	16,388	1.093	0.054	YES
	San Dieguito Road to Derby Downs Road	4-M	A	13,915	0.348	A	14,993	0.375	0.027	NO
	Derby Downs Road to Half Mile Drive	4-M	B	15,333	0.383	B	16,411	0.410	0.027	NO
	Half Mile Drive to Quarter Mile Drive	4-M	A	13,516	0.338	A	14,864	0.372	0.034	NO
	Quarter Mile Drive to Del Mar Heights Road	4-M	A	14,925	0.373	B	16,543	0.414	0.040	NO
	Del Mar Heights Road to Townsgate Drive	6-M	A	14,731	0.295	B	20,123	0.402	0.108	NO
	Townsgate Drive to High Bluff Drive	6-M	A	15,425	0.309	A	18,930	0.379	0.070	NO
	High Bluff Drive to Valley Centre Drive	6-M	A	19,364	0.387	B	21,790	0.436	0.049	NO
	Valley Centre Drive to Carmel Valley Road	5-M	C	27,589	0.613	C	29,207	0.649	0.036	NO
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	4-M	B	15,932	0.398	B	18,628	0.466	0.067	NO
	Townsgate Drive to Carmel Creek Road	4-M	A	13,878	0.347	B	16,035	0.401	0.054	NO
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,137	0.328	A	14,485	0.362	0.034	NO
	Carmel Canyon Road to SR-56 Westbound Ramps	4-M	B	20,553	0.514	C	21,631	0.541	0.027	NO
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Road	4-M	A	12,224	0.306	A	12,763	0.319	0.013	NO
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	A	11,206	0.280	A	12,015	0.300	0.020	NO
	Carmel Grove Road to SR-56 Westbound Ramps	4-M	A	14,862	0.372	B	15,671	0.392	0.020	NO
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	B	10,875	0.363	B	11,145	0.371	0.009	NO
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	43,375	0.723	C	43,914	0.732	0.009	NO
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	C	9,842	0.656	D	10,651	0.710	0.054	NO
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	24,400	2.440	F	24,939	2.494	0.054	YES

Alternative 4 - 23,650 ADT = 12% Reduction from the Proposed Project

Segment #1) $0.175 \times 0.12 = 0.021$; $0.175 - 0.021 = 0.154$ (Segment remains significant)

Segment #2) $0.054 \times 0.12 = 0.006$; $0.054 - 0.006 = 0.048$ (Segment remains significant)

Segment #3) $0.054 \times 0.12 = 0.006$; $0.054 - 0.006 = 0.048$ (Segment remains significant)

E+P (Buildout) Comparison

ATTACHMENT 22

Existing & Existing + Project (Phase 1 & 2) Intersection Summary

EIR Alternative 4 - Medical Office / Senior Housing

#	Intersection	Existing				Existing + Project (Phase 1 & 2)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	27.7	C	30.0	C	28.4	C	0.7	No	32.6	C	2.6	No
2	El Camino Real / San Dieguito Road	16.6	B	23.8	C	16.8	B	0.2	No	25.8	C	2.0	No
3	El Camino Real / Derby Downs Road	4.3	A	3.3	A	4.3	A	0.0	No	4.6	A	1.3	No
4	El Camino Real / Half Mile Drive	19.6	B	16.8	B	20.6	C	1.0	No	17.3	B	1.0	No
5	El Camino Real / Quarter Mile Drive	20.0	B	14.0	B	20.1	C	0.1	No	15.1	B	1.1	No
6	Del Mar Heights Road / Mango Drive	31.7	C	29.7	C	32.5	C	0.8	No	32.3	C	2.6	No
7	Del Mar Heights Road / Portofino Drive	9.3	A	9.1	A	9.5	A	0.2	No	9.3	A	0.2	No
8	Del Mar Heights Road / I-5 SB Ramps	22.5	C	20.3	C	24.8	C	2.3	No	24.0	C	3.7	No
9	Del Mar Heights Road / I-5 NB Ramps	35.1	D	37.5	D	37.7	D	2.6	No	41.2	D	3.7	No
10	Del Mar Heights Road / High Bluff Drive	26.1	C	28.9	C	27.4	C	1.3	No	40.4	D	11.5	No
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	6.8	A	N/A	No	14.1	B	N/A	No
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	6.0	A	N/A	No	15.8	B	N/A	No
13	Del Mar Heights Road / El Camino Real	27.2	C	26.9	C	32.2	C	5.0	No	37.3	D	10.4	No
14	Del Mar Heights Road / Carmel Country Rd	22.1	C	24.3	C	25.5	C	3.4	No	28.6	C	4.3	No
15	Del Mar Heights Road / Torrey Ridge Drive	22.7	C	14.9	B	25.1	C	2.4	No	16.2	B	1.3	No
16	Del Mar Heights Road / Lansdale Drive	20.4	C	19.8	B	22.1	C	1.7	No	23.8	C	4.0	No
17	Del Mar Heights Road / Carmel Canyon Rd	13.4	B	9.8	A	13.6	B	0.2	No	9.9	A	0.1	No
18	El Camino Real / Del Mar Highlands Town Ctr.	7.2	A	12.4	B	17.9	B	10.7	No	26.1	C	13.7	No
19	Carmel Country Road / Townsgate Drive	25.8	C	20.2	C	26.6	C	0.8	No	22.1	C	1.9	No
20	El Camino Real / Townsgate Drive	18.2	B	13.0	B	18.6	B	0.4	No	13.7	B	0.7	No
21	Carmel Country Road / Carmel Creek Rd	45.3	D	23.2	C	47.7	D	2.4	No	25.7	C	2.5	No
22	El Camino Real / High Bluff Drive	25.2	C	27.9	C	25.8	C	0.6	No	30.1	C	2.2	No
23	Carmel View Road / High Bluff Drive	8.3	A	9.0	A	8.6	A	0.3	No	9.5	A	0.5	No
24	Carmel Creek Road / Carmel Grove Rd	26.8	C	17.2	B	26.8	C	0.0	No	17.3	B	0.1	No
25	Carmel Valley Road / I-5 SB Ramps	19.6	B	27.0	C	20.1	C	0.5	No	27.9	C	0.9	No
26	Carmel Valley Road / I-5 NB Ramps	12.6	B	18.2	B	12.6	B	0.0	No	18.4	B	0.2	No
27	El Camino Real / Valley Centre Drive	20.9	C	19.7	B	21.0	C	0.1	No	20.2	C	0.5	No
28	El Camino Real / Carmel Valley Rd	14.0	B	16.8	B	14.9	B	0.9	No	20.6	C	3.8	No
29	El Camino Real / SR-56 EB On Ramp	15.4	B	24.4	C	15.7	B	0.3	No	26.0	C	1.6	No
30	Carmel View Road / Valley Centre Drive	6.7	A	7.8	A	6.7	A	0.0	No	7.8	A	0.0	No
31	Carmel Creek Road / SR-56 WB Ramp	37.0	D	20.7	C	39.0	D	2.0	No	21.5	C	0.8	No
32	Carmel Creek Road / SR-56 EB Ramps	11.6	B	19.5	B	11.8	B	0.2	No	25.6	C	6.1	No
33	Carmel Country Road / Carmel Canyon Rd	31.9	C	23.2	C	32.2	C	0.3	No	25.2	C	2.0	No
34	Carmel Country Road / SR-56 WB Ramps	15.7	B	10.9	B	15.8	B	0.1	No	11.3	B	0.4	No
35	Carmel Country Road / SR-56 EB Ramps	13.4	B	11.5	B	13.4	B	0.0	No	11.9	B	0.4	No
36	Carmel Creek Road / Del Mar Trail	41.6	E	20.1	C	44.5	E	2.9	Yes	21.9	C	1.8	No

AM Peak Reduction % = 5%

Int. 36) $2.9 \times 0.05 = 0.145$; $2.9 - 0.145 = 2.7$ sec. (Intersection remains significant)

ATTACHMENT 23

Existing & Existing + Project (Buildout) Intersection Summary

EIR Alternative 4 - Medical Office / Senior Housing

#	Intersection	Existing				Existing + Project (Buildout)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	27.7	C	30.0	C	28.7	C	1.0	No	33.5	C	3.5	No
2	El Camino Real / San Dieguito Road	16.6	B	23.8	C	17.0	B	0.4	No	26.4	C	2.6	No
3	El Camino Real / Derby Downs Road	4.3	A	3.3	A	4.3	A	0.0	No	5.0	A	1.7	No
4	El Camino Real / Half Mile Drive	19.6	B	16.8	B	20.9	C	1.3	No	18.9	B	2.1	No
5	El Camino Real / Quarter Mile Drive	20.0	B	14.0	B	20.4	C	0.4	No	14.4	B	0.4	No
6	Del Mar Heights Road / Mango Drive	31.7	C	29.7	C	32.9	C	1.2	No	33.4	C	3.7	No
7	Del Mar Heights Road / Portofino Drive	9.3	A	9.1	A	9.6	A	0.3	No	9.4	A	0.3	No
8	Del Mar Heights Road / I-5 SB Ramps	22.5	C	20.3	C	25.1	C	2.6	No	25.9	C	5.6	No
9	Del Mar Heights Road / I-5 NB Ramps	35.1	D	37.5	D	40.4	D	5.3	No	51.3	D	13.8	No
10	Del Mar Heights Road / High Bluff Drive	26.1	C	28.9	C	29.1	C	3.0	No	47.2	D	18.3	No
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	8.7	A	N/A	No	21.2	C	N/A	No
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	7.7	A	N/A	No	22.0	C	N/A	No
13	Del Mar Heights Road / El Camino Real	27.2	C	26.9	C	33.6	C	6.4	No	45.5	D	18.6	No
14	Del Mar Heights Road / Carmel Country Rd	22.1	C	24.3	C	26.5	C	4.4	No	36.5	D	12.2	No
15	Del Mar Heights Road / Torrey Ridge Drive	22.7	C	14.9	B	25.3	C	2.6	No	15.4	B	0.5	No
16	Del Mar Heights Road / Lansdale Drive	20.4	C	19.8	B	22.9	C	2.5	No	27.6	C	7.8	No
17	Del Mar Heights Road / Carmel Canyon Rd	13.4	B	9.8	A	13.6	B	0.2	No	10.0	A	0.2	No
18	El Camino Real / Del Mar Highlands Town Ctr.	7.2	A	12.4	B	19.1	B	11.9	No	28.7	C	16.3	No
19	Carmel Country Road / Townsgate Drive	25.8	C	20.2	C	26.9	C	1.1	No	22.7	C	2.5	No
20	El Camino Real / Townsgate Drive	18.2	B	13.0	B	18.8	B	0.6	No	14.1	B	1.1	No
21	Carmel Country Road / Carmel Creek Rd	45.3	D	23.2	C	49.2	D	3.9	No	27.7	C	4.5	No
22	El Camino Real / High Bluff Drive	25.2	C	27.9	C	25.8	C	0.6	No	31.8	C	3.9	No
23	Carmel View Road / High Bluff Drive	8.3	A	9.0	A	8.7	A	0.4	No	9.8	A	0.8	No
24	Carmel Creek Road / Carmel Grove Rd	26.8	C	17.2	B	26.8	C	0.0	No	17.4	B	0.2	No
25	Carmel Valley Road / I-5 SB Ramps	19.6	B	27.0	C	20.1	C	0.5	No	27.6	C	0.6	No
26	Carmel Valley Road / I-5 NB Ramps	12.6	B	18.2	B	12.6	B	0.0	No	18.2	B	0.0	No
27	El Camino Real / Valley Centre Drive	20.9	C	19.7	B	21.1	C	0.2	No	20.2	C	0.5	No
28	El Camino Real / Carmel Valley Rd	14.0	B	16.8	B	14.9	B	0.9	No	20.9	C	4.1	No
29	El Camino Real / SR-56 EB On Ramp	15.4	B	24.4	C	16.1	B	0.7	No	26.5	C	2.1	No
30	Carmel View Road / Valley Centre Drive	6.7	A	7.8	A	6.7	A	0.0	No	7.8	A	0.0	No
31	Carmel Creek Road / SR-56 WB Ramp	37.0	D	20.7	C	39.4	D	2.4	No	21.6	C	0.9	No
32	Carmel Creek Road / SR-56 EB Ramps	11.6	B	19.5	B	11.7	B	0.1	No	26.0	C	6.5	No
33	Carmel Country Road / Carmel Canyon Rd	31.9	C	23.2	C	32.3	C	0.4	No	25.5	C	2.3	No
34	Carmel Country Road / SR-56 WB Ramps	15.7	B	10.9	B	15.8	B	0.1	No	11.4	B	0.5	No
35	Carmel Country Road / SR-56 EB Ramps	13.4	B	11.5	B	13.4	B	0.0	No	12.1	B	0.6	No
36	Carmel Creek Road / Del Mar Trail	41.6	E	20.1	C	46.2	E	4.6	Yes	22.9	C	2.8	No

AM Peak Reduction % = 5%

Int. 36) $4.6 \times 0.05 = 0.23$; $4.6 - 0.23 = 4.4$ sec. (Intersection remains significant)

ATTACHMENT 24

Near Term With & Without Project Street Segment Comparison Phase 1 & 2

EIR Alternative 4 - Medical Office / Senior Housing

Road	Segment	Class.	Near Term			Near Term + Project (Phase 1 & 2)			$\Delta V/C$	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	B	21,953	0.488	B	23,557	0.523	0.036	NO
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	37,169	0.743	C	39,306	0.786	0.043	NO
	I-5 SB Ramps and I-5 NB Ramps	5-PA	D	41,213	0.824	D	44,953	0.899	0.075	NO
	I-5 Northbound Ramps to High Bluff Drive	PA	D	54,775	0.913	F	61,721	1.029	0.116	YES
	High Bluff Drive to Third Avenue	PA	C	40,648	0.677	C	48,664	0.811	0.134	NO
	Third Avenue to First Avenue	PA	C	40,648	0.677	C	47,951	0.799	0.122	NO
	First Avenue to El Camino Real	PA	C	40,648	0.677	C	47,951	0.799	0.122	NO
	El Camino Real to Carmel Country Road	PA	B	33,654	0.561	C	38,463	0.641	0.080	NO
	Carmel Country Road to Torrey Ridge Road	PA	A	22,308	0.372	A	24,623	0.410	0.039	NO
	Torrey Ridge Road to Lansdale Drive	PA	A	19,643	0.327	A	21,246	0.354	0.027	NO
	Lansdale Drive to Carmel Canyon Road	PA	A	15,644	0.261	A	16,534	0.276	0.015	NO
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	16,235	1.082	F	16,770	1.118	0.036	YES
	San Dieguito Road to Derby Downs Road	4-M	A	14,332	0.358	B	15,045	0.376	0.018	NO
	Derby Downs Road to Half Mile Drive	4-M	B	15,793	0.395	B	16,505	0.413	0.018	NO
	Half Mile Drive to Quarter Mile Drive	4-M	A	13,921	0.348	A	14,812	0.370	0.022	NO
	Quarter Mile Drive to Del Mar Heights Road	4-M	B	15,373	0.384	B	16,441	0.411	0.027	NO
	Del Mar Heights Road to Townsgate Drive	6-M	A	17,014	0.340	A	19,686	0.394	0.053	NO
	Townsgate Drive to High Bluff Drive	6-M	A	16,662	0.333	A	18,977	0.380	0.046	NO
	High Bluff Drive to Valley Centre Drive	6-M	B	21,035	0.421	B	22,638	0.453	0.032	NO
Carmel Country Road	Valley Centre Drive to Carmel Valley Road	5-M	C	30,131	0.670	C	31,199	0.693	0.024	NO
	Del Mar Heights Road to Townsgate Drive	4-M	B	16,410	0.410	B	18,191	0.455	0.045	NO
	Townsgate Drive to Carmel Creek Road	4-M	A	14,294	0.357	B	15,719	0.393	0.036	NO
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,531	0.338	A	14,422	0.361	0.022	NO
Carmel Canyon Road	Carmel Canyon Road to SR-56 WB Ramps	4-M	C	21,170	0.529	C	21,882	0.547	0.018	NO
	Del Mar Heights Road to Carmel Country Rd.	4-M	A	12,591	0.315	A	12,947	0.324	0.009	NO
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	A	11,542	0.289	A	12,077	0.302	0.013	NO
	Carmel Grove Road to SR-56 WB Ramps	4-M	B	15,933	0.398	B	16,467	0.412	0.013	NO
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	B	11,826	0.394	B	12,004	0.400	0.006	NO
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	45,968	0.766	C	46,324	0.772	0.006	NO
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	D	10,137	0.676	D	10,672	0.711	0.036	NO
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	26,732	2.673	F	27,088	2.709	0.036	YES

Alternative 4 = 23,650 ADT = 12% Reduction from the Proposed Project

Segment #1) $0.116 \times 0.12 = 0.014$; $0.116 - 0.014 = 0.102$ (Segment remains significant)

Segment #2) $0.036 \times 0.12 = 0.004$; $0.036 - 0.004 = 0.032$ (Segment remains significant)

Segment #3) $0.036 \times 0.12 = 0.004$; $0.036 - 0.004 = 0.0312$ (Segment remains significant)

Near Term Comp (Phase 1&2)

ATTACHMENT 25

Year 2030 Without & Year 2030 With Project (Buildout) Street Segment Comparison

EIR Alternative 4 - Medical Office / Senior Housing

Road	Segment	Class.	Year 2030			Year 2030 + Project (Buildout)			Δ V/C	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	D	39,580	0.880	D	41,639	0.930	0.050	NO
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	39,580	0.792	D	42,815	0.856	0.065	NO
	I-5 SB Ramps and I-5 NB Ramps	5-PA	C	37,820	0.756	D	43,482	0.870	0.113	NO
	I-5 Northbound Ramps to High Bluff Drive	PA	D	51,800	0.863	F	62,315	1.039	0.175	YES
	High Bluff Drive to Third Avenue	PA	C	42,770	0.713	D	54,902	0.915	0.202	NO
	Thirrh Avenue to First Avenue	PA	C	42,770	0.713	D	53,824	0.897	0.184	NO
	First Avenue to El Camino Real	PA	C	42,770	0.713	D	53,824	0.897	0.184	NO
	El Camino Real to Carmel Country Road	PA	C	38,370	0.640	C	46,189	0.770	0.130	NO
	Carmel Country Road to Torrey Ridge Road	PA	B	34,400	0.573	C	37,905	0.632	0.058	NO
	Torrey Ridge Road to Lansdale Drive	PA	B	34,400	0.573	C	36,826	0.614	0.040	NO
	Lansdale Drive to Carmel Canyon Road	PA	B	34,400	0.573	C	35,748	0.596	0.022	NO
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	31,320	2.088	F	32,129	2.142	0.054	YES
	San Dieguito Road to Derby Downs Road	4-M	C	29,000	0.725	D	30,078	0.752	0.027	NO
	Derby Downs Road to Half Mile Drive	4-M	C	29,000	0.725	D	30,078	0.752	0.027	NO
	Half Mile Drive to Quarter Mile Drive	4-M	C	29,000	0.725	D	30,348	0.759	0.034	NO
	Quarter Mile Drive to Del Mar Heights Road	4-M	C	29,000	0.725	D	30,618	0.765	0.040	NO
	Del Mar Heights Road to Townsgate Drive	6-M	B	23,000	0.460	C	28,392	0.568	0.108	NO
	Townsgate Drive to High Bluff Drive	6-M	B	26,000	0.520	C	29,505	0.590	0.070	NO
	High Bluff Drive to Valley Centre Drive	6-M	C	35,620	0.712	C	38,046	0.761	0.049	NO
Carmel Country Road	Valley Centre Drive to Carmel Valley Road	5-M	D	36,470	0.810	D	38,088	0.846	0.036	NO
	Del Mar Heights Road to Townsgate Drive	4-M	C	22,280	0.557	C	24,976	0.624	0.067	NO
	Townsgate Drive to Carmel Creek Road	4-M	B	18,800	0.470	B	20,957	0.524	0.054	NO
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,590	0.340	A	14,938	0.373	0.034	NO
Carmel Canyon Road	Carmel Canyon Road to SR-56 WB Ramps	4-M	C	26,000	0.650	C	27,078	0.677	0.027	NO
	Del Mar Heights Road to Carmel Country Rd.	4-M	A	13,000	0.325	A	13,539	0.338	0.013	NO
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	B	15,000	0.375	B	15,809	0.395	0.020	NO
	Carmel Grove Road to SR-56 WB Ramps	4-M	B	17,000	0.425	B	17,809	0.445	0.020	NO
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	D	20,000	0.667	D	20,270	0.676	0.009	NO
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	43,020	0.717	C	43,559	0.726	0.009	NO
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	D	11,700	0.780	D	12,509	0.834	0.054	NO
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	33,100	3.310	F	33,639	3.364	0.054	YES

Alternative 4 = 23,650 ADT = 12% Reduction from the Proposed Project

Segment #1) $0.175 \times 0.12 = 0.021$; $0.175 - 0.021 = 0.154$ (Segment remains significant)

Segment #2) $0.054 \times 0.12 = 0.006$; $0.054 - 0.006 = 0.048$ (Segment remains significant)

Segment #3) $0.054 \times 0.12 = 0.006$; $0.054 - 0.006 = 0.048$ (Segment remains significant)

Year 2030 Comp (Buildout)

ATTACHMENT 26

Near Term With & Without Project (Phase 1 & 2) Intersection Summary

EIR Alternative 4 - Medical Office / Senior Housing

#	Intersection	Near Term				Near Term + Project (Phase 1 & 2)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	31.4	C	38.8	D	32.2	C	0.8	N	42.5	D	3.7	N
2	El Camino Real / San Dieguito Road	16.9	B	25.2	C	17.3	B	0.4	N	26.9	C	1.7	N
3	El Camino Real / Derby Downs Road	4.3	A	4.5	A	4.3	A	0.0	N	5.0	A	0.5	N
4	El Camino Real / Half Mile Drive	20.6	B	18.0	B	21.8	C	1.2	N	18.5	B	0.5	N
5	El Camino Real / Quarter Mile Drive	20.6	C	15.1	B	20.6	C	0.0	N	16.4	B	1.3	N
6	Del Mar Heights Road / Mango Drive	33.3	C	31.4	C	34.5	C	1.2	N	34.3	C	2.9	N
7	Del Mar Heights Road / Portofino Drive	9.4	A	9.2	A	9.6	A	0.2	N	9.4	A	0.2	N
8	Del Mar Heights Road / I-5 SB Ramps	24.8	C	23	C	28.7	C	3.9	N	27.8	C	4.8	N
9	Del Mar Heights Road / I-5 NB Ramps	39.6	D	38.3	D	49.8	D	10.2	N	50.5	D	12.2	N
10	Del Mar Heights Road / High Bluff Drive	28.5	C	32.1	C	31.3	C	2.8	N	56.2	E	24.1	Y
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	6.5	A	0.0	N	13.5	B	0.0	N
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	6	A	0.0	N	15.6	B	0.0	N
13	Del Mar Heights Road / El Camino Real	29.9	C	29.5	C	34.5	C	4.6	N	59.1	E	29.6	Y
14	Del Mar Heights Road / Carmel Country Rd	22.9	C	21.1	C	26.4	C	3.5	N	25.6	C	4.5	N
15	Del Mar Heights Road / Torrey Ridge Drive	23.6	C	11.9	B	26.0	C	2.4	N	11.9	B	0.0	N
16	Del Mar Heights Road / Lansdale Drive	19.0	B	17.6	B	20.4	C	1.4	N	18.4	B	0.8	N
17	Del Mar Heights Road / Carmel Canyon Rd	13.8	B	10.2	B	14.0	B	0.2	N	10.2	B	0.0	N
18	El Camino Real / Del Mar Highlands Town Ctr.	6.8	A	13.5	B	14.3	B	7.5	N	27.5	C	14.0	N
19	Carmel Country Road / Townsgate Drive	26.5	C	21.8	C	27.4	C	0.9	N	22.6	C	0.8	N
20	El Camino Real / Townsgate Drive	21.3	C	20.7	C	21.3	C	0.0	N	20.9	C	0.2	N
21	Carmel Country Road / Carmel Creek Rd	58.6	E	24.1	C	60.4	E	1.8	N	27.4	C	3.3	N
22	El Camino Real / High Bluff Drive	21.1	C	26.2	C	21.6	C	0.5	N	29.0	C	2.8	N
23	Carmel View Road / High Bluff Drive	8.4	A	9.1	A	8.7	A	0.3	N	9.7	A	0.6	N
24	Carmel Creek Road / Carmel Grove Rd	27.8	C	17.5	B	27.8	C	0.0	N	17.7	B	0.2	N
25	Carmel Valley Road / I-5 SB Ramps	22.6	C	32.1	C	22.8	C	0.2	N	32.6	C	0.5	N
26	Carmel Valley Road / I-5 NB Ramps	13.6	B	20.4	C	14.1	B	0.5	N	20.6	C	0.2	N
27	El Camino Real / Valley Centre Drive	24.6	C	23.2	C	32.7	C	8.1	N	29.8	C	6.6	N
28	El Camino Real / Carmel Valley Rd	14.8	B	19.2	B	15	B	0.2	N	19.8	B	0.6	N
29	El Camino Real / SR-56 EB On Ramp	18.0	B	32.3	C	18.6	B	0.6	N	35.1	D	2.8	N
30	Carmel View Road / Valley Centre Drive	7.4	A	8.3	A	7.4	A	0.0	N	8.3	A	0.0	N
31	Carmel Creek Road / SR-56 WB Ramp	45.7	D	27	C	46.6	D	0.9	N	30.6	C	3.6	N
32	Carmel Creek Road / SR-56 EB Ramps	12.5	B	27.4	C	12.6	B	0.1	N	27.6	C	0.2	N
33	Carmel Country Road / Carmel Canyon Rd	33.1	C	25.6	C	35.9	D	2.8	N	25.6	C	0.0	N
34	Carmel Country Road / SR-56 WB Ramps	16.2	B	10.9	B	16.2	B	0.0	N	12.3	B	1.4	N
35	Carmel Country Road / SR-56 EB Ramps	14.1	B	11.7	B	14.3	B	0.2	N	12.1	B	0.4	N
36	Carmel Creek Road / Del Mar Trail	47.9	E	21.7	C	52.0	F	4.1	Y	23.8	C	2.1	N

AM Peak Reduction for Alternative 4 = 5%

PM Peak Reduction for Alternative 4 = 19%

Int #10) 24.1 x 0.19 = 4.5; 24.1 - 4.5 = 19.6 sec. (Intersection remains significant)

Int #13) 29.6 x 0.19 = 5.6; 29.6 - 5.6 = 24.0 sec. (Intersection remains significant)

Int #36) 4.1 x 0.05 = 0.2; 4.1 - 0.2 = 3.9 sec. (Intersection remains significant)

ATTACHMENT 27

Year 2030 With & Without Project (Buildout) Intersection Summary

EIR Alternative 4 - Medical Office / Senior Housing

#	Intersection	Year 2030				Year 2030 + Project (Buildout)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	22.2	C	19.1	B	23.1	C	0.9	No	20.4	C	1.3	No
2	El Camino Real / San Dieguito Road	24.2	C	47.2	D	26.7	C	2.5	No	52.5	D	5.3	No
3	El Camino Real / Derby Downs Road	4.3	A	5.1	A	4.3	A	0.0	No	5.1	A	0.0	No
4	El Camino Real / Half Mile Drive	22.9	C	14.0	B	24.8	C	1.9	No	14.1	B	0.1	No
5	El Camino Real / Quarter Mile Drive	20.6	C	12.1	B	25.2	C	4.6	No	12.7	B	0.6	No
6	Del Mar Heights Road / Mango Drive	36.8	D	29.3	C	39.6	D	2.8	No	35.7	D	6.4	No
7	Del Mar Heights Road / Portofino Drive	9.8	A	9.6	A	10.1	B	0.3	No	10.1	B	0.5	No
8	Del Mar Heights Road / I-5 SB Ramps	26.1	C	22.4	C	29	C	2.9	No	25.7	C	3.3	No
9	Del Mar Heights Road / I-5 NB Ramps	71.5	E	55.5	E	107.1	F	35.6	Yes	94.0	F	38.5	Yes
10	Del Mar Heights Road / High Bluff Drive	44.0	D	40.1	D	55.3	E	11.3	Yes	40.2	F	40.1	Yes
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	8.3	A	0.0	No	20.7	C	0.0	No
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	7.7	A	0.0	No	20.9	C	0.0	No
13	Del Mar Heights Road / El Camino Real	35.0	C	41.5	D	50.8	D	15.8	No	84.1	F	42.6	Yes
14	Del Mar Heights Road / Carmel Country Rd	33.6	C	34.1	C	41.3	D	7.7	No	49.3	D	15.2	No
15	Del Mar Heights Road / Torrey Ridge Drive	29.5	C	11.9	B	33.1	C	3.6	No	14.4	B	2.5	No
16	Del Mar Heights Road / Lansdale Drive	32.7	C	18.7	B	41.1	D	8.4	No	20.9	C	2.2	No
17	Del Mar Heights Road / Carmel Canyon Rd	29.4	C	16.0	B	29.8	C	0.4	No	17.2	B	1.2	No
18	El Camino Real / Del Mar Highlands Town Ctr.	6.2	A	14.2	B	17.4	B	11.2	No	33.7	C	19.5	No
19	Carmel Country Road / Townsgate Drive	32.0	C	29.8	C	32.9	C	0.9	No	34.6	C	4.8	No
20	El Camino Real / Townsgate Drive	22.5	C	24.3	C	22.7	C	0.2	No	35.4	D	11.1	No
21	Carmel Country Road / Carmel Creek Rd	41.5	D	19.7	B	45.7	D	4.2	No	21.5	C	1.8	No
22	El Camino Real / High Bluff Drive	22.9	C	33.6	C	24.4	C	1.5	No	40.0	D	6.4	No
23	Carmel View Road / High Bluff Drive	8.9	A	9.3	A	9.3	A	0.4	No	10.9	B	1.1	No
24	Carmel Creek Road / Carmel Grove Rd	15.3	B	11.4	B	15.3	B	0.0	No	17.3	B	5.9	No
25	Carmel Valley Road / I-5 SB Ramps	25.3	C	30.9	C	26.3	C	1.0	No	35.3	D	4.4	No
26	Carmel Valley Road / I-5 NB Ramps	26.8	C	19.6	B	27.3	C	0.5	No	20.0	B	0.4	No
27	El Camino Real / Valley Centre Drive	22.0	C	27.4	C	22.2	C	0.2	No	29.3	C	1.9	No
28	El Camino Real / Carmel Valley Rd	22.0	C	17.6	B	22.2	C	0.2	No	19.2	B	1.6	No
29	El Camino Real / SR-56 EB On Ramp	23.1	C	89.0	F	23.6	C	0.5	No	97.6	F	8.6	Yes
30	Carmel View Road / Valley Centre Drive	7.7	A	6.2	A	7.7	A	0.0	No	6.2	A	0.0	No
31	Carmel Creek Road / SR-56 WB Ramp	47.0	D	42.6	D	54.2	D	7.2	No	53.3	D	10.7	No
32	Carmel Creek Road / SR-56 EB Ramps	15.0	B	22.9	C	15.0	B	0.0	No	23.4	C	0.5	No
33	Carmel Country Road / Carmel Canyon Rd	34.5	C	33.4	C	36.6	D	2.1	No	34.1	C	0.7	No
34	Carmel Country Road / SR-56 WB Ramps	17.1	B	9.9	A	17.1	B	0.0	No	12.7	B	2.8	No
35	Carmel Country Road / SR-56 EB Ramps	20.1	C	18.2	B	22.0	C	1.9	No	18.7	B	0.5	No
36	Carmel Creek Road / Del Mar Trail	43.3	E	20.6	C	48.3	E	5.0	Yes	23.6	C	3.0	No

Notes:

AM Peak Reduction for Alternative 4 = 5%

PM Peak Reduction for Alternative 4 = 19%

#9 AM) $35.6 \times 0.05 = 1.8$; $35.6 - 1.8 = 33.8$ sec. (Intersection remains significant)

#9 PM) $38.5 \times 0.19 = 7.3$; $38.5 - 7.3 = 31.2$ sec. (Intersection remains significant)

#10 AM) $11.3 \times 0.05 = 0.5$; $11.3 - 0.5 = 10.8$ sec. (Intersection remains significant)

#10 PM) $40.1 \times 0.19 = 7.6$; $40.1 - 7.6 = 32.5$ sec. (Intersection remains significant)

#13 PM) $42.6 \times 0.19 = 8.1$; $42.6 - 8.1 = 34.5$ sec. (Intersection remains significant)

#29 (PM) $8.6 \times 0.19 = 1.6$; $8.6 - 1.6 = 7.0$ sec. (Intersection remains significant)

#36 (AM) $5.0 \times 0.05 = 0.3$; $5.0 - 0.3 = 4.7$ sec. (Intersection remains significant)

ATTACHMENT 28

Year 2030 With & Without Project Ramp Meter Analysis

EIR Alternative 4 - Medical Office / Senior Housing

Most Restrictive Meter Rate

Location		Year 2030		Year 2030 With Project (Buildout)		Δ	S
		Delay (Min)	Queue (Ft)	Delay (Min)	Queue (Ft)		
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound Loop)	AM	40.27	7,163	47.61	8,468	7.34	YES
	PM	5.22	928	29.84	5,307	24.62	YES
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	0.00	0	0.00	0	0.00	NO
	PM	0.00	0	0.00	0	0.00	NO
Del Mar Heights Rd. / I-5 NB on Ramp	AM	0.00	0	1.37	392	1.37	NO
	PM	8.30	2,378	16.04	4,597	7.74	YES
El Camino Real / SR-56 EB on Ramp	AM	0.00	0	0.00	0	0.00	NO
	PM	3.93	2,277	4.78	2,770	0.85	NO
Carmel Country Rd. / SR-56 EB on Ramp	AM	0.00	0	0.00	0	0.00	NO
	PM	0.00	0	0.00	0	0.00	NO

AM Peak Reduction = 5%

PM Peak Reduction = 19%

DMH / I-5 SB AM: $7.34 \times 0.05 = 0.4$; $7.34 - 0.4 = 6.94$ (Remains a significant impact)DMH / I-5 SB PM: $24.62 \times 0.19 = 4.67$; $24.62 - 4.67 = 20.0$ (Remains a significant impact)DMH / I-5 NB PM: $7.74 \times 0.19 = 1.47$; $7.74 - 1.47 = 6.27$ (Remains a significant impact)*15 Minute Max. Meter Rate*

Location		Year 2030		Year 2030 With Project (Buildout)		Δ	S
		Delay (Min)	Queue (Ft)	Delay (Min)	Queue (Ft)		
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound Loop)	AM	15.0	3,567	20.5	4,872	5.5	YES
	PM	15.0	2,320	43.3	6,699	28.3	YES
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	15.0	2,291	15.0	2,291	0.0	NO
	PM	15.0	1,740	15.0	1,740	0.0	NO
Del Mar Heights Rd. / I-5 NB on Ramp	AM	15.0	3,393	17.8	4,031	2.8	YES
	PM	15.0	3,915	23.6	6,148	8.6	YES
El Camino Real / SR-56 EB on Ramp	AM	15.0	4,060	15.5	4,205	0.5	NO
	PM	15.0	7,415	16.0	7,903	1.0	NO
Carmel Country Rd. / SR-56 EB on Ramp	AM	15.0	1,914	16.1	2,059	1.1	NO
	PM	15.0	1,711	19.3	2,204	4.3	NO

Notes:

Δ = Change in Delay (minutes)

S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS E is 2 min.

S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS F is 1 min.

ATTACHMENT 29
One Paseo Trip Generation Table
EIR Alternative 5 - No Retail

Proposed Project

Use	Amount		Trip	ADT	AM Peak Hour					PM Peak Hour				
					%*	#	In	: Out	In	Out	%*	#	In	: Out
Corporate Office	245,000	SF	10 /KSF	2,450	15%	368	9 : 1	331	37	15%	368	1 : 9	37	331
Multi-Tenant Office	270,000	SF	$\frac{\ln(T)}{\ln(x)} = \frac{0.756}{3.95}$	3,577	13%	465	9 : 1	419	47	14%	501	2 : 8	100	401
Hotel	150	Rms	10 /Rm	1,500	6%	90	6 : 4	54	36	8%	120	6 : 4	72	48
Multi-Family Residential	608	DU	6 /DU	3,648	8%	292	2 : 8	58	233	10%	365	7 : 3	255	109
TOTAL				11,175		1,214		862	353		1,353		464	889

Mixed Use Reductions

Use	Amount	Trip	ADT	AM Peak Hour						PM Peak Hour					
				%*	#	In	: Out	In	Out	%*	#	In	: Out	In	Out
Corporate Office	245,000 SF	10 /KSF	2,450	15%	368	9	: 1	331	37	15%	368	1	: 9	37	331
Multi-Tenant Office	270,000 SF	$\frac{\ln(T)}{\ln(x)} = \frac{0.756}{3.95}$	3,577	13%	465	9	: 1	419	47	14%	501	2	: 8	100	401
Commercial Office Reduction %			3%		5%			5%	5%		4%			4%	4%
Sub-Total Commercial Office Reduction			181		42			37	4		35			5	29
Hotel	150 Rms	10 /Rm	1,500	6%	90	6	: 4	54	36	8%	120	6	: 4	72	48
Multi-Family Residential	608 DU	6 /DU	3,648	8%	292	2	: 8	58	233	10%	365	7	: 3	255	109
Residential Reduction %			10%		8%			8%	8%		10%			10%	10%
Sub-Total Residential Reduction			515		31			9	22		48			33	16
TOTAL REDUCTION			696		72			46	26		83			38	45

Notes:

* = Source: City of San Diego Trip Generation Manual, May 2003

DU = Dwelling Unit

KSF = 1,000 Square Foot

Rm = Room

ATTACHMENT 29
 One Paseo Trip Generation Table
 EIR Alternative 5 - NO RETAIL

NET NEW TRIPS							
Condition	ADT	AM Peak Hour			PM Peak Hour		
		#	In	Out	#	In	Out
Proposed Project	11,175	1,214	862	353	1,353	464	889
Mixed Use Reductions	696	72	46	26	83	38	45
TOTAL	10,480	1,142	815	327	1,270	426	844
Proposed Project	26,961	1,538	1,057	481	2,932	1,231	1,701
EIR Alternative Reduction %	61%	26%	23%	32%	57%	65%	50%

ATTACHMENT 30

Existing & Existing With Project (Phase 1 & 2) Street Segment Comparison

EIR Alternative 5 - No Retail

Road	Segment	Class.	Existing			Existing + Project (Phase 1 & 2)			$\Delta V/C$	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	B	21,314	0.474	B	22,917	0.509	0.036	NO
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	36,086	0.722	C	38,223	0.764	0.043	NO
	I-5 Southbound Ramps and I-5 Northbound Ramps	5-PA	D	40,090	0.802	D	43,831	0.877	0.075	NO
	I-5 Northbound Ramps to High Bluff Drive	PA	D	51,625	0.860	E	58,572	0.976	0.116	YES
	High Bluff Drive to Third Avenue	PA	C	37,910	0.632	C	45,925	0.765	0.134	NO
	Third Avenue to First Avenue	PA	C	37,910	0.632	C	45,213	0.754	0.122	NO
	First Avenue to El Camino Real	PA	C	37,910	0.632	C	45,213	0.754	0.122	NO
	El Camino Real to Carmel Country Road	PA	B	32,674	0.545	C	37,483	0.625	0.080	NO
	Carmel Country Road to Torrey Ridge Road	PA	A	21,658	0.361	A	23,974	0.400	0.039	NO
	Torrey Ridge Road to Lansdale Drive	PA	A	19,071	0.318	A	20,674	0.345	0.027	NO
	Lansdale Drive to Carmel Canyon Road	PA	A	15,188	0.253	A	16,079	0.268	0.015	NO
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	15,579	1.039	F	16,113	1.074	0.036	YES
	San Dieguito Road to Derby Downs Road	4-M	A	13,915	0.348	A	14,627	0.366	0.018	NO
	Derby Downs Road to Half Mile Drive	4-M	B	15,333	0.383	B	16,045	0.401	0.018	NO
	Half Mile Drive to Quarter Mile Drive	4-M	A	13,516	0.338	A	14,407	0.360	0.022	NO
	Quarter Mile Drive to Del Mar Heights Road	4-M	A	14,925	0.373	B	15,994	0.400	0.027	NO
	Del Mar Heights Road to Townsgate Drive	6-M	A	14,731	0.295	A	17,403	0.348	0.053	NO
	Townsgate Drive to High Bluff Drive	6-M	A	15,425	0.309	A	17,741	0.355	0.046	NO
	High Bluff Drive to Valley Centre Drive	6-M	A	19,364	0.387	B	20,967	0.419	0.032	NO
	Valley Centre Drive to Carmel Valley Road	5-M	C	27,589	0.613	C	28,658	0.637	0.024	NO
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	4-M	B	15,932	0.398	B	17,713	0.443	0.045	NO
	Townsgate Drive to Carmel Creek Road	4-M	A	13,878	0.347	B	15,303	0.383	0.036	NO
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,137	0.328	A	14,028	0.351	0.022	NO
	Carmel Canyon Road to SR-56 Westbound Ramps	4-M	B	20,553	0.514	C	21,265	0.532	0.018	NO
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Road	4-M	A	12,224	0.306	A	12,580	0.315	0.009	NO
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	A	11,206	0.280	A	11,740	0.294	0.013	NO
	Carmel Grove Road to SR-56 Westbound Ramps	4-M	A	14,862	0.372	B	15,396	0.385	0.013	NO
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	B	10,875	0.363	B	11,053	0.368	0.006	NO
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	43,375	0.723	C	43,731	0.729	0.006	NO
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	C	9,842	0.656	D	10,376	0.692	0.036	NO
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	24,400	2.440	F	24,756	2.476	0.036	YES

Alternative 5 - 10,480 ADT = 61% Reduction from the Proposed Project

Segment #1) $0.116 \times 0.61 = 0.071$; $0.116 - 0.071 = 0.045$ (Segment remains significant)

Segment #2) $0.036 \times 0.61 = 0.022$; $0.036 - 0.022 = 0.014$ (Segment remains significant)

Segment #3) $0.036 \times 0.61 = 0.022$; $0.036 - 0.022 = 0.014$ (Segment remains significant)

E+P (Phase 1&2) Comparison

ATTACHMENT 31

Existing & Existing With Project (Buildout) Street Segment Comparison

EIR Alternative 5 - No Retail

Road	Segment	Class.	Existing			Existing + Project (Buildout)			$\Delta V/C$	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	B	21,314	0.474	B	23,740	0.528	0.054	NO
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	36,086	0.722	C	39,321	0.786	0.065	NO
	I-5 Southbound Ramps and I-5 Northbound Ramps	5-PA	D	40,090	0.802	D	45,752	0.915	0.113	NO
	I-5 Northbound Ramps to High Bluff Drive	PA	D	51,625	0.860	F	62,140	1.036	0.175	YES
	High Bluff Drive to Third Avenue	PA	C	37,910	0.632	D	50,042	0.834	0.202	NO
	Third Avenue to First Avenue	PA	C	37,910	0.632	C	48,964	0.816	0.184	NO
	First Avenue to El Camino Real	PA	C	37,910	0.632	C	48,964	0.816	0.184	NO
	El Camino Real to Carmel Country Road	PA	B	32,674	0.545	C	39,953	0.666	0.121	NO
	Carmel Country Road to Torrey Ridge Road	PA	A	21,658	0.361	B	25,163	0.419	0.058	NO
	Torrey Ridge Road to Lansdale Drive	PA	A	19,071	0.318	A	21,497	0.358	0.040	NO
	Lansdale Drive to Carmel Canyon Road	PA	A	15,188	0.253	A	16,536	0.276	0.022	NO
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	15,579	1.039	F	16,388	1.093	0.054	YES
	San Dieguito Road to Derby Downs Road	4-M	A	13,915	0.348	A	14,993	0.375	0.027	NO
	Derby Downs Road to Half Mile Drive	4-M	B	15,333	0.383	B	16,411	0.410	0.027	NO
	Half Mile Drive to Quarter Mile Drive	4-M	A	13,516	0.338	A	14,864	0.372	0.034	NO
	Quarter Mile Drive to Del Mar Heights Road	4-M	A	14,925	0.373	B	16,543	0.414	0.040	NO
	Del Mar Heights Road to Townsgate Drive	6-M	A	14,731	0.295	B	20,123	0.402	0.108	NO
	Townsgate Drive to High Bluff Drive	6-M	A	15,425	0.309	A	18,930	0.379	0.070	NO
	High Bluff Drive to Valley Centre Drive	6-M	A	19,364	0.387	B	21,790	0.436	0.049	NO
Carmel Country Road	Valley Centre Drive to Carmel Valley Road	5-M	C	27,589	0.613	C	29,207	0.649	0.036	NO
	Del Mar Heights Road to Townsgate Drive	4-M	B	15,932	0.398	B	18,628	0.466	0.067	NO
	Townsgate Drive to Carmel Creek Road	4-M	A	13,878	0.347	B	16,035	0.401	0.054	NO
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,137	0.328	A	14,485	0.362	0.034	NO
Carmel Canyon Road	Carmel Canyon Road to SR-56 Westbound Ramps	4-M	B	20,553	0.514	C	21,631	0.541	0.027	NO
	Del Mar Heights Road to Carmel Country Road	4-M	A	12,224	0.306	A	12,763	0.319	0.013	NO
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	A	11,206	0.280	A	12,015	0.300	0.020	NO
	Carmel Grove Road to SR-56 Westbound Ramps	4-M	A	14,862	0.372	B	15,671	0.392	0.020	NO
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	B	10,875	0.363	B	11,145	0.371	0.009	NO
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	43,375	0.723	C	43,914	0.732	0.009	NO
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	C	9,842	0.656	D	10,651	0.710	0.054	NO
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	24,400	2.440	F	24,939	2.494	0.054	YES

Alternative 5 - 10,480 ADT = 61% Reduction from the Proposed Project

Segment #1) $0.175 \times 0.61 = 0.106$; $0.175 - 0.106 = 0.069$ (Segment remains significant)

Segment #2) $0.054 \times 0.61 = 0.033$; $0.054 - 0.033 = 0.021$ (Segment remains significant)

Segment #3) $0.054 \times 0.61 = 0.033$; $0.054 - 0.033 = 0.021$ (Segment remains significant)

E+P (Buildout) Comparison

ATTACHMENT 32

Existing & Existing + Project (Phase 1 & 2) Intersection Summary

EIR Alternative 5 - No Retail

#	Intersection	Existing				Existing + Project (Phase 1 & 2)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	27.7	C	30.0	C	28.4	C	0.7	No	32.6	C	2.6	No
2	El Camino Real / San Dieguito Road	16.6	B	23.8	C	16.8	B	0.2	No	25.8	C	2.0	No
3	El Camino Real / Derby Downs Road	4.3	A	3.3	A	4.3	A	0.0	No	4.6	A	1.3	No
4	El Camino Real / Half Mile Drive	19.6	B	16.8	B	20.6	C	1.0	No	17.8	B	1.0	No
5	El Camino Real / Quarter Mile Drive	20.0	B	14.0	B	20.1	C	0.1	No	15.1	B	1.1	No
6	Del Mar Heights Road / Mango Drive	31.7	C	29.7	C	32.5	C	0.8	No	32.3	C	2.6	No
7	Del Mar Heights Road / Portofino Drive	9.3	A	9.1	A	9.5	A	0.2	No	9.3	A	0.2	No
8	Del Mar Heights Road / I-5 SB Ramps	22.5	C	20.3	C	24.8	C	2.3	No	24.0	C	3.7	No
9	Del Mar Heights Road / I-5 NB Ramps	35.1	D	37.5	D	37.7	D	2.6	No	41.2	D	3.7	No
10	Del Mar Heights Road / High Bluff Drive	26.1	C	28.9	C	27.4	C	1.3	No	40.4	D	11.5	No
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	6.8	A	N/A	No	14.1	B	N/A	No
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	6.0	A	N/A	No	15.8	B	N/A	No
13	Del Mar Heights Road / El Camino Real	27.2	C	26.9	C	32.2	C	5.0	No	37.3	D	10.4	No
14	Del Mar Heights Road / Carmel Country Rd	22.1	C	24.3	C	25.5	C	3.4	No	28.6	C	4.3	No
15	Del Mar Heights Road / Torrey Ridge Drive	22.7	C	14.9	B	25.1	C	2.4	No	16.2	B	1.3	No
16	Del Mar Heights Road / Lansdale Drive	20.4	C	19.8	B	22.1	C	1.7	No	23.8	C	4.0	No
17	Del Mar Heights Road / Carmel Canyon Rd	13.4	B	9.8	A	13.6	B	0.2	No	9.9	A	0.1	No
18	El Camino Real / Del Mar Highlands Town Ctr.	7.2	A	12.4	B	17.9	B	10.7	No	26.1	C	13.7	No
19	Carmel Country Road / Townsgate Drive	25.8	C	20.2	C	26.6	C	0.8	No	22.1	C	1.9	No
20	El Camino Real / Townsgate Drive	18.2	B	13.0	B	18.6	B	0.4	No	13.7	B	0.7	No
21	Carmel Country Road / Carmel Creek Rd	45.3	D	23.2	C	47.7	D	2.4	No	25.7	C	2.5	No
22	El Camino Real / High Bluff Drive	25.2	C	27.9	C	25.8	C	0.6	No	30.1	C	2.2	No
23	Carmel View Road / High Bluff Drive	8.3	A	9.0	A	8.6	A	0.3	No	9.5	A	0.5	No
24	Carmel Creek Road / Carmel Grove Rd	26.8	C	17.2	B	26.8	C	0.0	No	17.3	B	0.1	No
25	Carmel Valley Road / I-5 SB Ramps	19.6	B	27.0	C	20.1	C	0.5	No	27.9	C	0.9	No
26	Carmel Valley Road / I-5 NB Ramps	12.6	B	18.2	B	12.6	B	0.0	No	18.4	B	0.2	No
27	El Camino Real / Valley Centre Drive	20.9	C	19.7	B	21.0	C	0.1	No	20.2	C	0.5	No
28	El Camino Real / Carmel Valley Rd	14.0	B	16.8	B	14.9	B	0.9	No	20.6	C	3.8	No
29	El Camino Real / SR-56 EB On Ramp	15.4	B	24.4	C	15.7	B	0.3	No	26.0	C	1.6	No
30	Carmel View Road / Valley Centre Drive	6.7	A	7.8	A	6.7	A	0.0	No	7.8	A	0.0	No
31	Carmel Creek Road / SR-56 WB Ramp	37.0	D	20.7	C	39.0	D	2.0	No	21.5	C	0.8	No
32	Carmel Creek Road / SR-56 EB Ramps	11.6	B	19.5	B	11.8	B	0.2	No	25.6	C	6.1	No
33	Carmel Country Road / Carmel Canyon Rd	31.9	C	23.2	C	32.2	C	0.3	No	25.2	C	2.0	No
34	Carmel Country Road / SR-56 WB Ramps	15.7	B	10.9	B	15.8	B	0.1	No	11.3	B	0.4	No
35	Carmel Country Road / SR-56 EB Ramps	13.4	B	11.5	B	13.4	B	0.0	No	11.9	B	0.4	No
36	Carmel Creek Road / Del Mar Trail	41.6	E	20.1	C	44.5	E	2.9	Yes	21.9	C	1.8	No

AM Peak Reduction % = 26%

Int. 36) $2.9 \times 0.26 = 0.754$; $2.9 - 0.754 = 2.1$ sec. (Intersection remains significant)

ATTACHMENT 33

Existing & Existing + Project (Buildout) Intersection Summary

EIR Alternative 5 - No Retail

#	Intersection	Existing				Existing + Project (Buildout)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	27.7	C	30.0	C	28.7	C	1.0	No	33.5	C	3.5	No
2	El Camino Real / San Dieguito Road	16.6	B	23.8	C	17.0	B	0.4	No	26.4	C	2.6	No
3	El Camino Real / Derby Downs Road	4.3	A	3.3	A	4.3	A	0.0	No	5.0	A	1.7	No
4	El Camino Real / Half Mile Drive	19.6	B	16.8	B	20.9	C	1.3	No	18.9	B	2.1	No
5	El Camino Real / Quarter Mile Drive	20.0	B	14.0	B	20.4	C	0.4	No	14.4	B	0.4	No
6	Del Mar Heights Road / Mango Drive	31.7	C	29.7	C	32.9	C	1.2	No	33.4	C	3.7	No
7	Del Mar Heights Road / Portofino Drive	9.3	A	9.1	A	9.6	A	0.3	No	9.4	A	0.3	No
8	Del Mar Heights Road / I-5 SB Ramps	22.5	C	20.3	C	25.1	C	2.6	No	25.9	C	5.6	No
9	Del Mar Heights Road / I-5 NB Ramps	35.1	D	37.5	D	40.4	D	5.3	No	51.3	D	13.8	No
10	Del Mar Heights Road / High Bluff Drive	26.1	C	28.9	C	29.1	C	3.0	No	47.2	D	18.3	No
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	8.7	A	N/A	No	21.2	C	N/A	No
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	7.7	A	N/A	No	22.0	C	N/A	No
13	Del Mar Heights Road / El Camino Real	27.2	C	26.9	C	33.6	C	6.4	No	45.5	D	18.6	No
14	Del Mar Heights Road / Carmel Country Rd	22.1	C	24.3	C	26.5	C	4.4	No	36.5	D	12.2	No
15	Del Mar Heights Road / Torrey Ridge Drive	22.7	C	14.9	B	25.3	C	2.6	No	15.4	B	0.5	No
16	Del Mar Heights Road / Lausdale Drive	20.4	C	19.8	B	22.9	C	2.5	No	27.6	C	7.8	No
17	Del Mar Heights Road / Carmel Canyon Rd	13.4	B	9.8	A	13.6	B	0.2	No	10.0	A	0.2	No
18	El Camino Real / Del Mar Highlands Town Ctr.	7.2	A	12.4	B	19.1	B	11.9	No	28.7	C	16.3	No
19	Carmel Country Road / Townsgate Drive	25.8	C	20.2	C	26.9	C	1.1	No	22.7	C	2.5	No
20	El Camino Real / Townsgate Drive	18.2	B	13.0	B	18.8	B	0.6	No	14.1	B	1.1	No
21	Carmel Country Road / Carmel Creek Rd	45.3	D	23.2	C	49.2	D	3.9	No	27.7	C	4.5	No
22	El Camino Real / High Bluff Drive	25.2	C	27.9	C	25.8	C	0.6	No	31.8	C	3.9	No
23	Carmel View Road / High Bluff Drive	8.3	A	9.0	A	8.7	A	0.4	No	9.8	A	0.8	No
24	Carmel Creek Road / Carmel Grove Rd	26.8	C	17.2	B	26.8	C	0.0	No	17.4	B	0.2	No
25	Carmel Valley Road / I-5 SB Ramps	19.6	B	27.0	C	20.1	C	0.5	No	27.6	C	0.6	No
26	Carmel Valley Road / I-5 NB Ramps	12.6	B	18.2	B	12.6	B	0.0	No	18.2	B	0.0	No
27	El Camino Real / Valley Centre Drive	20.9	C	19.7	B	21.1	C	0.2	No	20.2	C	0.5	No
28	El Camino Real / Carmel Valley Rd	14.0	B	16.8	B	14.9	B	0.9	No	20.9	C	4.1	No
29	El Camino Real / SR-56 EB On Ramp	15.4	B	24.4	C	16.1	B	0.7	No	26.5	C	2.1	No
30	Carmel View Road / Valley Centre Drive	6.7	A	7.8	A	6.7	A	0.0	No	7.8	A	0.0	No
31	Carmel Creek Road / SR-56 WB Ramp	37.0	D	20.7	C	39.4	D	2.4	No	21.6	C	0.9	No
32	Carmel Creek Road / SR-56 EB Ramps	11.6	B	19.5	B	11.7	B	0.1	No	26.0	C	6.5	No
33	Carmel Country Road / Carmel Canyon Rd	31.9	C	23.2	C	32.3	C	0.4	No	25.5	C	2.3	No
34	Carmel Country Road / SR-56 WB Ramps	15.7	B	10.9	B	15.8	B	0.1	No	11.4	B	0.5	No
35	Carmel Country Road / SR-56 EB Ramps	13.4	B	11.5	B	13.4	B	0.0	No	12.1	B	0.6	No
36	Carmel Creek Road / Del Mar Trail	41.6	E	20.1	C	46.2	E	4.6	Yes	22.9	C	2.8	No

AM Peak Reduction % = 26%

Int. 36) $4.6 \times 0.26 = 1.2$; $4.6 - 1.2 = 3.4$ sec. (Intersection remains significant)

ATTACHMENT 34

Near Term With & Without Project Street Segment Comparison Phase 1 & 2

EIR Alternative 5 - No Retail

Road	Segment	Class.	Near Term			Near Term + Project (Phase 1 & 2)			$\Delta V/C$	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	B	21,953	0.488	B	23,557	0.523	0.036	NO
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	37,169	0.743	C	39,306	0.786	0.043	NO
	I-5 SB Ramps and I-5 NB Ramps	5-PA	D	41,213	0.824	D	44,953	0.899	0.075	NO
	I-5 Northbound Ramps to High Bluff Drive	PA	D	54,775	0.913	F	61,721	1.029	0.116	YES
	High Bluff Drive to Third Avenue	PA	C	40,648	0.677	C	48,664	0.811	0.134	NO
	Thirth Avenue to First Avenue	PA	C	40,648	0.677	C	47,951	0.799	0.122	NO
	First Avenue to El Camino Real	PA	C	40,648	0.677	C	47,951	0.799	0.122	NO
	El Camino Real to Carmel Country Road	PA	B	33,654	0.561	C	38,463	0.641	0.080	NO
	Carmel Country Road to Torrey Ridge Road	PA	A	22,308	0.372	A	24,623	0.410	0.039	NO
	Torrey Ridge Road to Lansdale Drive	PA	A	19,643	0.327	A	21,246	0.354	0.027	NO
	Lansdale Drive to Carmel Canyon Road	PA	A	15,644	0.261	A	16,534	0.276	0.015	NO
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	16,235	1.082	F	16,770	1.118	0.036	YES
	San Dieguito Road to Derby Downs Road	4-M	A	14,332	0.358	B	15,045	0.376	0.018	NO
	Derby Downs Road to Half Mile Drive	4-M	B	15,793	0.395	B	16,505	0.413	0.018	NO
	Half Mile Drive to Quarter Mile Drive	4-M	A	13,921	0.348	A	14,812	0.370	0.022	NO
	Quarter Mile Drive to Del Mar Heights Road	4-M	B	15,373	0.384	B	16,441	0.411	0.027	NO
	Del Mar Heights Road to Townsgate Drive	6-M	A	17,014	0.340	A	19,686	0.394	0.053	NO
	Townsgate Drive to High Bluff Drive	6-M	A	16,662	0.333	A	18,977	0.380	0.046	NO
	High Bluff Drive to Valley Centre Drive	6-M	B	21,035	0.421	B	22,638	0.453	0.032	NO
	Valley Centre Drive to Carmel Valley Road	5-M	C	30,131	0.670	C	31,199	0.693	0.024	NO
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	4-M	B	16,410	0.410	B	18,191	0.455	0.045	NO
	Townsgate Drive to Carmel Creek Road	4-M	A	14,294	0.357	B	15,719	0.393	0.036	NO
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,531	0.338	A	14,422	0.361	0.022	NO
	Carmel Canyon Road to SR-56 WB Ramps	4-M	C	21,170	0.529	C	21,882	0.547	0.018	NO
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Rd.	4-M	A	12,591	0.315	A	12,947	0.324	0.009	NO
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	A	11,542	0.289	A	12,077	0.302	0.013	NO
	Carmel Grove Road to SR-56 WB Ramps	4-M	B	15,933	0.398	B	16,467	0.412	0.013	NO
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	B	11,826	0.394	B	12,004	0.400	0.006	NO
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	45,968	0.766	C	46,324	0.772	0.006	NO
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	D	10,137	0.676	D	10,672	0.711	0.036	NO
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	26,732	2.673	F	27,088	2.709	0.036	YES

Alternative 5 = 10,480 ADT = 61% Reduction from the Proposed Project

Segment #1) $0.116 \times 0.61 = 0.071$; $0.116 - 0.071 = 0.045$ (Segment remains significant)

Segment #2) $0.036 \times 0.61 = 0.022$; $0.036 - 0.022 = 0.014$ (Segment remains significant)

Segment #3) $0.036 \times 0.61 = 0.022$; $0.036 - 0.022 = 0.014$ (Segment remains significant)

Near Term Comp (Phase 1&2)

ATTACHMENT 35

Year 2030 Without & Year 2030 With Project (Buildout) Street Segment Comparison

EIR Alternative 5 - No Retail

Road	Segment	Class.	Year 2030			Year 2030 + Project (Buildout)			$\Delta V/C$	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	D	39,580	0.880	D	41,639	0.930	0.050	NO
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	39,580	0.792	D	42,815	0.856	0.065	NO
	I-5 SB Ramps and I-5 NB Ramps	5-PA	C	37,820	0.756	D	43,482	0.870	0.113	NO
	I-5 Northbound Ramps to High Bluff Drive	PA	D	51,800	0.863	F	62,315	1.039	0.175	YES
	High Bluff Drive to Third Avenue	PA	C	42,770	0.713	D	54,902	0.915	0.202	NO
	Third Avenue to First Avenue	PA	C	42,770	0.713	D	53,824	0.897	0.184	NO
	First Avenue to El Camino Real	PA	C	42,770	0.713	D	53,824	0.897	0.184	NO
	El Camino Real to Carmel Country Road	PA	C	38,370	0.640	C	46,189	0.770	0.130	NO
	Carmel Country Road to Torrey Ridge Road	PA	B	34,400	0.573	C	37,905	0.632	0.058	NO
	Torrey Ridge Road to Lansdale Drive	PA	B	34,400	0.573	C	36,826	0.614	0.040	NO
	Lansdale Drive to Carmel Canyon Road	PA	B	34,400	0.573	C	35,748	0.596	0.022	NO
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	31,320	2.088	F	32,129	2.142	0.054	YES
	San Dieguito Road to Derby Downs Road	4-M	C	29,000	0.725	D	30,078	0.752	0.027	NO
	Derby Downs Road to Half Mile Drive	4-M	C	29,000	0.725	D	30,078	0.752	0.027	NO
	Half Mile Drive to Quarter Mile Drive	4-M	C	29,000	0.725	D	30,348	0.759	0.034	NO
	Quarter Mile Drive to Del Mar Heights Road	4-M	C	29,000	0.725	D	30,618	0.765	0.040	NO
	Del Mar Heights Road to Townsgate Drive	6-M	B	23,000	0.460	C	28,392	0.568	0.108	NO
	Townsgate Drive to High Bluff Drive	6-M	B	26,000	0.520	C	29,505	0.590	0.070	NO
	High Bluff Drive to Valley Centre Drive	6-M	C	35,620	0.712	C	38,046	0.761	0.049	NO
	Valley Centre Drive to Carmel Valley Road	5-M	D	36,470	0.810	D	38,088	0.846	0.036	NO
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	4-M	C	22,280	0.557	C	24,976	0.624	0.067	NO
	Townsgate Drive to Carmel Creek Road	4-M	B	18,800	0.470	B	20,957	0.524	0.054	NO
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,590	0.340	A	14,938	0.373	0.034	NO
	Carmel Canyon Road to SR-56 WB Ramps	4-M	C	26,000	0.650	C	27,078	0.677	0.027	NO
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Rd.	4-M	A	13,000	0.325	A	13,539	0.338	0.013	NO
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	B	15,000	0.375	B	15,809	0.395	0.020	NO
	Carmel Grove Road to SR-56 WB Ramps	4-M	B	17,000	0.425	B	17,809	0.445	0.020	NO
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	D	20,000	0.667	D	20,270	0.676	0.009	NO
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	43,020	0.717	C	43,559	0.726	0.009	NO
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	D	11,700	0.780	D	12,509	0.834	0.054	NO
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	33,100	3.310	F	33,639	3.364	0.054	YES

Alternative 5 = 10,480 ADT = 61% Reduction from the Proposed Project

Segment #1) $0.175 \times 0.61 = 0.106$; $0.175 - 0.106 = 0.069$ (Segment remains significant)Segment #2) $0.054 \times 0.61 = 0.033$; $0.054 - 0.033 = 0.021$ (Segment remains significant)Segment #3) $0.054 \times 0.61 = 0.033$; $0.054 - 0.033 = 0.021$ (Segment remains significant)

Year 2030 Comp (Buildout)

ATTACHMENT 36

Near Term With & Without Project (Phase 1 & 2) Intersection Summary

EIR Alternative 5 - No Retail

#	Intersection	Near Term				Near Term + Project (Phase 1 & 2)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	31.4	C	38.8	D	32.2	C	0.8	N	42.5	D	3.7	N
2	El Camino Real / San Dieguito Road	16.9	B	25.2	C	17.3	B	0.4	N	26.9	C	1.7	N
3	El Camino Real / Derby Downs Road	4.3	A	4.5	A	4.3	A	0.0	N	5.0	A	0.5	N
4	El Camino Real / Half Mile Drive	20.6	B	18.0	B	21.8	C	1.2	N	18.5	B	0.5	N
5	El Camino Real / Quarter Mile Drive	20.6	C	15.1	B	20.6	C	0.0	N	16.4	B	1.3	N
6	Del Mar Heights Road / Mango Drive	33.3	C	31.4	C	34.5	C	1.2	N	34.3	C	2.9	N
7	Del Mar Heights Road / Portofino Drive	9.4	A	9.2	A	9.6	A	0.2	N	9.4	A	0.2	N
8	Del Mar Heights Road / I-5 SB Ramps	24.8	C	23	C	28.7	C	3.9	N	27.8	C	4.8	N
9	Del Mar Heights Road / I-5 NB Ramps	39.6	D	38.3	D	49.8	D	10.2	N	50.5	D	12.2	N
10	Del Mar Heights Road / High Bluff Drive	28.5	C	32.1	C	31.3	C	2.8	N	56.2	E	24.1	Y
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	6.5	A	0.0	N	13.5	B	0.0	N
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	6	A	0.0	N	15.6	B	0.0	N
13	Del Mar Heights Road / El Camino Real	29.9	C	29.5	C	34.5	C	4.6	N	59.1	E	29.6	Y
14	Del Mar Heights Road / Carmel Country Rd	22.9	C	21.1	C	26.4	C	3.5	N	25.6	C	4.5	N
15	Del Mar Heights Road / Torrey Ridge Drive	23.6	C	11.9	B	26.0	C	2.4	N	11.9	B	0.0	N
16	Del Mar Heights Road / Lansdale Drive	19.0	B	17.6	B	20.4	C	1.4	N	18.4	B	0.8	N
17	Del Mar Heights Road / Carmel Canyon Rd	13.8	B	10.2	B	14.0	B	0.2	N	10.2	B	0.0	N
18	El Camino Real / Del Mar Highlands Town Ctr.	6.8	A	13.5	B	14.3	B	7.5	N	27.5	C	14.0	N
19	Carmel Country Road / Townsgate Drive	26.5	C	21.8	C	27.4	C	0.9	N	22.6	C	0.8	N
20	El Camino Real / Townsgate Drive	21.3	C	20.7	C	21.3	C	0.0	N	20.9	C	0.2	N
21	Carmel Country Road / Carmel Creek Rd	58.6	E	24.1	C	60.4	E	1.8	N	27.4	C	3.3	N
22	El Camino Real / High Bluff Drive	21.1	C	26.2	C	21.6	C	0.5	N	29.0	C	2.8	N
23	Carmel View Road / High Bluff Drive	8.4	A	9.1	A	8.7	A	0.3	N	9.7	A	0.6	N
24	Carmel Creek Road / Carmel Grove Rd	27.8	C	17.5	B	27.8	C	0.0	N	17.7	B	0.2	N
25	Carmel Valley Road / I-5 SB Ramps	22.6	C	32.1	C	22.8	C	0.2	N	32.6	C	0.5	N
26	Carmel Valley Road / I-5 NB Ramps	13.6	B	20.4	C	14.1	B	0.5	N	20.6	C	0.2	N
27	El Camino Real / Valley Centre Drive	24.6	C	23.2	C	32.7	C	8.1	N	29.8	C	6.6	N
28	El Camino Real / Carmel Valley Rd	14.8	B	19.2	B	15	B	0.2	N	19.8	B	0.6	N
29	El Camino Real / SR-56 EB On Ramp	18.0	B	32.3	C	18.6	B	0.6	N	35.1	D	2.8	N
30	Carmel View Road / Valley Centre Drive	7.4	A	8.3	A	7.4	A	0.0	N	8.3	A	0.0	N
31	Carmel Creek Road / SR-56 WB Ramp	45.7	D	27	C	46.6	D	0.9	N	30.6	C	3.6	N
32	Carmel Creek Road / SR-56 EB Ramps	12.5	B	27.4	C	12.6	B	0.1	N	27.6	C	0.2	N
33	Carmel Country Road / Carmel Canyon Rd	33.1	C	25.6	C	35.9	D	2.8	N	25.6	C	0.0	N
34	Carmel Country Road / SR-56 WB Ramps	16.2	B	10.9	B	16.2	B	0.0	N	12.3	B	1.4	N
35	Carmel Country Road / SR-56 EB Ramps	14.1	B	11.7	B	14.3	B	0.2	N	12.1	B	0.4	N
36	Carmel Creek Road / Del Mar Trail	47.9	E	21.7	C	52.0	F	4.1	Y	23.8	C	2.1	N

AM Peak Reduction for Alternative 5 = 26%

PM Peak Reduction for Alternative 5 = 57%

Int #10) $24.1 \times 0.57 = 13.7$; $24.1 - 13.7 = 10.4$ sec. (Intersection remains significant)

Int #13) $29.6 \times 0.57 = 16.8$; $29.6 - 16.8 = 12.8$ sec. (Intersection remains significant)

Int #36) $4.1 \times 0.26 = 1.1$; $4.1 - 1.1 = 3.0$ sec. (Intersection remains significant)

ATTACHMENT 37

Year 2030 With & Without Project (Buildout) Intersection Summary

EIR Alternative 5 - No Retail

#	Intersection	Year 2030				Year 2030 + Project (Buildout)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	22.2	C	19.1	B	23.1	C	0.9	No	20.4	C	1.3	No
2	El Camino Real / San Dieguito Road	24.2	C	47.2	D	26.7	C	2.5	No	52.5	D	5.3	No
3	El Camino Real / Derby Downs Road	4.3	A	5.1	A	4.3	A	0.0	No	5.1	A	0.0	No
4	El Camino Real / Half Mile Drive	22.9	C	14.0	B	24.8	C	1.9	No	14.1	B	0.1	No
5	El Camino Real / Quarter Mile Drive	20.6	C	12.1	B	25.2	C	4.6	No	12.7	B	0.6	No
6	Del Mar Heights Road / Mango Drive	36.8	D	29.3	C	39.6	D	2.8	No	35.7	D	6.4	No
7	Del Mar Heights Road / Portofino Drive	9.8	A	9.6	A	10.1	B	0.3	No	10.1	B	0.5	No
8	Del Mar Heights Road / I-5 SB Ramps	26.1	C	22.4	C	29	C	2.9	No	25.7	C	3.3	No
9	Del Mar Heights Road / I-5 NB Ramps	71.5	E	55.5	E	107.1	F	35.6	Yes	94.0	F	38.5	Yes
10	Del Mar Heights Road / High Bluff Drive	44.0	D	40.1	D	55.3	E	11.3	Yes	80.2	F	40.1	Yes
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	8.3	A	0.0	No	20.7	C	0.0	No
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	7.7	A	0.0	No	20.9	C	0.0	No
13	Del Mar Heights Road / El Camino Real	35.0	C	41.5	D	50.8	D	15.8	No	84.1	F	42.6	Yes
14	Del Mar Heights Road / Carmel Country Rd	33.6	C	34.1	C	41.3	D	7.7	No	49.3	D	15.2	No
15	Del Mar Heights Road / Torrey Ridge Drive	29.5	C	11.9	B	33.1	C	3.6	No	14.4	B	2.5	No
16	Del Mar Heights Road / Lansdale Drive	32.7	C	18.7	B	41.1	D	8.4	No	20.9	C	2.2	No
17	Del Mar Heights Road / Carmel Canyon Rd	29.4	C	16.0	B	29.8	C	0.4	No	17.2	B	1.2	No
18	El Camino Real / Del Mar Highlands Town Ctr.	6.2	A	14.2	B	17.4	B	11.2	No	33.7	C	19.5	No
19	Carmel Country Road / Townsgate Drive	32.0	C	29.8	C	32.9	C	0.9	No	34.6	C	4.8	No
20	El Camino Real / Townsgate Drive	22.5	C	24.3	C	22.7	C	0.2	No	35.4	D	11.1	No
21	Carmel Country Road / Carmel Creek Rd	41.5	D	19.7	B	45.7	D	4.2	No	21.5	C	1.8	No
22	El Camino Real / High Bluff Drive	22.9	C	33.6	C	24.4	C	1.5	No	40.0	D	6.4	No
23	Carmel View Road / High Bluff Drive	8.9	A	9.8	A	9.3	A	0.4	No	10.9	B	1.1	No
24	Carmel Creek Road / Carmel Grove Rd	15.3	B	11.4	B	15.3	B	0.0	No	17.3	B	5.9	No
25	Carmel Valley Road / I-5 SB Ramps	25.3	C	30.9	C	26.3	C	1.0	No	35.3	D	4.4	No
26	Carmel Valley Road / I-5 NB Ramps	26.8	C	19.6	B	27.3	C	0.5	No	20.0	B	0.4	No
27	El Camino Real / Valley Centre Drive	22.0	C	27.4	C	22.2	C	0.2	No	29.3	C	1.9	No
28	El Camino Real / Carmel Valley Rd	22.0	C	17.6	B	22.2	C	0.2	No	19.2	B	1.6	No
29	El Camino Real / SR-56 EB On Ramp	23.1	C	89.0	F	23.6	C	0.5	No	97.6	F	8.6	Yes
30	Carmel View Road / Valley Centre Drive	7.7	A	6.2	A	7.7	A	0.0	No	6.2	A	0.0	No
31	Carmel Creek Road / SR-56 WB Ramp	47.0	D	42.6	D	54.2	D	7.2	No	53.3	D	10.7	No
32	Carmel Creek Road / SR-56 EB Ramps	15.0	B	22.9	C	15.0	B	0.0	No	23.4	C	0.5	No
33	Carmel Country Road / Carmel Canyon Rd	34.5	C	33.4	C	36.6	D	2.1	No	34.1	C	0.7	No
34	Carmel Country Road / SR-56 WB Ramps	17.1	B	9.9	A	17.1	B	0.0	No	12.7	B	2.8	No
35	Carmel Country Road / SR-56 EB Ramps	20.1	C	18.2	B	22.0	C	1.9	No	18.7	B	0.5	No
36	Carmel Creek Road / Del Mar Trail	43.3	E	20.6	C	48.3	E	5.0	Yes	23.6	C	3.0	No

AM Peak Reduction for Alternative 5 = 26%
PM Peak Reduction for Alternative 5 = 57%

#9 AM) $35.6 \times 0.26 = 9.3$; $35.6 - 9.3 = 26.3$ sec. (Intersection remains significant)
#9 PM) $38.5 \times 0.57 = 21.9$; $38.5 - 21.9 = 16.6$ sec. (Intersection remains significant)
#10 AM) $11.3 \times 0.26 = 2.9$; $11.3 - 2.9 = 8.4$ sec. (Intersection remains significant)
#10 PM) $40.1 \times 0.57 = 22.8$; $40.1 - 22.8 = 17.3$ sec. (Intersection remains significant)
#13 PM) $42.6 \times 0.57 = 24.3$; $42.6 - 24.3 = 18.3$ sec. (Intersection remains significant)
#29 PM) $8.6 \times 0.57 = 4.9$; $8.6 - 4.9 = 3.7$ sec. (Intersection remains significant)
#36 (AM) $5.0 \times 0.26 = 1.3$; $5.0 - 1.3 = 3.7$ sec. (Intersection remains significant)

ATTACHMENT 38
Year 2030 With & Without Project Ramp Meter Analysis
EIR Alternative 5 - No Retail

Most Restrictive Meter Rate

Location		Year 2030		Year 2030 With Project (Buildout)		V	S
		Delay (Min)	Queue (Ft)	Delay (Min)	Queue (Ft)		
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound Loop)	AM	40.27	7,163	47.61	8,468	7.34	YES
	PM	5.22	928	29.84	5,307	24.62	YES
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	0.00	0	0.00	0	0.00	NO
	PM	0.00	0	0.00	0	0.00	NO
Del Mar Heights Rd. / I-5 NB on Ramp	AM	0.00	0	1.37	392	1.37	NO
	PM	8.30	2,378	16.04	4,597	7.74	YES
El Camino Real / SR-56 EB on Ramp	AM	0.00	0	0.00	0	0.00	NO
	PM	3.93	2,277	4.78	2,770	0.85	NO
Carmel Country Rd. / SR-56 EB on Ramp	AM	0.00	0	0.00	0	0.00	NO
	PM	0.00	0	0.00	0	0.00	NO

AM Peak Reduction = 26%
PM Peak Reduction = 57%

DMH / I-5 SB AM: $7.34 \times 0.26 = 1.9$; $7.34 - 1.9 = 5.44$ (Remains a significant impact)
DMH / I-5 SB PM: $24.62 \times 0.57 = 14.0$; $24.62 - 14.0 = 10.62$ (Remains a significant impact)
DMH / I-5 NB PM: $7.74 \times 0.57 = 4.41$; $7.74 - 4.41 = 3.33$ (Remains a significant impact)

15 Minute Max. Meter Rate

Location		Year 2030		Year 2030 With Project (Buildout)		V	S
		Delay (Min)	Queue (Ft)	Delay (Min)	Queue (Ft)		
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound Loop)	AM	15.0	3,567	20.5	4,872	5.5	YES
	PM	15.0	2,320	43.3	6,699	28.3	YES
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	15.0	2,291	15.0	2,291	0.0	NO
	PM	15.0	1,740	15.0	1,740	0.0	NO
Del Mar Heights Rd. / I-5 NB on Ramp	AM	15.0	3,393	17.8	4,031	2.8	YES
	PM	15.0	3,915	23.6	6,148	8.6	YES
El Camino Real / SR-56 EB on Ramp	AM	15.0	4,060	15.5	4,205	0.5	NO
	PM	15.0	7,415	16.0	7,903	1.0	NO
Carmel Country Rd. / SR-56 EB on Ramp	AM	15.0	1,914	16.1	2,059	1.1	NO
	PM	15.0	1,711	19.3	2,204	4.3	NO

Notes:

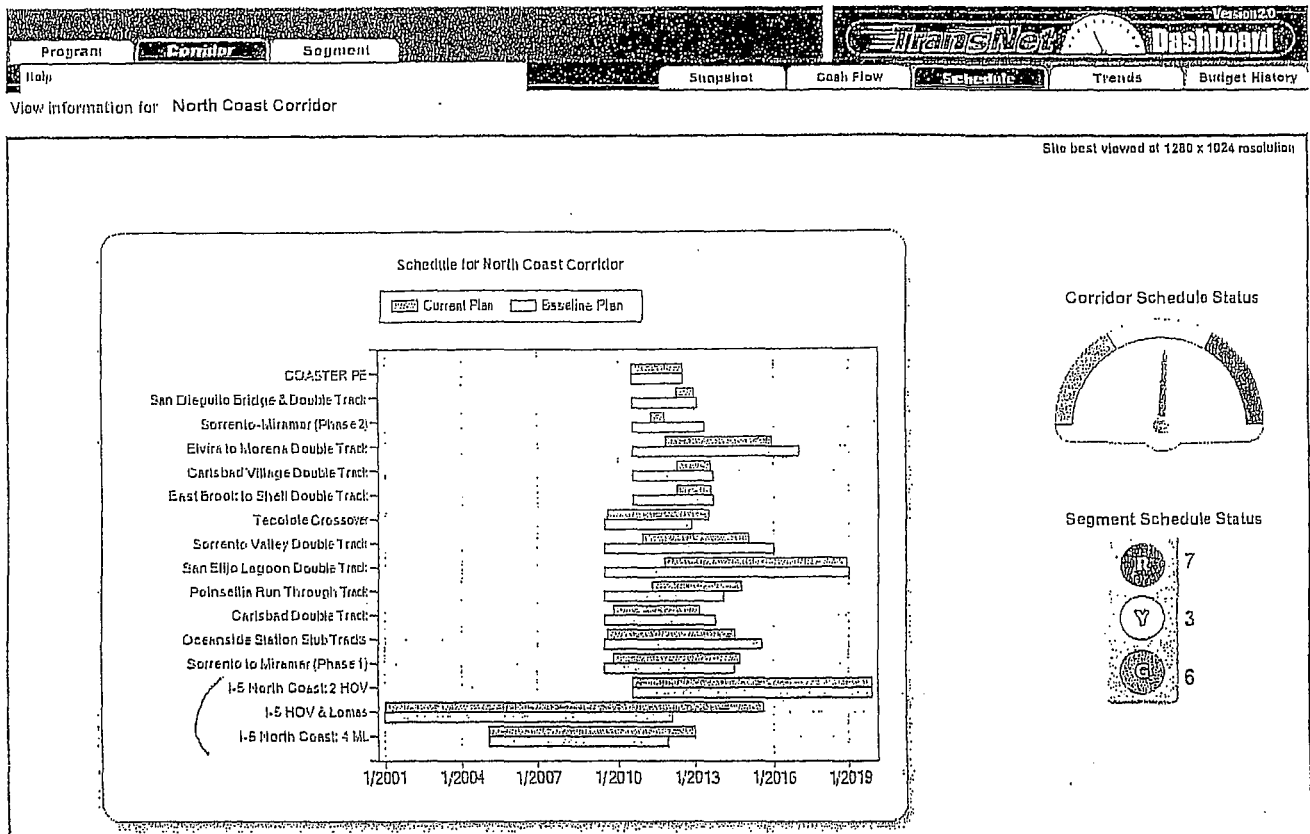
Δ = Change in Delay (minutes)

S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS E is 2 min.

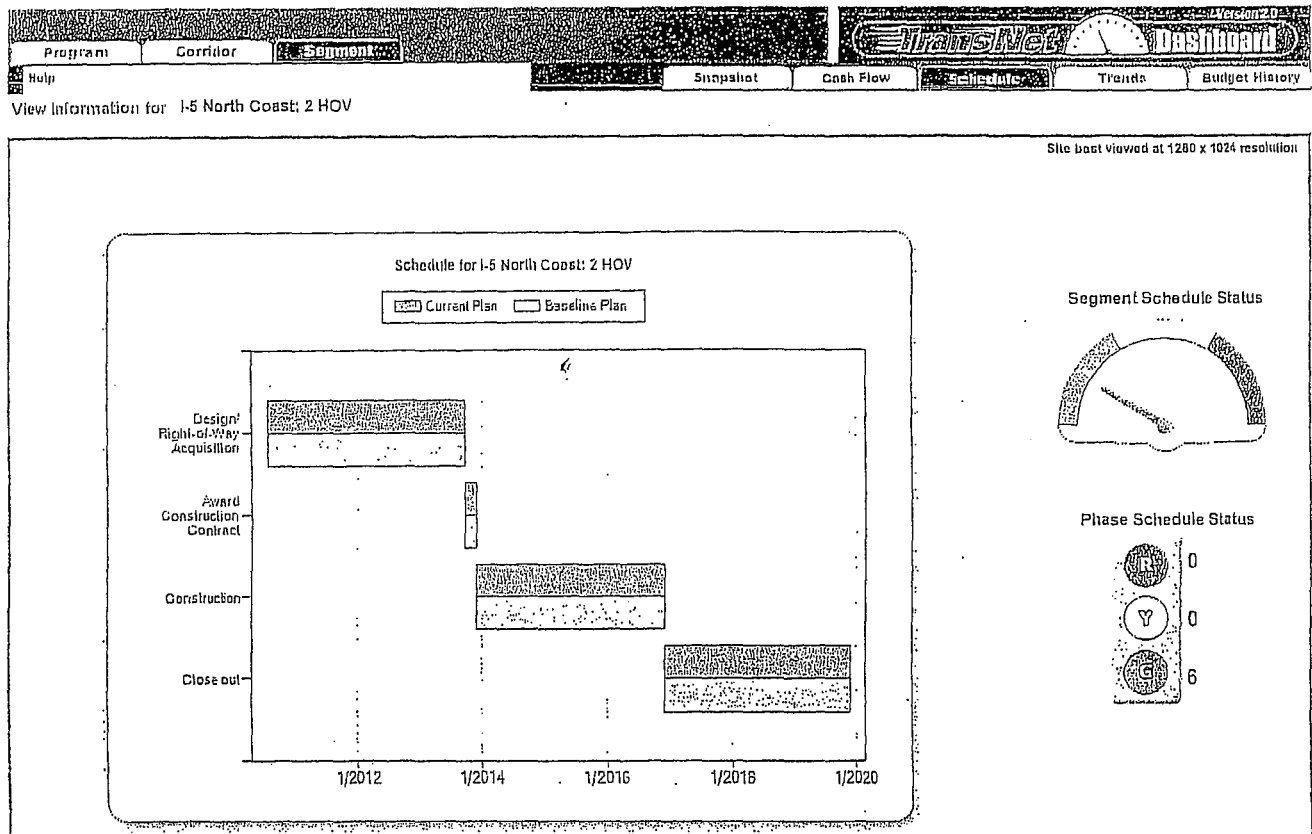
S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS F is 1 min.

APPENDIX R

I-5 NORTH COAST CORRIDOR SCHEDULE / CINEMA IN PHASE 1 & 2 TRIP ASSIGNMENT

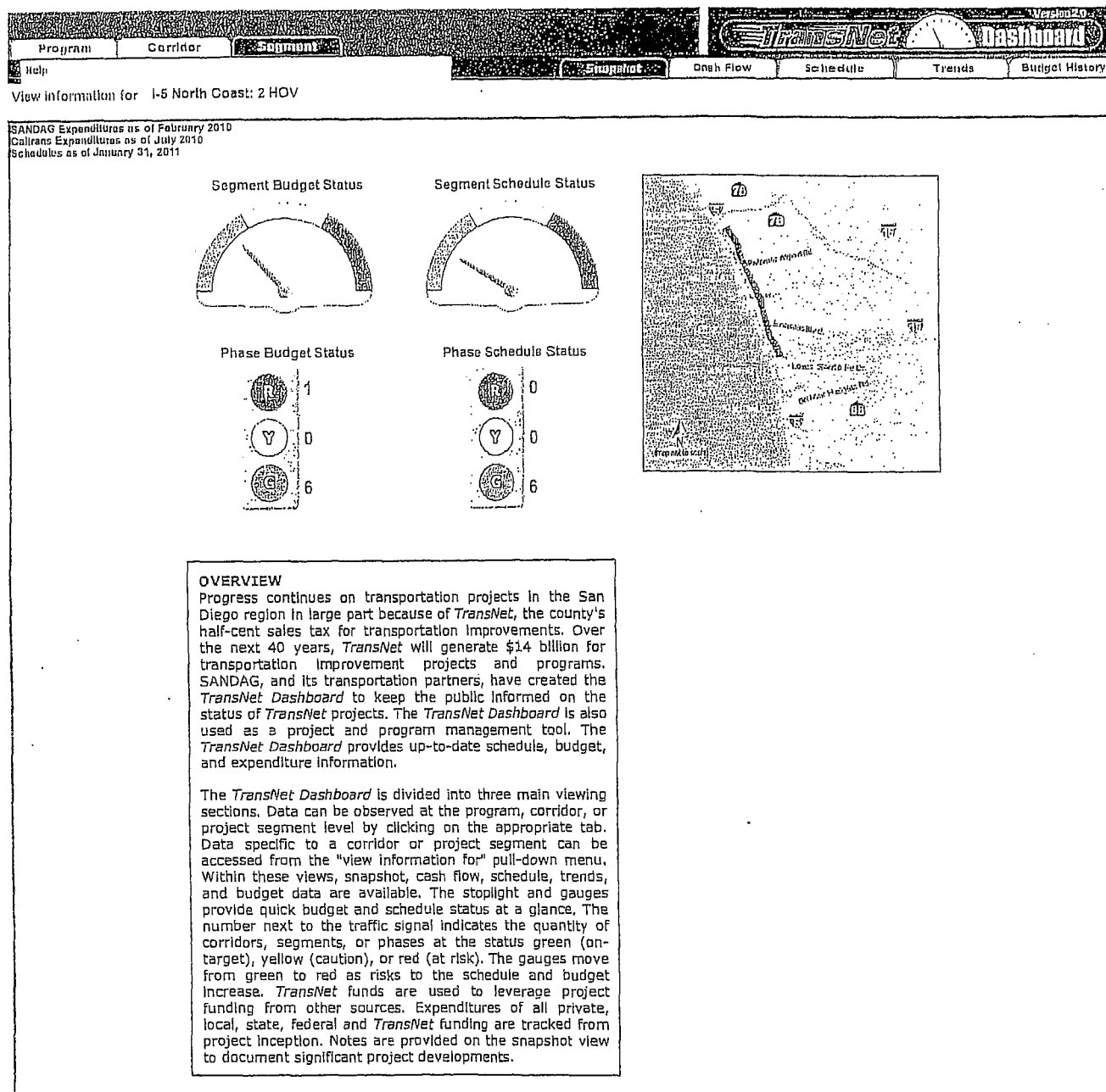


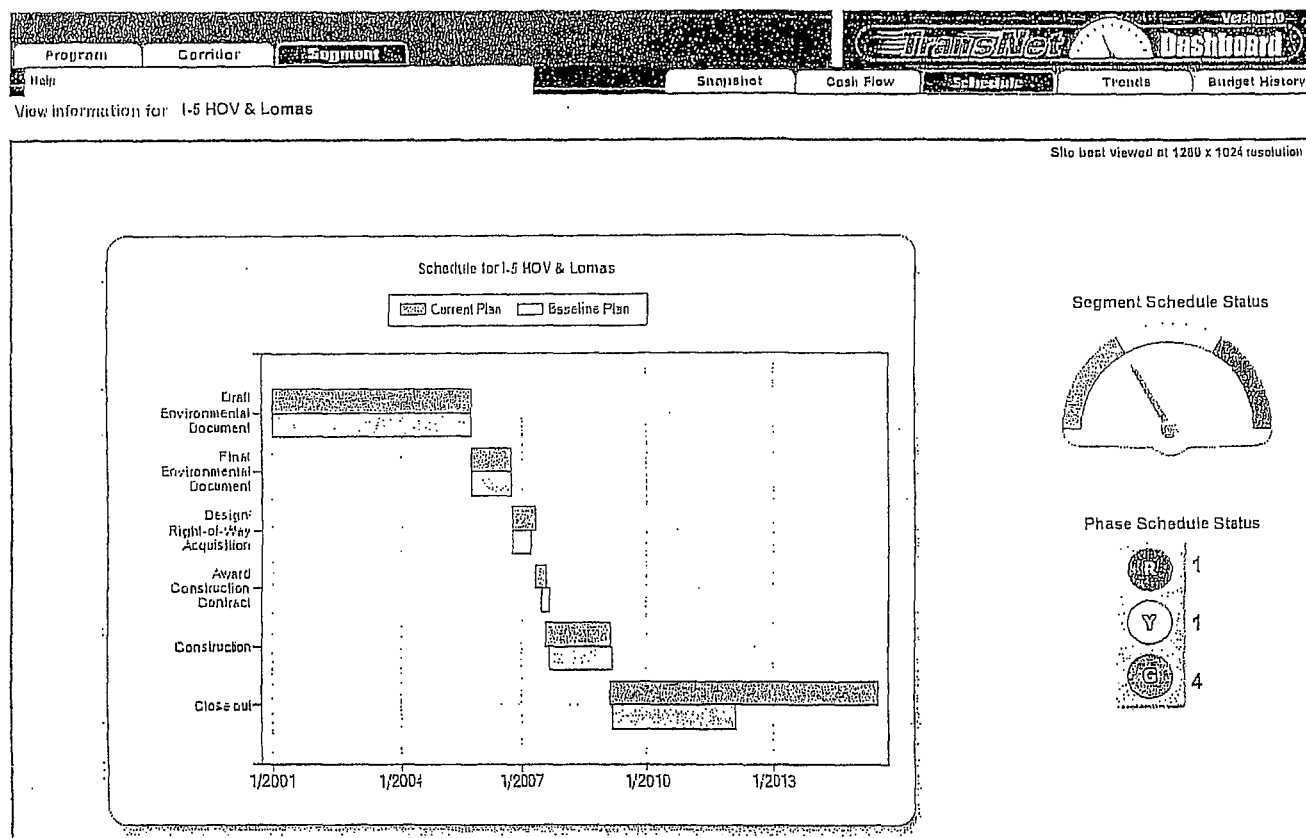
OVERVIEW



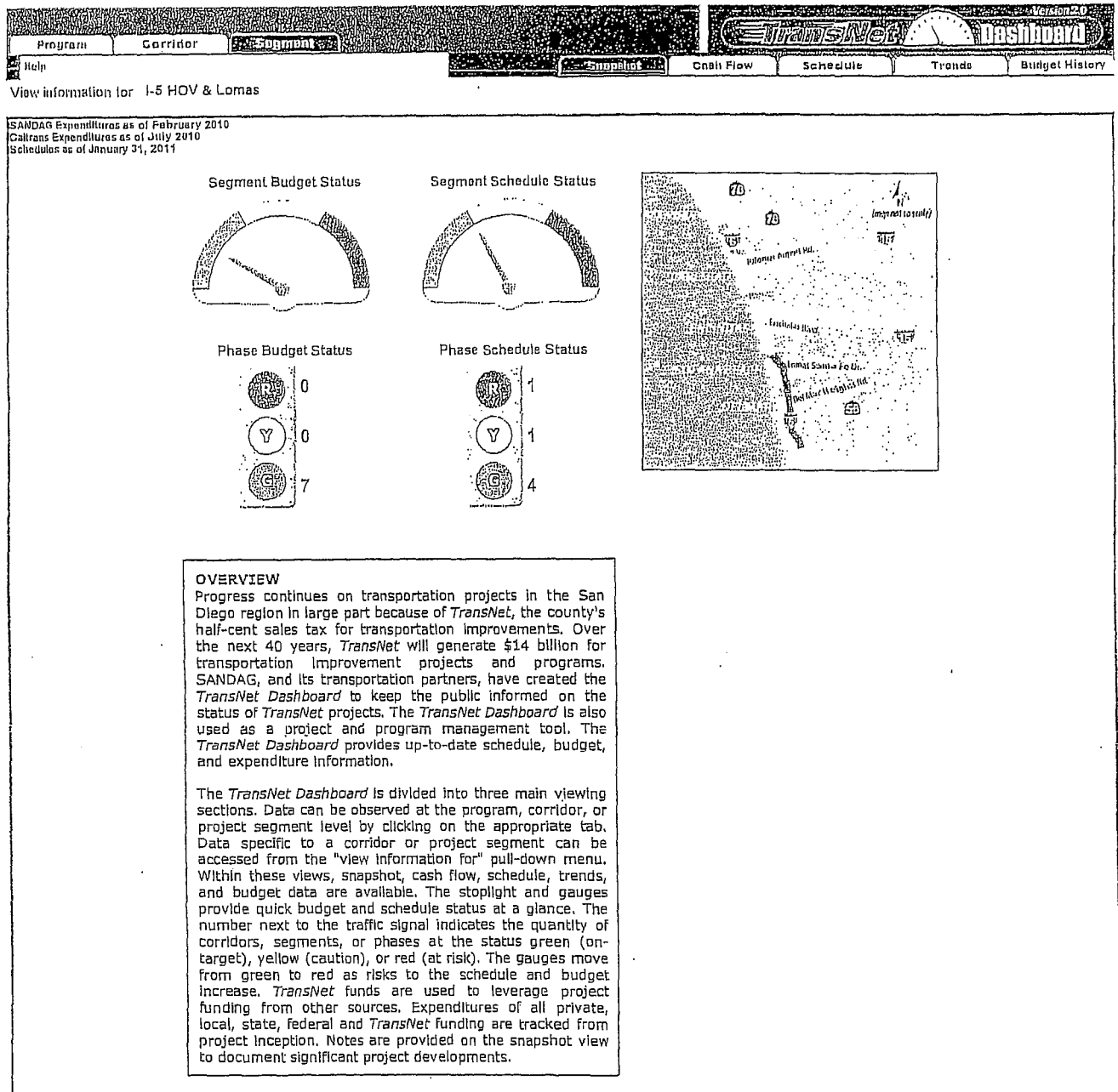
TransNet SANDAG

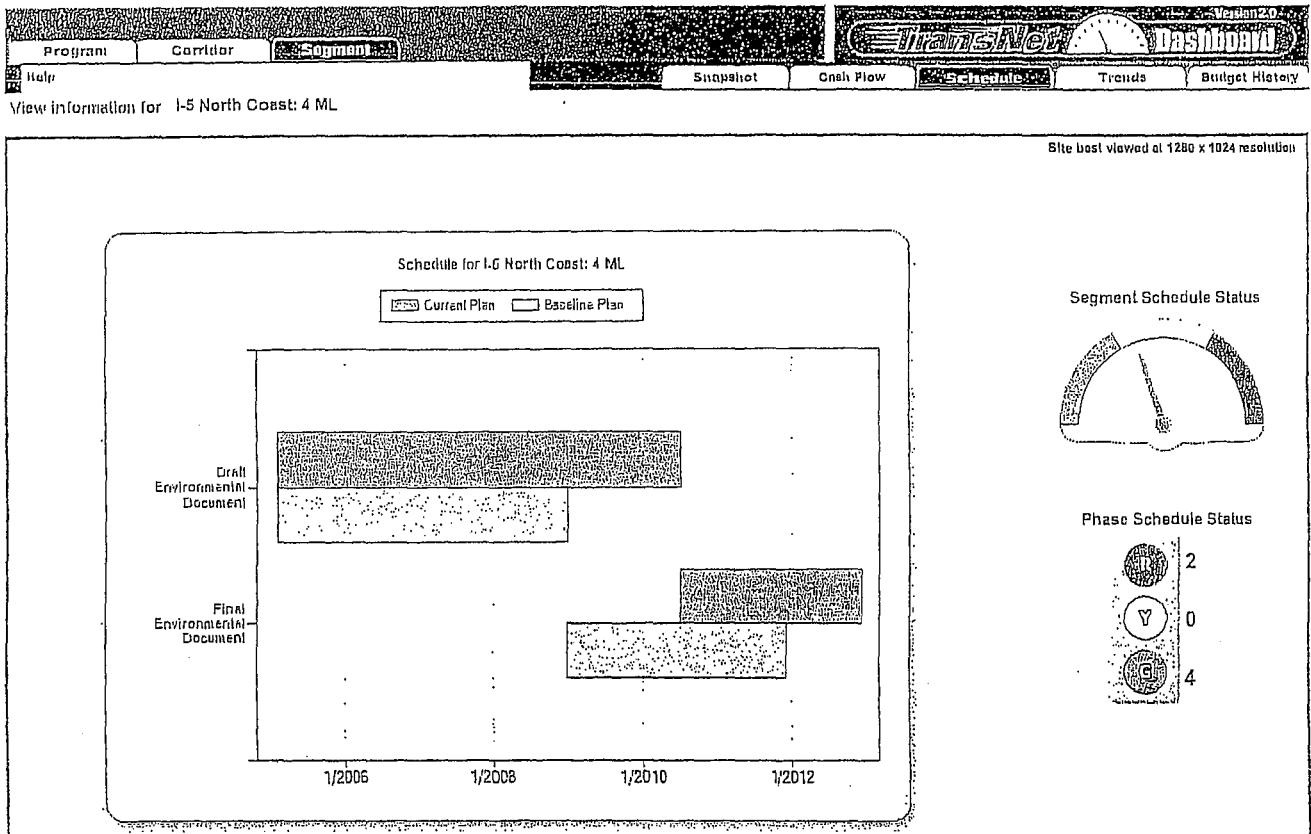
"Prepare engineering design plans for
- 2 HOV lanes on I-5 from Manchester Ave. to SR-78"





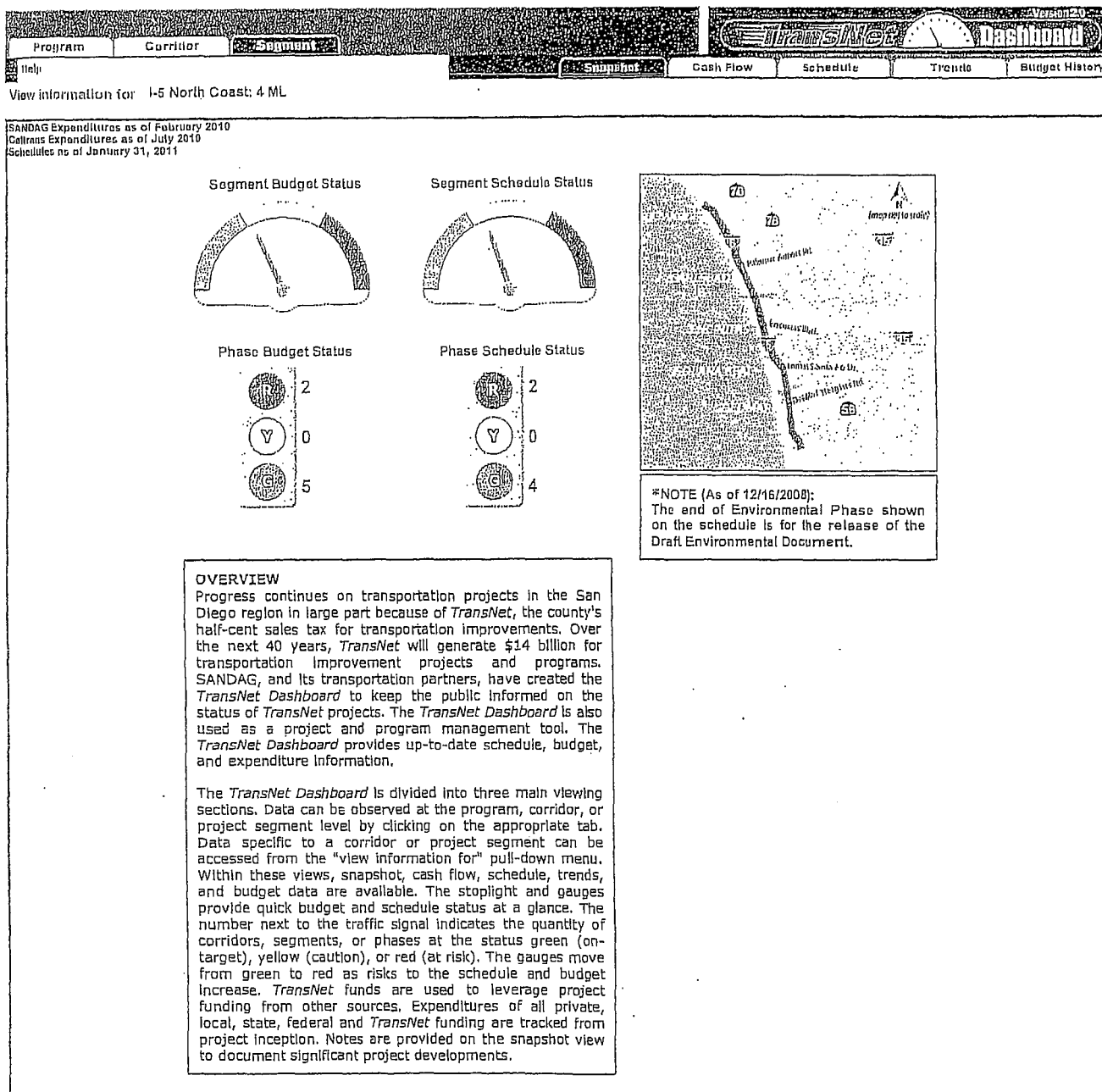
Construction on I-5 in San Diego + Solana Beach
from Sorrento Valley Blvd. to north of Lomas
Santa Fe Avenue.





TransNet SANDAG Caltrans

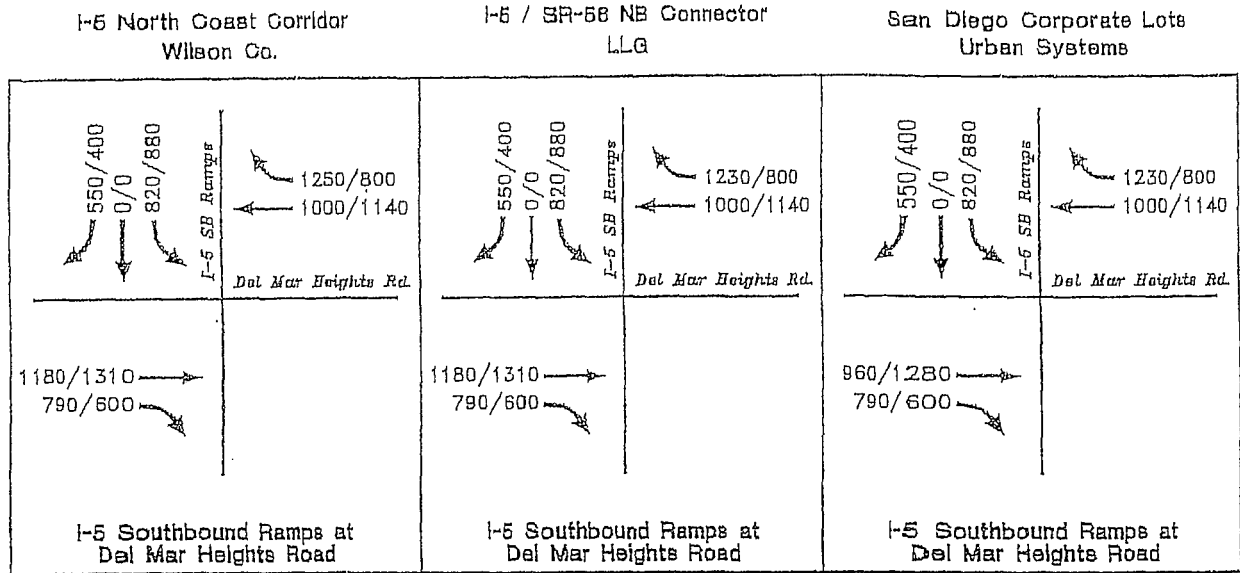
Environmental Clearance and advanced ROW acquisition
for freeway widening on I-5 from La Jolla Village Dr.
to Vandergriff Blvd.



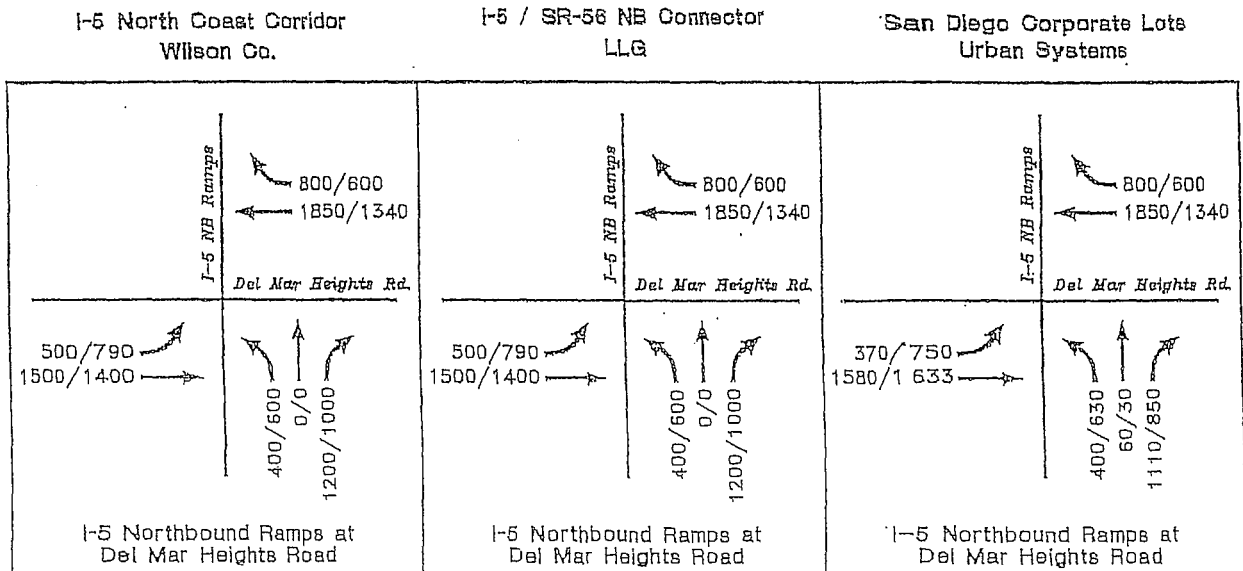
APPENDIX S

**FUTURE TRAFFIC VOLUME COMPARISON
(I-5 / DEL MAR HEIGHTS ROAD INTERCHANGE)**

Year 2030



Year 2030



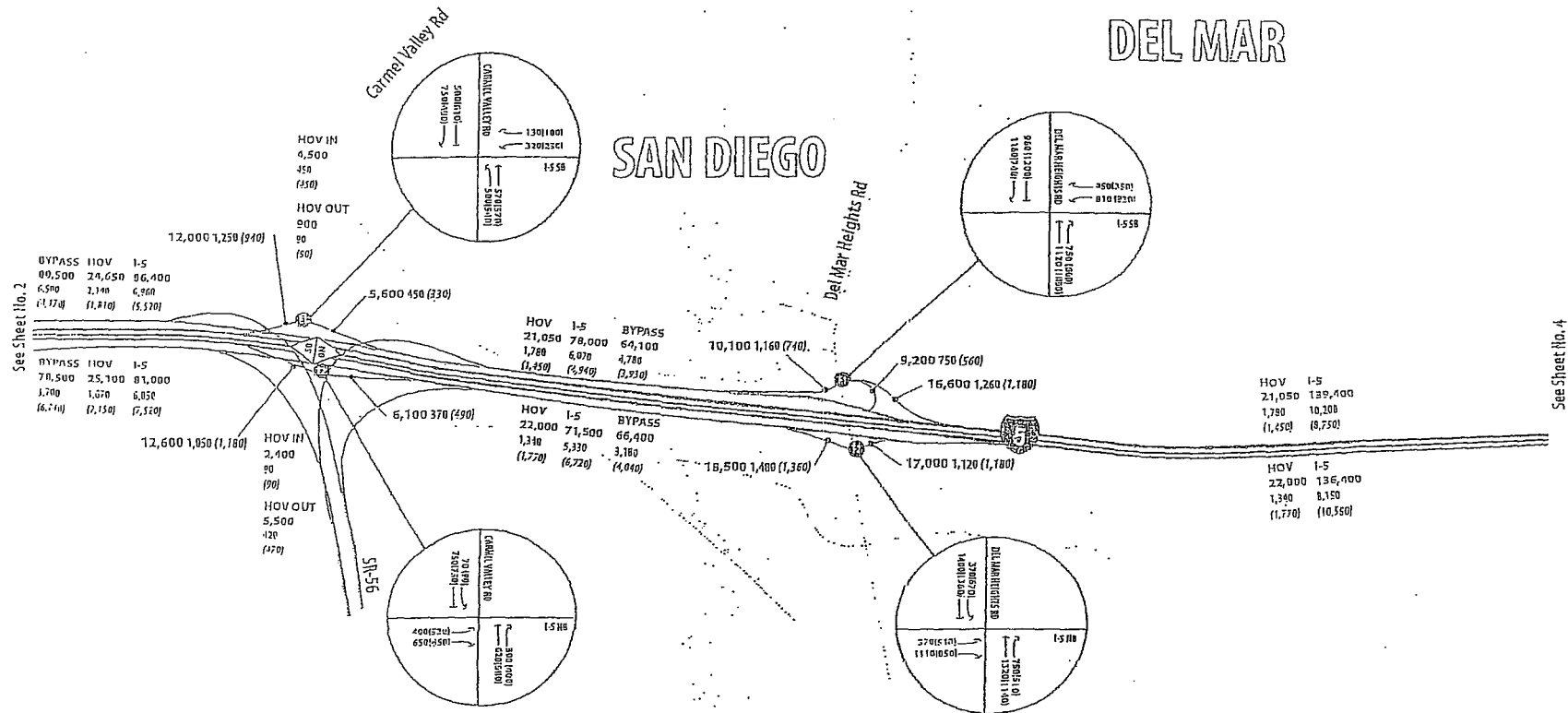
I-5 / Del Mar Heights Road Interchange Volume Comparison



Coast Highway

DEL MAR

SAN DIEGO



WHITSON
& COMPANY
ENGINEERS & ARCHITECTS

CAL REPORT #5, DIRECT ACCESS RAMP TRAFFIC DEMAND FORECASTING REPORT

FIGURE 3-5. YEAR 2015 10+4 WITH DAR - TRAFFIC FORECAST DATA

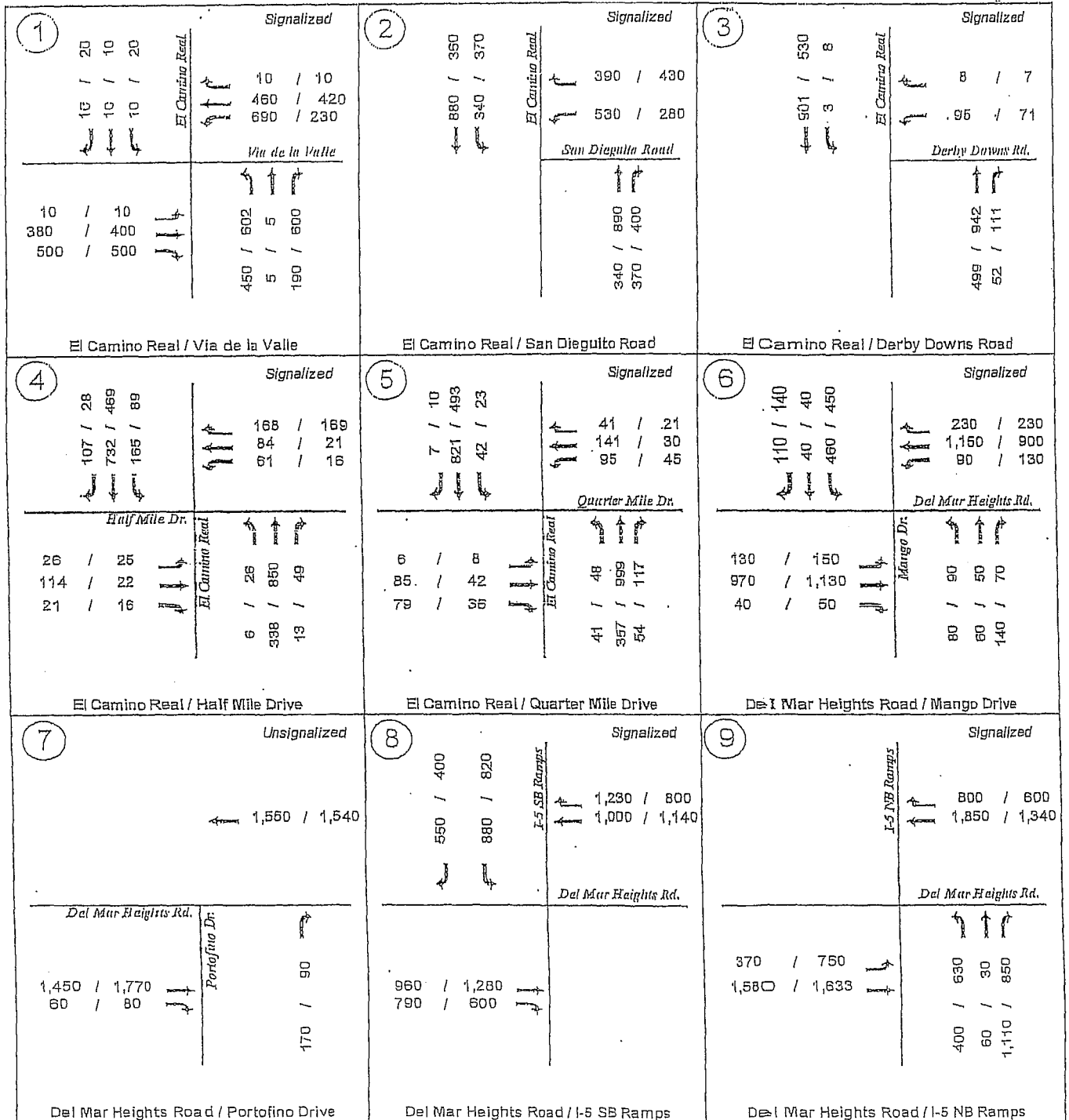


FIGURE 11-2

Year 2030 Without Project AM / PM Peak Hour Traffic Volumes

APPENDIX T

FAIR SHARE CONTRIBUTION PERCENTAGE

(I-5 / SOUTHBOUND LOOP ON-RAMP)

ONE PASEO

Fair Share Contribution Calculations

16-May-11

El Camino Real / SR-56 Eastbound on-ramp:

$$\frac{\text{Project Only}}{\text{Year 2030+P - Existing}} \Rightarrow \frac{134}{10,331 - 6,568} \Rightarrow \frac{134}{3,763} \Rightarrow 0.035 = 3.5\%$$

Via de la Valle (San Andres Drive to El Camino Real-West):

$$\frac{\text{Project Only}}{\text{Year 2030+P - Existing}} \Rightarrow \frac{539}{33,639 - 24,400} \Rightarrow \frac{539}{9,239} \Rightarrow 0.058 = 5.8\%$$

$$\text{Fair Share Cost: } \$15,800,000 \times 5.8\% = \$916,400$$

Note: The City of San Diego calculated the fair share as: 539 ADT x \$5,692.61 per ADT = \$3,068,317

Therefore, the fair share percentage shows 19.4%

$$\frac{\$3,068,317}{\$15,800,000} \Rightarrow = 19.4\%$$

I-5 Southbound (Loop) on-ramp / Del Mar Heights Road:

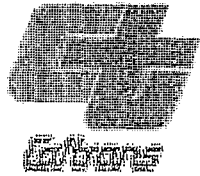
$$\begin{array}{l} \text{AM (Demand-veh/hr)} \\ \text{Year 2030+P - Existing} \end{array} \Rightarrow \frac{45}{660 - 406} \Rightarrow \frac{45}{254} \Rightarrow 0.177 = 17.7\%$$

$$\begin{array}{l} \text{PM (Demand-veh/hr)} \\ \text{Year 2030+P - Existing} \end{array} \Rightarrow \frac{151}{551 - 242} \Rightarrow \frac{151}{309} \Rightarrow 0.488 = 48.8\%$$

$$\begin{array}{l} \text{Weighted Average} \\ \text{(AM \& PM)} \end{array} \Rightarrow \frac{45 + 151}{254 + 309} \Rightarrow \frac{196}{563} \Rightarrow 0.348 = 34.8\%$$

APPENDIX U

CALTRANS TRAFFIC MITIGATION AGREEMENT



Local Development -
Intergovernmental Review Program

Traffic Mitigation Agreements

California Department of Transportation

June 2006

Traffic Mitigation Agreements
with
Local Development Project Proponents

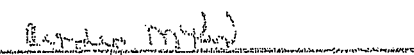
Procedures for Collecting, Recording, and Expending Fair Share (Pro Rata) Funds
and
Securing Deferred Capital Improvements

APPROVED:



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4/21/06
Date



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Chief Financial Officer

4/24/06
Date



RICHARD D. LAND
Chief Engineer

4/25/06
Date



BRUCE BEHRENS
Chief Counsel

6/1/06
Date

Acknowledgement

The Office of Community Planning extends its great appreciation for the individual and collective statewide efforts that made possible the publication of these procedures:

Traffic Mitigation Agreements with Local Development Project Proponents

Procedures for Collecting, Recording, and Expending
Fair Share (Pro Rata) Funds
and
Securing Deferred Capital Improvements

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LD-IGR Traffic Mitigation Agreements

Appendices

1. Flow Chart: Executing an Agreement
2. Template: Fair Share Deferment Agreement
3. Template: Capital Deferment Agreement
4. Flow Chart: Accounting for Receipt of Fair Share Funds
5. Letter: Confirmation of receipt of mitigation measures funds from Proponent
6. Form: Sample Transfer Receipt (Form STD 440)
7. Flow Chart: Accounting for Expenditure of Fair Share Funds

Definitions

1. **Contributor Number.** Identification number given to local proponent for a specific Agreement by the Reimbursement Accountant at Headquarters (HQ) and matched to the EA. A contributor number is required in order to set up a reimbursement (R) line on an EA in TRAMS.
2. **District Cashier.** District officer who receives mitigation funds from Local Development-Intergovernmental Review (LD-IGR) function, prior to funds being transferred to HQ Cashiering.
3. **District Projects Monitor.** Function in each District responsible for monitoring planned and programmed projects for the purpose of identifying where mitigation funds can be committed. For example, in District 6, Advanced Planning performs the function.
4. **Division of Accounting (DofA), Reimbursement Section.** HQ office responsible for assisting in setting up of both holding and project EAs for mitigation funding and for the subsequent accounting activities required.
5. **Division of Accounting, Office of Financial Accounting & Analysis (OFAA).** HQ office that certifies reimbursement authority for EA and subsequently releases EA for entry into TRAMS. Two separate sections within OFAA have respective responsibilities (Highway Appropriation Management Section [HAMS] and EA Control & Overhead Assessment Section [EA Control]).
6. **Division of Budgets, Capital Outlay (HQ Budgets).** Approves Reimbursement Authority for mitigation measures project EA phase 4 funds.
7. **Expenditure Authorization (EA).** A 6-digit alphanumeric "number" that is assigned to a specific project or work order to track all project-related financial activities. Mitigation funds collected are assigned an "holding" EA. (Temporary EA assigned with an EA status of 21, which is used for billing and collections only.) No activity may be recorded in TRAMS by any Department organization without an EA.
8. **Expenditure Authorization System/Capital Outlay Monitoring System (EAS/COMS).** A subsystem of TRAMS that is used to masterfile an EA.
9. **Funding Package.** Set of funding documents detailing the phase 4 EA construction financing for a capital outlay project. A Funding Package is required for every project submitted to Office Engineer for advertising and award of a construction contract.

LD-IGR Traffic Mitigation Agreements

10. **Headquarters Cashiering.** Receives funds from District Cashier and posts per instructions received from Reimbursement Accountant.
11. **Lead Agency.** The public agency which has the principal responsibility for carrying out or approving a project which may have a significant effect upon the environment. (CEQA [PRC Section 21067].)
12. **Local Development-Intergovernmental Review (LD-IGR) Coordinator.** Individual designated in each District to coordinate that District's functional responses to environmental review of proposed local development projects.
13. **Local Agency.** Any public agency other than a state agency, board, or commission. (For CEQA, includes redevelopment agency and a local agency formation commission [PRC Section 21062].)
14. **Masterfiled.** A term used to indicate that an EA or contributor number has been entered into TRAMS.
15. **Office Engineer (OE).** Division of Engineering Services office that performs the functions of preparation of the final contract documents, project scheduling, advertisement, bid opening, award, and approval of all Department highway construction contracts over \$120,000.
16. **Project Control Officer (PCO).** District officer authorized and responsible for processing Expenditure Authorization (EA) for mitigation funds upon request of Local Development-Intergovernmental Review (LD-IGR).
17. **Proponent.** Person/entity developing a project.
18. **Public Agency.** Includes any state agency, board, or commission, any county, city and county, city, regional agency, public district, redevelopment agency, or other political subdivision. (CEQA [PRC Section 21063].)
19. **Reimbursement.** Recovery in cash or its equivalent from another governmental unit, fund, or department for an expenditure made on its behalf. Mitigation funds are collected as "reimbursement funds." The reimbursement funding line on an EA is called the "R" line.
20. **Reimbursement Accountant.** First level of approval in HQ A/R for mitigation funds "holding" EA and subsequent masterfiling of both contributor number and project EA into TRAMS.

21. **Reimbursement Authority.** Approval required from HQ Budgets before HAMS can certify phase 4 construction project EAs in EAS/COMS (and before funds can be expended). Reimbursement Authority for mitigation funds is requested only for phase 4 construction projects. (When approved, the mitigation funds Reimbursement Authority is not part of a District's annual Reimbursement Authority allocation for capital projects.)
22. **Traffic Mitigation Agreement (Agreement).** The Agreement entered into directly with a project developer (proponent) in order to collect funds for traffic mitigation measures (Fair Share Deferment), or in order to secure a commitment for improvements (Capital Deferment), to offset impacts to the State Highway System when a project is approved by a local public agency. The Agreement will include attachments of supporting documentation.
23. **Traffic Mitigation Agreement (Agreement) Package.** The Agreement "Package," in addition to the signed and notarized (preferably) Fair Share Deferment Agreement and its attachments, consists of the check and copies of any other pertinent documents generated in the District pertaining to the collection and planned expenditure of the mitigation funds. (Capital Deferment Agreements are not forwarded to HQ Accounting, as there are no mitigation funds collected.)
24. **Transportation and Accounting Management System (TRAMS).** The Department's accounting system.
25. **TRAMS Collector.** Overnight electronic "bin" for EA after it has been released by OFAA, but not yet entered (or uploaded) into TRAMS.
26. **Transfer Receipt.** Form STD. 440 (REV. 6-2000). Used to record the receipt of funds by District Cashier and the subsequent transfer of those funds from District Cashier to HQ Cashiering.

Introduction

The Local Development-Intergovernmental Review (LD-IGR) Traffic Mitigation Agreement (Agreement) was designed to fill a limited need. It is executed directly between the California Department of Transportation (Department) and project developers (proponents), both private and public, in order to capture mitigation to the State Highway System (SHS) that might otherwise be lost.¹

Pursuant to the California Environmental Quality Act (CEQA), public agencies can require proponents to mitigate or avoid significant adverse impacts to the environment prior to approving a proponent's proposed project. Usually, public agencies (lead agencies, under CEQA) administer the collection of funds or other forms of mitigation to the SHS. Under certain circumstances, however, they will require that the proponent work directly with the Department to mitigate impacts to the SHS.

Background

CEQA grants public agencies the authority to mitigate or avoid significant effects to the environment with respect to applicable projects within their jurisdictions. The resulting environmental review, as established by CEQA and its Guidelines, is central to the Department's ability to obtain mitigation for development impacts to the SHS.

The Department reviews proposed planning and development activity for the purpose of identifying potential significant impacts to the SHS. Depending upon the type and size of the proposed project, some degree of traffic analysis will be generated. The analysis may be in the form of a traffic impact study (TIS) conducted by a local public agency or proponent; calculations from the Institute of Transportation Engineers [ITE] *Trip Generation Handbook*; modeling; prior traffic analysis that established per-trip cost; or, some other appropriate method.

Whatever the form of the analysis, if it is determined that a significant impact will result from a proposed project, it is within the authority of the Department to request mitigation that will either eliminate the impact or reduce it to a level of insignificance.

The Department's recommendation for mitigation must be based upon sound technical data that: (1) Establishes a nexus (connection) between the proposed project and the impact to the SHS; and (2) calculates that the mitigation is proportional to the impact (fair share). Recommended mitigation generally results in direct infrastructure improvements, but it may also result in indirect improvements, such as a proponent providing, or enhancing, local transit services.

¹ These procedures do not apply to the execution and administration of Cooperative Agreements, pursuant to California Streets and Highways Code, Sections 114 and 130.

As indicated earlier, a local public agency generally administers mitigation to offset the impact of a local development project to the SHS. The local agency collects the fair share funds from the proponent and accounts for them until such time as the mitigation measures are implemented. When the local public agency does not want to administer mitigation to the SHS, however, the Department can negotiate and execute an Agreement directly with the proponent to collect the funds or to obtain a commitment from the proponent to make improvements.

Scope

These Traffic Mitigation Agreement (Agreement) procedures apply at the end of the Local Development-Intergovernmental Review (LD-IGR) process, when applicable. That is, they apply only when the Department enters into an Agreement directly with a proponent for mitigation of adverse impacts to the SHS caused by a proposed project that is subject to local public agency approval. The procedures are used for agreements between the Department and project proponents, both private and public.

These procedures are based upon the premise that:

- ❖ A proposed local development project underwent an environmental review, resulting in a determination that there will be an adverse impact to the SHS and that mitigation is required; and
- ❖ The Department will enter into an Agreement directly with a proponent to collect fair share mitigation funding; the proponent will commit to construct the mitigation improvements; or, in some instances, to do both.

The Department will enter into the Agreement because:

- ❖ A local public agency does not wish to collect and administer funds for SHS mitigation; therefore, it conditions project approval up on the proponent entering into an Agreement with the Department for the mitigation; or
- ❖ A proponent will approach the Department, already having determined that there will be an impact to some degree, and ask for assistance in calculating fair share mitigation prior to project application to the public agency.

See Appendix 1, Flow Chart, *Executing Fair Share Funds and Deferred Capital Improvement Agreements with Proponents*.

Purpose

The purpose of these procedures is threefold: (1) Provide Agreement templates for use between the Department and local development proponents for direct receipt of mitigation funding or a commitment from the proponent to implement the mitigation measures; (2) describe the steps necessary to enter the direct receipt of funding into the Department's accounting system, the Transportation and Accounting Management System (TRAMS); and, (3) outline the steps necessary to apply the funds to a project.

Approach

The procedures described herein are based upon those that have been in place in District 6 for some time. They reflect the successful coordination of efforts that evolved over the years among the District's multiple functional units, Headquarters Accounting and Budgets Divisions, local public agencies, and proponents.²

We'll begin with a description of how the Agreement templates can be used, depending upon the type of mitigation that is negotiated. That is followed by a description of the procedures that are required to set up an account in TRAMS when funds are collected, and then discuss the expenditure of the funds. Lastly, the Appendices provide supporting information, including the Agreement templates.

Traffic Mitigation Agreement

Depending upon the purpose of the Agreement, one of two templates that were prepared by the Department's Legal Division (Legal) can be used: (1) Fair Share Deferment (we will collect the mitigation funds); and (2) Capital Deferment (the proponent will make the capital improvements--the Department will not collect funds).³

Further, there may be circumstances under which mitigation calls for the proponent to pay a fair share in funds to the Department and construct improvements to the SHS. Under such circumstances, contents of both the Fair Share Deferment and Capital Deferment formats can be used in a combined Agreement. For example, a proponent may need to make improvements that

² District Planning and Engineering units may wonder why the Accounting and Budgeting tasks are included within these procedures. The thought is that if the Planners and Engineers know what information the Accounting and Budgeting staff require, it will make it easier to ensure that the record keeping is complete. Likewise, the Accounting and Budgeting staff can benefit by knowing what the Planners and Engineers are working to accomplish.

³ Since no funds will be collected with a Traffic Mitigation Agreement for Capital Deferment, the Agreement is not forwarded to Headquarters Accounting. However, District Permits should receive a copy if the proponent's project will require an encroachment permit.

LD-IGR Traffic Mitigation Agreements

extend to our right-of-way in order to provide safer and more convenient access to a new development prior to opening for business (perhaps installing a traffic signal). Cumulative traffic impacts of the project may need mitigating, as well, so we would also collect funds for improvements to the mainline facilities.

The flexibility of the Agreement reflects the various types of mitigation that can be negotiated to offset traffic impacts to the SHS.

If the mitigation measures agreed to by the Department and the proponent simply reflect changing those areas of the Agreement that describe specific project information (highlighted in yellow in our templates), it is not necessary to obtain another review by Legal before executing the Agreement. Once executed, the Agreement can be forwarded to Legal for approval of form and procedure. However, if a more extensive re-write of the template than simply changing the "highlights" is necessary, the Agreement must be reviewed by Legal prior to execution.

Mitigation funding can be used for a number of purposes, depending upon the language negotiated in the Agreement between the Department and the proponent. The description of the mitigation measures should be as generic as possible, considering that the particular Agreement measures will normally be part of a larger project. At the same time, the Agreement must be specific enough to ensure that it clearly documents the required connection between project impact and mitigation expenditures.

For example, analysis may determine that a proposed project will contribute to the need for an interchange access improvement. Since there will be various costs associated with the improvement, the Department might identify the location of the interchange without identifying the specific measures to be implemented (underground wire, guard rails, etc.). The more general description provides flexibility and allows the most effective use of the funds. On the other hand, analysis and conditions may dictate that the Department negotiate for a specific improvement, such as a "signal," "turn lane," or "portion of HOV lane," etc.

Keep in mind that many years can go by between receipt and expenditure of the funds. Whether the Agreement describes mitigation in general or in more specific terms, there should be as much detail as possible to aid long term connection of the funding and related expenditures to the mitigation. Whether it is in the Agreement "proper" or part of the supporting documentation, information such as location (including Post Mile, for example, if applicable); name of the project, local jurisdiction, funding amount (unless Capital Deferment), environmental references, and requirements for meeting certain warrants or thresholds by dates (for example, "2020") should be included.

Each Agreement should be assigned a District number.

All Agreement signatures should be notarized. There is at least one (1) Notary Public on staff at almost all of the Districts---usually part of the Right of Way

function. If in doubt, please contact the District Executive Assistant or Executive Secretary, who can help identify the Notary(ies). Exceptions to having an Agreement notarized will be authorized by the Districts.

When the Department enters into a Capital Deferment Agreement (or if a combined Agreement is executed) it may wish to have the Agreement recorded with the County Clerk as a means to ensure completion of the mitigation project. Other options may be to require a bond or letter of credit. It will depend upon the type of project. Again, Legal will help in determining whether the above, or other, conditions are appropriate.

Appendices 2, and 3 provide sample templates for:

1. Fair Share Deferment Agreement;
2. Capital Deferment Agreement;

Each template provides, in yellow, those areas where the specific language (at a minimum) would need to be changed with each new Agreement in order to reflect the particular requirements and conditions. It is expected, as well, that revisions to the template will be made as warranted.

Accounting for Receipt of Funds

Mitigation funds are accounted for as reimbursements (in TRAMS as fund source "R").

Procedures for recording the receipt of mitigation funds are similar to those used by the Department in accounting for other reimbursement project funds. In most cases with mitigation funds, however, the Department tracks the funds for many years, so these procedures will emphasize some of the coding requirements for the long-term collections.

Since the Department collects only a proponent's fair share of mitigation funds, and it could take a long time to gather enough funds to complete an improvement, the funds will not be assigned (generally) a project Expenditure Authorization (EA) at the time they are collected. Rather, an "holding" EA will be established in TRAMS, "R" fund source, EA status 21 (allows only billings and collections to post).

When they are scheduled for a project, the funds will be assigned the project EA. (If an appropriate project exists at the time of collecting the funds, of course, that project's EA will be assigned to the funds, and the Department won't have to "hold" them.)

Steps to be taken to enter the funds into TRAMS are described in the following few pages. (These steps assume that a holding EA will be required.)

Also, please see Appendix 4, Flow Chart, *Accounting for Receipt of Fair Share Funds from Proponents*.

LD-IGR Traffic Mitigation Agreements

I. Districts:

A. Local Development-Intergovernmental Review (LD-IGR):

1. Receive check from the project proponent, following execution of the Agreement.
2. Send a letter, or E-mail, to the local public agency, confirming receipt of the proponent's check for mitigation measures. (See Appendix 5.)
3. Send a copy of the above confirmation to the project proponent.
4. Forward the following documents to the Project Control Officer (PCO):
 - a. Copy of the check.
 - b. Signed Agreement, including attachments.
 - c. Copy of the letter or E-mail that was sent to the local agency confirming receipt of the mitigation funding.
 - d. Request an Expenditure Authorization (EA) for the funding. (The District Cashier needs the EA in order to transfer the funds to HQ Cashiering, also.)
5. Upon receipt of an EA, deliver the check and copy of Agreement Package to District Cashier. Cashier will issue a Transfer Receipt (Form STD. 440).
6. If the proponent's local development project requires an encroachment permit, forward a copy of the Agreement and its attachments, including EA, to Permits.

B. Office of Budgets:

1. Project Control Officer (PCO):
 - a. Assign an EA to the Agreement (holding or project EA, as applicable).
 - b. Fax or e-mail the Agreement Package, to the appropriate Reimbursement Accountant, so that a "Contributor Number" for the project proponent will be masterfiled. Fax to: (916) 227-8789 or Calnet 8-498-8789. In order to determine the appropriate Reimbursement Accountant, go to the Reimbursement contact page located at <http://onramp.dot.ca.gov/hq/accounting/print/OAR0206.doc>. The accountant's name, phone number, and e-mail link are provided.

LD-IGR Traffic Mitigation Agreements

- c. Upon receipt of the Contributor Number from the Reimbursement Accountant, set up the EA in EAS/COMS, Status 21⁴, and transmit to the Reimbursement Accountant for approval of the set up and R line. (After approval, the EA will be forwarded to HQ EA Control & Overhead Assessment Section [EA Control].)
 - d. Upon entry (approval) of the EA into TRAMS, notify all Department project participants involved, and copy notice to Reimbursement Accountant.
2. Cashier:
- a. Receive proponent's check from LD-IGR. Complete a Transfer Receipt (Form STD. 440) for check and give the original to the LD-IGR staff person who delivered the check. Transfer Receipt must include the following information:
 - (1) Date;
 - (2) Dollar amount collected;
 - (3) Check number;
 - (4) EA number;
 - (5) Purpose (project mitigation);
 - (6) The term "REIMBURSEMENTS";
 - (7) The words "For deposit into 'Account 84'"; and
 - (8) Any other pertinent identifying information (See Appendix 6).
 - b. Forward to HQ Cashiering:
 - (1) Check;
 - (2) Copy of Transfer Receipt;
 - (3) Copy of remainder of Agreement Package documents;
 - (4) Staple documents together.

II. Headquarters

Division of Accounting:

1. Cashiering:

- a. Upon receipt of check, Agreement Package, and copy of Transfer Receipt from District Cashier, enter funds as a deposit of Reimbursement dollars into Account 84.

⁴ "EA Status 21" allows billings and collections only to post in TRAMS---no expenditures. PCO will not obtain Reimbursement Authority, and the EA will not have an authorized amount on screen 64 in TRAMS for this "holding" EA. The YI indicator should be set at "0" (zero), indicating that the EA is not to roll forward. (EA will remain in status 21 until the District identifies a project, and the PCO submits a request to Budgets for Reimbursement Authority for the phase 4 under the project EA.)

LD-IGR Traffic Mitigation Agreements

- b. Upon receipt of an invoice (with EA and contributor number) prepared by the Reimbursement Accountant for the mitigation funds, withdraw these funds from Account 84 and apply to the invoice provided by the Reimbursement Accountant.⁵
2. Reimbursement Accountant:
 - a. Upon receipt of Agreement Package from District PCO, assign Contributor Number to the project proponent and notify District PCO.
 - b. Upon receipt (and approval) of EA from District PCO, forward to Office of Financial Accounting & Analysis (OFAA)-Highway Appropriation Management Section (HAMS).
 - c. Upon notice from PCO that EA has been masterfiled, issue an invoice in the amount of the funds received.
 - d. Provide HQ Cashier with invoice copy for mitigation funds. (HQ Cashier will withdraw from Account 84 and apply to invoice number provided by Reimbursement Accountant.)⁶
 - e. Monitor the mitigation funds on deposit in EA Status 21, and manually transfer them to a current Fiscal Year (FY) if the FY in which they are entered is lapsing.
3. EA Control & Overhead Assessment Section (EA Control):

Review EA to ensure that information is complete and correct, and upon verification, release for entry into TRAMS COLLECTOR (TU).

Expending the Funds

As discussed earlier, mitigation funding can be used for a variety of improvement purposes, depending upon the language negotiated in the Agreement between the Department and the proponent.

Once a project has been identified, the accounting and budgeting activity begins to move the funds from the holding EA to the project EA in order to offset the funds collected with an encumbrance and expenditures.

Numerous functions will participate in the identification, scheduling, encumbrance, and expending of the funds. There is no attempt here to detail every step that will be taken by every function in the Districts and HQ during the process. The following sections more or less outline actions taken by

⁵ The accounting system requires an invoice number to be applied to the receipt of funds. The Reimbursement Accountant will prepare an invoice for in-house use only for the mitigation funds.

⁶ TRAMS screen 64 will show the invoice and collection amount. This invoice/collection of mitigation funds will remain as such in TRAMS until the funds are transferred to a project EA.

participating functions. It is understood that communication will need to take place between and among the District functions, HQ Accounting, Budgets, and Office Engineers, as projects require.

I. Identifying and Scheduling Projects

A. Districts:

1. District Projects Monitor:

- a. Monitor all District's planned and programmed projects in coordination with LD-IGR and Project Management; and, identify when, in accordance with the Agreement, the proponent's mitigation funding should be included in a project.
- b. Notify the PCO (via E-mail or other written documentation) that the Project Manager has identified mitigation funds as part of a project Funding Package. Notification should include the name of the Project Manager, amount of funding, and the holding EA, as well as the project EA to which the funds will be transferred by the Reimbursement Accountant.⁷
- c. Coordinate with Project Manager and the PCO to ensure that affected District functions are notified.
- d. Ensure that Project Manager receives a copy of Agreement.

2. Project Manager:

- a. Submit project Funding Package to HQ Budgets, with a copy to Office Engineer (OE), requesting project funds.
- b. Forward a copy of Agreement to OE as part of Funding Package.
- c. Identify mitigation funding as a lump sum amount on a separate line in the Funding Package.

3. Project Control Officer:

- a. Upon notification from District Project Monitor that mitigation funds currently in the holding EA have been scheduled for project inclusion, request Reimbursement Authority for the amount of the mitigation funds from HQ Budgets for the project EA. Include Agreement Package with the request.⁸

⁷ Upon transferring from an holding EA to a project EA, the FY will be that of the Reimbursement Authority FY assigned by Budgets.

⁸ Reimbursement Authority required only if the project EA is phase 4 construction (20.20).

LD-IGR Traffic Mitigation Agreements

- b. Ensure that HQ Accounting, Reimbursement Accountant, is aware of the change from holding EA to project EA through project EA approval (including verifying fund source/distribution to OE) and via e-mail.
- c. Upon receipt of Reimbursement Authority from HQ Budgets (if applicable), forward approval to Reimbursement Accountant and HAMS.
- d. Using a "Contributor Number Request" form, accompanied by an explanatory e-mail, request Reimbursement Accountant to masterfile in project EA the same contributor number previously masterfiled in holding EA.

B. Headquarters:

1. HQ Budgets:

Upon receipt of Agreement Package from District PCO, issue approval of request for Reimbursement Authority for the mitigation funds for phase 4 construction project EA via Memorandum hard copy or e-mail.

2. Office Engineer (OE):⁹

- a. Set up the project Phase 4 EA in EAS/COMS after bid opening.
- b. Enter the authorization amount for each funding source into the EA. When entering the cost percentage distribution for the funding sources, the R-line percent for mitigation funds will be set at "0," and no expenditures will be charged against those funds until the Reimbursement Accountant manually transfers expenditures against them. (Lump sum collections are not included in cost percentage distributions.)
- c. Send EA to District PCO for approval.
- d. Upon receipt of approval from District PCO, route EA to HQ Accounting Reimbursement Accountant and HAMS for certification.
- e. Award contract after the certified EA is received from HQ Accounting HAMS.
- f. Send certified EA to HQ EA Control for release to TRAMS.

⁹ HQ OE will prepare the construction bid package and perform its associated activities for projects with total estimated costs of \$120,000 and above. For projects that are not forwarded to OE for processing, Districts will proceed with mitigation projects as they do for other contracts that are not sent to OE for advertising, bid opening, and award.

3. Reimbursement Accountant:

- a. Masterfile holding EA contributor number in project EA.
- b. Transfer billings and collections for contributor from holding EA to project EA's R-line.
- c. Suspend holding EA.
- d. Verify that funds have transferred into the project EA.
- e. When expenditures charged to all other fund sources within the project exceed the amount of the mitigation funds received, the Reimbursement Accountant will manually transfer expenditures to equal the amount of the mitigation invoice/collections.
- f. Work with the District LD-IGR counterpart throughout the mitigation project.

II. Project Cost Summary

The Reimbursement Accountant will prepare a Project Cost Summary (final accounting) for the mitigation funds when the construction project is complete and will forward a copy to the District Local Development-Intergovernmental Review contact.

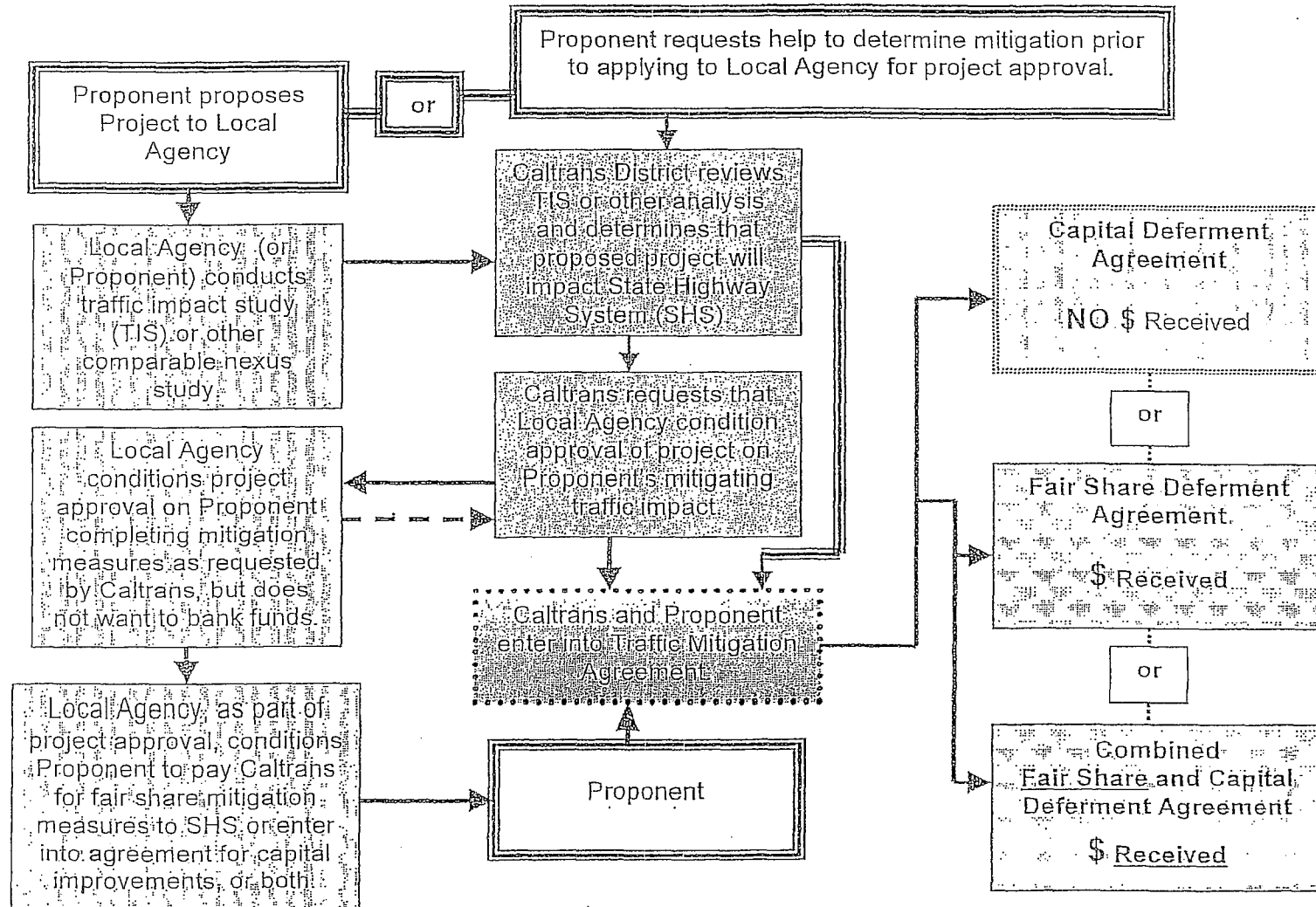
Please see Appendix 7, Flow Chart, *Accounting for Expenditure of Fair Share Funds Received from Proponents*.

A p p e n d i c e s



California Department of Transportation

Traffic Mitigation Agreements with Local Development Project Proponents
Executing Fair Share Funds and Deferred Capital Improvement Agreements with Proponents (Developers)



Local Agency response to Caltrans

FAIR SHARE DEFERMENT

RECITALS¹

- 1

LD-IGR Traffic Mitigation Procedures

NOW THEREFORE, for good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the parties hereby agree as follows:

1. Owner agrees to pay to Department, within thirty (30) days of the above stated effective date of this Agreement⁵ the Funds which represent Owner's pro-rata share of the anticipated total costs of the improvements required to mitigate Impacts to SR-60 at Fremont Interchange.
2. Department hereby acknowledges that upon payment in full of Funds by Owner, Owner will have satisfied its mitigation obligation to Department for Proposed Development Impacts.⁶
3. Said Funds shall remain in the State Highway Account until such time as the balance of other funds necessary to implement the required improvements to SR-60 at Fremont Interchange or another equivalent project that would offset the Impacts as required by the California Environmental Quality Act (CEQA) are secured.
4. Department agrees that the Funds paid by Owner pursuant to the terms of this Agreement shall be used for the purposes of instituting the required improvements to SR-60 at Fremont Interchange or another equivalent project that would offset the Impacts as required by CEQA.
5. In the event that the Funds are not expended on improvements to SR-60 at Fremont Interchange, or another equivalent project that would offset the Impacts as required by CEQA, by Department on or before December 31, 20xx, Department shall return to Owner, within sixty (60) days of receipt of Owner's written request, all then unexpended Funds.
6. All obligations of Department under the terms of this Agreement are subject to the appropriation of resources by the Legislature, State Budget Act authority, and the allocation of resources by the California Transportation Commission.
7. This Agreement may be executed in several counterparts and all counterparts so executed shall constitute one agreement that shall be binding on all of the parties, notwithstanding that all of the Parties are not signatory to the original or the same counterpart.
8. This Agreement shall expire when Department has expended all of the Funds; Funds are returned to Owner, in whole or in part pursuant to Article 5 of this Agreement; or on December 31, 20xx, whichever occurs first in time.

⁵ or [as specified at time of grading permit, building permit, occupancy, etc.]

⁶ We can only acknowledge that Owner has satisfied the Department's mitigation requirements. If the Owner has more than one obligation to the Department, provision 2 will need to be modified.

LD-IGR Traffic Mitigation Procedures

IN WITNESS WHEREOF, the Parties hereto have executed this Agreement as set forth below.

CALIFORNIA DEPARTMENT OF TRANSPORTATION

By:

Designated District Official

OWNER

By:

Authorized Representative

Approved as to Form and Procedure

Attorney, State of California
Department of Transportation

¹Recording Requested by:)

Conformed Copy to:)

Department of Transportation
District Address

TEMPLATE

TRAFFIC MITIGATION AGREEMENT

CAPITAL DEFERMENT

THIS AGREEMENT, entered into effective this 15 day of January, 2006, by and between the State of California, acting by and through its Department of Transportation, hereinafter referred to as "Department," and Charles Browning, hereinafter referred to as "Owner."

RECITALS²

- A. WHEREAS, Owner has proposed to develop a residence located in the City of Opportunity, All County, hereinafter referred to as "Proposed Development." Said Proposed Development will be constructed on a piece of real property, hereinafter referred to as "Property," which is more particularly described in Exhibit "A," attached hereto and incorporated herein by this reference; and
- B. WHEREAS, Owner, as part of compliance with the environmental process, had a Traffic Impact Study (TIS) prepared which determined that the Proposed Development would result in adverse impacts to State Route (SR) 41 on the north side of Proposed Development Property, hereinafter referred to as "Impacts"; and
- C. WHEREAS, that TIS, and as incorporated into the Proposed Development's environmental document,⁴ also identified specific measures to mitigate for those said

¹ This section needs to be removed if the Agreement will not be recorded. See paragraph 8.

² The recital section needs to match the proposed project. Recital section generally tells the "story" as to why the Department and Owner are entering into this Agreement.

³ or, [Department based upon Institute of Traffic Engineers (ITE) methodologies and consistent with Department's traffic study guide.] Also note that, while some jurisdictions may not require mitigation during the entitlement process, it does not preclude the Owner from entering into an agreement with Department to offset impacts caused by the Project. However, this should be done only in limited circumstances and in lieu of the Department challenging the Development project's environmental document. As always, the Department will continue to provide IGR comments that include mitigation to offset traffic impacts to the State Highway System as a result of Development projects.

⁴ or, [Department's determination described in provision B above]

LD-IGR Traffic Mitigation Procedures

Proposed Development Impacts, specifically that Owner would timely complete certain improvements to SR 41 on the north side of Proposed Development Property, hereinafter referred to as "Mitigation Measures"; and

- D. WHEREAS, Department and Owner now desire to set forth the terms and conditions that will allow Owner to proceed with Proposed Development and phase the implementation of the Mitigation Measures, when requested by Department, in a manner that will offset the Impacts.

NOW THEREFORE, for good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the parties hereby agree as follows:

1. Department agrees that Owner may delay implementation of the Mitigation Measures until after the initiation of the Proposed Development and until such time as the Department provides written notice to Owner that those said Mitigation Measures must be commenced.
2. Owner agrees to begin commencement of said Mitigation Measures within sixty (60) days of issuance of said written notification by Department to Owner that Mitigation Measures are to commence.
3. Owner agrees to ensure that Mitigation Measures comply with all applicable State and Federal requirements [including, but not limited to, the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), if applicable], conform to all then applicable Departmental standards, including obtaining an encroachment permit, and may include entering into another form of agreement for work on or adjacent to Department's property. Furthermore, Owner agrees to ensure that those Mitigation Measures are completed to the satisfaction of the Department.
4. Owner agrees to be fully responsible to fund 100% of all of the costs related to implementation of Mitigation Measures.
5. Neither Department nor any officer or employee thereof is responsible for any injury, damage or liability occurring by reason of anything done or omitted to be done by Owner under or in connection with any work or authority arising under this Agreement. It is understood and agreed that Owner shall fully defend, indemnify and save harmless Department and all of its officers and employees from all claims, suits or actions of every name, kind and description brought forth under, including, but not limited to, tortious, contractual, inverse condemnation and other theories or assertions of liability occurring by reason of anything done or omitted to be done by Owner under this Agreement.
6. Owner shall maintain in force, until completion and acceptance of the Mitigation Measure by Department, a policy of Liability Insurance, including coverage of Bodily Injury Liability and Property Damage Liability, naming the State of California, its

officers, agents and employees as the additional insured in the amount of One Million Dollars for bodily injury and property damage per person and Two Million Dollars in aggregate. Coverage shall be evidenced by a Certificate of Insurance in a form satisfactory to Department that shall be delivered to Department at the time mitigation measures are started.

7. Department acknowledges that upon completion and acceptance of Mitigation Measures by Department, Owner will have satisfied its mitigation obligation to Department for Proposed Development Impacts.
8. This Agreement is an instrument affecting the title or possession of the Property described herein. All of the terms, covenants and conditions herein shall be binding upon the successors in interest of Owner and, upon the sale of Property, shall apply to the successor(s) who shall succeed to all of the obligations imposed upon the Owner by this Agreement. In the event that said Property is subdivided, the terms, covenants and conditions herein shall be binding upon the successors in interest of Owner and upon the sale of the subdivided Property shall apply to the successor(s) who shall succeed to those obligations imposed upon the Owner by this Agreement. Furthermore, Owner shall record a copy of this Agreement against the title of the Property in the office of the Recorder of All County and provide, within thirty (30) days thereafter, a conformed copy to Department.⁵
9. This Agreement may be executed in several counterparts and all counterparts so executed shall constitute one agreement that shall be binding on all of the parties, notwithstanding that all of the parties are not signatory to the original or the same counterpart.
10. If any part of this Agreement is held to be illegal or unenforceable by a court of competent jurisdiction, the remainder of this Agreement shall be given effect to the fullest extent reasonably possible.
11. Any and all obligations assumed by the Department under this Agreement that are not fully reimbursed by the Owner are conditioned upon the creation, appropriation,

⁵ One or both of the following provisions may be inserted into the Agreement in place of Paragraph 8, or one or both may be added to the Agreement, depending upon which will provide the Department with the best assurances that the mitigation measures will be implemented. For example, we will need to know if the property will be transferred to a new owner, will the property be subdivided, when will the mitigation measures need to be implemented, etc. Legal will advise when Agreement is being negotiated.

a. Owner shall furnish a renewable performance bond, naming Department as the obligee, in the amount of not less than one hundred and ten percent (110%) of the total cost of Mitigation Measures, estimated to be XXX. No later than thirty (30) days prior to the expiration of each twelve (12) month period, Owner shall provide a one (1) year extension of the bond or obtain new bonds. Each bond shall continue until such time as the Mitigation Measures are completed by Owner and accepted by Department.

b. Owner shall obtain and provide a copy to Department an irrevocable letter of credit, with Department being named as the intended beneficiary with full right to draw upon said letter of credit, in the amount of \$_____ a sum equivalent to not less than one hundred and ten percent (110%) of the estimated total cost of Mitigation Measures.

LD-IGR Traffic Mitigation Procedures

allocation and encumbrance of sufficient revenues and resources by the Legislature, State Budget Act Authority, and the California Transportation Commission.

12. This Agreement shall expire when Owner has completed and Department has accepted the Mitigation Measures described within this Agreement or Department has notified Owner in writing that improvements are not required and that Owner no longer has any such obligation to complete those Mitigation Measures.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as set forth below.

CALIFORNIA DEPARTMENT OF TRANSPORTATION

By: _____

~~Designated District Official~~

~~CHARLES BROWNING~~

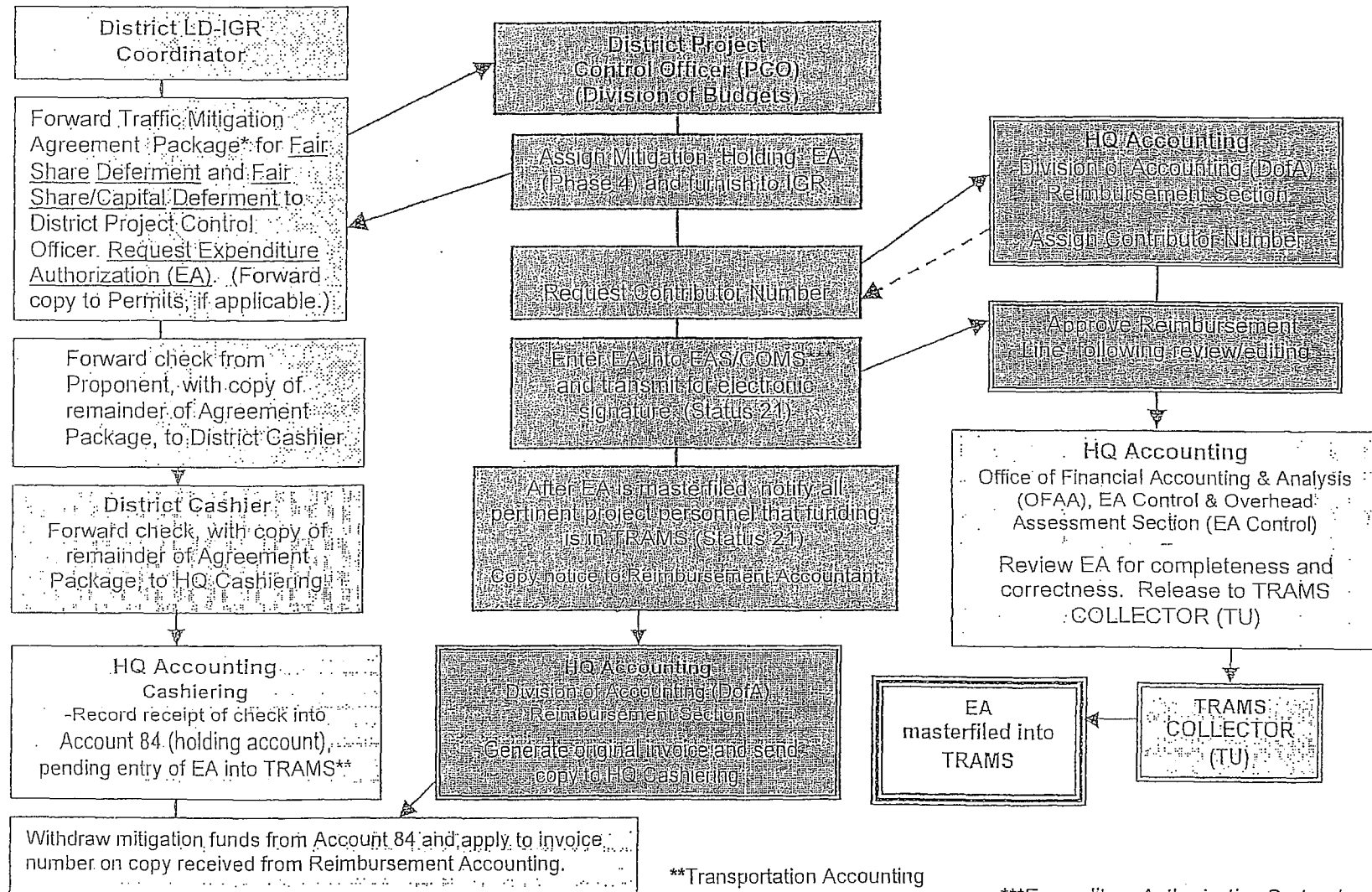
~~Authorized Representative~~

Approved as to Form and Procedure

Attorney, State of California,
Department of Transportation



California Department of Transportation
Traffic Mitigation Agreements with Local Development Project Proponents (Developers)
Accounting for Receipt of Fair Share Funds from Proponents



*Package includes signed, notarized, and recorded, (if applicable), Agreement, copy of check, copy of letter (or E-mail) to public agency confirming receipt of \$, and "Request for Expenditure Authorization."

**Transportation Accounting Management System

***Expenditure Authorization System/ Capital Outlay Monitoring System

----- HQ response to Districts



DEPARTMENT OF TRANSPORTATION

DIVISION OF TRANSPORTATION PLANNING, MS 32

1120 N STREET

P.O. BOX 942874

SACRAMENTO, CA 94274-0001

PHONE (916) 653-0808

FAX (916) 653-4570

Use District Letterhead or E-Mail

Flex your power!
Be energy efficient!

April 5, 2006

Ms. Annabel Carter
City of California
1234 Somewhere Street
California, CA 91234-1234Subject: Receipt of Mitigation Measures Funds, Generic Proponent Traffic
Mitigation Agreement, dated April 1, 2006

Dear Ms. Carter:

The California Department of Transportation (Department) received Generic Proponent's fair share payment in the amount of \$6,400.00 (Six Thousand and Four Hundred Dollars) for mitigation measures to be applied to future signalization of State Route (SR) 44/Daisy Avenue intersection, as specified in the subject Agreement and the public agency document that approved the project on condition of the mitigation measures.

The Department considers the fair share amount to be adequate mitigation for traffic related impacts to the SR 44/Daisy Avenue intersection.

Please call me at (559) 445-5868 if you have any questions.

Sincerely,

MICHAEL ANGELO
Office of Transportation Planning
District 6

SAMPLE

c: Generic Project Proponent
District Permit Engineer

*****Whether by letter or e-mail,*****
ensure that confirmation to public agency
contains reference to binding agreement/s.

California Department of Transportation
Traffic Mitigation Agreements with Local Development Project Proponents

Transfer Receipt (Form STD. 440)

Sample
Larger Than Actual Form

STATE OF CALIFORNIA-DEPARTMENT OF FINANCE
STD. 440 (REV. 6-2000)

TRANSFER RECEIPT
NOT A RECEIPT FOR PAYMENT BY THE PUBLIC

ORIGINAL-TRANSFEROR
DUPLICATE-TRANSFeree
TRIPPLICATE-ACCOUNTING RECORD

DATE: April 5 20 06

RECEIVED FROM Dedicated Employee / Generic Proponent \$ 6,400.00

EA# 06-0C0004
Check #: 123456

District Cashier

SIGNATURE OF TRANSFeree

Traffic Mitigation Agreement, dated April 1, 2006

Reimbursement Funds - Deposit to Acct#: 84

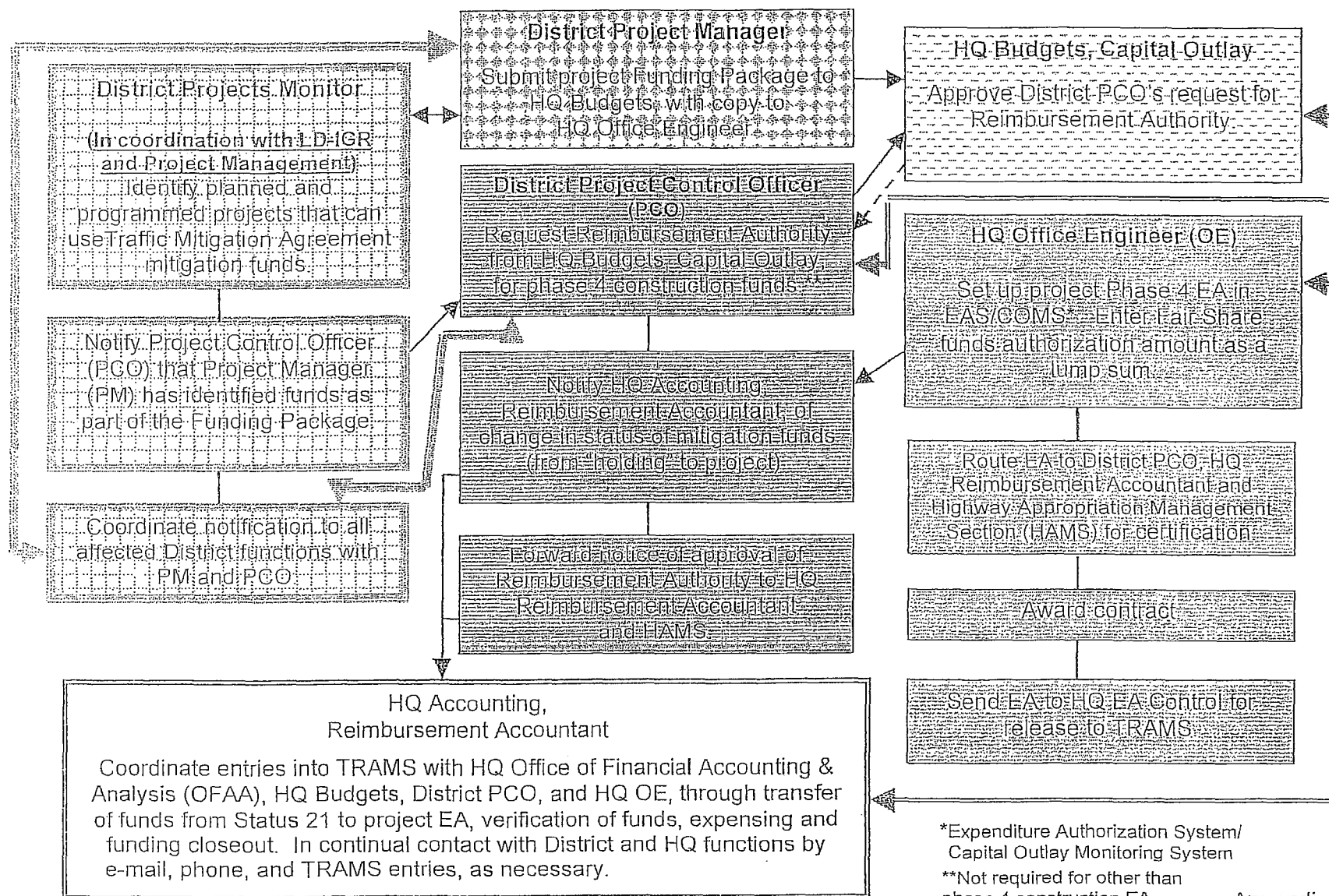
OSP 02 72902

Cashier:

- Complete a Transfer Receipt (Form STD. 440) for check and give original to LD-IGR. Transfer receipt should include the date, dollar amount collected, check number, EA number (holding), date of Agreement, and any other pertinent identifying information.
- Clearly indicate that these are "Reimbursement Funds" for deposit into "Account 84."
- Staple check, copy of Transfer Receipt and copy of Agreement together, and forward to HQ Cashiering.



California Department of Transportation
Traffic Mitigation Agreements with Local Development Project Proponents
Accounting for Expenditure of Fair Share Funds Received from Proponents



*Expenditure Authorization System/
Capital Outlay Monitoring System

**Not required for other than
phase 4 construction EA.

DEPARTMENT OF TRANSPORTATION

DISTRICT 11
PLANNING DIVISION
4050 TAYLOR STREET, MS 240
SAN DIEGO, CA 92110
PHONE (619) 688-6960
FAX (619) 688-4299
TTY 711
www.dpt.ca.gov



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Be energy efficient!*

March 1, 2011

11-SD-8
PM 65.9
Tule Wind Project
DEIR

Mr. Iain Fisher
California Public Utilities Commission
605 Third Street
Encinitas CA 92024

Dear Mr. Fisher:

The California Department of Transportation (Caltrans) appreciates the opportunity to have reviewed the Tule Wind Project Draft Environmental Impact Report (DEIR) traversing Interstate 8 (I-8) near Ribbonwood Road/McCain Valley Road, as well as State Route 94 (SR-94). Caltrans has the following comments:

Figure D.9-1 showing that the overhead lines will cross I-8 while connecting from one substation to another. Any utility crossings of highways or freeways (ie: I-8 or SR-94) will need an encroachment permit from Caltrans. Please refer to Caltrans Encroachment Permits Manual (http://www.dot.ca.gov/hq/traffops/developserv/permits/encroachment_permits_manual/index.html) for guidance on utility encroachment. The following information is contained in Chapter 600, Table 6.7 (page 6-35) of the Encroachment Permit Manual. Line supports for overhead lines crossing freeways must comply with these requirements, they:

1. Should have a minimum lateral clearance of 30' from the edge of a through lane and 30' from the edge of a ramp lane, when possible.
2. Shall be located outside the right-of-way (R/W) or between the R/W line and access control line if different. Any other placement must be approved by the Division of Design, Chief.
3. Should not be permitted in medians.
4. Should not be permitted on cut or fill slopes.
5. Shall not impair sight distances.
6. Shall be compatible with access requirements.

Please refer to Caltrans Encroachment Permits Manual for guidance on Traffic Control on freeways. The following information is contained in Appendix E (page E-42) of the Encroachment Permit Manual. For placement of aerial lines, installation or removal of overhead conductors crossing a freeway requires traffic control by the California Highway Patrol (CHP) and usually occur on weekend mornings. The CHP can perform a rolling break in traffic on most highways to allow up to a five-minute clearing. These breaks are adequate for simple cable

"Caltrans improves mobility across California"