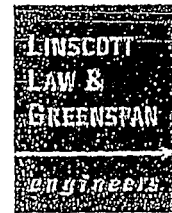


APPENDIX F

CUMULATIVE PROJECTS INFORMATION



TRAFFIC IMPACT ANALYSIS
FLOWER HILL PROMENADE REDEVELOPMENT
San Diego, California
March 3, 2009

LLG Ref. 3-04-1432

Prepared by:
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Table 6-2 summarizes the existing segment operations. As seen in Table 6-2, the segments in the study area are calculated to operate at LOS D or better except the following:

- TABLE 6-2
EXISTING SEGMENT OPERATIONS

Street Segment	Existing Roadway Classification	LOS E Capacity ^a	Existing		
			ADT ^b	V/C ^c	LOS ^d
Via de la Valle					
I-5 to Flower Hill Promenade Driveway	6-Lane Major Arterial	50,000	41,300	0.83	D
Flower Hill Promenade to San Andres Drive	4-Lane Major Arterial	40,000	29,700	0.74	C
San Andres Drive to El Camino Real (West)	2-Lane Collector	10,000	24,400	2.44	F

Footnotes:

- a. City of San Diego Roadway Capacity Standards.
- b. Existing ADT volumes from Table 3-1.
- c. V/C – Volume to Capacity ratio
- d. LOS – Level of Service

BOLD indicates LOS E or F operations.

Table 6-3 summarizes the freeway mainline operations on I-5. As seen in Table 6-3, the northbound segments of I-5 north of Via de la Valle are calculated to currently operate at LOS F(0) during the AM and PM peak hours. The southbound segments of I-5 north of Via de la Valle are calculated to currently operate at LOS D or better during the AM and PM peak hours.

As seen in *Table 6-3*, the northbound segments of I-5 south of Via de la Valle are calculated to currently operate at LOS D during the AM and LOS E during the PM peak hours. The southbound segments of I-5 south of Via de la Valle are calculated to currently operate at LOS E or during the AM and PM peak hours.

TABLE 9-2
NEAR-TERM SEGMENT OPERATIONS

Street Segment	Roadway Classification	LOS E Capacity ^a	Existing + Cumulative Projects			Existing + Cumulative Projects + Project			V/C Δ ^e	Significant?
			ADT ^b	V/C ^c	LOS ^d	ADT ^b	V/C ^c	LOS ^d		
Via de la Valle										
I-5 to Flower Hill Promenade Driveway	6-Lane Major Arterial	50,000	43,350	0.867	D	45,200	0.904	E	0.037	NO ^f
Flower Hill Promenade to San Andres Drive	4-Lane Major Arterial	40,000	31,750	0.794	D	32,875	0.822	D	0.028	NO
San Andres Drive to El Camino Real (West)	2-Lane Collector	10,000	26,440	2.644	F	27,110	2.711	F	0.067	YES
<i>Via de la Valle Widening Alternatives (San Andres Drive to El Camino Real West)</i>										
Alternative 1	2-Lane Collector w/ TWLTL	15,000	26,440	1.763	F	27,110	1.807	F	0.044	N/A
Alternative 2	3-Lane Collector w/ TWLTL	22,500	26,440	1.175	F	27,110	1.204	F	0.029	N/A
Alternative 3	4-Lane Collector w/ TWLTL	30,000	26,440	0.881	E	27,110	0.904	E	0.023	N/A
Alternative 4	4-Lane Major Arterial w/ Median	40,000	26,440	0.661	C	27,110	0.678	C	0.017	N/A

Footnotes:

- City of San Diego Roadway Capacity Standards.
- Average Daily Traffic volumes.
- Volume to Capacity ratio.
- Level of Service
- Increase in V/C due to project
- Not significant since intersections on other end of the segment operate at LOS D or better and the peak hour arterial analysis indicates a decrease of less than 1 mph. (See Appendix K)

Shading and Bold indicates a significant impact.

TABLE 10-2
YEAR 2030 SEGMENT OPERATIONS

Street Segment	Existing Roadway Class	LOS E Capacity ^a	Year 2030 Without Project			Year 2030 With Project			V/C Δ ^e	Significant?
			ADT ^b	V/C ^c	LOS ^d	ADT ^b	V/C ^c	LOS ^d		
Via de la Valle										
I-5 to Flower Hill Promenade Driveway	6-Lane Major Arterial	50,000	45,400	0.908	E	47,250	0.945	E	0.037	NO ^f
Flower Hill Promenade Driveway to San Andres Drive.	6-Lane Major Arterial	50,000	38,200	0.764	C	39,325	0.787	C	0.023	NO
San Andres Drive to El Camino Real (West)	4-Lane Major Arterial	40,000	33,100	0.828	D	33,770	0.844	D	0.017	NO
	3-Lane Collector w/ TWLTL	30,000	33,100	1.103	F	33,770	1.126	F	0.023	YES
<i>Via de la Valle Widening Alternatives (San Andres Drive to El Camino Real West)</i>										
Alternative 1	2-Lane Collector w/ TWLTL	15,000	33,100	2.207	F	33,770	2.251	F	0.044	N/A
Alternative 2	3-Lane Collector w/ TWLTL	22,500	33,100	1.471	F	33,770	1.500	F	0.029	N/A
Alternative 3	4-Lane Collector w/ TWLTL	30,000	33,100	1.103	F	33,770	1.126	F	0.023	N/A
Alternative 4	4-Lane Major Arterial w/ Median	40,000	33,100	0.828	D	33,770	0.844	D	0.016	N/A

Footnotes:

- City of San Diego Roadway Capacity Standards.
- Average Daily Traffic volumes.
- Volume to Capacity ratio.
- Level of Service
- Increase in V/C ration due to the project.
- Not significant since intersections on other end of the segment operate at LOS D or better and the peak hour arterial analysis indicates a decrease of less than 1 mph. (See Appendix R)

Shading and Bold indicates a significant impact.

Traffic Data Service Southwest Vehicle Counts

VehicleCount-166 -- English (ENU)

Datasets:

Site: [13803] Via De la Valle - Btwn San Andreas Dr & El Camino Real West
 Direction: 8 - East bound A>B, West bound B>A., Lane: 0
 Survey Duration: 16:27 Monday, April 23, 2007 => 9:55 Friday, April 27, 2007
 File: Z:\mcd\data\LLG\2007\13803\27Apr2007.EC0 (Plus)
 Identifier: M432HARN MC56-6 [MC55] (c)Microcom 02/03/01
 Algorithm: Factory default
 Data type: Axle sensors - Palred (Class/Speed/Count)

Profile:

Filter time: 18:00 Monday, April 23, 2007 => 8:00 Friday, April 27, 2007
 Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
 Speed range: 5 - 100 mph.
 Direction: East (bound)
 Separation: All - (Headway)
 Name: Factory default profile
 Scheme: Vehicle classification (Scheme F99)
 Units: Non metric (ft, mi, f/s, mph, lb, ton)
 In profile: Vehicles = 38336 / 80889 (47.39%)

* Monday, April 23, 2007 - Total=1836 (Incomplete), 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	635	424	348	228	140	61	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	188	112	98	49	24	12	12
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	179	106	89	60	30	12	5
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	147	117	85	46	34	16	5
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	121	89	76	53	27	9	4

* Tuesday, April 24, 2007 - Total=11168, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
26	13	10	9	20	105	528	700	745	704	689	691	778	805	880	835	747	781	727	483	382	291	144	63	
12	6	5	3	1	12	42	171	173	166	164	170	178	185	195	232	180	205	185	118	103	86	42	23	10
5	0	3	1	5	20	104	176	202	188	163	160	204	202	224	201	186	194	219	141	110	80	40	13	10
5	1	1	2	7	30	151	166	162	167	190	175	208	199	212	201	189	179	187	110	94	71	34	11	9
4	6	1	3	7	44	231	187	208	183	172	186	188	209	249	201	192	203	145	114	76	54	28	16	5

AM Peak 1145 - 1245 (776), AM PHF=0.93 PM Peak 1415 - 1515 (917), PM PHF=0.92

* Wednesday, April 25, 2007 - Total=11904, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
34	17	7	7	24	110	510	721	746	770	750	787	836	877	941	960	762	884	777	524	365	320	148	82	
10	7	2	1	4	11	42	187	173	194	182	184	227	213	240	239	191	237	201	148	101	97	56	24	10
10	4	1	1	5	24	103	187	165	202	202	194	239	205	202	206	192	238	214	145	85	83	33	24	4
9	4	2	4	0	38	166	170	170	185	187	189	193	231	244	226	196	199	190	126	109	80	33	20	10
5	2	2	1	7	37	199	177	238	189	179	220	177	228	255	229	183	210	172	105	74	60	27	14	7

AM Peak 1145 - 1245 (879), AM PHF=0.92 PM Peak 1430 - 1530 (944), PM PHF=0.93

* Thursday, April 26, 2007 - Total=11880, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
31	23	13	16	30	126	593	739	766	740	714	776	843	860	981	851	738	836	680	582	391	288	200	86	
10	10	6	2	1	18	57	170	181	208	179	182	212	209	243	216	170	197	167	162	100	77	50	38	14
4	2	1	5	5	26	119	197	198	169	181	197	193	254	244	207	196	251	182	133	91	72	51	16	14
10	4	5	4	15	32	189	176	194	175	172	187	223	188	247	213	188	215	159	141	85	71	51	12	0
7	7	1	5	9	49	220	196	193	188	182	200	215	217	247	215	184	193	152	116	115	68	48	20	11

AM Peak 1145 - 1245 (820), AM PHF=0.93 PM Peak 1430 - 1500 (801), PM PHF=0.99

* Friday, April 27, 2007 - Total=1548 (Incomplete), 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
47	27	14	11	39	131	576	703	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	8	5	2	7	20	54	171	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	6	3	2	6	20	110	181	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	9	3	2	15	31	195	176	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	4	3	5	11	60	217	175	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Agst 11, 651

Traffic Data Service Southwest Vehicle Counts

VehicleCount-166 -- English (ENU)

Datasets:

Site: [13803] Via De la Valle - Blwn San Andreas Dr & El Camino Real West
 Direction: 8 - East bound A>B, West bound B>A, Lane: 0
 Survey Duration: 16:27 Monday, April 23, 2007 => 9:55 Friday, April 27, 2007
 File: Z:\mdata\LLG\2007\138\1380327Apr2007.EC0 (Plus)
 Identifier: M432HARN MC56-6 [MC55] (c)Microcam 02/03/01
 Algorithm: Factory default
 Data type: Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time: 18:00 Monday, April 23, 2007 => 8:00 Friday, April 27, 2007
 Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
 Speed range: 5 - 100 mph.
 Direction: West (bound)
 Separation: All - (Headway)
 Name: Factory default profile
 Scheme: Vehicle classification (Scheme F99)
 Units: Non metric (ft, mi, t/s, mph, lb, ton)
 In profile: Vehicles = 40988 / 80889 (50.67%)

* Monday, April 23, 2007 - Total=1535 (Incomplete), 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	585	421	226	152	97	44	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	175	124	56	40	25	17	5
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	153	120	64	46	29	13	3
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	113	94	56	33	18	7	5
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	144	83	60	33	25	7	4

* Tuesday, April 24, 2007 - Total=12265, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
18	8	14	8	30	116	426	750	989	810	797	809	849	814	896	1172	1069	945	762	412	244	152	113	60	
6	1	7	0	4	13	78	152	212	195	185	204	224	209	192	276	273	240	224	139	64	44	26	25	14
3	2	2	0	7	26	82	158	248	194	224	211	216	189	190	295	277	260	156	101	64	37	37	17	2
5	3	3	2	7	30	127	221	280	184	183	189	180	204	259	291	246	217	170	88	59	40	35	12	4
4	2	2	6	12	49	139	219	249	237	205	205	229	212	255	310	273	228	202	84	57	31	15	6	3

AM Peak 0800 - 0900 (989), AM PHF=0.88 PM Peak 1600 - 1600 (1172), PM PHF=0.95

* Wednesday, April 25, 2007 - Total=12926, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
23	17	3	5	32	113	424	754	1001	846	768	921	961	879	950	1125	1011	938	747	481	338	288	198	103
14	5	1	0	5	13	86	144	208	199	208	217	237	202	216	240	272	213	204	138	63	56	63	37
2	6	1	2	5	21	87	186	232	202	171	230	246	212	232	292	258	247	210	111	108	71	51	22
4	2	1	1	6	30	125	253	291	221	207	212	220	234	233	293	245	246	195	144	70	89	56	26
3	4	0	2	16	49	126	191	270	224	182	262	258	231	269	300	236	232	148	88	77	73	20	18

AM Peak 0800 - 0900 (1001), AM PHF=0.86 PM Peak 1616 - 1616 (1157), PM PHF=0.96

* Thursday, April 26, 2007 - Total=12891, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
20	17	9	8	20	113	416	766	953	898	867	869	885	867	1004	1132	1024	996	791	495	266	223	151	95	
7	7	1	3	6	21	65	145	235	274	241	210	229	205	247	259	288	237	228	128	72	59	46	28	11
8	3	4	3	5	11	105	177	218	195	200	213	220	226	257	281	253	261	226	148	68	60	40	33	9
9	3	2	2	7	45	115	230	240	226	196	220	209	220	233	297	241	239	182	113	55	49	42	17	7
4	4	2	0	10	36	131	214	250	203	230	235	227	216	267	295	242	249	155	106	71	55	23	17	5

AM Peak 0816 - 0915 (992), AM PHF=0.91 PM Peak 1515 - 1615 (1161), PM PHF=0.98

* Friday, April 27, 2007 - Total=1371 (Incomplete), 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
32	26	11	10	30	107	409	746	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	13	5	2	7	15	62	144	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	4	5	5	6	21	107	216	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	9	0	2	5	32	116	208	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	2	1	1	12	39	124	178	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Agst 12, 694

- ADT (Average Daily Traffic)
shown midblock

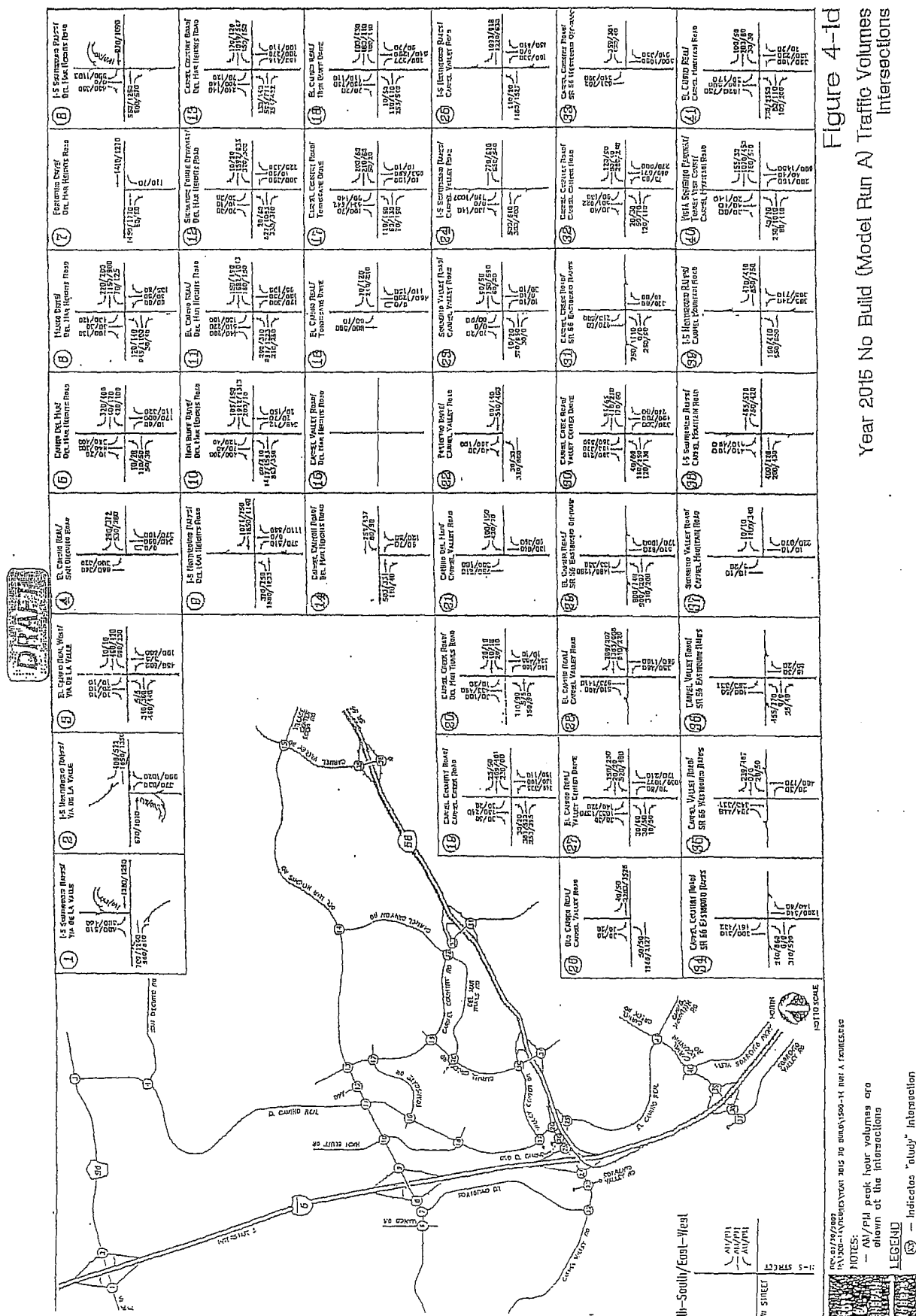


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500-11 RX & RUN G NOTES.DWG

Figure 4-7e

Year 2030 Direct Connector (Model Run G) Traffic Volumes
Street Segments ADT



[illegible]

1101

 1102

Figure 4-1e
Year 2015 No Build (Model Run A) Traffic Volumes
Street Segments

TABLE 8-1
TRIP GENERATION SUMMARY (CITY CUMULATIVE RATES)

Land Use	Quantity	Daily Trip Ends (ADT) ^a		AM Peak Hour						PM Peak Hour				
		Rate ^b	Volume	% of ADT	In:Out Split	Volume			% of ADT	In:Out Split	Volume			
						In	Out	Total			In	Out	Total	
A. Proposed Expansion														
Office	28.93 TSF	23.34 /TSF	675	13%	9:1	79	9	88	14%	2:8	19	76	95	
Community Shopping Center	8.75 TSF	49 /TSF	429	3%	6:4	8	5	13	10%	5:5	21	22	43	
Market	35.00 TSF	90 /TSF	3,150	4%	7:3	88	38	126	10%	5:5	157	158	315	
Storage	2.30 TSF	2 /TSF	5	6%	5:5	0	0	0	9%	5:5	0	0	0	
Subtotal			4,259	—	—	175	52	227	—	—	197	256	453	
B. Portion to be Demolished														
Cinema	600 Seats	1.8 /seat	(1,080)	0%	—	—	—	—	8%	7:3	(60)	(26)	(86)	
Net Total Project			3,179	—	—	175	52	227	—	—	137	230	367	

Footnotes:

a. Trip-ends are one-way traffic movements, either entering or leaving.

b. Generation rates obtained from the City of San Diego Trip Generation Manual and based on the cumulative vehicle trip rates

General Notes:

TSF = Thousand Square Feet

TABLE 8-2
TRIP GENERATION SUMMARY (CITY DRIVEWAY RATES)

Land Use	Quantity	Daily Trip Ends (ADT) ^a		AM Peak Hour						PM Peak Hour				
		Rate ^b	Volume	% of ADT	In:Out Split	Volume			% of ADT	In:Out Split	Volume			
						In	Out	Total			In	Out	Total	
A. Proposed Expansion														
Office	28.93 TSF	23.34 /TSF	375	13%	9:1	79	9	88	14%	2:8	19	76	95	
Community Shopping Center	8.75 TSF	70 /TSF	613	3%	6:4	11	7	18	10%	5:5	30	31	61	
Market	35.00 TSF	150 /TSF	5,250	4%	7:3	147	63	210	10%	5:5	262	263	525	
Storage	2.30 TSF	2 /TSF	5	6%	5:5	0	0	0	9%	5:5	0	0	0	
Subtotal			6,543	—	—	237	79	316	—	—	311	370	681	
B. Portion to be Demolished														
Cinema	600 Seats	1.8 /seat	(1,080)	0%	—	—	—	—	8%	7:3	(60)	(26)	(86)	
Net Total Project			5,463	—	—	237	79	316	—	—	251	344	595	

Footnotes:

a. Trip-ends are one-way traffic movements, either entering or leaving.

b. Generation rates obtained from the City of San Diego Trip Generation Manual and based on the driveway-vehicle trip rates.

General Notes:

TSF = Thousand Square Feet

Form
Num
Align
0.25"

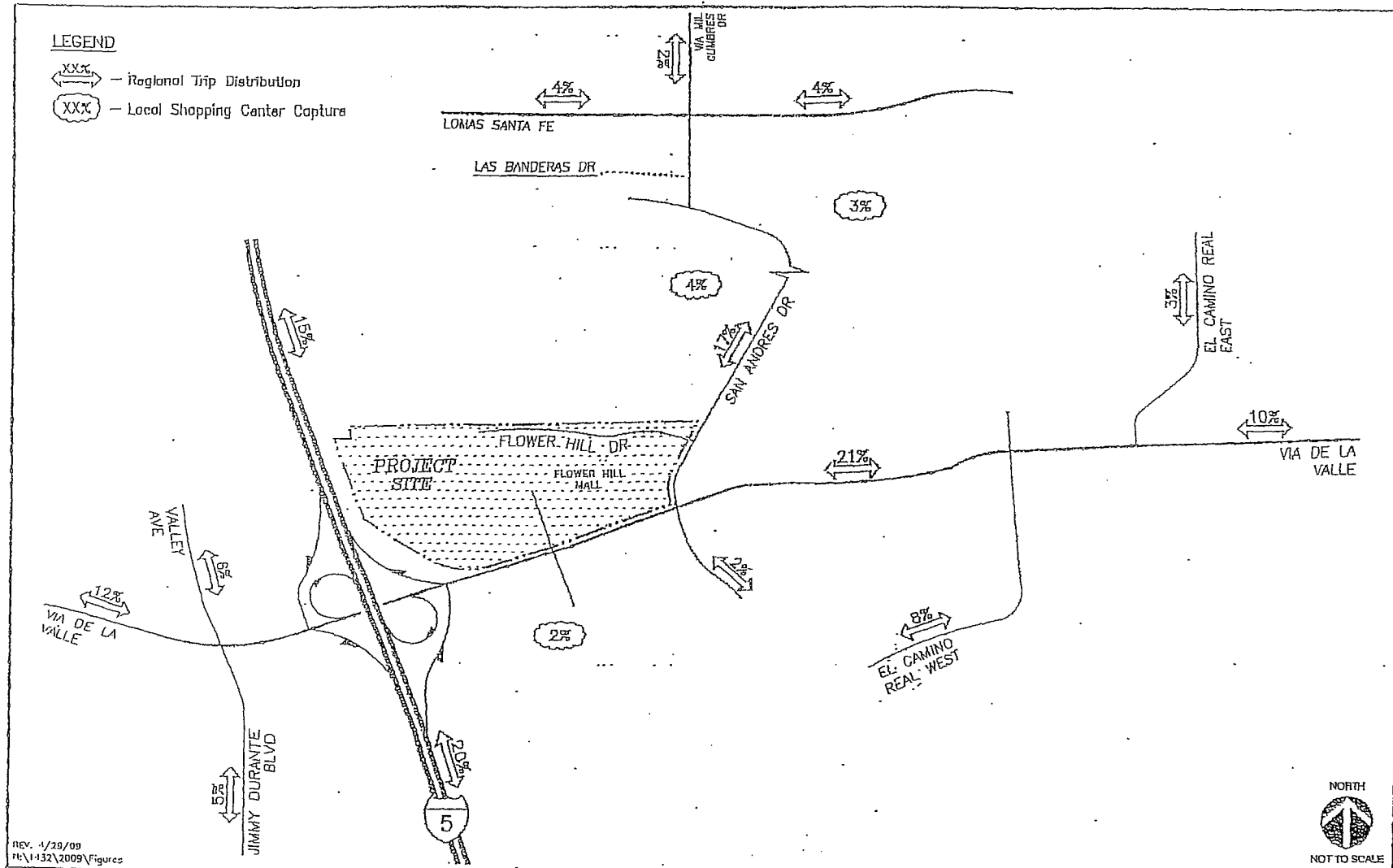


Figure 8-1
 Regional Traffic Distribution

FLOWER HILL PROMENADE

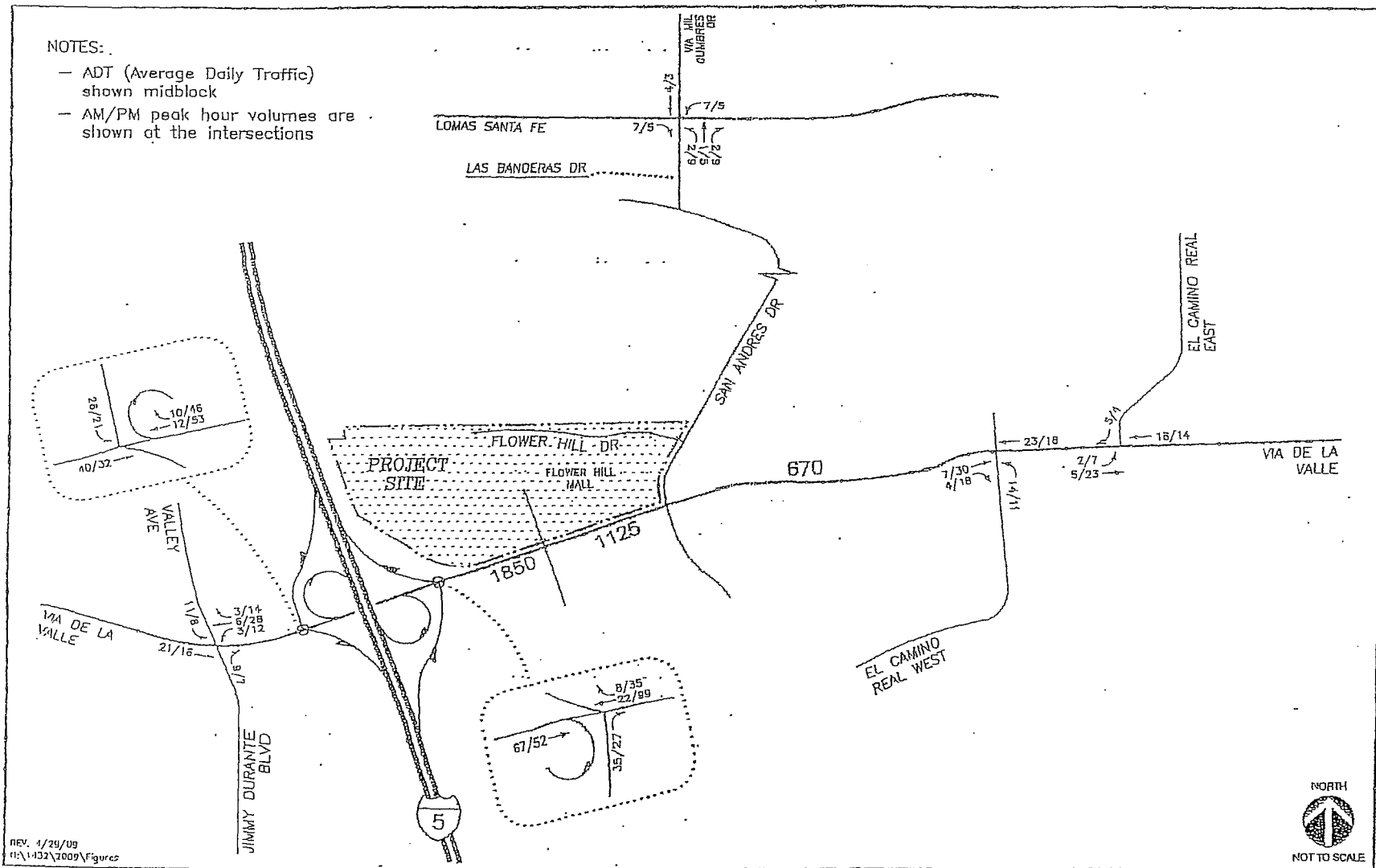
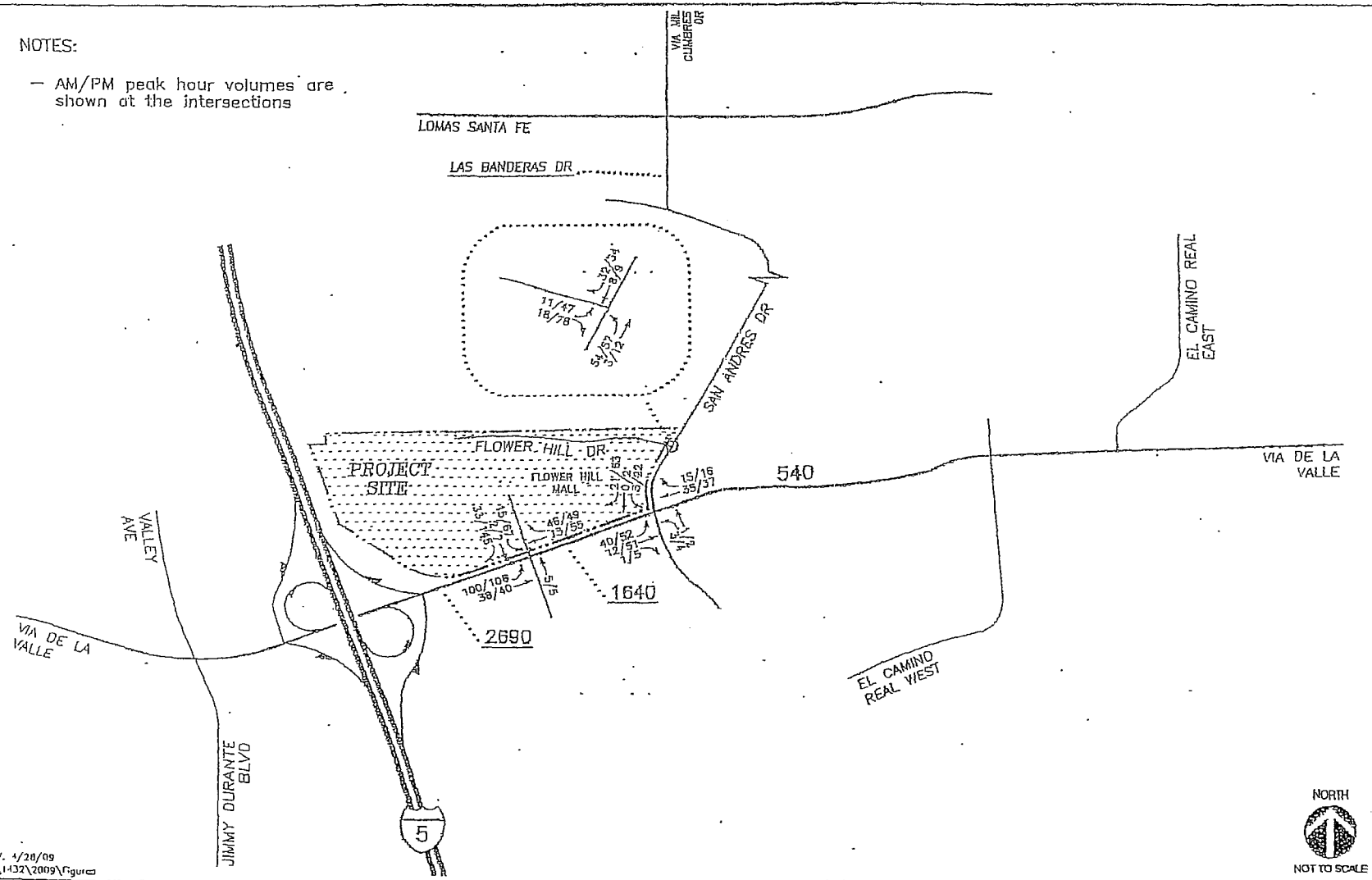


Figure 8-2
Project Traffic Volumes (Non-Primary Trips)
AM/PM Peak Hours & ADT

FLOWER HILL PROMENADE

- AM/PM peak hour volumes are shown at the intersections



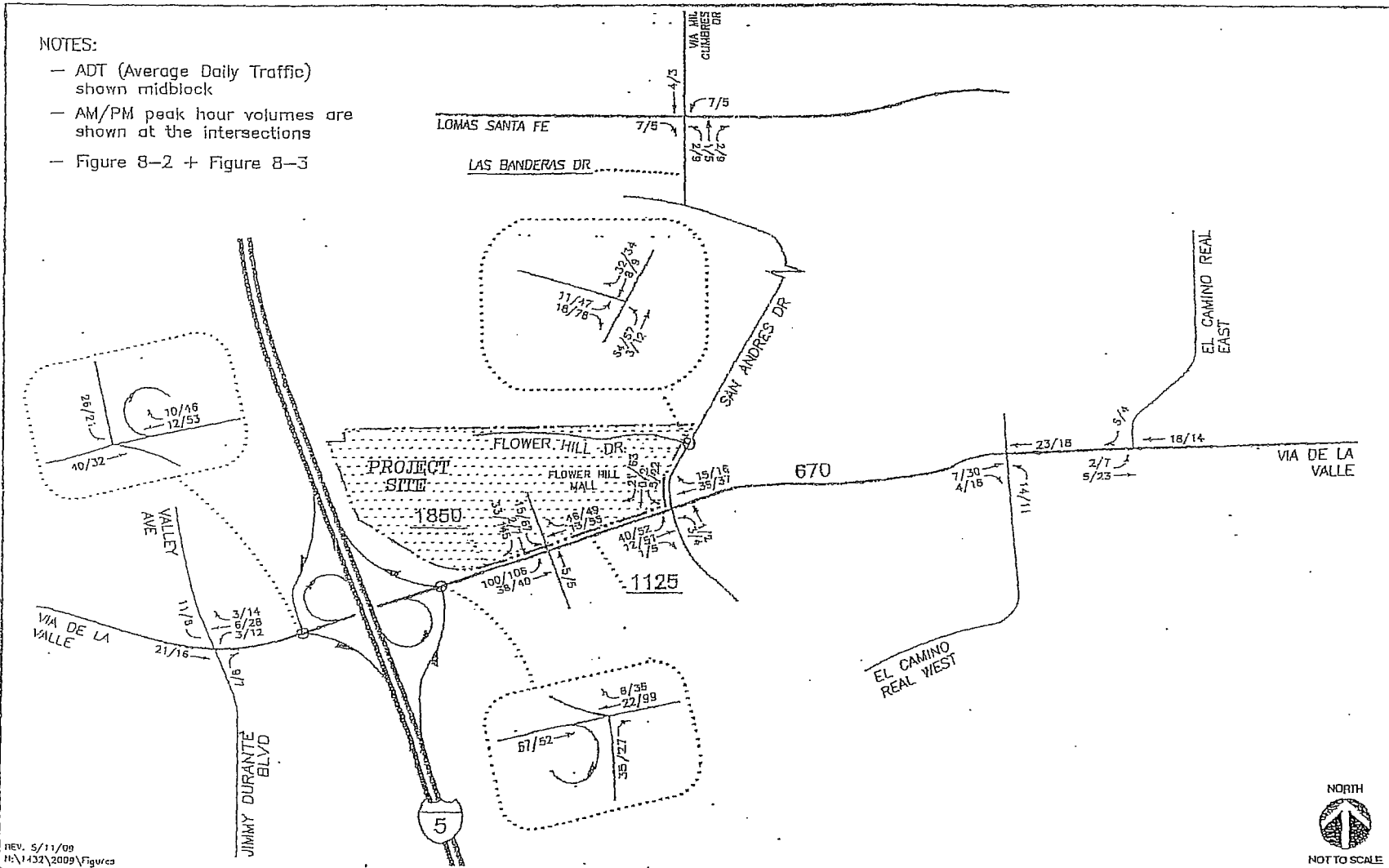
Project Traffic Volumes (Primary Trips) AM/PM Peak Hours

FLOWER HILL PROMENADE



NOTES:

- ADT (Average Daily Traffic)
shown midblock
- AM/PM peak hour volumes
shown at the intersections
- Figure 8-2 + Figure 8-3



REV. 5/11/09
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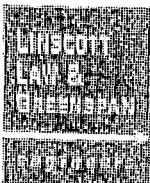


Figure 8-4

Total Project Traffic Volumes
AM/PM Peak Hours & ADT

FLOWER HILL PROMENADE

Traffic Impact Analysis

The Heights at Del Mar

Prepared by:
Kimley-Horn and Associates
401 B Street, Suite 600
San Diego, CA 92101

Prepared for:
Veralliance Properties, Inc.
8910 University Center Lane, Suite 630
San Diego, CA 92122

December 2008

KHA NO. 095600003

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1.0 INTRODUCTION

This study, prepared by Kimley-Horn and Associates, Inc., evaluates the potential off site traffic-related impacts associated with the addition of 161,265 square feet Commercial Office space on a site located in the Community of Del Mar Heights, in the City of San Diego. Figure 1-1 depicts the location of the project site in a regional context.

Project Description

This study, prepared by Kimley-Horn and Associates, Inc., evaluates the potential off site traffic-related impacts associated with the addition of 161,265 square feet Commercial Office space on a site located in the Community of Del Mar Heights, in the City of San Diego. The additional Commercial Office space would be achieved by changing the land use designation and adding 505 square feet to an already constructed 77,306 square foot building (Building 1), and the construction of a new 93,620 square foot building (Building 3), which was previously approved to be constructed as a 94,125 square foot building. Building 2 was already constructed and occupied as a Research and Development building with 128,513 square feet of available space. It should be noted that the site was already approved for the construction of a 77,306 square feet Corporate Headquarter use and 222,638 square feet of Research and Development use. Due to the change in land use designation proposed by the project, a traffic study is required. Figure 1-2 shows the proposed site plan for the project.

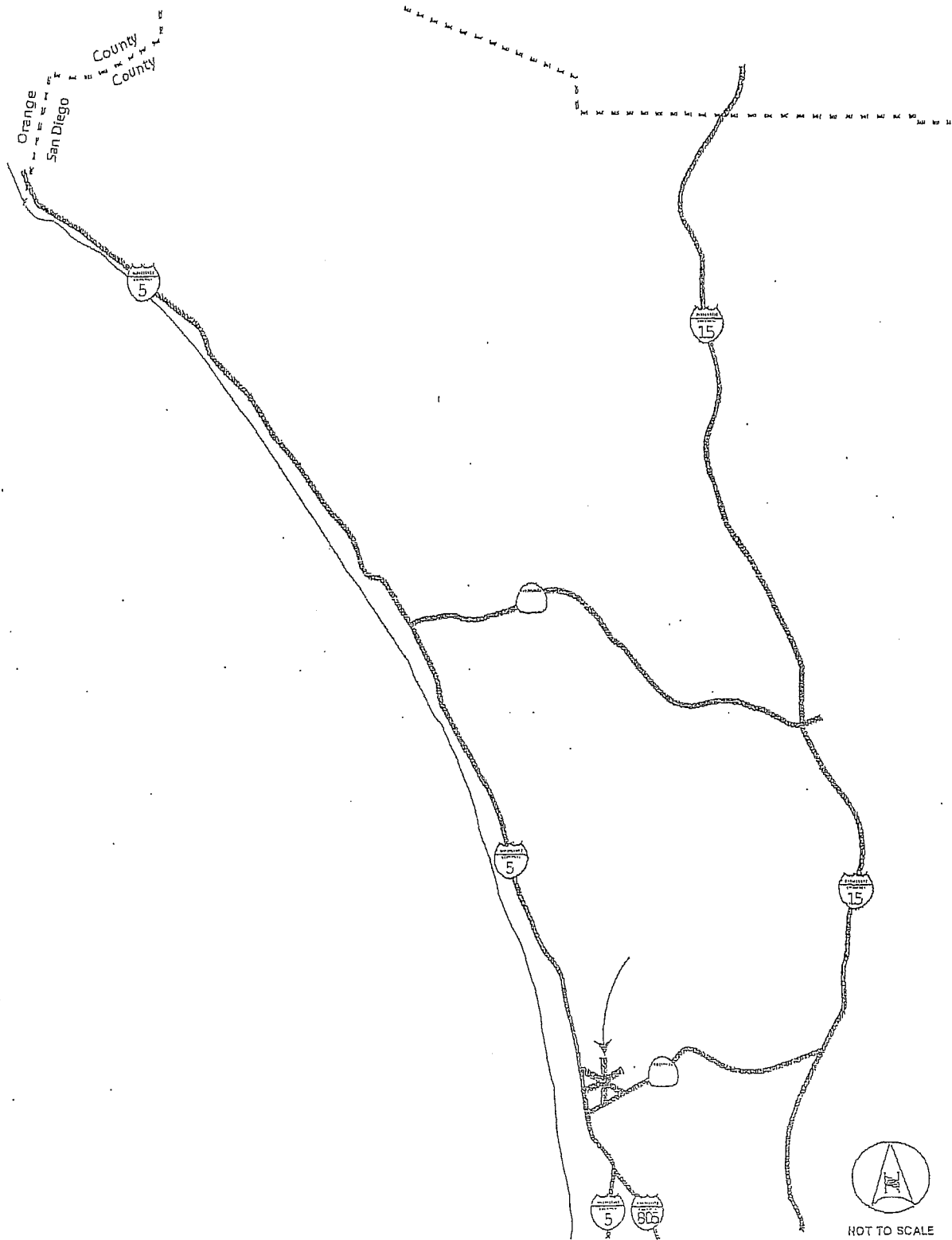
The proposed new buildings would take access along the west side of El Camino Real via the intersection with Townsgate Drive and via a right-in/right-out driveway located just north of the intersection with Elijah Court.

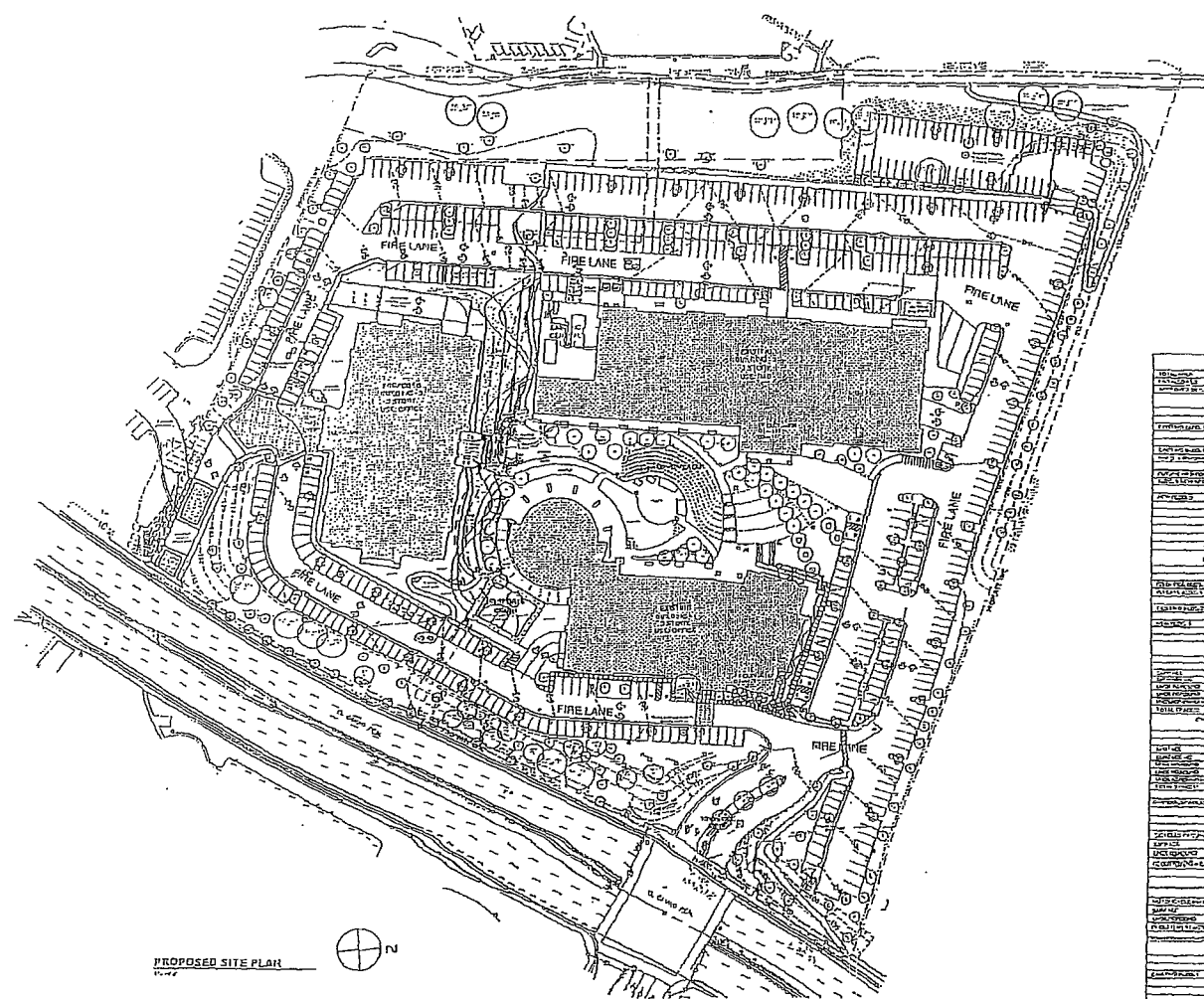
Analysis Scenarios

A total of five scenarios were analyzed as part of the project, which are listed below:

- *Existing Conditions (2008)*
 - Existing Conditions: Represents the traffic conditions of the existing street network.
- *Near Term Conditions (2010)*
 - Near Term Baseline Conditions: Represents the traffic conditions of the street network assumed to be in place in the near term and is used to establish a near term, without project baseline for comparison.
 - Near Term with Project Conditions: Represents the near term traffic conditions with the addition of the proposed project.
- *Horizon Year Conditions (2030)*
 - Horizon Year Baseline Conditions: Represents the traffic conditions of the street network assumed to be in place under Horizon Year conditions. The Horizon Year is consistent with the City's General Plan and is used to establish a long-term, without project baseline for comparison.
 - Horizon Year Plus Project Conditions: Represents the Horizon Year traffic conditions with the addition of the proposed project.

The Heights at Del Mar





1974-1975		1975-1976		1976-1977		1977-1978	
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2127-2128</							

TUCKER
SADLER

The Heights at
Del Mar
NEW BUILDING 3

12375 El Camino Real, Suite 200
San Diego, CA 92130

DMIT Land Solutions, LLC
4012 University Drive West
San Diego, CA 92121

SITE PLAN

10 10-10-10 10-10-10	10-10-10 10-10-10 10-10-10
10-10-10 10-10-10 10-10-10	10-10-10 10-10-10 10-10-10

FIGURE 1-2
Site Plan

4.0 PROJECT TRAFFIC

The following section describes the trip generation, distribution and assignment related to the proposed Heights at Del Mar project.

Trip Generation

In order to determine the traffic generation characteristics of the site, standard City of San Diego traffic generation rates taken from the City of San Diego *Trip Generation Manual* (May 2003) were applied to the proposed project. Table 4-1 summarizes the trip generation for the site. As shown in Table 4-1, the site would generate a total of 2,668 daily trips, including 347 (312 in, 35 out) a.m. peak-hour trips, and 374 (75 in, 299 out) p.m. peak-hour trips.

Trip Distribution

Project trip distribution for the project is based on the existing travel patterns, access to freeway locations and discussion with the City of San Diego staff. Figures 4-1 and 4-2 display the project assumed distributions through the study intersections and roadway segments during the morning and afternoon peak-hour periods, respectively. As shown in the figures, the following distribution was assumed for the project:

- 69% of the project traffic would originate from the north along El Camino Real.
 - 17 % to/from the north using Interstate 5
 - 41% to/from the south using Interstate 5
 - 2% to/from the west using Del Mar Heights Road
 - 5% to/from the north using El Camino Real
 - 4% to/from the east using Del Mar Heights Road
- 29% of the project traffic would originate from the south along El Camino Real.
 - 15% to/from the east using State Route 56
 - 4% to/from the south using El Camino Real
 - 10% to/from the west using Cannel Valley Road
- 2% of the project traffic would originate from the east along Townsgate Drive.

Trip Assignment

Based on the project trip distributions, daily, a.m. and p.m. peak-hour project trips were assigned to the local roadway network and through the study intersections. Figure 4-3 shows the project trip assignment at the study intersections and Figure 4-4 shows the project trip assignment along the roadway segments.

**TABLE 4-1
TRIP GENERATION SUMMARY**

					AM Peak Hour					PM Peak Hour				
Land Use	Land Use as listed in San Diego	Units	Trip Rate	Daily Trips	% of ADT	In/Out Ratio	In	Out	Total	% of ADT	In/Out Ratio	In	Out	Total
Cumulative Trips ³														
<i>Proposed</i>														
Commercial Office (Building 1)	Commercial Office	66,105 ksf (Eq)	N/A / N/A	1,235	13%	9.00 : 1.00	144	17	161	14%	2.00 : 8.00	35	138	173
Commercial Office (Building 3)	Commercial Office	80,513 ksf (Eq)	N/A / N/A	1,433	13%	9.00 : 1.00	168	18	186	14%	2.00 : 8.00	40	161	201
NET TRIP GENERATION =							312	35	347			75	299	374

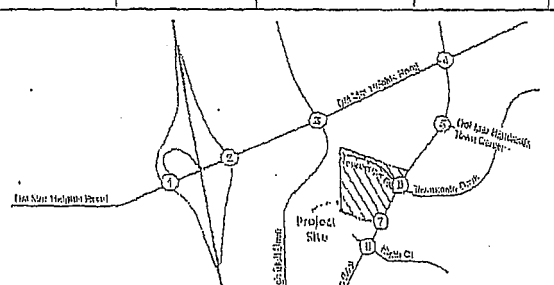
Note:

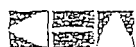
1. ksf = 1 thousand Square Feet (gross leasable area)

2. Trip rates referenced from the City of San Diego Land Development Code - Trip Generation Manual, May 2003.

3. Cumulative trips are the total trips generated by the site exclusive of pass-by trips already on the roadway.

C:\Documents and Settings\peter@peterhansen\My Documents\Excel\6030303 TC01 (version 1) table summary

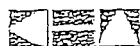
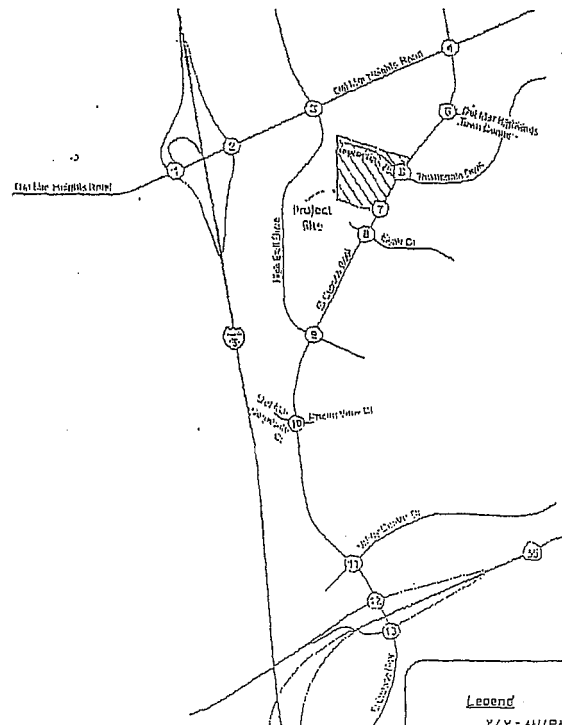
1	17% 1-55B Ramps 2% Del Mar Heights Rd	2	1-5 NB Ramps 19% Del Mar Heights Rd	3	High Bluff Dr 60% Del Mar Heights Rd	4	5% El Camino Real 4% Del Mar Heights Rd
5	69% El Camino Real Del Mar Highlands Town Ctr (69%) 2%	6	40% 29% El Camino Real Neuroscience Pl Townsgate Dr (69%) (2%) 29%	7	29% El Camino Real Project Dwy (29%) 29%	8	(29%) El Camino Real El Camino Real 29%
9	(29%) El Camino Real High Bluff Dr 29%	10	(29%) El Camino Real Del Mar Corporate Ctr Paseo View Ctr 29%	11	(29%) El Camino Real Valley Ctr Dr 29%	12	(10%) (19%) El Camino Real Carmel Valley Rd (SR-56 WB Ramps) 15% 14%
13	(4%) (15%) El Camino Real Carmel Valley Rd (SR-56 EB Ramps) 10% 4%						
Legend X% / (Y%) = IN / OUT PERCENT DISTRIBUTION NOT TO SCALE							



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and Associates, Inc.

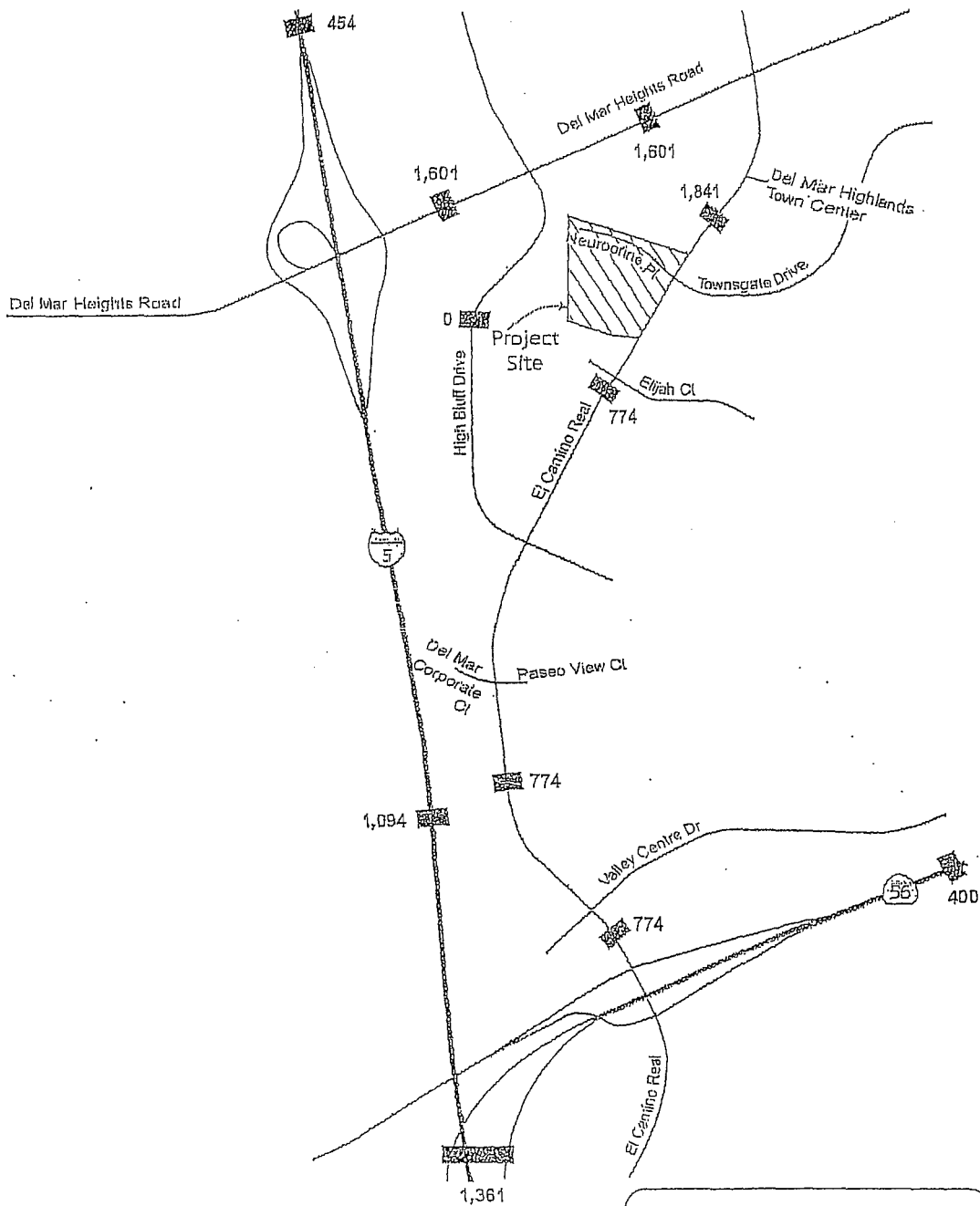
FIGURE 4-1

1	53 / 13 15 SB Ramps 14 / 123 1 / 6 Del Mar Holgrite Rd	2	15 NB Ramps 5 / 51 15 / 129 Del Mar Holgrite Rd	3	High Bluff Dr 21 / 179 Del Mar Holgrite Rd	4	16 / 4 El Camino Real 12 / 3 Del Mar Holgrite Rd
6 / 2		59 / 14	128 / 31	187 / 45		187 / 45	21 / 179 2 / 15 1 / 12
5	215 / 52 El Camino Real Del Mar Highlands Town Cir	6	125 / 30 90 / 22 Hauorogino Pl 24 / 206 1 / 6	7	90 / 22 El Camino Real Project Dwy 10 / 87	8	10 / 87 El Camino Real Eljahi Ct
	24 / 206		90 / 22		90 / 22		90 / 22
9	10 / 87 El Camino Real High Bluff Dr	10	10 / 87 El Camino Real Del Mar Corporate Ct Paseo View Ct	11	10 / 87 El Camino Real Valley Cir Dr	12	4 / 30 7 / 57 El Camino Real Carmel Valley Rd (SR-56 WB Ramps)
	90 / 22		90 / 22		90 / 22		44 / 11
13	1 / 12 5 / 45 El Camino Real Carmel Valley Rd (SR-56 EB Ramps)						12 / 3
31 / 8							



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and Associates, Inc.

FIGURE 4-3



Legend

■ X,XXX = Average Daily Traffic



NOT TO SCALE



Kimley-Horn
and Associates, Inc.

FIGURE 4-4
Project Trip Assignment - Roadway Segments

N

 NO SCALE
 XXXXX = ADT
 XX/XX = PEAK HOUR
 AM/PM

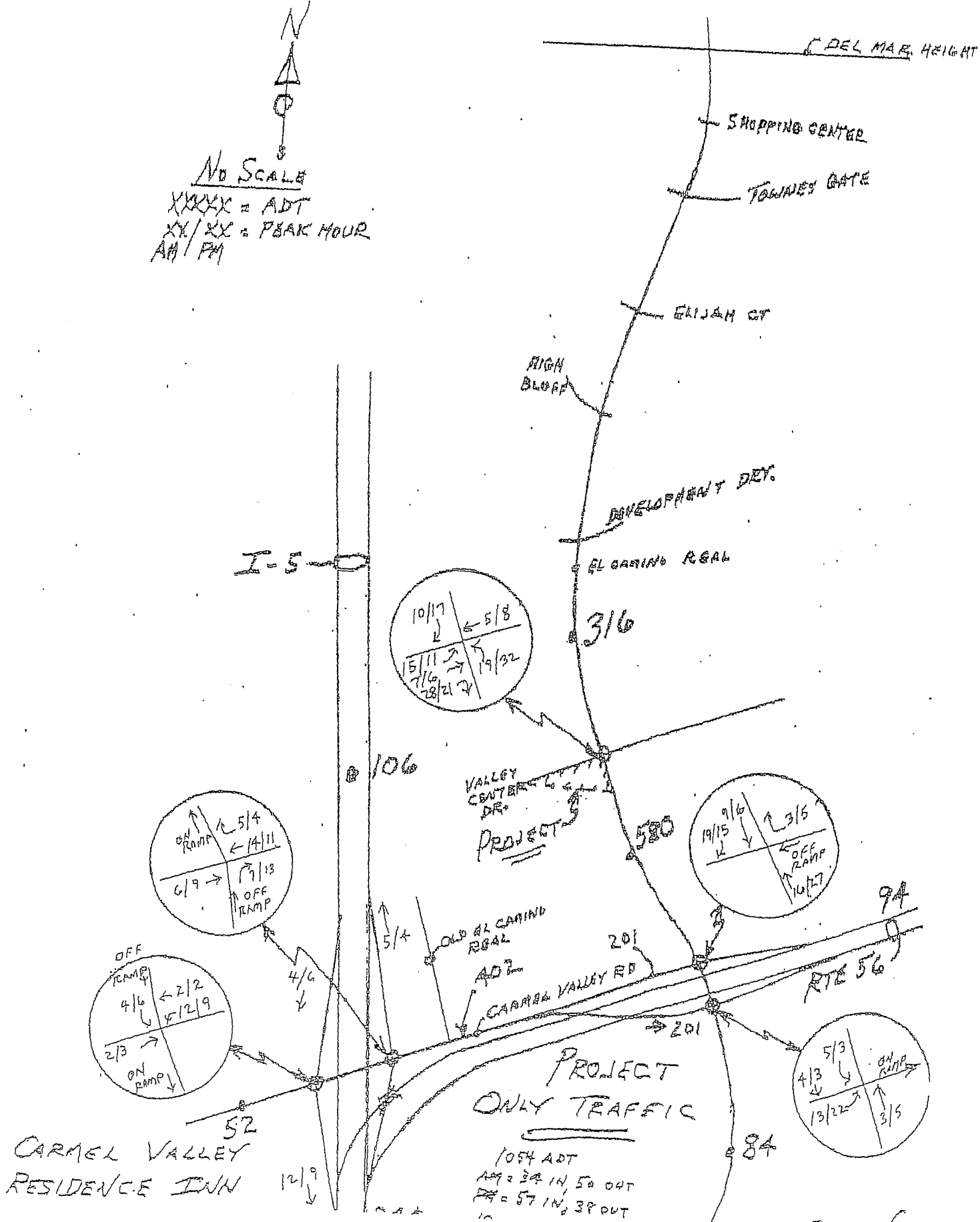


FIGURE 6

INTRODUCTION

The following study has been prepared to determine any traffic-related impacts within the project area roadways and intersections due to the combined project of Torrey Reserve and Torrey Reserve Phase IV developments. The Torrey Reserve portion of the project will be located along the east side of El Camino Real north of Arroyo Sorrento Road. Torrey Reserve Phase IV portion of the project will be located along the west side of El Camino Real north of the existing Torrey Reserve signalized driveway. Exhibit 1 shows the project vicinity map with the surrounding street network system. Exhibit 2 shows the project study area.

PROJECT DESCRIPTION

The proposed project is a multi-use development consisting of commercial office, retail, restaurant and bank. Torrey Reserve and Torrey Reserve Phase IV portions of the proposed project will include 38,400 and 40,000 square feet of new buildings, respectively. The following shows the land use components for each portion of the project:

Torrey Reserve:

Commercial Office: 22,316 square feet
Retail: 7,284 square feet
Restaurant (High Turnover): 4,200 square feet
Bank with drive-through: 4,600 square feet
Total: 38,400 square feet

Torrey Reserve Phase IV:

Commercial Office: 20,000 square feet
Retail: 12,600 square feet
Restaurant (High Quality): 7,320 square feet
Total: 40,000 square feet

Currently, the access to the project site is provided at the following locations along El Camino Real and Arroyo Sorrento Road:

- Full signalized access at Torrey Reserve Driveway/El Camino Real (to remain)
- Right in/right out only access along Arroyo Sorrento Road (to be closed)
- Two right in/right out access along the east side of El Camino Real between Arroyo Sorrento Road and Torrey Reserve Driveway (northerly driveway to remain; southerly driveway to be closed)
- Right in/right out access along the west side of El Camino Real between Arroyo Sorrento Road and Torrey Reserve Driveway (to remain)
- Two right in/right out access along the west side of El Camino Real north of Torrey Reserve Driveway (both to remain)
- Right in/right out access along the east side of El Camino Real north of Torrey Reserve Driveway (to remain)

TABLE 4
PROJECT TRIP GENERATION ESTIMATES
TORREY RESERVE DEVELOPMENT,
CITY OF SAN DIEGO

Land Use	Size	UnR	Daily Trips		AM Peak Hour Trips					PM Peak Hour Trips				
			Driveway Rate	ADT	Peak Hour %	In/Out Split	Inbound	Outbound	Total	Peak Hour %	In/Out Split	Inbound	Outbound	Total
Torrey Reserve														
Commercial Office ¹	22,310	Ksf	24.3	542	13%	90/10	63	7	70	14%	20/80	15	61	76
Retail (Specialty Retail Center)	7,284	Ksf	40.0	291	3%	80/40	5	4	9	9%	50/50	13	13	26
Restaurant (High Turnover)	4.2	Ksf	130.0	546	8%	50/50	22	22	44	8%	60/40	28	16	44
Bank with drive-through	4.6	Ksf	200.0	920	5%	60/40	28	18	46	10%	50/50	26	20	46
Subtotal				1249			118	51	169			100	130	238
Torrey Reserve Phase IV														
Commercial Office ¹	20.0	Ksf	25.0	500	13%	90/10	39	8	65	14%	20/80	14	58	70
Retail (Specialty Retail Center)	12.68	Ksf	40.0	507	3%	80/40	9	6	15	8%	50/50	23	23	46
Restaurant (High Quality)	7.52	Ksf	100.0	752	1%	50/40	4	3	7	8%	70/30	41	19	59
Subtotal				1759			72	15	87			78	97	175
Total Driveway Trips				4008			190	65	255			178	226	403
Total Pass-by Trips				482			10	9	22			25	20	45
Total Cumulative Trips				3516			177	57	334			203	246	448

Source: City of San Diego Trip Generation Manual, San Diego Municipal Land Development Code, (May 2003);

Notes:

¹ Trip rates are trips per dwelling unit or trips per 1,000 square feet (Ksf); du=dwelling units; ADT=Average Daily Traffic

² ADT rate was calculated using the equation provided for a Commercial Office

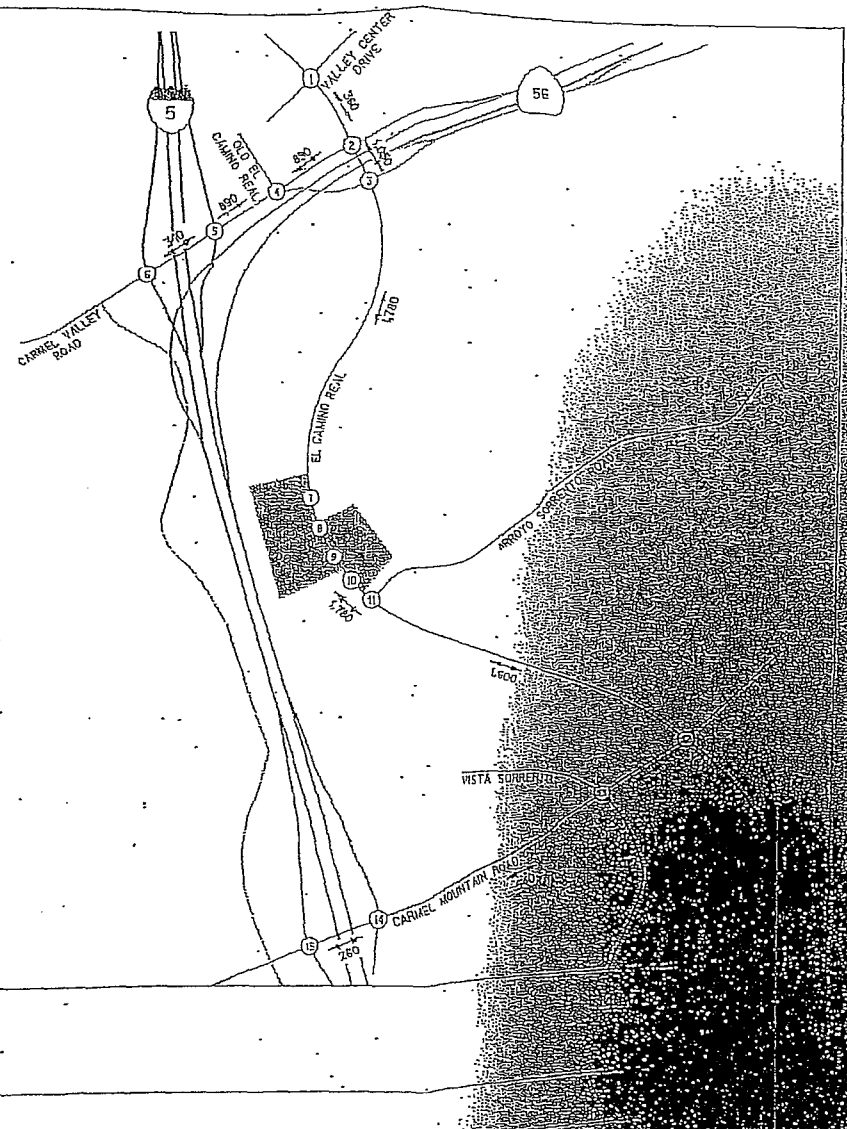
1. EL CAMINO REAL/ VALLEY CENTER ROAD	2. EL CAMINO REAL/ SR 56 NB RAMP	3. EL CAMINO REAL/ SR 56 EB RAMP/ VALLEY CENTER ROAD	4. CARMEL VALLEY ROAD/ OLD EL CAMINO REAL	5. CARMEL VALLEY ROAD/ I-5 NB RAMP
6. CARMEL VALLEY ROAD/ I-5 SB RAMP	7. EL CAMINO REAL/ RIGHT IN/RIGHT OUT ONLY ACCESS 1	8. EL CAMINO REAL/ RIGHT IN/RIGHT OUT ONLY ACCESS 2	9. EL CAMINO REAL/ PROJECT MAP (FULL) ACCESS	10. EL CAMINO REAL/ RIGHT IN/RIGHT OUT ONLY ACCESS
11. EL CAMINO REAL/ ARROYO SORRENTO ROAD	12. EL CAMINO REAL/ CARMEL MOUNTAIN ROAD	13. CARMEL MOUNTAIN ROAD/VISTA SORRENTO PARKWAY	14. CARMEL MOUNTAIN ROAD/I-5 NB RAMP	15. CARMEL MOUNTAIN ROAD/I-5 SB RAMP



EXHIBIT 9

TOTAL PROJECT TRIPS

TORREY RESERVE AND TORREY RESERVE PHASE IV



INTRODUCTION

The purpose of this traffic impact study is to identify potential traffic and circulation impacts associated with the development of the residential/retail project. The project site is bounded by Calle Mar de Mariposa to the north, Vista Sorrento Parkway to the west, West Ocean Air Drive to the east, and an existing office building to the south. Figure 1 illustrates the location of the project site and the study area roadway network.

Issues addressed in this analysis include off-site intersection impacts and interface with the arterial street system. The traffic impact study for the proposed project examines five development scenarios:

1. Existing (2006) conditions
2. Existing Conditions with Approved Projects (2010) conditions
3. Existing Conditions with Approved Projects (2010) and Site Traffic conditions
4. Buildout Community Plan (2030) conditions
5. Buildout Community Plan (2030) with Additional Site Traffic conditions

Prior to the preparation of this analysis, LSA discussed the scope of work with the City's Development Services staff. The traffic analysis provides an assessment of traffic impacts and a determination of traffic mitigation as required for CEQA compliance.

PROJECT DESCRIPTION

The project proposes to construct 484 condominium DU and approximately 4,000 sf of commercial uses. Access to the project site will be provided via an existing signalized driveway along Calle Mar de Mariposa, approximately 210 ft west of West Ocean Air Drive/Calle Mar de Mariposa, and a new access driveway along West Ocean Air Drive. The new access driveway will provide access to the residential and commercial uses on site. Figure 2 illustrates the site plan for the proposed development.

Table A: Project Trip Generation Summary

Land Use	Size	Unit	ADT	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Trip Rates ¹									
Multi-Family ²		DU	8.00	0.13	0.51	0.64	0.56	0.24	0.80
Multi-Family ³		DU	6.00	0.10	0.38	0.48	0.42	0.18	0.60
Retail		TSF	40.00	0.96	0.64	1.60	1.60	1.60	3.20
Trip Generation									
<i>Proposed Project</i>									
Multi-Family	100	DU	800	13	51	64	56	24	80
Multi-Family	384	DU	2,304	38	146	184	161	69	230
Retail	4,000	TSF	160	4	2	6	6	6	12
Total Proposed Project			3,264	55	199	256	223	99	322

Notes:

¹ Trip rates referenced from the City of San Diego Trip Generation Manual (May 2003).² Multiple Dwelling Unit: Under 20 dwelling units/acre.³ Multiple Dwelling Unit: Over 20 dwelling units/acre.

TSF = Thousand Square Feet

DU = Dwelling Unit

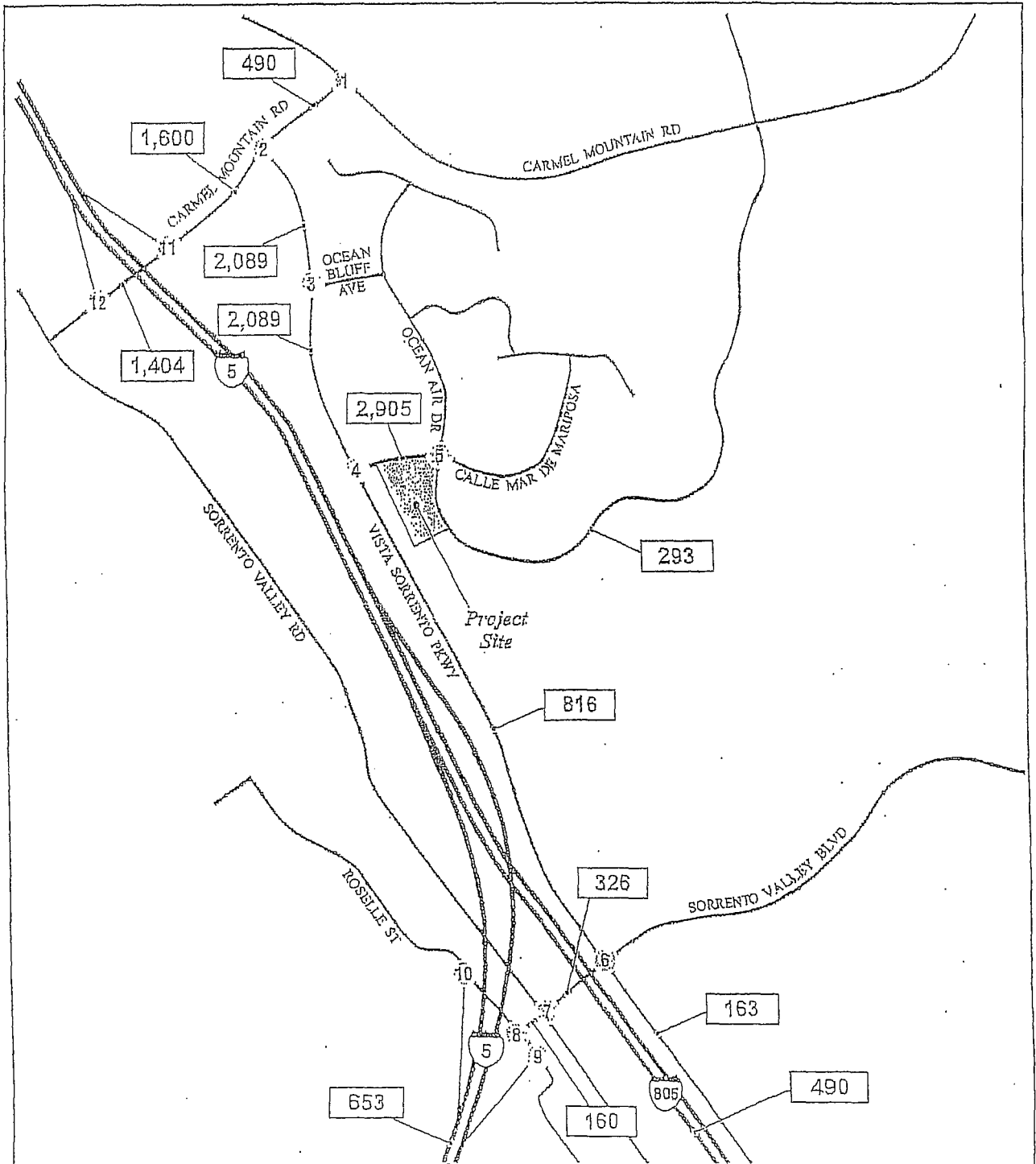


FIGURE 4

LSA

LEGEND

2 - Study Area Intersection

39,302 - Daily Traffic Volumes



SCHEMATIC - NOT TO SCALE

*Torrey Hills Residential/Retail
Project Daily Trip Assignment*

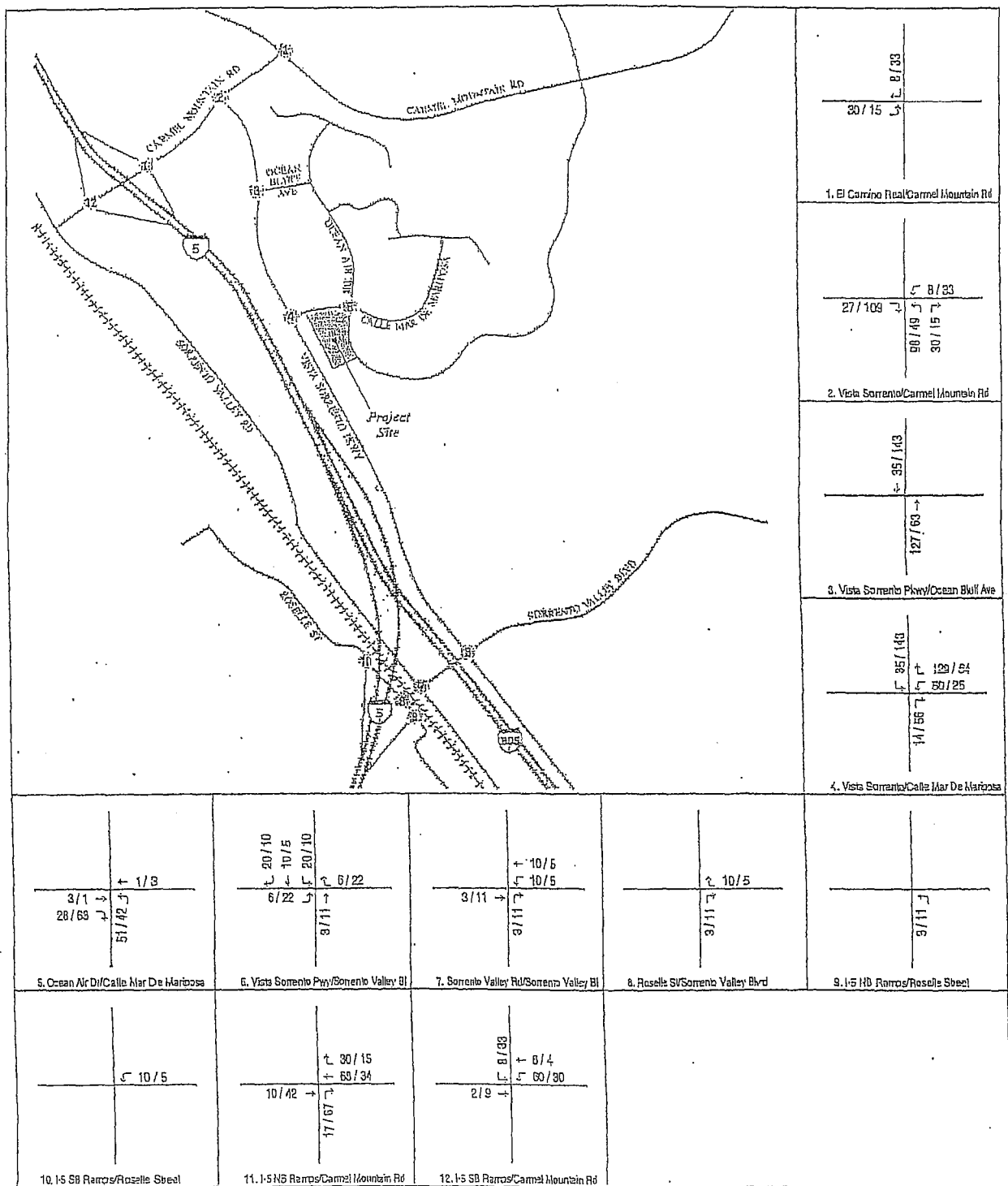


FIGURE 5

123 / 456 AM / PM Peak Hour Volume

Torrey Hills Residential/Retail
Project AM and PM Peak-Hour Trip Assignment

ATTACHMENT 2

Gables Residential Project Trip Generation Table

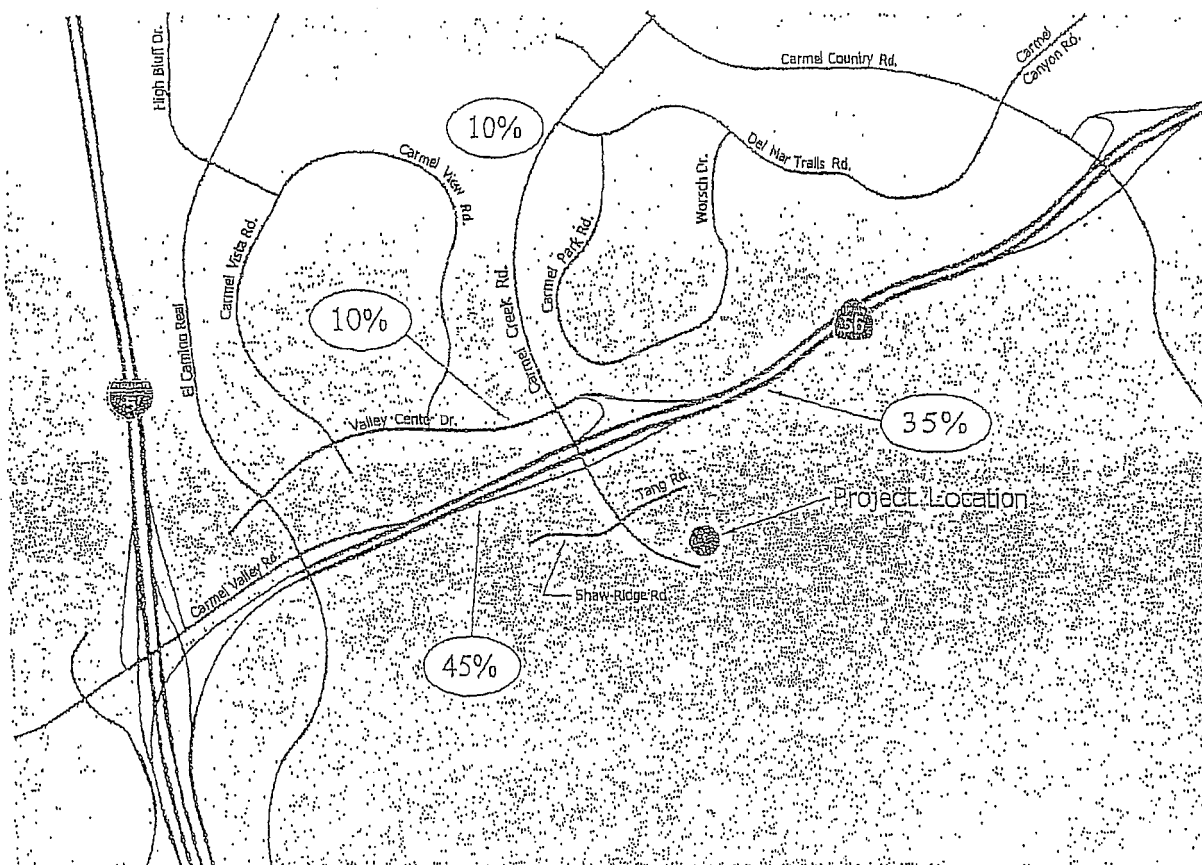
Use	Amount		Trip ¹	ADT	AM Peak Hour						PM Peak Hour					
					%	#	In	:	Out	In	Out	%	#	In	:	Out
Multi Family Units	92	DU	6 /DU	552	8%	44	2	:	8	9	35	10%	55	7	:	3
TOTAL				552		44				9	35		55			

Notes:

¹ = Source: City of San Diego Traffic Generation Rates, May 2003

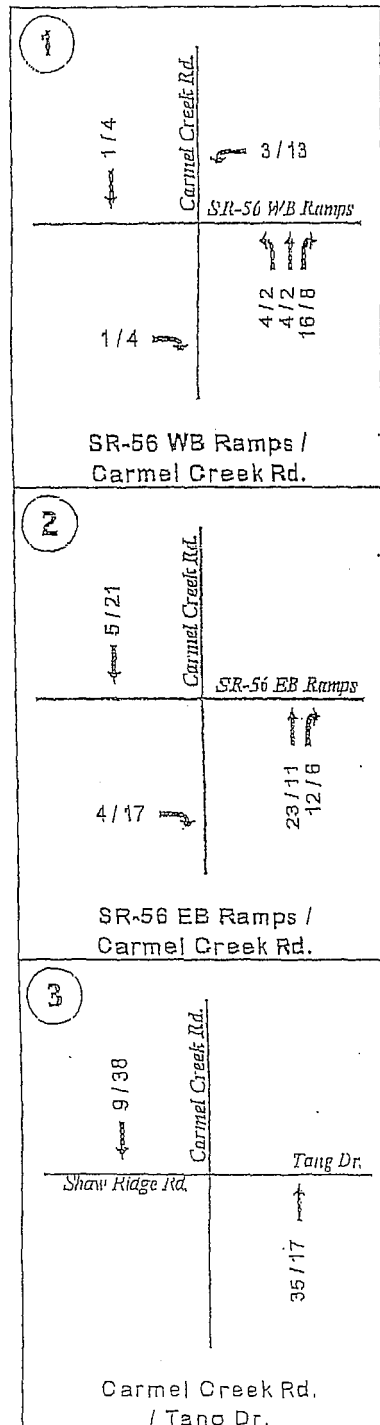
DU = Dwelling Unit

ATTACHMENT 4
Project Only Distribution Percentages



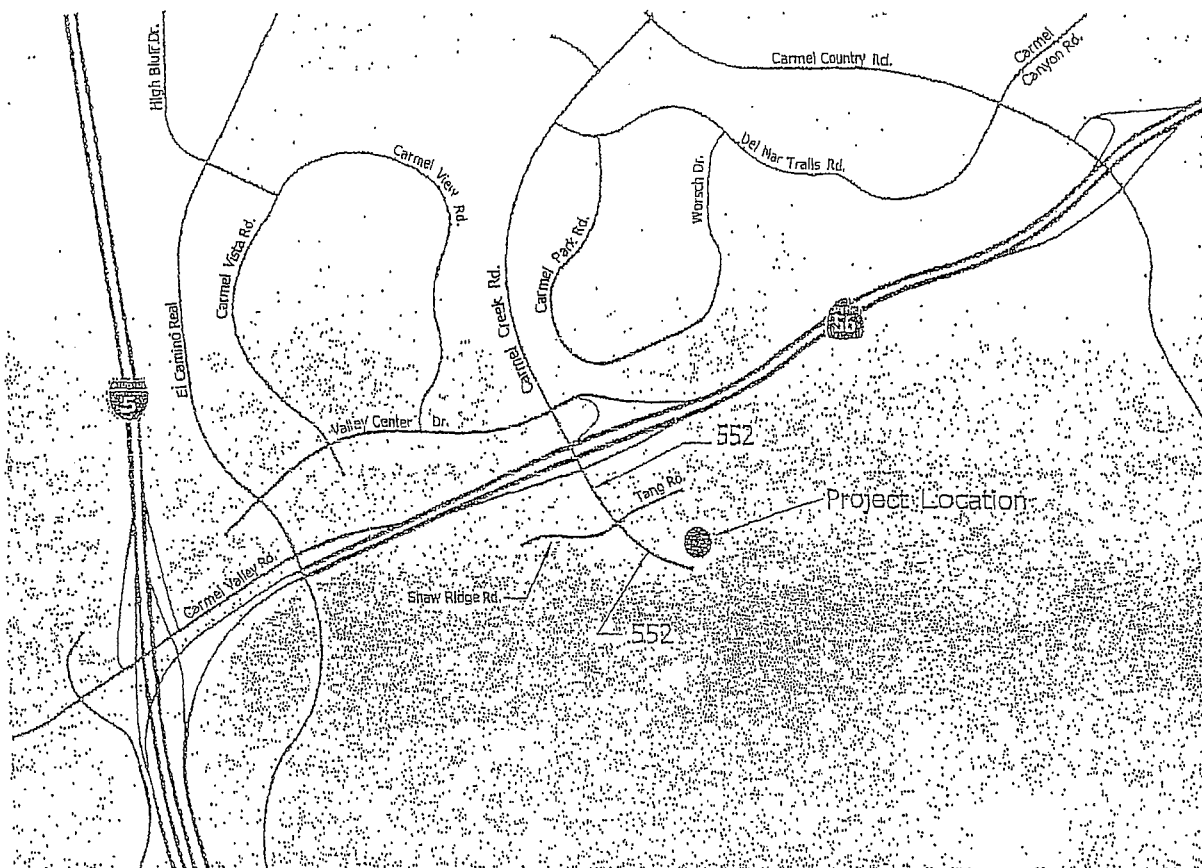
ATTACHMENT 5

Project Only AM/PM Peak Hour Traffic



ATTACHMENT 6

Project Only Average Daily Traffic



Sea Breeze Carmel View
 Sea Breeze Properties LLC - Levitt

©Urban Systems Associates, Inc.
 June 23, 2004

TABLE 4-1

Other Projects Trip Generation

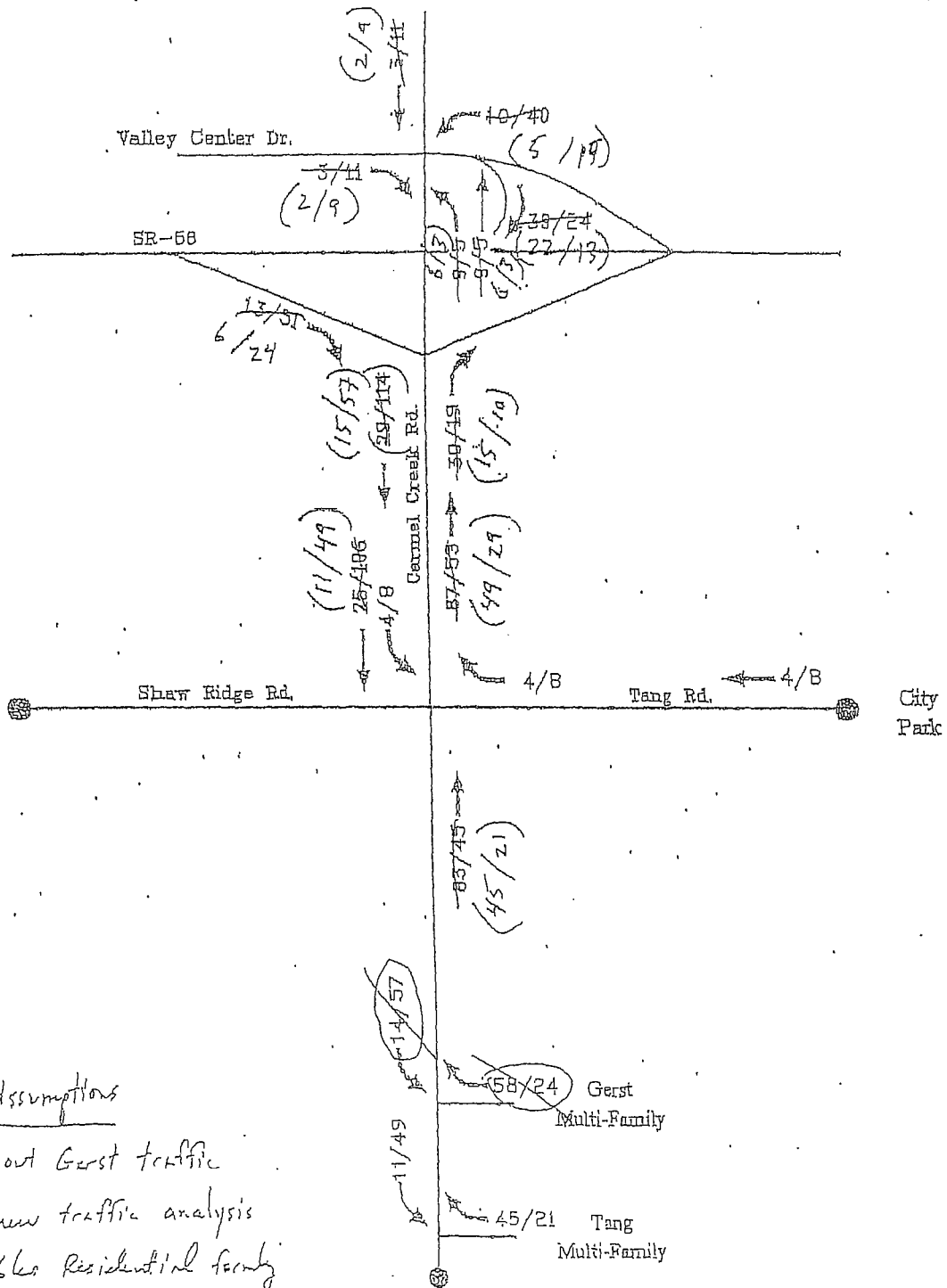
Use	Amount		*Trip	ADT	AM PEAK HOUR					PM PEAK HOUR				
					%	#	In/Out	In	Out	%	#	In/Out	In	Out
Crescside Villas - Carmel Creek Road Access														
Park	4	AC	50 /AC	200	4	8	5 : 5	4	4	8	16	5 : 5	8	8
Multi-Family	88	DU	8 /DU	704	8	56	2 : 8	11	45	10	70	7 : 3	49	21
Pepper Tree Point - Gerst - Shaw Ridge Road Access														
Multi-Family	150	DU	6 /DU	900	8	72	2 : 8	14	58	9	81	7 : 3	57	24

* City of San Diego, Trip Generation Manual, 5/03

Note:

AC = Acres

DU = Dwelling Units



Notes/Assumptions

Taking out Gerst traffic
based on new traffic analysis
from Gables Residential family
called Gerst.

FIGURE 4-2



TABLE 2-1

Project Trip Generation For Seabreeze Carmel View
Medical Office Alternative

Use	Amount	*Trip Rate	ADT	AM PEAK HOUR					PM PEAK HOUR				
				%	#	In/Out	In	Out	%	#	In/Out	In	Out
Medical Office 1	75,000 SF	50 /KSF	3,750	6	225	8 : 2	180	45	10	375	3 : 7	113	263
Medical Office 2	50,000 SF	50 /KSF	2,500	6	150	8 : 2	120	30	10	250	3 : 7	75	175
TOTAL			6,250		375		300	75		625		188	438

Medical & Commercial Office Alternative

Use	Amount	*Trip	ADT	AM PEAK HOUR					PM PEAK HOUR				
				%	#	In/Out	In	Out	%	#	In/Out	In	Out
Medical Office 1	75,000 SF	50 /KSF	3,750	6	225	8 : 2	180	45	10	375	3 : 7	113	263
Commercial Office	75,000 SF	①	1,358	13	177	9 : 1	159	18	14	190	2 : 8	38	152
TOTAL			5,108		402		339	63		565		151	415

* City of San Diego, Trip Generation Manual, 5/03

Note:

Parking required for the alternative project would require 548 spaces

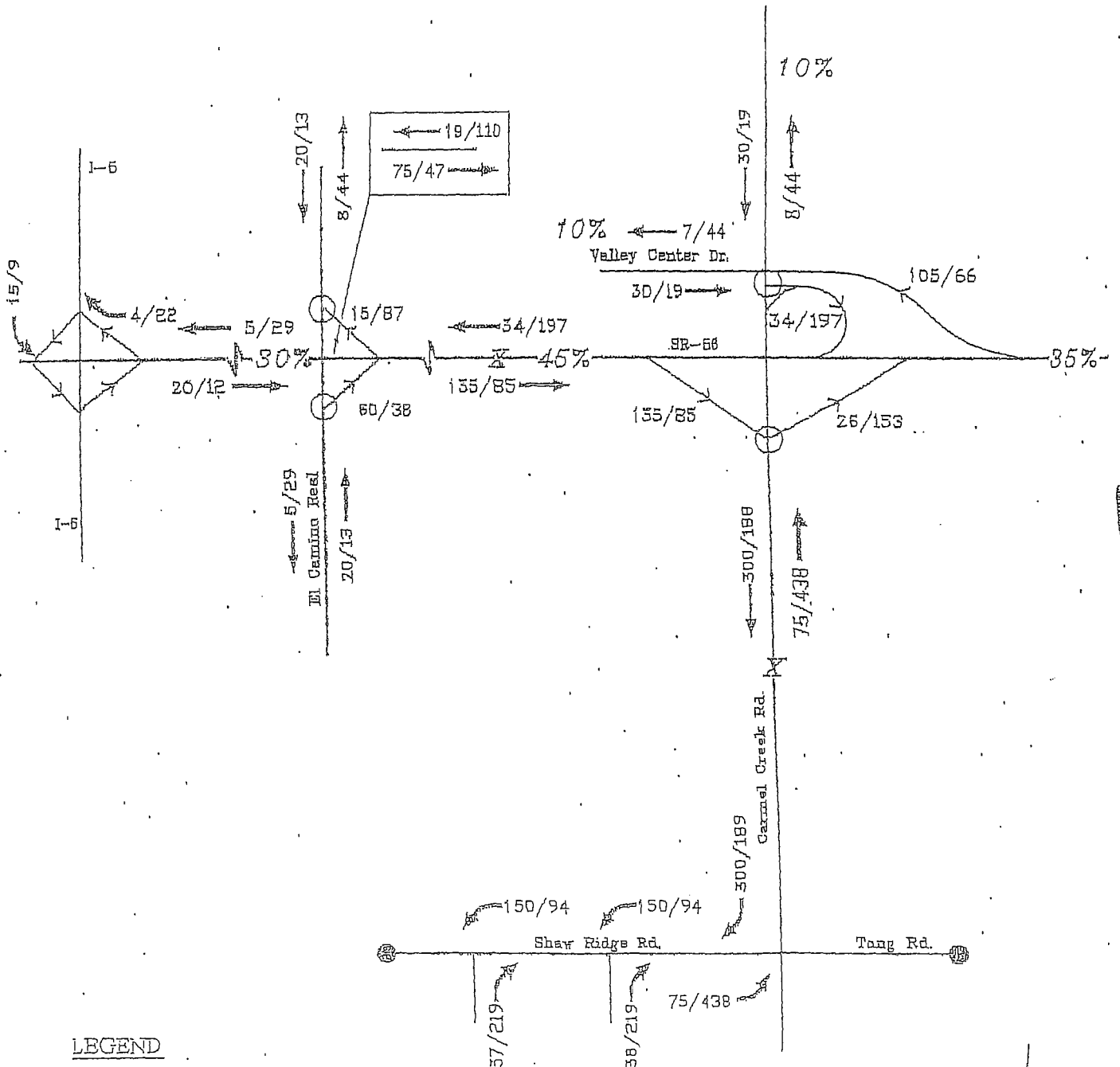
① = Formula: $Ln(T) = .756Ln(x) + 3.95$

SF = Square Feet

KSF = 1,000 Square Feet

Sea Breeze Carmel View
 Sea Breeze Properties LLC- Levitt

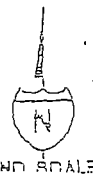
©Urban Systems Associates, Inc.
 June 23, 2004

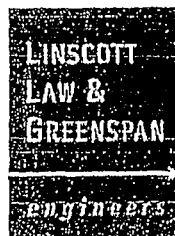


ASPH/23

LEGEND

- = Intersection to be studied
- X = Segment to be studied





DRAFT TRAFFIC IMPACT ANALYSIS
22ND DISTRICT AGRICULTURAL ASSOCIATION
2008 MASTER PLAN

Del Mar, California
April 15, 2009

LLG Ref. 3-05-1538

Prepared by:
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EXECUTIVE SUMMARY

Linscott, Law & Greenspan, Engineers (LLG) has prepared the following traffic study to analyze the potential impacts associated with select traffic-generating elements of the proposed Del Mar Fairgrounds Master Plan Update (2008 Master Plan). The 2008 Master Plan is the fourth Master Plan completed for the 22nd District Agricultural Association (DAA) property at the Del Mar Fairgrounds (Fairgrounds), the first having been completed in 1968, with subsequent updates in 1980 and 1985.

It should be noted that for the purposes of the traffic study, the 2008 Master Plan is a standalone document. It does not seek to quantify traffic estimates made in previous updates (e.g., specifically existing Fairgrounds traffic), nor does this study directly address traffic issues resulting from previous expansions. However, baseline traffic counts conducted for this study do include Fairgrounds site traffic currently present in the project vicinity, including traffic generated by previous expansions and approved activities/events at the Fairgrounds.

The 2008 Master Plan consists of twelve near-term projects and five long-term projects, the majority of which are infrastructure-type improvements (e.g., “widen turf track”, “provide sewer hook up”, “realign Solana Gate Road”, etc.). These types of projects are not considered new traffic-generating projects. LLG and the project team carefully reviewed all of the specific projects, and determined that the following elements would potentially generate new site traffic:

- New Flat Floor Exhibit Building (26,200 SF increase)
- East Parking Lot Improvement
- Conference Hotel (330 rooms)
- Health Club/Sports Training Facility (60,000 SF)

The report analyzed the effects of these proposed projects under three distinct conditions that represent different traffic scenarios: “off season”, “fair” and “race”. In essence, this report contains three complete traffic studies, one for each condition. Existing traffic counts for both weekdays and Saturdays were conducted for each of the three timeframes to capture the effects of both existing Fairground traffic, and seasonal traffic variation in the vicinity of the site. Thus, the effects of existing Fairground operations are accounted for in all analyses.

The project area itself comprises intersections, segments and freeway sections in the jurisdictions of the City of Del Mar, the City of Solana Beach, the City of San Diego, the County of San Diego and the State of California (Caltrans). In total, the report analyzes eighteen (18) intersections, seven (7) street segments, (2) two ramp meter locations, and three (3) freeway mainline segments. The study area is consistent with published, regional guidelines for the preparation of traffic studies in San Diego County.

LLG stated the published significance criteria of each jurisdiction. These criteria were used to assess the significance of impacts for both the near-term and long-term analyses.

LLG worked directly with the adjacent jurisdictions to determine the appropriate near-term cumulative projects that are currently under consideration, and would likely be built and operating within the 2-5 year “near-term” horizon. A total of forty-nine (49) near-term cumulative projects were identified. The traffic generated by these projects, in addition to the existing traffic volumes comprises the “near-term baseline” scenario.

Project traffic generation was calculated for the key projects listed above using the published, approved regional trip generation rates for each land use, where applicable. For the Flat Floor Exhibit Space and East Parking Lot (East Lot) uses, LLG calculated the expected traffic increases based on anticipated increases in vendors and attendees.

During the off season, the traffic-generating project components are calculated to generate approximately 7,000 new ADT (750 total peak hour trips). During the fair and race events, the project components are calculated to generate approximately 5,700 new ADT (500 total peak hour trips).

LLG added the project traffic to the near-term baseline volume, and determined the significance of impacts based on each jurisdiction’s published criteria.

The Congestion Management Program (CMP) requires projects in excess of 2,400 ADT to include a long-term traffic assessment. LLG consulted with SANDAG, the agency that maintains the regional traffic model. Per SANDAG, the regional traffic model’s appropriate for use only for a weekday, “non special event” scenario. As such, the long-term model focuses on off season weekday project traffic and its potential impacts.

The report includes sections on access and parking, including project access, driveway descriptions, traffic control (special event), emergency vehicle access, future access alternatives, and parking summaries.

Summary and conclusion sections are presented that restate the project impacts and classify each as significant or not-significant. For significant impacts, recommended mitigation measures are proposed, and calculations are shown for post-mitigation operations to demonstrate the effectiveness of each proposed measure.

The 2008 Master Plan projects analyzed in this report have significant impacts at key intersections along the Via de la Valle and Camino del Mar corridors under varying background conditions (e.g., off season, fair and race, Weekday and Saturday). Ramp meter locations at the I-5/Via de la Valle interchange are also impacted. Mitigation measures largely consist of adding roadway capacity by either a) widening roadways to add lanes, and/or b) installing traffic signals at unsignalized locations. The study acknowledges that the 22nd DAA cannot unilaterally implement the mitigation measures where they are located in a neighboring jurisdiction. Accordingly, while a particular measure may be demonstrated to effectively mitigate a project impact, the report classifies this impact as “significant and unmitigated” since implementation is not legally and practically feasible without the governing jurisdiction including the improvement in its plans and funding program.

Table A shows as summary of the impacts and mitigation measures.

TABLE 8-9
OFF SEASON PROJECT TRIP GENERATION (WEEKDAY OPERATIONS)

Use	Amount		Daily Trip Ends (ADT) ^a		PM Peak Hour			
			Trip Ends	Volume	% of ADT	In:Out Split	Volume	
							In	Out
<i>New Flat Floor Exhibit Building (26,220 Square Foot Increase)</i>								
"Attendees" (300 increase)	175	Cars ^b	2 / Car	350	15% ^c	75:25	40	13
"Vendors" (128 increase)	70	Cars ^d	2 / Car	140	5% ^e	50:50	4	4
<i>East Parking Lot Improvement</i>								
"Attendees" (100)	50	Cars ^f	2 / Car	100	15%	75:25	11	4
"Vendors" (30)	15	Cars ^g	2 / Car	30	5%	50:50	1	1
<i>Conference Hotel</i>								
"Hotel"	330	Rooms	10 / Room ^h	3,300	8%	60:40	158	106
"Roof Top Sports Field"	278,716	Square Feet	100 / Acre ⁱ	640	9%	50:50	30	30
<i>East Perimeter of Property</i>								
"Health Club/Sports Training Facility"	60,000	Square Feet	40 / 1,000 SF ^j	2,400	9%	60:40	129	87
Total			—	6,960	—	—	373	245

Footnotes:

- Average Daily Traffic Volumes (rounded to nearest 10).
- Based on discussions with Fairgrounds Staff (see text for discussion), a 20% increase in attendees is conservatively estimated to occur with the increase in exhibit space. Assuming the Fish, Tackle and RV show attendance as baseline, the increase in attendees is 266 (1330 x 20%). LLG assumed that the vehicle occupancy is 2 attendees per car, therefore, 300 (266 rounded to the nearest 50) additional people are proposed to attend the show in 150 cars. A typical 15% factor of safety is applied, which brings this number of cars to 175. These assumptions likely result in overstating traffic generation.
- LLG assumed the 15% of the ADT volume arrive or leave the site during the evening peak hour (highest one hour between 4:00pm – 6:00pm).
- Based on discussions with Fairgrounds Staff, an increase in vendors of 128 is conservatively estimated to occur with the increase in exhibit space. LLG assumed that the vehicle occupancy is 2.2 vendors per car, therefore, 128 additional vendors are assumed to attend the show in 58 cars. A 15% factor of safety is applied, which brings this number of cars to 70. These assumptions likely result in overstating traffic generation.
- Events are expected to occur during the evening peak hour thus it is unlikely that vendors will be leaving or arriving at the site. Therefore, a nominal 5% was assumed.
- LLG assumed that the vehicle occupancy is 2 attendees per car, therefore, 100 additional people are proposed to attend the show in 50 cars.
- LLG assumed that the vehicle occupancy is 2.2 vendors per car, therefore, 30 additional vendors are proposed to attend the show in 15 cars (rounded to the nearest 10).
- SANDAG rate of 10 trips per room refers to occupied rooms. This rate is conservative since hotels are not always fully occupied.
- Rate for roof-top sports field is not available. Hence, LLG used "Developed Park" rate from *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, SANDAG (April 2002) and doubled it to be conservative.
- Trip generation obtained from the *City of San Diego Trip Generation Manual* (May 2003) for health clubs.

General Note:

See Section 8.4.1 for a additional discussion of the trip generation assumptions.

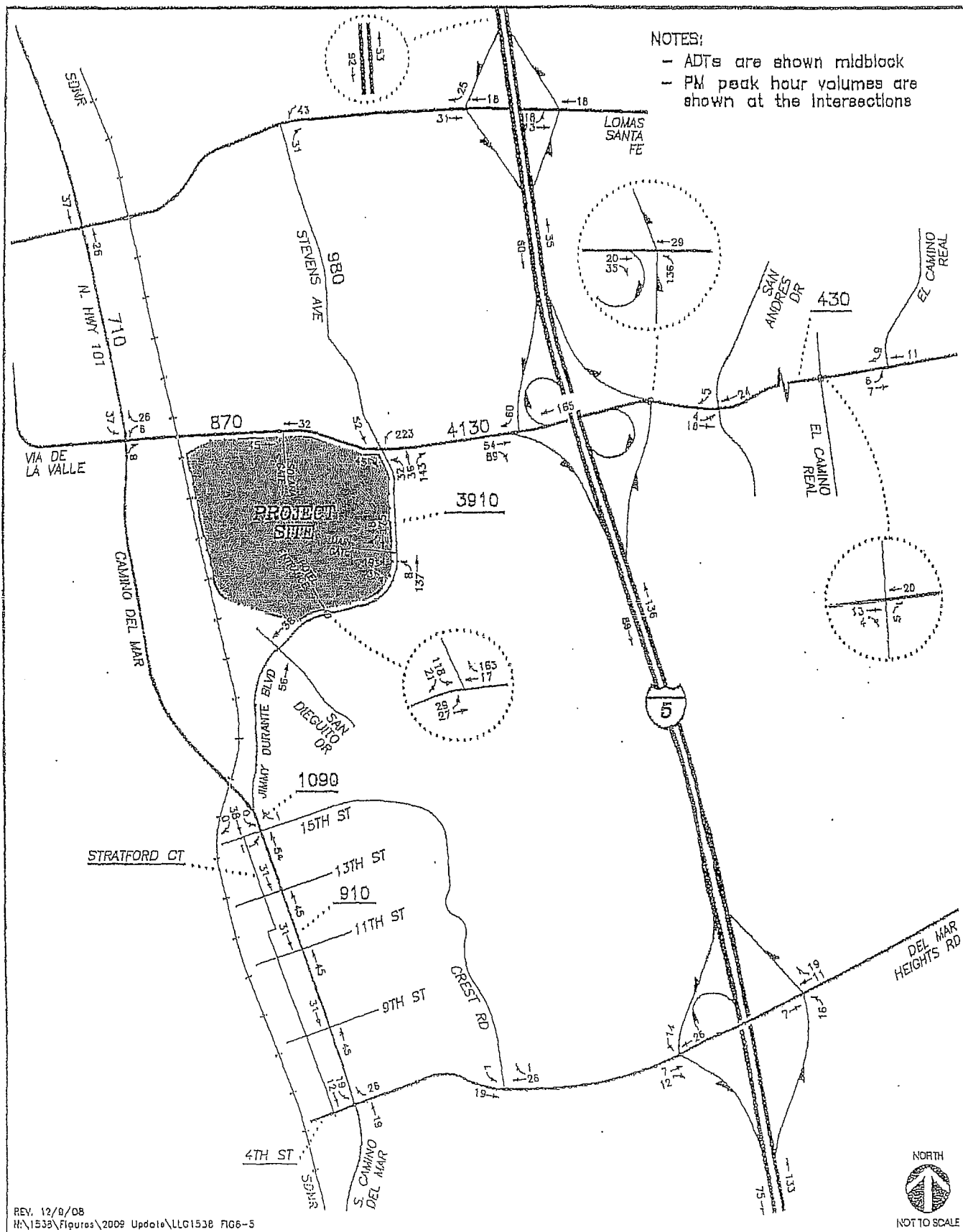


Figure 8-5
Total Project Traffic Volumes

Trip Generation Table

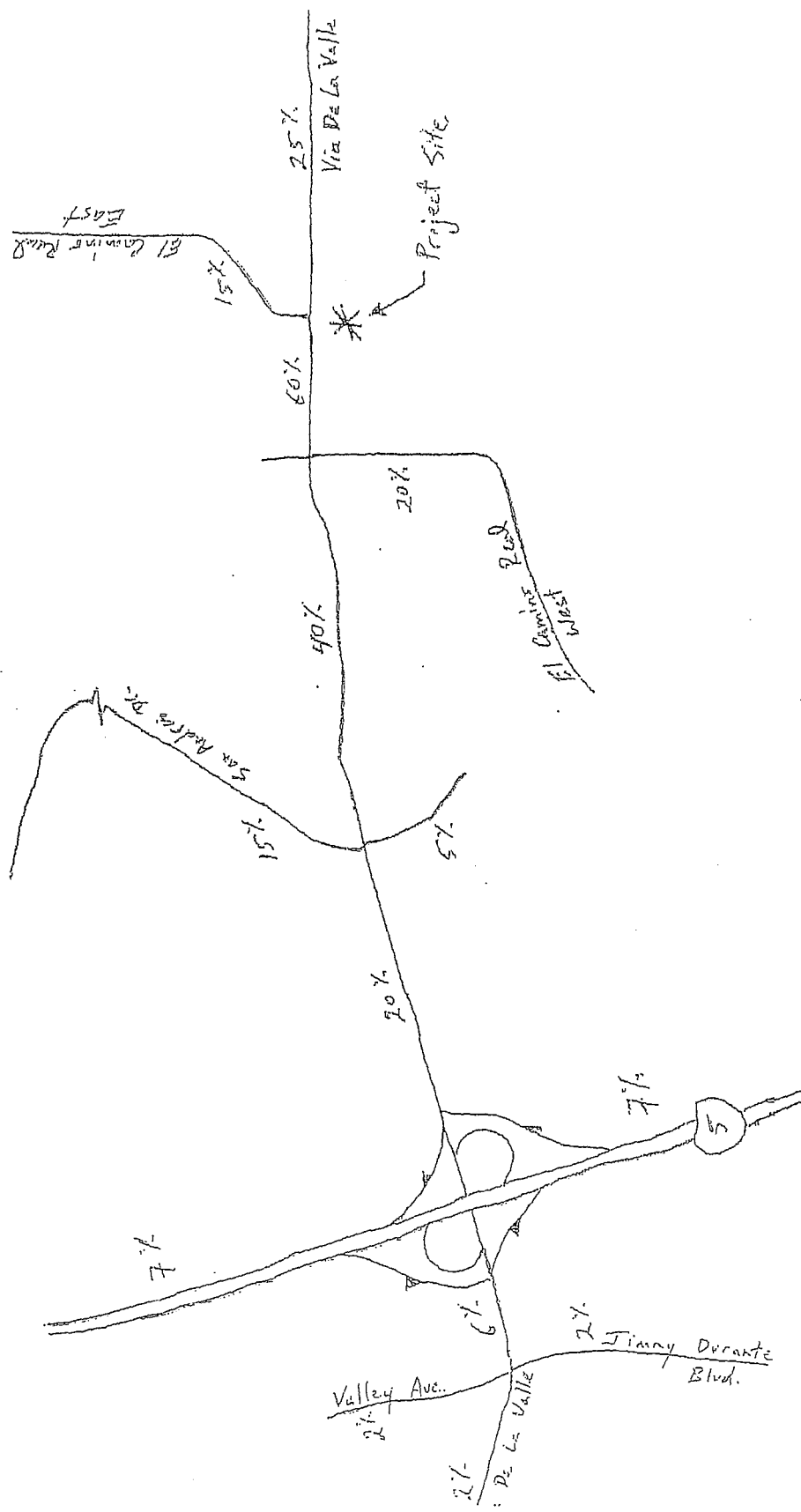
Ranch Del Mar

Use	Amount		Trip	ADT	AM Peak Hour					PM Peak Hour								
					%*	#	In	: Out	In	Out	%*	#	In	: Out	In	Out		
Senior Citizen Housing	225	DU	4 /DU	900	8%	72	2	:	8	14	58	10%	90	7	:	3	63	27
TOTAL				900		72				14	58		90				63	27

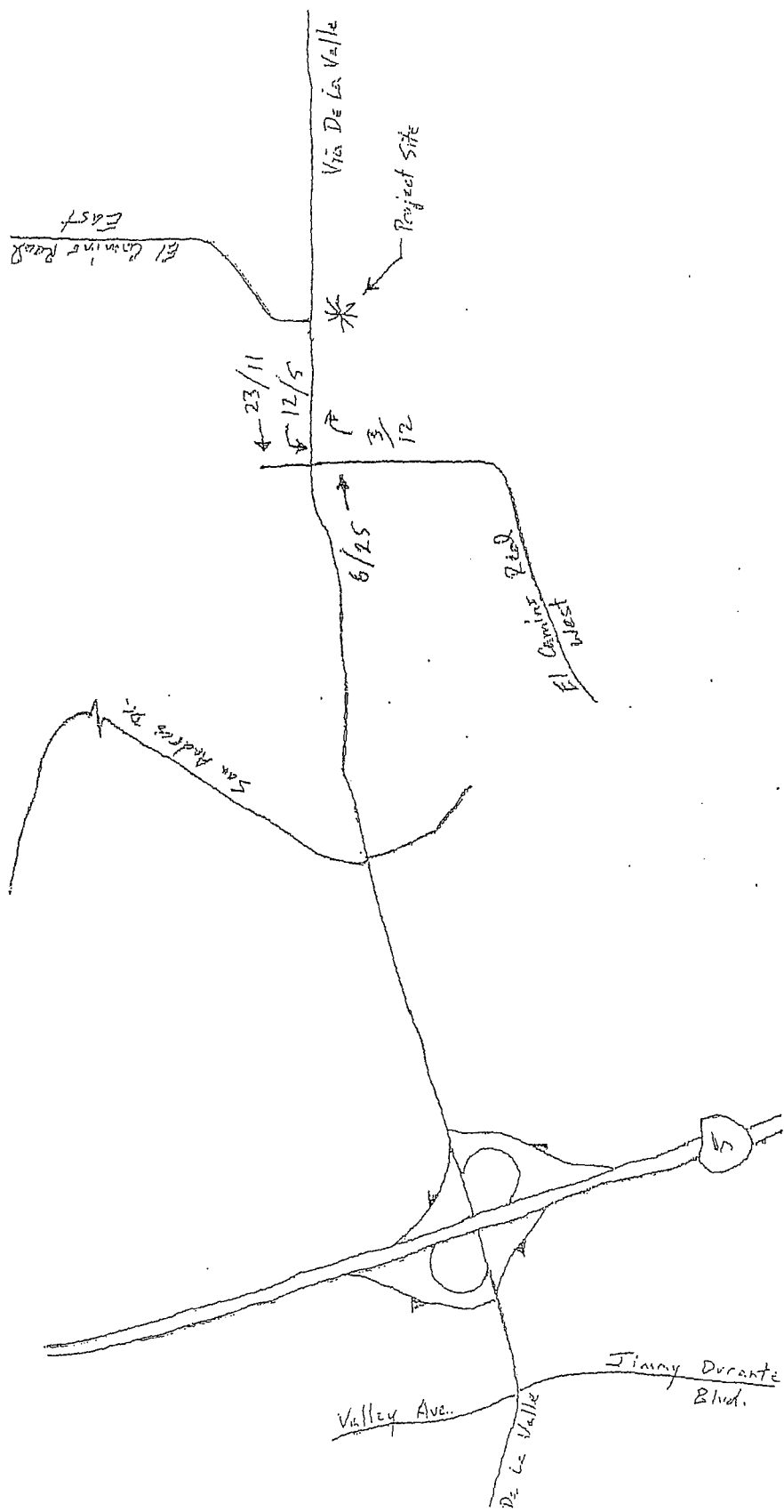
Notes:

= Source: City of San Diego Trip Generation Manual, May 2003

DU = Dwelling Units



Trip Distribution Percentages Ranch Del Mar



AM/PM Peak Hour Traffic Volumes

Ranch Del Mar

Prepared by: VSNII

Trip Generation Table

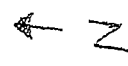
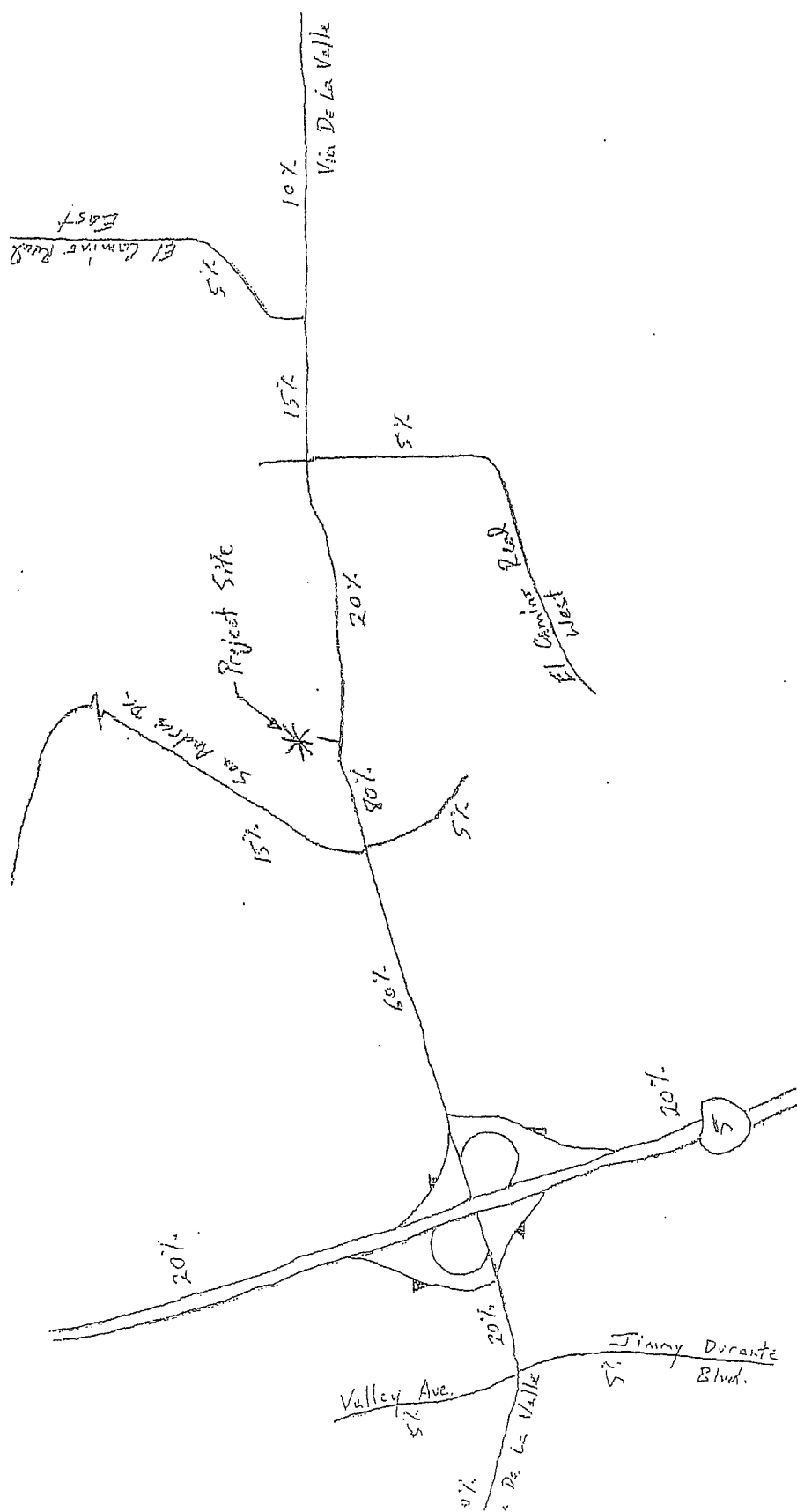
Via De La Valle Townhomes

Use	Amount	Trip	ADT	AM Peak Hour						PM Peak Hour					
				%*	#	In	: Out	In	Out	%*	#	In	: Out	In	Out
Townhomes	22	DU	8 /DU	176	8%	14	2 : 8	3	11	10%	18	7 : 3	12	5	
TOTAL				176		14		3	11		18		12	5	

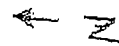
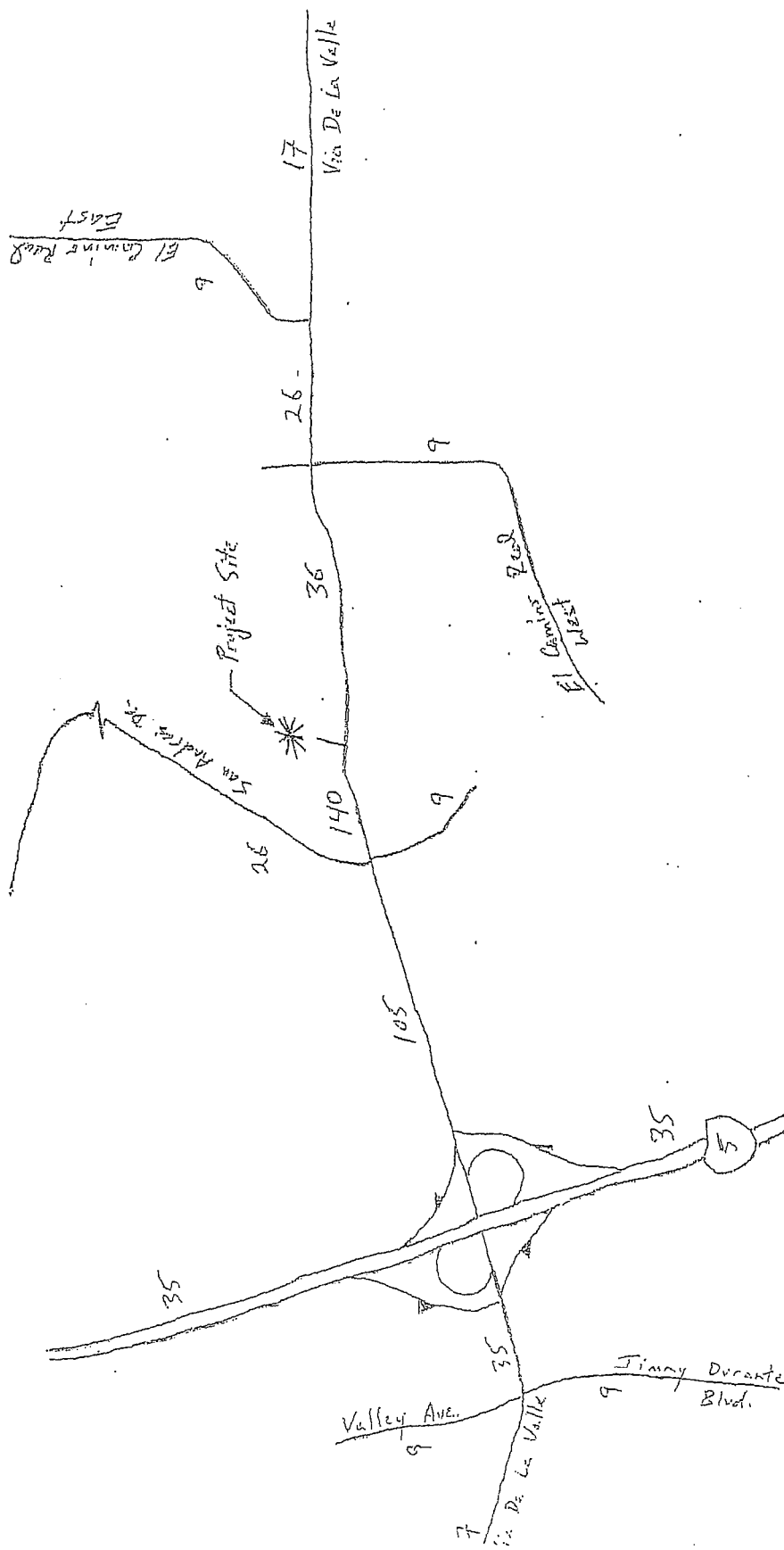
Notes:

* = Source: City of San Diego Trip Generation Manual, May 2003

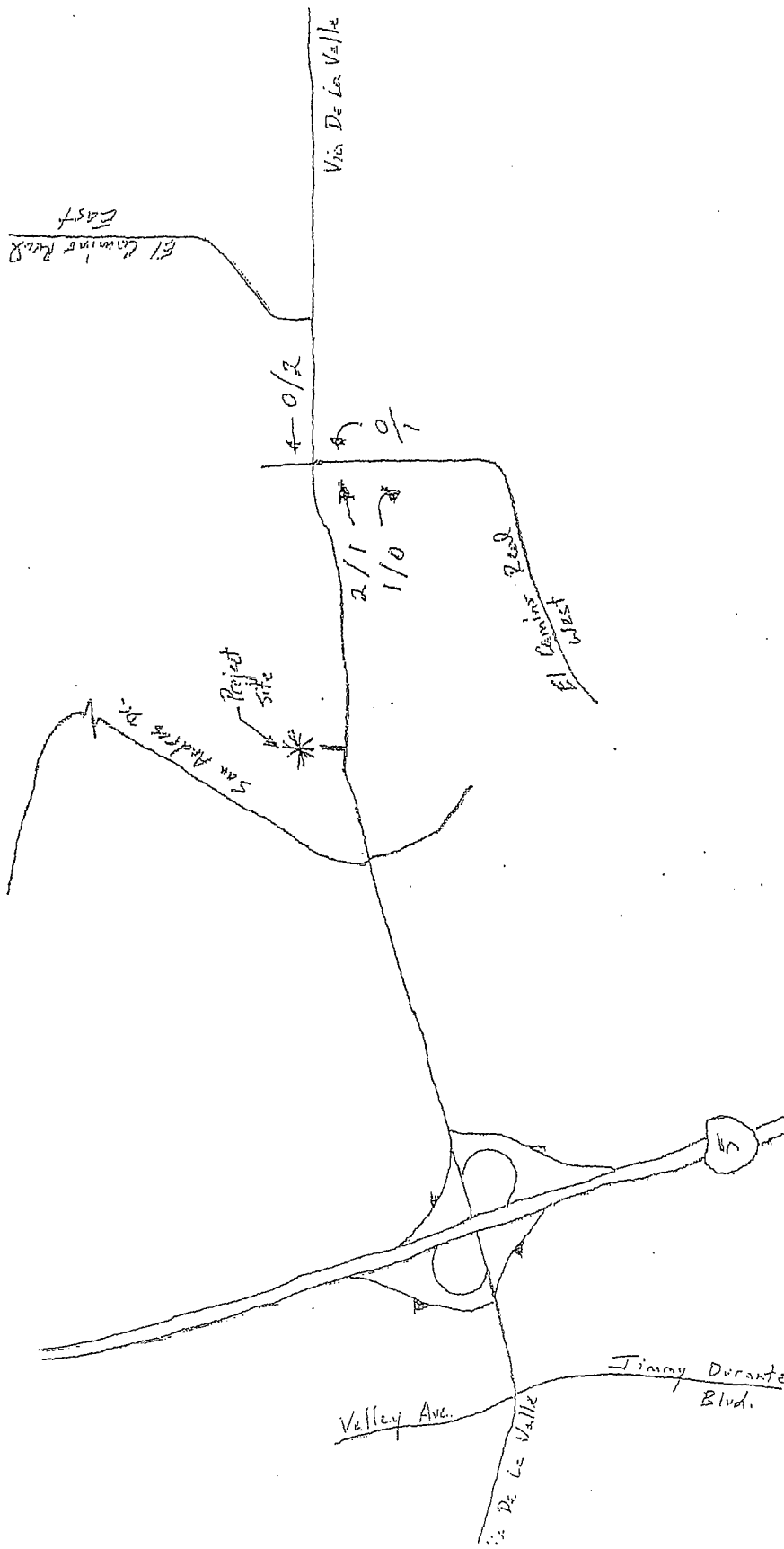
DU = Dwelling Unit



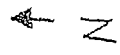
Trip Distribution Percentages
Via De La Valle Townhomes



Average Daily Traffic Volumes Via De La Valle Townhomes



AM/PM Peak Hour Traffic Volumes
Via De La Valle Townhomes



APPENDIX G

NEAR TERM WITHOUT PROJECT SYNCHRO WORKSHEETS

HCM Signalized Intersection Capacity Analysis
1: Via De La Valle & El Camino Real

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	2	378	370	302	507	8	390	5	150	1	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.98	
Satd. Flow (prot)	1770	1863	1583	1770	1858			1775	1583		1750	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.98	
Satd. Flow (perm)	1770	1863	1583	1770	1858			1775	1583		1750	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2	420	411	336	563	9	433	6	167	1	1	1
RTOR Reduction (vph)	0	0	224	0	0	0	0	0	119	0	1	0
Lane Group Flow (vph)	2	420	187	336	572	0	0	439	48	0	2	0
Turn Type	Prot		Prot	Prot			Split		Prot	Split		
Protected Phases	7	4	4	3	8		2	2	2	6	6	
Permitted Phases												
Actuated Green, G (s)	0.8	25.7	25.7	19.1	44.0			25.1	25.1		1.1	
Effective Green, g (s)	0.8	25.7	25.7	19.1	44.0			25.1	25.1		1.1	
Actuated g/C Ratio	0.01	0.30	0.30	0.22	0.51			0.29	0.29		0.01	
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)	16	550	468	389	940			512	457		22	
v/s Ratio Prot	0.00	c0.23	0.12	c0.19	0.31			c0.25	0.03		c0.00	
v/s Ratio Perm												
v/c Ratio	0.12	0.76	0.40	0.86	0.61			0.86	0.11		0.09	
Uniform Delay, d1	42.8	27.9	24.5	32.7	15.3			29.3	22.7		42.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	3.5	6.2	0.6	17.7	1.1			13.3	0.1		1.8	
Delay (s)	46.3	34.1	25.0	50.4	16.5			42.6	22.8		44.3	
Level of Service	D	C	C	D	B			D	C		D	
Approach Delay (s)		29.7			29.0			37.1			44.3	
Approach LOS		C			C			D			D	

Intersection Summary												
HCM Average Control Delay		31.4		HCM Level of Service		C						
HCM Volume to Capacity ratio		0.81										
Actuated Cycle Length (s)		87.0		Sum of lost time (s)		16.0						
Intersection Capacity Utilization		75.2%		ICU Level of Service		D						
Analysis Period (min)		15										
c Critical Lane Group												

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

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

Movement	WBL	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↰	↑	↱	↰	↑
Volume (vph)	398	308	0	195	283	289	416
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
Frt	1.00	0.85		1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583		1863	1583	1770	3539
Flt Permitted	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583		1863	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	442	342	0	217	314	321	462
RTOR Reduction (vph)	0	257	0	0	240	0	0
Lane Group Flow (vph)	442	85	0	217	74	321	462
Turn Type		Perm		Prot	Perm	Prot	
Protected Phases		1		3	8	7	
Permitted Phases							
Actuated Green, G (s)	12.6	12.6		11.9	11.9	14.2	12.6
Effective Green, g (s)	12.6	12.6		11.9	11.9	14.2	12.6
Actuated g/C Ratio	0.25	0.25		0.23	0.23	0.28	0.25
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	853	393		437	372	496	880
v/s Ratio Prot	0.13			c0.12		c0.18	
v/s Ratio Perm		0.05			0.05		c0.13
v/c Ratio	0.52	0.22		0.50	0.20	0.65	0.52
Uniform Delay, d1	16.4	15.1		16.8	15.6	16.0	16.5
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.3		0.9	0.3	2.9	0.6
Delay (s)	17.0	15.4		17.7	15.8	18.9	17.0
Level of Service	B	B		B	B	B	B
Approach Delay (s)	16.3			16.6			17.8
Approach LOS	B			B			B

Intersection Summary												
HCM Average Control Delay		16.9		HCM Level of Service		B						
HCM Volume to Capacity ratio		0.56										
Actuated Cycle Length (s)		50.7		Sum of lost time (s)		12.0						
Intersection Capacity Utilization		47.6%		ICU Level of Service		A						
Analysis Period (min)		15										
c Critical Lane Group												

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

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

Movement	WBL	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	←	→	←	↑	→	←	↑
Volume (vph)	87	7	0	456	52	3	823
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
Frt	0.99			0.98		1.00	1.00
Flt Protected	0.96			1.00		0.95	1.00
Satd. Flow (prot)	3415			3485		1770	3539
Flt Permitted	0.96			1.00		0.95	1.00
Satd. Flow (perm)	3415			3485		1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	97	8	0	507	58	3	914
RTOR Reduction (vph)	7	0	0	14	0	0	0
Lane Group Flow (vph)	98	0	0	551	0	3	914
Turn Type			Prot			Prot	
Protected Phases	8		5	2		1	6
Permitted Phases							
Actuated Green, G (s)	3.2			14.7		0.5	19.2
Effective Green, g (s)	3.2			14.7		0.5	19.2
Actuated g/C Ratio	0.11			0.48		0.02	0.63
Clearance Time (s)	4.0			4.0		4.0	4.0
Vehicle Extension (s)	3.0			3.0		3.0	3.0
Lane Grp Cap (vph)	359			1685		29	2235
v/s Ratio Prot	c0.03			0.16		0.00	c0.26
v/s Ratio Perm							
v/c Ratio	0.27			0.33		0.10	0.41
Uniform Delay, d1	12.5			4.8		14.7	2.8
Progression Factor	1.00			1.00		1.00	1.00
Incremental Delay, d2	0.4			0.1		1.6	0.1
Delay (s)	12.9			4.9		16.3	2.9
Level of Service	B			A		B	A
Approach Delay (s)	12.9			4.9		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	0.39		
Actuated Cycle Length (s)	30.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	32.7%	ICU Level of Service	A
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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	↑	→	←	↑	→	←	↑	→	←	↑	→
Volume (vph)	24	114	20	56	84	153	6	309	13	165	668	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	
Frt	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	1821		1770	1682		1770	3518		1770	3466	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1821		1770	1682		1770	3518		1770	3466	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	27	127	22	62	93	170	7	343	14	183	742	119
RTOR Reduction (vph)	0	11	0	0	113	0	0	5	0	0	19	0
Lane Group Flow (vph)	27	138	0	62	150	0	7	352	0	183	842	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	0.7	10.7		2.3	12.3		0.7	13.9		6.4	19.6	
Effective Green, g (s)	0.7	10.7		2.3	12.3		0.7	13.9		6.4	19.6	
Actuated g/C Ratio	0.01	0.22		0.05	0.25		0.01	0.28		0.13	0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	25	395		83	420		25	992		230	1378	
v/s Ratio Prot	0.02	0.08		c0.04	c0.09		0.00	0.10		c0.10	c0.24	
v/s Ratio Perm												
v/c Ratio	1.08	0.35		0.75	0.36		0.28	0.35		0.80	0.61	
Uniform Delay, d1	24.3	16.4		23.2	15.2		24.1	14.1		20.8	11.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	205.9	0.5		30.2	0.5		6.0	0.2		17.1	0.8	
Delay (s)	230.2	16.9		53.4	15.8		30.1	14.3		37.9	12.6	
Level of Service	F	B		D	B		C	B		D	B	
Approach Delay (s)		49.6			22.9			14.6			17.1	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM Average Control Delay	20.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	49.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	55.7%	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
5: Quarter Mile Road & El Camino Real

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑	↗	↖	↑	↗
Volume (vph)	5	85	72	87	141	37	41	327	54	42	750	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	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Flt	1.00	1.00	0.85	1.00	0.97		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	1863	1583	1770	1805		1770	3464		1770	3534	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1805		1770	3464		1770	3534	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	94	80	97	157	41	46	363	60	47	833	8
RTOR Reduction (vph)	0	0	65	0	17	0	0	20	0	0	1	0
Lane Group Flow (vph)	6	94	15	97	181	0	46	403	0	47	840	0
Turn Type	Prot		Prot	Prot			Prot			Prot		
Protected Phases	7	4		4	3	8		5	2		1	6
Permitted Phases												
Actuated Green, G (s)	0.6	8.7	8.7	3.5	11.6		1.3	17.8		1.3	17.8	
Effective Green, g (s)	0.6	8.7	8.7	3.5	11.6		1.3	17.8		1.3	17.8	
Actuated g/C Ratio	0.01	0.18	0.18	0.07	0.25		0.03	0.38		0.03	0.38	
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	343	291	131	443		49	1304		49	1330	
v/s Ratio Prot	0.00	0.05	0.01	0.05	0.10		0.03	0.12		0.03	0.24	
v/s Ratio Perm												
v/c Ratio	0.27	0.27	0.05	0.74	0.41		0.94	0.31		0.96	0.63	
Uniform Delay, d1	23.1	16.6	15.9	21.5	15.0		23.0	10.4		23.0	12.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.6	0.4	0.1	20.0	0.6		104.4	0.1		111.9	1.0	
Delay (s)	29.8	17.0	16.0	41.4	15.6		127.4	10.5		134.9	13.1	
Level of Service	C	B	B	D	B		F	B		F	B	
Approach Delay (s)		17.0			24.1			22.0			19.5	
Approach LOS		B			C			C			B	

Intersection Summary												
HCM Average Control Delay		20.6		HCM Level of Service		C						
HCM Volume to Capacity ratio		0.60										
Actuated Cycle Length (s)		47.3		Sum of lost time (s)		16.0						
Intersection Capacity Utilization		45.8%		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
6: Del Mar Heights Road & Mango Drive

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑	↗	↖	↑	↗
Volume (vph)	96	855	24	84	876	197	70	58	60	433	23	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.95		1.00	1.00		0.95	0.95	
Flt	1.00	1.00		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	5064		1770	3442		1813	1583		1681	1637	
Flt Permitted	0.95	1.00		0.95	1.00		0.97	1.00		0.95	0.97	
Satd. Flow (perm)	1770	5064		1770	3442		1813	1583		1681	1637	
Peak-hour 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)	107	950	27	93	973	219	78	64	67	481	26	93
RTOR Reduction (vph)	0	3	0	0	20	0	0	0	58	0	18	0
Lane Group Flow (vph)	107	974	0	93	1172	0	0	142	9	303	279	0
Turn Type	Prot			Prot			Split			Prot	Split	
Protected Phases	7	4		3	8		2	2		2	6	6
Permitted Phases												
Actuated Green, G (s)	6.7	31.1		7.5	31.9			11.8	11.8	17.4	17.4	
Effective Green, g (s)	6.7	31.1		7.5	31.9			11.8	11.8	17.4	17.4	
Actuated g/C Ratio	0.08	0.37		0.09	0.38			0.14	0.14	0.21	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)	142	1879		158	1310			255	223	349	340	
v/s Ratio Prot	0.06	0.19		0.05	0.34			0.08	0.01	0.18	0.17	
v/s Ratio Perm												
v/c Ratio	0.75	0.52		0.59	0.89			0.56	0.04	0.87	0.82	
Uniform Delay, d1	37.7	20.5		36.7	24.4			33.6	31.1	32.1	31.7	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	20.0	0.2		5.5	8.2			2.6	0.1	19.8	14.3	
Delay (s)	57.8	20.8		42.2	32.5			36.2	31.2	51.9	46.0	
Level of Service	E	C		D	C			D	C	D	D	
Approach Delay (s)		24.4			33.2			34.6			48.9	
Approach LOS		C			C			C			D	

Intersection Summary												
HCM Average Control Delay		33.3		HCM Level of Service		C						
HCM Volume to Capacity ratio		0.77										
Actuated Cycle Length (s)		83.8		Sum of lost time (s)		12.0						
Intersection Capacity Utilization		67.6%		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
7: Del Mar Heights Road & Portofino Drive

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑		↑
Volume (veh/h)	1361	55	0	1367	0	110
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)	1512	61	0	1519	0	122
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			0.87		0.91	0.87
vC, conflicting volume			1573		2302	535
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1141		1387	0
IC, single (s)			4.1		6.8	6.9
IC, 2 stage (s)						
IF (s)			2.2		3.5	3.3
p0 queue free %			100		100	87
cM capacity (veh/h)			530		122	945
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	605	605	364	759	759	122
Volume Left	0	0	0	0	0	0
Volume Right	0	0	61	0	0	122
cSH	1700	1700	1700	1700	1700	945
Volume to Capacity	0.36	0.36	0.21	0.45	0.45	0.13
Queue Length 95th (ft)	0	0	0	0	0	11
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.4
Lane LOS						A
Approach Delay (s)	0.0			0.0		9.4
Approach LOS						A
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			41.1%		ICU Level of Service	A
Analysis Period (min)			15			

Baseline

Synchro 7 - Report
Page 7

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

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

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	↑
Volume (vph)	0	685	1022	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	761	1136	0	1030	373
RTOR Reduction (vph)	0	0	0	0	3	43
Lane Group Flow (vph)	0	761	1136	0	1064	293
Turn Type						Perm
Protected Phases		2.6	6.2		4	
Permitted Phases						4
Actuated Green, G (s)		42.2	42.2		25.6	25.6
Effective Green, g (s)		42.2	42.2		25.6	25.6
Actuated g/C Ratio		0.53	0.53		0.32	0.32
Clearance Time (s)					5.6	5.6
Vehicle Extension (s)					3.0	3.0
Lane Grp Cap (vph)		1874	1874		1101	463
v/s Ratio Prot		0.22	0.32		0.31	
v/s Ratio Perm						0.20
v/c Ratio		0.41	0.61		0.97	0.63
Uniform Delay, d1		11.2	13.0		26.6	23.1
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.1	0.6		19.3	2.8
Delay (s)		11.4	13.6		45.9	25.9
Level of Service		B	B		D	C
Approach Delay (s)		11.4	13.6		41.1	
Approach LOS		B	B		D	
Intersection Summary						
HCM Average Control Delay			24.8		HCM Level of Service	C
HCM Volume to Capacity ratio			0.74			
Actuated Cycle Length (s)			79.7		Sum of lost time (s)	11.9
Intersection Capacity Utilization			114.8%		ICU Level of Service	H
Analysis Period (min)			15			
c - Critical Lane Group						

Baseline

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	231	1302	0	0	1468	919	384	59	914	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
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	1447	0	0	1631	1021	427	66	1016	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	440	0	14	14	0	0	0
Lane Group Flow (vph)	257	1447	0	0	1631	581	384	552	545	0	0	0
Turn Type	Prot				Prot	Split		Prot				
Protected Phases	5	2			6	6	8	8	8			
Permitted Phases												
Actuated Green, G (s)	10.4	63.4			49.0	49.0	48.6	48.6	48.6			
Effective Green, g (s)	10.4	63.4			49.0	49.0	48.6	48.6	48.6			
Actuated g/C Ratio	0.09	0.53			0.41	0.41	0.40	0.40	0.40			
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)	298	1870			2076	646	681	601	609			
v/s Ratio Prot	0.07	c0.41			0.32	c0.37	0.23	c0.37	0.36			
v/s Ratio Perm												
v/c Ratio	0.86	0.77			0.79	0.90	0.56	0.92	0.89			
Uniform Delay, d1	54.1	22.6			30.9	33.2	27.5	33.8	33.3			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	21.7	3.2			3.1	17.8	1.1	19.0	15.5			
Delay (s)	75.8	25.8			34.0	51.0	28.6	52.8	48.9			
Level of Service	E	C			C	D	C	D	D			
Approach Delay (s)		33.3					45.2			0.0		
Approach LOS		C				D	D			A		

Intersection Summary			
HCM Average Control Delay	39.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	95.0%	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
10: Del Mar Heights Road & High Bluff Drive

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	111	1401	694	95	1864	61	201	10	13	81	59	312
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
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	1557	771	106	2071	68	223	11	14	90	66	347
RTOR Reduction (vph)	0	0	372	0	4	0	0	12	0	0	0	136
Lane Group Flow (vph)	123	1557	399	106	2135	0	223	13	0	90	66	211
Turn Type	Prot		Prot	Prot			Prot			Prot		Prot
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		7.1	11.8		12.7	17.4	17.4
Effective Green, g (s)	8.0	41.3	41.3	6.7	40.0		7.1	11.8		12.7	17.4	17.4
Actuated g/C Ratio	0.09	0.47	0.47	0.08	0.45		0.08	0.13		0.14	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	2373	739	134	2287		275	432		254	366	311
v/s Ratio Prot	c0.07	0.31	0.25	0.06	c0.42		c0.06	0.00		0.05	0.04	c0.13
v/s Ratio Perm												
v/c Ratio	0.77	0.66	0.54	0.79	0.93		0.81	0.03		0.35	0.18	0.68
Uniform Delay, d1	39.3	18.1	16.8	40.2	23.0		40.0	33.4		34.2	29.6	33.0
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	19.6	0.7	0.8	26.4	7.8		16.4	0.0		0.9	0.2	5.8
Delay (s)	59.0	18.8	17.6	66.6	30.8		56.4	33.4		35.1	29.8	38.8
Level of Service	E	B	B	E	C		E	C		D	C	D
Approach Delay (s)		20.4		32.5				54.1			36.9	
Approach LOS		C		C				D			D	

Intersection Summary			
HCM Average Control Delay	28.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	88.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	72.4%	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
11: Del Mar Heights Road & Project Access

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

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↑↑↑		↑
Volume (vph)	100	5	0	100	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0
Lane Util. Factor	0.91	1.00		0.91		1.00
Flt	1.00	0.85		1.00		0.85
Flt Protected	1.00	1.00		1.00		1.00
Satd. Flow (prot)	5085	1583		5085		1611
Flt Permitted	1.00	1.00		1.00		1.00
Satd. Flow (perm)	5085	1583		5085		1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	5	0	109	0	5
RTOR Reduction (vph)	0	3	0	0	0	3
Lane Group Flow (vph)	109	2	0	109	0	2
Turn Type	Perm		custom			
Protected Phases	4		8			
Permitted Phases	4		2			
Actuated Green, G (s)	16.0	16.0	16.0		16.0	
Effective Green, g (s)	16.0	16.0	16.0		16.0	
Actuated g/C Ratio	0.40	0.40	0.40		0.40	
Clearance Time (s)	4.0	4.0	4.0		4.0	
Lane Grp Cap (vph)	2034	633	2034		644	
v/s Ratio Prot	c0.02		0.02			
v/s Ratio Perm	0.00				c0.00	
v/c Ratio	0.05	0.00	0.05		0.00	
Uniform Delay, d1	7.4	7.2	7.4		7.2	
Progression Factor	1.00	1.00	0.80		1.00	
Incremental Delay, d2	0.1	0.0	0.1		0.0	
Delay (s)	7.4	7.2	6.0		7.2	
Level of Service	A	A	A		A	
Approach Delay (s)	7.4		6.0		7.2	
Approach LOS	A		A		A	
Intersection Summary						
HCM Average Control Delay	6.7		HCM Level of Service		A	
HCM Volume to Capacity ratio	0.03					
Actuated Cycle Length (s)	40.0		Sum of lost time (s)		8.0	
Intersection Capacity Utilization	13.3%		ICU Level of Service		A	
Analysis Period (min)	15					
c Critical Lane Group						

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
12: Del Mar Heights Road & Project Access

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

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↑↑↑		↑
Volume (vph)	100	5	0	100	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0
Lane Util. Factor	0.91	1.00		0.91		1.00
Frt	1.00	0.85		1.00		0.85
Flt Protected	1.00	1.00		1.00		1.00
Satd. Flow (prot)	5085	1583		5085		1611
Flt Permitted	1.00	1.00		1.00		1.00
Satd. Flow (perm)	5085	1583		5085		1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	5	0	109	0	5
RTOR Reduction (vph)	0	3	0	0	0	3
Lane Group Flow (vph)	109	2	0	109	0	2
Turn Type	Perm		custom			
Protected Phases	4		8			
Permitted Phases	4		2			
Actuated Green, G (s)	16.0	16.0	16.0		16.0	
Effective Green, g (s)	16.0	16.0	16.0		16.0	
Actuated g/C Ratio	0.40	0.40	0.40		0.40	
Clearance Time (s)	4.0	4.0	4.0		4.0	
Lane Grp Cap (vph)	2034	633	2034		644	
v/s Ratio Prot	c0.02		0.02			
v/s Ratio Perm	0.00		c0.00			
v/c Ratio	0.05	0.00	0.05		0.00	
Uniform Delay, d1	7.4	7.2	7.4		7.2	
Progression Factor	0.81	0.76	1.00		1.00	
Incremental Delay, d2	0.1	0.0	0.1		0.0	
Delay (s)	6.0	5.5	7.4		7.2	
Level of Service	A	A	A		A	
Approach Delay (s)	6.0		7.4		7.2	
Approach LOS	A		A		A	
Intersection Summary						
HCM Average Control Delay	6.7		HCM Level of Service		A	
HCM Volume to Capacity ratio	0.03					
Actuated Cycle Length (s)	40.0		Sum of lost time (s)		8.0	
Intersection Capacity Utilization	13.3%		ICU Level of Service		A	
Analysis Period (min)	15					
c Critical Lane Group						

Baseline

Synchro 7 - Report
Page 12

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔	↔	↔	↔	
Volume (vph)	220	893	388	206	1380	95	233	104	79	164	312	417
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	4854		3433	5036		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	4854		3433	5036		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)	244	992	431	229	1533	106	259	116	88	182	347	463
RTOR Reduction (vph)	0	95	0	0	9	0	0	0	72	0	149	0
Lane Group Flow (vph)	244	1328	0	229	1630	0	259	116	16	182	661	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	25.7		7.8	26.5		7.2	14.0	14.0	11.7	18.5	
Effective Green, g (s)	7.0	25.7		7.8	26.5		7.2	14.0	14.0	11.7	18.5	
Actuated g/C Ratio	0.09	0.34		0.10	0.35		0.10	0.19	0.19	0.16	0.25	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	320	1659		356	1775		329	947	295	534	1144	
v/s Ratio Prot	c0.07	0.27		0.07	c0.32		c0.08	0.02	0.01	0.05	c0.14	
v/s Ratio Perm												
v/c Ratio	0.76	0.80		0.64	0.92		0.79	0.12	0.06	0.34	0.88dr	
Uniform Delay, d1	33.3	22.4		32.4	23.3		33.3	25.5	25.2	28.3	24.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	10.3	2.9		4.0	8.0		11.8	0.1	0.1	0.4	0.7	
Delay (s)	43.6	25.3		36.3	31.3		45.0	25.5	25.2	28.7	25.6	
Level of Service	D	C		D	C		D	C	C	C	C	
Approach Delay (s)		28.0			31.9			36.4			26.2	
Approach LOS		C			C			D			C	

Intersection Summary

HCM Average Control Delay	29.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	75.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.4%	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
14: Del Mar Heights Road & Carmel Country Road

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔	↔	↔	↔	
Volume (vph)	142	609	275	280	1141	174	346	188	111	146	185	117
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	0.98		1.00	0.94	1.00	0.94	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	4848		3433	4985		3433	4803	1770	3334	3334	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	4848		3433	4985		3433	4803	1770	3334	3334	
Peak-hour 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)	158	677	306	311	1268	193	384	209	123	162	206	130
RTOR Reduction (vph)	0	120	0	0	29	0	0	101	0	0	109	0
Lane Group Flow (vph)	158	863	0	311	1432	0	384	231	0	162	227	0
Turn Type	Prot			Prot			Prot		Prot	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	3.6	17.0		7.0	20.4		8.3	10.4		7.0	9.1	
Effective Green, g (s)	3.6	17.0		7.0	20.4		8.3	10.4		7.0	9.1	
Actuated g/C Ratio	0.06	0.30		0.12	0.36		0.14	0.18		0.12	0.16	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	215	1436		419	1772		496	870		216	529	
v/s Ratio Prot	0.05	0.18		c0.09	c0.29		c0.11	0.05		0.09	c0.07	
v/s Ratio Perm												
v/c Ratio	0.73	0.60		0.74	0.81		0.77	0.27		0.75	0.43	
Uniform Delay, d1	26.4	17.3		24.3	16.7		23.6	20.2		24.4	21.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	12.2	0.7		7.0	2.8		7.4	0.2		13.6	0.6	
Delay (s)	38.7	18.0		31.3	19.5		31.0	20.4		38.0	22.4	
Level of Service	D	B		C	B		C	C		D	C	
Approach Delay (s)		20.9			21.6			26.1			27.4	
Approach LOS		C			C			C			C	

Intersection Summary

HCM Average Control Delay	22.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	57.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	62.0%	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
15: Del Mar Heights Road & Torrey Ridge Drive

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↱	↱	↰	↰↱	↱	↰	↰	↱	↰	↰	↱
Volume (vph)	212	638	115	81	1023	216	79	156	11	56	62	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.97		1.00	0.99		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	4969		1770	4952		1770	1845		1770	1674	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	4969		1770	4952		1770	1845		1770	1674	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	236	709	128	90	1137	240	88	173	12	62	69	143
RTOR Reduction (vph)	0	30	0	0	41	0	0	3	0	0	109	0
Lane Group Flow (vph)	236	807	0	90	1336	0	88	182	0	62	103	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	12.1	28.6		6.5	23.0		4.5	13.0		2.7	11.2	
Effective Green, g (s)	12.1	28.6		6.5	23.0		4.5	13.0		2.7	11.2	
Actuated g/C Ratio	0.18	0.43		0.10	0.34		0.07	0.19		0.04	0.17	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	321	2127		172	1705		119	359		72	281	
v/s Ratio Prot	c0.13	0.16		0.05	c0.27		c0.05	c0.10		0.04	0.06	
v/s Ratio Perm												
v/c Ratio	0.74	0.38		0.52	0.78		0.74	0.51		0.86	0.37	
Uniform Delay, d1	25.8	13.0		28.7	19.7		30.6	24.0		31.9	24.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.5	0.1		2.9	2.4		21.2	1.1		60.9	0.8	
Delay (s)	34.3	13.2		31.5	22.1		51.7	25.2		92.8	25.5	
Level of Service	C	B		C	C		D	C		F	C	
Approach Delay (s)		17.8			22.7			33.7			40.7	
Approach LOS		B			C			C			D	

Intersection Summary:					
HCM Average Control Delay	23.6		HCM Level of Service	C	
HCM Volume to Capacity ratio	0.67				
Actuated Cycle Length (s)	66.8		Sum of lost time (s)	12.0	
Intersection Capacity Utilization	65.2%		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
16: Del Mar Heights Road & Lansdale Drive

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↱	↱	↰	↰↱	↱	↰	↰	↱	↰	↰	↱
Volume (vph)	149	562	35	67	1100	36	44	26	55	49	60	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.90		1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5040		1770	5061		1770	1673		1770	1627	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5040		1770	5061		1770	1673		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)	166	624	39	74	1222	40	49	29	61	54	67	361
RTOR Reduction (vph)	0	9	0	0	5	0	0	50	0	0	270	0
Lane Group Flow (vph)	166	654	0	74	1257	0	49	40	0	54	158	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	8.1	24.6		3.7	20.2		2.4	10.2		2.4	10.2	
Effective Green, g (s)	8.1	24.6		3.7	20.2		2.4	10.2		2.4	10.2	
Actuated g/C Ratio	0.14	0.43		0.07	0.36		0.04	0.18		0.04	0.18	
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)	252	2179		115	1797		75	300		75	292	
v/s Ratio Prot	c0.09	0.13		0.04	c0.25		0.03	0.02		c0.03	c0.10	
v/s Ratio Perm												
v/c Ratio	0.66	0.30		0.64	0.70		0.65	0.13		0.72	0.54	
Uniform Delay, d1	23.1	10.5		26.0	15.7		26.8	19.6		26.9	21.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.1	0.1		11.7	1.2		18.6	0.2		28.6	2.0	
Delay (s)	29.2	10.6		37.6	17.0		45.4	19.8		55.5	23.3	
Level of Service	C	B		D	B		D	B		E	C	
Approach Delay (s)		14.3			18.1			28.9			26.9	
Approach LOS		B			B			C			C	

Intersection Summary:					
HCM Average Control Delay	19.0		HCM Level of Service	B	
HCM Volume to Capacity ratio	0.65				
Actuated Cycle Length (s)	56.9		Sum of lost time (s)	16.0	
Intersection Capacity Utilization	70.2%		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
17: Del Mar Heights Road & Carmel Canyon Road

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↑	↑↑↑	↑↑	↑
Volume (vph)	559	123	397	996	256	342
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)	621	137	441	1107	284	380
RTOR Reduction (vph)	53	0	0	0	0	306
Lane Group Flow (vph)	705	0	441	1107	284	74
Turn Type			Prot		Prot	
Protected Phases	4		3	8	2	2
Permitted Phases						
Actuated Green, G (s)	14.2		17.5	35.7	10.6	10.6
Effective Green, g (s)	14.2		17.5	35.7	10.6	10.6
Actuated g/C Ratio	0.26		0.32	0.66	0.20	0.20
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1294		570	3343	670	309
v/s Ratio Prot	c0.14		c0.25	0.22	c0.08	0.05
v/s Ratio Perm						
v/c Ratio	0.54		0.77	0.33	0.42	0.24
Uniform Delay, d1	17.3		16.6	4.1	19.2	18.4
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5		6.5	0.1	0.4	0.4
Delay (s)	17.7		23.1	4.1	19.6	18.9
Level of Service	B		C	A	B	B
Approach Delay (s)	17.7			9.5	19.2	
Approach LOS	B			A	B	
Intersection Summary						
HCM Average Control Delay		13.8		HCM Level of Service		B
HCM Volume to Capacity ratio		0.61				
Actuated Cycle Length (s)		54.3		Sum of lost time (s)		12.0
Intersection Capacity Utilization		52.8%		ICU Level of Service		A
Analysis Period (min)		15				
c Critical Lane Group						

Baseline

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

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

Movement	WBL	WBR	WBR2	SEL	SER	NEU	NEL	NET	NER	SWL	SWT	LSWR
Lane Configurations	↑		↑			↑		↑↑↑		↑↑	↑↑↑	
Volume (vph)	97	0	110	0	0	0	0	325	101	165	815	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	
Lane Util. Factor	1.00		1.00					0.91		0.97	0.91	
Frt	1.00		0.85					0.96		1.00	1.00	
Flt Protected	0.95		1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1770		1583					4905		3433	5085	
Flt Permitted	0.95		1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1770		1583					4905		3433	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)	108	0	122	0	0	0	0	361	112	183	906	0
RTOR Reduction (vph)	0	0	100	0	0	0	0	75	0	0	0	0
Lane Group Flow (vph)	108	0	22	0	0	0	0	398	0	183	906	0
Turn Type			Perm					Prot		Prot		
Protected Phases	6							3		8		
Permitted Phases			6							7		4
Actuated Green, G (s)	5.5		5.5					10.2		3.5	17.7	
Effective Green, g (s)	5.5		5.5					10.2		3.5	17.7	
Actuated g/C Ratio	0.18		0.18					0.33		0.11	0.57	
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)	312		279					1604		385	2885	
v/s Ratio Prot	c0.06							0.08		c0.05	c0.18	
v/s Ratio Perm			0.01									
v/c Ratio	0.35		0.08					0.25		0.48	0.31	
Uniform Delay, d1	11.3		10.7					7.7		13.0	3.6	
Progression Factor	1.00		1.00					1.00		1.00	1.00	
Incremental Delay, d2	0.7		0.1					0.1		0.9	0.1	
Delay (s)	11.9		10.8					7.8		13.9	3.6	
Level of Service	B		B					A		B	A	
Approach Delay (s)	11.4			0.0				7.8			5.3	
Approach LOS	B			A				A			A	
Intersection Summary												
HCM Average Control Delay		6.8		HCM Level of Service				A				
HCM Volume to Capacity ratio		0.33										
Actuated Cycle Length (s)		31.2		Sum of lost time (s)				8.0				
Intersection Capacity Utilization		34.5%		ICU Level of Service				A				
Analysis Period (min)		15										
c Critical Lane Group												

Baseline

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

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

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	←	→	↘	←	→	↘	←	→	↘	←	→	↘
Lane Configurations	↰	↱	↰	↰	↱	↰	↰	↱	↰	↰	↱	↰
Volume (vph)	155	85	116	46	195	153	114	375	7	103	446	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.93		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	1740		1770	3529		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	1740		1770	3529		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)	172	94	129	51	217	170	127	417	8	114	496	186
RTOR Reduction (vph)	0	0	79	0	36	0	0	2	0	0	0	145
Lane Group Flow (vph)	172	94	50	51	351	0	127	423	0	114	496	41
Turn Type	Prot		Prot	Prot			Prot			Prot		Prot
Protected Phases	7	4	4	3	8		5	2		1	6	6
Permitted Phases												
Actuated Green, G (s)	11.6	26.2	26.2	3.5	18.1		7.1	16.1		6.1	15.1	15.1
Effective Green, g (s)	11.6	26.2	26.2	3.5	18.1		7.1	16.1		6.1	15.1	15.1
Actuated g/C Ratio	0.17	0.39	0.39	0.05	0.27		0.10	0.24		0.09	0.22	0.22
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	302	719	611	91	464		185	837		159	787	352
v/s Ratio Prot	c0.10	0.05	0.03	0.03	c0.20		c0.07	0.12		0.06	c0.14	0.03
v/s Ratio Perm												
v/c Ratio	0.57	0.13	0.08	0.56	0.76		0.69	0.51		0.72	0.63	0.12
Uniform Delay, d1	25.9	13.5	13.2	31.4	22.9		29.3	22.5		30.1	23.9	21.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.5	0.1	0.1	7.7	6.9		10.1	0.5		14.3	1.7	0.1
Delay (s)	28.3	13.6	13.3	39.1	29.8		39.4	22.9		44.3	25.5	21.2
Level of Service	C	B	B	D	C		D	C		D	C	C
Approach Delay (s)		19.9			30.9			26.7			27.2	
Approach LOS		B			C			C			C	

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

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

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

	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Movement	↰	↱	↰	↰	↱	↰	↰	↱	↰	↰	↱	↰
Lane Configurations	↰	↱	↰	↰	↱	↰	↰	↱	↰	↰	↱	↰
Volume (vph)	63	70	6	233	52	107	104	211	54	144	539	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.97		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1840		1770	1863	1583	1770	4930		1770	4885	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1840		1770	1863	1583	1770	4930		1770	4885	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	70	78	7	259	58	119	116	234	60	160	599	214
RTOR Reduction (vph)	0	5	0	0	0	88	0	45	0	0	86	0
Lane Group Flow (vph)	70	80	0	259	58	31	116	249	0	160	727	0
Turn Type	Prot			Prot		Prot	Prot			Prot		
Protected Phases	1	6		5	2	2	7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	3.8	7.1		11.7	15.0	15.0	5.4	14.5		8.2	17.3	
Effective Green, g (s)	3.8	7.1		11.7	15.0	15.0	5.4	14.5		8.2	17.3	
Actuated g/C Ratio	0.07	0.12		0.20	0.26	0.26	0.09	0.25		0.14	0.30	
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)	117	227		360	486	413	166	1243		252	1470	
v/s Ratio Prot	0.04	c0.04		c0.15	0.03	0.02	0.07	0.05		c0.09	c0.15	
v/s Ratio Perm												
v/c Ratio	0.60	0.35		0.72	0.12	0.08	0.70	0.20		0.63	0.49	
Uniform Delay, d1	26.1	23.1		21.4	16.2	16.0	25.3	16.9		23.2	16.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.0	0.9		6.7	0.1	0.1	12.1	0.1		5.2	0.3	
Delay (s)	34.1	24.0		28.1	16.3	16.1	37.4	17.0		28.4	16.8	
Level of Service	C	C		C	B	B	D	B		C	B	
Approach Delay (s)		28.6			23.3			22.8			18.7	
Approach LOS		C			C			C			B	

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

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	287	122	127	62	300	30	277	383	29	68	404	393
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85		0.99		1.00	0.99		1.00	0.93	
Flt Protected	0.95	1.00	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583		1829		1770	3502		1770	3277	
Flt Permitted	0.95	1.00	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583		1829		1770	3502		1770	3277	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	319	136	141	69	333	33	308	426	32	76	449	437
RTOR Reduction (vph)	0	0	114	0	3	0	0	5	0	0	197	0
Lane Group Flow (vph)	319	136	27	0	432	0	308	453	0	76	689	0
Turn Type	Split		Prot	Split			Prot			Prot		
Protected Phases	4	4	4	8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	17.2	17.2	17.2		19.8		14.0	29.0		7.8	22.8	
Effective Green, g (s)	17.2	17.2	17.2		19.8		14.0	29.0		7.8	22.8	
Actuated g/C Ratio	0.19	0.19	0.19		0.22		0.16	0.32		0.09	0.25	
Clearance Time (s)	4.0	4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	339	357	303		403		276	1131		154	832	
v/s Ratio Prot	c0.18	0.07	0.02		c0.24		c0.17	0.13		0.04	c0.21	
v/s Ratio Perm												
v/c Ratio	0.94	0.38	0.09		1.07		1.12	0.40		0.49	0.83	
Uniform Delay, d1	35.8	31.7	29.9		35.0		37.9	23.6		39.1	31.6	
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	33.7	0.7	0.1		65.3		89.0	0.2		2.5	6.8	
Delay (s)	69.5	32.3	30.0		100.3		126.9	23.9		41.6	38.5	
Level of Service	E	C	C		F		F	C		D	D	
Approach Delay (s)		51.7			100.3			65.3			38.7	
Approach LOS		D			F			E			D	

Intersection Summary												
HCM Average Control Delay		58.6		HCM Level of Service		E						
HCM Volume to Capacity ratio		0.97										
Actuated Cycle Length (s)		89.8		Sum of lost time (s)		16.0						
Intersection Capacity Utilization		89.4%		ICU Level of Service		E						
Analysis Period (min)		15										
c Critical Lane Group												

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

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

Movement	EBL	EBR	EBR2	NWL2	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↰	↱	↱	↰	↰	↱	↰	↰	↱	↰	↱	↱
Volume (vph)	31	113	252	97	228	65	218	339	30	70	896	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	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97		0.97	0.91		1.00	0.91	
Frt	1.00	0.85	0.85	1.00	0.97		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1583	1583	1770	3363		3433	5024		1770	5002	
Flt Permitted	0.95	1.00	1.00	0.95	0.96		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1583	1583	1770	3363		3433	5024		1770	5002	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	34	126	280	108	253	72	242	377	33	78	996	122
RTOR Reduction (vph)	0	0	228	0	45	0	0	14	0	0	23	0
Lane Group Flow (vph)	34	126	52	108	280	0	242	396	0	78	1095	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)		9.6	9.6	5.8	5.8		5.0	19.0		4.0	18.0	
Effective Green, g (s)		9.6	9.6	5.8	5.8		5.0	19.0		4.0	18.0	
Actuated g/C Ratio		0.18	0.18	0.11	0.11		0.09	0.35		0.07	0.33	
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		312	279	279	189	359	316	1755		130	1655	
v/s Ratio Prot		0.02		0.06	c0.08		c0.07	0.08		0.04	c0.22	
v/s Ratio Perm			c0.08	0.03								
v/c Ratio		0.11	0.45	0.19	0.57	0.78	0.77	0.23		0.60	0.66	
Uniform Delay, d1		18.8	20.0	19.1	23.1	23.7	24.1	12.5		24.4	15.6	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2	1.2	0.3	4.1	10.5	10.6	0.1		7.6	1.0	
Delay (s)		19.0	21.2	19.4	27.2	34.2	34.7	12.6		32.0	16.6	
Level of Service		B	C	B	C	C	C	B		C	B	
Approach Delay (s)		19.9			32.5			20.8			17.6	
Approach LOS		B			C			C			B	

Intersection Summary												
HCM Average Control Delay		21.1		HCM Level of Service		C						
HCM Volume to Capacity ratio		0.64										
Actuated Cycle Length (s)		54.4		Sum of lost time (s)		16.0						
Intersection Capacity Utilization		51.2%		ICU Level of Service		A						
Analysis Period (min)		15										
c Critical Lane Group												

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

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕	↕		↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	45	6	67	13	27	14	108	31	2	3	16	180
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	50	7	74	14	30	16	120	34	2	3	18	200
Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1							
Volume Total (vph)	57	74	60	157	221							
Volume Left (vph)	50	0	14	120	3							
Volume Right (vph)	0	74	16	2	200							
Hadj (s)	0.48	-0.67	-0.07	0.18	-0.51							
Departure Headway (s)	5.9	4.8	5.0	4.8	4.1							
Degree Utilization, x	0.09	0.10	0.08	0.21	0.25							
Capacity (veh/h)	567	700	659	713	834							
Control Delay (s)	8.3	7.1	8.4	9.1	8.4							
Approach Delay (s)	7.6		8.4	9.1	8.4							
Approach LOS	A		A	A	A							
Intersection Summary												
Delay			8.4									
HCM Level of Service			A									
Intersection Capacity Utilization			39.5%			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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕	↕		↕	↕	↕	↕	↕
Volume (vph)	54	92	119	205	63	25	31	272	83	15	779	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.99		1.00	0.96		1.00	0.98	
Flt Protected		0.98	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1829	1583		1779		1770	3415		1770	3456	
Flt Permitted		0.98	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1829	1583		1779		1770	3415		1770	3456	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	60	102	132	228	70	28	34	302	92	17	866	160
RTOR Reduction (vph)	0	0	110	0	4	0	0	33	0	0	18	0
Lane Group Flow (vph)	0	162	22	0	322	0	34	361	0	17	1008	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4	4	8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		11.5	11.5		15.9		1.6	26.1		0.8	25.3	
Effective Green, g (s)		11.5	11.5		15.9		1.6	26.1		0.8	25.3	
Actuated g/C Ratio		0.16	0.16		0.23		0.02	0.37		0.01	0.36	
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		299	259		402		40	1268		20	1244	
v/s Ratio Prot		c0.09	0.01		c0.18		c0.02	0.11		0.01	c0.29	
v/s Ratio Perm												
v/c Ratio		0.54	0.08		0.80		0.85	0.28		0.85	0.81	
Uniform Delay, d1		27.0	24.9		25.7		34.2	15.5		34.7	20.3	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.0	0.1		10.9		85.5	0.1		131.5	4.1	
Delay (s)		29.0	25.1		36.6		119.7	15.7		166.2	24.4	
Level of Service		C	C		D		F	B		F	C	
Approach Delay (s)		27.2		36.6		23.9				26.7		
Approach LOS		C		D		C				C		
Intersection Summary												
HCM Average Control Delay		27.8				HCM Level of Service		C				
HCM Volume to Capacity ratio		0.75										
Actuated Cycle Length (s)		70.3				Sum of lost time (s)		16.0				
Intersection Capacity Utilization		59.7%				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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑					↑	↑↑	↑
Volume (vph)	0	306	181	405	638	0	0	0	0	1081	3	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.95		0.97	0.95					0.95	0.91	0.95
Frt		0.94		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3342		3433	3539					1681	1610	1504
Flt Permitted		1.00		0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3342		3433	3539					1681	1610	1504
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	340	201	450	709	0	0	0	0	1201	3	164
RTOR Reduction (vph)	0	118	0	0	0	0	0	0	0	0	1	69
Lane Group Flow (vph)	0	423	0	450	709	0	0	0	0	613	606	79
Turn Type				Prot						Split		Prot
Protected Phases		4		3	8					6	6	6
Permitted Phases												
Actuated Green, G (s)		13.6		11.7	29.3					30.9	30.9	30.9
Effective Green, g (s)		13.6		11.7	29.3					30.9	30.9	30.9
Actuated g/C Ratio		0.20		0.17	0.43					0.45	0.45	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)		666		589	1520					762	729	681
v/s Ratio Prot		c0.13		c0.13	0.20					0.36	c0.38	0.05
v/s Ratio Perm												
v/c Ratio		0.64		0.76	0.47					0.80	0.83	0.12
Uniform Delay, d1		25.0		26.9	13.9					16.1	16.4	10.8
Progression Factor		1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		2.0		5.9	0.2					6.2	8.0	0.1
Delay (s)		27.0		32.8	14.1					22.2	24.4	10.8
Level of Service		C		C	B					C	C	B
Approach Delay (s)		27.0			21.4		0.0				21.9	
Approach LOS		C			C		A				C	

Intersection Summary			
HCM Average Control Delay	22.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	68.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	114.6%	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
26: Carmel Valley Road & I-5 NB Ramps

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑	↑		↑↑	↑		↑↑	↑
Volume (vph)	63	1252	0	0	971	879	109	2	570	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	0.97	0.95			0.95	1.00	0.95	0.91	0.95			
Frt	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	1449	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	1449	1504			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	70	1391	0	0	1079	977	121	2	633	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	495	0	31	31	0	0	0
Lane Group Flow (vph)	70	1391	0	0	1079	482	109	293	292	0	0	0
Turn Type	Prot				Prot	Split						
Protected Phases	7	4			8	8	2	2	2			
Permitted Phases												
Actuated Green, G (s)	2.4	31.9			25.5	25.5	14.8	14.8	14.8			
Effective Green, g (s)	2.4	31.9			25.5	25.5	14.8	14.8	14.8			
Actuated g/C Ratio	0.04	0.58			0.47	0.47	0.27	0.27	0.27			
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)	151	2064			1650	738	455	392	407			
v/s Ratio Prot	0.02	c0.39			0.30	0.30	0.06	c0.20	0.19			
v/s Ratio Perm												
v/c Ratio	0.46	0.67			0.65	0.65	0.24	0.75	0.72			
Uniform Delay, d1	25.5	7.8			11.2	11.2	15.6	18.2	18.1			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	2.2	0.9			0.9	2.1	0.3	7.6	6.0			
Delay (s)	27.8	8.7			12.2	13.3	15.8	25.9	24.0			
Level of Service	C	A			B	B	B	C	C			
Approach Delay (s)		9.6			12.7			23.6			0.0	
Approach LOS		A			B			C			A	

Intersection Summary			
HCM Average Control Delay	13.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	54.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	114.6%	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
27: Valley Centre Drive & El Camino Real

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Volume (vph)	36	13	44	725	19	137	90	979	149	114	1100	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		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	
Frt	1.00	0.93	0.85	1.00	0.99	0.85	1.00	0.98		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	
Satd. Flow (prot)	1681	1563	1504	1681	1612	1504	1770	4984		1770	5066	
Flt Permitted	0.95	0.99	1.00	0.95	0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1681	1563	1504	1681	1612	1504	1770	4984		1770	5066	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	40	14	49	806	21	152	100	1088	166	127	1222	31
RTOR Reduction (vph)	0	16	30	0	1	94	0	20	0	0	3	0
Lane Group Flow (vph)	36	19	2	419	422	43	100	1234	0	127	1250	0
Turn Type	Split		Prot	Split		Prot	Prot			Prot		
Protected Phases	4	4	4	8	8	8	5	21		61		
Permitted Phases											6	
Actuated Green, G (s)	5.8	5.8	5.8	24.5	24.5	24.5	6.5	35.1		24.6	24.6	
Effective Green, g (s)	5.8	5.8	5.8	24.5	24.5	24.5	6.5	35.1		24.6	24.6	
Actuated g/C Ratio	0.07	0.07	0.07	0.32	0.32	0.32	0.08	0.45		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	
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)	126	117	113	532	510	476	149	2260		563	1610	
v/s Ratio Prot	c0.02	0.01	0.00	0.25	c0.26	0.03	c0.06	0.25		0.07		
v/s Ratio Perm											c0.25	
v/c Ratio	0.29	0.16	0.02	0.79	0.83	0.09	0.67	0.55		0.23	0.78	
Uniform Delay, d1	33.8	33.5	33.2	24.1	24.5	18.6	34.4	15.4		19.4	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	1.3	0.7	0.1	7.6	10.6	0.1	11.3	0.3		0.2	2.4	
Delay (s)	35.1	34.2	33.2	31.7	35.0	18.7	45.7	15.6		19.6	26.3	
Level of Service	D	C	C	C	D	B	D	B		B	C	
Approach Delay (s)		34.2			31.3			17.9			25.7	
Approach LOS		C			C			B			C	

Intersection Summary												
HCM Average Control Delay		24.6		HCM Level of Service		C						
HCM Volume to Capacity ratio		0.74										
Actuated Cycle Length (s)		77.4		Sum of lost time (s)		16.0						
Intersection Capacity Utilization		67.2%		ICU Level of Service		C						
Analysis Period (min)		15										
! Phase conflict between lane groups.												
c Critical Lane Group												

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↰	↱	↲	↰	↱	↲	↰	↱	↲
Volume (vph)	0	0	0	349	1043	261	165	881	0	0	614	671
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
Frbp, ped/bikes				1.00	1.00	1.00	1.00	1.00			0.93	1.00
Flpb, ped/bikes				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Frt				1.00	1.00	0.85	1.00	1.00			0.95	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			4224	1362
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	5085	1583	3433	3539			4224	1362
Peak-hour 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	388	1159	290	183	979	0	0	682	746
RTOR Reduction (vph)	0	0	0	0	0	71	0	0	0	0	14	14
Lane Group Flow (vph)	0	0	0	388	1159	219	183	979	0	0	1041	359
Conf. Peds. (#/hr)												200
Turn Type				Prot		Prot	Prot					Prot
Protected Phases				3	8	8	5	2				6
Permitted Phases												6
Actuated Green, G (s)				16.4	16.4	16.4	3.8	27.6			19.8	19.8
Effective Green, g (s)				16.4	16.4	16.4	3.8	27.6			19.8	19.8
Actuated g/C Ratio				0.32	0.32	0.32	0.07	0.53			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)				1083	1604	499	251	1878			1608	519
v/s Ratio Prot				0.11	c0.23	0.14	c0.05	0.28			0.25	c0.26
v/s Ratio Perm												
v/c Ratio				0.36	0.72	0.44	0.73	0.52			0.65	0.69
Uniform Delay, d1				13.7	15.8	14.1	23.6	7.9			13.2	13.5
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2				0.2	1.6	0.6	10.1	0.3			0.9	4.0
Delay (s)				13.9	17.4	14.8	33.7	8.2			14.1	17.5
Level of Service				B	B	B	C	A			B	B
Approach Delay (s)		0.0			16.3			12.2			15.0	
Approach LOS		A			B			B			B	

Intersection Summary												
HCM Average Control Delay		14.8		HCM Level of Service		B						
HCM Volume to Capacity ratio		0.71										
Actuated Cycle Length (s)		52.0		Sum of lost time (s)		12.0						
Intersection Capacity Utilization		101.5%		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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲				↰	↱	↲	↰	↱	↲
Volume (vph)	651	943	317	0	0	0	0	391	227	144	745	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0		4.0	4.0	
Lane Util. Factor	0.91	0.86	0.91					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	3172	1441					6055		1770	5085	
Flt Permitted	0.95	0.99	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1610	3172	1441					6055		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	434	252	160	828	0
RTOR Reduction (vph)	0	3	50	0	0	0	0	60	0	0	0	0
Lane Group Flow (vph)	586	1217	267	0	0	0	0	626	0	160	828	0
Turn Type	Split	Prot						Prot				
Protected Phases	4	4	4					2		1	6	
Permitted Phases												
Actuated Green, G (s)	28.1	28.1	28.1					12.9		7.9	24.8	
Effective Green, g (s)	28.1	28.1	28.1					12.9		7.9	24.8	
Actuated g/C Ratio	0.46	0.46	0.46					0.21		0.13	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)	743	1464	665					1283		230	2071	
v/s Ratio Prot	0.36	0.38	0.19					0.10		0.09	0.16	
v/s Ratio Perm												
v/c Ratio	0.79	0.83	0.40					0.49		0.70	0.40	
Uniform Delay, d1	13.9	14.3	10.8					21.1		25.3	12.8	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	5.6	4.2	0.4					0.3		8.8	0.1	
Delay (s)	19.5	18.5	11.2					21.4		34.2	12.9	
Level of Service	B	B	B					C		C	B	
Approach Delay (s)		17.7			0.0			21.4			16.3	
Approach LOS		B			A			C			B	
Intersection Summary												
HCM Average Control Delay		18.0						HCM Level of Service		B		
HCM Volume to Capacity ratio		0.72										
Actuated Cycle Length (s)		60.9						Sum of lost time (s)		12.0		
Intersection Capacity Utilization		101.5%						ICU Level of Service		G		
Analysis Period (min)		15										
c Critical Lane Group												

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

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

Movement	EBL	EBT	WBL	WBT	WBR	SBL	SBR
Lane Configurations	↰	↱	↰	↱	↲	↰	↱
Volume (vph)	16	207	0	437	25	97	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		0.95		1.00	1.00
Frt	1.00	1.00		0.99		1.00	0.85
Flt Protected	0.95	1.00		1.00		0.95	1.00
Satd. Flow (prot)	1770	3539		3510		1770	1583
Flt Permitted	0.95	1.00		1.00		0.95	1.00
Satd. Flow (perm)	1770	3539		3510		1770	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	230	0	486	28	108	128
RTOR Reduction (vph)	0	0	0	8	0	0	100
Lane Group Flow (vph)	18	230	0	506	0	108	28
Turn Type	Prot	Prot				Prot	
Protected Phases	7	4		3	8	6	6
Permitted Phases							
Actuated Green, G (s)	0.5	12.0		7.5		5.6	5.6
Effective Green, g (s)	0.5	12.0		7.5		5.6	5.6
Actuated g/C Ratio	0.02	0.47		0.29		0.22	0.22
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)	35	1659		1028		387	346
v/s Ratio Prot	0.01	0.06		0.14		0.06	0.02
v/s Ratio Perm							
v/c Ratio	0.51	0.14		0.49		0.28	0.08
Uniform Delay, d1	12.4	3.9		7.5		8.3	8.0
Progression Factor	1.00	1.00		1.00		1.00	1.00
Incremental Delay, d2	12.2	0.0		0.4		0.4	0.1
Delay (s)	24.6	3.9		7.8		8.7	8.1
Level of Service	C	A		A		A	A
Approach Delay (s)		5.4		7.8		8.4	
Approach LOS		A		A		A	
Intersection Summary							
HCM Average Control Delay		7.4				HCM Level of Service	A
HCM Volume to Capacity ratio		0.41					
Actuated Cycle Length (s)		25.6				Sum of lost time (s)	12.0
Intersection Capacity Utilization		26.7%				ICU Level of Service	A
Analysis Period (min)		15					
c Critical Lane Group							

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

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

Movement	EBL	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL	SBT	SBR
Lane Configurations	↰	↱	↱	↰	↰	↰	↰	↱	↱	↰	↱	↱
Volume (vph)	67	220	179	275	373	100	342	328	287	1102	221	204
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	0.88	1.00	1.00	1.00		1.00	0.95	1.00	0.97	0.95	1.00
Fr't	1.00	0.85	0.85	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Sat'd. Flow (prot)	1770	2787	1583	1770	1804		1770	3539	1583	3433	3539	1583
Flt Permitted	0.47	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Sat'd. Flow (perm)	869	2787	1583	1770	1804		1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	74	244	199	306	414	111	380	364	319	1224	246	227
RTOR Reduction (vph)	0	0	171	0	10	0	0	0	270	0	0	171
Lane Group Flow (vph)	74	244	28	306	515	0	380	364	49	1224	246	56
Turn Type	custom	custom	custom	Prot			Prot		Prot	Prot		Prot
Protected Phases				3	8		5	2	2	1	6	6
Permitted Phases	4		4									
Actuated Green, G (s)	13.5	13.5	13.5	17.0	34.5		25.3	14.8	14.8	34.1	23.6	23.6
Effective Green, g (s)	13.5	13.5	13.5	17.0	34.5		25.3	14.8	14.8	34.1	23.6	23.6
Actuated g/C Ratio	0.14	0.14	0.14	0.18	0.36		0.27	0.16	0.16	0.36	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
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)	123	394	224	315	652		469	549	246	1227	875	392
v/s Ratio Prot				c0.17	c0.29		0.21	c0.10	0.03	c0.36	0.07	0.04
v/s Ratio Perm	0.09	0.09	0.02				0.81	0.66	0.20	1.00	0.28	0.14
v/c Ratio	0.60	0.62	0.13	0.97	0.79		0.81	0.66	0.20	1.00	0.28	0.14
Uniform Delay, d1	38.4	38.5	35.8	39.0	27.2		32.8	38.0	35.1	30.6	29.0	28.0
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	8.0	2.9	0.3	42.8	6.5		10.2	3.0	0.4	24.9	0.2	0.2
Delay (s)	46.5	41.4	36.0	81.7	33.7		43.0	41.0	35.5	55.5	29.2	28.2
Level of Service	D	D	D	F	C		D	D	D	E	C	C
Approach Delay (s)					51.4			40.1			48.0	
Approach LOS					D			D			D	
Intersection Summary												
HCM Average Control Delay			45.7			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			95.4			Sum of lost time (s)				12.0		
Intersection Capacity Utilization			83.3%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

Baseline

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↱					↱	↱	↰	↱	↱
Volume (vph)	450	0	330	0	0	0	0	512	129	188	456	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	
Fr't	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	
Sat'd. Flow (prot)	1681	1681	1583					3433		3433	3539	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Sat'd. Flow (perm)	1681	1681	1583					3433		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)	500	0	367	0	0	0	0	569	143	209	507	0
RTOR Reduction (vph)	0	0	208	0	0	0	0	44	0	0	0	0
Lane Group Flow (vph)	250	250	159	0	0	0	0	668	0	209	507	0
Turn Type	Split		Prot							Prot		
Protected Phases	4	4	4					2		1	6	
Permitted Phases												
Actuated Green, G (s)	13.1	13.1	13.1					14.0		3.6	21.6	
Effective Green, g (s)	13.1	13.1	13.1					14.0		3.6	21.6	
Actuated g/C Ratio	0.31	0.31	0.31					0.33		0.08	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)	516	516	486					1126		289	1790	
v/s Ratio Prot	c0.15	0.15	0.10					c0.19		c0.06	0.14	
v/s Ratio Perm												
v/c Ratio	0.48	0.48	0.33					0.59		0.72	0.28	
Uniform Delay, d1	12.1	12.1	11.4					12.0		19.1	6.1	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.7	0.4					0.8		8.6	0.1	
Delay (s)	12.8	12.8	11.8					12.8		27.7	6.2	
Level of Service	B	B	B					B		C	A	
Approach Delay (s)		12.4			0.0			12.8			12.5	
Approach LOS		B			A			B			B	
Intersection Summary												
HCM Average Control Delay			12.5			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			42.7			Sum of lost time (s)				12.0		
Intersection Capacity Utilization			46.1%			ICU Level of Service				A		
Analysis Period (min)			15									
c Critical Lane Group												

Baseline

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

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↰	↱		↰	↱		↰	↱		↰	↱	
Volume (vph)	89	501	34	145	435	345	49	66	243	642	143	183
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	
Frt	1.00	0.99		1.00	0.93		1.00	0.88		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3505		1770	3304		1770	1643		3433	1706	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3505		1770	3304		1770	1643		3433	1706	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	99	557	38	161	483	383	54	73	270	713	159	203
RTOR Reduction (vph)	0	6	0	0	149	0	0	148	0	0	48	0
Lane Group Flow (vph)	99	589	0	161	717	0	54	195	0	713	314	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	8.2	20.7		10.8	23.3		3.8	14.7		19.4	30.3	
Effective Green, g (s)	8.2	20.7		10.8	23.3		3.8	14.7		19.4	30.3	
Actuated g/C Ratio	0.10	0.25		0.13	0.29		0.05	0.18		0.24	0.37	
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)	178	889		234	943		82	296		816	633	
v/s Ratio Prot	0.06	0.17		c0.09	c0.22		0.03	c0.12		c0.21	0.18	
v/s Ratio Perm												
v/c Ratio	0.56	0.66		0.69	0.76		0.66	0.66		0.87	0.50	
Uniform Delay, d1	35.0	27.3		33.8	26.6		38.3	31.1		29.9	19.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.7	1.9		8.1	3.7		17.5	5.2		10.2	0.6	
Delay (s)	38.7	29.2		41.9	30.3		55.7	36.3		40.2	20.4	
Level of Service	D	C		D	C		E	D		D	C	
Approach Delay (s)		30.5			32.1			38.9			33.5	
Approach LOS		C			C			D			C	

Intersection Summary												
HCM Average Control Delay		33.1		HCM Level of Service				C				
HCM Volume to Capacity ratio		0.78										
Actuated Cycle Length (s)		81.6		Sum of lost time (s)				16.0				
Intersection Capacity Utilization		78.1%		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
34: SR-56 WB Ramps & Carmel Country Road

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

Movement	WBL	WBR	SEL	SET	NWL	NWR	NWR2	SWL	SWR
Lane Configurations			↰	↱	↰	↱		↰	↱
Volume (vph)	0	0	777	593	764	0	315	137	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor			0.97	0.95	0.95		1.00	0.97	1.00
Frt			1.00	1.00	1.00		0.85	1.00	0.85
Flt Protected			0.95	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)			3433	3539	3539		1583	3433	1583
Flt Permitted			0.95	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)			3433	3539	3539		1583	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	863	659	849	0	350	152	239
RTOR Reduction (vph)	0	0	0	0	0	0	237	0	204
Lane Group Flow (vph)	0	0	863	659	849	0	113	152	35
Turn Type			Prot				Perm		Perm
Protected Phases			5	2	6			4	
Permitted Phases							6		4
Actuated Green, G (s)			17.4	39.3	17.9		17.9	8.1	8.1
Effective Green, g (s)			17.4	39.3	17.9		17.9	8.1	8.1
Actuated g/C Ratio			0.31	0.71	0.32		0.32	0.15	0.15
Clearance Time (s)			4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)			3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)			1078	2511	1143		511	502	231
v/s Ratio Prot			c0.25	0.19	c0.24			c0.04	
v/s Ratio Perm							0.07		0.02
v/c Ratio			0.80	0.26	0.74		0.22	0.30	0.15
Uniform Delay, d1			17.4	2.9	16.7		13.7	21.1	20.6
Progression Factor			1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2			4.3	0.1	2.6		0.2	0.3	0.3
Delay (s)			21.8	2.9	19.3		13.9	21.5	21.0
Level of Service			C	A	B		B	C	C
Approach Delay (s)	0.0			13.6	17.8			21.2	
Approach LOS	A			B	B			C	

Intersection Summary									
HCM Average Control Delay		16.2		HCM Level of Service				B	
HCM Volume to Capacity ratio		0.68							
Actuated Cycle Length (s)		55.4		Sum of lost time (s)				12.0	
Intersection Capacity Utilization		57.2%		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
35: SR-56 EB Ramps & Carmel Country Road

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

Movement	EBL2	EBL	EBR	SEL	SET	SER	NWL	NWT	NWR	SWL	SWR
Lane Configurations	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰
Volume (vph)	309	2	166	347	381	0	0	745	220	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		
Lane Util. Factor	0.95	0.95	1.00	0.97	0.95			0.95	1.00		
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		
Flt Protected	0.95	0.95	1.00	0.95	1.00			1.00	1.00		
Satd. Flow (prot)	1681	1681	1583	3433	3539			3539	1583		
Flt Permitted	0.95	0.95	1.00	0.95	1.00			1.00	1.00		
Satd. Flow (perm)	1681	1681	1583	3433	3539			3539	1583		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	343	2	184	386	423	0	0	828	244	0	0
RTOR Reduction (vph)	0	0	145	0	0	0	0	0	158	0	0
Lane Group Flow (vph)	171	174	39	386	423	0	0	828	86	0	0
Turn Type	Split		Prot	Prot				Prot			
Protected Phases	4	4	4	1	6			2	2		
Permitted Phases											
Actuated Green, G (s)	10.8	10.8	10.8	10.1	32.1			18.0	18.0		
Effective Green, g (s)	10.8	10.8	10.8	10.1	32.1			18.0	18.0		
Actuated g/C Ratio	0.21	0.21	0.21	0.20	0.63			0.35	0.35		
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		
Lane Grp Cap (vph)	357	357	336	681	2232			1252	560		
v/s Ratio Prot	0.10	0.10	0.02	0.11	0.12			0.23	0.05		
v/s Ratio Perm											
v/c Ratio	0.48	0.49	0.12	0.57	0.19			0.66	0.15		
Uniform Delay, d1	17.6	17.6	16.2	18.4	3.9			13.9	11.2		
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		
Incremental Delay, d2	1.0	1.0	0.2	1.1	0.0			1.3	0.1		
Delay (s)	18.6	18.7	16.3	19.5	4.0			15.2	11.4		
Level of Service	B	B	B	B	A			B	B		
Approach Delay (s)		17.8			11.4			14.3		0.0	
Approach LOS		B			B			B		A	
Intersection Summary											
HCM Average Control Delay		14.1									
HCM Volume to Capacity ratio		0.59									
Actuated Cycle Length (s)		50.9									
Intersection Capacity Utilization		49.1%									
Analysis Period (min)		15									
c Critical Lane Group											

Baseline

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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	9/15/2010				Analysis Year	2010			
Analysis Time Period	36 Near Term AM								
Project ID 002407 - San Diego Corporate Center Lots									
East/West Street: Del Mar Trail					North/South Street: Carmel Creek Road				
Volume Adjustments and Site Characteristics									
Approach		Eastbound			Westbound				
Movement	L	T	R		L	T	R		
Volume (veh/h)	10	10	10		206	2	26		
%Thrus Left Lane									
Approach		Northbound			Southbound				
Movement	L	T	R		L	T	R		
Volume (veh/h)	3	244	103		15	952	3		
%Thrus Left Lane	50				50				
		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)	33		258		138	249	544	531	
% 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	0.3		0.9		0.0	0.0	0.0	0.0	
Prop. Right-Turns	0.3		0.1		0.0	0.5	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	-0.3	0.0	0.0	
Departure Headway and Service Time									
hd, initial value (s)	3.20		3.20		3.20	3.20	3.20	3.20	
κ, initial	0.03		0.23		0.12	0.22	0.48	0.47	
hd, final value (s)	7.41		6.77		7.13	6.79	6.28	6.26	
κ, final value	0.07		0.49		0.27	0.47	0.95	0.92	
Move-up time, m (s)	2.0		2.0		2.3		2.3		
Service Time, t _s (s)	5.4		4.8		4.8	4.5	4.0	4.0	
Capacity and Level of Service									
		Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2	
Capacity (veh/h)	283		508		388	499	573	575	
Delay (s/veh)	10.95		16.00		12.49	15.36	50.42	45.47	
LOS	B		C		B	C	F	E	
Approach: Delay (s/veh)	10.95		16.00		14.34		47.97		
LOS	B		C		B		E		
Intersection Delay (s/veh)	35.14								
Intersection LOS	E								

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HCSTM Version 5.21

Generated: 3/2/2012 15:00

HCM Signalized Intersection Capacity Analysis
1: Via De La Valle & El Camino Real

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	6	478	522	172	425	3	539	2	421	0	2	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1861			1774	1583		1779	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00		1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1861			1774	1583		1779	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	7	531	580	191	472	3	599	2	468	0	2	1
RTOR Reduction (vph)	0	0	187	0	0	0	0	0	254	0	1	0
Lane Group Flow (vph)	7	531	393	191	475	0	0	601	214	0	2	0
Turn Type	Prot		Perm	Prot			Split		Perm	Split		
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4					2				
Actuated Green, G (s)	1.3	35.8	35.8	15.6	50.1			38.1	38.1		1.1	
Effective Green, g (s)	1.3	35.8	35.8	15.6	50.1			38.1	38.1		1.1	
Actuated g/C Ratio	0.01	0.34	0.34	0.15	0.47			0.36	0.36		0.01	
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)	22	626	532	259	875			634	566		18	
v/s Ratio Prot	0.00	c0.29		c0.11	0.26			c0.34			c0.00	
v/s Ratio Perm			0.25					0.13				
v/c Ratio	0.32	0.85	0.74	0.74	0.54			0.95	0.38		0.11	
Uniform Delay, d1	52.2	32.9	31.3	43.5	20.1			33.3	25.4		52.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	8.2	10.4	5.3	10.4	0.7			23.4	0.4		2.7	
Delay (s)	60.4	43.3	36.6	54.0	20.8			56.7	25.9		55.0	
Level of Service	E	D	D	D	C			E	C		E	
Approach Delay (s)		39.9			30.3			43.2			55.0	
Approach LOS		D			C			D			E	

Intersection Summary												
HCM Average Control Delay		38.9		HCM Level of Service				D				
HCM Volume to Capacity ratio		0.86										
Actuated Cycle Length (s)		106.6		Sum of lost time (s)				16.0				
Intersection Capacity Utilization		81.3%		ICU Level of Service				D				
Analysis Period (min)		15										
c Critical Lane Group												

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

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

Movement	WBL	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↰	↑	↱	↰	↑
Volume (vph)	207	264	0	537	365	342	280
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
Frt	1.00	0.85		1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583		1863	1583	1770	3539
Flt Permitted	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583		1863	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	230	293	0	597	406	380	311
RTOR Reduction (vph)	0	244	0	0	248	0	0
Lane Group Flow (vph)	230	49	0	597	158	380	311
Turn Type		Perm	Prot		Perm	Prot	
Protected Phases		1	3		8	7	
Permitted Phases							6
Actuated Green, G (s)	11.6	11.6		26.9	26.9	18.7	11.6
Effective Green, g (s)	11.6	11.6		26.9	26.9	18.7	11.6
Actuated g/C Ratio	0.17	0.17		0.39	0.39	0.27	0.17
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	575	265		724	615	478	593
v/s Ratio Prot	0.07			c0.32		c0.21	
v/s Ratio Perm		0.03			0.10		c0.09
v/c Ratio	0.40	0.19		0.82	0.26	0.79	0.52
Uniform Delay, d1	25.7	24.7		19.0	14.4	23.5	26.3
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.3		7.6	0.2	8.9	0.8
Delay (s)	26.2	25.1		26.6	14.6	32.3	27.1
Level of Service	C	C		C	B	C	C
Approach Delay (s)	25.6			21.7			30.0
Approach LOS	C			C			C

Intersection Summary							
HCM Average Control Delay		25.2		HCM Level of Service			C
HCM Volume to Capacity ratio		0.75					
Actuated Cycle Length (s)		69.2		Sum of lost time (s)		12.0	
Intersection Capacity Utilization		63.1%		ICU Level of Service		B	
Analysis Period (min)		15					
c Critical Lane Group							

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

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

	←	↖	↗	↑	↘	↙	↓
Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↖↗		↖	↑	↘	↖↗	↑
Volume (vph)	65	6	0	861	111	8	484
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
Frt	0.99			0.98		1.00	1.00
Flt Protected	0.96			1.00		0.95	1.00
Satd. Flow (prot)	3410			3479		1770	3539
Flt Permitted	0.96			1.00		0.95	1.00
Satd. Flow (perm)	3410			3479		1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	72	7	0	957	123	9	538
RTOR Reduction (vph)	7	0	0	13	0	0	0
Lane Group Flow (vph)	72	0	0	1067	0	9	538
Turn Type			Prot			Prot	
Protected Phases	8		5	2		1	6
Permitted Phases							
Actuated Green, G (s)	1.8			17.9		0.5	22.4
Effective Green, g (s)	1.8			17.9		0.5	22.4
Actuated g/C Ratio	0.06			0.56		0.02	0.70
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)	191			1934		27	2462
v/s Ratio Prot	c0.02			c0.31		0.01	c0.15
v/s Ratio Perm							
v/c Ratio	0.38			0.55		0.33	0.22
Uniform Delay, d1	14.7			4.6		15.7	1.8
Progression Factor	1.00			1.00		1.00	1.00
Incremental Delay, d2	1.3			0.3		7.2	0.0
Delay (s)	15.9			4.9		22.8	1.8
Level of Service	B			A		C	A
Approach Delay (s)	15.9			4.9		2.1	
Approach LOS	B			A		A	

Intersection Summary			
HCM Average Control Delay	4.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	32.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	37.3%	ICU Level of Service	A
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

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

	↖	→	↘	↖	←	↗	↖	↗	↑	↘	↙	↓	↖
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↗		↖	↗		↖	↑	↘	↖	↗		
Volume (vph)	23	22	14	14	21	155	26	777	49	89	428	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	1751		1770	1616		1770	3508		1770	3507		
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00		
Satd. Flow (perm)	1770	1751		1770	1616		1770	3508		1770	3507		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	26	24	16	16	23	172	29	863	54	99	476	31	
RTOR Reduction (vph)	0	14	0	0	152	0	0	6	0	0	5	0	
Lane Group Flow (vph)	26	26	0	16	43	0	29	911	0	99	502	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	6.8		0.6	6.0		1.6	23.1		5.5	27.0		
Effective Green, g (s)	1.4	6.8		0.6	6.0		1.6	23.1		5.5	27.0		
Actuated g/C Ratio	0.03	0.13		0.01	0.12		0.03	0.44		0.11	0.52		
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	48	229		20	186		54	1558		187	1821		
v/s Ratio Prot	c0.01	0.01		0.01	c0.03		0.02	c0.26		c0.06	c0.14		
v/s Ratio Perm													
v/c Ratio	0.54	0.11		0.80	0.23		0.54	0.59		0.53	0.28		
Uniform Delay, d1	25.0	19.9		25.6	20.9		24.8	10.9		22.0	7.0		
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00		
Incremental Delay, d2	11.9	0.2		110.1	0.6		9.9	0.6		2.7	0.1		
Delay (s)	36.9	20.2		135.7	21.5		34.7	11.4		24.7	7.1		
Level of Service	D	C		F	C		C	B		C	A		
Approach Delay (s)		26.8			30.2			12.1			10.0		
Approach LOS		C			C			B			A		

Intersection Summary			
HCM Average Control Delay	14.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	52.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	55.3%	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
5: Quarter Mile Road & El Camino Real

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	42	33	41	30	20	48	913	117	23	450	10
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95
Lane Util. Factor	1.00	1.00	0.85	1.00	0.94	1.00	0.98	1.00	1.00	1.00	1.00	1.00
Frt	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Flt Protected	1770	1863	1583	1770	1751	1770	3479	1770	3528	1770	3528	1770
Satd. Flow (prot)	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Flt Permitted	1770	1863	1583	1770	1751	1770	3479	1770	3528	1770	3528	1770
Satd. Flow (perm)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Peak-hour factor, PHF	8	47	37	46	33	22	53	1014	130	26	500	11
Adj. Flow (vph)	0	0	34	0	20	0	0	11	0	0	2	0
RTOR Reduction (vph)	8	47	3	46	35	0	53	1133	0	26	509	0
Lane Group Flow (vph)	Prot	Perm	Prot	8	Prot	5	2	Prot	1	6	Prot	6
Turn Type	7	4	3	8	5	2	1	6	3	8	2	2
Protected Phases	4	3	8	5	2	1	6	3	8	2	2	2
Permitted Phases	4	3	8	5	2	1	6	3	8	2	2	2
Actuated Green, G (s)	0.7	4.1	4.1	1.6	5.0	1.7	22.6	0.6	21.5	0.7	4.1	4.1
Effective Green, g (s)	0.7	4.1	4.1	1.6	5.0	1.7	22.6	0.6	21.5	0.7	4.1	4.1
Actuated g/C Ratio	0.02	0.09	0.09	0.04	0.11	0.04	0.50	0.01	0.48	0.02	0.09	0.09
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	28	170	145	63	195	67	1751	24	1689	28	170	145
v/s Ratio Prot	0.00	c0.03	0.00	c0.03	0.02	c0.03	c0.33	0.01	0.14	0.00	c0.03	0.00
v/s Ratio Perm	0.29	0.28	0.02	0.73	0.18	0.79	0.65	1.08	0.30	0.29	0.28	0.02
v/c Ratio	21.9	19.0	18.6	21.4	18.1	21.4	8.2	22.2	7.1	21.9	19.0	18.6
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	5.6	0.9	0.1	34.9	0.5	45.6	0.8	210.9	0.1	5.6	0.9	0.1
Incremental Delay, d2	27.4	19.9	18.6	56.4	18.5	67.0	9.0	233.0	7.2	27.4	19.9	18.6
Delay (s)	C	B	B	E	B	E	A	F	A	C	B	B
Level of Service	20.0	C	C	D	D	11.6	B	18.2	B	20.0	C	C
Approach Delay (s)	C	C	C	D	D	11.6	B	18.2	B	C	C	C
Approach LOS	C	C	C	D	D	11.6	B	18.2	B	C	C	C

Intersection Summary			
HCM Average Control Delay	15.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	44.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	51.2%	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
6: Del Mar Heights Road & Mango Drive

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	42	33	41	30	20	48	913	117	23	450	10
Volume (vph)	128	842	16	113	900	183	41	32	41	383	36	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Frt	1.00	1.00	1.00	0.97	1.00	0.97	1.00	0.85	1.00	0.93	1.00	0.93
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.97	1.00	0.95	0.98	0.95	1.00	0.98
Satd. Flow (prot)	1770	5071	1770	3450	1812	1583	1681	1608	1770	5071	1770	3450
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.97	1.00	0.95	0.98	0.95	1.00	0.98
Satd. Flow (perm)	1770	5071	1770	3450	1812	1583	1681	1608	1770	5071	1770	3450
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	142	936	18	126	1000	203	46	36	46	426	40	149
RTOR Reduction (vph)	0	2	0	0	17	0	0	42	0	38	0	0
Lane Group Flow (vph)	142	952	0	126	1186	0	0	82	4	315	262	0
Turn Type	Prot	Split	Prot	Split	Prot	Split	Prot	Split	Prot	Split	Prot	Split
Protected Phases	7	4	3	8	2	2	2	6	6	7	4	3
Permitted Phases	7	4	3	8	2	2	2	6	6	7	4	3
Actuated Green, G (s)	8.3	30.6	8.8	31.1	7.6	7.6	17.5	17.5	8.3	30.6	8.8	31.1
Effective Green, g (s)	8.3	30.6	8.8	31.1	7.6	7.6	17.5	17.5	8.3	30.6	8.8	31.1
Actuated g/C Ratio	0.10	0.38	0.11	0.39	0.09	0.09	0.22	0.22	0.10	0.38	0.11	0.39
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	182	1928	193	1333	171	149	365	350	182	1928	193	1333
v/s Ratio Prot	c0.08	0.19	0.07	c0.34	c0.05	0.00	c0.19	0.16	c0.08	0.19	0.07	c0.34
v/s Ratio Perm	0.78	0.49	0.65	0.89	0.48	0.03	0.86	0.75	0.78	0.49	0.65	0.89
v/c Ratio	35.2	19.0	34.4	23.1	34.6	33.1	30.3	29.4	35.2	19.0	34.4	23.1
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	19.2	0.2	7.7	7.6	2.1	0.1	18.5	8.4	19.2	0.2	7.7	7.6
Incremental Delay, d2	54.4	19.2	42.1	30.7	36.7	33.2	48.9	37.9	54.4	19.2	42.1	30.7
Delay (s)	D	B	D	C	D	C	D	D	D	B	D	C
Level of Service	23.8	C	C	C	35.4	D	43.5	D	23.8	C	C	C
Approach Delay (s)	C	C	C	C	D	D	D	D	C	C	C	C
Approach LOS	C	C	C	C	D	D	D	D	C	C	C	C

Intersection Summary			
HCM Average Control Delay	31.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	80.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.7%	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
7: Del Mar Heights Road & Portofino Drive

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

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑		↑
Volume (veh/h)	1218	64	0	1443	0	78
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)	1353	71	0	1603	0	87
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					0.83	0.88
vC, conflicting volume			1424		2191	487
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1000		1138	0
IC, single (s)			4.1		6.8	6.9
IC, 2 stage (s)						
IF (s)			2.2		3.5	3.3
p0 queue free %			100		100	91
cM capacity (veh/h)			604		161	953
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	541	541	342	802	802	87
Volume Left	0	0	0	0	0	0
Volume Right	0	0	71	0	0	87
cSH	1700	1700	1700	1700	1700	953
Volume to Capacity	0.32	0.32	0.20	0.47	0.47	0.09
Queue Length 95th (ft)	0	0	0	0	0	7
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.2
Lane LOS						A
Approach Delay (s)	0.0			0.0		9.2
Approach LOS						A
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			43.2%		ICU Level of Service	A
Analysis Period (min)			15			

Baseline

Synchro 7 - Report
Page 7

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

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

	↖	→	←	↖	↗	↘
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	↑
Volume (vph)	0	910	1198	0	901	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3	6.3		5.6	5.6
Lane Util. Factor		0.95	0.95		0.97	0.91
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	1331	0	1001	332
RTOR Reduction (vph)	0	0	0	0	3	26
Lane Group Flow (vph)	0	1011	1331	0	1031	273
Turn Type						Perm
Protected Phases		2.6	6.2		4	
Permitted Phases						4
Actuated Green, G (s)		42.7	42.7		25.3	25.3
Effective Green, g (s)		42.7	42.7		25.3	25.3
Actuated g/C Ratio		0.53	0.53		0.32	0.32
Clearance Time (s)					5.6	5.6
Vehicle Extension (s)					3.0	3.0
Lane Grp Cap (vph)		1891	1891		1086	456
v/s Ratio Prot		0.29	0.38		0.30	
v/s Ratio Perm						0.19
v/c Ratio		0.53	0.70		0.95	0.60
Uniform Delay, d1		12.1	13.9		26.7	23.0
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.3	1.2		16.4	2.1
Delay (s)		12.4	15.1		43.1	25.1
Level of Service		B	B		D	C
Approach Delay (s)		12.4	15.1		39.0	
Approach LOS		B	B		D	
Intersection Summary						
HCM Average Control Delay		23.0		HCM Level of Service		C
HCM Volume to Capacity ratio		0.80				
Actuated Cycle Length (s)		79.9		Sum of lost time (s)		11.9
Intersection Capacity Utilization		105.6%		ICU Level of Service		G
Analysis Period (min)		15				
c - Critical Lane Group						

Baseline

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	242	1514	0	0	1188	890	649	24	802	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	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	1503	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (perm)	3433	3539			5085	1583	1681	1503	1504			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	269	1682	0	0	1320	989	721	27	891	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	476	0	9	9	0	0	0
Lane Group Flow (vph)	269	1682	0	0	1320	513	570	534	517	0	0	0
Turn Type	Prot				Prot	Split		Prot				
Protected Phases	5	2			6	6	8	8	8			
Permitted Phases												
Actuated Green, G (s)	11.1	65.2			50.1	50.1	46.8	46.8	46.8			
Effective Green, g (s)	11.1	65.2			50.1	50.1	46.8	46.8	46.8			
Actuated g/C Ratio	0.09	0.54			0.42	0.42	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)	318	1923			2123	661	656	586	587			
v/s Ratio Prot	0.08	c0.48			0.26	0.32	0.34	c0.36	0.34			
v/s Ratio Perm												
v/c Ratio	0.85	0.87			0.62	0.78	0.87	0.91	0.88			
Uniform Delay, d1	53.6	23.8			27.5	30.1	33.8	34.6	34.0			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	18.3	5.9			1.4	8.7	11.8	18.4	14.4			
Delay (s)	71.9	29.8			28.9	38.8	45.5	53.1	48.4			
Level of Service	E	C			C	D	D	D	D			
Approach Delay (s)		35.6			33.1			48.9		0.0		
Approach LOS		D			C			D		A		

Intersection Summary												
HCM Average Control Delay		38.3		HCM Level of Service				D				
HCM Volume to Capacity ratio		0.89										
Actuated Cycle Length (s)		120.0		Sum of lost time (s)				8.0				
Intersection Capacity Utilization		98.8%		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
10: Del Mar Heights Road & High Bluff Drive

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	249	2089	259	15	1353	29	637	67	138	28	30	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
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	0.90		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	2321	288	17	1503	32	708	74	153	31	33	91
RTOR Reduction (vph)	0	0	94	0	2	0	0	110	0	0	0	85
Lane Group Flow (vph)	277	2321	194	17	1533	0	708	117	0	31	33	6
Turn Type	Prot		Prot	Prot			Prot			Prot		Prot
Protected Phases	7	4	4	3	8		5	2		1	6	6
Permitted Phases												
Actuated Green, G (s)	18.2	53.7	53.7	1.7	37.2		23.1	26.4		3.6	6.9	6.9
Effective Green, g (s)	18.2	53.7	53.7	1.7	37.2		23.1	26.4		3.6	6.9	6.9
Actuated g/C Ratio	0.18	0.53	0.53	0.02	0.37		0.23	0.26		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)	318	2693	838	30	1860		782	828		63	127	108
v/s Ratio Prot	c0.16	c0.46	0.12	0.01	0.30		c0.21	0.04		0.02	c0.02	0.00
v/s Ratio Perm												
v/c Ratio	0.87	0.86	0.23	0.57	0.82		0.91	0.14		0.49	0.26	0.06
Uniform Delay, d1	40.5	20.6	12.8	49.5	29.1		38.1	28.8		48.0	44.8	44.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	22.0	3.1	0.1	22.3	3.1		13.9	0.1		5.9	1.1	0.2
Delay (s)	62.4	23.7	12.9	71.7	32.2		52.0	28.9		53.9	45.9	44.4
Level of Service	E	C	B	E	C		D	C		D	D	D
Approach Delay (s)		26.4		32.7				46.4			46.6	
Approach LOS		C		C				D			D	

Intersection Summary												
HCM Average Control Delay		32.1		HCM Level of Service				C				
HCM Volume to Capacity ratio		0.81										
Actuated Cycle Length (s)		101.4		Sum of lost time (s)				12.0				
Intersection Capacity Utilization		78.5%		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
11: Del Mar Heights Road & Project Access

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↑↑↑		↑
Volume (vph)	100	5	0	100	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0
Lane Util. Factor	0.91	1.00		0.91		1.00
Frt	1.00	0.85		1.00		0.86
Flt Protected	1.00	1.00		1.00		1.00
Satd. Flow (prot)	5085	1583		5085		1611
Flt Permitted	1.00	1.00		1.00		1.00
Satd. Flow (perm)	5085	1583		5085		1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	5	0	109	0	5
RTOR Reduction (vph)	0	3	0	0	0	3
Lane Group Flow (vph)	109	2	0	109	0	2
Turn Type	Perm			custom		
Protected Phases	4			8		
Permitted Phases	4			2		
Actuated Green, G (s)	16.0	16.0		16.0		16.0
Effective Green, g (s)	16.0	16.0		16.0		16.0
Actuated g/C Ratio	0.40	0.40		0.40		0.40
Clearance Time (s)	4.0	4.0		4.0		4.0
Lane Grp Cap (vph)	2034	633		2034		644
v/s Ratio Prot	c0.02			0.02		
v/s Ratio Perm	0.00			c0.00		
v/c Ratio	0.05	0.00		0.05		0.00
Uniform Delay, d1	7.4	7.2		7.4		7.2
Progression Factor	1.00	1.00		0.80		1.00
Incremental Delay, d2	0.1	0.0		0.1		0.0
Delay (s)	7.4	7.2		6.0		7.2
Level of Service	A			A		
Approach Delay (s)	7.4			6.0 7.2		
Approach LOS	A			A A		
Intersection Summary:						
HCM Average Control Delay	6.7			HCM Level of Service		A
HCM Volume to Capacity ratio	0.03					
Actuated Cycle Length (s)	40.0			Sum of lost time (s)		8.0
Intersection Capacity Utilization	13.3%			ICU Level of Service		A
Analysis Period (min)	15					
c Critical Lane Group						

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
12: Del Mar Heights Road & Project Access

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↑↑↑		↑
Volume (vph)	100	5	0	100	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0
Lane Util. Factor	0.91	1.00		0.91		1.00
Frt	1.00	0.85		1.00		0.86
Flt Protected	1.00	1.00		1.00		1.00
Satd. Flow (prot)	5085	1583		5085		1611
Flt Permitted	1.00	1.00		1.00		1.00
Satd. Flow (perm)	5085	1583		5085		1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	5	0	109	0	5
RTOR Reduction (vph)	0	3	0	0	0	3
Lane Group Flow (vph)	109	2	0	109	0	2
Turn Type	Perm			custom		
Protected Phases	4			8		
Permitted Phases	4			2		
Actuated Green, G (s)	16.0	16.0		16.0		16.0
Effective Green, g (s)	16.0	16.0		16.0		16.0
Actuated g/C Ratio	0.40	0.40		0.40		0.40
Clearance Time (s)	4.0	4.0		4.0		4.0
Lane Grp Cap (vph)	2034	633		2034		644
v/s Ratio Prot	c0.02			0.02		
v/s Ratio Perm	0.00			c0.00		
v/c Ratio	0.05	0.00		0.05		0.00
Uniform Delay, d1	7.4	7.2		7.4		7.2
Progression Factor	0.81	0.76		1.00		1.00
Incremental Delay, d2	0.1	0.0		0.1		0.0
Delay (s)	6.0	5.5		7.4		7.2
Level of Service	A			A		
Approach Delay (s)	6.0			7.4 7.2		
Approach LOS	A			A A		
Intersection Summary						
HCM Average Control Delay	6.7			HCM Level of Service		A
HCM Volume to Capacity ratio	0.03					
Actuated Cycle Length (s)	40.0			Sum of lost time (s)		8.0
Intersection Capacity Utilization	13.3%			ICU Level of Service		A
Analysis Period (min)	15					
c Critical Lane Group						

Baseline

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱
Volume (vph)	452	1392	399	108	763	181	444	421	257	151	154	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
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	4915		3433	4939		3433	5085	1583	3433	4657	
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	4939		3433	5085	1583	3433	4657	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	502	1547	443	120	848	201	493	468	286	168	171	219
RTOR Reduction (vph)	0	53	0	0	41	0	0	0	104	0	192	0
Lane Group Flow (vph)	502	1937	0	120	1008	0	493	468	182	168	198	0
Turn Type	Prot			Prot			Prot		Prot		Prot	
Protected Phases	7	4		3	8		5	2	2	1	6	
Permitted Phases												
Actuated Green, G (s)	15.5	36.4		4.8	25.7		14.2	17.5	17.5	6.8	10.1	
Effective Green, g (s)	15.5	36.4		4.8	25.7		14.2	17.5	17.5	6.8	10.1	
Actuated g/C Ratio	0.19	0.45		0.06	0.32		0.17	0.21	0.21	0.08	0.12	
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)	653	2195		202	1557		598	1092	340	286	577	
v/s Ratio Prot	c0.15	c0.39		0.03	0.20		c0.14	0.09	c0.12	0.05	0.04	
v/s Ratio Perm												
v/c Ratio	0.77	0.88		0.59	0.65		0.82	0.43	0.54	0.59	0.34	
Uniform Delay, d1	31.3	20.6		37.4	24.0		32.4	27.7	28.4	36.0	32.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.4	4.6		4.6	0.9		9.0	0.3	1.6	3.1	0.4	
Delay (s)	36.7	25.2		42.0	24.9		41.5	27.9	30.0	39.1	33.0	
Level of Service	D	C		D	C		D	C	C	D	C	
Approach Delay (s)		27.5			26.7			33.8			34.8	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	29.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	81.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.5%	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
14: Del Mar Heights Road & Carmel Country Rd.

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱
Volume (vph)	85	1101	458	82	545	74	323	172	149	80	128	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.91		1.00	0.95	
Frt	1.00	0.96		1.00	0.98		1.00	0.93		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	4861		3433	4994		3433	4731		1770	3305	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	4861		3433	4994		3433	4731		1770	3305	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	94	1223	509	91	606	82	359	191	166	89	142	112
RTOR Reduction (vph)	0	91	0	0	21	0	0	133	0	0	96	0
Lane Group Flow (vph)	94	1641	0	91	667	0	359	224	0	89	158	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	4.2	27.2		3.5	26.5		9.4	12.8		5.8	9.2	
Effective Green, g (s)	4.2	27.2		3.5	26.5		9.4	12.8		5.8	9.2	
Actuated g/C Ratio	0.06	0.42		0.05	0.41		0.14	0.20		0.09	0.14	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	221	2025		184	2027		494	927		157	466	
v/s Ratio Prot	c0.03	c0.34		0.03	0.13		c0.10	c0.05		0.05	c0.05	
v/s Ratio Perm												
v/c Ratio	0.43	0.81		0.49	0.33		0.73	0.24		0.57	0.34	
Uniform Delay, d1	29.4	16.8		30.0	13.3		26.7	22.2		28.5	25.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.3	2.6		2.1	0.1		5.3	0.1		4.6	0.4	
Delay (s)	30.7	19.3		32.1	13.4		32.0	22.3		33.2	25.7	
Level of Service	C	B		C	B		C	C		C	C	
Approach Delay (s)		19.9			15.6			27.2			27.7	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	21.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	65.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	62.4%	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
15: Del Mar Heights Road & Torrey Ridge Drive

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑↑↑		↔	↑↑↑		↔	↑↑↑		↔	↑↑↑	
Volume (vph)	49	1180	108	8	619	23	37	14	32	28	8	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.90		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5021		1770	5058		1770	1669		1770	1642	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5021		1770	5058		1770	1669		1770	1642	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	54	1311	120	9	688	26	41	16	36	31	9	34
RTOR Reduction (vph)	0	12	0	0	5	0	0	33	0	0	32	0
Lane Group Flow (vph)	54	1419	0	9	709	0	41	19	0	31	11	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	1.4	21.5		0.6	20.7		1.3	3.1		0.9	2.7	
Effective Green, g (s)	1.4	21.5		0.6	20.7		1.3	3.1		0.9	2.7	
Actuated g/C Ratio	0.03	0.51		0.01	0.49		0.03	0.07		0.02	0.06	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	59	2564		25	2487		55	123		38	105	
v/s Ratio Prot	c0.03	c0.28		0.01	0.14		c0.02	c0.01		0.02	0.01	
v/s Ratio Perm												
v/c Ratio	0.92	0.55		0.36	0.29		0.75	0.15		0.82	0.11	
Uniform Delay, d1	20.3	7.0		20.6	6.3		20.2	18.3		20.5	18.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	86.4	0.3		8.7	0.1		41.8	0.6		76.1	0.4	
Delay (s)	106.7	7.3		29.2	6.4		62.1	18.8		96.6	19.0	
Level of Service	F	A		C	A		E	B		F	B	
Approach Delay (s)		10.9			6.7			37.9			51.5	
Approach LOS		B			A			D			D	
Intersection Summary												
HCM Average Control Delay		11.9					HCM Level of Service			B		
HCM Volume to Capacity ratio		0.43										
Actuated Cycle Length (s)		42.1					Sum of lost time (s)		8.0			
Intersection Capacity Utilization		47.3%					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
16: Del Mar Heights Road & Lansdale Drive

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑↑↑		↔	↑↑↑		↔	↑↑↑		↔	↑↑↑	
Volume (vph)	244	928	65	22	452	25	40	46	35	24	33	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.94		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5036		1770	5045		1770	1742		1770	1631	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5036		1770	5045		1770	1742		1770	1631	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	271	1031	72	24	502	28	44	51	39	27	37	182
RTOR Reduction (vph)	0	10	0	0	9	0	0	33	0	0	154	0
Lane Group Flow (vph)	271	1093	0	24	521	0	44	57	0	27	65	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	25.1		0.7	14.6		1.4	7.7		1.4	7.7	
Effective Green, g (s)	11.2	25.1		0.7	14.6		1.4	7.7		1.4	7.7	
Actuated g/C Ratio	0.22	0.49		0.01	0.29		0.03	0.15		0.03	0.15	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	389	2483		24	1447		49	264		49	247	
v/s Ratio Prot	c0.15	c0.22		0.01	0.10		c0.02	0.03		0.02	c0.04	
v/s Ratio Perm												
v/c Ratio	0.70	0.44		1.00	0.36		0.90	0.22		0.55	0.26	
Uniform Delay, d1	18.3	8.4		25.1	14.4		24.7	19.0		24.4	19.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.4	0.1		183.7	0.2		90.0	0.4		12.7	0.6	
Delay (s)	23.6	8.5		208.8	14.6		114.7	19.4		37.2	19.7	
Level of Service	C	A		F	B		F	B		D	B	
Approach Delay (s)		11.5			23.0			50.7			21.6	
Approach LOS		B			C			D			C	
Intersection Summary												
HCM Average Control Delay		17.6					HCM Level of Service			B		
HCM Volume to Capacity ratio		0.48										
Actuated Cycle Length (s)		50.9					Sum of lost time (s)		12.0			
Intersection Capacity Utilization		51.3%					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
17: Del Mar Heights Road & Carmel Canyon Road

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↑↑	↑↑↑	↑↑↑	↑
Volume (vph)	811	160	92	411	104	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.91		1.00	0.91	0.97	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Sald. Flow (prot)	4959		1770	5085	3433	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Sald. Flow (perm)	4959		1770	5085	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	901	178	102	457	116	283
RTOR Reduction (vph)	49	0	0	0	0	232
Lane Group Flow (vph)	1030	0	102	457	116	51
Turn Type			Prot		Prot	
Protected Phases	4		3	8	2	2
Permitted Phases						
Actuated Green, G (s)	16.2		2.4	22.6	5.6	5.6
Effective Green, g (s)	16.2		2.4	22.6	5.6	5.6
Actuated g/C Ratio	0.45		0.07	0.62	0.15	0.15
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)	2219		117	3175	531	245
v/s Ratio Prot	c0.21		c0.06	0.09	c0.03	0.03
v/s Ratio Perm						
v/c Ratio	0.46		0.87	0.14	0.22	0.21
Uniform Delay, d1	7.0		16.7	2.8	13.4	13.4
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2		46.1	0.0	0.2	0.4
Delay (s)	7.1		62.8	2.8	13.6	13.8
Level of Service	A		E	A	B	B
Approach Delay (s)	7.1			13.8	13.7	
Approach LOS	A			B	B	
Intersection Summary						
HCM Average Control Delay		10.2		HCM Level of Service		B
HCM Volume to Capacity ratio		0.45				
Actuated Cycle Length (s)		36.2		Sum of lost time (s)	12.0	
Intersection Capacity Utilization		41.7%		ICU Level of Service		A
Analysis Period (min)		15				
c Critical Lane Group						

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
18: Del Mar Highlands Town Ctr. & El Camino Real

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

Movement	WBL	WBR	WBR2	SEL	SER	NEU	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↑	↑	↑	↑	↑	↑	↑	↑↑↑	↑	↑↑↑	↑↑↑	↑
Volume (vph)	194	0	255	0	0	0	0	844	168	295	380	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	
Lane Util. Factor	1.00		1.00					0.91		0.97	0.91	
Frt	1.00		0.85					0.98		1.00	1.00	
Flt Protected	0.95		1.00					1.00		0.95	1.00	
Sald. Flow (prot)	1770		1583					4959		3433	5085	
Flt Permitted	0.95		1.00					1.00		0.95	1.00	
Sald. Flow (perm)	1770		1583					4959		3433	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)	216	0	283	0	0	0	0	938	187	328	422	0
RTOR Reduction (vph)	0	0	203	0	0	0	0	52	0	0	0	0
Lane Group Flow (vph)	216	0	80	0	0	0	0	1073	0	328	422	0
Turn Type			Perm					Prot		Prot		
Protected Phases	6							3		8		
Permitted Phases			6							7		4
Actuated Green, G (s)	11.2		11.2					16.0		8.5	28.5	
Effective Green, g (s)	11.2		11.2					16.0		8.5	28.5	
Actuated g/C Ratio	0.23		0.23					0.34		0.18	0.60	
Clearance Time (s)	4.0		4.0					4.0		4.0	4.0	
Vehicle Extension (s)	3.0		3.0					3.0		3.0	3.0	
Lane Grp Cap (vph)	416		372					1663		612	3038	
v/s Ratio Prot	c0.12							c0.22		c0.10	0.08	
v/s Ratio Perm			0.05									
v/c Ratio	0.52		0.22					0.65		0.54	0.14	
Uniform Delay, d1	15.9		14.7					13.4		17.8	4.2	
Progression Factor	1.00		1.00					1.00		1.00	1.00	
Incremental Delay, d2	1.1		0.3					0.9		0.9	0.0	
Delay (s)	17.0		15.0					14.3		18.7	4.2	
Level of Service	B		B					B		B	A	
Approach Delay (s)	15.9			0.0				14.3			10.6	
Approach LOS	B			A				B			B	
Intersection Summary												
HCM Average Control Delay		13.5		HCM Level of Service						B		
HCM Volume to Capacity ratio		0.58										
Actuated Cycle Length (s)		47.7		Sum of lost time (s)						12.0		
Intersection Capacity Utilization		49.2%		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
19: Townsgate Drive & Carmel Country Road

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	113	108	178	14	56	118	116	466	10	187	508	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.90		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	1673		1770	3528		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	1673		1770	3528		1770	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	126	120	198	16	62	131	129	518	11	208	564	78
RTOR Reduction (vph)	0	0	138	0	106	0	0	2	0	0	0	54
Lane Group Flow (vph)	126	120	60	16	87	0	129	527	0	208	564	24
Turn Type	Prot		Prot	Prot			Prot			Prot		Prot
Protected Phases	7	4	4	3	8		5	2		1	6	6
Permitted Phases												
Actuated Green, G (s)	7.7	17.9	17.9	0.7	10.9		6.3	14.9		9.9	18.5	18.5
Effective Green, g (s)	7.7	17.9	17.9	0.7	10.9		6.3	14.9		9.9	18.5	18.5
Actuated g/C Ratio	0.13	0.30	0.30	0.01	0.18		0.11	0.25		0.17	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
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)	229	561	477	21	307		188	885		295	1102	493
v/s Ratio Prot	c0.07	0.06	0.04	0.01	c0.05		0.07	0.15		c0.12	c0.16	0.02
v/s Ratio Perm												
v/c Ratio	0.55	0.21	0.13	0.76	0.28		0.69	0.60		0.71	0.51	0.05
Uniform Delay, d1	24.2	15.5	15.1	29.3	20.9		25.6	19.6		23.4	16.8	14.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.8	0.2	0.1	92.1	0.5		9.9	1.1		7.5	0.4	0.0
Delay (s)	27.1	15.7	15.2	121.3	21.4		35.5	20.7		30.8	17.2	14.3
Level of Service	C	B	B	F	C		D	C		C	B	B
Approach Delay (s)		18.7			29.0			23.6			20.2	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM Average Control Delay	21.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	59.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	53.3%	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
20: Townsgate Drive & El Camino Real

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	217	12	10	144	2	80	29	689	206	97	402	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	0.93		1.00	1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1735		1770	1863	1583	1770	4910		1770	5028	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1735		1770	1863	1583	1770	4910		1770	5028	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	241	13	11	160	2	89	32	766	229	108	447	36
RTOR Reduction (vph)	0	10	0	0	0	77	0	76	0	0	12	0
Lane Group Flow (vph)	241	14	0	160	2	12	32	919	0	108	471	0
Turn Type	Prot			Prot		Prot	Prot			Prot		
Protected Phases	1	6		5	2	2	7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	10.4	4.9		12.5	7.0	7.0	1.6	16.9		3.6	18.9	
Effective Green, g (s)	10.4	4.9		12.5	7.0	7.0	1.6	16.9		3.6	18.9	
Actuated g/C Ratio	0.19	0.09		0.23	0.13	0.13	0.03	0.31		0.07	0.35	
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)	342	158		410	242	206	53	1539		118	1763	
v/s Ratio Prot	c0.14	c0.01		0.09	0.00	0.01	0.02	c0.19		c0.06	0.09	
v/s Ratio Perm												
v/c Ratio	0.70	0.09		0.39	0.01	0.06	0.60	0.60		0.92	0.27	
Uniform Delay, d1	20.3	22.5		17.5	20.4	20.6	25.8	15.6		25.0	12.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.5	0.2		0.6	0.0	0.1	17.9	0.6		56.7	0.1	
Delay (s)	26.8	22.7		18.1	20.4	20.7	43.7	16.3		81.7	12.6	
Level of Service	C	C		B	C	C	D	B		F	B	
Approach Delay (s)		26.4			19.0			17.1			25.2	
Approach LOS		C			B			B			C	

Intersection Summary			
HCM Average Control Delay	20.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	53.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	52.0%	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
21: Carmel Creek Road & Carmel Country Road

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	293	244	127	33	102	18	97	354	40	26	392	228
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85		0.98		1.00	0.98		1.00	0.94	
Flt Protected	0.95	1.00	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583		1813		1770	3486		1770	3344	
Flt Permitted	0.95	1.00	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583		1813		1770	3486		1770	3344	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	326	271	141	37	113	20	108	393	44	29	436	253
RTOR Reduction (vph)	0	0	107	0	8	0	0	11	0	0	111	0
Lane Group Flow (vph)	326	271	34	0	162	0	108	426	0	29	578	0
Turn Type	Split		Prot	Split			Prot			Prot		
Protected Phases	4	4	4	8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	15.2	15.2	15.2		8.8		4.8	20.8		1.6	17.6	
Effective Green, g (s)	15.2	15.2	15.2		8.8		4.8	20.8		1.6	17.6	
Actuated g/C Ratio	0.24	0.24	0.24		0.14		0.08	0.33		0.03	0.28	
Clearance Time (s)	4.0	4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	431	454	386		256		136	1162		45	943	
v/s Ratio Prot	c0.18	0.15	0.02		c0.09		c0.06	c0.12		0.02	c0.17	
v/s Ratio Perm												
v/c Ratio	0.76	0.60	0.09		0.63		0.79	0.37		0.64	0.61	
Uniform Delay, d1	21.9	20.9	18.2		25.3		28.3	15.8		30.1	19.4	
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.4	2.1	0.1		5.1		26.4	0.2		27.5	1.2	
Delay (s)	29.3	23.0	18.3		30.3		54.8	16.0		57.6	20.6	
Level of Service	C	C	B		C		D	B		E	C	
Approach Delay (s)		24.9			30.3			23.7			22.1	
Approach LOS		C			C			C			C	

Intersection Summary												
HCM Average Control Delay	24.1		HCM Level of Service	C								
HCM Volume to Capacity ratio	0.72											
Actuated Cycle Length (s)	62.4		Sum of lost time (s)	20.0								
Intersection Capacity Utilization	61.4%		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
22: High Bluff Drive & El Camino Real

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

Movement	EBL	EBR	EBR2	NWL	NWL2	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↰	↱	↱	↰	↰	↱	↰	↱	↱	↰	↱	↱
Volume (vph)	74	279	324	99	173	95	266	995	95	116	565	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97		0.97	0.91		1.00	0.91	
Frt	1.00	0.85	0.85	1.00	0.95		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1583	1583	1770	3314		3433	5019		1770	5030	
Flt Permitted	0.95	1.00	1.00	0.95	0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1583	1583	1770	3314		3433	5019		1770	5030	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	82	310	360	110	192	106	296	1106	106	129	628	49
RTOR Reduction (vph)	0	0	219	0	97	0	0	18	0	0	15	0
Lane Group Flow (vph)	82	310	141	110	201	0	296	1194	0	129	662	0
Turn Type		Perm	Perm	Split			Prot			Prot		
Protected Phases		2		6	6		3	8		7	4	
Permitted Phases		2	2									
Actuated Green, G (s)	14.7	14.7	14.7	4.9	4.9		6.2	17.6		4.4	15.8	
Effective Green, g (s)	14.7	14.7	14.7	4.9	4.9		6.2	17.6		4.4	15.8	
Actuated g/C Ratio	0.26	0.26	0.26	0.09	0.09		0.11	0.31		0.08	0.27	
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)	452	404	404	151	282		370	1534		135	1380	
v/s Ratio Prot	0.05			c0.06	0.06		c0.09	c0.24		0.07	0.13	
v/s Ratio Perm		c0.20	0.09									
v/c Ratio	0.18	0.77	0.35	0.73	0.71		0.80	0.78		0.96	0.48	
Uniform Delay, d1	16.8	19.9	17.5	25.7	25.7		25.1	18.2		26.5	17.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	8.5	0.5	16.1	8.3		11.7	2.6		63.3	0.3	
Delay (s)	16.9	28.3	18.1	41.8	33.9		36.8	20.8		89.8	17.7	
Level of Service	B	C	B	D	C		D	C		F	B	
Approach Delay (s)	22.2				36.0			23.9			29.3	
Approach LOS	C				D			C			C	

Intersection Summary												
HCM Average Control Delay	26.2		HCM Level of Service	C								
HCM Volume to Capacity ratio	0.73											
Actuated Cycle Length (s)	57.6		Sum of lost time (s)	12.0								
Intersection Capacity Utilization	55.0%		ICU Level of Service	B								
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 View Road

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

Movement	SEL	SET	SEB	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕	↕		↕			↕			↕	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Volume (vph)	183	26	129	4	11	4	93	25	8	2	7	89
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)	203	29	143	4	12	4	103	28	9	2	8	99
Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1							
Volume Total (vph)	232	143	21	140	109							
Volume Left (vph)	203	0	4	103	2							
Volume Right (vph)	0	143	4	9	99							
Hadj (s)	0.47	-0.67	-0.05	0.14	-0.51							
Departure Headway (s)	5.6	4.5	5.0	5.1	4.5							
Degree Utilization, x	0.36	0.18	0.03	0.20	0.14							
Capacity (veh/h)	614	770	656	662	733							
Control Delay (s)	10.6	7.3	8.2	9.4	8.3							
Approach Delay (s)	9.3		8.2	9.4	8.3							
Approach LOS	A		A	A	A							
Intersection Summary												
Delay			9.1									
HCM Level of Service			A									
Intersection Capacity Utilization			38.5%			ICU Level of Service			A			
Analysis Period (min)			15									

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕	↕	↕	↕	↕	↕	↕	↕	↕	↕	↕	↕
Volume (vph)	119	52	72	57	27	9	111	742	138	6	331	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00			1.00	0.95		1.00	0.95	
Frt	1.00	0.85		0.99			1.00	0.98		1.00	0.97	
Flt Protected	0.97	1.00		0.97			0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1800	1583		1784			1770	3456		1770	3432	
Flt Permitted	0.97	1.00		0.97			0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1800	1583		1784			1770	3456		1770	3432	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	132	58	80	63	30	10	123	824	153	7	368	93
RTOR Reduction (vph)	0	0	68	0	6	0	0	16	0	0	25	0
Lane Group Flow (vph)	0	190	12	0	97	0	123	961	0	7	436	0
Turn Type	Split		Prot	Split			Prot			Prot		
Protected Phases	4	4	4	8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		8.7	8.7		6.6		5.8	25.4		0.7	20.3	
Effective Green, g (s)		8.7	8.7		6.6		5.8	25.4		0.7	20.3	
Actuated g/C Ratio		0.15	0.15		0.11		0.10	0.44		0.01	0.35	
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		273	240		205		179	1529		22	1214	
v/s Ratio Prot		c0.11	0.01		c0.05		c0.07	c0.28		0.00	0.13	
v/s Ratio Perm												
v/c Ratio		0.70	0.05		0.47		0.69	0.63		0.32	0.36	
Uniform Delay, d1		23.1	20.8		23.8		24.9	12.4		28.1	13.7	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		7.5	0.1		1.7		10.4	0.8		8.2	0.2	
Delay (s)		30.6	20.9		25.5		35.4	13.2		36.3	13.9	
Level of Service		C	C		C		D	B		D	B	
Approach Delay (s)		27.7			25.5			15.7			14.3	
Approach LOS		C			C			B			B	
Intersection Summary												
HCM Average Control Delay			17.5				HCM Level of Service			B		
HCM Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			57.4				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			50.0%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑					↑	↑	↑
Volume (vph)	0	640	141	631	890	0	0	0	0	906	1	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.95		0.97	0.95					0.95	0.91	0.95
Frt		0.97		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3443		3433	3539					1681	1612	1504
Flt Permitted		1.00		0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3443		3433	3539					1681	1612	1504
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	711	157	701	989	0	0	0	0	1007	1	83
RTOR Reduction (vph)	0	27	0	0	0	0	0	0	0	0	1	49
Lane Group Flow (vph)	0	841	0	701	989	0	0	0	0	503	512	26
Turn Type				Prot						Split		Prot
Protected Phases		4		3	8					6	6	6
Permitted Phases												
Actuated Green, G (s)		18.0		15.4	37.4					23.9	23.9	23.9
Effective Green, g (s)		18.0		15.4	37.4					23.9	23.9	23.9
Actuated g/C Ratio		0.26		0.22	0.54					0.34	0.34	0.34
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)		894		763	1910					580	556	519
v/s Ratio Prot		c0.24		c0.20	0.28					0.30	c0.32	0.02
v/s Ratio Perm												
v/c Ratio		0.94		0.92	0.52					0.87	0.92	0.05
Uniform Delay, d1		25.1		26.3	10.2					21.2	21.8	15.1
Progression Factor		1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		17.5		15.9	0.2					12.9	20.8	0.0
Delay (s)		42.6		42.2	10.4					34.1	42.6	15.2
Level of Service		D		D	B					C	D	B
Approach Delay (s)		42.6			23.6		0.0				36.8	
Approach LOS		D			C		A				D	

Intersection Summary												
HCM Average Control Delay		32.1		HCM Level of Service		C						
HCM Volume to Capacity ratio		0.93										
Actuated Cycle Length (s)		69.3		Sum of lost time (s)		12.0						
Intersection Capacity Utilization		87.5%		ICU Level of Service		E						
Analysis Period (min)		15										
c Critical Lane Group												

Baseline

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑	↑				↑	↑	↑
Volume (vph)	127	1443	0	0	1025	872	452	7	700	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor		0.97			0.95	1.00	0.95	0.91	0.95			
Frt		1.00			1.00	0.85	1.00	0.87	0.85			
Flt Protected		0.95			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (prot)		3433			3539	1583	1681	1469	1504			
Flt Permitted		0.95			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (perm)		3433			3539	1583	1681	1469	1504			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	141	1603	0	0	1139	969	502	8	778	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	524	0	11	11	0	0	0
Lane Group Flow (vph)	141	1603	0	0	1139	445	447	410	409	0	0	0
Turn Type		Prot				Prot	Split		Prot			
Protected Phases		7				8	8	2	2			
Permitted Phases												
Actuated Green, G (s)		3.5			24.0	24.0	19.4	19.4	19.4			
Effective Green, g (s)		3.5			24.0	24.0	19.4	19.4	19.4			
Actuated g/C Ratio		0.06			0.41	0.41	0.33	0.33	0.33			
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)		204			1442	645	554	484	495			
v/s Ratio Prot		0.04			0.32	0.28	0.27	c0.28	0.27			
v/s Ratio Perm												
v/c Ratio		0.69			0.79	0.69	0.81	0.85	0.83			
Uniform Delay, d1		27.2			15.2	14.4	18.0	18.4	18.2			
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		9.7			3.0	3.1	8.4	12.8	10.8			
Delay (s)		36.8			18.2	17.5	26.5	31.2	29.0			
Level of Service		D			B	B	C	C	C			
Approach Delay (s)					17.1			28.8			0.0	
Approach LOS					B			C			A	

Intersection Summary												
HCM Average Control Delay		20.4		HCM Level of Service		C						
HCM Volume to Capacity ratio		0.85										
Actuated Cycle Length (s)		58.9		Sum of lost time (s)		8.0						
Intersection Capacity Utilization		87.5%		ICU Level of Service		E						
Analysis Period (min)		15										
c Critical Lane Group												

Baseline

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	50	37	50	490	31	95	109	944	220	158	1442	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	0.91	0.95	0.95	0.91	0.95	1.00	0.91	1.00	0.91	0.91	0.91
Flt	1.00	0.98	0.85	1.00	0.99	0.85	1.00	0.97	1.00	1.00	1.00	1.00
Flt Protected	0.95	0.99	1.00	0.95	0.96	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1681	1649	1504	1681	1617	1504	1770	4941	1770	5063	5063	5063
Flt Permitted	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 (perm)	1681	1649	1504	1681	1617	1504	1770	4941	1770	5063	5063	5063
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	56	41	56	544	34	106	121	1049	244	176	1602	48
RTOR Reduction (vph)	0	7	44	0	2	74	0	37	0	0	3	0
Lane Group Flow (vph)	50	48	4	294	293	21	121	1256	0	176	1647	0
Turn Type	Split	Split	Prot	Split	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	4	8	8	8	5	21	61	61	61	61
Permitted Phases												
Actuated Green, G (s)	6.5	6.5	6.5	17.3	17.3	17.3	7.7	43.6	31.9	31.9	31.9	31.9
Effective Green, g (s)	6.5	6.5	6.5	17.3	17.3	17.3	7.7	43.6	31.9	31.9	31.9	31.9
Actuated g/C Ratio	0.08	0.08	0.08	0.22	0.22	0.22	0.10	0.55	0.40	0.40	0.40	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	138	135	123	366	352	328	172	2713	711	2034	2034	2034
v/s Ratio Prot	c0.03	0.03	0.00	0.17	c0.18	0.01	c0.07	0.25	0.10	0.10	0.10	0.10
v/s Ratio Perm												
v/c Ratio	0.36	0.35	0.03	0.80	0.83	0.06	0.70	0.46	0.25	0.81	0.81	0.81
Uniform Delay, d1	34.5	34.5	33.6	29.4	29.7	24.6	34.7	10.8	15.8	21.1	21.1	21.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.6	1.6	0.1	12.0	15.5	0.1	12.3	0.1	0.2	2.5	2.5	2.5
Delay (s)	36.1	36.1	33.7	41.5	45.1	24.7	47.0	10.9	16.0	23.5	23.5	23.5
Level of Service	D	D	C	D	D	C	D	B	B	C	C	C
Approach Delay (s)		35.3			40.7			14.0		22.8		
Approach LOS		D			D			B		C		
Intersection Summary												
HCM Average Control Delay		23.2										
HCM Volume to Capacity ratio		0.76										
Actuated Cycle Length (s)		79.4										
Intersection Capacity Utilization		66.9%										
Analysis Period (min)		15										
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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	0	0	0	223	860	220	405	1068	0	0	700	811
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
Flt				1.00	1.00	1.00	1.00	1.00			0.91	1.00
Flt Protected				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Flt Permitted				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Satd. Flow (prot)				3433	5085	1583	3433	3539			4131	1362
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	5085	1583	3433	3539			4131	1362
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	248	956	244	450	1187	0	0	778	901
RTOR Reduction (vph)	0	0	0	0	0	64	0	0	0	0	7	7
Lane Group Flow (vph)	0	0	0	248	956	180	450	1187	0	0	1222	443
Confl. Peds. (#/hr)											200	200
Turn Type				Prot		Prot	Prot				Prot	Prot
Protected Phases				3	8	8	5	2			6	6
Permitted Phases												
Actuated Green, G (s)				16.2	16.2	16.2	10.2	39.6			25.4	25.4
Effective Green, g (s)				16.2	16.2	16.2	10.2	39.6			25.4	25.4
Actuated g/C Ratio				0.25	0.25	0.25	0.16	0.62			0.40	0.40
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)				872	1291	402	549	2197			1645	542
v/s Ratio Prot				0.07	c0.19	0.11	c0.13	0.34			0.30	c0.33
v/s Ratio Perm												
v/c Ratio				0.28	0.74	0.45	0.82	0.54			0.74	0.82
Uniform Delay, d1				19.1	21.9	20.0	25.9	6.9			16.4	17.1
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2				0.2	2.3	0.8	9.3	0.3			1.9	9.3
Delay (s)				19.3	24.2	20.8	35.2	7.2			18.3	26.4
Level of Service				B	C	C	D	A			B	C
Approach Delay (s)		0.0			22.8		14.9				20.4	
Approach LOS		A			C		B				C	
Intersection Summary												
HCM Average Control Delay		19.2										
HCM Volume to Capacity ratio		0.79										
Actuated Cycle Length (s)		63.8									12.0	
Intersection Capacity Utilization		112.8%									H	
Analysis Period (min)		15										
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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰	↰					↑↑↑		↰	↑↑↑	
Volume (vph)	537	1031	133	0	0	0	0	899	442	260	620	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	
Fr	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	3190	1441					6091		1770	5085	
Flt Permitted	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1610	3190	1441					6091		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)	597	1146	148	0	0	0	0	999	491	289	689	0
RTOR Reduction (vph)	0	1	80	0	0	0	0	41	0	0	0	0
Lane Group Flow (vph)	537	1220	53	0	0	0	0	1449	0	289	689	0
Turn Type	Split		Prot					Prot				
Protected Phases	4	4	4					2		1	6	
Permitted Phases												
Actuated Green, G (s)	30.0	30.0	30.0					19.6		13.4	37.0	
Effective Green, g (s)	30.0	30.0	30.0					19.6		13.4	37.0	
Actuated g/C Ratio	0.40	0.40	0.40					0.26		0.18	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	3.0	
Lane Grp Cap (vph)	644	1276	576					1592		316	2509	
v/s Ratio Prot	0.33	c0.38	0.04					c0.24		c0.16	0.14	
v/s Ratio Perm												
v/c Ratio	0.83	0.96	0.09					1.06dr		0.91	0.27	
Uniform Delay, d1	20.3	21.9	14.0					26.8		30.2	11.1	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	9.1	15.7	0.1					8.2		29.5	0.1	
Delay (s)	29.4	37.6	14.1					35.0		59.8	11.2	
Level of Service	C	D	B					D		E	B	
Approach Delay (s)		33.6			0.0			35.0			25.5	
Approach LOS		C			A			D			C	

Intersection Summary			
HCM Average Control Delay	32.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	112.8%	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

Baseline

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

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

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑↑	↰	↑↑	↰	↑	↑
Volume (vph)	68	390	0	357	97	31	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		0.95		1.00	1.00
Fr	1.00	1.00		0.97		1.00	0.85
Flt Protected	0.95	1.00		1.00		0.95	1.00
Satd. Flow (prot)	1770	3539		3426		1770	1583
Flt Permitted	0.95	1.00		1.00		0.95	1.00
Satd. Flow (perm)	1770	3539		3426		1770	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	76	433	0	397	108	34	52
RTOR Reduction (vph)	0	0	0	49	0	0	46
Lane Group Flow (vph)	76	433	0	456	0	34	6
Turn Type	Prot		Prot				Prot
Protected Phases	7	4	3	8		6	6
Permitted Phases							
Actuated Green, G (s)	1.3	13.5		8.2		3.0	3.0
Effective Green, g (s)	1.3	13.5		8.2		3.0	3.0
Actuated g/C Ratio	0.05	0.55		0.33		0.12	0.12
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)	94	1950		1147		217	194
v/s Ratio Prot	c0.04	0.12		c0.13		c0.02	0.00
v/s Ratio Perm							
v/c Ratio	0.81	0.22		0.40		0.16	0.03
Uniform Delay, d1	11.5	2.8		6.3		9.6	9.5
Progression Factor	1.00	1.00		1.00		1.00	1.00
Incremental Delay, d2	38.1	0.1		0.2		0.3	0.1
Delay (s)	49.6	2.9		6.5		10.0	9.5
Level of Service	D	A		A		A	A
Approach Delay (s)		9.8		6.5		9.7	
Approach LOS		A		A		A	

Intersection Summary			
HCM Average Control Delay	8.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	24.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	30.1%	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

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

Movement	EBL	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	110	293	331	126	162	99	370	825	332	272	140	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.88	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	0.94		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)	1770	2787	1583	1770	1757		1770	3539	1583	3433	3539	1583
Flt Permitted	0.58	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1085	2787	1583	1770	1757		1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	122	326	368	140	180	110	411	917	369	302	156	146
RTOR Reduction (vph)	0	0	299	0	28	0	0	0	212	0	0	114
Lane Group Flow (vph)	122	326	69	140	262	0	411	917	157	302	156	32
Turn Type	custom	custom	custom	Prot			Prot		Prot	Prot		Prot
Protected Phases				3	8		5	2	2	1	6	6
Permitted Phases	4	4	4									
Actuated Green, G (s)	13.8	13.8	13.8	8.0	25.8		20.1	26.6	26.6	9.5	16.0	16.0
Effective Green, g (s)	13.8	13.8	13.8	8.0	25.8		20.1	26.6	26.6	9.5	16.0	16.0
Actuated g/C Ratio	0.19	0.19	0.19	0.11	0.35		0.27	0.36	0.36	0.13	0.22	0.22
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	203	520	296	192	613		481	1274	570	441	766	343
v/s Ratio Prot				c0.08	0.15		c0.23	c0.26	0.10	0.09	0.04	0.02
v/s Ratio Perm	0.11	c0.12	0.04									
v/c Ratio	0.60	0.63	0.23	0.73	0.43		0.85	0.72	0.27	0.68	0.20	0.09
Uniform Delay, d1	27.5	27.7	25.5	31.9	18.4		25.5	20.4	16.8	30.8	23.7	23.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.9	2.4	0.4	13.0	0.5		13.8	2.0	0.3	4.4	0.1	0.1
Delay (s)	32.5	30.0	26.0	44.9	18.9		39.3	22.4	17.1	35.1	23.9	23.3
Level of Service	C	C	C	D	B		D	C	B	D	C	C
Approach Delay (s)					27.3			25.3			29.4	
Approach LOS					C			C			C	

Intersection Summary			
HCM Average Control Delay	27.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	73.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.6%	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
32: SR-56 EB Ramps & Carmel Creek Road

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	935	0	221	0	0	0	0	642	213	358	232	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	
Frt	1.00	1.00	0.85					0.96		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1681	1583					3407		3433	3539	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1681	1681	1583					3407		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)	1039	0	246	0	0	0	0	713	237	398	258	0
RTOR Reduction (vph)	0	0	160	0	0	0	0	50	0	0	0	0
Lane Group Flow (vph)	519	520	86	0	0	0	0	900	0	398	258	0
Turn Type	Split		Prot							Prot		
Protected Phases	4	4	4					2		1	6	
Permitted Phases												
Actuated Green, G (s)	22.2	22.2	22.2					20.2		9.0	33.2	
Effective Green, g (s)	22.2	22.2	22.2					20.2		9.0	33.2	
Actuated g/C Ratio	0.35	0.35	0.35					0.32		0.14	0.52	
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)	589	589	554					1086		487	1853	
v/s Ratio Prot	0.31	c0.31	0.05					c0.26		c0.12	0.07	
v/s Ratio Perm												
v/c Ratio	0.88	0.88	0.16					0.83		0.82	0.14	
Uniform Delay, d1	19.4	19.4	14.2					20.0		26.4	7.8	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	14.4	14.6	0.1					5.3		10.2	0.0	
Delay (s)	33.8	34.0	14.3					25.3		36.6	7.8	
Level of Service	C	C	B					C		D	A	
Approach Delay (s)		30.1			0.0			25.3			25.3	
Approach LOS		C			A			C			C	

Intersection Summary			
HCM Average Control Delay	27.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	63.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Baseline

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

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↔	↔		↔	↔		↔	↔		↔	↔	
Volume (vph)	131	419	31	94	387	412	45	132	107	237	54	67
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	
Frt	1.00	0.99		1.00	0.92		1.00	0.93		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3503		1770	3265		1770	1738		3433	1708	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3503		1770	3265		1770	1738		3433	1708	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	146	466	34	104	430	458	50	147	119	263	60	74
RTOR Reduction (vph)	0	9	0	0	323	0	0	51	0	0	52	0
Lane Group Flow (vph)	146	491	0	104	565	0	50	215	0	263	82	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	5.7	17.1		3.4	14.8		2.5	13.2		5.4	16.1	
Effective Green, g (s)	5.7	17.1		3.4	14.8		2.5	13.2		5.4	16.1	
Actuated g/C Ratio	0.10	0.31		0.06	0.27		0.05	0.24		0.10	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)	183	1087		109	877		80	416		336	499	
v/s Ratio Prot	c0.08	0.14		0.06	c0.17		0.03	c0.12		c0.08	c0.05	
v/s Ratio Perm												
v/c Ratio	0.80	0.45		0.95	0.64		0.62	0.52		0.78	0.16	
Uniform Delay, d1	24.1	15.2		25.8	17.8		25.8	18.2		24.3	14.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	21.0	0.3		71.1	1.6		14.2	1.1		11.3	0.2	
Delay (s)	45.1	15.5		96.9	19.5		40.1	19.3		35.6	14.7	
Level of Service	D	B		F	B		D	B		D	B	
Approach Delay (s)		22.2			27.6			22.6			28.5	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay		25.6					HCM Level of Service		C			
HCM Volume to Capacity ratio		0.67										
Actuated Cycle Length (s)		55.1					Sum of lost time (s)		20.0			
Intersection Capacity Utilization		64.8%					ICU Level of Service		C			
Analysis Period (min)		15										
c Critical Lane Group												

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

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

Movement	WBL	WBR	SEL	SET	NWL	NWR	NWR2	SWL	SWR
Lane Configurations			↔	↔	↔			↔	↔
Volume (vph)	0	0	277	486	640	0	196	151	248
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
Lane Util. Factor			0.97	0.95	0.95			1.00	0.97
Frt			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	0.90
Adj. Flow (vph)	0	0	308	540	711	0	218	168	276
RTOR Reduction (vph)	0	0	0	0	0	0	140	0	224
Lane Group Flow (vph)	0	0	308	540	711	0	78	168	52
Turn Type			Prot				Perm		Perm
Protected Phases			5	2	6			4	
Permitted Phases							6		4
Actuated Green, G (s)			7.8	27.3	15.5		15.5	8.1	8.1
Effective Green, g (s)			7.8	27.3	15.5		15.5	8.1	8.1
Actuated g/C Ratio			0.18	0.63	0.36		0.36	0.19	0.19
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)			617	2226	1264		565	641	295
v/s Ratio Prot			c0.09	0.15	c0.20			c0.05	
v/s Ratio Perm							0.05		0.03
v/c Ratio			0.50	0.24	0.56		0.14	0.26	0.17
Uniform Delay, d1			16.0	3.5	11.2		9.4	15.1	14.8
Progression Factor			1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2			0.6	0.1	0.6		0.1	0.2	0.3
Delay (s)			16.7	3.6	11.8		9.5	15.3	15.1
Level of Service			B	A	B		A	B	B
Approach Delay (s)	0.0			8.3	11.3			15.2	
Approach LOS	A			A	B			B	
Intersection Summary									
HCM Average Control Delay			10.9				HCM Level of Service		B
HCM Volume to Capacity ratio			0.47						
Actuated Cycle Length (s)			43.4				Sum of lost time (s)		12.0
Intersection Capacity Utilization			39.9%				ICU Level of Service		A
Analysis Period (min)			15						
c Critical Lane Group									

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

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

Movement	EBL2	EBL	EBR	SEL	SET	SER	NWL	NWT	NWR	SWL	SWR
Lane Configurations	↩	↩	↩	↩	↩			↩	↩		
Volume (vph)	411	2	248	258	386	0	0	413	263	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		
Lane Util. Factor	0.95	0.95	1.00	0.97	0.95			0.95	1.00		
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		
Flt Protected	0.95	0.95	1.00	0.95	1.00			1.00	1.00		
Satd. Flow (prot)	1681	1681	1583	3433	3539			3539	1583		
Flt Permitted	0.95	0.95	1.00	0.95	1.00			1.00	1.00		
Satd. Flow (perm)	1681	1681	1583	3433	3539			3539	1583		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	457	2	276	287	429	0	0	459	292	0	0
RTOR Reduction (vph)	0	0	200	0	0	0	0	0	205	0	0
Lane Group Flow (vph)	228	231	76	287	429	0	0	459	87	0	0
Turn Type	Split		Prot	Prot				Prot			
Protected Phases	4	4	4	1	6			2	2		
Permitted Phases											
Actuated Green, G (s)	11.2	11.2	11.2	5.2	21.3			12.1	12.1		
Effective Green, g (s)	11.2	11.2	11.2	5.2	21.3			12.1	12.1		
Actuated g/C Ratio	0.28	0.28	0.28	0.13	0.53			0.30	0.30		
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		
Lane Grp Cap (vph)	465	465	438	441	1861			1057	473		
v/s Ratio Prot	0.14	0.14	0.05	0.08	0.12			0.13	0.06		
v/s Ratio Perm											
v/c Ratio	0.49	0.50	0.17	0.65	0.23			0.43	0.18		
Uniform Delay, d1	12.3	12.3	11.1	16.8	5.2			11.4	10.5		
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		
Incremental Delay, d2	0.8	0.8	0.2	3.4	0.1			0.3	0.2		
Delay (s)	13.1	13.1	11.3	20.2	5.2			11.7	10.7		
Level of Service	B	B	B	C	A			B	B		
Approach Delay (s)		12.4			11.2			11.3		0.0	
Approach LOS		B			B			B		A	
Intersection Summary											
HCM Average Control Delay		11.7									B
HCM Volume to Capacity ratio		0.50									
Actuated Cycle Length (s)		40.5							12.0		
Intersection Capacity Utilization		40.2%									A
Analysis Period (min)		15									
c Critical Lane Group											

Baseline

Synchro 7 - Report
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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	9/15/2010				Analysis Year	2010			
Analysis Time Period	36 Near Term PM								
Project ID 002407 - San Diego Corporate Center Lots									
East/West Street: Del Mar Trail					North/South Street: Carmel Creek Road				
Volume Adjustments and Site Characteristics									
Approach	Eastbound				Westbound				
Movement	L	T	R		L	T	R		
Volume (veh/h)	5	5	4		57	12	10		
%Thrus Left Lane									
Approach	Northbound				Southbound				
Movement	L	T	R		L	T	R		
Volume (veh/h)	12	755	103		15	401	10		
%Thrus Left Lane	50				50				
	Eastbound		Westbound		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		87		431	534	238	234	
% 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	
x, initial	0.01		0.08		0.38	0.47	0.21	0.21	
hd, final value (s)	6.66		6.56		5.47	5.30	6.04	5.97	
x, final value	0.03		0.16		0.65	0.79	0.40	0.39	
Move-up time, m (s)	2.0		2.0		2.3		2.3		
Service Time, ts (s)	4.7		4.6		3.2	3.0	3.7	3.7	
Capacity and Level of Service									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Capacity (veh/h)	264		337		653	675	488	484	
Delay (s/veh)	9.84		10.79		17.94	24.69	12.70	12.42	
LOS	A		B		C	C	B	B	
Approach Delay (s/veh)	9.84		10.79		21.67		12.56		
LOS	A		B		C		B		
Intersection Delay (s/veh)	18.15								
Intersection LOS	C								

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APPENDIX H

NEAR TERM WITH PROJECT SYNCHRO WORKSHEETS

(PHASE 1)

HCM Signalized Intersection Capacity Analysis
1: Via De La Valle & El Camino Real

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	2	378	385	310	507	8	393	5	153	1	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.98	
Satd. Flow (prot)	1770	1863	1583	1770	1858			1775	1583		1750	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.98	
Satd. Flow (perm)	1770	1863	1583	1770	1858			1775	1583		1750	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2	420	428	344	563	9	437	6	170	1	1	1
RTOR Reduction (vph)	0	0	234	0	0	0	0	0	121	0	1	0
Lane Group Flow (vph)	2	420	194	344	572	0	0	443	49	0	2	0
Turn Type	Prot		Prot	Prot		Split		Prot	Split			
Protected Phases	7	4	4	3	8		2	2	2	6	6	
Permitted Phases												
Actuated Green, G (s)	0.8	25.7	25.7	19.6	44.5			25.3	25.3		1.1	
Effective Green, g (s)	0.8	25.7	25.7	19.6	44.5			25.3	25.3		1.1	
Actuated g/C Ratio	0.01	0.29	0.29	0.22	0.51			0.29	0.29		0.01	
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)	16	546	464	396	943			512	457		22	
v/s Ratio Prot	0.00	c0.23	0.12	c0.19	0.31			c0.25	0.03		c0.00	
v/s Ratio Perm												
v/c Ratio	0.12	0.77	0.42	0.87	0.61			0.87	0.11		0.09	
Uniform Delay, d1	43.1	28.3	25.0	32.8	15.4			29.6	22.9		42.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	3.5	6.5	0.6	17.9	1.1			14.2	0.1		1.8	
Delay (s)	46.6	34.7	25.6	50.7	16.5			43.8	23.0		44.6	
Level of Service	D	C	C	D	B			D	C		D	
Approach Delay (s)		30.2			29.3			38.0			44.6	
Approach LOS		C			C			D			D	

Intersection Summary												
HCM Average Control Delay		31.9		HCM Level of Service				C				
HCM Volume to Capacity ratio		0.82										
Actuated Cycle Length (s)		87.7		Sum of lost time (s)				16.0				
Intersection Capacity Utilization		75.8%		ICU Level of Service				D				
Analysis Period (min)		15										
c Critical Lane Group												

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

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

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↰	↑	↱	↰	↑
Volume (vph)	406	308	0	199	286	289	439
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
Frt	1.00	0.85		1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583		1863	1583	1770	3539
Flt Permitted	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583		1863	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	451	342	0	221	318	321	488
RTOR Reduction (vph)	0	255	0	0	244	0	0
Lane Group Flow (vph)	451	87	0	221	74	321	488
Turn Type		Perm	Prot		Perm	Prot	
Protected Phases	1		3	8		7	
Permitted Phases		1			8		6
Actuated Green, G (s)	13.0	13.0		12.0	12.0	14.3	13.0
Effective Green, g (s)	13.0	13.0		12.0	12.0	14.3	13.0
Actuated g/C Ratio	0.25	0.25		0.23	0.23	0.28	0.25
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	870	401		436	370	493	897
v/s Ratio Prot	0.13			c0.12		c0.18	
v/s Ratio Perm		0.05			0.05		c0.14
v/c Ratio	0.52	0.22		0.51	0.20	0.65	0.54
Uniform Delay, d1	16.5	15.1		17.1	15.8	16.3	16.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.3		0.9	0.3	3.1	0.7
Delay (s)	17.0	15.4		18.0	16.1	19.4	17.3
Level of Service	B	B		B	B	B	B
Approach Delay (s)	16.3			16.9			18.1
Approach LOS	B			B			B

Intersection Summary							
HCM Average Control Delay		17.1		HCM Level of Service			B
HCM Volume to Capacity ratio		0.57					
Actuated Cycle Length (s)		51.3		Sum of lost time (s)			12.0
Intersection Capacity Utilization		48.1%		ICU Level of Service			A
Analysis Period (min)		15					
c Critical Lane Group							

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

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

Movement	WBL	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕	↑	↘	↘	↑↑
Volume (vph)	87	7	0	461	52	3	854
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
Frt	0.99			0.98		1.00	1.00
Flt Protected	0.96			1.00		0.95	1.00
Satd. Flow (prot)	3415			3485		1770	3539
Flt Permitted	0.96			1.00		0.95	1.00
Satd. Flow (perm)	3415			3485		1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	97	8	0	512	58	3	949
RTOR Reduction (vph)	7	0	0	13	0	0	0
Lane Group Flow (vph)	98	0	0	557	0	3	949
Turn Type			Prot			Prot	
Protected Phases	8		5	2		1	6
Permitted Phases							
Actuated Green, G (s)	3.2			15.1		0.6	19.7
Effective Green, g (s)	3.2			15.1		0.6	19.7
Actuated g/C Ratio	0.10			0.49		0.02	0.64
Clearance Time (s)	4.0			4.0		4.0	4.0
Vehicle Extension (s)	3.0			3.0		3.0	3.0
Lane Grp Cap (vph)	354			1703		34	2256
v/s Ratio Prot	c0.03			0.16		0.00	c0.27
v/s Ratio Perm							
v/c Ratio	0.28			0.33		0.09	0.42
Uniform Delay, d1	12.8			4.8		14.9	2.8
Progression Factor	1.00			1.00		1.00	1.00
Incremental Delay, d2	0.4			0.1		1.1	0.1
Delay (s)	13.2			4.9		16.0	2.9
Level of Service	B			A		B	A
Approach Delay (s)	13.2			4.9		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			0.40				
Actuated Cycle Length (s)			30.9		Sum of lost time (s)		8.0
Intersection Capacity Utilization			33.6%		ICU Level of Service		A
Analysis Period (min)			15				
c Critical Lane Group							

Baseline

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↗	↘	↔	↗	↘	↔	↗	↘	↔	↗	↘
Volume (vph)	24	114	20	64	84	153	6	314	14	165	699	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	
Frt	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	1821		1770	1682		1770	3516		1770	3469	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1821		1770	1682		1770	3516		1770	3469	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	27	127	22	71	93	170	7	349	16	183	777	119
RTOR Reduction (vph)	0	11	0	0	113	0	0	6	0	0	17	0
Lane Group Flow (vph)	27	138	0	71	150	0	7	359	0	183	879	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	0.7	10.7		2.3	12.3		0.7	14.0		6.4	19.7	
Effective Green, g (s)	0.7	10.7		2.3	12.3		0.7	14.0		6.4	19.7	
Actuated g/C Ratio	0.01	0.22		0.05	0.25		0.01	0.28		0.13	0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	25	394		82	419		25	996		229	1383	
v/s Ratio Prot	0.02	0.08		c0.04	c0.09		0.00	0.10		c0.10	c0.25	
v/s Ratio Perm												
v/c Ratio	1.08	0.35		0.87	0.36		0.28	0.36		0.80	0.64	
Uniform Delay, d1	24.4	16.4		23.4	15.3		24.1	14.1		20.9	12.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	205.9	0.5		56.7	0.5		6.0	0.2		17.5	1.0	
Delay (s)	230.3	16.9		80.1	15.8		30.1	14.4		38.3	12.9	
Level of Service	F	B		F	B		C	B		D	B	
Approach Delay (s)		49.7			29.5			14.6			17.2	
Approach LOS		D			C			B			B	
Intersection Summary												
HCM Average Control Delay			21.7		HCM Level of Service					C		
HCM Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			49.4		Sum of lost time (s)					8.0		
Intersection Capacity Utilization			56.5%		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
5: Quarter Mile Road & El Camino Real

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	5	85	72	95	141	37	41	333	55	42	788	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	
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	0.97		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	1863	1583	1770	1805		1770	3464		1770	3534	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1805		1770	3464		1770	3534	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	94	80	106	157	41	46	370	61	47	876	8
RTOR Reduction (vph)	0	0	65	0	17	0	0	19	0	0	1	0
Lane Group Flow (vph)	6	94	15	106	181	0	46	412	0	47	883	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)	0.6	8.7	8.7	3.5	11.6		1.3	18.1		1.3	18.1	
Effective Green, g (s)	0.6	8.7	8.7	3.5	11.6		1.3	18.1		1.3	18.1	
Actuated g/C Ratio	0.01	0.18	0.18	0.07	0.24		0.03	0.38		0.03	0.38	
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	341	289	130	440		48	1317		48	1344	
v/s Ratio Prot	0.00	0.05		c0.06	c0.10		0.03	0.12		c0.03	c0.25	
v/s Ratio Perm			0.01									
v/c Ratio	0.27	0.28	0.05	0.82	0.41		0.96	0.31		0.98	0.66	
Uniform Delay, d1	23.3	16.7	16.0	21.7	15.1		23.1	10.4		23.1	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	6.6	0.4	0.1	31.0	0.6		113.0	0.1		120.8	1.2	
Delay (s)	29.9	17.2	16.1	52.7	15.8		136.1	10.5		144.0	13.4	
Level of Service	C	B	B	D	B		F	B		F	B	
Approach Delay (s)		17.1			28.7			22.6			19.9	
Approach LOS		B			C			C			B	

Intersection Summary			
HCM Average Control Delay	21.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	47.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	96	873	24	87	879	200	70	58	78	451	23	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.95		1.00	1.00		0.95	0.95	
Frt	1.00	1.00		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	5065		1770	3441		1813	1583		1681	1639	
Flt Permitted	0.95	1.00		0.95	1.00		0.97	1.00		0.95	0.97	
Satd. Flow (perm)	1770	5065		1770	3441		1813	1583		1681	1639	
Peak-hour 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)	107	970	27	97	977	222	78	64	87	501	26	93
RTOR Reduction (vph)	0	3	0	0	21	0	0	0	75	0	17	0
Lane Group Flow (vph)	107	994	0	97	1178	0	0	142	12	316	287	0
Turn Type	Prot			Prot			Split			Prot	Split	
Protected Phases	7	4		3	8		2			2	6	
Permitted Phases												
Actuated Green, G (s)	6.6	30.9		7.7	32.0			11.8	11.8	18.1	18.1	
Effective Green, g (s)	6.6	30.9		7.7	32.0			11.8	11.8	18.1	18.1	
Actuated g/C Ratio	0.08	0.37		0.09	0.38			0.14	0.14	0.21	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)	138	1852		161	1303			253	221	360	351	
v/s Ratio Prot	c0.06	0.20		0.05	c0.34			c0.08	0.01	c0.19	0.17	
v/s Ratio Perm												
v/c Ratio	0.78	0.54		0.60	0.90			0.56	0.05	0.88	0.82	
Uniform Delay, d1	38.2	21.2		36.9	24.8			33.9	31.5	32.1	31.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	23.3	0.3		6.2	9.1			2.8	0.1	20.7	13.7	
Delay (s)	61.6	21.5		43.2	33.9			36.8	31.6	52.8	45.3	
Level of Service	E	C		D	C			D	C	D	D	
Approach Delay (s)		25.3			34.6			34.8			49.1	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM Average Control Delay	34.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	84.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

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

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

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑		↑
Volume (veh/h)	1430	55	0	1382	0	133
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)	1589	61	0	1536	0	148
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			0.87		0.91	0.87
vC, conflicting volume			1650		2387	560
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1205		1430	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	84
cM capacity (veh/h)			497		114	938
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	636	636	379	768	768	148
Volume Left	0	0	0	0	0	0
Volume Right	0	0	61	0	0	148
cSH	1700	1700	1700	1700	1700	938
Volume to Capacity	0.37	0.37	0.22	0.45	0.45	0.16
Queue Length 95th (ft)	0	0	0	0	0	14
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.6
Lane LOS						A
Approach Delay (s)	0.0			0.0		9.6
Approach LOS						A
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			43.8%		ICU Level of Service	A
Analysis Period (min)			15			

Baseline

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

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

	↖	→	←	↗	↘	↙
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↖↗	↘↙
Volume (vph)	0	777	1037	0	996	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		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	863	1152	0	1107	373
RTOR Reduction (vph)	0	0	0	0	3	39
Lane Group Flow (vph)	0	863	1152	0	1141	297
Turn Type	Perm					
Protected Phases		2 6	6 2		4	
Permitted Phases						4
Actuated Green, G (s)		42.0	42.0		26.0	26.0
Effective Green, g (s)		42.0	42.0		26.0	26.0
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)		1860	1860		1116	469
v/s Ratio Prot		0.24	0.33		0.33	
v/s Ratio Perm						0.21
v/c Ratio		0.46	0.62		1.02	0.63
Uniform Delay, d1		11.9	13.3		27.0	22.9
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.2	0.6		32.8	2.8
Delay (s)		12.1	13.9		59.8	25.7
Level of Service		B	B		E	C
Approach Delay (s)		12.1	13.9		52.0	
Approach LOS		B	B		D	
Intersection Summary						
HCM Average Control Delay			29.6		HCM Level of Service	C
HCM Volume to Capacity ratio			0.77			
Actuated Cycle Length (s)			79.9		Sum of lost time (s)	11.9
Intersection Capacity Utilization			120.7%		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-15 NB Ramps

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↱		↰	↱	
Volume (vph)	231	1463	0	0	1506	930	384	59	1052	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0				
Lane Util. Factor	0.97	0.95			0.91	1.00	0.95	0.91	0.95			
Friction	1.00	1.00			1.00	0.85	1.00	0.88	0.85			
Fit Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539			5085	1583	1681	1479	1504			
Fit Permitted	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539			5085	1583	1681	1479	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	1626	0	0	1673	1033	427	66	1169	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	455	0	7	7	0	0	0
Lane Group Flow (vph)	257	1626	0	0	1673	578	384	640	624	0	0	0
Turn Type	Prot				Prot	Split		Prot				
Protected Phases	5	2			6	6	8	8	8			
Permitted Phases												
Actuated Green, G (s)	9.8	59.0			45.2	45.2	53.0	53.0	53.0			
Effective Green, g (s)	9.8	59.0			45.2	45.2	53.0	53.0	53.0			
Actuated g/C Ratio	0.08	0.49			0.38	0.38	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)	280	1740			1915	596	742	653	664			
v/s Ratio Prot	0.07	0.46			0.33	0.37	0.23	0.43	0.42			
v/s Ratio Perm												
v/c Ratio	0.92	0.93			0.87	0.97	0.52	0.98	0.94			
Uniform Delay, d1	54.7	28.7			34.7	36.7	24.2	33.0	32.0			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	32.6	10.8			5.9	30.1	0.6	30.2	21.4			
Delay (s)	87.4	39.5			40.6	66.9	24.9	63.2	53.4			
Level of Service	F	D			D	E	C	E	D			
Approach Delay (s)		46.0				50.6		50.6		0.0		
Approach LOS		D				D		D		A		
Intersection Summary												
HCM Average Control Delay		49.2										
HCM Volume to Capacity ratio		0.96										
Actuated Cycle Length (s)		120.0							8.0			
Intersection Capacity Utilization		97.1%							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 (Phase 1) AM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↱		↰	↱	
Volume (vph)	111	1701	694	99	1913	65	201	10	36	104	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
Friction	1.00	1.00	0.85	1.00	1.00		1.00	0.88		1.00	1.00	0.85
Fit 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	5060		3433	3123		1770	1863	1583
Fit 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	5060		3433	3123		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	1890	771	110	2126	72	223	11	40	116	66	347
RTOR Reduction (vph)	0	0	364	0	4	0	0	35	0	0	0	134
Lane Group Flow (vph)	123	1890	407	110	2194	0	223	16	0	116	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	42.1	42.1	6.9	41.0		7.0	10.6		13.0	16.6	16.6
Effective Green, g (s)	8.0	42.1	42.1	6.9	41.0		7.0	10.6		13.0	16.6	16.6
Actuated g/C Ratio	0.09	0.48	0.48	0.08	0.46		0.08	0.12		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)	160	2416	752	138	2342		271	374		260	349	297
v/s Ratio Prot	0.07	0.37	0.26	0.06	0.43		0.06	0.01		0.07	0.04	0.13
v/s Ratio Perm												
v/c Ratio	0.77	0.78	0.54	0.80	0.94		0.82	0.04		0.45	0.19	0.72
Uniform Delay, d1	39.4	19.4	16.4	40.2	22.6		40.2	34.5		34.5	30.3	33.8
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	19.6	1.7	0.8	26.5	7.9		17.9	0.0		1.2	0.3	8.0
Delay (s)	59.0	21.1	17.2	66.6	30.5		58.1	34.6		35.7	30.6	41.8
Level of Service	E	C	B	E	C		E	C		D	C	D
Approach Delay (s)		21.7			32.2			53.7			39.1	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM Average Control Delay		28.9										
HCM Volume to Capacity ratio		0.86										
Actuated Cycle Length (s)		88.6								16.0		
Intersection Capacity Utilization		73.5%								D		
Analysis Period (min)		15										
c : Critical Lane Group												

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

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

	EBT	EBR	WBL	WBT	NBL	NBR
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑	↑↑↑	↑↑	↑
Volume (vph)	1843	192	115	2077	31	19
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)	2048	213	128	2308	34	21
RTOR Reduction (vph)	0	86	0	0	0	20
Lane Group Flow (vph)	2048	127	128	2308	34	1
Turn Type		Prot	Prot		Perm	
Protected Phases	4	4	3	8	2	
Permitted Phases						2
Actuated Green, G (s)	30.6	30.6	5.3	39.9	3.4	3.4
Effective Green, g (s)	30.6	30.6	5.3	39.9	3.4	3.4
Actuated g/C Ratio	0.60	0.60	0.10	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)	3033	944	183	3955	228	105
v/s Ratio Prot	c0.40	0.08	0.07	c0.45	c0.01	
v/s Ratio Perm						0.00
v/c Ratio	0.68	0.13	0.70	0.58	0.15	0.01
Uniform Delay, d1	7.0	4.5	22.2	2.3	22.6	22.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.1	11.1	0.2	0.3	0.1
Delay (s)	7.6	4.6	33.3	2.5	22.9	22.4
Level of Service	A	A	C	A	C	C
Approach Delay (s)	7.3			4.2	22.7	
Approach LOS	A			A	C	
Intersection Summary						
HCM Average Control Delay		5.9		HCM Level of Service		A
HCM Volume to Capacity ratio		0.64				
Actuated Cycle Length (s)		51.3		Sum of lost time (s)		12.0
Intersection Capacity Utilization		55.3%		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.

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

	EBT	EBR	WBL	WBT	NBL	NBR
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↑	↑↑↑	↑	↑
Volume (vph)	1708	154	77	2167	25	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	0.97	0.91	1.00	1.00
Flt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	3433	5085	1770	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	3433	5085	1770	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1898	171	86	2408	28	14
RTOR Reduction (vph)	0	61	0	0	0	13
Lane Group Flow (vph)	1898	110	86	2408	28	1
Turn Type		Prot	Prot		Perm	
Protected Phases	4	4	3	8	2	
Permitted Phases						2
Actuated Green, G (s)	30.9	30.9	2.5	37.4	2.5	2.5
Effective Green, g (s)	30.9	30.9	2.5	37.4	2.5	2.5
Actuated g/C Ratio	0.65	0.65	0.05	0.78	0.05	0.05
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3280	1021	179	3970	92	83
v/s Ratio Prot	0.37	0.07	0.03	c0.47	c0.02	
v/s Ratio Perm						0.00
v/c Ratio	0.58	0.11	0.48	0.61	0.30	0.01
Uniform Delay, d1	4.8	3.2	22.1	2.2	21.9	21.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.0	2.0	0.3	1.9	0.0
Delay (s)	5.1	3.3	24.1	2.5	23.7	21.6
Level of Service	A	A	C	A	C	C
Approach Delay (s)	4.9			3.2	23.0	
Approach LOS	A			A	C	
Intersection Summary						
HCM Average Control Delay		4.2		HCM Level of Service		A
HCM Volume to Capacity ratio		0.59				
Actuated Cycle Length (s)		47.9		Sum of lost time (s)		8.0
Intersection Capacity Utilization		51.9%		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
13: Del Mar Heights Road & El Camino Real

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑↑	↘	↔	↑↑	↘	↔	↑↑	↘	↔	↑↑	↘
Volume (vph)	224	921	388	298	1534	95	248	108	88	164	335	440
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	4859		3433	5041		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	4859		3433	5041		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)	249	1023	431	331	1704	106	276	120	98	182	372	489
RTOR Reduction (vph)	0	93	0	0	9	0	0	0	75	0	155	0
Lane Group Flow (vph)	249	1361	0	331	1801	0	276	120	23	182	706	0
Turn Type	Prot			Prot			Prot	Perm		Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	7.1	26.8		10.3	30.0		8.0	18.6	18.6	6.6	17.2	
Effective Green, g (s)	7.1	26.8		10.3	30.0		8.0	18.6	18.6	6.6	17.2	
Actuated g/C Ratio	0.09	0.34		0.13	0.38		0.10	0.24	0.24	0.08	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)	311	1663		452	1931		351	1208	376	289	1022	
v/s Ratio Prot	0.07	0.28		c0.10	c0.36		c0.08	0.02		0.05	c0.15	
v/s Ratio Perm									0.01			
v/c Ratio	0.80	0.82		0.73	0.93		0.79	0.10	0.06	0.63	0.97dr	
Uniform Delay, d1	34.9	23.5		32.7	23.2		34.3	23.3	23.1	34.7	28.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	13.7	3.3		6.0	8.9		11.0	0.0	0.1	4.3	2.0	
Delay (s)	48.6	26.8		38.7	32.1		45.4	23.3	23.2	38.9	30.1	
Level of Service	D	C		D	C		D	C	C	D	C	
Approach Delay (s)		30.0			33.1			35.6			31.7	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM Average Control Delay	32.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	78.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	74.9%	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
14: Del Mar Heights Road & Carmel Country Rd.

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑↑	↘	↔	↑↑	↘	↔	↑↑	↘	↔	↑↑	↘
Volume (vph)	147	625	288	280	1241	174	423	188	111	146	185	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.91		1.00	0.95	
Frt	1.00	0.95		1.00	0.98		1.00	0.94		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	4845		3433	4992		3433	4803		1770	3304	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	4845		3433	4992		3433	4803		1770	3304	
Peak-hour 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)	163	694	320	311	1379	193	470	209	123	162	206	164
RTOR Reduction (vph)	0	106	0	0	23	0	0	101	0	0	138	0
Lane Group Flow (vph)	163	908	0	311	1549	0	470	231	0	162	232	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	5.0	20.0		9.2	24.2		11.8	12.1		9.6	9.9	
Effective Green, g (s)	5.0	20.0		9.2	24.2		11.8	12.1		9.6	9.9	
Actuated g/C Ratio	0.07	0.30		0.14	0.36		0.18	0.18		0.14	0.15	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	257	1448		472	1806		606	869		254	489	
v/s Ratio Prot	0.05	0.19		c0.09	c0.31		c0.14	0.05		0.09	c0.07	
v/s Ratio Perm												
v/c Ratio	0.63	0.63		0.66	0.86		0.78	0.27		0.64	0.47	
Uniform Delay, d1	30.1	20.2		27.4	19.8		26.3	23.6		27.0	26.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.0	0.9		3.3	4.3		6.2	0.2		5.2	0.7	
Delay (s)	35.1	21.1		30.7	24.0		32.5	23.7		32.2	26.8	
Level of Service	D	C		C	C		C	C		C	C	
Approach Delay (s)		23.0			25.1			28.9			28.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	25.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	66.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	212	649	120	81	1092	216	110	156	11	56	62	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.98		1.00	0.99		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	4966		1770	4959		1770	1845		1770	1674	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	4966		1770	4959		1770	1845		1770	1674	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	236	721	133	90	1213	240	122	173	12	62	69	143
RTOR Reduction (vph)	0	29	0	0	34	0	0	3	0	0	102	0
Lane Group Flow (vph)	236	825	0	90	1419	0	122	182	0	62	110	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	12.5	31.2		6.8	25.5		6.1	13.9		3.9	11.7	
Effective Green, g (s)	12.5	31.2		6.8	25.5		6.1	13.9		3.9	11.7	
Actuated g/C Ratio	0.17	0.43		0.09	0.36		0.08	0.19		0.05	0.16	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	308	2158		168	1761		150	357		96	273	
v/s Ratio Prot	c0.13	0.17		0.05	c0.29		c0.07	c0.10		0.04	0.07	
v/s Ratio Perm												
v/c Ratio	0.77	0.38		0.54	0.81		0.81	0.51		0.65	0.40	
Uniform Delay, d1	28.3	13.8		31.0	20.9		32.3	25.9		33.3	26.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	10.8	0.1		3.3	2.8		27.4	1.1		14.0	1.0	
Delay (s)	39.1	13.9		34.3	23.7		59.7	27.0		47.2	27.9	
Level of Service	D	B		C	C		E	C		D	C	
Approach Delay (s)		19.3			24.3			40.0			32.3	
Approach LOS		B			C			D			C	
Intersection Summary												
HCM Average Control Delay		24.8			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.70										
Actuated Cycle Length (s)		71.8			Sum of lost time (s)			12.0				
Intersection Capacity Utilization		68.3%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

Baseline

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	154	568	35	67	1138	36	44	26	55	49	60	356
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	
Frt	1.00	0.99		1.00	1.00		1.00	0.90		1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5041		1770	5062		1770	1673		1770	1624	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5041		1770	5062		1770	1673		1770	1624	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	171	631	39	74	1264	40	49	29	61	54	67	396
RTOR Reduction (vph)	0	9	0	0	5	0	0	49	0	0	265	0
Lane Group Flow (vph)	171	661	0	74	1299	0	49	41	0	54	198	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	8.1	24.8		3.7	20.4		2.4	11.2		2.4	11.2	
Effective Green, g (s)	8.1	24.8		3.7	20.4		2.4	11.2		2.4	11.2	
Actuated g/C Ratio	0.14	0.43		0.06	0.35		0.04	0.19		0.04	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)	247	2152		113	1777		73	323		73	313	
v/s Ratio Prot	c0.10	0.13		0.04	c0.26		0.03	0.02		c0.03	c0.12	
v/s Ratio Perm												
v/c Ratio	0.69	0.31		0.65	0.73		0.67	0.13		0.74	0.63	
Uniform Delay, d1	23.8	11.0		26.6	16.5		27.5	19.4		27.5	21.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.1	0.1		12.8	1.6		21.6	0.2		32.0	4.1	
Delay (s)	31.9	11.1		39.4	18.0		49.1	19.6		59.6	25.7	
Level of Service	C	B		D	B		D	B		E	C	
Approach Delay (s)		15.3			19.2			30.0			29.2	
Approach LOS		B			B			C			C	
Intersection Summary												
HCM Average Control Delay		20.4			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.70										
Actuated Cycle Length (s)		58.1			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
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HCM Signalized Intersection Capacity Analysis
17: Del Mar Heights Road & Carmel Canyon Road

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↑	↑↑↑	↑↑	↑
Volume (vph)	563	126	397	1019	271	342
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)	4946		1770	5085	3433	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	4946		1770	5085	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	626	140	441	1132	301	380
RTOR Reduction (vph)	55	0	0	0	0	304
Lane Group Flow (vph)	711	0	441	1132	301	76
Turn Type			Prot		Perm	
Protected Phases	4		3	8	2	
Permitted Phases					2	
Actuated Green, G (s)	14.3		17.5	35.8	10.9	10.9
Effective Green, g (s)	14.3		17.5	35.8	10.9	10.9
Actuated g/C Ratio	0.26		0.32	0.65	0.20	0.20
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1293		566	3328	684	315
v/s Ratio Prot	c0.14		c0.25	0.22	c0.09	
v/s Ratio Perm					0.05	
v/c Ratio	0.55		0.78	0.34	0.44	0.24
Uniform Delay, d1	17.4		16.8	4.2	19.2	18.4
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5		6.7	0.1	0.5	0.4
Delay (s)	17.9		23.6	4.3	19.7	18.8
Level of Service	B		C	A	B	B
Approach Delay (s)	17.9			9.7	19.2	
Approach LOS	B			A	B	
Intersection Summary:						
HCM Average Control Delay			13.9		HCM Level of Service	B
HCM Volume to Capacity ratio			0.62			
Actuated Cycle Length (s)			54.7		Sum of lost time (s)	12.0
Intersection Capacity Utilization			53.4%		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
18: Del Mar Highlands Town Ctr. & El Camino Real

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↑	↑		↑	↑	↑	↑↑	↑↑	↑	↑	↑↑	↑
Volume (vph)	13	4		4	97	23	110	92	340	101	165	892
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	0.95	0.95		1.00	1.00	1.00	0.97	0.91		0.97	0.91	
Frt	1.00	0.95		1.00	0.85	1.00	0.97	0.97		1.00	0.99	
Flt Protected	0.95	0.99		0.96	1.00	0.95	1.00			0.95	1.00	
Satd. Flow (prot)	1681	1651		1791	1583	3433	4911			3433	5054	
Flt Permitted	0.95	0.99		0.96	1.00	0.95	1.00			0.95	1.00	
Satd. Flow (perm)	1681	1651		1791	1583	3433	4911			3433	5054	
Peak-hour 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)	14	4	4	108	26	122	102	378	112	183	991	42
RTOR Reduction (vph)	0	4	0	0	0	105	0	50	0	0	4	0
Lane Group Flow (vph)	11	7	0	0	134	17	102	440	0	183	1029	0
Turn Type	Split			Split		Perm	Prot			Prot		
Protected Phases	2	2		6	6		3	8		7	4	
Permitted Phases						6						
Actuated Green, G (s)	2.0	2.0		7.0	7.0		5.2	19.0		6.1	19.9	
Effective Green, g (s)	2.0	2.0		7.0	7.0		5.2	19.0		6.1	19.9	
Actuated g/C Ratio	0.04	0.04		0.14	0.14		0.10	0.38		0.12	0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	67	66		250	221		356	1862		418	2007	
v/s Ratio Prot	c0.01	0.00		c0.07			0.03	0.09		c0.05	c0.20	
v/s Ratio Perm						0.01						
v/c Ratio	0.16	0.11		0.54	0.08		0.29	0.24		0.44	0.51	
Uniform Delay, d1	23.2	23.2		20.0	18.7		20.7	10.6		20.4	11.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	0.7		2.2	0.1		0.4	0.1		0.7	0.2	
Delay (s)	24.4	23.9		22.2	18.9		21.2	10.7		21.1	11.7	
Level of Service	C	C		C	B		C	B		C	B	
Approach Delay (s)		24.2		20.6				12.5			13.1	
Approach LOS		C		C				B			B	
Intersection Summary:												
HCM Average Control Delay			14.0							B		
HCM Volume to Capacity ratio			0.44									
Actuated Cycle Length (s)			50.1							12.0		
Intersection Capacity Utilization			44.7%							A		
Analysis Period (min)			15									
c Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
19: Townsgate Drive & Carmel Country Road

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	170	85	116	46	195	153	114	436	7	103	456	170
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	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	0.93		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	1740		1770	3531		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1740		1770	3531		1770	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	189	94	129	51	217	170	127	484	8	114	507	189
RTOR Reduction (vph)	0	0	79	0	36	0	0	2	0	0	0	147
Lane Group Flow (vph)	189	94	50	51	351	0	127	490	0	114	507	42
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)	12.2	26.7	26.7	3.5	18.0		7.1	16.3		6.1	15.3	15.3
Effective Green, g (s)	12.2	26.7	26.7	3.5	18.0		7.1	16.3		6.1	15.3	15.3
Actuated g/C Ratio	0.18	0.39	0.39	0.05	0.26		0.10	0.24		0.09	0.22	0.22
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	315	725	616	90	457		183	839		157	789	353
v/s Ratio Prot	c0.11	0.05		0.03	c0.20		c0.07	0.14		0.06	c0.14	
v/s Ratio Perm			0.03									0.03
v/c Ratio	0.60	0.13	0.08	0.57	0.77		0.69	0.58		0.73	0.64	0.12
Uniform Delay, d1	26.0	13.5	13.2	31.8	23.4		29.7	23.2		30.4	24.2	21.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.2	0.1	0.1	7.9	7.6		10.8	1.0		15.4	1.8	0.2
Delay (s)	29.2	13.6	13.3	39.8	30.9		40.5	24.2		45.8	26.0	21.4
Level of Service	C	B	B	D	C		D	C		D	C	C
Approach Delay (s)		20.6			32.0			27.5			27.7	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	27.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	68.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	61.3%	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
20: Townsgate Drive & El Camino Real

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	63	70	6	233	52	138	104	311	54	149	555	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.91		1.00	0.91	
Flt	1.00	0.99		1.00	1.00	0.85	1.00	0.98		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1840		1770	1863	1583	1770	4973		1770	4889	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1840		1770	1863	1583	1770	4973		1770	4889	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	70	78	7	259	58	153	116	346	60	166	617	214
RTOR Reduction (vph)	0	5	0	0	0	113	0	34	0	0	83	0
Lane Group Flow (vph)	70	80	0	259	58	40	116	372	0	166	748	0
Turn Type	Prot			Prot		Perm	Prot			Prot		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases						2						
Actuated Green, G (s)	3.8	7.1		11.7	15.0	15.0	5.4	14.7		8.3	17.6	
Effective Green, g (s)	3.8	7.1		11.7	15.0	15.0	5.4	14.7		8.3	17.6	
Actuated g/C Ratio	0.07	0.12		0.20	0.26	0.26	0.09	0.25		0.14	0.30	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	116	226		358	483	411	165	1265		254	1489	
v/s Ratio Prot	0.04	c0.04		c0.15	0.03		0.07	0.07		c0.09	c0.15	
v/s Ratio Perm						0.03						
v/c Ratio	0.60	0.35		0.72	0.12	0.10	0.70	0.29		0.65	0.50	
Uniform Delay, d1	26.3	23.2		21.5	16.4	16.3	25.4	17.4		23.4	16.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.6	1.0		7.1	0.1	0.1	12.7	0.1		5.9	0.3	
Delay (s)	34.8	24.2		28.6	16.5	16.4	38.2	17.5		29.3	16.8	
Level of Service	C	C		C	B	B	D	B		C	B	
Approach Delay (s)		29.0			23.1			22.1			18.9	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM Average Control Delay	21.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	57.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	50.4%	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
21: Carmel Creek Road & Carmel Country Road

Near Term + Project (Phase 1) AM

3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	310	122	127	62	300	30	277	421	29	68	410	397
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	1.00	0.85		0.99		1.00	0.99		1.00	0.93	
Flt Protected	0.95	1.00	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583		1829		1770	3505		1770	3278	
Flt Permitted	0.95	1.00	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583		1829		1770	3505		1770	3278	
Peak-hour 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)	344	136	141	69	333	33	308	468	32	76	456	441
RTOR Reduction (vph)	0	0	113	0	3	0	0	5	0	0	173	0
Lane Group Flow (vph)	344	136	28	0	432	0	308	495	0	76	724	0
Turn Type	Split		Perm	Split			Prot			Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	20.0	20.0	20.0		23.0		18.0	34.3		7.5	23.8	
Effective Green, g (s)	20.0	20.0	20.0		23.0		18.0	34.3		7.5	23.8	
Actuated g/C Ratio	0.20	0.20	0.20		0.23		0.18	0.34		0.07	0.24	
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)	351	370	314		417		316	1193		132	774	
v/s Ratio Prot	c0.19	0.07			c0.24		c0.17	0.14		0.04	c0.22	
v/s Ratio Perm			0.02									
v/c Ratio	0.98	0.37	0.09		1.04		0.97	0.42		0.58	0.93	
Uniform Delay, d1	40.2	34.9	33.0		38.9		41.2	25.5		45.1	37.7	
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	42.5	0.6	0.1		53.6		43.4	0.2		6.0	18.3	
Delay (s)	82.7	35.6	33.1		92.5		84.6	25.8		51.1	56.0	
Level of Service	F	D	C		F		F	C		D	E	
Approach Delay (s)		61.1			92.5			48.2			55.6	
Approach LOS		E			F			D			E	
Intersection Summary												
HCM Average Control Delay		60.4			HCM Level of Service			E				
HCM Volume to Capacity ratio		0.98										
Actuated Cycle Length (s)		100.8			Sum of lost time (s)			16.0				
Intersection Capacity Utilization		91.0%			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

Near Term + Project (Phase 1) AM

3/2/2012

Movement	EBL	EBR	EBR2	NWL2	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↰	↱	↱	↰	↰	↱	↰	↱	↱	↰	↱	↱
Volume (vph)	31	113	252	97	228	96	218	408	30	75	907	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	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97		0.97	0.91		1.00	0.91	
Frt	1.00	0.85	0.85	1.00	0.96		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1583	1583	1770	3335		3433	5033		1770	5003	
Flt Permitted	0.95	1.00	1.00	0.95	0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1583	1583	1770	3335		3433	5033		1770	5003	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	34	126	280	108	253	107	242	453	33	83	1008	122
RTOR Reduction (vph)	0	0	235	0	60	0	0	10	0	0	17	0
Lane Group Flow (vph)	34	126	45	108	300	0	242	476	0	83	1113	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)	10.7	10.7	10.7	9.6	9.6		10.0	24.0		6.6	20.6	
Effective Green, g (s)	10.7	10.7	10.7	9.6	9.6		10.0	24.0		6.6	20.6	
Actuated g/C Ratio	0.16	0.16	0.16	0.14	0.14		0.15	0.36		0.10	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)	283	253	253	254	479		513	1806		175	1541	
v/s Ratio Prot	0.02			0.06	c0.09		c0.07	c0.09		0.05	c0.22	
v/s Ratio Perm		c0.08	0.03									
v/c Ratio	0.12	0.50	0.18	0.43	0.63		0.47	0.26		0.47	0.72	
Uniform Delay, d1	24.1	25.6	24.3	26.1	27.0		26.0	15.2		28.5	20.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	1.5	0.3	1.1	2.6		0.7	0.1		2.0	1.7	
Delay (s)	24.3	27.2	24.6	27.3	29.5		26.7	15.3		30.5	22.3	
Level of Service	C	C	C	C	C		C	B		C	C	
Approach Delay (s)	25.3				29.0			19.1			22.9	
Approach LOS	C				C			B			C	
Intersection Summary												
HCM Average Control Delay		23.3			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.65										
Actuated Cycle Length (s)		66.9			Sum of lost time (s)			20.0				
Intersection Capacity Utilization		52.4%			ICU Level of Service			A				
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

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↔	↔		↔			↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	48	6	70	13	27	14	123	31	2	3	16	195
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)	53	7	78	14	30	16	137	34	2	3	18	217
Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1							
Volume Total (vph)	60	78	60	173	238							
Volume Left (vph)	53	0	14	137	3							
Volume Right (vph)	0	78	16	2	217							
Hadj (s)	0.48	-0.67	-0.07	0.18	-0.51							
Departure Headway (s)	6.0	4.8	5.1	4.9	4.1							
Degree Utilization, x	0.10	0.10	0.08	0.23	0.27							
Capacity (veh/h)	558	685	640	705	825							
Control Delay (s)	8.5	7.2	8.5	9.3	8.7							
Approach Delay (s)	7.8		8.5	9.3	8.7							
Approach LOS	A		A	A	A							
Intersection Summary												
Delay			8.6									
HCM Level of Service			A									
Intersection Capacity Utilization			41.3%			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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	54	92	119	205	63	25	31	295	83	15	783	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		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	1583		1779		1770	3423		1770	3457	
Flt Permitted		0.98	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1829	1583		1779		1770	3423		1770	3457	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	60	102	132	228	70	28	34	328	92	17	870	160
RTOR Reduction (vph)	0	0	110	0	4	0	0	30	0	0	18	0
Lane Group Flow (vph)	0	162	22	0	322	0	34	390	0	17	1012	0
Turn Type	Split		Prot	Split			Prot			Prot		
Protected Phases	4	4	4	8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		11.5	11.5		15.9		1.6	26.2		0.8	25.4	
Effective Green, g (s)		11.5	11.5		15.9		1.6	26.2		0.8	25.4	
Actuated g/C Ratio		0.16	0.16		0.23		0.02	0.37		0.01	0.36	
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	299	259		402		40	1274		20	1247		
v/s Ratio Prot	c0.09	0.01		c0.18		c0.02	0.11		0.01	c0.29		
v/s Ratio Perm												
v/c Ratio	0.54	0.08		0.80		0.85	0.31		0.85	0.81		
Uniform Delay, d1	27.0	25.0		25.8		34.3	15.7		34.7	20.3		
Progression Factor	1.00	1.00		1.00		1.00	1.00		1.00	1.00		
Incremental Delay, d2	2.0	0.1		10.9		85.5	0.1		131.5	4.1		
Delay (s)	29.0	25.1		36.7		119.8	15.8		166.2	24.5		
Level of Service	C	C		D		F	B		F	C		
Approach Delay (s)	27.3		36.7			23.6			26.8			
Approach LOS	C		D			C			C			
Intersection Summary												
HCM Average Control Delay		27.7				HCM Level of Service		C				
HCM Volume to Capacity ratio		0.75										
Actuated Cycle Length (s)		70.4				Sum of lost time (s)		16.0				
Intersection Capacity Utilization		59.8%				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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑					↑↑	↑↑	↑
Volume (vph)	0	321	181	405	641	0	0	0	0	1081	3	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.95		0.97	0.95					0.95	0.91	0.95
Frt		0.95		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3348		3433	3539					1681	1610	1504
Flt Permitted		1.00		0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3348		3433	3539					1681	1610	1504
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	357	201	450	712	0	0	0	0	1201	3	164
RTOR Reduction (vph)	0	106	0	0	0	0	0	0	0	0	1	69
Lane Group Flow (vph)	0	452	0	450	712	0	0	0	0	613	606	79
Turn Type				Prot						Split		Prot
Protected Phases		4		3	8					6	6	6
Permitted Phases												
Actuated Green, G (s)		14.2		11.7	29.9					31.1	31.1	31.1
Effective Green, g (s)		14.2		11.7	29.9					31.1	31.1	31.1
Actuated g/C Ratio		0.21		0.17	0.43					0.45	0.45	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)		689		582	1534					758	726	678
v/s Ratio Prot		c0.14		c0.13	0.20					0.36	c0.38	0.05
v/s Ratio Perm												
v/c Ratio		0.66		0.77	0.46					0.81	0.83	0.12
Uniform Delay, d1		25.2		27.4	13.9					16.4	16.7	11.0
Progression Factor		1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		2.3		6.3	0.2					6.4	8.2	0.1
Delay (s)		27.4		33.7	14.1					22.7	24.9	11.1
Level of Service		C		C	B					C	C	B
Approach Delay (s)		27.4			21.7		0.0				22.4	
Approach LOS		C			C		A				C	
Intersection Summary												
HCM Average Control Delay		23.1				HCM Level of Service		C				
HCM Volume to Capacity ratio		0.78										
Actuated Cycle Length (s)		69.0				Sum of lost time (s)		12.0				
Intersection Capacity Utilization		115.0%				ICU Level of Service		H				
Analysis Period (min)		15										
c Critical Lane Group												

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑	↑↑				↑↑	↑↑	↑
Volume (vph)	63	1267	0	0	974	879	109	2	570	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0			4.0			
Lane Util. Factor		0.97			0.95	1.00			0.95			
Frt		1.00			1.00	0.85			1.00			
Flt Protected		0.95			1.00	1.00			0.95			
Satd. Flow (prot)		3433			3539	1583			1681			
Flt Permitted		0.95			1.00	1.00			0.95			
Satd. Flow (perm)		3433			3539	1583			1681			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	70	1408	0	0	1082	977	121	2	633	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	493	0	29	29	0	0	0
Lane Group Flow (vph)	70	1408	0	0	1082	484	109	295	294	0	0	0
Turn Type		Prot				Prot	Split		Prot			
Protected Phases		7				8	8	2	2			
Permitted Phases												
Actuated Green, G (s)		2.4				25.8	25.8	14.9	14.9			
Effective Green, g (s)		2.4				25.8	25.8	14.9	14.9			
Actuated g/C Ratio		0.04				0.47	0.47	0.27	0.27			
Clearance Time (s)		4.0				4.0	4.0	4.0	4.0			
Vehicle Extension (s)		3.0				3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)		150				1657	741	455	392			
v/s Ratio Prot		0.02				0.31	0.31	0.06	c0.20			
v/s Ratio Perm												
v/c Ratio		0.47				0.65	0.65	0.24	0.75			
Uniform Delay, d1		25.7				11.2	11.2	15.7	18.4			
Progression Factor		1.00				1.00	1.00	1.00	1.00			
Incremental Delay, d2		2.3				0.9	2.1	0.3	7.9			
Delay (s)		28.0				12.2	13.3	16.0	26.3			
Level of Service		C				B	B	B	C			
Approach Delay (s)												
Approach LOS												
Intersection Summary												
HCM Average Control Delay		13.7				HCM Level of Service		B				
HCM Volume to Capacity ratio		0.70										
Actuated Cycle Length (s)		55.1				Sum of lost time (s)		8.0				
Intersection Capacity Utilization		115.0%				ICU Level of Service		H				
Analysis Period (min)		15										
c Critical Lane Group												

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Volume (vph)	36	13	44	725	19	160	90	1025	149	118	1108	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	5.0		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	
Frt	1.00	0.93	0.85	1.00	0.99	0.85	1.00	0.98		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	
Satd. Flow (prot)	1681	1563	1504	1681	1611	1504	1770	4988		1770	5067	
Flt Permitted	0.95	0.99	1.00	0.95	0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1681	1563	1504	1681	1611	1504	1770	4988		1770	5067	
Peak-hour 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)	40	14	49	806	21	178	100	1139	166	131	1231	31
RTOR Reduction (vph)	0	16	30	0	1	109	0	20	0	0	3	0
Lane Group Flow (vph)	36	19	2	419	425	51	100	1285	0	131	1259	0
Turn Type	Split		Prot	Split		Prot	Prot			Prot		
Protected Phases	4	4	4	8	8	8	5	21		61		
Permitted Phases											6	
Actuated Green, G (s)	5.8	5.8	5.8	24.6	24.6	24.6	6.5	34.2		24.7	24.7	
Effective Green, g (s)	5.8	5.8	5.8	24.6	24.6	24.6	6.5	34.2		24.7	24.7	
Actuated g/C Ratio	0.07	0.07	0.07	0.32	0.32	0.32	0.08	0.44		0.32	0.32	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0		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)	126	117	112	533	511	477	148	2198		563	1613	
v/s Ratio Prot	c0.02	0.01	0.00	0.25	c0.26	0.03	0.06	c0.26		0.07		
v/s Ratio Perm											c0.25	
v/c Ratio	0.29	0.16	0.02	0.79	0.83	0.11	0.68	0.58		0.23	0.78	
Uniform Delay, d1	33.9	33.6	33.3	24.1	24.6	18.7	34.5	16.4		19.5	24.0	
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	1.3	0.7	0.1	7.5	11.0	0.1	11.6	0.4		0.2	2.5	
Delay (s)	35.2	34.3	33.3	31.6	35.6	18.8	46.1	16.8		19.7	26.5	
Level of Service	D	C	C	C	D	B	D	B		B	C	
Approach Delay (s)		34.3			31.3			18.8			25.9	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM Average Control Delay	25.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	77.6	Sum of lost time (s)	17.0
Intersection Capacity Utilization	69.4%	ICU Level of Service	C
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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Volume (vph)	0	0	0	349	1043	261	165	912	0	0	619	674
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
Frt				1.00	1.00	1.00	1.00	1.00			0.93	0.79
Flt Protected				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Frt				1.00	1.00	0.85	1.00	1.00			0.95	0.85
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	5065	1583	3433	3539			4211	1073
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	5085	1583	3433	3539			4211	1073
Peak-hour 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	388	1159	290	183	1013	0	0	688	749
RTOR Reduction (vph)	0	0	0	0	0	67	0	0	0	0	10	10
Lane Group Flow (vph)	0	0	0	388	1159	223	183	1013	0	0	1053	364
Confl. Peds. (#/hr)											200	
Turn Type				Prot		Perm	Prot				Perm	
Protected Phases				3	8		5	2			6	
Permitted Phases						8						6
Actuated Green, G (s)				16.6	16.6	16.6	4.6	29.8			21.2	21.2
Effective Green, g (s)				16.6	16.6	16.6	4.6	29.8			21.2	21.2
Actuated g/C Ratio				0.31	0.31	0.31	0.08	0.55			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)				1048	1552	483	290	1939			1641	418
v/s Ratio Prot				0.11	c0.23		0.05	c0.29			0.25	
v/s Ratio Perm						0.14						c0.34
v/c Ratio				0.37	0.75	0.46	0.63	0.52			0.64	0.87
Uniform Delay, d1				14.8	17.0	15.3	24.1	7.8			13.5	15.3
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2				0.2	2.0	0.7	4.4	0.3			0.9	17.3
Delay (s)				15.0	19.0	16.0	28.5	8.0			14.4	32.6
Level of Service				B	B	B	C	A			B	C
Approach Delay (s)		0.0			17.7			11.2			19.1	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM Average Control Delay	16.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	54.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	101.8%	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
29: SR-56 EB on ramp & El Camino Real

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	←↑	↑					↑↑↑	←	←↑↑	↑↑↑	←
Volume (vph)	651	943	317	0	0	0	0	406	227	147	748	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	
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	3172	1441					6063		1770	5085	
Flt Permitted	0.95	0.99	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1610	3172	1441					6063		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	451	252	163	831	0
RTOR Reduction (vph)	0	3	50	0	0	0	0	59	0	0	0	0
Lane Group Flow (vph)	586	1217	267	0	0	0	0	644	0	163	831	0
Turn Type	Split		Perm					Prot				
Protected Phases	4	4						2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	28.1	28.1	28.1					13.1		7.9	25.0	
Effective Green, g (s)	28.1	28.1	28.1					13.1		7.9	25.0	
Actuated g/C Ratio	0.46	0.46	0.46					0.21		0.13	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)	740	1459	663					1300		229	2081	
v/s Ratio Prot	0.36	c0.38						c0.11		c0.09	0.16	
v/s Ratio Perm			0.19									
v/c Ratio	0.79	0.83	0.40					0.50		0.71	0.40	
Uniform Delay, d1	14.0	14.5	10.9					21.1		25.5	12.7	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	5.8	4.3	0.4					0.3		10.0	0.1	
Delay (s)	19.8	18.7	11.3					21.4		35.5	12.9	
Level of Service	B	B	B					C		D	B	
Approach Delay (s)		17.9			0.0			21.4			16.6	
Approach LOS		B			A			C			B	

Intersection Summary												
HCM Average Control Delay		18.2		HCM Level of Service		B						
HCM Volume to Capacity ratio		0.72										
Actuated Cycle Length (s)		61.1		Sum of lost time (s)		12.0						
Intersection Capacity Utilization		101.8%		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

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

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations	←	←↑	←	←↑	←	←	←
Volume (vph)	16	215	0	438	25	97	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		0.95		1.00	1.00
Frt	1.00	1.00		0.99		1.00	0.85
Flt Protected	0.95	1.00		1.00		0.95	1.00
Satd. Flow (prot)	1770	3539		3510		1770	1583
Flt Permitted	0.95	1.00		1.00		0.95	1.00
Satd. Flow (perm)	1770	3539		3510		1770	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	239	0	487	28	108	128
RTOR Reduction (vph)	0	0	0	8	0	0	100
Lane Group Flow (vph)	18	239	0	507	0	108	28
Turn Type	Prot		Prot			Perm	
Protected Phases	7	4		8		6	
Permitted Phases			3				6
Actuated Green, G (s)	0.5	12.0		7.5		5.6	5.6
Effective Green, g (s)	0.5	12.0		7.5		5.6	5.6
Actuated g/C Ratio	0.02	0.47		0.29		0.22	0.22
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)	35	1659		1028		387	346
v/s Ratio Prot	0.01	c0.07		c0.14		c0.06	
v/s Ratio Perm							0.02
v/c Ratio	0.51	0.14		0.49		0.28	0.08
Uniform Delay, d1	12.4	3.9		7.5		8.3	8.0
Progression Factor	1.00	1.00		1.00		1.00	1.00
Incremental Delay, d2	12.2	0.0		0.4		0.4	0.1
Delay (s)	24.6	3.9		7.9		8.7	8.1
Level of Service	C	A		A		A	A
Approach Delay (s)		5.4		7.9		8.4	
Approach LOS		A		A		A	

Intersection Summary							
HCM Average Control Delay		7.3		HCM Level of Service		A	
HCM Volume to Capacity ratio		0.41					
Actuated Cycle Length (s)		25.6		Sum of lost time (s)		12.0	
Intersection Capacity Utilization		26.7%		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
31: Valley Centre Drive & Carmel Creek Road

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

Movement	EBL	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL	SBT	SBR
Lane Configurations	↖	↗	↗	↖	↗		↖	↗	↗	↖	↗	↗
Volume (vph)	75	220	179	275	373	100	342	343	287	1102	224	205
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	0.88	1.00	1.00	1.00		1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.85	0.85	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	2787	1583	1770	1804		1770	3539	1583	3433	3539	1583
Flt Permitted	0.46	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	864	2787	1583	1770	1804		1770	3539	1583	3433	3539	1583
Peak-hour 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)	83	244	199	306	414	111	380	381	319	1224	249	228
RTOR Reduction (vph)	0	0	170	0	10	0	0	0	269	0	0	172
Lane Group Flow (vph)	83	244	29	306	515	0	380	381	50	1224	249	56
Turn Type	custom	custom	custom	Prot			Prot		Perm	Prot		Perm
Protected Phases				3	8		5	2		1	6	
Permitted Phases	4	4	4						2			6
Actuated Green, G (s)	13.8	13.8	13.8	17.0	34.8		25.5	15.0	15.0	34.1	23.6	23.6
Effective Green, g (s)	13.8	13.8	13.8	17.0	34.8		25.5	15.0	15.0	34.1	23.6	23.6
Actuated g/C Ratio	0.14	0.14	0.14	0.18	0.36		0.27	0.16	0.16	0.36	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
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)	124	401	228	314	655		471	554	248	1221	871	390
v/s Ratio Prot				c0.17	c0.29		0.21	c0.11		c0.36	0.07	
v/s Ratio Perm	0.10	0.09	0.02						0.03			0.04
v/c Ratio	0.67	0.61	0.13	0.97	0.79		0.81	0.69	0.20	1.00	0.29	0.14
Uniform Delay, d1	38.9	38.5	35.8	39.2	27.2		32.9	38.2	35.2	30.9	29.3	28.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.9	2.6	0.2	43.5	6.2		9.8	3.5	0.4	26.3	0.2	0.2
Delay (s)	51.8	41.1	36.0	82.8	33.5		42.7	41.8	35.6	57.2	29.5	28.4
Level of Service	D	D	D	F	C		D	D	D	E	C	C
Approach Delay (s)					51.6			40.3			49.3	
Approach LOS					D			D			D	

Intersection Summary			
HCM Average Control Delay	46.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	95.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	84.1%	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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↗					↖	↗	↖	↗	↗
Volume (vph)	450	0	330	0	0	0	0	527	129	188	459	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	
Frt	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					3435		3433	3539	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1681	1681	1583					3435		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)	500	0	367	0	0	0	0	586	143	209	510	0
RTOR Reduction (vph)	0	0	207	0	0	0	0	43	0	0	0	0
Lane Group Flow (vph)	250	250	160	0	0	0	0	686	0	209	510	0
Turn Type	Split		Perm							Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	13.1	13.1	13.1					14.1		3.6	21.7	
Effective Green, g (s)	13.1	13.1	13.1					14.1		3.6	21.7	
Actuated g/C Ratio	0.31	0.31	0.31					0.33		0.08	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)	515	515	485					1132		289	1794	
v/s Ratio Prot	c0.15	0.15						c0.20		c0.06	0.14	
v/s Ratio Perm			0.10									
v/c Ratio	0.49	0.49	0.33					0.61		0.72	0.28	
Uniform Delay, d1	12.1	12.1	11.5					12.0		19.1	6.1	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.7	0.4					0.9		8.6	0.1	
Delay (s)	12.8	12.8	11.9					12.9		27.8	6.2	
Level of Service	B	B	B					B		C	A	
Approach Delay (s)		12.4			0.0			12.9			12.4	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM Average Control Delay	12.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	42.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

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

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↩	↩	↩	↩	↩	↩	↩	↩	↩	↩	↩	↩
Volume (vph)	89	506	35	145	466	345	57	66	243	642	143	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		4.0	5.0		4.0	5.0		4.0	5.0	
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	0.94		1.00	0.88		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3505		1770	3314		1770	1643		3433	1706	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3505		1770	3314		1770	1643		3433	1706	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	99	562	39	161	518	383	63	73	270	713	159	203
RTOR Reduction (vph)	0	6	0	0	169	0	0	139	0	0	55	0
Lane Group Flow (vph)	99	595	0	161	732	0	63	204	0	713	307	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	5.0	17.7		9.0	20.7		4.0	14.4		17.6	28.0	
Effective Green, g (s)	5.0	17.7		9.0	20.7		4.0	14.4		17.6	28.0	
Actuated g/C Ratio	0.07	0.23		0.12	0.27		0.05	0.19		0.23	0.37	
Clearance Time (s)	5.0	5.0		4.0	5.0		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	115	809		208	894		92	308		788	623	
v/s Ratio Prot	0.06	0.17		c0.09	c0.22		0.04	c0.12		c0.21	0.18	
v/s Ratio Perm												
v/c Ratio	0.86	0.74		0.77	0.82		0.68	0.66		0.90	0.49	
Uniform Delay, d1	35.5	27.3		32.9	26.2		35.7	28.9		28.7	18.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	44.1	3.5		16.3	5.9		19.0	5.3		13.8	0.6	
Delay (s)	79.6	30.8		49.2	32.2		54.8	34.2		42.5	19.5	
Level of Service	E	C		D	C		D	C		D	B	
Approach Delay (s)		37.7			34.7			37.4			34.8	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM Average Control Delay	35.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	76.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	81.5%	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
34: SR-56 WB Ramps & Carmel Country Rd.

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

Movement	WBL	WBR	SEL	SET	NWT	NWR	NWR2	SWL	SWR
Lane Configurations			↩	↩	↩			↩	↩
Volume (vph)	0	0	777	597	764	0	315	137	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	5.0	4.0		4.0	4.0	4.0
Lane Util. Factor			0.97	0.95	0.95		1.00	0.97	1.00
Flt			1.00	1.00	1.00		0.85	1.00	0.85
Flt Protected			0.95	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)			3433	3539	3539		1583	3433	1583
Flt Permitted			0.95	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)			3433	3539	3539		1583	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	863	663	849	0	350	152	256
RTOR Reduction (vph)	0	0	0	0	0	0	237	0	218
Lane Group Flow (vph)	0	0	863	663	849	0	113	152	38
Turn Type			Prot				Perm		Perm
Protected Phases			5	2	6			4	
Permitted Phases							6		4
Actuated Green, G (s)			17.4	38.3	17.9		17.9	8.2	8.2
Effective Green, g (s)			17.4	38.3	17.9		17.9	8.2	8.2
Actuated g/C Ratio			0.31	0.69	0.32		0.32	0.15	0.15
Clearance Time (s)			4.0	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
Lane Grp Cap (vph)			1076	2442	1141		511	507	234
v/s Ratio Prot			c0.25	0.19	c0.24			c0.04	
v/s Ratio Perm							0.07		0.02
v/c Ratio			0.80	0.27	0.74		0.22	0.30	0.16
Uniform Delay, d1			17.5	3.3	16.8		13.7	21.1	20.6
Progression Factor			1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2			4.4	0.1	2.7		0.2	0.3	0.3
Delay (s)			21.9	3.3	19.4		13.9	21.4	21.0
Level of Service			C	A	B		B	C	C
Approach Delay (s)	0.0			13.8	17.8			21.1	
Approach LOS	A			B	B			C	

Intersection Summary			
HCM Average Control Delay	16.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	55.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.2%	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
35: SR-56 EB Ramps & Carmel Country Rd.

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

Movement	EBL2	EBL	EBR	SEL	SET	SER	NWL	NWT	NWR	SWL	SWR
Lane Configurations	↰	↰	↰	↰	↰			↰	↰		
Volume (vph)	309	2	166	350	381	0	0	745	220	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		
Lane Util. Factor	0.95	0.95	1.00	0.97	0.95			0.95	1.00		
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		
Flt Protected	0.95	0.95	1.00	0.95	1.00			1.00	1.00		
Satd. Flow (prot)	1681	1681	1583	3433	3539			3539	1583		
Flt Permitted	0.95	0.95	1.00	0.95	1.00			1.00	1.00		
Satd. Flow (perm)	1681	1681	1583	3433	3539			3539	1583		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	343	2	184	389	423	0	0	828	244	0	0
RTOR Reduction (vph)	0	0	145	0	0	0	0	0	158	0	0
Lane Group Flow (vph)	171	174	39	389	423	0	0	828	86	0	0
Turn Type	Split		Perm	Prot				Perm			
Protected Phases	4	4		1	6			2			
Permitted Phases			4					2			
Actuated Green, G (s)	10.8	10.8	10.8	10.1	32.1			18.0	18.0		
Effective Green, g (s)	10.8	10.8	10.8	10.1	32.1			18.0	18.0		
Actuated g/C Ratio	0.21	0.21	0.21	0.20	0.63			0.35	0.35		
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		
Lane Grp Cap (vph)	357	357	336	681	2232			1252	560		
v/s Ratio Prot	0.10	0.10		0.11	0.12			0.23			
v/s Ratio Perm			0.02						0.05		
v/c Ratio	0.48	0.49	0.12	0.57	0.19			0.66	0.15		
Uniform Delay, d1	17.6	17.6	16.2	18.4	3.9			13.9	11.2		
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		
Incremental Delay, d2	1.0	1.0	0.2	1.2	0.0			1.3	0.1		
Delay (s)	18.6	18.7	16.3	19.6	4.0			15.2	11.4		
Level of Service	B	B	B	B	A			B	B		
Approach Delay (s)		17.8			11.5			14.3		0.0	
Approach LOS		B			B			B		A	
Intersection Summary											
HCM Average Control Delay		14.1				HCM Level of Service			B		
HCM Volume to Capacity ratio		0.59									
Actuated Cycle Length (s)		50.9				Sum of lost time (s)			12.0		
Intersection Capacity Utilization		49.2%				ICU Level of Service			A		
Analysis Period (min)		15									
c Critical Lane Group											

Baseline

Synchro 7 - Report
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ALL-WAY STOP CONTROL ANALYSIS								
General Information				Site Information				
Analyst	Jacob Swin			Intersection	Carmel Creek Rd./Del Mar Trail			
Agency/Co.	USAI			Jurisdiction	City of San Diego			
Date Performed	9/15/2010			Analysis Year	2010			
Analysis Time Period	36 NT+P AM (Phase 1)							
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	206	2	26		
%Thrus Left Lane								
Approach	Northbound			Southbound				
Movement	L	T	R	L	T	R		
Volume (veh/h)	3	267	103	15	956	3		
%Thrus 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)	33		258		150	262	547	534
% 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	0.3		0.9		0.0	0.0	0.0	0.0
Prop. Right-Turns	0.3		0.1		0.0	0.4	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	-0.3	0.0	0.0
Departure Headway and Service Time								
hd, initial value (s)	3.20		3.20		3.20	3.20	3.20	3.20
x, initial	0.03		0.23		0.13	0.23	0.49	0.47
hd, final value (s)	7.48		6.82		7.15	6.83	6.33	6.31
x, final value	0.07		0.49		0.30	0.50	0.96	0.94
Move-up time, m (s)	2.0		2.0		2.3		2.3	
Service Time, ts (s)	5.5		4.8		4.9	4.5	4.0	4.0
Capacity and Level of Service								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	283		508		400	512	569	570
Delay (s/veh)	11.03		16.17		12.86	16.10	53.45	48.14
LOS	B		C		B	C	F	E
Approach Delay (s/veh)	11.03		16.17		14.92		50.83	
LOS	B		C		B		F	
Intersection Delay (s/veh)	36.79							
Intersection LOS	E							

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HCM Signalized Intersection Capacity Analysis
1: Via De La Valle & El Camino Real

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	6	478	528	175	425	3	557	2	430	0	2	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00		
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.85		0.96		
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		1.00		
Satd. Flow (prot)	1770	1863	1583	1770	1861		1774	1583		1779		
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		1.00		
Satd. Flow (perm)	1770	1863	1583	1770	1861		1774	1583		1779		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	7	531	587	194	472	3	619	2	478	0	2	1
RTOR Reduction (vph)	0	0	197	0	0	0	0	0	262	0	1	0
Lane Group Flow (vph)	7	531	390	194	475	0	621	216	0	2	0	0
Turn Type	Prot		Perm	Prot			Split		Perm	Split		
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4						2			
Actuated Green, G (s)	0.8	40.3	40.3	14.5	54.0		45.8	45.8		1.2		
Effective Green, g (s)	0.8	40.3	40.3	14.5	54.0		45.8	45.8		1.2		
Actuated g/C Ratio	0.01	0.34	0.34	0.12	0.46		0.39	0.39		0.01		
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)	12	637	542	218	853		690	615		18		
v/s Ratio Prot	0.00	c0.29		c0.11	0.26		c0.35			c0.00		
v/s Ratio Perm			0.25					0.14				
v/c Ratio	0.58	0.83	0.72	0.89	0.56		0.90	0.35		0.11		
Uniform Delay, d1	58.3	35.7	33.8	50.9	23.2		33.8	25.5		57.8		
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00		
Incremental Delay, d2	56.2	9.2	4.5	32.5	0.8		14.8	0.3		2.7		
Delay (s)	114.6	44.8	38.3	83.4	24.0		48.7	25.8		60.5		
Level of Service	F	D	D	F	C		D	C		E		
Approach Delay (s)		41.9			41.2		38.7			60.5		
Approach LOS		D			D		D			E		
Intersection Summary												
HCM Average Control Delay		40.6		HCM Level of Service			D					
HCM Volume to Capacity ratio		0.86										
Actuated Cycle Length (s)		117.8		Sum of lost time (s)			16.0					
Intersection Capacity Utilization		82.5%		ICU Level of Service			E					
Analysis Period (min)		15										
c Critical Lane Group												

Baseline

Synchro 7 - Report
Page 1

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

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

Movement	WBL	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↰	↑	↱	↰	↑
Volume (vph)	210	264	0	563	374	342	289
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		5.0	5.0	4.0	4.0
Lane Util. Factor	0.97	1.00		1.00	1.00	1.00	0.95
Frt	1.00	0.85		1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583		1863	1583	1770	3539
Flt Permitted	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583		1863	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	233	293	0	626	416	380	321
RTOR Reduction (vph)	0	244	0	0	253	0	0
Lane Group Flow (vph)	233	49	0	626	163	380	321
Turn Type		Perm	Prot		Perm	Prot	
Protected Phases	1		3	8		7	
Permitted Phases		1			8		6
Actuated Green, G (s)	12.1	12.1		28.3	28.3	18.7	12.1
Effective Green, g (s)	12.1	12.1		28.3	28.3	18.7	12.1
Actuated g/C Ratio	0.17	0.17		0.39	0.39	0.26	0.17
Clearance Time (s)	4.0	4.0		5.0	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)	576	266		731	621	459	594
v/s Ratio Prot	0.07			c0.34		c0.21	
v/s Ratio Perm		0.03			0.10		c0.09
v/c Ratio	0.40	0.18		0.86	0.26	0.83	0.54
Uniform Delay, d1	26.8	25.8		20.0	14.8	25.2	27.5
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.3		9.7	0.2	11.7	1.0
Delay (s)	27.2	26.1		29.7	15.1	36.9	28.5
Level of Service	C	C		C	B	D	C
Approach Delay (s)	26.6			23.9			33.0
Approach LOS	C			C			C
Intersection Summary							
HCM Average Control Delay		27.3		HCM Level of Service			C
HCM Volume to Capacity ratio		0.78					
Actuated Cycle Length (s)		72.1		Sum of lost time (s)			13.0
Intersection Capacity Utilization		65.4%		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
3: Derby Downs Road & El Camino Real

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

							
Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	 			 			 
Volume (vph)	65	6	0	896	111	8	497
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
Frt	0.99			0.98		1.00	1.00
Flt Protected	0.96			1.00		0.95	1.00
Satd. Flow (prot)	3410			3481		1770	3539
Flt Permitted	0.96			1.00		0.95	1.00
Satd. Flow (perm)	3410			3481		1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	72	7	0	996	123	9	552
RTOR Reduction (vph)	6	0	0	13	0	0	0
Lane Group Flow (vph)	73	0	0	1106	0	9	552
Turn Type	Prot			Prot			
Protected Phases	8		5	2		1	6
Permitted Phases							
Actuated Green, G (s)	3.2			19.6		0.6	24.2
Effective Green, g (s)	3.2			19.6		0.6	24.2
Actuated g/C Ratio	0.09			0.55		0.02	0.68
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)	308			1927		30	2419
v/s Ratio Prot	c0.02			c0.32		0.01	c0.16
v/s Ratio Perm							
v/c Ratio	0.24			0.57		0.30	0.23
Uniform Delay, d1	15.0			5.2		17.2	2.1
Progression Factor	1.00			1.00		1.00	1.00
Incremental Delay, d2	0.4			0.4		5.6	0.0
Delay (s)	15.4			5.6		22.8	2.1
Level of Service	B			A		C	A
Approach Delay (s)	15.4			5.6		2.5	
Approach LOS	B			A		A	
Intersection Summary							
HCM Average Control Delay	5.0			HCM Level of Service			A
HCM Volume to Capacity ratio	0.53						
Actuated Cycle Length (s)	35.4			Sum of lost time (s)			12.0
Intersection Capacity Utilization	38.3%			ICU Level of Service			A
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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	22	14	17	21	155	26	812	58	89	441	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	
Frt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1751		1770	1616		1770	3504		1770	3508	
Frt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1751		1770	1616		1770	3504		1770	3508	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	26	24	16	19	23	172	29	902	64	99	490	31
RTOR Reduction (vph)	0	14	0	0	152	0	0	7	0	0	5	0
Lane Group Flow (vph)	26	26	0	19	43	0	29	959	0	99	516	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7		4	3		8	5		2	1		6
Permitted Phases												
Actuated Green, G (s)	1.3	6.7		0.7	6.1		1.6	23.0		5.0	26.4	
Effective Green, g (s)	1.3	6.7		0.7	6.1		1.6	23.0		5.0	26.4	
Actuated g/C Ratio	0.03	0.13		0.01	0.12		0.03	0.45		0.10	0.51	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	45	228		24	192		55	1568		172	1802	
v/s Ratio Prot	c0.01	0.01		0.01	c0.03		0.02	c0.27		c0.06	c0.15	
v/s Ratio Perm												
v/c Ratio	0.58	0.11		0.79	0.23		0.53	0.61		0.58	0.29	
Uniform Delay, d1	24.8	19.7		25.3	20.5		24.5	10.8		22.2	7.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	16.7	0.2		94.5	0.6		8.8	0.7		4.6	0.1	
Delay (s)	41.5	20.0		119.8	21.1		33.4	11.5		26.8	7.2	
Level of Service	D	B		F	C		C	B		C	A	
Approach Delay (s)	28.4			29.9			12.2			10.3		
Approach LOS	C			C			B			B		
Intersection Summary												
HCM Average Control Delay	14.1			HCM Level of Service					B			
HCM Volume to Capacity ratio	0.58											
Actuated Cycle Length (s)	51.4			Sum of lost time (s)					20.0			
Intersection Capacity Utilization	56.6%			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
5: Quarter Mile Road & El Camino Real

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	42	33	44	30	20	48	957	126	23	466	10
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95
Lane Util. Factor	1.00	1.00	0.85	1.00	0.94	1.00	0.98	1.00	1.00	1.00	1.00	0.93
Frt	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.98
Flt Protected	1770	1863	1583	1770	1751	1770	3477	1770	3528	1770	3528	1609
Satd. Flow (prot)	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.98
Flt Permitted	1770	1863	1583	1770	1751	1770	3477	1770	3528	1770	3528	1609
Satd. Flow (perm)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Peak-hour factor, PHF	8	47	37	49	33	22	53	1063	140	26	518	11
Adj. Flow (vph)	0	0	34	0	20	0	0	12	0	0	2	0
RTOR Reduction (vph)	8	47	3	49	35	0	53	1191	0	26	527	0
Lane Group Flow (vph)												
Turn Type	Prot	Perm	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	5	2	1	6				
Permitted Phases												
Actuated Green, G (s)	0.8	4.3	4.3	1.7	5.2	1.8	24.2	0.6	23.0			
Effective Green, g (s)	0.8	4.3	4.3	1.7	5.2	1.8	24.2	0.6	23.0			
Actuated g/C Ratio	0.02	0.09	0.09	0.04	0.11	0.04	0.52	0.01	0.49			
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)	30	171	145	64	195	68	1798	23	1734			
v/s Ratio Prot	0.00	c0.03		c0.03	0.02	c0.03	c0.34	0.01	0.15			
v/s Ratio Perm			0.00									
v/c Ratio	0.27	0.27	0.02	0.77	0.18	0.78	0.66	1.13	0.30			
Uniform Delay, d1	22.7	19.8	19.3	22.4	18.9	22.3	8.3	23.1	7.1			
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	4.7	0.9	0.1	41.2	0.5	41.9	0.9	231.0	0.1			
Delay (s)	27.4	20.7	19.4	63.6	19.3	64.2	9.2	254.1	7.2			
Level of Service	C	C	B	E	B	E	A	F	A			
Approach Delay (s)		20.8			40.2		11.6		18.8			
Approach LOS		C			D		B		B			
Intersection Summary												
HCM Average Control Delay		15.5										
HCM Volume to Capacity ratio		0.57										
Actuated Cycle Length (s)		46.8					12.0					
Intersection Capacity Utilization		52.9%										
Analysis Period (min)		15										
c Critical Lane Group												

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	42	33	44	30	20	48	957	126	23	466	10
Volume (vph)	128	849	16	133	920	203	41	32	48	390	36	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.93
Frt	1.00	1.00	1.00	0.97	1.00	0.97	1.00	0.85	1.00	0.93	1.00	0.98
Flt Protected	0.95	1.00	0.95	1.00	0.97	1.00	0.97	1.00	0.95	0.98	0.95	0.98
Satd. Flow (prot)	1770	5071	1770	3443	1812	1583	1681	1609	1770	3528	1770	3528
Flt Permitted	0.95	1.00	0.95	1.00	0.97	1.00	0.97	1.00	0.95	0.98	0.95	0.98
Satd. Flow (perm)	1770	5071	1770	3443	1812	1583	1681	1609	1770	3528	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)	142	943	18	148	1022	226	46	36	53	433	40	149
RTOR Reduction (vph)	0	2	0	0	20	0	0	0	48	0	38	0
Lane Group Flow (vph)	142	959	0	148	1228	0	0	82	5	320	264	0
Turn Type	Prot	Perm	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	2	2	2	6	6			
Permitted Phases												
Actuated Green, G (s)	8.2	27.9	11.6	31.3	7.6	7.6	17.8	17.8	17.8			
Effective Green, g (s)	8.2	27.9	11.6	31.3	7.6	7.6	17.8	17.8	17.8			
Actuated g/C Ratio	0.10	0.34	0.14	0.39	0.09	0.09	0.22	0.22	0.22			
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	179	1749	254	1332	170	149	370	354				
v/s Ratio Prot	c0.08	0.19	0.08	c0.36	c0.05	0.00	c0.19	0.16				
v/s Ratio Perm												
v/c Ratio	0.79	0.55	0.58	0.92	0.48	0.03	0.86	0.75				
Uniform Delay, d1	35.5	21.4	32.4	23.6	34.8	33.3	30.4	29.4				
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Incremental Delay, d2	21.0	0.4	3.4	10.7	2.2	0.1	18.5	8.3				
Delay (s)	56.5	21.8	35.8	34.3	36.9	33.4	48.9	37.7				
Level of Service	E	C	D	C	D	C	D	D				
Approach Delay (s)		26.2		34.5		35.5		43.5				
Approach LOS		C		C		D		D				
Intersection Summary												
HCM Average Control Delay		33.5										
HCM Volume to Capacity ratio		0.84										
Actuated Cycle Length (s)		80.9					16.0					
Intersection Capacity Utilization		72.1%										
Analysis Period (min)		15										
c Critical Lane Group												

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

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑		↑
Volume (veh/h)	1246	64	0	1548	0	87
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)	1384	71	0	1720	0	97
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			0.87		0.78	0.87
vC, conflicting volume			1456		2280	497
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			992		1056	0
IC, single (s)			4.1		6.8	6.9
IC, 2 stage (s)						
IF (s)			2.2		3.5	3.3
p0 queue free %			100		100	90
cM capacity (veh/h)			601		172	941
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	554	554	348	860	860	97
Volume Left	0	0	0	0	0	0
Volume Right	0	0	71	0	0	97
cSH	1700	1700	1700	1700	1700	941
Volume to Capacity	0.33	0.33	0.20	0.51	0.51	0.10
Queue Length 95th (ft)	0	0	0	0	0	9
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.3
Lane LOS						A
Approach Delay (s)	0.0			0.0		9.3
Approach LOS						A
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			46.1%			ICU Level of Service A
Analysis Period (min)			15			

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

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

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	↑
Volume (vph)	0	948	1303	0	929	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	1053	1448	0	1032	332
RTOR Reduction (vph)	0	0	0	0	3	18
Lane Group Flow (vph)	0	1053	1448	0	1062	281
Turn Type						Prot
Protected Phases		2.6	6.2		4	4
Permitted Phases						
Actuated Green, G (s)		42.5	42.5		25.6	25.6
Effective Green, g (s)		42.5	42.5		25.6	25.6
Actuated g/C Ratio		0.53	0.53		0.32	0.32
Clearance Time (s)					5.6	5.6
Vehicle Extension (s)					3.0	3.0
Lane Grp Cap (vph)		1880	1880		1098	461
v/s Ratio Prot		0.30	0.40		0.31	0.19
v/s Ratio Perm						
v/c Ratio		0.56	0.77		0.97	0.61
Uniform Delay, d1		12.5	14.9		26.8	23.0
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.4	2.0		19.5	2.3
Delay (s)		12.9	16.9		46.3	25.2
Level of Service		B	B		D	C
Approach Delay (s)		12.9	16.9		41.7	
Approach LOS		B	B		D	
Intersection Summary						
HCM Average Control Delay		24.6			HCM Level of Service	C
HCM Volume to Capacity ratio		0.84				
Actuated Cycle Length (s)		80.0			Sum of lost time (s)	11.9
Intersection Capacity Utilization		117.3%			ICU Level of Service	H
Analysis Period (min)		15				
c - Critical Lane Group						

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔	↔	↔	↔	↔			
Volume (vph)	242	1580	0	0	1451	969	649	24	858	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	0.89	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	1494	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	1494	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	1756	0	0	1612	1077	721	27	953	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	475	0	8	8	0	0	0
Lane Group Flow (vph)	269	1756	0	0	1612	602	591	559	535	0	0	0
Turn Type	Prot				Prot	Split		Prot				
Protected Phases	5	2			6	6	8	8	8			
Permitted Phases												
Actuated Green, G (s)	10.6	65.0			50.4	50.4	47.0	47.0	47.0			
Effective Green, g (s)	10.6	65.0			50.4	50.4	47.0	47.0	47.0			
Actuated g/C Ratio	0.09	0.54			0.42	0.42	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)	303	1917			2136	665	658	585	589			
v/s Ratio Prot	0.08	c0.50			0.32	0.38	0.35	c0.37	0.36			
v/s Ratio Perm												
v/c Ratio	0.89	0.92			0.75	0.91	0.90	0.96	0.91			
Uniform Delay, d1	54.1	25.0			29.6	32.6	34.3	35.5	34.5			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	25.3	8.4			2.5	18.1	15.0	26.3	17.8			
Delay (s)	79.4	33.4			32.1	50.7	49.2	61.8	52.3			
Level of Service	E	C			C	D	D	E	D			
Approach Delay (s)		39.5			39.5			54.4		0.0		
Approach LOS		D			D			D		A		

Intersection Summary			
HCM Average Control Delay	43.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	104.2%	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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	249	2211	259	41	1695	55	637	67	147	37	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	5061		3433	3174		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	3174		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	2457	288	46	1883	61	708	74	163	41	33	91
RTOR Reduction (vph)	0	0	80	0	2	0	0	84	0	0	0	85
Lane Group Flow (vph)	277	2457	208	46	1942	0	708	153	0	41	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)	21.0	66.2	66.2	3.6	48.8		27.0	29.8		5.7	8.5	8.5
Effective Green, g (s)	21.0	66.2	66.2	3.6	48.8		27.0	29.8		5.7	8.5	8.5
Actuated g/C Ratio	0.17	0.55	0.55	0.03	0.40		0.22	0.25		0.05	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)	306	2775	864	53	2036		764	780		83	131	111
v/s Ratio Prot	c0.16	0.48	0.13	0.03	c0.38		c0.21	c0.05		0.02	0.02	0.00
v/s Ratio Perm												
v/c Ratio	0.91	0.89	0.24	0.87	0.95		0.93	0.20		0.49	0.25	0.06
Uniform Delay, d1	49.2	24.2	14.4	58.6	35.2		46.2	36.3		56.4	53.4	52.7
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	28.4	3.8	0.1	76.0	11.0		17.1	0.1		4.6	1.0	0.2
Delay (s)	77.5	28.0	14.6	134.6	46.1		63.3	36.4		61.0	54.4	52.9
Level of Service	E	C	B	F	D		E	D		E	D	D
Approach Delay (s)		31.2			48.2			56.5			55.2	
Approach LOS		C			D			E			E	

Intersection Summary			
HCM Average Control Delay	41.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	121.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	82.6%	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
11: Del Mar Heights Road & Third Ave.

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑	↑↑↑	↑↑	↑
Volume (vph)	2364	78	47	1763	219	131
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)	2627	87	52	1959	243	146
RTOR Reduction (vph)	0	32	0	0	0	91
Lane Group Flow (vph)	2627	55	52	1959	243	55
Turn Type		Prot	Prot		Prot	
Protected Phases	4	4	3	8	2	2
Permitted Phases						
Actuated Green, G (s)	42.4	42.4	2.5	48.9	9.9	9.9
Effective Green, g (s)	42.4	42.4	2.5	48.9	9.9	9.9
Actuated g/C Ratio	0.63	0.63	0.04	0.73	0.15	0.15
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3228	1005	66	3722	509	235
v/s Ratio Prot	c0.52	0.03	0.03	c0.39	c0.07	0.03
v/s Ratio Perm						
v/c Ratio	0.81	0.05	0.79	0.53	0.48	0.23
Uniform Delay, d1	9.2	4.6	31.9	3.9	26.1	25.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.7	0.0	44.9	0.1	0.7	0.5
Delay (s)	10.9	4.6	76.8	4.0	26.8	25.6
Level of Service	B	A	E	A	C	C
Approach Delay (s)	10.7			5.9	26.3	
Approach LOS	B			A	C	
Intersection Summary						
HCM Average Control Delay		10.0		HCM Level of Service		A
HCM Volume to Capacity ratio		0.75				
Actuated Cycle Length (s)		66.8		Sum of lost time (s)		12.0
Intersection Capacity Utilization		60.5%		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.

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↑	↑↑↑	↑	↑
Volume (vph)	2432	63	31	1635	175	88
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)	2702	70	34	1817	194	98
RTOR Reduction (vph)	0	26	0	0	0	81
Lane Group Flow (vph)	2702	44	34	1817	194	17
Turn Type		Prot	Prot		Prot	
Protected Phases	4	4	3	8	2	2
Permitted Phases						
Actuated Green, G (s)	42.5	42.5	1.6	48.1	12.1	12.1
Effective Green, g (s)	42.5	42.5	1.6	48.1	12.1	12.1
Actuated g/C Ratio	0.62	0.62	0.02	0.71	0.18	0.18
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3169	986	81	3586	314	281
v/s Ratio Prot	c0.53	0.03	0.01	c0.36	c0.11	0.01
v/s Ratio Perm						
v/c Ratio	0.85	0.04	0.42	0.51	0.62	0.06
Uniform Delay, d1	10.3	5.0	32.8	4.6	25.9	23.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.4	0.0	3.5	0.1	3.6	0.1
Delay (s)	12.7	5.0	36.3	4.7	29.5	23.4
Level of Service	B	A	D	A	C	C
Approach Delay (s)	12.5			5.3	27.5	
Approach LOS	B			A	C	
Intersection Summary						
HCM Average Control Delay		10.7		HCM Level of Service		B
HCM Volume to Capacity ratio		0.81				
Actuated Cycle Length (s)		68.2		Sum of lost time (s)		12.0
Intersection Capacity Utilization		63.4%		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
13: Del Mar Heights Road & El Camino Real

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↔		↔↔	↑↑↔		↔↔	↑↑↔	↔	↔↔	↑↑↔	↔
Volume (vph)	478	1585	399	145	826	181	450	447	318	151	163	206
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	4932		3433	4948		3433	5085	1583	3433	4659	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	4932		3433	4948		3433	5085	1583	3433	4659	
Peak-hour 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)	531	1761	443	161	918	201	500	497	353	168	181	229
RTOR Reduction (vph)	0	47	0	0	37	0	0	0	104	0	196	0
Lane Group Flow (vph)	531	2157	0	161	1082	0	500	497	249	168	214	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)	16.3	37.8		5.2	26.7		14.0	19.4	19.4	6.8	12.2	
Effective Green, g (s)	16.3	37.8		5.2	26.7		14.0	19.4	19.4	6.8	12.2	
Actuated g/C Ratio	0.19	0.44		0.06	0.31		0.16	0.23	0.23	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)	657	2188		210	1551		564	1158	360	274	667	
v/s Ratio Prot	c0.15	c0.44		0.05	0.22		c0.15	0.10	c0.16	0.05	0.05	
v/s Ratio Perm												
v/c Ratio	0.81	0.99		0.77	0.70		0.89	0.43	0.69	0.61	0.32	
Uniform Delay, d1	33.0	23.4		39.4	25.7		34.8	28.2	30.2	37.9	32.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	7.2	15.9		15.3	1.4		15.5	0.3	5.6	4.0	0.3	
Delay (s)	40.2	39.3		54.7	27.1		50.3	28.4	35.8	42.0	33.1	
Level of Service	D	D		D	C		D	C	D	D	C	
Approach Delay (s)		39.5			30.6			38.4			35.6	
Approach LOS		D			C			D			D	
Intersection Summary												
HCM Average Control Delay		37.0			HCM Level of Service			D				
HCM Volume to Capacity ratio		0.89										
Actuated Cycle Length (s)		85.2			Sum of lost time (s)			12.0				
Intersection Capacity Utilization		77.6%			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
14: Del Mar Heights Road & Carmel Country Rd.

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↔		↔↔	↑↑↔		↔↔	↑↑↔	↔	↔↔	↑↑↔	↔
Volume (vph)	120	1215	546	82	586	74	354	172	149	80	128	114
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	0.98		1.00	0.93	1.00	0.93	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	4849		3433	5000		3433	4731	1770	3289		
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	5000		3433	4731	1770	3289		
Peak-hour 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	1350	607	91	651	82	393	191	166	89	142	127
RTOR Reduction (vph)	0	93	0	0	18	0	0	135	0	0	110	0
Lane Group Flow (vph)	133	1864	0	91	715	0	393	222	0	89	159	0
Turn Type	Prot			Prot			Prot		Prot		Prot	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	5.4	31.7		3.5	29.8		10.5	13.1		6.9	9.5	
Effective Green, g (s)	5.4	31.7		3.5	29.8		10.5	13.1		6.9	9.5	
Actuated g/C Ratio	0.08	0.45		0.05	0.42		0.15	0.18		0.10	0.13	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	260	2159		169	2093		506	870		172	439	
v/s Ratio Prot	c0.04	c0.38		0.03	0.14		c0.11	c0.05		0.05	c0.05	
v/s Ratio Perm												
v/c Ratio	0.51	0.86		0.54	0.34		0.78	0.25		0.52	0.36	
Uniform Delay, d1	31.6	17.8		33.1	14.0		29.2	24.9		30.6	28.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.7	3.9		3.3	0.1		7.4	0.2		2.6	0.5	
Delay (s)	33.3	21.7		36.3	14.1		36.6	25.0		33.2	28.6	
Level of Service	C	C		D	B		D	C		C	C	
Approach Delay (s)		22.4			16.6			31.1			29.7	
Approach LOS		C			B			C			D	
Intersection Summary												
HCM Average Control Delay		23.5			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.73										
Actuated Cycle Length (s)		71.2			Sum of lost time (s)			16.0				
Intersection Capacity Utilization		69.6%			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
15: Del Mar Heights Road & Torrey Ridge Drive

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰
Volume (vph)	49	1259	143	8	647	23	50	14	32	28	8	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.99		1.00	0.90		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5007		1770	5059		1770	1669		1770	1642	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5007		1770	5059		1770	1669		1770	1642	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	54	1399	159	9	719	26	56	16	36	31	9	34
RTOR Reduction (vph)	0	16	0	0	5	0	0	33	0	0	32	0
Lane Group Flow (vph)	54	1542	0	9	741	0	56	19	0	31	11	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	22.0		0.6	21.2		1.3	3.2		0.6	2.5	
Effective Green, g (s)	1.4	22.0		0.6	21.2		1.3	3.2		0.6	2.5	
Actuated g/C Ratio	0.03	0.52		0.01	0.50		0.03	0.08		0.01	0.06	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	58	2598		25	2530		54	126		25	97	
v/s Ratio Prot	c0.03	c0.31		0.01	0.15		c0.03	c0.01		0.02	0.01	
v/s Ratio Perm												
v/c Ratio	0.93	0.59		0.36	0.29		1.04	0.15		1.24	0.11	
Uniform Delay, d1	20.5	7.1		20.7	6.2		20.5	18.3		20.9	18.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	93.1	0.4		8.7	0.1		133.3	0.5		261.6	0.5	
Delay (s)	113.5	7.5		29.4	6.3		153.9	18.9		282.5	19.4	
Level of Service	F	A		C	A		F	B		F	B	
Approach Delay (s)		11.0			6.5			88.9			129.6	
Approach LOS		B			A			F			F	

Intersection Summary												
HCM Average Control Delay		16.4		HCM Level of Service		B						
HCM Volume to Capacity ratio		0.47										
Actuated Cycle Length (s)		42.4		Sum of lost time (s)		8.0						
Intersection Capacity Utilization		50.3%		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
16: Del Mar Heights Road & Lansdale Drive

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰
Volume (vph)	279	972	65	22	468	25	40	46	35	24	33	177
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	
Frt	1.00	0.99		1.00	0.99		1.00	0.94		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	5038		1770	5046		1770	1742		1770	1628	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5038		1770	5046		1770	1742		1770	1628	
Peak-hour 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)	310	1080	72	24	520	28	44	51	39	27	37	197
RTOR Reduction (vph)	0	9	0	0	9	0	0	33	0	0	167	0
Lane Group Flow (vph)	310	1143	0	24	539	0	44	57	0	27	67	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	11.7	25.9		0.7	14.9		1.4	7.8		1.4	7.8	
Effective Green, g (s)	11.7	25.9		0.7	14.9		1.4	7.8		1.4	7.8	
Actuated g/C Ratio	0.23	0.50		0.01	0.29		0.03	0.15		0.03	0.15	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	400	2519		24	1451		48	262		48	245	
v/s Ratio Prot	c0.18	c0.23		0.01	0.11		c0.02	0.03		0.02	c0.04	
v/s Ratio Perm												
v/c Ratio	0.78	0.45		1.00	0.37		0.92	0.22		0.56	0.27	
Uniform Delay, d1	18.8	8.4		25.6	14.7		25.1	19.3		24.9	19.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.1	0.1		183.7	0.2		97.8	0.4		14.2	0.6	
Delay (s)	27.9	8.5		209.3	14.9		123.0	19.7		39.1	20.1	
Level of Service	C	A		F	B		F	B		D	C	
Approach Delay (s)		12.6			23.0			53.6			22.1	
Approach LOS		B			C			D			C	

Intersection Summary												
HCM Average Control Delay		18.3		HCM Level of Service		B						
HCM Volume to Capacity ratio		0.51										
Actuated Cycle Length (s)		51.8		Sum of lost time (s)		12.0						
Intersection Capacity Utilization		54.4%		ICU Level of Service		A						
Analysis Period (min)		15										
c Critical Lane Group												

Baseline

Synchro 7 - Report
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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑	↑↑↑	↑↑	↑
Volume (vph)	837	178	92	420	110	255
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
Flt	0.97		1.00	1.00	0.85	
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	4951		1770	5085	3433	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	4951		1770	5085	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	930	198	102	467	122	283
RTOR Reduction (vph)	55	0	0	0	0	230
Lane Group Flow (vph)	1073	0	102	467	122	53
Turn Type			Prot		Prot	
Protected Phases	4		3	8	2	2
Permitted Phases						
Actuated Green, G (s)	16.4		2.4	22.8	5.7	5.7
Effective Green, g (s)	16.4		2.4	22.8	5.7	5.7
Actuated g/C Ratio	0.45		0.07	0.62	0.16	0.16
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)	2225		116	3176	536	247
v/s Ratio Prot	c0.22		c0.06	0.09	c0.04	0.03
v/s Ratio Perm						
v/c Ratio	0.48		0.88	0.15	0.23	0.22
Uniform Delay, d1	7.1		16.9	2.8	13.5	13.4
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2		47.7	0.0	0.2	0.4
Delay (s)	7.2		64.6	2.9	13.7	13.9
Level of Service	A		E	A	B	B
Approach Delay (s)	7.2			13.9	13.8	
Approach LOS	A			B	B	
Intersection Summary						
HCM Average Control Delay		10.3		HCM Level of Service		B
HCM Volume to Capacity ratio		0.46				
Actuated Cycle Length (s)		36.5		Sum of lost time (s)		12.0
Intersection Capacity Utilization		42.6%		ICU Level of Service		A
Analysis Period (min)		15				
c Critical Lane Group						

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SWL	SWT	SWR
Lane Configurations	↑	↑	↑	↑	↑	↑	↑↑↑	↑↑↑	↑	↑↑	↑↑	↑
Volume (vph)	88	26	26	194	9	255	38	850	168	295	411	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	0.95	0.95			1.00	1.00	0.97	0.91		0.97	0.91	
Flt	1.00	0.94			1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	0.99			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1681	1649			1778	1583	3433	4959		3433	5058	
Flt Permitted	0.95	0.99			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1681	1649			1778	1583	3433	4959		3433	5058	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	98	29	29	216	10	283	42	944	187	328	457	17
RTOR Reduction (vph)	0	26	0	0	0	226	0	33	0	0	4	0
Lane Group Flow (vph)	79	51	0	0	226	57	42	1098	0	328	470	0
Turn Type	Split			Split		Perm	Prot			Prot		
Protected Phases	2	2		6	6		3	8		7	4	
Permitted Phases						6						
Actuated Green, G (s)	7.0	7.0			13.6	13.6	2.4	21.5		9.8	28.9	
Effective Green, g (s)	7.0	7.0			13.6	13.6	2.4	21.5		9.8	28.9	
Actuated g/C Ratio	0.10	0.10			0.20	0.20	0.04	0.32		0.14	0.43	
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)	173	170			356	317	121	1570		495	2153	
v/s Ratio Prot	c0.05	0.03			c0.13		0.01	c0.22		c0.10	0.09	
v/s Ratio Perm						0.04						
v/c Ratio	0.46	0.30			0.63	0.18	0.35	0.70		0.66	0.22	
Uniform Delay, d1	28.7	28.2			24.9	22.5	32.0	20.4		27.5	12.3	
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.9	1.0			3.7	0.3	1.7	1.4		3.3	0.1	
Delay (s)	30.6	29.2			28.6	22.8	33.7	21.7		30.8	12.4	
Level of Service	C	C			C	C	C	C		C	B	
Approach Delay (s)		29.9			25.3		22.2				19.9	
Approach LOS		C			C		C				B	
Intersection Summary												
HCM Average Control Delay		22.6			HCM Level of Service					C		
HCM Volume to Capacity ratio		0.64										
Actuated Cycle Length (s)		67.9			Sum of lost time (s)					16.0		
Intersection Capacity Utilization		56.5%			ICU Level of Service					B		
Analysis Period (min)		15										
c Critical Lane Group												

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	119	108	178	14	56	118	116	491	10	187	578	88
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	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.90		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	1673		1770	3529		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	1673		1770	3529		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)	132	120	198	16	62	131	129	546	11	208	642	98
RTOR Reduction (vph)	0	0	134	0	106	0	0	2	0	0	0	72
Lane Group Flow (vph)	132	120	64	16	87	0	129	555	0	208	642	26
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)	7.6	17.6	17.6	0.6	10.6		6.3	14.3		6.3	14.3	14.3
Effective Green, g (s)	7.6	17.6	17.6	0.6	10.6		6.3	14.3		6.3	14.3	14.3
Actuated g/C Ratio	0.14	0.32	0.32	0.01	0.19		0.11	0.26		0.11	0.26	0.26
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
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)	245	598	508	19	324		203	921		203	923	413
v/s Ratio Prot	c0.07	0.06		0.01	c0.05		0.07	0.16		c0.12	c0.18	
v/s Ratio Perm			0.04									0.02
v/c Ratio	0.54	0.20	0.13	0.84	0.27		0.64	0.60		1.02	0.70	0.06
Uniform Delay, d1	22.0	13.5	13.2	27.1	18.8		23.2	17.8		24.2	18.3	15.2
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	2.3	0.2	0.1	131.7	0.5		6.4	1.1		69.7	2.3	0.1
Delay (s)	24.2	13.7	13.3	158.8	19.3		29.5	18.9		94.0	20.6	15.3
Level of Service	C	B	B	F	B		C	B		F	C	B
Approach Delay (s)		16.6			29.9			20.9			36.1	
Approach LOS		B			C			C			D	

Intersection Summary			
HCM Average Control Delay	27.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	54.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↰	↱		↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	217	12	10	144	2	93	29	730	206	132	516	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	0.93		1.00	1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1735		1770	1863	1583	1770	4917		1770	5040	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1735		1770	1863	1583	1770	4917		1770	5040	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	241	13	11	160	2	103	32	811	229	147	573	36
RTOR Reduction (vph)	0	11	0	0	0	91	0	66	0	0	8	0
Lane Group Flow (vph)	241	13	0	160	2	12	32	974	0	147	601	0
Turn Type	Prot			Prot		Prot	Prot			Prot		
Protected Phases	1	6		5	2	2	7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	11.8	2.3		16.6	7.1	7.1	2.7	18.1		6.1	21.5	
Effective Green, g (s)	11.8	2.3		16.6	7.1	7.1	2.7	18.1		6.1	21.5	
Actuated g/C Ratio	0.20	0.04		0.28	0.12	0.12	0.05	0.31		0.10	0.36	
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)	353	68		497	224	190	81	1506		183	1834	
v/s Ratio Prot	c0.14	c0.01		c0.09	0.00	0.01	0.02	c0.20		c0.08	c0.12	
v/s Ratio Perm												
v/c Ratio	0.68	0.20		0.32	0.01	0.07	0.40	0.65		0.80	0.33	
Uniform Delay, d1	21.9	27.5		16.8	22.9	23.1	27.4	17.7		25.9	13.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.4	1.4		0.4	0.0	0.1	3.2	1.0		21.9	0.1	
Delay (s)	27.3	28.9		17.2	22.9	23.2	30.6	18.7		47.8	13.7	
Level of Service	C	C		B	C	C	C	B		D	B	
Approach Delay (s)		27.4			19.6			19.1			20.3	
Approach LOS		C			B			B			C	

Intersection Summary			
HCM Average Control Delay	20.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	59.1	Sum of lost time (s)	20.0
Intersection Capacity Utilization	54.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑	↗	↔	↑	↗	↔	↑	↗	↔	↑	↗
Volume (vph)	302	244	127	33	102	18	97	370	40	26	436	254
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	1.00	0.85		0.98		1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583		1813		1770	3488		1770	3344	
Flt Permitted	0.95	1.00	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583		1813		1770	3488		1770	3344	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	336	271	141	37	113	20	108	411	44	29	484	282
RTOR Reduction (vph)	0	0	109	0	8	0	0	10	0	0	113	0
Lane Group Flow (vph)	336	271	32	0	162	0	108	445	0	29	653	0
Turn Type	Split		Perm	Split		Prot		Prot		Prot		
Protected Phases	4	4		8	8	5	2		1	6		
Permitted Phases			4									
Actuated Green, G (s)	15.1	15.1	15.1		10.9		5.1	21.8		1.9	18.6	
Effective Green, g (s)	15.1	15.1	15.1		10.9		5.1	21.8		1.9	18.6	
Actuated g/C Ratio	0.23	0.23	0.23		0.17		0.08	0.33		0.03	0.28	
Clearance Time (s)	4.0	4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	407	428	364		301		137	1157		51	947	
v/s Ratio Prot	c0.19	0.15			c0.09		c0.06	c0.13		0.02	c0.20	
v/s Ratio Perm			0.02									
v/c Ratio	0.83	0.63	0.09		0.54		0.79	0.38		0.57	0.69	
Uniform Delay, d1	24.0	22.8	19.9		25.1		29.8	16.8		31.5	21.0	
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	12.8	3.1	0.1		1.9		25.2	0.2		13.7	2.1	
Delay (s)	36.9	25.9	20.0		27.0		55.0	17.0		45.2	23.1	
Level of Service	D	C	B		C		D	B		D	C	
Approach Delay (s)		29.7			27.0			24.3			23.9	
Approach LOS		C			C			C			C	

Intersection Summary												
HCM Average Control Delay		26.1		HCM Level of Service		C						
HCM Volume to Capacity ratio		0.75										
Actuated Cycle Length (s)		65.7		Sum of lost time (s)		20.0						
Intersection Capacity Utilization		63.9%		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
22: High Bluff Drive & El Camino Real

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

Movement	EBL	EBR	EBR2	NWL2	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↔	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗
Volume (vph)	74	279	324	99	173	108	266	1023	95	151	644	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97		0.97	0.91		1.00	0.91	
Frt	1.00	0.85	0.85	1.00	0.94		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1583	1583	1770	3304		3433	5020		1770	5036	
Flt Permitted	0.95	1.00	1.00	0.95	0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1583	1583	1770	3304		3433	5020		1770	5036	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	82	310	360	110	192	120	296	1137	106	168	716	49
RTOR Reduction (vph)	0	0	254	0	109	0	0	17	0	0	12	0
Lane Group Flow (vph)	82	310	106	110	203	0	296	1226	0	168	753	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)		15.8	15.8	6.0	6.0		7.9	17.0		8.0	17.1	
Effective Green, g (s)		15.8	15.8	6.0	6.0		7.9	17.0		8.0	17.1	
Actuated g/C Ratio		0.25	0.25	0.10	0.10		0.13	0.27		0.13	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)		445	398	169	316		432	1359		225	1371	
v/s Ratio Prot		0.05		c0.06	0.06		0.09	c0.24		c0.09	0.15	
v/s Ratio Perm			c0.20	0.07								
v/c Ratio		0.18	0.78	0.27	0.65	0.64	0.69	0.90		0.75	0.55	
Uniform Delay, d1		18.4	21.9	18.9	27.4	27.4	26.3	22.1		26.4	19.6	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2	9.3	0.4	8.7	4.4	4.5	8.6		12.6	0.5	
Delay (s)		18.6	31.2	19.2	36.0	31.8	30.7	30.7		39.1	20.0	
Level of Service		B	C	B	D	C	C	C		D	C	
Approach Delay (s)		24.1			32.9			30.7			23.4	
Approach LOS		C			C			C			C	

Intersection Summary												
HCM Average Control Delay		27.7		HCM Level of Service		C						
HCM Volume to Capacity ratio		0.80										
Actuated Cycle Length (s)		62.8		Sum of lost time (s)		16.0						
Intersection Capacity Utilization		57.5%		ICU Level of Service		B						
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

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↔	↔		↔			↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	201	26	147	4	11	4	99	25	8	2	7	95
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)	223	29	163	4	12	4	110	28	9	2	8	106
Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1							
Volume Total (vph)	252	163	21	147	116							
Volume Left (vph)	223	0	4	110	2							
Volume Right (vph)	0	163	4	9	106							
Hadj (s)	0.48	-0.67	-0.05	0.15	-0.51							
Departure Headway (s)	5.7	4.5	5.1	5.2	4.6							
Degree Utilization, x	0.40	0.21	0.03	0.21	0.15							
Capacity (veh/h)	610	763	642	648	715							
Control Delay (s)	11.2	7.5	8.3	9.6	8.4							
Approach Delay (s)	9.7		8.3	9.6	8.4							
Approach LOS	A		A	A	A							
Intersection Summary												
Delay			9.5									
HCM Level of Service			A									
Intersection Capacity Utilization			39.8%			ICU Level of Service			A			
Analysis Period (min)			15									

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	119	52	72	57	27	9	111	751	138	6	357	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00		1.00	0.95		1.00	0.95		
Frt	1.00	0.85		0.99		1.00	0.98		1.00	0.97		
Flt Protected	0.97	1.00		0.97		0.95	1.00		0.95	1.00		
Satd. Flow (prot)	1800	1583		1784		1770	3457		1770	3438		
Flt Permitted	0.97	1.00		0.97		0.95	1.00		0.95	1.00		
Satd. Flow (perm)	1800	1583		1784		1770	3457		1770	3438		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	132	58	80	63	30	10	123	834	153	7	397	93
RTOR Reduction (vph)	0	0	68	0	6	0	0	15	0	0	22	0
Lane Group Flow (vph)	0	190	12	0	97	0	123	972	0	7	458	0
Turn Type	Split		Perm	Split			Prot			Prot		
Protected Phases	4		4	8		8	5		2		1	
Permitted Phases			4								6	
Actuated Green, G (s)		8.8	8.8		6.7		5.9	26.2		0.7	21.0	
Effective Green, g (s)		8.8	8.8		6.7		5.9	26.2		0.7	21.0	
Actuated g/C Ratio		0.15	0.15		0.11		0.10	0.45		0.01	0.36	
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	271	239		205		179	1551		21	1236		
v/s Ratio Prot	c0.11			c0.05		c0.07	c0.28		0.00	0.14		
v/s Ratio Perm		0.01										
v/c Ratio	0.70	0.05		0.47		0.69	0.63		0.33	0.38		
Uniform Delay, d1	23.6	21.2		24.2		25.4	12.3		28.6	13.9		
Progression Factor	1.00	1.00		1.00		1.00	1.00		1.00	1.00		
Incremental Delay, d2	7.9	0.1		1.7		10.4	0.8		9.1	0.2		
Delay (s)	31.5	21.3		25.9		35.8	13.1		37.8	14.1		
Level of Service	C	C		C		D	B		D	B		
Approach Delay (s)	28.5		25.9			15.7				14.4		
Approach LOS	C		C			B				B		
Intersection Summary												
HCM Average Control Delay		17.6				HCM Level of Service		B				
HCM Volume to Capacity ratio		0.61										
Actuated Cycle Length (s)		58.4				Sum of lost time (s)		12.0				
Intersection Capacity Utilization		50.3%				ICU Level of Service		A				
Analysis Period (min)		15										
c Critical Lane Group												

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕↕		↕↕	↕↕					↕	↕↕	↕	
Volume (vph)	0	646	141	631	908	0	0	0	0	906	1	75	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	4.0	
Lane Util. Factor		0.95		0.97	0.95					0.95	0.91	0.95	
Frt		0.97		1.00	1.00					1.00	1.00	0.85	
Flt Protected		1.00		0.95	1.00					0.95	0.95	1.00	
Satd. Flow (prot)		3444		3433	3539					1681	1612	1504	
Flt Permitted		1.00		0.95	1.00					0.95	0.95	1.00	
Satd. Flow (perm)		3444		3433	3539					1681	1612	1504	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	0	718	157	701	1009	0	0	0	0	1007	1	83	
RTOR Reduction (vph)	0	27	0	0	0	0	0	0	0	0	1	49	
Lane Group Flow (vph)	0	848	0	701	1009	0	0	0	0	503	512	26	
Turn Type				Prot						Split			Perm
Protected Phases	4			3						6			6
Permitted Phases													6
Actuated Green, G (s)	18.2			15.4			37.6			23.8			23.8
Effective Green, g (s)	18.2			15.4			37.6			23.8			23.8
Actuated g/C Ratio	0.26			0.22			0.54			0.34			0.34
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)	903			762			1917			576			553
v/s Ratio Prot	c0.25			c0.20			0.29			0.30			c0.32
v/s Ratio Perm													
v/c Ratio	0.94			0.92			0.53			0.87			0.93
Uniform Delay, d1	25.1			26.4			10.2			21.4			22.0
Progression Factor	1.00			1.00			1.00			1.00			1.00
Incremental Delay, d2	17.0			16.1			0.3			13.7			21.6
Delay (s)	42.0			42.5			10.5			35.1			43.6
Level of Service	D			D			B			D			D
Approach Delay (s)	42.0			23.6			0.0			37.7			
Approach LOS	D			C			A			D			
Intersection Summary													
HCM Average Control Delay	32.2			HCM Level of Service						C			
HCM Volume to Capacity ratio	0.93												
Actuated Cycle Length (s)	69.4			Sum of lost time (s)			12.0						
Intersection Capacity Utilization	87.5%			ICU Level of Service			E						
Analysis Period (min)	15												
c Critical Lane Group													

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

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

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	127	1449	0	0	1043	872	452	7	700	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	0.97	0.95			0.95	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	0.99	1.00			
Satd. Flow (prot)	3433	3539			3539	1583	1681	1469	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	1469	1504			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	141	1610	0	0	1159	969	502	8	778	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	524	0	11	11	0	0	0
Lane Group Flow (vph)	141	1610	0	0	1159	445	447	410	409	0	0	0
Turn Type	Prot					Prot		Split		Perm		
Protected Phases	7		4			8		2		2		
Permitted Phases										2		
Actuated Green, G (s)	3.5		31.5			24.0		19.4		19.4		
Effective Green, g (s)	3.5		31.5			24.0		19.4		19.4		
Actuated g/C Ratio	0.06		0.53			0.41		0.33		0.33		
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)	204		1893			1442		645		495		
v/s Ratio Prot	0.04		c0.45			0.33		0.28		c0.28		
v/s Ratio Perm										0.27		
v/c Ratio	0.69		0.85			0.80		0.69		0.81		
Uniform Delay, d1	27.2		11.7			15.4		14.4		18.0		
Progression Factor	1.00		1.00			1.00		1.00		1.00		
Incremental Delay, d2	9.7		3.9			3.3		3.1		8.4		
Delay (s)	36.8		15.6			18.7		17.5		26.5		
Level of Service	D		B			B		B		C		
Approach Delay (s)	17.3		18.1			28.8		0.0				
Approach LOS	B		B			C		A				
Intersection Summary												
HCM Average Control Delay	20.5			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.85											
Actuated Cycle Length (s)	58.9			Sum of lost time (s)			8.0					
Intersection Capacity Utilization	87.5%			ICU Level of Service			E					
Analysis Period (min)	15											
c Critical Lane Group												

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SEB
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	50	37	50	490	31	104	109	963	220	184	1495	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
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	0.98	0.85	1.00	0.99	0.85	1.00	0.97		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	
Satd. Flow (prot)	1681	1649	1504	1681	1617	1504	1770	4944		1770	5064	
Flt Permitted	0.95	0.99	1.00	0.95	0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1681	1649	1504	1681	1617	1504	1770	4944		1770	5064	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	56	41	56	544	34	116	121	1070	244	204	1661	48
RTOR Reduction (vph)	0	7	44	0	2	81	0	39	0	0	3	0
Lane Group Flow (vph)	50	48	4	294	294	23	121	1275	0	204	1706	0
Turn Type	Split		Prot	Split		Prot	Prot			Prot		
Protected Phases	4	4	4	8	8	8	5	2		1		
Permitted Phases											6	
Actuated Green, G (s)	6.4	6.4	6.4	16.2	16.2	16.2	6.8	23.1		13.1	29.4	
Effective Green, g (s)	6.4	6.4	6.4	16.2	16.2	16.2	6.8	23.1		13.1	29.4	
Actuated g/C Ratio	0.09	0.09	0.09	0.22	0.22	0.22	0.09	0.31		0.18	0.39	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
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)	144	141	129	364	350	326	161	1527		310	1990	
v/s Ratio Prot	c0.03	0.03	0.00	0.17	c0.18	0.01	0.07	0.26		c0.12		
v/s Ratio Perm											c0.34	
v/c Ratio	0.35	0.34	0.03	0.81	0.84	0.07	0.75	0.83		0.66	0.86	
Uniform Delay, d1	32.2	32.2	31.4	27.8	28.1	23.3	33.2	24.1		28.8	20.8	
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	1.5	1.4	0.1	12.4	16.5	0.1	17.8	4.1		5.0	3.9	
Delay (s)	33.7	33.6	31.5	40.2	44.5	23.4	51.0	28.2		33.7	24.7	
Level of Service	C	C	C	D	D	C	D	C		C	C	
Approach Delay (s)		33.0			39.5			30.1			25.6	
Approach LOS		C			D			C			C	
Intersection Summary												
HCM Average Control Delay		29.7										
HCM Volume to Capacity ratio		0.79										
Actuated Cycle Length (s)		74.8							16.0			
Intersection Capacity Utilization		68.0%										
Analysis Period (min)		15										
c Critical Lane Group												

Baseline

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SEB
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	0	0	0	223	860	220	405	1081	0	0	735	829
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
Flt				1.00	1.00	1.00	1.00	1.00			0.91	1.00
Flt Protected				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Satd. Flow (prot)				1.00	1.00	0.85	1.00	1.00			0.95	0.85
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	5085	1583	3433	3539			4140	1362
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	248	956	244	450	1201	0	0	817	921
RTOR Reduction (vph)	0	0	0	0	0	63	0	0	0	0	7	7
Lane Group Flow (vph)	0	0	0	248	956	181	450	1201	0	0	1271	453
Conf. Peds. (#/hr)											200	
Turn Type				Prot		Prot	Prot					Prot
Protected Phases				3		8	5	2			6	6
Permitted Phases												
Actuated Green, G (s)				16.2	16.2	16.2	10.0	39.9			25.9	25.9
Effective Green, g (s)				16.2	16.2	16.2	10.0	39.9			25.9	25.9
Actuated g/C Ratio				0.25	0.25	0.25	0.16	0.62			0.40	0.40
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)				868	1285	400	536	2203			1673	550
v/s Ratio Prot				0.07	c0.19	0.11	c0.13	0.34			0.31	c0.33
v/s Ratio Perm												
v/c Ratio				0.29	0.74	0.45	0.84	0.55			0.76	0.82
Uniform Delay, d1				19.3	22.0	20.2	26.3	6.9			16.4	17.1
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2				0.2	2.4	0.8	11.1	0.3			2.0	9.7
Delay (s)				19.5	24.4	21.0	37.4	7.2			18.5	26.8
Level of Service				B	C	C	D	A			B	C
Approach Delay (s)		0.0			23.0			15.4			20.7	
Approach LOS		A			C			B			C	
Intersection Summary												
HCM Average Control Delay		19.6										
HCM Volume to Capacity ratio		0.80										
Actuated Cycle Length (s)		64.1							12.0			
Intersection Capacity Utilization		113.6%										
Analysis Period (min)		15										
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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰	↰					↑↑↑		↰	↑↑↑	
Volume (vph)	537	1031	133	0	0	0	0	905	442	278	638	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	
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	3190	1441					6093		1770	5085	
Flt Permitted	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1610	3190	1441					6093		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	
Adj. Flow (vph)	597	1146	148	0	0	0	0	1006	491	309	709	0
RTOR Reduction (vph)	0	1	80	0	0	0	0	41	0	0	0	0
Lane Group Flow (vph)	537	1220	53	0	0	0	0	1456	0	309	709	0
Turn Type	Split		Prot							Prot		
Protected Phases	4	4	4					2		1	6	
Permitted Phases												
Actuated Green, G (s)	32.0	32.0	32.0					20.8		15.2	40.0	
Effective Green, g (s)	32.0	32.0	32.0					20.8		15.2	40.0	
Actuated g/C Ratio	0.40	0.40	0.40					0.26		0.19	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)	644	1276	576					1584		336	2543	
v/s Ratio Prot	0.33	c0.38	0.04					c0.24		c0.17	0.14	
v/s Ratio Perm												
v/c Ratio	0.83	0.96	0.09					1.07dr		0.92	0.28	
Uniform Delay, d1	21.6	23.3	15.0					28.8		31.8	11.6	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	9.1	15.7	0.1					8.9		29.1	0.1	
Delay (s)	30.7	39.0	15.0					37.6		60.9	11.7	
Level of Service	C	D	B					D		E	B	
Approach Delay (s)		35.0			0.0			37.6			26.6	
Approach LOS		C			A			D			C	

Intersection Summary												
HCM Average Control Delay		34.0		HCM Level of Service				C				
HCM Volume to Capacity ratio		0.94										
Actuated Cycle Length (s)		80.0		Sum of lost time (s)				12.0				
Intersection Capacity Utilization		113.6%		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
30: Valley Centre Drive & Carmel View Road

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

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑↑	↰	↑↑		↰	↰
Volume (vph)	68	393	0	366	97	31	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		0.95		1.00	1.00
Frt	1.00	1.00		0.97		1.00	0.85
Flt Protected	0.95	1.00		1.00		0.95	1.00
Satd. Flow (prot)	1770	3539		3428		1770	1583
Flt Permitted	0.95	1.00		1.00		0.95	1.00
Satd. Flow (perm)	1770	3539		3428		1770	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	76	437	0	407	108	34	52
RTOR Reduction (vph)	0	0	0	47	0	0	46
Lane Group Flow (vph)	76	437	0	468	0	34	6
Turn Type	Prot			Prot			Prot
Protected Phases	7	4		3	8		6
Permitted Phases							
Actuated Green, G (s)	1.3	13.5		8.2		3.0	3.0
Effective Green, g (s)	1.3	13.5		8.2		3.0	3.0
Actuated g/C Ratio	0.05	0.55		0.33		0.12	0.12
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)	94	1950		1147		217	194
v/s Ratio Prot	c0.04	0.12		c0.14		c0.02	0.00
v/s Ratio Perm							
v/c Ratio	0.81	0.22		0.41		0.16	0.03
Uniform Delay, d1	11.5	2.8		6.3		9.6	9.5
Progression Factor	1.00	1.00		1.00		1.00	1.00
Incremental Delay, d2	38.1	0.1		0.2		0.3	0.1
Delay (s)	49.6	2.9		6.5		10.0	9.5
Level of Service	D	A		A		A	A
Approach Delay (s)		9.8		6.5		9.7	
Approach LOS		A		A		A	

Intersection Summary							
HCM Average Control Delay		8.3		HCM Level of Service			A
HCM Volume to Capacity ratio		0.39					
Actuated Cycle Length (s)		24.5		Sum of lost time (s)		12.0	
Intersection Capacity Utilization		30.3%		ICU Level of Service		A	
Analysis Period (min)		15					

c Critical Lane Group

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

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

Movement	EBL	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL	SBT	SBR
Lane Configurations	↰	↱	↱	↰	↰	↰	↰	↰	↰	↰	↰	↰
Volume (vph)	113	293	331	126	162	99	370	831	332	272	158	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.88	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	0.94		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)	1770	2787	1583	1770	1757		1770	3539	1583	3433	3539	1583
Flt Permitted	0.58	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1085	2787	1583	1770	1757		1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	126	326	368	140	180	110	411	923	369	302	176	156
RTOR Reduction (vph)	0	0	299	0	28	0	0	0	212	0	0	122
Lane Group Flow (vph)	126	326	69	140	262	0	411	923	157	302	176	34
Turn Type	custom	custom	custom	Prot			Prot		Perm	Prot		Perm
Protected Phases				3	8		5	2		1	6	
Permitted Phases	4	4	4						2			6
Actuated Green, G (s)	13.8	13.8	13.8	8.0	25.8		20.1	26.7	26.7	9.5	16.1	16.1
Effective Green, g (s)	13.8	13.8	13.8	8.0	25.8		20.1	26.7	26.7	9.5	16.1	16.1
Actuated g/C Ratio	0.19	0.19	0.19	0.11	0.35		0.27	0.36	0.36	0.13	0.22	0.22
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	202	520	295	191	613		481	1277	571	441	770	344
v/s Ratio Prot				c0.08	0.15		c0.23	c0.26		0.09	0.05	
v/s Ratio Perm	0.12	c0.12	0.04				0.85	0.72	0.27	0.68	0.23	0.10
v/c Ratio	0.62	0.63	0.23	0.73	0.43		25.6	20.4	16.8	30.8	23.8	23.1
Uniform Delay, d1	27.7	27.7	25.6	32.0	18.4		1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.9	2.4	0.4	13.5	0.5		13.8	2.1	0.3	4.4	0.2	0.1
Delay (s)	33.6	30.1	26.0	45.5	18.9		39.4	22.5	17.0	35.2	24.0	23.3
Level of Service	C	C	C	D	B		D	C	B	D	C	C
Approach Delay (s)					27.6			25.4			29.1	
Approach LOS					C			C			C	

Intersection Summary			
HCM Average Control Delay	27.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	74.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↱					↰	↰	↰	↰	↰
Volume (vph)	935	0	221	0	0	0	0	648	213	358	250	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	
Frt	1.00	1.00	0.85					0.96		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1681	1583					3408		3433	3539	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1681	1681	1583					3408		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)	1039	0	246	0	0	0	0	720	237	398	278	0
RTOR Reduction (vph)	0	0	160	0	0	0	0	50	0	0	0	0
Lane Group Flow (vph)	519	520	86	0	0	0	0	907	0	398	278	0
Turn Type	Spllt		Prot							Prot		
Protected Phases	4	4	4					2		1	6	
Permitted Phases												
Actuated Green, G (s)	22.2	22.2	22.2					20.3		9.0	33.3	
Effective Green, g (s)	22.2	22.2	22.2					20.3		9.0	33.3	
Actuated g/C Ratio	0.35	0.35	0.35					0.32		0.14	0.52	
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)	588	588	553					1089		487	1856	
v/s Ratio Prot	0.31	c0.31	0.05					c0.27		c0.12	0.08	
v/s Ratio Perm												
v/c Ratio	0.88	0.88	0.16					0.83		0.82	0.15	
Uniform Delay, d1	19.4	19.4	14.2					20.0		26.5	7.8	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	14.6	14.7	0.1					5.6		10.2	0.0	
Delay (s)	34.0	34.2	14.3					25.6		36.7	7.8	
Level of Service	C	C	B					C		D	A	
Approach Delay (s)		30.3			0.0			25.6			24.8	
Approach LOS		C			A			C			C	

Intersection Summary			
HCM Average Control Delay	27.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	63.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

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

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	131	454	40	94	400	412	48	132	107	237	54	67
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	
Frt	1.00	0.99		1.00	0.92		1.00	0.93		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3497		1770	3270		1770	1738		3433	1708	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3497		1770	3270		1770	1738		3433	1708	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	146	504	44	104	444	458	53	147	119	263	60	74
RTOR Reduction (vph)	0	10	0	0	313	0	0	51	0	0	53	0
Lane Group Flow (vph)	146	538	0	104	589	0	53	215	0	263	81	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	5.7	17.6		3.4	15.3		2.5	13.2		5.4	16.1	
Effective Green, g (s)	5.7	17.6		3.4	15.3		2.5	13.2		5.4	16.1	
Actuated g/C Ratio	0.10	0.32		0.06	0.28		0.04	0.24		0.10	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)	181	1107		108	900		80	413		333	495	
v/s Ratio Prot	c0.08	0.15		0.06	c0.18		0.03	c0.12		c0.08	c0.05	
v/s Ratio Perm												
v/c Ratio	0.81	0.49		0.96	0.65		0.66	0.52		0.79	0.16	
Uniform Delay, d1	24.4	15.3		26.0	17.8		26.1	18.4		24.5	14.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	22.4	0.3		74.3	1.7		18.7	1.2		11.8	0.2	
Delay (s)	46.8	15.7		100.3	19.5		44.9	19.6		36.3	14.9	
Level of Service	D	B		F	B		D	B		D	B	
Approach Delay (s)		22.2			27.9			23.8			29.1	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay		25.9			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.68										
Actuated Cycle Length (s)		55.6			Sum of lost time (s)			20.0				
Intersection Capacity Utilization		65.1%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

Baseline

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

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

Movement	WBL	WBR	SEL	SET	NWL	NWR	NWR2	SWL	SWR
Lane Configurations									
Volume (vph)	0	0	269	494	621	0	190	147	249
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	5.0	4.0		4.0	4.0	4.0
Lane Util. Factor			0.97	0.95	0.95		1.00	0.97	1.00
Frt			1.00	1.00	1.00		0.85	1.00	0.85
Flt Protected			0.95	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)			3433	3539	3539		1583	3433	1583
Flt Permitted			0.95	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)			3433	3539	3539		1583	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	299	549	690	0	211	163	277
RTOR Reduction (vph)	0	0	0	0	0	0	136	0	227
Lane Group Flow (vph)	0	0	299	549	690	0	75	163	50
Turn Type			Prot				Perm		Perm
Protected Phases			5	2	6			4	
Permitted Phases							6		4
Actuated Green, G (s)			9.5	28.8	16.3		16.3	8.3	8.3
Effective Green, g (s)			9.5	28.8	16.3		16.3	8.3	8.3
Actuated g/C Ratio			0.21	0.62	0.35		0.35	0.18	0.18
Clearance Time (s)			4.0	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
Lane Grp Cap (vph)			707	2211	1251		560	618	285
v/s Ratio Prot			c0.09	0.16	c0.19		c0.05		
v/s Ratio Perm							0.05		0.03
v/c Ratio			0.42	0.25	0.55		0.13	0.26	0.17
Uniform Delay, d1			15.9	3.8	12.0		10.1	16.3	16.0
Progression Factor			1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2			0.4	0.1	0.5		0.1	0.2	0.3
Delay (s)			16.3	3.9	12.5		10.2	16.5	16.3
Level of Service			B	A	B		B	B	B
Approach Delay (s)	0.0			8.3	12.0			16.4	
Approach LOS	A			A	B			B	
Intersection Summary									
HCM Average Control Delay			11.4		HCM Level of Service			B	
HCM Volume to Capacity ratio			0.45						
Actuated Cycle Length (s)			46.1		Sum of lost time (s)			12.0	
Intersection Capacity Utilization			39.3%		ICU Level of Service			A	
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

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

Movement	EBL2	EBL	EBR	SEL	SET	SER	NWL	NWT	NWR	SWL	SWR
Lane Configurations	↰	↰	↰	↰	↰			↰	↰		
Volume (vph)	411	0	248	276	386	0	0	413	263	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		
Lane Util. Factor	0.95	0.95	1.00	0.97	0.95			0.95	1.00		
Flt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		
Flt Protected	0.95	0.95	1.00	0.95	1.00			1.00	1.00		
Satd. Flow (prot)	1681	1681	1583	3433	3539			3539	1583		
Flt Permitted	0.95	0.95	1.00	0.95	1.00			1.00	1.00		
Satd. Flow (perm)	1681	1681	1583	3433	3539			3539	1583		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	457	0	276	307	429	0	0	459	292	0	0
RTOR Reduction (vph)	0	0	200	0	0	0	0	0	205	0	0
Lane Group Flow (vph)	228	229	76	307	429	0	0	459	87	0	0
Turn Type	Split		Perm	Prot				Perm			
Protected Phases	4	4		1	6			2			
Permitted Phases			4					2			
Actuated Green, G (s)	11.2	11.2	11.2	5.2	21.3			12.1	12.1		
Effective Green, g (s)	11.2	11.2	11.2	5.2	21.3			12.1	12.1		
Actuated g/C Ratio	0.28	0.28	0.28	0.13	0.53			0.30	0.30		
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		
Lane Grp Cap (vph)	465	465	438	441	1861			1057	473		
v/s Ratio Prot	0.14	0.14		0.09	0.12			0.13			
v/s Ratio Perm			0.05						0.06		
v/c Ratio	0.49	0.49	0.17	0.70	0.23			0.43	0.18		
Uniform Delay, d1	12.3	12.3	11.1	16.9	5.2			11.4	10.5		
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		
Incremental Delay, d2	0.8	0.8	0.2	4.7	0.1			0.3	0.2		
Delay (s)	13.1	13.1	11.3	21.6	5.2			11.7	10.7		
Level of Service	B	B	B	C	A			B	B		
Approach Delay (s)		12.4			12.1			11.3		0.0	
Approach LOS		B			B			B		A	
Intersection Summary											
HCM Average Control Delay		11.9				HCM Level of Service			B		
HCM Volume to Capacity ratio		0.50									
Actuated Cycle Length (s)		40.5				Sum of lost time (s)			12.0		
Intersection Capacity Utilization		40.7%				ICU Level of Service			A		
Analysis Period (min)		15									
c Critical Lane Group											

Baseline

Synchro 7 - Report
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ALL-WAY STOP CONTROL ANALYSIS								
General Information					Site Information			
Analyst	Jacob Swim				Intersection	Carmel Creek Rd./Del Mar Trail		
Agency/Co.	USAI				Jurisdiction	City of San Diego		
Date Performed	9/15/2010				Analysis Year	2010		
Analysis Time Period	36 NT+P PM (Phase 1)							
Project ID 002407 - San Diego Corporate Center Lots								
East/West Street: Del Mar Trail					North/South Street: Carmel Creek Road			
Volume Adjustments and Site Characteristics								
Approach	Eastbound				Westbound			
Movement	L	T	R		L	T	R	
Volume (veh/h)	5	5	4		57	12	10	
%Thrus Left Lane								
Approach	Northbound				Southbound			
Movement	L	T	R		L	T	R	
Volume (veh/h)	12	764	103		15	427	10	
%Thrus 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	
Flow Rate (veh/h)	14		87		437		538	
% Heavy Vehicles	2		2		2		2	
No. Lanes	1		1		2		2	
Geometry Group	2		2		5		5	
Duration, T	0.25							
Saturation Headway Adjustment Worksheet								
Prop. Left-Turns	0.4		0.7		0.0		0.0	
Prop. Right-Turns	0.3		0.1		0.0		0.2	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2		0.2		0.5		0.5	
hRT-adj	-0.6		-0.6		-0.7		-0.7	
hHV-adj	1.7		1.7		1.7		1.7	
hadj, computed	-0.1		0.1		0.0		-0.1	
Departure Headway and Service Time								
hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.01		0.08		0.39		0.48	
hd, final value (s)	6.72		6.61		5.51		5.35	
x, final value	0.03		0.16		0.67		0.80	
Move-up time, m (s)	2.0		2.0		2.3		2.3	
Service Time, ts (s)	4.7		4.6		3.2		3.0	
Capacity and Level of Service								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	264		337		648		670	
Delay (s/veh)	9.90		10.87		18.64		25.85	
LOS	A		B		C		D	
Approach: Delay (s/veh)	9.90		10.87		22.62		13.02	
LOS	A		B		C		B	
Intersection Delay (s/veh)	18.81							
Intersection LOS	C							

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APPENDIX I

NEAR TERM WITH PROJECT SYNCHROS WORKSHEETS

(PHASE 1 & 2)

HCM Signalized Intersection Capacity Analysis
1: Via De La Valle & El Camino Real

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	2	378	388	311	507	8	396	5	158	1	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.98	
Satd. Flow (prot)	1770	1863	1583	1770	1858			1775	1583		1750	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.98	
Satd. Flow (perm)	1770	1863	1583	1770	1858			1775	1583		1750	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2	420	431	346	563	9	440	6	176	1	1	1
RTOR Reduction (vph)	0	0	235	0	0	0	0	0	125	0	1	0
Lane Group Flow (vph)	2	420	196	346	572	0	0	446	51	0	2	0
Turn Type	Prot		Prot	Prot			Split		Prot	Split		
Protected Phases	7	4	4	3	8		2	2	2	6	6	
Permitted Phases												
Actuated Green, G (s)	0.8	25.8	25.8	19.6	44.6			25.5	25.5		1.1	
Effective Green, g (s)	0.8	25.8	25.8	19.6	44.6			25.5	25.5		1.1	
Actuated g/C Ratio	0.01	0.29	0.29	0.22	0.51			0.29	0.29		0.01	
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)	16	546	464	394	942			514	459		22	
v/s Ratio Prot	0.00	c0.23	0.12	c0.20	0.31			c0.25	0.03		c0.00	
v/s Ratio Perm												
v/c Ratio	0.12	0.77	0.42	0.88	0.61			0.87	0.11		0.09	
Uniform Delay, d1	43.3	28.4	25.1	33.0	15.5			29.6	22.9		43.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	3.5	6.5	0.6	19.3	1.1			14.4	0.1		1.8	
Delay (s)	46.8	34.8	25.7	52.3	16.6			44.0	23.0		44.8	
Level of Service	D	C	C	D	B			D	C		D	
Approach Delay (s)		30.3			30.0			38.1			44.8	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	32.2	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	76.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

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

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

Movement	WBL	WBR	NBL	NBR	SBL	SBT
Lane Configurations	↰	↱	↰	↱	↰	↱
Volume (vph)	407	308	0	203	291	289
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	0.97	1.00		1.00	1.00	0.95
Frt	1.00	0.85		1.00	0.85	1.00
Flt Protected	0.95	1.00		1.00	1.00	0.95
Satd. Flow (prot)	3433	1583		1863	1583	1770
Flt Permitted	0.95	1.00		1.00	1.00	0.95
Satd. Flow (perm)	3433	1583		1863	1583	1770
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	452	342	0	226	323	321
RTOR Reduction (vph)	0	256	0	0	246	0
Lane Group Flow (vph)	452	86	0	226	77	321
Turn Type	Perm		Prot		Perm	Prot
Protected Phases	1		3		8	7
Permitted Phases		1			8	6
Actuated Green, G (s)	13.0	13.0		12.3	12.3	14.3
Effective Green, g (s)	13.0	13.0		12.3	12.3	14.3
Actuated g/C Ratio	0.25	0.25		0.24	0.24	0.28
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)	865	399		444	377	491
v/s Ratio Prot	0.13			c0.12		c0.18
v/s Ratio Perm		0.05			0.05	c0.14
v/c Ratio	0.52	0.22		0.51	0.20	0.65
Uniform Delay, d1	16.6	15.3		17.0	15.7	16.5
Progression Factor	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.6	0.3		0.9	0.3	0.7
Delay (s)	17.2	15.5		18.0	16.0	19.6
Level of Service	B	B		B	B	B
Approach Delay (s)	16.5			16.8		18.3
Approach LOS	B			B		B

Intersection Summary				
HCM Average Control Delay	17.3	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.58			
Actuated Cycle Length (s)	51.6	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	48.3%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

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

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

							
Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	 					 	 
Volume (vph)	87	7	0	467	52	3	860
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0		4.0	4.0
Lane Util. Factor	0.97			0.95		1.00	0.95
Frt	0.99			0.98		1.00	1.00
Flt Protected	0.96			1.00		0.95	1.00
Satd. Flow (prot)	3415			3486		1770	3539
Flt Permitted	0.96			1.00		0.95	1.00
Satd. Flow (perm)	3415			3486		1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	97	8	0	519	58	3	956
RTOR Reduction (vph)	7	0	0	13	0	0	0
Lane Group Flow (vph)	98	0	0	564	0	3	956
Turn Type			Prot			Prot	
Protected Phases	8		5	2		1	6
Permitted Phases							
Actuated Green, G (s)	3.2			15.3		0.6	19.9
Effective Green, g (s)	3.2			15.3		0.6	19.9
Actuated g/C Ratio	0.10			0.49		0.02	0.64
Clearance Time (s)	4.0			4.0		4.0	4.0
Vehicle Extension (s)	3.0			3.0		3.0	3.0
Lane Grp Cap (vph)	351			1715		34	2265
v/s Ratio Prot	c0.03			0.16		0.00	c0.27
v/s Ratio Perm							
v/c Ratio	0.28			0.33		0.09	0.42
Uniform Delay, d1	12.9			4.8		15.0	2.8
Progression Factor	1.00			1.00		1.00	1.00
Incremental Delay, d2	0.4			0.1		1.1	0.1
Delay (s)	13.3			4.9		16.1	2.9
Level of Service	B			A		B	A
Approach Delay (s)	13.3			4.9		2.9	
Approach LOS	B			A		A	
Intersection Summary							
HCM Average Control Delay	4.3			HCM Level of Service			A
HCM Volume to Capacity ratio	0.40						
Actuated Cycle Length (s)	31.1			Sum of lost time (s)			8.0
Intersection Capacity Utilization	33.8%			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
4: Half Mile Road & El Camino Real

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

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	114	20	65	84	153	6	320	16	165	705	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	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	1821		1770	1682		1770	3514		1770	3469	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1821		1770	1682		1770	3514		1770	3469	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	27	127	22	72	93	170	7	356	18	183	783	119
RTOR Reduction (vph)	0	11	0	0	113	0	0	6	0	0	17	0
Lane Group Flow (vph)	27	138	0	72	150	0	7	368	0	183	885	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	0.7	10.7		2.3	12.3		0.7	14.1		6.4	19.8	
Effective Green, g (s)	0.7	10.7		2.3	12.3		0.7	14.1		6.4	19.8	
Actuated g/C Ratio	0.01	0.22		0.05	0.25		0.01	0.28		0.13	0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	25	394		82	418		25	1001		229	1388	
v/s Ratio Prot	0.02	0.08		c0.04	c0.09		0.00	0.10		c0.10	c0.25	
v/s Ratio Perm												
v/c Ratio	1.08	0.35		0.88	0.36		0.28	0.37		0.80	0.64	
Uniform Delay, d1	24.4	16.5		23.5	15.3		24.2	14.1		20.9	12.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	205.9	0.5		59.9	0.5		6.0	0.2		17.5	1.0	
Delay (s)	230.3	17.0		83.3	15.9		30.2	14.4		38.4	12.9	
Level of Service	F	B		F	B		C	B		D	B	
Approach Delay (s)		49.7			30.4			14.7			17.2	
Approach LOS		D			C			B			B	
Intersection Summary												
HCM Average Control Delay	21.8			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.53											
Actuated Cycle Length (s)	49.5			Sum of lost time (s)			8.0					
Intersection Capacity Utilization	56.7%			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
5: Quarter Mile Road & El Camino Real

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	5	85	72	96	141	37	41	341	57	42	796	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	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Flt	1.00	1.00	0.85	1.00	0.97		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	1863	1583	1770	1805		1770	3464		1770	3534	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1805		1770	3464		1770	3534	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	94	80	107	157	41	46	379	63	47	884	8
RTOR Reduction (vph)	0	0	65	0	17	0	0	20	0	0	1	0
Lane Group Flow (vph)	6	94	15	107	181	0	46	422	0	47	891	0
Turn Type	Prot		Prot	Prot			Prot			Prot		
Protected Phases	7	4	4	3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	0.6	8.7	8.7	3.5	11.6		1.4	18.2		1.4	18.2	
Effective Green, g (s)	0.6	8.7	8.7	3.5	11.6		1.4	18.2		1.4	18.2	
Actuated g/C Ratio	0.01	0.18	0.18	0.07	0.24		0.03	0.38		0.03	0.38	
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	339	288	130	438		52	1319		52	1346	
v/s Ratio Prot	0.00	0.05	0.01	c0.06	c0.10		0.03	0.12		c0.03	c0.25	
v/s Ratio Perm												
v/c Ratio	0.27	0.28	0.05	0.82	0.41		0.88	0.32		0.90	0.66	
Uniform Delay, d1	23.4	16.8	16.1	21.8	15.2		23.1	10.4		23.1	12.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.6	0.4	0.1	32.6	0.6		82.7	0.1		89.2	1.2	
Delay (s)	30.0	17.3	16.2	54.4	15.9		105.8	10.6		112.4	13.5	
Level of Service	C	B	B	D	B		F	B		F	B	
Approach Delay (s)		17.2			29.4			19.6			18.4	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM Average Control Delay	20.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	47.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	96	876	24	90	882	203	70	58	81	454	23	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.95			1.00	1.00	0.95	0.95	
Flt	1.00	1.00		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	5065		1770	3440			1813	1583	1681	1639	
Flt Permitted	0.95	1.00		0.95	1.00			0.97	1.00	0.95	0.97	
Satd. Flow (perm)	1770	5065		1770	3440			1813	1583	1681	1639	
Peak-hour 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)	107	973	27	100	980	226	78	64	90	504	26	93
RTOR Reduction (vph)	0	3	0	0	21	0	0	0	77	0	17	0
Lane Group Flow (vph)	107	997	0	100	1185	0	0	142	13	318	288	0
Turn Type	Prot			Prot			Split		Prot	Split		
Protected Phases	7	4		3	8		2	2	2	6	6	
Permitted Phases												
Actuated Green, G (s)	6.6	30.8		8.2	32.4			11.8	11.8	18.1	18.1	
Effective Green, g (s)	6.6	30.8		8.2	32.4			11.8	11.8	18.1	18.1	
Actuated g/C Ratio	0.08	0.36		0.10	0.38			0.14	0.14	0.21	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)	138	1837		171	1313			252	220	358	349	
v/s Ratio Prot	c0.06	0.20		0.06	c0.34			c0.08	0.01	c0.19	0.18	
v/s Ratio Perm												
v/c Ratio	0.78	0.54		0.58	0.90			0.56	0.06	0.89	0.82	
Uniform Delay, d1	38.4	21.5		36.7	24.8			34.1	31.7	32.4	31.9	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	23.3	0.3		5.0	8.9			2.9	0.1	22.4	14.6	
Delay (s)	61.8	21.8		41.7	33.6			37.0	31.8	54.8	46.4	
Level of Service	E	C		D	C			D	C	D	D	
Approach Delay (s)		25.7			34.2			35.0			50.7	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	34.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	84.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

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

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑		↑
Volume (veh/h)	1443	55	0	1400	0	137
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)	1603	61	0	1556	0	152
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		0.90	0.86
vC, conflicting volume			1664		2412	565
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1216		1430	0
IC, single (s)			4.1		6.8	6.9
IC, 2 stage (s)						
IF (s)			2.2		3.5	3.3
p0 queue free %			100		100	84
cM capacity (veh/h)			492		113	936
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	641	641	382	778	778	152
Volume Left	0	0	0	0	0	0
Volume Right	0	0	61	0	0	152
cSH	1700	1700	1700	1700	1700	936
Volume to Capacity	0.38	0.38	0.22	0.46	0.46	0.16
Queue Length 95th (ft)	0	0	0	0	0	14
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.6
Lane LOS						A
Approach Delay (s)	0.0			0.0		9.6
Approach LOS						A
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			44.3%		ICU Level of Service	A
Analysis Period (min)			15			

Baseline

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

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

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	↑
Volume (vph)	0	795	1055	0	1009	336
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3	6.3		5.4	5.4
Lane Util. Factor		0.95	0.95		0.97	0.91
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	883	1172	0	1121	373
RTOR Reduction (vph)	0	0	0	0	3	36
Lane Group Flow (vph)	0	883	1172	0	1155	300
Turn Type						Perm
Protected Phases		2 6	6 2		4	
Permitted Phases						4
Actuated Green, G (s)		41.7	41.7		26.6	26.6
Effective Green, g (s)		41.7	41.7		26.6	26.6
Actuated g/C Ratio		0.52	0.52		0.33	0.33
Clearance Time (s)					5.4	5.4
Vehicle Extension (s)					3.0	3.0
Lane Grp Cap (vph)		1845	1845		1140	479
v/s Ratio Prot		0.25	0.33		0.34	
v/s Ratio Perm						0.21
v/c Ratio		0.48	0.64		1.01	0.63
Uniform Delay, d1		12.2	13.7		26.7	22.5
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.2	0.7		30.0	2.6
Delay (s)		12.4	14.4		56.7	25.1
Level of Service		B	B		E	C
Approach Delay (s)		12.4	14.4		49.6	
Approach LOS		B	B		D	
Intersection Summary						
HCM Average Control Delay		28.7		HCM Level of Service		C
HCM Volume to Capacity ratio		0.78				
Actuated Cycle Length (s)		80.0		Sum of lost time (s)		11.7
Intersection Capacity Utilization		123.5%		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-15 NB Ramps

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑↑		↔	↑↑	↔	↔	↑	↔			
Volume (vph)	231	1494	0	0	1526	944	384	59	1079	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	0.97	0.95			0.91	1.00	0.95	0.95	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	1543	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	1543	1504			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	257	1660	0	0	1696	1049	427	66	1199	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	456	0	6	6	0	0	0
Lane Group Flow (vph)	257	1660	0	0	1696	593	384	655	641	0	0	0
Turn Type	Prot				Prot	Split		Prot				
Protected Phases	5	2			6	6	8	8	8			
Permitted Phases												
Actuated Green, G (s)	9.6	60.0			46.4	46.4	52.0	52.0	52.0			
Effective Green, g (s)	9.6	60.0			46.4	46.4	52.0	52.0	52.0			
Actuated g/C Ratio	0.08	0.50			0.39	0.39	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)	275	1770			1966	612	728	669	652			
v/s Ratio Prot	0.07	c0.47			0.33	0.37	0.23	0.42	c0.43			
v/s Ratio Perm												
v/c Ratio	0.93	0.94			0.86	0.97	0.53	0.98	0.98			
Uniform Delay, d1	54.9	28.2			33.9	36.1	25.0	33.5	33.6			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	36.9	11.0			5.3	29.4	0.7	29.1	30.7			
Delay (s)	91.7	39.3			39.2	65.5	25.7	62.6	64.3			
Level of Service	F	D			D	E	C	E	E			
Approach Delay (s)		46.3			49.2			54.9		0.0		
Approach LOS		D			D			D		A		

Intersection Summary			
HCM Average Control Delay	49.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.96		
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			

Baseline

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑↑↑	↔	↔	↑↑↑	↔	↔	↑↑	↔	↔	↑	↔
Volume (vph)	111	1758	694	103	1972	69	201	10	40	108	59	312
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
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	0.99		1.00	0.88		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	5059		3433	3115		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	5059		3433	3115		1770	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	123	1953	771	114	2191	77	223	11	44	120	66	347
RTOR Reduction (vph)	0	0	378	0	4	0	0	39	0	0	0	127
Lane Group Flow (vph)	123	1953	393	114	2264	0	223	16	0	120	66	220
Turn Type	Prot		Perm	Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)	7.6	40.1	40.1	8.6	41.1		7.0	10.4		13.4	16.8	16.8
Effective Green, g (s)	7.6	40.1	40.1	8.6	41.1		7.0	10.4		13.4	16.8	16.8
Actuated g/C Ratio	0.09	0.45	0.45	0.10	0.46		0.08	0.12		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)	152	2304	717	172	2349		272	366		268	354	301
v/s Ratio Prot	c0.07	0.38		0.06	c0.45		c0.06	0.01		0.07	0.04	
v/s Ratio Perm			0.25									c0.14
v/c Ratio	0.81	0.85	0.55	0.66	0.96		0.82	0.04		0.45	0.19	0.73
Uniform Delay, d1	39.7	21.5	17.6	38.6	23.0		40.1	34.6		34.2	30.1	33.7
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	26.2	3.1	0.9	9.2	11.3		17.3	0.1		1.2	0.3	8.8
Delay (s)	65.9	24.6	18.5	47.8	34.2		57.4	34.7		35.4	30.4	42.5
Level of Service	E	C	B	D	C		E	C		D	C	D
Approach Delay (s)		24.7		34.9				52.9			39.4	
Approach LOS		C		C				D			D	

Intersection Summary			
HCM Average Control Delay	31.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	88.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.7%	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
11: Del Mar Heights Road & Third Ave.

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↓	↑↑↑	↓	↑
Volume (vph)	1936	165	128	2127	50	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1583	1770	5085	3433	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1583	1770	5085	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2151	183	142	2363	56	43
RTOR Reduction (vph)	0	72	0	0	0	40
Lane Group Flow (vph)	2151	111	142	2363	56	3
Turn Type		Prot	Prot		Prot	
Protected Phases	4	4	3	8	2	2
Permitted Phases						
Actuated Green, G (s)	33.5	33.5	6.0	43.5	3.7	3.7
Effective Green, g (s)	33.5	33.5	6.0	43.5	3.7	3.7
Actuated g/C Ratio	0.61	0.61	0.11	0.79	0.07	0.07
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3086	961	192	4007	230	106
v/s Ratio Prot	c0.42	0.07	c0.08	0.46	c0.02	0.00
v/s Ratio Perm						
v/c Ratio	0.70	0.12	0.74	0.59	0.24	0.03
Uniform Delay, d1	7.4	4.6	23.8	2.3	24.4	24.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.1	13.9	0.2	0.6	0.1
Delay (s)	8.1	4.6	37.7	2.5	25.0	24.2
Level of Service	A	A	D	A	C	C
Approach Delay (s)	7.8			4.5	24.6	
Approach LOS	A			A	C	

Intersection Summary			
HCM Average Control Delay	6.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	55.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		
c - Critical Lane Group			

Baseline

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

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↓	↑↑↑	↓	↑
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	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2041	152	152	2459	46	46
RTOR Reduction (vph)	0	62	0	0	0	42
Lane Group Flow (vph)	2041	90	152	2459	46	4
Turn Type		Prot	Prot		Prot	
Protected Phases	4	4	3	8	2	2
Permitted Phases						
Actuated Green, G (s)	28.4	28.4	3.5	35.9	4.1	4.1
Effective Green, g (s)	28.4	28.4	3.5	35.9	4.1	4.1
Actuated g/C Ratio	0.59	0.59	0.07	0.75	0.09	0.09
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3009	937	250	3803	151	135
v/s Ratio Prot	0.40	0.06	0.04	c0.48	c0.03	0.00
v/s Ratio Perm						
v/c Ratio	0.68	0.10	0.61	0.65	0.30	0.03
Uniform Delay, d1	6.7	4.2	21.6	3.0	20.6	20.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.0	4.1	0.4	1.1	0.1
Delay (s)	7.3	4.3	25.7	3.3	21.8	20.2
Level of Service	A	A	C	A	C	C
Approach Delay (s)	7.1			4.6	21.0	
Approach LOS	A			A	C	

Intersection Summary			
HCM Average Control Delay	6.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	48.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		
c - Critical Lane Group			

Baseline

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔↔↔		↔↔	↔↔↔		↔↔	↔↔↔	↔	↔↔	↔↔↔	
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
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	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	4825		3433	5042		3433	5085	1583	3433	4662	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	4825		3433	5042		3433	5085	1583	3433	4662	
Peak-hour 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	1069	553	290	1767	106	316	121	100	182	387	483
RTOR Reduction (vph)	0	103	0	0	7	0	0	0	78	0	153	0
Lane Group Flow (vph)	257	1519	0	290	1866	0	316	121	22	182	717	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	8.9	33.8		10.2	35.1		10.0	19.7	19.7	8.8	18.5	
Effective Green, g (s)	8.9	33.8		10.2	35.1		10.0	19.7	19.7	8.8	18.5	
Actuated g/C Ratio	0.10	0.38		0.12	0.40		0.11	0.22	0.22	0.10	0.21	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	345	1843		396	2000		388	1132	352	341	975	
v/s Ratio Prot	0.07	0.31		c0.08	c0.37		c0.09	0.02		0.05	c0.15	
v/s Ratio Perm									0.01			
v/c Ratio	0.74	0.82		0.73	0.93		0.81	0.11	0.06	0.53	1.00dr	
Uniform Delay, d1	38.7	24.7		37.8	25.6		38.3	27.4	27.1	37.9	32.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	8.5	3.1		6.8	8.6		12.3	0.0	0.1	1.6	2.9	
Delay (s)	47.2	27.8		44.7	34.2		50.7	27.4	27.2	39.5	35.6	
Level of Service	D	C		D	C		D	C	C	D	D	
Approach Delay (s)		30.5			35.6			41.1			36.3	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM Average Control Delay	34.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	88.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.4%	ICU Level of Service	D
Analysis Period (min)	15		
dr Defacto Right Lane. Recode with 1 though lane as a right lane.			
c Critical Lane Group			

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔↔↔		↔↔	↔↔↔		↔↔	↔↔↔	↔	↔↔	↔↔↔	
Volume (vph)	153	645	303	280	1260	174	438	188	111	146	185	154
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	0.95		1.00	0.98		1.00	0.94		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	4841		3433	4993		3433	4803		1770	3298	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	4841		3433	4993		3433	4803		1770	3298	
Peak-hour 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)	170	717	337	311	1400	193	487	209	123	162	206	171
RTOR Reduction (vph)	0	108	0	0	22	0	0	100	0	0	136	0
Lane Group Flow (vph)	170	946	0	311	1571	0	487	232	0	162	241	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	5.0	20.2		9.2	24.4		12.0	12.5		9.6	10.1	
Effective Green, g (s)	5.0	20.2		9.2	24.4		12.0	12.5		9.6	10.1	
Actuated g/C Ratio	0.07	0.30		0.14	0.36		0.18	0.19		0.14	0.15	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	254	1449		468	1805		610	889		252	493	
v/s Ratio Prot	0.05	0.20		c0.09	c0.31		c0.14	0.05		0.09	c0.07	
v/s Ratio Perm												
v/c Ratio	0.67	0.65		0.66	0.87		0.80	0.26		0.64	0.49	
Uniform Delay, d1	30.4	20.6		27.7	20.1		26.6	23.5		27.3	26.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.5	1.1		3.5	4.9		7.2	0.2		5.5	0.8	
Delay (s)	37.0	21.7		31.2	25.0		33.8	23.7		32.9	27.1	
Level of Service	D	C		C	C		C	C		C	C	
Approach Delay (s)		23.8			26.0			29.7			28.8	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	26.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	67.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑↑↑	↔	↔	↑↑↑	↔	↔	↑	↔	↔	↑	↔
Volume (vph)	212	663	126	81	1105	216	116	156	11	56	62	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.98		1.00	0.99		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	4964		1770	4961		1770	1845		1770	1674	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	4964		1770	4961		1770	1845		1770	1674	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	236	737	140	90	1228	240	129	173	12	62	69	143
RTOR Reduction (vph)	0	31	0	0	34	0	0	3	0	0	102	0
Lane Group Flow (vph)	236	846	0	90	1434	0	129	182	0	62	110	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	12.4	30.5		6.9	25.0		7.8	16.1		4.0	12.3	
Effective Green, g (s)	12.4	30.5		6.9	25.0		7.8	16.1		4.0	12.3	
Actuated g/C Ratio	0.17	0.41		0.09	0.34		0.11	0.22		0.05	0.17	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	299	2060		166	1687		188	404		96	280	
v/s Ratio Prot	c0.13	0.17		0.05	c0.29		c0.07	c0.10		0.04	0.07	
v/s Ratio Perm												
v/c Ratio	0.79	0.41		0.54	0.85		0.69	0.45		0.65	0.39	
Uniform Delay, d1	29.3	15.2		31.8	22.5		31.7	24.9		34.1	27.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	12.9	0.1		3.6	4.2		9.9	0.8		14.0	0.9	
Delay (s)	42.2	15.3		35.4	26.7		41.6	25.7		48.0	28.2	
Level of Service	D	B		D	C		D	C		D	C	
Approach Delay (s)		21.0			27.2			32.2			32.7	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	26.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	73.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	68.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑↑↑	↔	↔	↑↑↑	↔	↔	↑	↔	↔	↑	↔
Volume (vph)	160	576	35	67	1146	36	44	26	55	49	60	362
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.90		1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5041		1770	5062		1770	1673		1770	1623	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5041		1770	5062		1770	1673		1770	1623	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	178	640	39	74	1273	40	49	29	61	54	67	402
RTOR Reduction (vph)	0	9	0	0	5	0	0	50	0	0	262	0
Lane Group Flow (vph)	178	670	0	74	1308	0	49	40	0	54	207	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	8.2	24.9		3.7	20.4		2.4	10.8		3.2	11.6	
Effective Green, g (s)	8.2	24.9		3.7	20.4		2.4	10.8		3.2	11.6	
Actuated g/C Ratio	0.14	0.42		0.06	0.35		0.04	0.18		0.05	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)	248	2142		112	1762		72	308		97	321	
v/s Ratio Prot	c0.10	0.13		0.04	c0.26		0.03	0.02		c0.03	c0.13	
v/s Ratio Perm												
v/c Ratio	0.72	0.31		0.66	0.74		0.68	0.13		0.56	0.64	
Uniform Delay, d1	24.1	11.2		26.8	16.8		27.7	20.0		27.0	21.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.5	0.1		13.7	1.7		23.3	0.2		6.8	4.4	
Delay (s)	33.6	11.3		40.5	18.5		51.0	20.2		33.8	26.0	
Level of Service	C	B		D	B		D	C		C	C	
Approach Delay (s)		15.9			19.7			31.0			26.8	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	20.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	58.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

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

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑	↑↑↑	↑↑	↑
Volume (vph)	567	129	397	1023	274	342
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)	4944		1770	5085	3433	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	4944		1770	5085	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	630	143	441	1137	304	380
RTOR Reduction (vph)	56	0	0	0	0	304
Lane Group Flow (vph)	717	0	441	1137	304	76
Turn Type			Prot		Prot	
Protected Phases	4		3	8	2	2
Permitted Phases						
Actuated Green, G (s)	14.4		17.5	35.9	10.9	10.9
Effective Green, g (s)	14.4		17.5	35.9	10.9	10.9
Actuated g/C Ratio	0.26		0.32	0.66	0.20	0.20
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1299		565	3331	683	315
v/s Ratio Prot	c0.15		c0.25	0.22	c0.09	0.05
v/s Ratio Perm						
v/c Ratio	0.55		0.78	0.34	0.45	0.24
Uniform Delay, d1	17.4		16.9	4.2	19.3	18.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5		6.9	0.1	0.5	0.4
Delay (s)	17.9		23.8	4.3	19.8	18.9
Level of Service	B		C	A	B	B
Approach Delay (s)	17.9			9.7	19.3	
Approach LOS	B			A	B	
Intersection Summary						
HCM Average Control Delay			14.0		HCM Level of Service	B
HCM Volume to Capacity ratio			0.62			
Actuated Cycle Length (s)			54.8		Sum of lost time (s)	12.0
Intersection Capacity Utilization			53.6%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Baseline

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↑	↑	↑	↑	↑	↑	↑↑	↑↑	↑	↑↑	↑↑	↑
Volume (vph)	41	8	8	97	27	110	137	343	101	173	857	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	0.95	0.95			1.00	1.00	0.97	0.91		0.97	0.91	
Frt	1.00	0.96			1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected	0.95	0.98			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1681	1659			1793	1583	3433	4912		3433	5039	
Flt Permitted	0.95	0.98			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1681	1659			1793	1583	3433	4912		3433	5039	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	46	9	9	108	30	122	152	381	112	192	952	61
RTOR Reduction (vph)	0	8	0	0	0	78	0	71	0	0	10	0
Lane Group Flow (vph)	32	24	0	0	138	44	152	422	0	192	1003	0
Turn Type	Split			Split		custom		Prot		Prot		
Protected Phases	2	2		6	6			3	8	7	4	
Permitted Phases						8						
Actuated Green, G (s)	2.6	2.6			6.9	16.7	3.5	16.7		3.8	17.0	
Effective Green, g (s)	2.6	2.6			6.9	16.7	3.5	16.7		3.8	17.0	
Actuated g/C Ratio	0.06	0.06			0.15	0.36	0.08	0.36		0.08	0.37	
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)	95	94			269	575	261	1783		284	1862	
v/s Ratio Prot	c0.02	0.01			c0.08		0.04	0.09		c0.06	c0.20	
v/s Ratio Perm						0.03						
v/c Ratio	0.34	0.25			0.51	0.08	0.58	0.24		0.68	0.54	
Uniform Delay, d1	20.9	20.8			18.0	9.6	20.5	10.2		20.5	11.4	
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.1	1.4			1.7	0.1	3.3	0.1		6.2	0.3	
Delay (s)	23.0	22.2			19.7	9.7	23.8	10.3		26.7	11.7	
Level of Service	C	C			B	A	C	B		C	B	
Approach Delay (s)		22.6			15.0			13.5			14.1	
Approach LOS		C			B			B			B	
Intersection Summary												
HCM Average Control Delay					14.3			HCM Level of Service		B		
HCM Volume to Capacity ratio					0.47							
Actuated Cycle Length (s)					46.0			Sum of lost time (s)		12.0		
Intersection Capacity Utilization					45.1%			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
19: Townsgate Drive & Carmel Country Road

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑	↘	↔	↑	↘	↔	↑	↘	↔	↑	↘
Volume (vph)	173	85	116	46	195	153	114	448	7	103	468	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.93		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	1740		1770	3531		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1740		1770	3531		1770	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	192	94	129	51	217	170	127	498	8	114	520	192
RTOR Reduction (vph)	0	0	79	0	36	0	0	2	0	0	0	149
Lane Group Flow (vph)	192	94	50	51	351	0	127	504	0	114	520	43
Turn Type	Prot		Prot	Prot			Prot			Prot		Prot
Protected Phases	7	4	4	3	8		5	2		1	6	6
Permitted Phases												
Actuated Green, G (s)	12.2	26.8	26.8	3.6	18.2		7.1	16.5		6.1	15.5	15.5
Effective Green, g (s)	12.2	26.8	26.8	3.6	18.2		7.1	16.5		6.1	15.5	15.5
Actuated g/C Ratio	0.18	0.39	0.39	0.05	0.26		0.10	0.24		0.09	0.22	0.22
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	313	724	615	92	459		182	844		156	795	356
v/s Ratio Prot	c0.11	0.05	0.03	0.03	c0.20		c0.07	0.14		0.06	c0.15	0.03
v/s Ratio Perm												
v/c Ratio	0.61	0.13	0.08	0.55	0.76		0.70	0.60		0.73	0.65	0.12
Uniform Delay, d1	26.2	13.6	13.3	31.9	23.4		29.9	23.3		30.6	24.3	21.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.5	0.1	0.1	7.1	7.4		11.1	1.1		16.1	1.9	0.2
Delay (s)	29.8	13.7	13.4	39.0	30.8		41.0	24.4		46.7	26.3	21.5
Level of Service	C	B	B	D	C		D	C		D	C	C
Approach Delay (s)		21.0			31.8			27.8			28.0	
Approach LOS		C			C			C			C	

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

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

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↔	↑	↘	↔	↑	↘	↔	↑	↘	↔	↑	↘
Volume (vph)	63	70	6	233	52	144	104	330	54	155	575	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.98		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1840		1770	1863	1583	1770	4978		1770	4894	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1840		1770	1863	1583	1770	4978		1770	4894	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	70	78	7	259	58	160	116	367	60	172	639	214
RTOR Reduction (vph)	0	5	0	0	0	119	0	31	0	0	80	0
Lane Group Flow (vph)	70	80	0	259	58	41	116	396	0	172	773	0
Turn Type	Prot			Prot		Prot	Prot			Prot		
Protected Phases	1	6		5	2	2	7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	3.8	7.1		11.7	15.0	15.0	5.4	14.8		8.4	17.8	
Effective Green, g (s)	3.8	7.1		11.7	15.0	15.0	5.4	14.8		8.4	17.8	
Actuated g/C Ratio	0.07	0.12		0.20	0.26	0.26	0.09	0.26		0.14	0.31	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	116	225		357	482	409	165	1270		256	1502	
v/s Ratio Prot	0.04	c0.04		c0.15	0.03	0.03	0.07	0.08		c0.10	c0.16	
v/s Ratio Perm												
v/c Ratio	0.60	0.35		0.73	0.12	0.10	0.70	0.31		0.67	0.51	
Uniform Delay, d1	26.4	23.3		21.6	16.5	16.4	25.5	17.5		23.5	16.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.6	1.0		7.2	0.1	0.1	12.7	0.1		6.8	0.3	
Delay (s)	34.9	24.3		28.8	16.6	16.5	38.3	17.6		30.3	16.8	
Level of Service	C	C		C	B	B	D	B		C	B	
Approach Delay (s)		29.1			23.2			22.0			19.1	
Approach LOS		C			C			C			B	

Intersection Summary												
HCM Average Control Delay		21.4		HCM Level of Service		C						
HCM Volume to Capacity ratio		0.59										
Actuated Cycle Length (s)		58.0		Sum of lost time (s)		16.0						
Intersection Capacity Utilization		50.8%		ICU Level of Service		A						
Analysis Period (min)		15										
c Critical Lane Group												

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	314	122	127	62	300	30	277	429	29	68	418	401
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85		0.99		1.00	0.99		1.00	0.93	
Flt Protected	0.95	1.00	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583		1829		1770	3506		1770	3279	
Flt Permitted	0.95	1.00	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583		1829		1770	3506		1770	3279	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	349	136	141	69	333	33	308	477	32	76	464	446
RTOR Reduction (vph)	0	0	114	0	3	0	0	5	0	0	192	0
Lane Group Flow (vph)	349	136	27	0	432	0	308	504	0	76	718	0
Turn Type	Split		Prot	Split			Prot			Prot		
Protected Phases	4	4	4	8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	17.3	17.3	17.3		20.0		15.4	30.3		7.2	22.1	
Effective Green, g (s)	17.3	17.3	17.3		20.0		15.4	30.3		7.2	22.1	
Actuated g/C Ratio	0.19	0.19	0.19		0.22		0.17	0.33		0.08	0.24	
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)	337	355	302		403		300	1170		140	798	
v/s Ratio Prot	c0.20	0.07	0.02		c0.24		c0.17	0.14		0.04	c0.22	
v/s Ratio Perm												
v/c Ratio	1.04	0.38	0.09		1.07		1.03	0.43		0.54	0.90	
Uniform Delay, d1	36.8	32.1	30.3		35.4		37.7	23.5		40.2	33.3	
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	58.5	0.7	0.1		65.3		59.0	0.3		4.2	12.9	
Delay (s)	95.3	32.8	30.4		100.7		96.7	23.8		44.5	46.2	
Level of Service	F	C	C		F		F	C		D	D	
Approach Delay (s)		67.1			100.7			51.3			46.1	
Approach LOS		E			F			D			D	

Intersection Summary												
HCM Average Control Delay		60.4		HCM Level of Service		E						
HCM Volume to Capacity ratio		1.00										
Actuated Cycle Length (s)		90.8		Sum of lost time (s)		16.0						
Intersection Capacity Utilization		91.5%		ICU Level of Service		F						
Analysis Period (min)		15										
c Critical Lane Group												

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

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

Movement	EBL	EBR	EBR2	NWL2	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↰	↱	↱	↰	↰	↱	↰	↰	↱	↰	↰	↱
Volume (vph)	31	113	252	97	228	102	218	421	30	81	921	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	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97		0.97	0.91		1.00	0.91	
Frt	1.00	0.85	0.85	1.00	0.95		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1583	1583	1770	3331		3433	5035		1770	5004	
Flt Permitted	0.95	1.00	1.00	0.95	0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1583	1583	1770	3331		3433	5035		1770	5004	
Peak-hour 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)	34	126	280	108	253	113	242	468	33	90	1023	122
RTOR Reduction (vph)	0	0	199	0	88	0	0	12	0	0	23	0
Lane Group Flow (vph)	34	126	81	108	278	0	242	489	0	90	1122	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)		9.6	9.6	5.8	5.8		5.0	18.7		3.5	17.2	
Effective Green, g (s)		9.6	9.6	5.8	5.8		5.0	18.7		3.5	17.2	
Actuated g/C Ratio		0.18	0.18	0.11	0.11		0.09	0.35		0.07	0.32	
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		317	284	284	192	360	320	1757		116	1606	
v/s Ratio Prot		0.02		0.06	c0.08		c0.07	0.10		0.05	c0.22	
v/s Ratio Perm			c0.08	0.05								
v/c Ratio		0.11	0.44	0.29	0.56	0.77	0.76	0.28		0.78	0.70	
Uniform Delay, d1		18.4	19.6	19.0	22.7	23.3	23.7	12.6		24.7	15.9	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2	1.1	0.6	3.7	9.8	9.8	0.1		27.0	1.3	
Delay (s)		18.6	20.7	19.6	26.4	33.1	33.5	12.7		51.7	17.3	
Level of Service		B	C	B	C	C	C	B		D	B	
Approach Delay (s)		19.8			31.6			19.4			19.8	
Approach LOS		B			C			B			B	

Intersection Summary												
HCM Average Control Delay		21.6		HCM Level of Service		C						
HCM Volume to Capacity ratio		0.65										
Actuated Cycle Length (s)		53.6		Sum of lost time (s)		16.0						
Intersection Capacity Utilization		52.8%		ICU Level of Service		A						
Analysis Period (min)		15										
c Critical Lane Group												

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

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕	↕		↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	51	6	73	13	27	14	126	31	2	3	16	198
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	57	7	81	14	30	16	140	34	2	3	18	220

Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1
Volume Total (vph)	63	81	60	177	241
Volume Left (vph)	57	0	14	140	3
Volume Right (vph)	0	81	16	2	220
Hadj (s)	0.48	-0.67	-0.07	0.18	-0.51
Departure Headway (s)	6.0	4.9	5.1	4.9	4.1
Degree Utilization, x	0.11	0.11	0.09	0.24	0.28
Capacity (veh/h)	555	682	636	701	820
Control Delay (s)	8.5	7.3	8.6	9.4	8.7
Approach Delay (s)	7.8		8.6	9.4	8.7
Approach LOS	A		A	A	A

Intersection Summary				
Delay		8.7		
HCM Level of Service		A		
Intersection Capacity Utilization	41.6%		ICU Level of Service	A
Analysis Period (min)	15			

Baseline

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕		↕	↕		↕	↕	
Volume (vph)	54	92	119	205	63	25	31	299	83	15	787	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		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	1583		1779		1770	3424		1770	3457	
Flt Permitted		0.98	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1829	1583		1779		1770	3424		1770	3457	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	60	102	132	228	70	28	34	332	92	17	874	160
RTOR Reduction (vph)	0	0	110	0	4	0	0	30	0	0	18	0
Lane Group Flow (vph)	0	162	22	0	322	0	34	394	0	17	1016	0

Turn Type	Split	Prot	Split	Prot	Split	Prot	Split	Prot	Split	Prot	Split	Prot
Protected Phases	4	4	4	8	8	5	2	1	6			
Permitted Phases												
Actuated Green, G (s)		11.5	11.5		15.9		1.6	26.2		0.8	25.4	
Effective Green, g (s)		11.5	11.5		15.9		1.6	26.2		0.8	25.4	
Actuated g/C Ratio		0.16	0.16		0.23		0.02	0.37		0.01	0.36	
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		299	259		402		40	1274		20	1247	
v/s Ratio Prot		c0.09	0.01		c0.18		c0.02	0.12		0.01	c0.29	
v/s Ratio Perm												
v/c Ratio		0.54	0.08		0.80		0.85	0.31		0.85	0.81	
Uniform Delay, d1		27.0	25.0		25.8		34.3	15.7		34.7	20.4	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.0	0.1		10.9		85.5	0.1		131.5	4.2	
Delay (s)		29.0	25.1		36.7		119.8	15.8		166.2	24.6	
Level of Service		C	C		D		F	B		F	C	
Approach Delay (s)		27.3			36.7			23.5			26.9	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM Average Control Delay	27.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	70.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Baseline

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑					↑	↑	↑
Volume (vph)	0	324	181	405	644	0	0	0	0	1081	3	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.95		0.97	0.95					0.95	0.91	0.95
Friction		0.95		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3349		3433	3539					1681	1610	1504
Flt Permitted		1.00		0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3349		3433	3539					1681	1610	1504
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	360	201	450	716	0	0	0	0	1201	3	164
RTOR Reduction (vph)	0	114	0	0	0	0	0	0	0	0	1	73
Lane Group Flow (vph)	0	447	0	450	716	0	0	0	0	613	606	75
Turn Type				Prot						Prot		Prot
Protected Phases		4		3	8					1	6	6
Permitted Phases												
Actuated Green, G (s)		13.9		10.9	28.8					30.6	30.6	30.6
Effective Green, g (s)		13.9		10.9	28.8					30.6	30.6	30.6
Actuated g/C Ratio		0.21		0.16	0.43					0.45	0.45	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)		691		555	1512					763	731	683
v/s Ratio Prot		c0.13		c0.13	0.20					0.36	c0.38	0.05
v/s Ratio Perm												
v/c Ratio		0.65		0.81	0.47					0.80	0.83	0.11
Uniform Delay, d1		24.5		27.3	13.9					15.8	16.1	10.6
Progression Factor		1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		2.1		8.8	0.2					6.1	7.7	0.1
Delay (s)		26.6		36.0	14.1					21.9	23.8	10.6
Level of Service		C		D	B					C	C	B
Approach Delay (s)		26.6			22.6		0.0				21.6	
Approach LOS		C			C		A				C	

Intersection Summary				
HCM Average Control Delay	22.8	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.78			
Actuated Cycle Length (s)	67.4	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	115.1%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑	↑					↑	
Volume (vph)	63	1270	0	0	977	879	109	2	570	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0				4.0		
Lane Util. Factor		0.97			0.95	1.00				0.95		
Friction		1.00			1.00	0.85				1.00		
Flt Protected		0.95			1.00	1.00				0.95		
Satd. Flow (prot)		3433			3539	1583				1681		
Flt Permitted		0.95			1.00	1.00				0.95		
Satd. Flow (perm)		3433			3539	1583				1681		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	70	1411	0	0	1086	977	121	2	633	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	494	0	31	31	0	0	0
Lane Group Flow (vph)	70	1411	0	0	1086	483	109	293	292	0	0	0
Turn Type						Prot	Prot					
Protected Phases		7				8	8	5	2			
Permitted Phases												
Actuated Green, G (s)		2.5				26.7	26.7	16.6	16.6			
Effective Green, g (s)		2.5				26.7	26.7	16.6	16.6			
Actuated g/C Ratio		0.04				0.46	0.46	0.29	0.29			
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)		148				1635	731	483	416			
v/s Ratio Prot		0.02				0.31	0.30	0.06	c0.20			
v/s Ratio Perm												
v/c Ratio		0.47				0.66	0.66	0.23	0.70			
Uniform Delay, d1		27.0				12.1	12.0	15.7	18.4			
Progression Factor		1.00				1.00	1.00	1.00	1.00			
Incremental Delay, d2		2.4				1.0	2.2	0.2	5.3			
Delay (s)		29.4				13.1	14.3	15.9	23.7			
Level of Service		C				B	B	B	C			
Approach Delay (s)									22.0			
Approach LOS									C			

Intersection Summary			
HCM Average Control Delay	14.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	57.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	115.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Volume (vph)	36	13	44	725	19	164	90	1034	149	122	1117	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	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	0.95	0.95
Frst	1.00	0.93	0.85	1.00	0.99	0.85	1.00	0.98	1.00	1.00	0.95	1.00
Flt Protected	0.95	0.99	1.00	0.95	0.96	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Sald. Flow (prot)	1681	1563	1504	1681	1611	1504	1770	4989	1770	5067	1770	5067
Flt Permitted	0.95	0.99	1.00	0.95	0.96	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Sald. Flow (perm)	1681	1563	1504	1681	1611	1504	1770	4989	1770	5067	1770	5067
Peak-hour 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)	40	14	49	806	21	182	100	1149	166	136	1241	31
RTOR Reduction (vph)	0	16	30	0	1	114	0	17	0	0	2	0
Lane Group Flow (vph)	36	19	2	419	425	50	100	1298	0	136	1270	0
Turn Type	Split		Prot	Split		Prot	Prot		Prot			
Protected Phases	4	4	4	8	8	8	5	2		1		
Permitted Phases											6	
Actuated Green, G (s)	6.2	6.2	6.2	28.0	28.0	28.0	7.0	30.3		12.1	35.4	
Effective Green, g (s)	6.2	6.2	6.2	28.0	28.0	28.0	7.0	30.3		12.1	35.4	
Actuated g/C Ratio	0.07	0.07	0.07	0.30	0.30	0.30	0.08	0.33		0.13	0.38	
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)	113	105	101	508	487	455	134	1632		231	1937	
v/s Ratio Prot	c0.02	0.01	0.00	0.25	c0.26	0.03	c0.06	c0.26		c0.08		
v/s Ratio Perm											0.25	
v/c Ratio	0.32	0.18	0.02	0.82	0.87	0.11	0.75	0.80		0.59	0.66	
Uniform Delay, d1	41.2	40.8	40.4	30.0	30.6	23.3	41.9	28.3		37.9	23.6	
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	1.6	0.8	0.1	10.5	15.7	0.1	20.0	2.8		3.8	0.8	
Delay (s)	42.8	41.6	40.4	40.5	46.3	23.4	62.0	31.1		41.7	24.4	
Level of Service	D	D	D	D	D	C	E	C		D	C	
Approach Delay (s)		41.7			40.2			33.3			26.1	
Approach LOS		D			D			C			C	
Intersection Summary												
HCM Average Control Delay		32.7										
HCM Volume to Capacity ratio		0.76										
Actuated Cycle Length (s)		92.6										
Intersection Capacity Utilization		69.0%										
Analysis Period (min)		15										
c Critical Lane Group												

Baseline

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Volume (vph)	0	0	0	349	1043	261	165	918	0	0	625	677
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
Frpb, ped/bikes				1.00	1.00	1.00	1.00	1.00			0.93	1.00
Flpb, ped/bikes				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Frst				1.00	1.00	0.85	1.00	1.00			0.95	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Sald. Flow (prot)				3433	5085	1583	3433	3539			4250	1362
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Sald. Flow (perm)				3433	5085	1583	3433	3539			4250	1362
Peak-hour 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	388	1159	290	183	1020	0	0	694	752
RTOR Reduction (vph)	0	0	0	0	0	53	0	0	0	0	10	10
Lane Group Flow (vph)	0	0	0	388	1159	237	183	1020	0	0	1060	366
Confl. Peds. (#/hr)												200
Turn Type				Split		Prot	Prot					Prot
Protected Phases				8	8	8	5	2				6
Permitted Phases												6
Actuated Green, G (s)				16.0	16.0	16.0	3.0	24.2				17.2
Effective Green, g (s)				16.0	16.0	16.0	3.0	24.2				17.2
Actuated g/C Ratio				0.33	0.33	0.33	0.06	0.50				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)				1140	1688	525	214	1777				1517
v/s Ratio Prot				0.11	c0.23	0.15	0.05	c0.29				0.25
v/s Ratio Perm												c0.27
v/c Ratio				0.34	0.69	0.45	0.86	0.57				0.70
Uniform Delay, d1				12.1	13.9	12.6	22.4	8.4				13.3
Progression Factor				1.00	1.00	1.00	1.00	1.00				1.00
Incremental Delay, d2				0.2	1.2	0.6	26.8	0.5				1.4
Delay (s)				12.3	15.1	13.3	49.1	8.8				14.7
Level of Service				B	B	B	D	A				B
Approach Delay (s)		0.0			14.2			15.0				16.1
Approach LOS		A			B			B				B
Intersection Summary												
HCM Average Control Delay		15.0										
HCM Volume to Capacity ratio		0.73										
Actuated Cycle Length (s)		48.2										12.0
Intersection Capacity Utilization		102.0%										G
Analysis Period (min)		15										
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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	←	←	←	←	←	←	←	←	←	←	←
Volume (vph)	651	943	317	0	0	0	0	409	227	150	751	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0		4.0	4.0	
Lane Util. Factor	0.91	0.86	0.91					0.86		1.00	0.91	
Flt	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	3172	1441					6065		1770	5085	
Flt Permitted	0.95	0.99	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1610	3172	1441					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	167	834	0
RTOR Reduction (vph)	0	3	55	0	0	0	0	55	0	0	0	0
Lane Group Flow (vph)	586	1217	262	0	0	0	0	651	0	167	834	0
Turn Type	Split		Prot							Prot		
Protected Phases	4	4	4					2		1	6	
Permitted Phases												
Actuated Green, G (s)	27.1	27.1	27.1					13.3		7.9	25.2	
Effective Green, g (s)	27.1	27.1	27.1					13.3		7.9	25.2	
Actuated g/C Ratio	0.45	0.45	0.45					0.22		0.13	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)	724	1426	648					1338		232	2125	
v/s Ratio Prot	0.36	c0.38	0.18					c0.11		c0.09	0.16	
v/s Ratio Perm												
v/c Ratio	0.81	0.85	0.41					0.49		0.72	0.39	
Uniform Delay, d1	14.4	14.8	11.2					20.5		25.1	12.2	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	6.7	5.2	0.4					0.3		10.2	0.1	
Delay (s)	21.0	20.0	11.6					20.8		35.4	12.3	
Level of Service	C	C	B					C		D	B	
Approach Delay (s)		19.0			0.0			20.8			16.2	
Approach LOS		B			A			C			B	
Intersection Summary												
HCM Average Control Delay		18.6										
HCM Volume to Capacity ratio		0.73										
Actuated Cycle Length (s)		60.3						12.0				
Intersection Capacity Utilization		102.0%										
Analysis Period (min)		15										
c Critical Lane Group												

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

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

Movement	EBL	EBT	WBL	WBT	WBR	SBL	SBR
Lane Configurations	←	←	←	←	←	←	←
Volume (vph)	16	216	0	440	25	97	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		0.95		1.00	1.00
Flt	1.00	1.00		0.99		1.00	0.85
Flt Protected	0.95	1.00		1.00		0.95	1.00
Satd. Flow (prot)	1770	3539		3510		1770	1583
Flt Permitted	0.95	1.00		1.00		0.95	1.00
Satd. Flow (perm)	1770	3539		3510		1770	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	240	0	489	28	108	128
RTOR Reduction (vph)	0	0	0	8	0	0	100
Lane Group Flow (vph)	18	240	0	509	0	108	28
Turn Type	Prot		Prot			Prot	
Protected Phases	7	4	3	8		6	6
Permitted Phases							
Actuated Green, G (s)	0.5	12.0		7.5		5.6	5.6
Effective Green, g (s)	0.5	12.0		7.5		5.6	5.6
Actuated g/C Ratio	0.02	0.47		0.29		0.22	0.22
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)	35	1659		1028		387	346
v/s Ratio Prot	0.01	c0.07		c0.14		c0.06	0.02
v/s Ratio Perm							
v/c Ratio	0.51	0.14		0.49		0.28	0.08
Uniform Delay, d1	12.4	3.9		7.5		8.3	8.0
Progression Factor	1.00	1.00		1.00		1.00	1.00
Incremental Delay, d2	12.2	0.0		0.4		0.4	0.1
Delay (s)	24.6	3.9		7.9		8.7	8.1
Level of Service	C	A		A		A	A
Approach Delay (s)		5.4		7.9		8.4	
Approach LOS		A		A		A	
Intersection Summary							
HCM Average Control Delay		7.3					A
HCM Volume to Capacity ratio		0.41					
Actuated Cycle Length (s)		25.6				12.0	
Intersection Capacity Utilization		26.7%					A
Analysis Period (min)		15					
c Critical Lane Group							

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

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

Movement	EBL	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL	SBT	SBR
Lane Configurations	↰	↱	↱	↰	↱	↱	↰	↱	↱	↰	↱	↱
Volume (vph)	76	220	179	275	373	100	342	346	287	1102	227	207
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	0.88	1.00	1.00	1.00		1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.85	0.85	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	2787	1583	1770	1804		1770	3539	1583	3433	3539	1583
Flt Permitted	0.46	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	864	2787	1583	1770	1804		1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	84	244	199	306	414	111	380	384	319	1224	252	230
RTOR Reduction (vph)	0	0	170	0	10	0	0	0	269	0	0	173
Lane Group Flow (vph)	84	244	29	306	515	0	380	384	50	1224	252	57
Turn Type	custom	custom	custom	Prot			Prot		Perm	Prot		Perm
Protected Phases				3	8		5	2		1	6	
Permitted Phases	4	4	4						2			6
Actuated Green, G (s)	13.9	13.9	13.9	17.0	34.9		25.5	15.0	15.0	34.1	23.6	23.6
Effective Green, g (s)	13.9	13.9	13.9	17.0	34.9		25.5	15.0	15.0	34.1	23.6	23.6
Actuated g/C Ratio	0.14	0.14	0.14	0.18	0.36		0.27	0.16	0.16	0.36	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
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)	125	404	229	313	656		470	553	247	1219	870	389
v/s Ratio Prot				c0.17	c0.29		0.21	c0.11		c0.36	0.07	
v/s Ratio Perm	0.10	0.09	0.02					0.03				0.04
v/c Ratio	0.67	0.60	0.13	0.98	0.79		0.81	0.69	0.20	1.00	0.29	0.15
Uniform Delay, d1	38.9	38.5	35.8	39.3	27.2		33.0	38.3	35.3	31.0	29.4	28.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.3	2.5	0.2	44.3	6.2		9.9	3.8	0.4	26.8	0.2	0.2
Delay (s)	52.2	41.0	36.0	83.6	33.4		42.8	42.1	35.7	57.7	29.6	28.5
Level of Service	D	D	D	F	C		D	D	D	E	C	C
Approach Delay (s)					51.9			40.5			49.6	
Approach LOS					D			D			D	
Intersection Summary												
HCM Average Control Delay		46.6										
HCM Volume to Capacity ratio		0.88										
Actuated Cycle Length (s)		96.0						12.0				
Intersection Capacity Utilization		84.3%										
Analysis Period (min)		15										
c Critical Lane Group												

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↱					↱	↱	↰	↱	↱
Volume (vph)	450	0	330	0	0	0	0	530	129	188	462	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	
Frt	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					3436		3433	3539	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1681	1681	1583					3436		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)	500	0	367	0	0	0	0	589	143	209	513	0
RTOR Reduction (vph)	0	0	205	0	0	0	0	43	0	0	0	0
Lane Group Flow (vph)	250	250	162	0	0	0	0	689	0	209	513	0
Turn Type	Split		Prot							Prot		
Protected Phases	4	4	4					2		1	6	
Permitted Phases												
Actuated Green, G (s)	13.1	13.1	13.1					14.2		3.6	21.8	
Effective Green, g (s)	13.1	13.1	13.1					14.2		3.6	21.8	
Actuated g/C Ratio	0.31	0.31	0.31					0.33		0.08	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)	513	513	483					1137		288	1798	
v/s Ratio Prot	c0.15	0.15	0.10					c0.20		c0.06	0.14	
v/s Ratio Perm												
v/c Ratio	0.49	0.49	0.34					0.61		0.73	0.29	
Uniform Delay, d1	12.2	12.2	11.5					12.0		19.2	6.1	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.7	0.4					0.9		8.8	0.1	
Delay (s)	12.9	12.9	11.9					12.9		27.9	6.2	
Level of Service	B	B	B					B		C	A	
Approach Delay (s)		12.5			0.0			12.9			12.5	
Approach LOS		B			A			B			B	
Intersection Summary												
HCM Average Control Delay		12.6										
HCM Volume to Capacity ratio		0.57										
Actuated Cycle Length (s)		42.9								12.0		
Intersection Capacity Utilization		46.6%								A		
Analysis Period (min)		15										
c Critical Lane Group												

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

Near Term + Project (Phase 1&2) AM

3/2/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	89	512	37	145	472	345	58	66	243	642	143	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		4.0	5.0		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		0.97	1.00	
Frt	1.00	0.99		1.00	0.94		1.00	0.88		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3504		1770	3315		1770	1643		3433	1706	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3504		1770	3315		1770	1643		3433	1706	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	99	569	41	161	524	383	64	73	270	713	159	203
RTOR Reduction (vph)	0	7	0	0	167	0	0	139	0	0	55	0
Lane Group Flow (vph)	99	603	0	161	740	0	64	204	0	713	307	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	5.0	17.8		9.0	20.8		4.0	14.4		17.6	28.0	
Effective Green, g (s)	5.0	17.8		9.0	20.8		4.0	14.4		17.6	28.0	
Actuated g/C Ratio	0.07	0.23		0.12	0.27		0.05	0.19		0.23	0.36	
Clearance Time (s)	5.0	5.0		4.0	5.0		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	115	812		207	898		92	308		787	622	
v/s Ratio Prot	0.06	0.17		c0.09	c0.22		0.04	c0.12		c0.21	0.18	
v/s Ratio Perm												
v/c Ratio	0.86	0.74		0.78	0.82		0.70	0.66		0.91	0.49	
Uniform Delay, d1	35.6	27.4		32.9	26.3		35.8	28.9		28.8	18.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	44.1	3.7		16.6	6.2		20.4	5.3		13.9	0.6	
Delay (s)	79.7	31.1		49.6	32.5		56.2	34.2		42.7	19.5	
Level of Service	E	C		D	C		E	C		D	B	
Approach Delay (s)		37.9			35.1			37.7			34.9	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM Average Control Delay	35.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	76.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

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

Near Term + Project (Phase 1&2) AM

3/2/2012

Movement	WBL	WBR	SEL	SET	NWT	NWR	NWR2	SWL	SWR
Lane Configurations									
Volume (vph)	0	0	777	597	764	0	315	137	233
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor			0.97	0.95	0.95		1.00	0.97	1.00
Frt			1.00	1.00	1.00		0.85	1.00	0.85
Flt Protected			0.95	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)			3433	3539	3539		1583	3433	1583
Flt Permitted			0.95	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)			3433	3539	3539		1583	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	863	663	849	0	350	152	259
RTOR Reduction (vph)	0	0	0	0	0	0	237	0	221
Lane Group Flow (vph)	0	0	863	663	849	0	113	152	38
Turn Type			Prot				Perm		Perm
Protected Phases			5	2	6			4	
Permitted Phases							6		4
Actuated Green, G (s)			17.4	39.3	17.9		17.9	8.2	8.2
Effective Green, g (s)			17.4	39.3	17.9		17.9	8.2	8.2
Actuated g/C Ratio			0.31	0.71	0.32		0.32	0.15	0.15
Clearance Time (s)			4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)			3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)			1076	2506	1141		511	507	234
v/s Ratio Prot			c0.25	0.19	c0.24		c0.04		
v/s Ratio Perm							0.07		0.02
v/c Ratio			0.80	0.26	0.74		0.22	0.30	0.16
Uniform Delay, d1			17.5	2.9	16.8		13.7	21.1	20.7
Progression Factor			1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2			4.4	0.1	2.7		0.2	0.3	0.3
Delay (s)			21.9	3.0	19.4		13.9	21.4	21.0
Level of Service			C	A	B		B	C	C
Approach Delay (s)	0.0			13.7	17.8			21.1	
Approach LOS	A			B	B			C	

Intersection Summary			
HCM Average Control Delay	16.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	55.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

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

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↔↔	↕↕			↕↕	↕	↕	↕	↕			
Volume (vph)	353	381	0	0	745	220	309	2	166	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	0.97	0.95			0.95	1.00	0.95	0.95	1.00			
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	0.95	1.00			
Satd. Flow (prot)	3433	3539			3539	1583	1681	1686	1583			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)	3433	3539			3539	1583	1681	1686	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)	392	423	0	0	828	244	343	2	184	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	158	0	0	144	0	0	0
Lane Group Flow (vph)	392	423	0	0	828	86	171	174	40	0	0	0
Turn Type	Prot				Prot	Split		Prot				
Protected Phases	1	6			2	2	4	4	4			
Permitted Phases												
Actuated Green, G (s)	10.1	32.2			18.1	18.1	11.3	11.3	11.3			
Effective Green, g (s)	10.1	32.2			18.1	18.1	11.3	11.3	11.3			
Actuated g/C Ratio	0.20	0.63			0.35	0.35	0.22	0.22	0.22			
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)	673	2213			1244	556	369	370	347			
v/s Ratio Prot	0.11	0.12			0.23	0.05	0.10	0.10	0.03			
v/s Ratio Perm												
v/c Ratio	0.58	0.19			0.67	0.15	0.46	0.47	0.12			
Uniform Delay, d1	18.8	4.1			14.1	11.5	17.5	17.5	16.1			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	1.3	0.0			1.4	0.1	0.9	0.9	0.2			
Delay (s)	20.1	4.1			15.5	11.6	18.4	18.4	16.3			
Level of Service	C	A			B	B	B	B	B			
Approach Delay (s)		11.8			14.6		17.7			0.0		
Approach LOS		B			B		B			A		
Intersection Summary												
HCM Average Control Delay		14.3			HCM Level of Service		B					
HCM Volume to Capacity ratio		0.59										
Actuated Cycle Length (s)		51.5			Sum of lost time (s)		12.0					
Intersection Capacity Utilization		49.3%			ICU Level of Service		A					
Analysis Period (min)		15										
c Critical Lane Group												

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	9/16/2010				Analysis Year	2010			
Analysis Time Period	36 NT+P AM (Phase 1&2)								
Project ID 002407 - San Diego Corporate Center Lots									
East/West Street: Del Mar Trail					North/South Street: Carmel Creek Road				
Volume Adjustments and Site Characteristics									
Approach		Eastbound			Westbound				
Movement	L	T	R		L	T	R		
Volume (veh/h)	10	10	10		206	2	26		
%Thrus Left Lane									
Approach		Northbound			Southbound				
Movement	L	T	R		L	T	R		
Volume (veh/h)	3	271	103		15	960	3		
%Thrus 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)	33		258		153	265	549	536	
% 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	0.3		0.9		0.0	0.0	0.0	0.0	
Prop. Right-Turns	0.3		0.1		0.0	0.4	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	
hLV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	
hadj, computed	-0.1		0.1		0.0	-0.3	0.0	0.0	
Departure Headway and Service Time									
hd, initial value (s)	3.20		3.20		3.20	3.20	3.20	3.20	
x, initial	0.03		0.23		0.14	0.24	0.49	0.48	
hd, final value (s)	7.50		6.83		7.16	6.85	6.34	6.32	
x, final value	0.07		0.49		0.30	0.50	0.97	0.94	
Move-up time, m (s)	2.0		2.0		2.3		2.3		
Service Time, Is (s)	5.5		4.8		4.9	4.5	4.0	4.0	
Capacity and Level of Service									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Capacity (veh/h)	283		508		403	515	568	569	
Delay (s/veh)	11.05		16.21		12.97	16.29	54.71	49.26	
LOS	B		C		B	C	F	E	
Approach Delay (s/veh)	11.05		16.21		15.08		52.02		
LOS	B		C		C		F		
Intersection Delay (s/veh)	37.51								
Intersection LOS	E								

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HCM Signalized Intersection Capacity Analysis
1: Via De La Valle & El Camino Real

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑	↗	↔	↑	↗	↔	↑	↗	↔	↑	↗
Volume (vph)	6	478	537	180	425	3	565	2	434	0	2	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0			4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00			1.00
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85			0.96
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00			1.00
Satd. Flow (prot)	1770	1863	1583	1770	1861			1774	1583			1779
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00			1.00
Satd. Flow (perm)	1770	1863	1583	1770	1861			1774	1583			1779
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	7	531	597	200	472	3	628	2	482	0	2	1
RTOR Reduction (vph)	0	0	183	0	0	0	0	0	236	0	1	0
Lane Group Flow (vph)	7	531	414	200	475	0	0	630	246	0	2	0
Turn Type	Prot		Perm	Prot			Split		Perm	Split		
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4						2			
Actuated Green, G (s)	0.9	41.3	41.3	16.7	57.1			45.1	45.1		1.2	
Effective Green, g (s)	0.9	41.3	41.3	16.7	57.1			45.1	45.1		1.2	
Actuated g/C Ratio	0.01	0.34	0.34	0.14	0.47			0.37	0.37		0.01	
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)	13	640	543	246	883			665	593		18	
v/s Ratio Prot	0.00	c0.29		c0.11	0.26			c0.36			c0.00	
v/s Ratio Perm			0.26						0.16			
v/c Ratio	0.54	0.83	0.76	0.81	0.54			0.95	0.42		0.11	
Uniform Delay, d1	59.5	36.3	35.1	50.3	22.3			36.4	27.8		59.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	36.8	8.8	6.3	18.2	0.6			22.6	0.5		2.7	
Delay (s)	96.3	45.0	41.4	68.5	22.9			59.0	28.3		61.8	
Level of Service	F	D	D	E	C			E	C		E	
Approach Delay (s)		43.5			36.4			45.7			61.8	
Approach LOS		D			D			D			E	

Intersection Summary												
HCM Average Control Delay		42.7		HCM Level of Service				D				
HCM Volume to Capacity ratio		0.87										
Actuated Cycle Length (s)		120.3		Sum of lost time (s)				16.0				
Intersection Capacity Utilization		83.2%		ICU Level of Service				E				
Analysis Period (min)		15										
c Critical Lane Group												

Baseline

Synchro 7 - Report
Page 1

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

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

Movement	WBL	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↔	↗	↔	↑	↗	↔	↑
Volume (vph)	215	264	0	576	378	342	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00		1.00	1.00	1.00	0.95
Frt	1.00	0.85		1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583		1863	1583	1770	3539
Flt Permitted	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583		1863	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	239	293	0	640	420	380	337
RTOR Reduction (vph)	0	243	0	0	250	0	0
Lane Group Flow (vph)	239	50	0	640	170	380	337
Turn Type		Perm	Prot		Perm	Prot	
Protected Phases	1		3	8		7	
Permitted Phases		1			8		6
Actuated Green, G (s)	12.3	12.3		29.1	29.1	18.7	12.3
Effective Green, g (s)	12.3	12.3		29.1	29.1	18.7	12.3
Actuated g/C Ratio	0.17	0.17		0.40	0.40	0.26	0.17
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	586	270		752	639	459	604
v/s Ratio Prot	0.07			c0.34		c0.21	
v/s Ratio Perm		0.03			0.11		c0.10
v/c Ratio	0.41	0.19		0.85	0.27	0.83	0.56
Uniform Delay, d1	26.7	25.6		19.5	14.4	25.2	27.4
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.3		9.1	0.2	11.7	1.1
Delay (s)	27.1	25.9		28.7	14.6	36.9	28.5
Level of Service	C	C		C	B	D	C
Approach Delay (s)	26.5			23.1			32.9
Approach LOS	C			C			C

Intersection Summary							
HCM Average Control Delay		26.9		HCM Level of Service			C
HCM Volume to Capacity ratio		0.78					
Actuated Cycle Length (s)		72.1		Sum of lost time (s)		12.0	
Intersection Capacity Utilization		65.4%		ICU Level of Service			C
Analysis Period (min)		15					
c Critical Lane Group							

Baseline

Synchro 7 - Report
Page 2

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

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

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↕	↕	↔	↔	↕
Volume (vph)	65	6	0	912	111	8	514
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0		4.0	4.0
Lane Util. Factor	0.97			0.95		1.00	0.95
Fr1	0.99			0.98		1.00	1.00
Flt Protected	0.96			1.00		0.95	1.00
Satd. Flow (prot)	3410			3482		1770	3539
Flt Permitted	0.96			1.00		0.95	1.00
Satd. Flow (perm)	3410			3482		1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	72	7	0	1013	123	9	571
RTOR Reduction (vph)	6	0	0	12	0	0	0
Lane Group Flow (vph)	73	0	0	1124	0	9	571
Turn Type			Prot			Prot	
Protected Phases	8		5	2		1	6
Permitted Phases							
Actuated Green, G (s)	3.2			19.9		0.6	24.5
Effective Green, g (s)	3.2			19.9		0.6	24.5
Actuated g/C Ratio	0.09			0.56		0.02	0.69
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)	306			1941		30	2429
v/s Ratio Prot	c0.02			c0.32		0.01	c0.16
v/s Ratio Perm							
v/c Ratio	0.24			0.58		0.30	0.24
Uniform Delay, d1	15.1			5.2		17.3	2.1
Progression Factor	1.00			1.00		1.00	1.00
Incremental Delay, d2	0.4			0.4		5.6	0.1
Delay (s)	15.5			5.6		22.9	2.1
Level of Service	B			A		C	A
Approach Delay (s)	15.5			5.6		2.5	
Approach LOS	B			A		A	

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

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↕	↕	↔	↕	↕	↔
Volume (vph)	23	22	14	22	21	155	26	828	62	89	458	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	
Fr1	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	1751		1770	1616		1770	3502		1770	3509	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1751		1770	1616		1770	3502		1770	3509	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	26	24	16	24	23	172	29	920	69	99	509	31
RTOR Reduction (vph)	0	14	0	0	152	0	0	6	0	0	5	0
Lane Group Flow (vph)	26	26	0	24	43	0	29	983	0	99	535	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	1.0	5.6		1.0	5.6		1.2	22.1		4.2	25.1	
Effective Green, g (s)	1.0	5.6		1.0	5.6		1.2	22.1		4.2	25.1	
Actuated g/C Ratio	0.02	0.11		0.02	0.11		0.02	0.45		0.09	0.51	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	36	201		36	185		43	1583		152	1801	
v/s Ratio Prot	c0.01	0.01		0.01	c0.03		0.02	c0.28		c0.06	c0.15	
v/s Ratio Perm												
v/c Ratio	0.72	0.13		0.67	0.23		0.67	0.62		0.85	0.30	
Uniform Delay, d1	23.8	19.5		23.8	19.7		23.7	10.2		21.6	6.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	52.1	0.3		38.0	0.6		34.5	0.8		9.6	0.1	
Delay (s)	75.9	19.7		61.8	20.3		58.2	11.0		31.2	6.9	
Level of Service	E	B		E	C		E	B		C	A	
Approach Delay (s)	41.9			24.9			12.3			10.7		
Approach LOS	D			C			B			B		

Intersection Summary			
HCM Average Control Delay	14.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	48.9	Sum of lost time (s)	20.0
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	7	42	33	49	30	20	48	977	130	23	488	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	
Flt	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	1863	1583	1770	1751		1770	3477		1770	3529	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1751		1770	3477		1770	3529	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	8	47	37	54	33	22	53	1086	144	26	542	11
RTOR Reduction (vph)	0	0	34	0	20	0	0	11	0	0	1	0
Lane Group Flow (vph)	8	47	3	54	35	0	53	1219	0	26	552	0
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	0.8	4.4	4.4	1.7	5.3		1.8	25.2		0.6	24.0	
Effective Green, g (s)	0.8	4.4	4.4	1.7	5.3		1.8	25.2		0.6	24.0	
Actuated g/C Ratio	0.02	0.09	0.09	0.04	0.11		0.04	0.53		0.01	0.50	
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)	30	171	145	63	194		67	1829		22	1768	
v/s Ratio Prot	0.00	c0.03		c0.03	0.02		c0.03	c0.35		0.01	0.16	
v/s Ratio Perm			0.00									
v/c Ratio	0.27	0.27	0.02	0.86	0.18		0.79	0.67		1.18	0.31	
Uniform Delay, d1	23.3	20.3	19.8	23.0	19.3		22.9	8.3		23.6	7.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.7	0.9	0.1	64.9	0.5		45.6	0.9		253.5	0.1	
Delay (s)	28.0	21.1	19.9	87.8	19.8		68.5	9.2		277.1	7.2	
Level of Service	C	C	B	F	B		E	A		F	A	
Approach Delay (s)		21.2			53.5			11.7			19.3	
Approach LOS		C			D			B			B	
Intersection Summary												
HCM Average Control Delay		16.4										
HCM Volume to Capacity ratio		0.58										
Actuated Cycle Length (s)		47.9						12.0				
Intersection Capacity Utilization		53.9%										
Analysis Period (min)		15										
c Critical Lane Group												

Baseline

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	128	859	16	142	929	212	41	32	58	400	36	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.95		1.00	0.95		1.00	0.95	
Flt	1.00	1.00		1.00	0.97		1.00	0.85		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.97	1.00		0.95	0.98	
Satd. Flow (prot)	1770	5071		1770	3440		1812	1583		1681	1610	
Flt Permitted	0.95	1.00		0.95	1.00		0.97	1.00		0.95	0.98	
Satd. Flow (perm)	1770	5071		1770	3440		1812	1583		1681	1610	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	142	954	18	158	1032	236	46	36	64	444	40	149
RTOR Reduction (vph)	0	2	0	0	20	0	0	0	58	0	36	0
Lane Group Flow (vph)	142	970	0	158	1248	0	0	82	6	324	273	0
Turn Type	Prot			Prot			Split			Prot	Split	
Protected Phases	7	4		3	8		2	2		2	6	
Permitted Phases												
Actuated Green, G (s)	7.8	28.2		10.8	31.2			7.6	7.6	17.3	17.3	
Effective Green, g (s)	7.8	28.2		10.8	31.2			7.6	7.6	17.3	17.3	
Actuated g/C Ratio	0.10	0.35		0.14	0.39			0.10	0.10	0.22	0.22	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	173	1790		239	1343			172	151	364	349	
v/s Ratio Prot	c0.08	0.19		0.09	c0.36			c0.05	0.00	c0.19	0.17	
v/s Ratio Perm												
v/c Ratio	0.82	0.54		0.66	0.93			0.48	0.04	0.89	0.78	
Uniform Delay, d1	35.4	20.7		32.8	23.3			34.3	32.8	30.4	29.5	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	25.7	0.3		6.7	11.3			2.1	0.1	22.6	10.9	
Delay (s)	61.1	21.0		39.5	34.6			36.3	32.9	53.0	40.4	
Level of Service	E	C		D	C			D	C	D	D	
Approach Delay (s)		26.1			35.2			34.9			46.9	
Approach LOS		C			D			C			D	
Intersection Summary												
HCM Average Control Delay		34.3										
HCM Volume to Capacity ratio		0.85										
Actuated Cycle Length (s)		79.9								16.0		
Intersection Capacity Utilization		72.9%										
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

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

	→	↘	↙	←	↗	↖
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑		↑
Volume (veh/h)	1287	64	0	1598	0	101
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1430	71	0	1776	0	112
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	575			607		
pX, platoon unblocked			0.87		0.75	0.87
vC, conflicting volume			1501		2353	512
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1044		1088	0
IC, single (s)			4.1		6.8	6.9
IC, 2 stage (s)						
IF (s)			2.2		3.5	3.3
p0 queue free %			100		100	88
cM capacity (veh/h)			574		158	941
Direction, Lane #	EB1	EB2	EB3	WB1	WB2	NB1
Volume Total	572	572	357	888	888	112
Volume Left	0	0	0	0	0	0
Volume Right	0	0	71	0	0	112
cSH	1700	1700	1700	1700	1700	941
Volume to Capacity	0.34	0.34	0.21	0.52	0.52	0.12
Queue Length 95th (ft)	0	0	0	0	0	10
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.3
Lane LOS						A
Approach Delay (s)	0.0			0.0		9.3
Approach LOS						A
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			47.5%		ICU Level of Service	A
Analysis Period (min)			15			

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

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

	↗	→	←	↖	↘	↙
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↖↗	↑
Volume (vph)	0	1001	1352	0	970	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3	6.3		5.6	5.6
Lane Util. Factor		0.95	0.95		0.97	0.91
Flt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3431	1441
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	1112	1502	0	1078	332
RTOR Reduction (vph)	0	0	0	0	3	16
Lane Group Flow (vph)	0	1112	1502	0	1108	283
Turn Type						
Protected Phases		2 6	6 2		4	Perm
Permitted Phases						4
Actuated Green, G (s)		42.5	42.5		25.6	25.6
Effective Green, g (s)		42.5	42.5		25.6	25.6
Actuated g/C Ratio		0.53	0.53		0.32	0.32
Clearance Time (s)					5.6	5.6
Vehicle Extension (s)					3.0	3.0
Lane Grp Cap (vph)		1880	1880		1098	461
v/s Ratio Prot		0.31	c0.42		c0.32	
v/s Ratio Perm						0.20
v/c Ratio		0.59	0.80		1.01	0.61
Uniform Delay, d1		12.8	15.3		27.2	23.0
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.5	2.5		29.5	2.4
Delay (s)		13.3	17.7		56.7	25.5
Level of Service		B	B		E	C
Approach Delay (s)		13.3	17.7		50.1	
Approach LOS		B	B		D	
Intersection Summary						
HCM Average Control Delay			27.8		HCM Level of Service	C
HCM Volume to Capacity ratio			0.88			
Actuated Cycle Length (s)			80.0		Sum of lost time (s)	11.9
Intersection Capacity Utilization			125.3%		ICU Level of Service	H
Analysis Period (min)			15			
c Critical Lane Group						

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑		↔	↑		↔	↑		↔	↑	
Volume (vph)	242	1674	0	0	1458	1006	649	24	939	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	*0.99	0.95			0.91	1.00	0.95	*0.95	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	0.99	1.00			
Satd. Flow (prot)	3504	3539			5085	1583	1681	1548	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (perm)	3504	3539			5085	1583	1681	1548	1504			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	269	1860	0	0	1620	1118	721	27	1043	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	502	0	5	5	0	0	0
Lane Group Flow (vph)	269	1860	0	0	1620	616	620	592	569	0	0	0
Turn Type	Prot				Prot	Split		Prot				
Protected Phases	5	2			6	6	8	8	8			
Permitted Phases												
Actuated Green, G (s)	10.4	62.6			48.2	48.2	49.4	49.4	49.4			
Effective Green, g (s)	10.4	62.6			48.2	48.2	49.4	49.4	49.4			
Actuated g/C Ratio	0.09	0.52			0.40	0.40	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)	304	1846			2042	636	692	637	619			
v/s Ratio Prot	0.08	c0.53			0.32	0.39	0.37	c0.38	0.38			
v/s Ratio Perm												
v/c Ratio	0.88	1.01			0.79	0.97	0.90	0.93	0.92			
Uniform Delay, d1	54.2	28.7			31.5	35.2	32.9	33.6	33.4			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	24.9	22.8			3.3	28.8	14.2	20.0	18.8			
Delay (s)	79.1	51.5			34.8	63.9	47.1	53.6	52.2			
Level of Service	E	D			C	E	D	D	D			
Approach Delay (s)		55.0			46.7		50.9			0.0		
Approach LOS		D			D		D			A		
Intersection Summary												
HCM Average Control Delay		50.5			HCM Level of Service				D			
HCM Volume to Capacity ratio		0.97										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)				8.0			
Intersection Capacity Utilization		107.4%			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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑		↔	↑		↔	↑		↔	↑	
Volume (vph)	249	2386	259	54	1855	68	637	67	161	51	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	0.99		1.00	0.89		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	5058		3433	3164		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	5058		3433	3164		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	2651	288	60	2061	76	708	74	179	57	33	91
RTOR Reduction (vph)	0	0	57	0	2	0	0	138	0	0	0	85
Lane Group Flow (vph)	277	2651	231	60	2135	0	708	115	0	57	33	6
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)	25.6	73.0	73.0	8.6	56.0		31.1	31.5		8.4	8.8	8.8
Effective Green, g (s)	25.6	73.0	73.0	8.6	56.0		31.1	31.5		8.4	8.8	8.8
Actuated g/C Ratio	0.19	0.53	0.53	0.06	0.41		0.23	0.23		0.06	0.06	0.06
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
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)	330	2700	840	111	2060		776	725		108	119	101
v/s Ratio Prot	c0.16	c0.52		0.03	c0.42		c0.21	0.04		0.03	c0.02	
v/s Ratio Perm			0.15									0.00
v/c Ratio	0.84	0.98	0.28	0.54	1.04		0.91	0.16		0.53	0.28	0.06
Uniform Delay, d1	54.0	31.6	17.7	62.5	40.8		51.9	42.4		62.6	61.3	60.5
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	16.8	13.3	0.2	5.3	29.9		15.0	0.1		4.6	1.3	0.2
Delay (s)	70.8	44.9	17.9	67.8	70.7		66.9	42.5		67.2	62.6	60.7
Level of Service	E	D	B	E	E		E	D		E	E	E
Approach Delay (s)		44.7			70.6			60.4			63.1	
Approach LOS		D			E			E			E	
Intersection Summary												
HCM Average Control Delay		56.2			HCM Level of Service				E			
HCM Volume to Capacity ratio		0.95										
Actuated Cycle Length (s)		137.5			Sum of lost time (s)				20.0			
Intersection Capacity Utilization		86.0%			ICU Level of Service				E			
Analysis Period (min)		15										
c Critical Lane Group												

Baseline

Synchro 7 - Report
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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑	↑↑↑	↑↑	↑
Volume (vph)	2506	137	107	1935	231	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	1.00
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)	2784	152	119	2150	257	200
RTOR Reduction (vph)	0	57	0	0	0	127
Lane Group Flow (vph)	2784	95	119	2150	257	73
Turn Type		Prot	Prot			Prot
Protected Phases	4	4	3	8	2	2
Permitted Phases						
Actuated Green, G (s)	52.1	52.1	7.9	64.0	11.6	11.6
Effective Green, g (s)	52.1	52.1	7.9	64.0	11.6	11.6
Actuated g/C Ratio	0.62	0.62	0.09	0.77	0.14	0.14
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3169	987	167	3893	476	220
v/s Ratio Prot	c0.55	0.06	c0.07	0.42	c0.07	0.05
v/s Ratio Perm						
v/c Ratio	0.88	0.10	0.71	0.55	0.54	0.33
Uniform Delay, d1	13.1	6.3	36.7	4.0	33.5	32.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.1	0.0	13.4	0.2	1.2	0.9
Delay (s)	16.2	6.4	50.2	4.2	34.7	33.4
Level of Service	B	A	D	A	C	C
Approach Delay (s)	15.7			6.6	34.1	
Approach LOS	B			A	C	
Intersection Summary						
HCM Average Control Delay		13.5		HCM Level of Service		B
HCM Volume to Capacity ratio		0.81				
Actuated Cycle Length (s)		83.6		Sum of lost time (s)	12.0	
Intersection Capacity Utilization		70.9%		ICU Level of Service		C
Analysis Period (min)		15				
c Critical Lane Group						

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↑	↑↑↑	↑	↑
Volume (vph)	2572	114	114	1848	193	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	0.97	0.91	1.00	1.00
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)	2858	127	127	2053	214	214
RTOR Reduction (vph)	0	50	0	0	0	80
Lane Group Flow (vph)	2858	77	127	2053	214	134
Turn Type		Prot	Prot			Prot
Protected Phases	4	4	3	8	2	2
Permitted Phases						
Actuated Green, G (s)	46.1	46.1	4.5	54.6	13.8	13.8
Effective Green, g (s)	46.1	46.1	4.5	54.6	13.8	13.8
Actuated g/C Ratio	0.60	0.60	0.06	0.71	0.18	0.18
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3068	955	202	3634	320	286
v/s Ratio Prot	c0.56	0.05	0.04	c0.40	c0.12	0.08
v/s Ratio Perm						
v/c Ratio	0.93	0.08	0.63	0.56	0.67	0.47
Uniform Delay, d1	13.7	6.3	35.1	5.2	29.2	28.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.9	0.0	6.0	0.2	5.2	1.2
Delay (s)	19.7	6.4	41.1	5.4	34.4	29.2
Level of Service	B	A	D	A	C	C
Approach Delay (s)	19.1			7.5	31.8	
Approach LOS	B			A	C	
Intersection Summary						
HCM Average Control Delay		15.6		HCM Level of Service		B
HCM Volume to Capacity ratio		0.86				
Actuated Cycle Length (s)		76.4		Sum of lost time (s)	12.0	
Intersection Capacity Utilization		68.3%		ICU Level of Service		C
Analysis Period (min)		15				
c Critical Lane Group						

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔↔	↔↔↔		↔↔↔	↔↔↔		↔↔↔	↔↔↔	↔	↔↔↔	↔↔↔	
Volume (vph)	503	1713	490	153	938	181	613	446	308	151	169	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0		
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	0.98		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	4916		3433	4962		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	4916		3433	4962		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)	559	1903	544	170	1042	201	681	496	342	168	188	252
RTOR Reduction (vph)	0	41	0	0	23	0	0	0	153	0	200	0
Lane Group Flow (vph)	559	2406	0	170	1220	0	681	496	189	168	240	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	19.0	50.6		10.4	42.0		24.2	27.2	27.2	8.5	11.5	
Effective Green, g (s)	19.0	50.6		10.4	42.0		24.2	27.2	27.2	8.5	11.5	
Actuated g/C Ratio	0.17	0.45		0.09	0.37		0.21	0.24	0.24	0.08	0.10	
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)	579	2207		317	1849		737	1227	382	259	474	
v/s Ratio Prot	c0.16	c0.49		0.05	0.25		c0.20	0.10		0.05	0.05	
v/s Ratio Perm									c0.12			
v/c Ratio	0.97	1.09		0.54	0.66		0.92	0.40	0.49	0.65	0.51	
Uniform Delay, d1	46.5	31.0		48.8	29.4		43.3	35.9	36.8	50.6	47.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	28.6	48.8		1.7	0.9		17.2	0.2	1.0	5.5	0.9	
Delay (s)	75.1	79.9		50.6	30.3		60.6	36.2	37.8	56.2	48.8	
Level of Service	E	E		D	C		E	D	D	E	D	
Approach Delay (s)		79.0			32.7			47.5			50.8	
Approach LOS		E			C			D			D	
Intersection Summary:												
HCM Average Control Delay		59.1			HCM Level of Service			E				
HCM Volume to Capacity ratio		0.92										
Actuated Cycle Length (s)		112.7			Sum of lost time (s)			8.0				
Intersection Capacity Utilization		87.6%			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
14: Del Mar Heights Road & Carmel Country Road

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔↔	↔↔↔		↔↔↔	↔↔↔		↔↔↔	↔↔↔	↔	↔↔↔	↔↔↔	
Volume (vph)	136	1268	587	82	644	74	399	172	149	80	128	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0		
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	0.98		1.00	0.93	1.00	0.92	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	4844		3433	5007		3433	4731		1770	3270	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	4844		3433	5007		3433	4731		1770	3270	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	151	1409	652	91	716	82	443	191	166	89	142	146
RTOR Reduction (vph)	0	85	0	0	14	0	0	134	0	0	128	0
Lane Group Flow (vph)	151	1976	0	91	784	0	443	223	0	89	160	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	7.9	38.3		3.5	33.9		13.0	15.6		7.3	9.9	
Effective Green, g (s)	7.9	38.3		3.5	33.9		13.0	15.6		7.3	9.9	
Actuated g/C Ratio	0.10	0.47		0.04	0.42		0.16	0.19		0.09	0.12	
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)	336	2299		149	2103		553	915		160	401	
v/s Ratio Prot	c0.04	c0.41		0.03	0.16		c0.13	0.05		0.05	c0.05	
v/s Ratio Perm												
v/c Ratio	0.45	0.86		0.61	0.37		0.80	0.24		0.56	0.40	
Uniform Delay, d1	34.3	18.8		37.9	16.1		32.6	27.6		35.1	32.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	3.5		7.2	0.1		8.2	0.1		4.1	0.7	
Delay (s)	35.3	22.3		45.1	16.2		40.8	27.7		39.3	33.3	
Level of Service	D	C		D	B		D	C		D	C	
Approach Delay (s)		23.2			19.2			34.9			34.7	
Approach LOS		C			B			C			C	
Intersection Summary:												
HCM Average Control Delay		25.6			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.77										
Actuated Cycle Length (s)		80.7			Sum of lost time (s)			16.0				
Intersection Capacity Utilization		73.4%			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
15: Del Mar Heights Road & Torrey Ridge Drive

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	49	1296	159	8	688	23	67	14	32	28	8	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00		1.00	0.90		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5002		1770	5060		1770	1669		1770	1642	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5002		1770	5060		1770	1669		1770	1642	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	54	1440	177	9	764	26	74	16	36	31	9	34
RTOR Reduction (vph)	0	17	0	0	4	0	0	33	0	0	32	0
Lane Group Flow (vph)	54	1600	0	9	786	0	74	19	0	31	11	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	1.8	24.2		0.6	23.0		2.5	3.4		1.3	2.2	
Effective Green, g (s)	1.8	24.2		0.6	23.0		2.5	3.4		1.3	2.2	
Actuated g/C Ratio	0.04	0.53		0.01	0.51		0.05	0.07		0.03	0.05	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	70	2660		23	2558		97	125		51	79	
v/s Ratio Prot	c0.03	c0.32		0.01	0.16		c0.04	c0.01		0.02	0.01	
v/s Ratio Perm												
v/c Ratio	0.77	0.60		0.39	0.31		0.76	0.15		0.61	0.13	
Uniform Delay, d1	21.6	7.3		22.3	6.6		21.2	19.7		21.8	20.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	39.9	0.4		10.7	0.1		29.2	0.6		18.8	0.8	
Delay (s)	61.5	7.7		32.9	6.7		50.4	20.3		40.6	21.5	
Level of Service	E	A		C	A		D	C		D	C	
Approach Delay (s)		9.5			7.0			38.0			29.5	
Approach LOS		A			A			D			C	

Intersection Summary			
HCM Average Control Delay	10.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	45.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	295	992	65	22	490	25	40	46	35	24	33	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.94		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	5039		1770	5048		1770	1742		1770	1624	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5039		1770	5048		1770	1742		1770	1624	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	328	1102	72	24	544	28	44	51	39	27	37	216
RTOR Reduction (vph)	0	8	0	0	7	0	0	33	0	0	185	0
Lane Group Flow (vph)	328	1166	0	24	565	0	44	57	0	27	68	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	14.2	29.5		0.7	16.0		1.6	8.1		1.6	8.1	
Effective Green, g (s)	14.2	29.5		0.7	16.0		1.6	8.1		1.6	8.1	
Actuated g/C Ratio	0.25	0.53		0.01	0.29		0.03	0.14		0.03	0.14	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	450	2659		22	1445		51	252		51	235	
v/s Ratio Prot	c0.19	c0.23		0.01	0.11		c0.02	0.03		0.02	c0.04	
v/s Ratio Perm												
v/c Ratio	0.73	0.44		1.09	0.39		0.86	0.22		0.53	0.29	
Uniform Delay, d1	19.1	8.1		27.6	16.0		27.0	21.1		26.8	21.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.8	0.1		221.9	0.2		76.8	0.5		9.6	0.7	
Delay (s)	24.9	8.2		249.5	16.2		103.8	21.6		36.4	22.0	
Level of Service	C	A		F	B		F	C		D	C	
Approach Delay (s)		11.9			25.6			48.6			23.4	
Approach LOS		B			C			D			C	

Intersection Summary			
HCM Average Control Delay	18.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	55.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

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

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑	↑↑↑	↑↑	↑
Volume (vph)	850	186	92	434	119	255
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)	4948		1770	5085	3433	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	4948		1770	5085	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	944	207	102	482	132	283
RTOR Reduction (vph)	56	0	0	0	0	228
Lane Group Flow (vph)	1095	0	102	482	132	55
Turn Type			Prot		Prot	
Protected Phases	4		3	8	2	2
Permitted Phases						
Actuated Green, G (s)	16.9		2.5	23.4	5.9	5.9
Effective Green, g (s)	16.9		2.5	23.4	5.9	5.9
Actuated g/C Ratio	0.45		0.07	0.63	0.16	0.16
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)	2242		119	3190	543	250
v/s Ratio Prot	c0.22		c0.06	0.09	c0.04	0.03
v/s Ratio Perm						
v/c Ratio	0.49		0.86	0.15	0.24	0.22
Uniform Delay, d1	7.2		17.2	2.9	13.7	13.7
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2		41.8	0.0	0.2	0.4
Delay (s)	7.3		59.0	2.9	14.0	14.1
Level of Service	A		E	A	B	B
Approach Delay (s)	7.3			12.7	14.1	
Approach LOS	A			B	B	

Intersection Summary			
HCM Average Control Delay	10.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	37.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	43.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↑	↑↑	↑	↑	↑	↑	↑↑	↑↑	↑	↑↑	↑↑	↑
Volume (vph)	193	38	38	194	22	255	114	859	168	333	435	45
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			
Lane Util. Factor	0.95	0.95				1.00	1.00	0.97	0.91			
Frt	1.00	0.96				1.00	0.85	1.00	0.98			
Flt Protected	0.95	0.98				0.96	1.00	0.95	1.00			
Satd. Flow (prot)	1681	1658				1783	1583	3433	4960			
Flt Permitted	0.95	0.98				0.96	1.00	0.95	1.00			
Satd. Flow (perm)	1681	1658				1783	1583	3433	4960			
Peak-hour 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)	214	42	42	216	24	283	127	954	187	370	483	50
RTOR Reduction (vph)	0	18	0	0	0	226	0	35	0	0	14	0
Lane Group Flow (vph)	150	130	0	0	240	57	127	1106	0	370	519	0
Turn Type	Split			Split		Perm	Prot			Prot		
Protected Phases	2	2		6	6		3	8		7	4	
Permitted Phases						6						
Actuated Green, G (s)	11.5	11.5				14.5	14.5	5.3	20.1		10.1	24.9
Effective Green, g (s)	11.5	11.5				14.5	14.5	5.3	20.1		10.1	24.9
Actuated g/C Ratio	0.16	0.16				0.20	0.20	0.07	0.28		0.14	0.34
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)	268	264				358	318	252	1381		480	1729
v/s Ratio Prot	c0.09	0.08				c0.13		0.04	c0.22		c0.11	0.10
v/s Ratio Perm							0.04					
v/c Ratio	0.56	0.49				0.67	0.18	0.50	0.80		0.77	0.30
Uniform Delay, d1	28.0	27.7				26.6	23.9	32.2	24.2		29.9	17.3
Progression Factor	1.00	1.00				1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.5	1.4				4.9	0.3	1.6	3.4		7.5	0.1
Delay (s)	30.5	29.1				31.5	24.2	33.8	27.6		37.4	17.4
Level of Service	C	C				C	C	C	C		D	B
Approach Delay (s)		29.8						28.2				25.6
Approach LOS		C						C				C

Intersection Summary			
HCM Average Control Delay	27.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	72.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	58.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑	↗	↖	↑	↗
Volume (vph)	128	108	178	14	56	118	116	527	10	187	611	96
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	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.90		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	1673		1770	3529		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	1673		1770	3529		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)	142	120	198	16	62	131	129	586	11	208	679	107
RTOR Reduction (vph)	0	0	137	0	106	0	0	2	0	0	0	75
Lane Group Flow (vph)	142	120	61	16	87	0	129	595	0	208	679	32
Turn Type	Prot		Prot	Prot			Prot			Prot		Prot
Protected Phases	7	4	4	3	8		5	2		1	6	6
Permitted Phases												
Actuated Green, G (s)	8.2	18.4	18.4	0.7	10.9		6.8	14.5		9.9	17.6	17.6
Effective Green, g (s)	8.2	18.4	18.4	0.7	10.9		6.8	14.5		9.9	17.6	17.6
Actuated g/C Ratio	0.14	0.31	0.31	0.01	0.18		0.11	0.24		0.17	0.30	0.30
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
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)	244	576	490	21	306		202	860		295	1047	468
v/s Ratio Prot	c0.08	0.06	0.04	0.01	c0.05		0.07	0.17		c0.12	c0.19	0.02
v/s Ratio Perm												
v/c Ratio	0.58	0.21	0.12	0.76	0.28		0.64	0.69		0.71	0.65	0.07
Uniform Delay, d1	24.0	15.2	14.8	29.3	20.9		25.2	20.5		23.4	18.3	15.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.5	0.2	0.1	92.1	0.5		6.5	2.4		7.5	1.4	0.1
Delay (s)	27.6	15.4	14.9	121.4	21.4		31.7	22.9		30.9	19.7	15.1
Level of Service	C	B	B	F	C		C	C		C	B	B
Approach Delay (s)		18.9			29.1			24.5			21.5	
Approach LOS		B			C			C			C	

Intersection Summary												
HCM Average Control Delay		22.6		HCM Level of Service		C						
HCM Volume to Capacity ratio		0.58										
Actuated Cycle Length (s)		59.5		Sum of lost time (s)		16.0						
Intersection Capacity Utilization		55.9%		ICU Level of Service		B						
Analysis Period (min)		15										
c Critical Lane Group												

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

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑	↗	↖	↑	↗
Volume (vph)	217	12	10	144	2	110	29	788	206	148	569	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	0.93		1.00	1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1735		1770	1863	1583	1770	4927		1770	5044	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1735		1770	1863	1583	1770	4927		1770	5044	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	241	13	11	160	2	122	32	876	229	164	632	36
RTOR Reduction (vph)	0	10	0	0	0	107	0	61	0	0	7	0
Lane Group Flow (vph)	241	14	0	160	2	15	32	1044	0	164	661	0
Turn Type	Prot			Prot		Prot	Prot			Prot		
Protected Phases	1	6		5	2	2	7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	10.8	4.4		13.9	7.5	7.5	2.0	18.9		8.0	24.9	
Effective Green, g (s)	10.8	4.4		13.9	7.5	7.5	2.0	18.9		8.0	24.9	
Actuated g/C Ratio	0.18	0.07		0.23	0.12	0.12	0.03	0.31		0.13	0.41	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	312	125		402	228	194	58	1522		231	2052	
v/s Ratio Prot	c0.14	0.01		0.09	0.00	c0.01	0.02	c0.21		c0.09	0.13	
v/s Ratio Perm												
v/c Ratio	0.77	0.11		0.40	0.01	0.08	0.55	0.69		0.71	0.32	
Uniform Delay, d1	24.0	26.6		20.1	23.6	23.8	29.2	18.5		25.5	12.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.3	0.4		0.6	0.0	0.2	10.9	1.3		9.6	0.1	
Delay (s)	35.3	27.0		20.7	23.6	24.0	40.0	19.8		35.1	12.5	
Level of Service	D	C		C	C	C	D	B		D	B	
Approach Delay (s)		34.5			22.1			20.4			16.9	
Approach LOS		C			C			C			B	

Intersection Summary												
HCM Average Control Delay		20.9		HCM Level of Service		C						
HCM Volume to Capacity ratio		0.61										
Actuated Cycle Length (s)		61.2		Sum of lost time (s)		16.0						
Intersection Capacity Utilization		56.7%		ICU Level of Service		B						
Analysis Period (min)		15										
c Critical Lane Group												

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

Near Term + Project (Phase 1 & 2) PM

3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑	↗	↔	↑	↗	↔	↑	↗	↔	↑	↗
Volume (vph)	316	244	127	33	102	18	97	392	40	26	456	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0		5.0		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85		0.98		1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583		1813		1770	3491		1770	3343	
Flt Permitted	0.95	1.00	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583		1813		1770	3491		1770	3343	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	351	271	141	37	113	20	108	436	44	29	507	297
RTOR Reduction (vph)	0	0	76	0	7	0	0	9	0	0	102	0
Lane Group Flow (vph)	351	271	65	0	163	0	108	471	0	29	702	0
Turn Type	Prot		Prot	Split			Prot			Prot		
Protected Phases	7	4I	4I	8I	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	17.5	33.3	33.3		11.8		5.2	23.4		2.0	20.2	
Effective Green, g (s)	17.5	33.3	33.3		11.8		5.2	23.4		2.0	20.2	
Actuated g/C Ratio	0.24	0.46	0.46		0.16		0.07	0.32		0.03	0.28	
Clearance Time (s)	4.0	5.0	5.0		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)	426	853	725		294		127	1124		49	929	
v/s Ratio Prot	c0.20	0.15	0.04		c0.09		c0.06	c0.13		0.02	c0.21	
v/s Ratio Perm												
v/c Ratio	0.82	0.32	0.09		0.56		0.85	0.42		0.59	0.76	
Uniform Delay, d1	26.1	12.5	11.1		28.0		33.4	19.3		34.9	24.0	
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	12.2	0.2	0.1		2.3		38.8	0.3		17.7	3.5	
Delay (s)	38.3	12.7	11.2		30.3		72.2	19.6		52.6	27.5	
Level of Service	D	B	B		C		E	B		D	C	
Approach Delay (s)		24.2			30.3			29.2			28.4	
Approach LOS		C			C			C			C	

Intersection Summary												
HCM Average Control Delay	27.4		HCM Level of Service	C								
HCM Volume to Capacity ratio	0.80											
Actuated Cycle Length (s)	72.7		Sum of lost time (s)	23.0								
Intersection Capacity Utilization	68.2%		ICU Level of Service	C								
Analysis Period (min)	15											

! Phase conflict between lane groups.
c Critical Lane Group

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

Near Term + Project (Phase 1 & 2) PM

3/2/2012

Movement	EBL	EBR	EBR2	NWL2	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↔	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗
Volume (vph)	74	279	324	99	173	125	266	1064	95	167	681	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97		0.97	0.91		1.00	0.91	
Frt	1.00	0.85	0.85	1.00	0.94		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1583	1583	1770	3291		3433	5023		1770	5039	
Flt Permitted	0.95	1.00	1.00	0.95	0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1583	1583	1770	3291		3433	5023		1770	5039	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	82	310	360	110	192	139	296	1182	106	186	757	49
RTOR Reduction (vph)	0	0	266	0	126	0	0	13	0	0	9	0
Lane Group Flow (vph)	82	310	94	110	205	0	296	1275	0	186	797	0
Turn Type		Perm	Perm	Split			Prot			Prot		
Protected Phases		2		6	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	17.9	17.9	17.9	6.9	6.9		10.5	21.2		9.7	20.4	
Effective Green, g (s)	17.9	17.9	17.9	6.9	6.9		10.5	21.2		9.7	20.4	
Actuated g/C Ratio	0.25	0.25	0.25	0.10	0.10		0.15	0.30		0.14	0.28	
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)	442	395	395	170	317		503	1485		239	1434	
v/s Ratio Prot	0.05			0.06	c0.06		0.09	c0.25		c0.11	0.16	
v/s Ratio Perm		c0.20	0.06									
v/c Ratio	0.19	0.78	0.24	0.65	0.65		0.59	0.86		0.78	0.56	
Uniform Delay, d1	21.2	25.1	21.5	31.2	31.2		28.6	23.8		30.0	21.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	9.8	0.3	8.2	4.5		1.8	5.2		14.7	0.5	
Delay (s)	21.4	34.9	21.8	39.4	35.7		30.3	29.0		44.7	22.3	
Level of Service	C	C	C	D	D		C	C		D	C	
Approach Delay (s)	27.2			36.7				29.2			26.5	
Approach LOS	C			D				C			C	

Intersection Summary												
HCM Average Control Delay	29.0		HCM Level of Service	C								
HCM Volume to Capacity ratio	0.74											
Actuated Cycle Length (s)	71.7		Sum of lost time (s)	12.0								
Intersection Capacity Utilization	59.2%		ICU Level of Service	B								
Analysis Period (min)	15											

c Critical Lane Group

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

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕	↗		↖			↔			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	209	26	155	4	11	4	108	25	8	2	7	104
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	232	29	172	4	12	4	120	28	9	2	8	116
Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1							
Volume Total (vph)	261	172	21	157	126							
Volume Left (vph)	232	0	4	120	2							
Volume Right (vph)	0	172	4	9	116							
Hadj (s)	0.48	-0.67	-0.05	0.15	-0.51							
Departure Headway (s)	5.7	4.6	5.2	5.3	4.7							
Degree Utilization, x	0.42	0.22	0.03	0.23	0.16							
Capacity (veh/h)	603	753	627	640	706							
Control Delay (s)	11.6	7.7	8.4	9.9	8.6							
Approach Delay (s)	10.0		8.4	9.9	8.6							
Approach LOS	B		A	A	A							
Intersection Summary												
Delay	9.7											
HCM Level of Service	A											
Intersection Capacity Utilization	40.7%											
ICU Level of Service	A											
Analysis Period (min)	15											

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↖		↕	↗	↖	↕	↗	↖
Volume (vph)	119	52	72	57	27	9	111	765	138	6	370	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0			4.0	4.0		4.0	4.0	
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	0.98		1.00	0.97	
Flt Protected	0.97	1.00		0.97			0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1800	1583		1784			1770	3458		1770	3441	
Flt Permitted	0.97	1.00		0.97			0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1800	1583		1784			1770	3458		1770	3441	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	132	58	80	63	30	10	123	850	153	7	411	93
RTOR Reduction (vph)	0	0	68	0	5	0	0	15	0	0	23	0
Lane Group Flow (vph)	0	190	12	0	98	0	123	988	0	7	481	0
Turn Type	Split	Prot	Split	Prot	Split	Prot	Split	Prot	Split	Prot	Split	Prot
Protected Phases	4	4	4	8	8	5	2	1	6			
Permitted Phases												
Actuated Green, G (s)	8.8	8.8		6.7		5.6	26.0		0.6	21.0		
Effective Green, g (s)	8.8	8.8		6.7		5.6	26.0		0.6	21.0		
Actuated g/C Ratio	0.15	0.15		0.12		0.10	0.45		0.01	0.36		
Clearance Time (s)	4.0	4.0		4.0		4.0	4.0		4.0	4.0		
Vehicle Extension (s)	3.0	3.0		3.0		3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	273	240		206		171	1547		18	1244		
v/s Ratio Prot	c0.11	0.01		c0.05		c0.07	c0.29		0.00	0.14		
v/s Ratio Perm												
v/c Ratio	0.70	0.05		0.47		0.72	0.64		0.39	0.39		
Uniform Delay, d1	23.4	21.1		24.1		25.5	12.4		28.6	13.8		
Progression Factor	1.00	1.00		1.00		1.00	1.00		1.00	1.00		
Incremental Delay, d2	7.5	0.1		1.7		13.5	0.9		13.4	0.2		
Delay (s)	30.9	21.2		25.8		39.0	13.3		41.9	14.0		
Level of Service	C	C		C		D	B		D	B		
Approach Delay (s)	28.0			25.8		16.1			14.4			
Approach LOS	C			C		B			B			
Intersection Summary												
HCM Average Control Delay	17.7											
HCM Volume to Capacity ratio	0.62											
Actuated Cycle Length (s)	58.1											
Sum of lost time (s)	12.0											
Intersection Capacity Utilization	50.7%											
ICU Level of Service	A											
Analysis Period (min)	15											
c Critical Lane Group												

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Volume (vph)	0	655	141	631	916	0	0	0	0	906	1	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.95		0.97	0.95					0.95	0.91	0.95
Frt		0.97		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3445		3433	3539					1681	1612	1504
Flt Permitted		1.00		0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3445		3433	3539					1681	1612	1504
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	728	157	701	1018	0	0	0	0	1007	1	83
RTOR Reduction (vph)	0	26	0	0	0	0	0	0	0	0	1	49
Lane Group Flow (vph)	0	859	0	701	1018	0	0	0	0	503	512	26
Turn Type				Prot						Split		Prot
Protected Phases		4		3	8					6	6	6
Permitted Phases												
Actuated Green, G (s)		18.4		15.4	37.8					23.7	23.7	23.7
Effective Green, g (s)		18.4		15.4	37.8					23.7	23.7	23.7
Actuated g/C Ratio		0.26		0.22	0.54					0.34	0.34	0.34
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)		912		761	1925					573	550	513
v/s Ratio Prot		c0.25		c0.20	0.29					0.30	c0.32	0.02
v/s Ratio Perm												
v/c Ratio		0.94		0.92	0.53					0.88	0.93	0.05
Uniform Delay, d1		25.0		26.5	10.1					21.5	22.1	15.4
Progression Factor		1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		17.4		16.5	0.3					14.2	22.7	0.0
Delay (s)		42.4		42.9	10.4					35.7	44.9	15.4
Level of Service		D		D	B					D	D	B
Approach Delay (s)		42.4			23.7		0.0				38.6	
Approach LOS		D			C		A				D	

Intersection Summary			
HCM Average Control Delay	32.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	69.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Baseline

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Volume (vph)	127	1458	0	0	1051	872	452	7	700	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor		0.97			0.95	1.00	0.95	0.91	0.95			
Frt		1.00			1.00	0.85	1.00	0.87	0.85			
Flt Protected		0.95			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (prot)		3433			3539	1583	1681	1469	1504			
Flt Permitted		0.95			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (perm)		3433			3539	1583	1681	1469	1504			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	141	1620	0	0	1168	969	502	8	778	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	524	0	11	11	0	0	0
Lane Group Flow (vph)	141	1620	0	0	1168	445	447	410	409	0	0	0
Turn Type	Prot				Prot	Split			Prot			
Protected Phases	7	4			8	8	2	2	2			
Permitted Phases												
Actuated Green, G (s)	3.5	31.6			24.1	24.1	19.5	19.5	19.5			
Effective Green, g (s)	3.5	31.6			24.1	24.1	19.5	19.5	19.5			
Actuated g/C Ratio	0.06	0.53			0.41	0.41	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)	203	1892			1443	646	555	485	496			
v/s Ratio Prot	0.04	c0.46			0.33	0.28	0.27	c0.28	0.27			
v/s Ratio Perm												
v/c Ratio	0.69	0.86			0.81	0.69	0.81	0.85	0.83			
Uniform Delay, d1	27.3	11.8			15.5	14.4	18.1	18.4	18.2			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	9.9	4.1			3.5	3.1	8.3	12.8	10.7			
Delay (s)	37.1	15.9			18.9	17.5	26.4	31.2	29.0			
Level of Service	D	B			B	B	C	C	C			
Approach Delay (s)		17.6					28.8					
Approach LOS		B					C					

Intersection Summary			
HCM Average Control Delay	20.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	59.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Baseline

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Volume (vph)	50	37	50	490	31	118	109	990	220	197	1519	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	0.91	0.95	0.95	0.91	0.95	1.00	0.91	1.00	0.91	0.95	0.95
Friction	1.00	0.98	0.85	1.00	0.99	0.85	1.00	0.97	1.00	1.00	1.00	1.00
Friction 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	1649	1504	1681	1616	1504	1770	4947	1770	5064	5064	5064
Friction Permitted	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 (perm)	1681	1649	1504	1681	1616	1504	1770	4947	1770	5064	5064	5064
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	56	41	56	544	34	131	121	1100	244	219	1688	48
RTOR Reduction (vph)	0	7	44	0	2	92	0	37	0	0	3	0
Lane Group Flow (vph)	50	48	4	294	295	26	121	1307	0	219	1733	0
Turn Type	Split	Split	Prot	Split	Split	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	4	8	8	8	5	2	1	1	1	1
Permitted Phases												
Actuated Green, G (s)	6.5	6.5	6.5	17.4	17.4	17.4	7.5	27.5	12.3	32.3	32.3	32.3
Effective Green, g (s)	6.5	6.5	6.5	17.4	17.4	17.4	7.5	27.5	12.3	32.3	32.3	32.3
Actuated g/C Ratio	0.08	0.08	0.08	0.22	0.22	0.22	0.09	0.35	0.15	0.41	0.41	0.41
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	137	134	123	367	353	328	167	1707	273	2052	2052	2052
v/s Ratio Prot	c0.03	0.03	0.00	0.17	c0.18	0.02	0.07	0.26	c0.12	c0.34	c0.34	c0.34
v/c Ratio	0.36	0.36	0.03	0.80	0.84	0.08	0.72	0.77	0.80	0.84	0.84	0.84
Uniform Delay, d1	34.6	34.6	33.7	29.5	29.8	24.8	35.1	23.2	32.5	21.4	21.4	21.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.7	1.6	0.1	11.9	15.7	0.1	14.4	2.1	15.5	3.4	3.4	3.4
Delay (s)	36.3	36.2	33.8	41.4	45.5	24.9	49.5	25.3	48.0	24.8	24.8	24.8
Level of Service	D	D	C	D	D	C	D	C	D	C	C	C
Approach Delay (s)		35.5			40.4		27.3			27.4		
Approach LOS		D			D		C			C		

Intersection Summary			
HCM Average Control Delay	29.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	79.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Baseline

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Volume (vph)	0	0	0	223	860	220	405	1098	0	0	751	837
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	0.95	0.95	0.95	0.95	0.95	0.86	0.86
Friction	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91
Friction Protected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3539	3539	3433	3539	3433	3539	4143	1362
Friction Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3539	3539	3433	3539	3433	3539	4143	1362
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	248	956	244	450	1220	0	0	834	930
RTOR Reduction (vph)	0	0	0	0	0	60	0	0	0	0	7	7
Lane Group Flow (vph)	0	0	0	248	956	184	450	1220	0	0	1292	458
Confl. Peds. (#/hr)											200	200
Turn Type	Split	Split	Prot	Split	Split	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	8	8	8	5	2	6	6	6	6	6	6	6
Permitted Phases												
Actuated Green, G (s)	16.4	16.4	16.4	10.0	40.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0
Effective Green, g (s)	16.4	16.4	16.4	10.0	40.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0
Actuated g/C Ratio	0.25	0.25	0.25	0.16	0.62	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	874	1295	403	533	2198	1673	550	550	550	550	550	550
v/s Ratio Prot	0.07	c0.19	0.12	c0.13	0.34	0.31	c0.34	c0.34	c0.34	c0.34	c0.34	c0.34
v/c Ratio	0.28	0.74	0.46	0.84	0.56	0.77	0.83	0.83	0.83	0.83	0.83	0.83
Uniform Delay, d1	19.3	22.0	20.2	26.4	7.1	16.6	17.3	17.3	17.3	17.3	17.3	17.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	2.2	0.8	11.7	0.3	2.3	10.5	10.5	10.5	10.5	10.5	10.5
Delay (s)	19.5	24.3	21.1	38.1	7.4	18.9	27.7	27.7	27.7	27.7	27.7	27.7
Level of Service	B	C	C	D	A	B	C	C	C	C	C	C
Approach Delay (s)		0.0			22.9		15.6			21.2		
Approach LOS		A			C		B			C		

Intersection Summary			
HCM Average Control Delay	19.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	64.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	114.1%	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
29: SR-56 EB Ramps & El Camino Real

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰	↰					↰	↰	↰	↰	↰
Volume (vph)	537	1031	133	0	0	0	0	914	442	286	646	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					0.95		1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1610	3190	1441					6095		1770	5085	
Flt Permitted	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1610	3190	1441					6095		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)	597	1146	148	0	0	0	0	1016	491	318	718	0
RTOR Reduction (vph)	0	1	80	0	0	0	0	41	0	0	0	0
Lane Group Flow (vph)	537	1220	53	0	0	0	0	1466	0	318	718	0
Turn Type	Spill		Prot							Prot		
Protected Phases	4	4	4					2		1	6	
Permitted Phases												
Actuated Green, G (s)	31.6	31.6	31.6					20.8		15.6	40.4	
Effective Green, g (s)	31.6	31.6	31.6					20.8		15.6	40.4	
Actuated g/C Ratio	0.40	0.40	0.40					0.26		0.20	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)	636	1260	569					1585		345	2568	
v/s Ratio Prot	0.33	0.38	0.04					0.24		0.18	0.14	
v/s Ratio Perm												
v/c Ratio	0.84	0.97	0.09					1.07		0.92	0.28	
Uniform Delay, d1	22.0	23.7	15.2					28.8		31.6	11.4	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	10.0	18.0	0.1					9.5		29.3	0.1	
Delay (s)	32.0	41.7	15.3					38.3		60.9	11.5	
Level of Service	C	D	B					D		E	B	
Approach Delay (s)		37.1			0.0			38.3			26.6	
Approach LOS		D			A			D			C	
Intersection Summary												
HCM Average Control Delay		35.1										
HCM Volume to Capacity ratio		0.94										
Actuated Cycle Length (s)		80.0						12.0				
Intersection Capacity Utilization		114.1%										
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
30: Valley Centre Drive & Carmel View Road

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

Movement	EBL	EBT	WBL	WBT	WBR	SBL	SBR
Lane Configurations	↰	↰	↰	↰	↰	↰	↰
Volume (vph)	68	398	0	370	97	31	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		0.95		1.00	1.00
Flt	1.00	1.00		0.97		1.00	0.85
Flt Protected	0.95	1.00		1.00		0.95	1.00
Satd. Flow (prot)	1770	3539		3429		1770	1583
Flt Permitted	0.95	1.00		1.00		0.95	1.00
Satd. Flow (perm)	1770	3539		3429		1770	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	76	442	0	411	108	34	52
RTOR Reduction (vph)	0	0	0	46	0	0	46
Lane Group Flow (vph)	76	442	0	473	0	34	6
Turn Type	Prot		Prot			Prot	
Protected Phases	7	4	3	8		6	6
Permitted Phases							
Actuated Green, G (s)	1.3	13.6		8.3		3.0	3.0
Effective Green, g (s)	1.3	13.6		8.3		3.0	3.0
Actuated g/C Ratio	0.05	0.55		0.34		0.12	0.12
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)	94	1957		1157		216	193
v/s Ratio Prot	0.04	0.12		0.14		0.02	0.00
v/s Ratio Perm							
v/c Ratio	0.81	0.23		0.41		0.16	0.03
Uniform Delay, d1	11.5	2.8		6.3		9.7	9.5
Progression Factor	1.00	1.00		1.00		1.00	1.00
Incremental Delay, d2	38.1	0.1		0.2		0.3	0.1
Delay (s)	49.6	2.9		6.5		10.0	9.6
Level of Service	D	A		A		B	A
Approach Delay (s)		9.7		6.5		9.8	
Approach LOS		A		A		A	
Intersection Summary							
HCM Average Control Delay		8.2					A
HCM Volume to Capacity ratio		0.39					
Actuated Cycle Length (s)		24.6				Sum of lost time (s)	12.0
Intersection Capacity Utilization		30.4%				ICU Level of Service	A
Analysis Period (min)		15					
c Critical Lane Group							

Baseline

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

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

Movement	EBL	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL	SBT	SBR
Lane Configurations	↰	↱	↱	↰	↰	↱	↰	↱	↱	↰	↱	↱
Volume (vph)	118	293	331	126	162	99	370	840	332	272	166	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.88	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	0.94		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)	1770	2787	1583	1770	1757		1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	2787	1583	1770	1757		1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	131	326	368	140	180	110	411	933	369	302	184	160
RTOR Reduction (vph)	0	0	302	0	26	0	0	0	241	0	0	128
Lane Group Flow (vph)	131	326	66	140	264	0	411	933	128	302	184	32
Turn Type	Prot	custom	custom	Prot			Prot		Prot	Prot		Prot
Protected Phases	7			3	8		5	2	2	1	6	6
Permitted Phases		4	4									
Actuated Green, G (s)	8.8	14.3	14.3	11.7	17.2		22.0	27.8	27.8	10.4	16.2	16.2
Effective Green, g (s)	8.8	14.3	14.3	11.7	17.2		22.0	27.8	27.8	10.4	16.2	16.2
Actuated g/C Ratio	0.11	0.18	0.18	0.15	0.21		0.27	0.35	0.35	0.13	0.20	0.20
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	194	497	282	258	377		486	1227	549	445	715	320
v/s Ratio Prot	c0.07			0.08	c0.15		c0.23	c0.26	0.08	0.09	0.05	0.02
v/s Ratio Perm		0.12	0.04									
v/c Ratio	0.68	0.66	0.23	0.54	0.70		0.85	0.76	0.23	0.68	0.26	0.10
Uniform Delay, d1	34.3	30.7	28.2	31.8	29.1		27.5	23.2	18.6	33.3	26.9	26.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.9	3.1	0.4	2.3	5.8		12.8	2.8	0.2	4.1	0.2	0.1
Delay (s)	43.3	33.8	28.7	34.1	34.9		40.3	26.1	18.8	37.4	27.1	26.2
Level of Service	D	C	C	C	C		D	C	B	D	C	C
Approach Delay (s)				34.6			27.9			31.7		
Approach LOS				C			C			C		
Intersection Summary												
HCM Average Control Delay		30.6		HCM Level of Service				C				
HCM Volume to Capacity ratio		0.75										
Actuated Cycle Length (s)		80.2		Sum of lost time (s)				12.0				
Intersection Capacity Utilization		65.4%		ICU Level of Service				C				
Analysis Period (min)		15										
c Critical Lane Group												

Baseline

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	935	0	221	0	0	0	0	657	213	358	258	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	
Frt	1.00	1.00	0.85					0.96		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1681	1583					3409		3433	3539	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1681	1681	1583					3409		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)	1039	0	246	0	0	0	0	730	237	398	287	0
RTOR Reduction (vph)	0	0	160	0	0	0	0	48	0	0	0	0
Lane Group Flow (vph)	519	520	86	0	0	0	0	919	0	398	287	0
Turn Type	Split		Prot							Prot		
Protected Phases	4	4	4					2		1	6	
Permitted Phases												
Actuated Green, G (s)	22.2	22.2	22.2					20.3		9.0	33.3	
Effective Green, g (s)	22.2	22.2	22.2					20.3		9.0	33.3	
Actuated g/C Ratio	0.35	0.35	0.35					0.32		0.14	0.52	
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)	588	588	553					1090		487	1856	
v/s Ratio Prot	0.31	c0.31	0.05					c0.27		c0.12	0.08	
v/s Ratio Perm												
v/c Ratio	0.88	0.88	0.16					0.84		0.82	0.15	
Uniform Delay, d1	19.4	19.4	14.2					20.1		26.5	7.8	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	14.6	14.7	0.1					6.1		10.2	0.0	
Delay (s)	34.0	34.2	14.3					26.2		36.7	7.9	
Level of Service	C	C	B					C		D	A	
Approach Delay (s)		30.3			0.0			26.2			24.6	
Approach LOS		C			A			C			C	
Intersection Summary												
HCM Average Control Delay			27.6	HCM Level of Service						C		
HCM Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			63.5	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												

Baseline

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

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↰	↱		↰	↱		↰	↱		↰	↱	
Volume (vph)	131	470	44	94	417	412	53	132	107	237	54	67
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	
Frt	1.00	0.99		1.00	0.93		1.00	0.93		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3494		1770	3275		1770	1738		3433	1708	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3494		1770	3275		1770	1738		3433	1708	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	146	522	49	104	463	458	59	147	119	263	60	74
RTOR Reduction (vph)	0	10	0	0	272	0	0	46	0	0	52	0
Lane Group Flow (vph)	146	561	0	104	649	0	59	220	0	263	82	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	6.1	17.7		5.0	16.6		4.6	13.8		8.8	18.0	
Effective Green, g (s)	6.1	17.7		5.0	16.6		4.6	13.8		8.8	18.0	
Actuated g/C Ratio	0.10	0.29		0.08	0.27		0.08	0.23		0.14	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)	176	1009		144	887		133	391		493	502	
v/s Ratio Prot	c0.08	0.16		0.06	c0.20		0.03	c0.13		c0.08	0.05	
v/s Ratio Perm												
v/c Ratio	0.83	0.56		0.72	0.73		0.44	0.56		0.53	0.16	
Uniform Delay, d1	27.1	18.5		27.5	20.3		27.1	21.1		24.3	16.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	26.4	0.7		16.3	3.1		2.4	1.8		1.1	0.2	
Delay (s)	53.5	19.1		43.8	23.5		29.5	22.9		25.5	16.2	
Level of Service	D	B		D	C		C	C		C	B	
Approach Delay (s)		26.1			25.5			24.1			22.3	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	25.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	61.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

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

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

Movement	WBL	WBR	SEL	SET	NWL	NWR	NWR2	SWL	SWR
Lane Configurations			↰	↱	↰	↱		↰	↱
Volume (vph)	0	0	277	508	640	0	196	151	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor			0.97	0.95	0.95		1.00	0.97	1.00
Frt			1.00	1.00	1.00		0.85	1.00	0.85
Flt Protected			0.95	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)			3433	3539	3539		1583	3433	1583
Flt Permitted			0.95	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)			3433	3539	3539		1583	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	308	564	711	0	218	168	292
RTOR Reduction (vph)	0	0	0	0	0	0	136	0	208
Lane Group Flow (vph)	0	0	308	564	711	0	82	168	84
Turn Type			Prot				Perm		Perm
Protected Phases			5	2	6			4	
Permitted Phases							6		4
Actuated Green, G (s)			4.1	22.8	14.7		14.7	8.2	8.2
Effective Green, g (s)			4.1	22.8	14.7		14.7	8.2	8.2
Actuated g/C Ratio			0.11	0.58	0.38		0.38	0.21	0.21
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)			361	2069	1334		597	722	333
v/s Ratio Prot			c0.09	0.16	c0.20			0.05	
v/s Ratio Perm							0.05		c0.05
v/c Ratio			0.85	0.27	0.53		0.14	0.23	0.25
Uniform Delay, d1			17.2	4.0	9.5		8.0	12.8	12.8
Progression Factor			1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2			17.4	0.1	0.4		0.1	0.2	0.4
Delay (s)			34.6	4.1	9.9		8.1	13.0	13.2
Level of Service			C	A	A		A	B	B
Approach Delay (s)	0.0			14.8	9.5			13.1	
Approach LOS	A			B	A			B	

Intersection Summary			
HCM Average Control Delay	12.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	39.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	40.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

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

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

Movement	EBL2	EBL	EBR	SEL	SET	SER	NWL	NWT	NWR	SWL	SWR
Lane Configurations	↔	↔	↔	↔	↔			↔	↔		
Volume (vph)	411	0	248	284	386	0	0	413	263	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		
Lane Util. Factor	0.95	0.95	1.00	0.97	0.95			0.95	1.00		
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		
Flt Protected	0.95	0.95	1.00	0.95	1.00			1.00	1.00		
Satd. Flow (prot)	1681	1681	1583	3433	3539			3539	1583		
Flt Permitted	0.95	0.95	1.00	0.95	1.00			1.00	1.00		
Satd. Flow (perm)	1681	1681	1583	3433	3539			3539	1583		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	457	0	276	316	429	0	0	459	292	0	0
RTOR Reduction (vph)	0	0	200	0	0	0	0	0	205	0	0
Lane Group Flow (vph)	228	229	76	316	429	0	0	459	87	0	0
Turn Type	Split		Prot		Prot						
Protected Phases	4	4	4	1	6			2	2		
Permitted Phases											
Actuated Green, G (s)	11.2	11.2	11.2	5.2	21.3			12.1	12.1		
Effective Green, g (s)	11.2	11.2	11.2	5.2	21.3			12.1	12.1		
Actuated g/C Ratio	0.28	0.28	0.28	0.13	0.53			0.30	0.30		
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		
Lane Grp Cap (vph)	465	465	438	441	1861			1057	473		
v/s Ratio Prot	0.14	c0.14	0.05	c0.09	0.12			c0.13	0.06		
v/s Ratio Perm											
v/c Ratio	0.49	0.49	0.17	0.72	0.23			0.43	0.18		
Uniform Delay, d1	12.3	12.3	11.1	16.9	5.2			11.4	10.5		
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		
Incremental Delay, d2	0.8	0.8	0.2	5.5	0.1			0.3	0.2		
Delay (s)	13.1	13.1	11.3	22.4	5.2			11.7	10.7		
Level of Service	B	B	B	C	A			B	B		
Approach Delay (s)		12.4			12.5			11.3		0.0	
Approach LOS		B			B			B		A	
Intersection Summary											
HCM Average Control Delay		12.1				HCM Level of Service			B		
HCM Volume to Capacity ratio		0.51									
Actuated Cycle Length (s)		40.5				Sum of lost time (s)			12.0		
Intersection Capacity Utilization		40.9%				ICU Level of Service			A		
Analysis Period (min)		15									
c Critical Lane Group											

Baseline

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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		9/16/2010				Analysis Year		2010					
Analysis Time Period		36 NT+P PM (Phase 1&2)											
Project ID 002407 - San Diego Corporate Center Lots													
East/West Street: Del Mar Trail						North/South Street: Carmel Creek Road							
Volume Adjustments and Site Characteristics													
Approach		Eastbound				Westbound							
Movement		L		T		R		L		T		R	
Volume (veh/h)		5		5		4		57		12		10	
%Thrus Left Lane													
Approach		Northbound				Southbound							
Movement		L		T		R		L		T		R	
Volume (veh/h)		12		778		103		15		440		10	
%Thrus Left Lane		50						50					

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APPENDIX J

NEAR TERM WITH PROJECT BUILD-OUT SYNCHRO WORKSHEETS

HCM Signalized Intersection Capacity Analysis
1: Via De La Valle & El Camino Real

Near Term + Project (Buildout) AM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	2	378	391	313	507	8	400	5	162	1	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00		
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.85		0.96		
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.98		
Satd. Flow (prot)	1770	1863	1583	1770	1858		1775	1583		1750		
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.98		
Satd. Flow (perm)	1770	1863	1583	1770	1858		1775	1583		1750		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2	420	434	348	563	9	444	6	180	1	1	1
RTOR Reduction (vph)	0	0	238	0	0	0	0	0	128	0	1	0
Lane Group Flow (vph)	2	420	196	348	572	0	0	450	52	0	2	0
Turn Type	Prot		Prot	Prot		Split		Prot	Split			
Protected Phases	7	4	4	3	8		2	2	2	6	6	
Permitted Phases												
Actuated Green, G (s)	0.8	25.8	25.8	19.6	44.6		25.6	25.6		1.1		
Effective Green, g (s)	0.8	25.8	25.8	19.6	44.6		25.6	25.6		1.1		
Actuated g/C Ratio	0.01	0.29	0.29	0.22	0.51		0.29	0.29		0.01		
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)	16	546	464	394	941		516	460		22		
v/s Ratio Prot	0.00	c0.23	0.12	c0.20	0.31		c0.25	0.03		c0.00		
v/s Ratio Perm												
v/c Ratio	0.12	0.77	0.42	0.88	0.61		0.87	0.11		0.09		
Uniform Delay, d1	43.3	28.4	25.1	33.1	15.5		29.7	22.9		43.0		
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00		
Incremental Delay, d2	3.5	6.5	0.6	20.2	1.1		15.0	0.1		1.8		
Delay (s)	46.8	34.9	25.8	53.3	16.6		44.6	23.0		44.8		
Level of Service	D	C	C	D	B		D	C		D		
Approach Delay (s)		30.3			30.5		38.5			44.8		
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)			88.1			Sum of lost time (s)		16.0				
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
2: San Dieguito Road & El Camino Real

Near Term + Project (Buildout) AM
3/2/2012

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	409	308	0	209	295	289	448
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
Frt	1.00	0.85		1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583		1863	1583	1770	3539
Flt Permitted	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583		1863	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	454	342	0	232	328	321	498
RTOR Reduction (vph)	0	256	0	0	249	0	0
Lane Group Flow (vph)	454	86	0	232	79	321	498
Turn Type		Perm	Prot		Perm	Prot	
Protected Phases	1		3	8		7	
Permitted Phases		1			8		6
Actuated Green, G (s)	13.1	13.1		12.5	12.5	14.3	13.1
Effective Green, g (s)	13.1	13.1		12.5	12.5	14.3	13.1
Actuated g/C Ratio	0.25	0.25		0.24	0.24	0.28	0.25
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	867	400		449	381	488	893
v/s Ratio Prot	0.13			c0.12		c0.18	
v/s Ratio Perm		0.05			0.05		c0.14
v/c Ratio	0.52	0.22		0.52	0.21	0.66	0.56
Uniform Delay, d1	16.7	15.3		17.1	15.7	16.6	16.9
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.3		1.0	0.3	3.2	0.8
Delay (s)	17.3	15.6		18.1	16.0	19.8	17.6
Level of Service	B	B		B	B	B	B
Approach Delay (s)	16.6			16.9			18.5
Approach LOS	B			B			B
Intersection Summary:							
HCM Average Control Delay			17.4			HCM Level of Service	B
HCM Volume to Capacity ratio			0.58				
Actuated Cycle Length (s)			51.9			Sum of lost time (s)	12.0
Intersection Capacity Utilization			48.7%			ICU Level of Service	A
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

Near Term + Project (Buildout) AM
3/2/2012

Movement	WBL	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	87	7	0	475	52	3	865
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)	3415			3487		1770	3539
Flt Permitted	0.96			1.00		0.95	1.00
Satd. Flow (perm)	3415			3487		1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	97	8	0	528	58	3	961
RTOR Reduction (vph)	7	0	0	13	0	0	0
Lane Group Flow (vph)	98	0	0	573	0	3	961
Turn Type		Prot			Prot		
Protected Phases	8		5		2		1 6
Permitted Phases							
Actuated Green, G (s)	3.2			15.6		0.6	20.2
Effective Green, g (s)	3.2			15.6		0.6	20.2
Actuated g/C Ratio	0.10			0.50		0.02	0.64
Clearance Time (s)	4.0			4.0		4.0	4.0
Vehicle Extension (s)	3.0			3.0		3.0	3.0
Lane Grp Cap (vph)	348			1732		34	2277
v/s Ratio Prot	c0.03			0.16		0.00	c0.27
v/s Ratio Perm							
v/c Ratio	0.28			0.33		0.09	0.42
Uniform Delay, d1	13.0			4.8		15.1	2.7
Progression Factor	1.00			1.00		1.00	1.00
Incremental Delay, d2	0.4			0.1		1.1	0.1
Delay (s)	13.5			4.9		16.3	2.9
Level of Service	B			A		B	A
Approach Delay (s)	13.5			4.9			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	0.40		
Actuated Cycle Length (s)	31.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	33.9%	ICU Level of Service	A
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

Near Term + Project (Buildout) AM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	24	114	20	67	84	153	6	328	18	185	710	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	1821		1770	1682		1770	3512		1770	3470	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1821		1770	1682		1770	3512		1770	3470	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	27	127	22	74	93	170	7	364	20	183	789	119
RTOR Reduction (vph)	0	11	0	0	113	0	0	6	0	0	17	0
Lane Group Flow (vph)	27	138	0	74	150	0	7	378	0	183	891	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	0.7	10.8		2.3	12.4		0.7	14.4		6.3	20.0	
Effective Green, g (s)	0.7	10.8		2.3	12.4		0.7	14.4		6.3	20.0	
Actuated g/C Ratio	0.01	0.22		0.05	0.25		0.01	0.29		0.13	0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	25	395		82	419		25	1016		224	1394	
v/s Ratio Prot	0.02	0.08		c0.04	c0.09		0.00	0.11		c0.10	c0.26	
v/s Ratio Perm												
v/c Ratio	1.08	0.35		0.90	0.36		0.28	0.37		0.82	0.64	
Uniform Delay, d1	24.6	16.5		23.6	15.4		24.3	14.1		21.2	12.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	205.9	0.5		67.3	0.5		6.0	0.2		20.1	1.0	
Delay (s)	230.5	17.1		91.0	15.9		30.3	14.3		41.3	13.0	
Level of Service	F	B		F	B		C	B		D	B	
Approach Delay (s)		49.8			32.4			14.6			17.7	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM Average Control Delay	22.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	49.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.8%	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
5: Quarter Mile Road & El Camino Real

Near Term + Project (Buildout) AM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	85	72	98	141	37	41	351	59	42	803	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	
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	0.97		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	1863	1583	1770	1805		1770	3462		1770	3534	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1805		1770	3462		1770	3534	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	94	80	109	157	41	46	390	66	47	892	8
RTOR Reduction (vph)	0	0	66	0	17	0	0	20	0	0	1	0
Lane Group Flow (vph)	6	94	15	109	181	0	46	436	0	47	899	0
Turn Type	Prot		Prot				Prot			Prot		
Protected Phases	7	4	4	3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	0.6	8.7	8.7	3.5	11.6		1.4	18.4		1.4	18.4	
Effective Green, g (s)	0.6	8.7	8.7	3.5	11.6		1.4	18.4		1.4	18.4	
Actuated g/C Ratio	0.01	0.18	0.18	0.07	0.24		0.03	0.38		0.03	0.38	
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	338	287	129	436		52	1327		52	1355	
v/s Ratio Prot	0.00	0.05	0.01	0.06	0.10		0.03	0.13		0.03	0.25	
v/s Ratio Perm												
v/c Ratio	0.27	0.28	0.05	0.84	0.42		0.88	0.33		0.90	0.66	
Uniform Delay, d1	23.5	16.9	16.2	22.0	15.3		23.2	10.4		23.2	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	6.6	0.5	0.1	37.0	0.6		82.7	0.1		89.2	1.2	
Delay (s)	30.1	17.4	16.3	59.0	16.0		105.9	10.6		112.5	13.5	
Level of Service	C	B	B	E	B		F	B		F	B	
Approach Delay (s)		17.3			31.2			19.3			18.4	
Approach LOS		B			C			B			B	
Intersection Summary												
HCM Average Control Delay	20.6			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.63											
Actuated Cycle Length (s)	48.0			Sum of lost time (s)			16.0					
Intersection Capacity Utilization	47.8%			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
6: Del Mar Heights Road & Mango Drive

Near Term + Project (Buildout) AM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱↰↱		↰	↱↰			↱	↱	↰	↱↰	
Volume (vph)	96	879	24	95	887	208	70	58	84	457	23	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0		
Lane Util. Factor	1.00	0.91		1.00	0.95			1.00	1.00	0.95	0.95	
Frt	1.00	1.00		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	5065		1770	3438			1813	1583	1681	1639	
Flt Permitted	0.95	1.00		0.95	1.00			0.97	1.00	0.95	0.97	
Satd. Flow (perm)	1770	5065		1770	3438			1813	1583	1681	1639	
Peak-hour 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)	107	977	27	106	986	231	78	64	93	508	26	93
RTOR Reduction (vph)	0	3	0	0	22	0	0	0	80	0	17	0
Lane Group Flow (vph)	107	1001	0	106	1195	0	0	142	13	320	290	0
Turn Type	Prot			Prot			Split			Prot		
Protected Phases	7	4		3	8		2	2		2	6	6
Permitted Phases												
Actuated Green, G (s)	6.6	30.6		8.3	32.3			11.8	11.8	18.2	18.2	
Effective Green, g (s)	6.6	30.6		8.3	32.3			11.8	11.8	18.2	18.2	
Actuated g/C Ratio	0.08	0.36		0.10	0.38			0.14	0.14	0.21	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)	138	1826		173	1308			252	220	360	351	
v/s Ratio Prot	0.06	0.20		0.06	0.35			0.08	0.01	0.19	0.18	
v/s Ratio Perm												
v/c Ratio	0.78	0.55		0.61	0.91			0.56	0.06	0.89	0.83	
Uniform Delay, d1	38.4	21.6		36.8	25.0			34.1	31.7	32.4	31.8	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	23.3	0.3		6.3	9.9			2.9	0.1	22.3	14.6	
Delay (s)	61.8	22.0		43.0	34.9			37.0	31.8	54.7	46.4	
Level of Service	E	C		D	C			D	C	D	D	
Approach Delay (s)		25.8			35.6			35.0			50.6	
Approach LOS		C			D			C			D	
Intersection Summary												
HCM Average Control Delay	35.1			HCM Level of Service			D					
HCM Volume to Capacity ratio	0.79											
Actuated Cycle Length (s)	84.9			Sum of lost time (s)			12.0					
Intersection Capacity Utilization	69.0%			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
7: Del Mar Heights Road & Portofino Drive

Near Term + Project (Buildout) AM
3/2/2012

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑		↑
Volume (veh/h)	1456	55	0	1424	0	142
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)	1618	61	0	1582	0	158
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		0.89	0.86
vC, conflicting volume			1679		2439	570
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1227		1433	0
IC, single (s)			4.1		6.8	6.9
IC, 2 stage (s)						
IF (s)			2.2		3.5	3.3
p0 queue free %			100		100	83
cM capacity (veh/h)			486		111	935
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	647	647	385	791	791	158
Volume Left	0	0	0	0	0	0
Volume Right	0	0	61	0	0	158
cSH	1700	1700	1700	1700	1700	935
Volume to Capacity	0.38	0.38	0.23	0.47	0.47	0.17
Queue Length 95th (ft)	0	0	0	0	0	15
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.6
Lane LOS						A
Approach Delay (s)	0.0			0.0		9.6
Approach LOS						A
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			44.8%			ICU Level of Service A
Analysis Period (min)			15			

Baseline

Synchro 7 - Report
Page 7

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

Near Term + Project (Buildout) AM
3/2/2012

Movement	EBL	EBT	WBT	WBR	SB L	SB R
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Volume (vph)	0	812	1080	0	1022	336
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3	6.3		5.4	5.4
Lane Util. Factor		0.95	0.95		0.97	0.91
Flt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		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	902	1200	0	1136	373
RTOR Reduction (vph)	0	0	0	0	3	33
Lane Group Flow (vph)	0	902	1200	0	1170	303
Turn Type					Perm	
Protected Phases		2.6	6.2		4	
Permitted Phases						4
Actuated Green, G (s)		41.7	41.7		26.6	26.6
Effective Green, g (s)		41.7	41.7		26.6	26.6
Actuated g/C Ratio		0.52	0.52		0.33	0.33
Clearance Time (s)					5.4	5.4
Vehicle Extension (s)					3.0	3.0
Lane Grp Cap (vph)		1845	1845		1141	479
v/s Ratio Prot		0.25	0.34		0.34	
v/s Ratio Perm						0.21
v/c Ratio		0.49	0.65		1.03	0.63
Uniform Delay, d1		12.3	13.9		26.7	22.6
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.2	0.8		33.4	2.7
Delay (s)		12.5	14.7		60.1	25.3
Level of Service		B	B		E	C
Approach Delay (s)		12.5	14.7		52.3	
Approach LOS		B	B		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)			80.0		Sum of lost time (s)	11.7
Intersection Capacity Utilization			124.3%		ICU Level of Service	H
Analysis Period (min)			15			
Critical Lane Group						

Baseline

Synchro 7 - Report
Page 8

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

Near Term + Project (Buildout) AM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑↑		↔	↑↑	↔	↔	↑↑	↔			
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
Lane Width	12	12	12	12	12	13	12	12	14	12	12	12
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	0.95	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			5309	1636	1681	1542	1604			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539			5309	1636	1681	1542	1604			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	257	1693	0	0	1743	1069	427	66	1227	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	467	0	6	6	0	0	0
Lane Group Flow (vph)	257	1693	0	0	1743	602	384	667	657	0	0	0
Turn Type	Prot				Prot	Split		Prot				
Protected Phases	5	2			6	6	8	8	8			
Permitted Phases												
Actuated Green, G (s)	9.6	60.0			46.4	46.4	52.0	52.0	52.0			
Effective Green, g (s)	9.6	60.0			46.4	46.4	52.0	52.0	52.0			
Actuated g/C Ratio	0.08	0.50			0.39	0.39	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)	275	1770			2053	633	728	668	695			
v/s Ratio Prot	0.07	c0.48			0.33	0.37	0.23	c0.43	0.41			
v/s Ratio Perm												
v/c Ratio	0.93	0.96			0.85	0.95	0.53	1.00	0.95			
Uniform Delay, d1	54.9	28.7			33.6	35.7	25.0	34.0	32.6			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	36.9	13.3			4.6	25.6	0.7	34.3	21.6			
Delay (s)	91.7	42.1			38.2	61.3	25.7	68.3	54.3			
Level of Service	F	D			D	E	C	E	D			
Approach Delay (s)		48.6				47.0		53.4		0.0		
Approach LOS		D				D		D		A		
Intersection Summary												
HCM Average Control Delay		49.2										
HCM Volume to Capacity ratio		0.98										
Actuated Cycle Length (s)		120.0							8.0			
Intersection Capacity Utilization		99.6%							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 (Buildout) AM
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
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	0.88		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	5059		3433	3104		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	5059		3433	3104		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	2014	771	121	2280	83	223	11	50	126	66	347
RTOR Reduction (vph)	0	0	373	0	4	0	0	42	0	0	0	127
Lane Group Flow (vph)	123	2014	398	121	2359	0	223	19	0	126	66	220
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)	7.6	40.1	40.1	8.6	41.1		7.0	13.2		9.9	16.1	16.1
Effective Green, g (s)	7.6	40.1	40.1	8.6	41.1		7.0	13.2		9.9	16.1	16.1
Actuated g/C Ratio	0.09	0.46	0.46	0.10	0.47		0.08	0.15		0.11	0.18	0.18
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
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)	153	2322	723	173	2368		274	467		200	342	290
v/s Ratio Prot	c0.07	0.40		0.07	c0.47		c0.06	0.01		0.07	0.04	
v/s Ratio Perm			0.25									c0.14
v/c Ratio	0.80	0.87	0.55	0.70	1.00		0.81	0.04		0.63	0.19	0.76
Uniform Delay, d1	39.4	21.5	17.3	38.3	23.3		39.8	31.9		37.2	30.4	34.0
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	25.5	3.7	0.9	11.7	17.5		16.7	0.0		6.3	0.3	10.8
Delay (s)	64.8	25.2	18.2	50.0	40.7		56.4	31.9		43.5	30.6	44.8
Level of Service	E	C	B	D	D		E	C		D	C	D
Approach Delay (s)		25.0		41.2				51.2			42.7	
Approach LOS		C		D				D			D	
Intersection Summary												
HCM Average Control Delay			34.2							C		
HCM Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			87.8							12.0		
Intersection Capacity Utilization			76.4%							D		
Analysis Period (min)			15									
c Critical Lane Group												

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

Near Term + Project (Buildout) AM
3/2/2012

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	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	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)	2193	211	163	2424	96	74
RTOR Reduction (vph)	0	93	0	0	0	67
Lane Group Flow (vph)	2193	118	163	2424	96	7
Turn Type		Prot	Prot		Prot	
Protected Phases	4	4	3	8	2	2
Permitted Phases						
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	882	244	3884	337	156
v/s Ratio Prot	c0.43	0.07	0.09	c0.48	c0.03	0.00
v/s Ratio Perm						
v/c Ratio	0.77	0.13	0.67	0.62	0.28	0.05
Uniform Delay, d1	10.0	6.2	23.7	3.1	24.3	23.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.4	0.1	6.8	0.3	0.5	0.1
Delay (s)	11.4	6.2	30.5	3.4	24.7	23.8
Level of Service	B	A	C	A	C	C
Approach Delay (s)	10.9			5.1	24.3	
Approach LOS	B			A	C	
Intersection Summary						
HCM Average Control Delay		8.5		HCM Level of Service	A	
HCM Volume to Capacity ratio		0.71				
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.

Near Term + Project (Buildout) AM
3/2/2012

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	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	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)	2092	176	176	2508	80	80
RTOR Reduction (vph)	0	76	0	0	0	70
Lane Group Flow (vph)	2092	100	176	2508	80	10
Turn Type		Prot	Prot		Prot	
Protected Phases	4	4	3	8	2	2
Permitted Phases						
Actuated Green, G (s)	28.5	28.5	3.4	35.9	6.3	6.3
Effective Green, g (s)	28.5	28.5	3.4	35.9	6.3	6.3
Actuated g/C Ratio	0.57	0.57	0.07	0.72	0.13	0.13
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)	2887	899	233	3636	222	199
v/s Ratio Prot	0.41	0.06	0.05	c0.49	c0.05	0.01
v/s Ratio Perm						
v/c Ratio	0.72	0.11	0.76	0.69	0.36	0.05
Uniform Delay, d1	8.0	5.0	23.0	4.0	20.1	19.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.1	13.0	0.6	1.0	0.1
Delay (s)	8.9	5.1	36.0	4.6	21.1	19.4
Level of Service	A	A	D	A	C	B
Approach Delay (s)	8.6			6.6	20.3	
Approach LOS	A			A	C	
Intersection Summary						
HCM Average Control Delay		7.9		HCM Level of Service	A	
HCM Volume to Capacity ratio		0.64				
Actuated Cycle Length (s)		50.2		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						

Baseline

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

Near Term + Project (Buildout) AM
3/2/2012

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	
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	4829		3433	5043		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	4829		3433	5043		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)	266	1126	571	299	1803	106	347	126	109	182	370	510
RTOR Reduction (vph)	0	100	0	0	7	0	0	0	84	0	152	0
Lane Group Flow (vph)	266	1597	0	299	1902	0	347	126	25	182	728	0
Turn Type	Prot			Prot			Prot	Perm	Prot			
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases								2				
Actuated Green, G (s)	9.0	33.8		10.2	35.0		10.0	20.2	20.2	8.8	19.0	
Effective Green, g (s)	9.0	33.8		10.2	35.0		10.0	20.2	20.2	8.8	19.0	
Actuated g/C Ratio	0.10	0.38		0.11	0.39		0.11	0.23	0.23	0.10	0.21	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	347	1834		393	1983		386	1154	359	339	991	
v/s Ratio Prot	0.08	0.33		c0.09	c0.38		c0.10	0.02		0.05	c0.16	
v/s Ratio Perm								0.02				
v/c Ratio	0.77	0.87		0.76	0.96		0.90	0.11	0.07	0.54	1.04	
Uniform Delay, d1	39.0	25.6		38.2	26.3		39.0	27.3	27.0	38.2	32.6	
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	4.8		8.4	11.9		22.8	0.0	0.1	1.6	2.9	
Delay (s)	48.7	30.4		46.6	38.2		61.8	27.3	27.1	39.8	35.5	
Level of Service	D	C		D	D		E	C	C	D	D	
Approach Delay (s)		32.9			39.3			47.8			36.2	
Approach LOS		C			D			D			D	

Intersection Summary												
HCM Average Control Delay		37.4		HCM Level of Service				D				
HCM Volume to Capacity ratio		0.83										
Actuated Cycle Length (s)		89.0		Sum of lost time (s)				12.0				
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
14: Del Mar Heights Road & Carmel Country Road

Near Term + Project (Buildout) AM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↔		↔↔	↑↑↔		↔↔	↑↑↑	↔	↔↔	↑↑↔	
Volume (vph)	161	672	323	280	1278	174	452	188	111	146	185	159
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	
Frt	1.00	0.95		1.00	0.98		1.00	0.94		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	4838		3433	4994		3433	4803		1770	3294	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	4838		3433	4994		3433	4803		1770	3294	
Peak-hour 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)	179	747	359	311	1420	193	502	209	123	162	206	177
RTOR Reduction (vph)	0	110	0	0	22	0	0	100	0	0	135	0
Lane Group Flow (vph)	179	996	0	311	1591	0	502	232	0	162	248	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	5.0	20.1		9.2	24.3		12.0	12.7		9.6	10.3	
Effective Green, g (s)	5.0	20.1		9.2	24.3		12.0	12.7		9.6	10.3	
Actuated g/C Ratio	0.07	0.30		0.14	0.36		0.18	0.19		0.14	0.15	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	254	1439		467	1795		609	902		251	502	
v/s Ratio Prot	0.05	0.21		c0.09	c0.32		c0.15	0.05		0.09	c0.08	
v/s Ratio Perm												
v/c Ratio	0.70	0.69		0.67	0.89		0.82	0.26		0.65	0.49	
Uniform Delay, d1	30.6	21.0		27.7	20.4		26.8	23.4		27.4	26.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.6	1.5		3.6	5.7		8.9	0.2		5.6	0.8	
Delay (s)	39.2	22.5		31.3	26.0		35.7	23.6		33.0	27.0	
Level of Service	D	C		C	C		D	C		C	C	
Approach Delay (s)		24.8			26.9			30.9			28.8	
Approach LOS		C			C			C			C	

Intersection Summary												
HCM Average Control Delay		27.3		HCM Level of Service				C				
HCM Volume to Capacity ratio		0.73										
Actuated Cycle Length (s)		67.6		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
15: Del Mar Heights Road & Torrey Ridge Dr.

Near Term + Project (Buildout) AM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑↑↓		↔	↑↑↓		↔	↑		↔	↑	
Volume (vph)	212	681	134	81	1118	216	121	156	11	56	62	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
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	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	4960		1770	4962		1770	1845		1770	1674	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	4960		1770	4962		1770	1845		1770	1674	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	236	757	149	90	1242	240	134	173	12	62	69	143
RTOR Reduction (vph)	0	33	0	0	34	0	0	3	0	0	102	0
Lane Group Flow (vph)	236	873	0	90	1448	0	134	182	0	62	110	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	12.4	30.5		7.0	25.1		7.9	16.2		4.0	12.3	
Effective Green, g (s)	12.4	30.5		7.0	25.1		7.9	16.2		4.0	12.3	
Actuated g/C Ratio	0.17	0.41		0.09	0.34		0.11	0.22		0.05	0.17	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	298	2053		168	1690		190	406		96	279	
v/s Ratio Prot	c0.13	0.18		0.05	c0.29		c0.08	c0.10		0.04	0.07	
v/s Ratio Perm												
v/c Ratio	0.79	0.43		0.54	0.86		0.71	0.45		0.65	0.40	
Uniform Delay, d1	29.4	15.4		31.8	22.6		31.8	24.9		34.2	27.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	13.4	0.1		3.3	4.5		11.3	0.8		14.0	0.9	
Delay (s)	42.8	15.5		35.1	27.2		43.1	25.7		48.1	28.3	
Level of Service	D	B		D	C		D	C		D	C	
Approach Delay (s)		21.1			27.6			33.0			32.8	
Approach LOS		C			C			C			C	

Intersection Summary												
HCM Average Control Delay		26.3		HCM Level of Service				C				
HCM Volume to Capacity ratio		0.74										
Actuated Cycle Length (s)		73.7		Sum of lost time (s)				16.0				
Intersection Capacity Utilization		69.4%		ICU Level of Service				C				
Analysis Period (min)		15										
c Critical Lane Group												

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

Near Term + Project (Buildout) AM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑↑↓		↔	↑↑↓		↔	↑		↔	↑	
Volume (vph)	168	586	35	67	1153	36	44	26	55	49	60	367
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	0.90		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	5042		1770	5062		1770	1673		1770	1623	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5042		1770	5062		1770	1673		1770	1623	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	187	651	39	74	1281	40	49	29	61	54	67	408
RTOR Reduction (vph)	0	8	0	0	5	0	0	50	0	0	261	0
Lane Group Flow (vph)	187	682	0	74	1316	0	49	40	0	54	214	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	8.2	25.0		3.7	20.5		2.4	11.0		3.2	11.8	
Effective Green, g (s)	8.2	25.0		3.7	20.5		2.4	11.0		3.2	11.8	
Actuated g/C Ratio	0.14	0.42		0.06	0.35		0.04	0.19		0.05	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)	246	2140		111	1762		72	312		96	325	
v/s Ratio Prot	c0.11	0.14		0.04	c0.26		0.03	0.02		c0.03	c0.13	
v/s Ratio Perm												
v/c Ratio	0.76	0.32		0.67	0.75		0.68	0.13		0.56	0.66	
Uniform Delay, d1	24.4	11.3		27.0	16.9		27.9	20.0		27.2	21.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	12.9	0.1		14.1	1.8		23.3	0.2		7.3	4.7	
Delay (s)	37.3	11.4		41.1	18.7		51.2	20.1		34.5	26.4	
Level of Service	D	B		D	B		D	C		C	C	
Approach Delay (s)		16.9			19.9			31.1			27.2	
Approach LOS		B			B			C			C	

Intersection Summary												
HCM Average Control Delay		20.8		HCM Level of Service				C				
HCM Volume to Capacity ratio		0.66										
Actuated Cycle Length (s)		58.9		Sum of lost time (s)				12.0				
Intersection Capacity Utilization		74.9%		ICU Level of Service				D				
Analysis Period (min)		15										
c Critical Lane Group												

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

Near Term + Project (Buildout) AM
3/2/2012

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	↑
Volume (vph)	573	133	397	1028	277	342
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)	4941		1770	5085	3433	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	4941		1770	5085	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	637	148	441	1142	308	380
RTOR Reduction (vph)	57	0	0	0	0	304
Lane Group Flow (vph)	728	0	441	1142	308	76
Turn Type			Prot		Prot	
Protected Phases	4		3	8	2	2
Permitted Phases						
Actuated Green, G (s)	14.5		17.6	36.1	11.0	11.0
Effective Green, g (s)	14.5		17.6	36.1	11.0	11.0
Actuated g/C Ratio	0.26		0.32	0.66	0.20	0.20
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1300		565	3332	685	316
v/s Ratio Prot	c0.15		c0.25	0.22	c0.09	0.05
v/s Ratio Perm						
v/c Ratio	0.56		0.78	0.34	0.45	0.24
Uniform Delay, d1	17.5		17.0	4.2	19.4	18.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5		6.9	0.1	0.5	0.4
Delay (s)	18.1		23.9	4.3	19.9	18.9
Level of Service	B		C	A	B	B
Approach Delay (s)	18.1			9.8	19.3	
Approach LOS	B			A	B	
Intersection Summary:						
HCM Average Control Delay		14.0		HCM Level of Service		B
HCM Volume to Capacity ratio		0.62				
Actuated Cycle Length (s)		55.1		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						

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
18: Del Mar Highlands Town Ctr. & El Camino Real

Near Term + Project (Buildout) AM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
Volume (vph)	72	14	14	97	31	110	158	346	101	179	866	63
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	0.95	0.95		1.00	1.00	0.97	0.91	0.97		0.97	0.91	
Frt	1.00	0.96		1.00	0.85	1.00	0.97	1.00		1.00	0.99	
Flt Protected	0.95	0.98		0.96	1.00	0.95	1.00	0.95		0.95	1.00	
Satd. Flow (prot)	1681	1658		1795	1583	3433	4913	3433		3433	5034	
Flt Permitted	0.95	0.98		0.96	1.00	0.95	1.00	0.95		0.95	1.00	
Satd. Flow (perm)	1681	1658		1795	1583	3433	4913	3433		3433	5034	
Peak-hour 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)	80	16	16	108	34	122	176	384	112	199	962	70
RTOR Reduction (vph)	0	15	0	0	0	76	0	70	0	0	12	0
Lane Group Flow (vph)	57	40	0	0	142	46	176	426	0	199	1020	0
Turn Type	Split			Split		custom	Prot			Prot		
Protected Phases	2	2		6	6		3	8		7	4	
Permitted Phases						8						
Actuated Green, G (s)	2.7	2.7		7.0	17.8	3.5	17.8			3.7	18.0	
Effective Green, g (s)	2.7	2.7		7.0	17.8	3.5	17.8			3.7	18.0	
Actuated g/C Ratio	0.06	0.06		0.15	0.38	0.07	0.38			0.08	0.38	
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)	96	95		266	597	255	1853			269	1920	
v/s Ratio Prot	c0.03	0.02		c0.08		0.05	0.09			c0.06	c0.20	
v/s Ratio Perm					0.03							
v/c Ratio	0.59	0.42		0.53	0.08	0.69	0.23			0.74	0.53	
Uniform Delay, d1	21.7	21.5		18.6	9.4	21.3	10.0			21.3	11.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00			1.00	1.00	
Incremental Delay, d2	9.5	3.0		2.1	0.1	7.8	0.1			10.2	0.3	
Delay (s)	31.2	24.5		20.6	9.5	29.1	10.1			31.5	11.6	
Level of Service	C	C		C	A	C	B			C	B	
Approach Delay (s)		27.9			15.5		15.1				14.8	
Approach LOS		C			B		B				B	
Intersection Summary:												
HCM Average Control Delay			15.6		HCM Level of Service					B		
HCM Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			47.2		Sum of lost time (s)					12.0		
Intersection Capacity Utilization			46.3%		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
19: Townsgate Drive & Carmel Country Road

Near Term + Project (Buildout) AM
3/2/2012

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	↖	→	↗	↖	→	↗	↖	→	↗	↖	→	↗
Lane Configurations	↖	→	↗	↖	→	↗	↖	→	↗	↖	→	↗
Volume (vph)	176	85	116	46	195	153	114	460	7	103	485	177
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	0.95	1.00	0.95	1.00	0.95	1.00
Frt	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	0.95	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1740	1770	3531	1770	3539	1583	1770	3539
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	1863	1583	1770	1740	1770	3531	1770	3539	1583	1770	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)	196	94	129	51	217	170	127	511	8	114	539	197
RTOR Reduction (vph)	0	0	79	0	36	0	0	2	0	0	0	152
Lane Group Flow (vph)	196	94	50	51	351	0	127	517	0	114	539	45
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)	12.4	26.9	26.9	3.6	18.1		7.1	16.7		6.1	15.7	15.7
Effective Green, g (s)	12.4	26.9	26.9	3.6	18.1		7.1	16.7		6.1	15.7	15.7
Actuated g/C Ratio	0.18	0.39	0.39	0.05	0.26		0.10	0.24		0.09	0.23	0.23
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
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)	317	723	614	92	454		181	851		156	802	359
v/s Ratio Prot	c0.11	0.05	0.03	0.03	c0.20		c0.07	0.15		0.06	c0.15	0.03
v/s Ratio Perm												
v/c Ratio	0.62	0.13	0.08	0.55	0.77		0.70	0.61		0.73	0.67	0.12
Uniform Delay, d1	26.3	13.7	13.4	32.1	23.7		30.1	23.4		30.8	24.5	21.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.6	0.1	0.1	7.1	8.0		11.6	1.2		16.1	2.2	0.2
Delay (s)	29.8	13.7	13.5	39.1	31.7		41.7	24.6		46.9	26.7	21.5
Level of Service	C	B	B	D	C		D	C		D	C	C
Approach Delay (s)		21.2			32.5			28.0			28.2	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	27.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	69.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	62.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

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

Near Term + Project (Buildout) AM
3/2/2012

	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Movement	↖	→	↗	↖	→	↗	↖	→	↗	↖	→	↗
Lane Configurations	↖	→	↗	↖	→	↗	↖	→	↗	↖	→	↗
Volume (vph)	63	70	6	233	52	149	104	348	54	163	602	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	0.91	1.00	0.91
Frt	1.00	0.99	1.00	1.00	0.85	1.00	0.85	1.00	0.98	1.00	0.96	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	1.00
Satd. Flow (prot)	1770	1840	1770	1863	1583	1770	1863	1583	1770	1863	1583	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	1.00
Satd. Flow (perm)	1770	1840	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	70	78	7	259	58	166	116	387	60	181	669	214
RTOR Reduction (vph)	0	5	0	0	0	123	0	29	0	0	76	0
Lane Group Flow (vph)	70	80	0	259	58	43	116	418	0	181	807	0
Turn Type	Prot			Prot		Prot	Prot			Prot		
Protected Phases	1	6		5	2	2	7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	3.8	7.1		11.7	15.0	15.0	5.4	15.0		8.4	18.0	
Effective Green, g (s)	3.8	7.1		11.7	15.0	15.0	5.4	15.0		8.4	18.0	
Actuated g/C Ratio	0.07	0.12		0.20	0.26	0.26	0.09	0.26		0.14	0.31	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	116	224		356	480	408	164	1284		255	1515	
v/s Ratio Prot	0.04	c0.04		c0.15	0.03	0.03	0.07	0.08		c0.10	c0.16	
v/s Ratio Perm												
v/c Ratio	0.60	0.36		0.73	0.12	0.10	0.71	0.33		0.71	0.53	
Uniform Delay, d1	26.5	23.5		21.8	16.5	16.5	25.6	17.5		23.7	16.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.6	1.0		7.2	0.1	0.1	13.0	0.1		8.7	0.4	
Delay (s)	35.0	24.4		29.0	16.7	16.6	38.7	17.7		32.5	17.0	
Level of Service	D	C		C	B	B	D	B		C	B	
Approach Delay (s)		29.2			23.3			22.0			19.6	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM Average Control Delay	21.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	58.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

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

Near Term + Project (Buildout) AM

3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	319	122	127	62	300	30	277	436	29	68	428	407
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	14	12	15	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	
Lane Util. Factor	1.00	1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85		0.99		1.00	0.99		1.00	0.93	
Flt Protected	0.95	1.00	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1689		2012		1770	3506		1770	3281	
Flt Permitted	0.95	1.00	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1689		2012		1770	3506		1770	3281	
Peak-hour 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)	354	136	141	69	333	33	308	484	32	76	476	452
RTOR Reduction (vph)	0	0	113	0	3	0	0	5	0	0	189	0
Lane Group Flow (vph)	354	136	28	0	432	0	308	511	0	76	739	0
Turn Type	Split		Perm	Split			Prot			Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	18.0	18.0	18.0		20.5		16.0	29.9		6.4	20.3	
Effective Green, g (s)	18.0	18.0	18.0		20.5		16.0	29.9		6.4	20.3	
Actuated g/C Ratio	0.20	0.20	0.20		0.23		0.18	0.33		0.07	0.22	
Clearance Time (s)	4.0	4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	351	369	335		454		312	1155		125	734	
v/s Ratio Prot	c0.20	0.07			c0.21		c0.17	0.15		0.04	c0.23	
v/s Ratio Perm			0.02									
v/c Ratio	1.01	0.37	0.08		0.95		0.99	0.44		0.61	1.01	
Uniform Delay, d1	36.4	31.5	29.7		34.7		37.3	23.9		41.0	35.2	
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	50.2	0.6	0.1		30.1		47.0	0.3		8.1	35.0	
Delay (s)	86.6	32.1	29.8		64.7		84.3	24.2		49.1	70.3	
Level of Service	F	C	C		E		F	C		D	E	
Approach Delay (s)		62.2			64.7			46.7			68.7	
Approach LOS		E			E			D			E	

Intersection Summary			
HCM Average Control Delay	60.4	HCM Level of Service	E
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	90.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

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

Near Term + Project (Buildout) AM

3/2/2012

Movement	EBL	EBR	EBR2	NWL2	NWL	NWR	NEU	NET	NER	SWL	SWT	SWR
Lane Configurations	↰	↱	↱	↰	↰	↱	↰	↱	↱	↰	↱	↱
Volume (vph)	31	113	252	97	228	107	218	434	30	89	939	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	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97		0.97	0.91		1.00	0.91	
Frt	1.00	0.85	0.85	1.00	0.95		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1583	1583	1770	3327		3433	5036		1770	5005	
Flt Permitted	0.95	1.00	1.00	0.95	0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1583	1583	1770	3327		3433	5036		1770	5005	
Peak-hour 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)	34	126	280	108	253	119	242	482	33	99	1043	122
RTOR Reduction (vph)	0	0	199	0	96	0	0	12	0	0	22	0
Lane Group Flow (vph)	34	126	81	108	276	0	242	503	0	99	1143	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)		9.6	9.6	5.8	5.8		5.0	18.7		3.5	17.2	
Effective Green, g (s)		9.6	9.6	5.8	5.8		5.0	18.7		3.5	17.2	
Actuated g/C Ratio		0.18	0.18	0.11	0.11		0.09	0.35		0.07	0.32	
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		317	284	284	192	360	320	1757		116	1606	
v/s Ratio Prot		0.02		0.06	c0.08		c0.07	0.10		0.06	c0.23	
v/s Ratio Perm			c0.08	0.05								
v/c Ratio		0.11	0.44	0.29	0.56	0.77	0.76	0.29		0.85	0.71	
Uniform Delay, d1		18.4	19.6	19.0	22.7	23.2	23.7	12.6		24.8	16.0	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2	1.1	0.6	3.7	9.4	9.8	0.1		42.0	1.5	
Delay (s)		18.6	20.7	19.6	26.4	32.6	33.5	12.7		66.8	17.5	
Level of Service		B	C	B	C	C	C	B		E	B	
Approach Delay (s)		19.8			31.2			19.4			21.4	
Approach LOS		B			C			B			C	

Intersection Summary			
HCM Average Control Delay	22.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	53.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	53.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

c Critical Lane Group

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

Near Term + Project (Buildout) AM
3/2/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑	↑		↑			↑			↑	↑
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Volume (vph)	55	6	77	13	27	14	129	31	2	3	16	201
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)	61	7	86	14	30	16	143	34	2	3	18	223
Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1							
Volume Total (vph)	68	86	60	180	244							
Volume Left (vph)	61	0	14	143	3							
Volume Right (vph)	0	86	16	2	223							
Hadj (s)	0.48	-0.67	-0.07	0.19	-0.51							
Departure Headway (s)	6.0	4.9	5.1	4.9	4.2							
Degree Utilization, x	0.11	0.12	0.09	0.25	0.28							
Capacity (veh/h)	553	679	629	696	813							
Control Delay (s)	8.6	7.3	8.6	9.5	8.8							
Approach Delay (s)	7.9		8.6	9.5	8.8							
Approach LOS	A		A	A	A							
Intersection Summary												
Delay			8.8									
HCM Level of Service			A									
Intersection Capacity Utilization			42.4%									
Analysis Period (min)			15									

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

Near Term + Project (Buildout) AM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↑		↑	↑		↑	↑		↑	↑
Volume (vph)	54	92	119	205	63	25	31	304	83	15	793	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
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	1583		1779		1770	3426		1770	3458	
Flt Permitted		0.98	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1829	1583		1779		1770	3426		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
Adj. Flow (vph)	60	102	132	228	70	28	34	338	92	17	881	160
RTOR Reduction (vph)	0	0	110	0	4	0	0	28	0	0	17	0
Lane Group Flow (vph)	0	162	22	0	322	0	34	402	0	17	1024	0
Turn Type	Split		Prot	Split		Prot				Prot		
Protected Phases	4	4	4	8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		11.6	11.6		15.9		1.6	26.0		0.8	25.2	
Effective Green, g (s)		11.6	11.6		15.9		1.6	26.0		0.8	25.2	
Actuated g/C Ratio		0.17	0.17		0.23		0.02	0.37		0.01	0.36	
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		302	261		402		40	1267		20	1240	
v/s Ratio Prot		c0.09	0.01		c0.18		c0.02	0.12		0.01	c0.30	
v/s Ratio Perm												
v/c Ratio		0.54	0.08		0.80		0.85	0.32		0.85	0.83	
Uniform Delay, d1		26.9	24.8		25.7		34.2	15.8		34.7	20.5	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.8	0.1		10.9		85.5	0.1		131.5	4.6	
Delay (s)		28.7	25.0		36.6		119.7	16.0		166.2	25.2	
Level of Service		C	C		D		F	B		F	C	
Approach Delay (s)		27.0			36.6			23.6			27.4	
Approach LOS		C			D			C			C	
Intersection Summary												
HCM Average Control Delay		27.9										
HCM Volume to Capacity ratio		0.76										
Actuated Cycle Length (s)		70.3								16.0		
Intersection Capacity Utilization		60.1%								B		
Analysis Period (min)		15										
c - Critical Lane Group												

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

Near Term + Project (Buildout) AM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑					↑	↑↑	↑
Volume (vph)	0	327	181	405	648	0	0	0	0	1081	3	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.95		0.97	0.95					0.95	0.91	0.95
Flt		0.95		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3350		3433	3539					1681	1610	1504
Flt Permitted		1.00		0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3350		3433	3539					1681	1610	1504
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	363	201	450	720	0	0	0	0	1201	3	164
RTOR Reduction (vph)	0	112	0	0	0	0	0	0	0	0	1	72
Lane Group Flow (vph)	0	452	0	450	720	0	0	0	0	613	606	76
Turn Type				Prot						Prot		Prot
Protected Phases		4		3	8					1	6	6
Permitted Phases												
Actuated Green, G (s)		14.0		10.9	28.9					30.6	30.6	30.6
Effective Green, g (s)		14.0		10.9	28.9					30.6	30.6	30.6
Actuated g/C Ratio		0.21		0.16	0.43					0.45	0.45	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)		695		554	1515					762	730	682
v/s Ratio Prot		c0.13		c0.13	0.20					0.36	c0.38	0.05
v/s Ratio Perm												
v/c Ratio		0.65		0.81	0.48					0.80	0.83	0.11
Uniform Delay, d1		24.5		27.3	13.9					15.9	16.2	10.6
Progression Factor		1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		2.2		8.9	0.2					6.2	7.9	0.1
Delay (s)		26.7		36.2	14.1					22.1	24.1	10.7
Level of Service		C		D	B					C	C	B
Approach Delay (s)		26.7			22.6		0.0				21.7	
Approach LOS		C			C		A				C	
Intersection Summary												
HCM Average Control Delay		23.0										
HCM Volume to Capacity ratio		0.78										
Actuated Cycle Length (s)		67.5								12.0		
Intersection Capacity Utilization		115.1%								H		
Analysis Period (min)		15										
c Critical Lane Group												

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

Near Term + Project (Buildout) AM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑	↑				↑	↑↑	↑
Volume (vph)	63	1273	0	0	981	879	109	2	570	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
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	1449	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	1449	1504			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	70	1414	0	0	1090	977	121	2	633	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	494	0	31	31	0	0	0
Lane Group Flow (vph)	70	1414	0	0	1090	483	109	293	292	0	0	0
Turn Type						Prot	Prot		Prot			
Protected Phases		7	4			8	8	5	2	2		
Permitted Phases												
Actuated Green, G (s)		2.5	33.3			26.8	26.8	16.6	16.6	16.6		
Effective Green, g (s)		2.5	33.3			26.8	26.8	16.6	16.6	16.6		
Actuated g/C Ratio		0.04	0.58			0.46	0.46	0.29	0.29	0.29		
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)		148	2035			1638	733	482	415	431		
v/s Ratio Prot		0.02	c0.40			0.31	0.31	0.06	c0.20	0.19		
v/s Ratio Perm												
v/c Ratio		0.47	0.69			0.67	0.66	0.23	0.71	0.68		
Uniform Delay, d1		27.1	8.7			12.1	12.0	15.8	18.5	18.3		
Progression Factor		1.00	1.00			1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2		2.4	1.0			1.0	2.2	0.2	5.4	4.2		
Delay (s)		29.4	9.8			13.1	14.2	16.0	23.8	22.5		
Level of Service		C	A			B	B	B	C	C		
Approach Delay (s)			10.7			13.6			22.1		0.0	
Approach LOS			B			B			C		A	
Intersection Summary												
HCM Average Control Delay		14.1										
HCM Volume to Capacity ratio		0.70										
Actuated Cycle Length (s)		57.9								8.0		
Intersection Capacity Utilization		115.1%								H		
Analysis Period (min)		15										
c Critical Lane Group												

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

Near Term + Project (Buildout) AM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Volume (vph)	36	13	44	725	19	169	90	1042	149	128	1129	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		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 Protected	1.00	0.93	0.85	1.00	0.99	0.85	1.00	0.98		1.00	1.00	
Flt Permitted	0.95	0.99	1.00	0.95	0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1681	1563	1504	1681	1611	1504	1770	4990		1770	5067	
Satd. Flow (perm)	1681	1563	1504	1681	1611	1504	1770	4990		1770	5067	
Peak-hour 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)	40	14	49	806	21	188	100	1158	166	142	1254	31
RTOR Reduction (vph)	0	16	30	0	1	119	0	16	0	0	2	0
Lane Group Flow (vph)	36	19	2	427	418	50	100	1308	0	142	1283	0
Turn Type	Split		Prot	Split		Prot	Prot		Prot			
Protected Phases	4	4	4	8	8	8	5	2		1		
Permitted Phases											6	
Actuated Green, G (s)	6.1	6.1	6.1	27.5	27.5	27.5	7.0	30.5		12.4	35.9	
Effective Green, g (s)	6.1	6.1	6.1	27.5	27.5	27.5	7.0	30.5		12.4	35.9	
Actuated g/C Ratio	0.07	0.07	0.07	0.30	0.30	0.30	0.08	0.33		0.13	0.39	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
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)	111	103	99	500	479	447	134	1645		237	1967	
v/s Ratio Prot	c0.02	0.01	0.00	0.25	c0.26	0.03	c0.06	c0.26		c0.08		
v/s Ratio Perm											0.25	
v/c Ratio	0.32	0.19	0.02	0.85	0.87	0.11	0.75	0.80		0.60	0.65	
Uniform Delay, d1	41.2	40.9	40.4	30.6	30.8	23.6	41.9	28.2		37.7	23.2	
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	1.7	0.9	0.1	13.3	15.9	0.1	20.0	2.7		4.0	0.8	
Delay (s)	42.9	41.7	40.5	43.9	46.7	23.7	61.9	30.9		41.8	24.0	
Level of Service	D	D	D	D	D	C	E	C		D	C	
Approach Delay (s)		41.8			41.7			33.1			25.7	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	32.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	92.5	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			

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

Near Term + Project (Buildout) AM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↰	↱	↲	↰	↱	↲	↰	↱	↲
Volume (vph)	0	0	0	349	1043	261	165	923	0	0	633	681
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
Flt Protected				1.00	1.00	1.00	1.00	1.00			0.93	1.00
Flt Permitted				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Satd. Flow (prot)				3433	5085	1583	3433	3539			4252	1362
Satd. Flow (perm)				3433	5085	1583	3433	3539			4252	1362
Peak-hour 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	388	1159	290	183	1026	0	0	703	757
RTOR Reduction (vph)	0	0	0	0	0	53	0	0	0	0	10	10
Lane Group Flow (vph)	0	0	0	388	1159	237	183	1026	0	0	1072	368
Confl. Peds. (#/hr)												200
Turn Type				Split		Prot	Prot					Prot
Protected Phases				8	8	8	5	2			6	6
Permitted Phases												
Actuated Green, G (s)				16.0	16.0	16.0	3.0	24.2			17.2	17.2
Effective Green, g (s)				16.0	16.0	16.0	3.0	24.2			17.2	17.2
Actuated g/C Ratio				0.33	0.33	0.33	0.06	0.50			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)				1140	1688	525	214	1777			1517	486
v/s Ratio Prot				0.11	c0.23	0.15	0.05	c0.29			0.25	c0.27
v/s Ratio Perm												
v/c Ratio				0.34	0.69	0.45	0.86	0.58			0.71	0.76
Uniform Delay, d1				12.1	13.9	12.7	22.4	8.4			13.3	13.7
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2				0.2	1.2	0.6	26.8	0.5			1.5	6.6
Delay (s)				12.3	15.1	13.3	49.1	8.9			14.9	20.3
Level of Service				B	B	B	D	A			B	C
Approach Delay (s)		0.0			14.2			15.0			16.3	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM Average Control Delay	15.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	48.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	102.2%	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

Near Term + Project (Buildout) AM
3/2/2012

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	0.86	0.91					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	3172	1441					6067		1770	5085	
Flt Permitted	0.95	0.99	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1610	3172	1441					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	3	54	0	0	0	0	53	0	0	0	0
Lane Group Flow (vph)	586	1217	263	0	0	0	0	657	0	171	839	0
Turn Type	Split		Prot							Prot		
Protected Phases	4	4	4					2		1	6	
Permitted Phases												
Actuated Green, G (s)	27.1	27.1	27.1					13.3		8.0	25.3	
Effective Green, g (s)	27.1	27.1	27.1					13.3		8.0	25.3	
Actuated g/C Ratio	0.45	0.45	0.45					0.22		0.13	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)	722	1423	647					1336		234	2130	
v/s Ratio Prot	0.36	0.38	0.18					0.11		0.10	0.16	
v/s Ratio Perm												
v/c Ratio	0.81	0.86	0.41					0.49		0.73	0.39	
Uniform Delay, d1	14.4	14.9	11.2					20.6		25.2	12.2	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	6.9	5.3	0.4					0.3		11.1	0.1	
Delay (s)	21.3	20.2	11.6					20.9		36.3	12.3	
Level of Service	C	C	B					C		D	B	
Approach Delay (s)		19.2			0.0			20.9			16.4	
Approach LOS		B			A			C			B	
Intersection Summary												
HCM Average Control Delay		18.8										
HCM Volume to Capacity ratio		0.73										
Actuated Cycle Length (s)		60.4						12.0				
Intersection Capacity Utilization		102.2%										
Analysis Period (min)		15										
c Critical Lane Group												

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

Near Term + Project (Buildout) AM
3/2/2012

Movement	EBL	EBT	WBL	WBT	WBR	SBL	SBR
Lane Configurations	↰	↰	↰	↰	↰	↰	↰
Volume (vph)	16	218	0	442	25	97	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		0.95		1.00	1.00
Frt	1.00	1.00		0.99		1.00	0.85
Flt Protected	0.95	1.00		1.00		0.95	1.00
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)	18	242	0	491	28	108	128
RTOR Reduction (vph)	0	0	0	8	0	0	100
Lane Group Flow (vph)	18	242	0	511	0	108	28
Turn Type	Prot		Prot			Prot	
Protected Phases	7	4	3	8		6	6
Permitted Phases							
Actuated Green, G (s)	0.5	12.1		7.6		5.6	5.6
Effective Green, g (s)	0.5	12.1		7.6		5.6	5.6
Actuated g/C Ratio	0.02	0.47		0.30		0.22	0.22
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)	34	1666		1038		386	345
v/s Ratio Prot	0.01	0.07		0.15		0.06	0.02
v/s Ratio Perm							
v/c Ratio	0.53	0.15		0.49		0.28	0.08
Uniform Delay, d1	12.5	3.9		7.5		8.4	8.0
Progression Factor	1.00	1.00		1.00		1.00	1.00
Incremental Delay, d2	14.1	0.0		0.4		0.4	0.1
Delay (s)	26.6	3.9		7.8		8.8	8.1
Level of Service	C	A		A		A	A
Approach Delay (s)		5.5		7.8		8.4	
Approach LOS		A		A		A	
Intersection Summary							
HCM Average Control Delay		7.4					A
HCM Volume to Capacity ratio		0.41					
Actuated Cycle Length (s)		25.7				12.0	
Intersection Capacity Utilization		26.8%					A
Analysis Period (min)		15					
c Critical Lane Group							

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

Near Term + Project (Buildout) AM
3/2/2012

Movement	EBL	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL	SBT	SBR
Lane Configurations	↔	↗	↘	↔	↗	↘	↔	↗	↘	↔	↗	↘
Volume (vph)	78	220	179	275	373	100	342	349	287	1102	231	209
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	0.88	1.00	1.00	1.00		1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.85	0.85	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	2787	1583	1770	1804		1770	3539	1583	3433	3539	1583
Flt Permitted	0.46	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	864	2787	1583	1770	1804		1770	3539	1583	3433	3539	1583
Peak-hour 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)	87	244	199	306	414	111	380	388	319	1224	257	232
RTOR Reduction (vph)	0	0	170	0	10	0	0	0	269	0	0	175
Lane Group Flow (vph)	87	244	29	306	515	0	380	388	50	1224	257	57
Turn Type	custom	custom	custom	Prot			Prot		Perm	Prot		Perm
Protected Phases				3	8		5	2		1	6	
Permitted Phases	4	4	4						2			6
Actuated Green, G (s)	14.1	14.1	14.1	17.0	35.1		25.5	15.0	15.0	34.1	23.6	23.6
Effective Green, g (s)	14.1	14.1	14.1	17.0	35.1		25.5	15.0	15.0	34.1	23.6	23.6
Actuated g/C Ratio	0.15	0.15	0.15	0.18	0.36		0.27	0.16	0.16	0.35	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
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	127	408	232	313	658		469	552	247	1217	868	388
v/s Ratio Prot				c0.17	c0.29		0.21	c0.11		c0.36	0.07	
v/s Ratio Perm	0.10	0.09	0.02						0.03			0.04
v/c Ratio	0.69	0.60	0.13	0.98	0.78		0.81	0.70	0.20	1.01	0.30	0.15
Uniform Delay, d1	38.9	38.4	35.7	39.4	27.2		33.1	38.5	35.4	31.0	29.5	28.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	14.2	2.4	0.2	44.3	6.1		10.2	4.0	0.4	27.2	0.2	0.2
Delay (s)	53.2	40.8	35.9	83.7	33.2		43.3	42.5	35.8	58.2	29.7	28.6
Level of Service	D	D	D	F	C		D	D	D	E	C	C
Approach Delay (s)					51.8			40.8			50.0	
Approach LOS					D			D			D	

Intersection Summary			
HCM Average Control Delay	46.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	96.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	84.5%	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

Near Term + Project (Buildout) AM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↗	↘	↔	↗	↘	↔	↗	↘	↔	↗	↘
Volume (vph)	450	0	330	0	0	0	0	533	129	188	466	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	
Frt	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					3436		3433	3539	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1681	1681	1583					3436		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)	500	0	367	0	0	0	0	592	143	209	518	0
RTOR Reduction (vph)	0	0	202	0	0	0	0	42	0	0	0	0
Lane Group Flow (vph)	250	250	165	0	0	0	0	693	0	209	518	0
Turn Type	Split		Prot							Prot		
Protected Phases	4	4	4					2		1	6	
Permitted Phases												
Actuated Green, G (s)	13.1	13.1	13.1					14.2		3.6	21.8	
Effective Green, g (s)	13.1	13.1	13.1					14.2		3.6	21.8	
Actuated g/C Ratio	0.31	0.31	0.31					0.33		0.08	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)	513	513	483					1137		288	1798	
v/s Ratio Prot	c0.15	0.15	0.10					c0.20		c0.06	0.15	
v/s Ratio Perm												
v/c Ratio	0.49	0.49	0.34					0.61		0.73	0.29	
Uniform Delay, d1	12.2	12.2	11.6					12.0		19.2	6.1	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.7	0.4					0.9		8.8	0.1	
Delay (s)	12.9	12.9	12.0					13.0		27.9	6.2	
Level of Service	B	B	B					B		C	A	
Approach Delay (s)	12.5							13.0			12.4	
Approach LOS	B							B			B	

Intersection Summary			
HCM Average Control Delay	12.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	42.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

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

Near Term + Project (Buildout) AM
3/2/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↩	↩↪	↩	↩	↩↪	↩	↩	↩↪	↩	↩↪	↩	↩
Volume (vph)	89	520	39	145	477	345	60	66	243	642	143	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		4.0	5.0		4.0	5.0		4.0	5.0	
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	0.94		1.00	0.88		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3502		1770	3317		1770	1643		3433	1706	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3502		1770	3317		1770	1643		3433	1706	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	99	578	43	161	530	383	67	73	270	713	159	203
RTOR Reduction (vph)	0	7	0	0	161	0	0	135	0	0	57	0
Lane Group Flow (vph)	99	614	0	161	752	0	67	208	0	713	305	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	5.0	16.7		9.0	19.7		6.4	13.8		18.7	26.1	
Effective Green, g (s)	5.0	16.7		9.0	19.7		6.4	13.8		18.7	26.1	
Actuated g/C Ratio	0.07	0.22		0.12	0.26		0.08	0.18		0.25	0.34	
Clearance Time (s)	5.0	5.0		4.0	5.0		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	116	767		209	858		149	298		842	584	
v/s Ratio Prot	0.06	0.18		c0.09	c0.23		0.04	c0.13		c0.21	0.18	
v/s Ratio Perm												
v/c Ratio	0.85	0.80		0.77	0.88		0.45	0.70		0.85	0.52	
Uniform Delay, d1	35.2	28.2		32.6	27.1		33.2	29.2		27.4	20.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	42.0	6.0		16.0	10.0		2.2	6.9		7.9	0.8	
Delay (s)	77.2	34.2		48.6	37.1		35.4	36.2		35.3	20.9	
Level of Service	E	C		D	D		D	D		D	C	
Approach Delay (s)		40.1			38.8			36.1			30.4	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM Average Control Delay	36.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	76.2	Sum of lost time (s)	18.0
Intersection Capacity Utilization	81.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

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

Near Term + Project (Buildout) AM
3/2/2012

Movement	WBL	WBR	SEL	SET	NWL	NWR	NWR2	SWL	SWR
Lane Configurations			↩↪	↩↪	↩↪		↩	↩↪	↩
Volume (vph)	0	0	777	597	764	0	315	137	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor			0.97	0.95	0.95		1.00	0.97	1.00
Flt			1.00	1.00	1.00		0.85	1.00	0.85
Flt Protected			0.95	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)			3433	3539	3539		1583	3433	1583
Flt Permitted			0.95	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)			3433	3539	3539		1583	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	863	663	849	0	350	152	262
RTOR Reduction (vph)	0	0	0	0	0	0	237	0	223
Lane Group Flow (vph)	0	0	863	663	849	0	113	152	39
Turn Type			Prot				Perm		Perm
Protected Phases			5	2	6			4	
Permitted Phases							6		4
Actuated Green, G (s)			17.4	39.3	17.9		17.9	8.2	8.2
Effective Green, g (s)			17.4	39.3	17.9		17.9	8.2	8.2
Actuated g/C Ratio			0.31	0.71	0.32		0.32	0.15	0.15
Clearance Time (s)			4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)			3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)			1076	2506	1141		511	507	234
v/s Ratio Prot			c0.25	0.19	c0.24			c0.04	
v/s Ratio Perm							0.07		0.02
v/c Ratio			0.80	0.26	0.74		0.22	0.30	0.17
Uniform Delay, d1			17.5	2.9	16.8		13.7	21.1	20.7
Progression Factor			1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2			4.4	0.1	2.7		0.2	0.3	0.3
Delay (s)			21.9	3.0	19.4		13.9	21.4	21.0
Level of Service			C	A	B		B	C	C
Approach Delay (s)	0.0			13.7	17.8			21.2	
Approach LOS	A			B	B			C	

Intersection Summary			
HCM Average Control Delay	16.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	55.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

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

Near Term + Project (Buildout) AM
3/2/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↔	↕		↕	↕	↕	↕	↕	↕	↕	↕	↕
Volume (vph)	357	381	0	0	745	220	309	0	166	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	0.97	0.95			0.95	1.00	0.95	0.95	1.00			
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	0.95	1.00			
Satd. Flow (prot)	3433	3539			3539	1583	1681	1681	1583			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)	3433	3539			3539	1583	1681	1681	1583			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	397	423	0	0	828	244	343	0	184	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	158	0	0	144	0	0	0
Lane Group Flow (vph)	397	423	0	0	828	86	171	172	40	0	0	0
Turn Type	Prot				Prot	Split		Prot				
Protected Phases	1	6			2	2	4	4	4			
Permitted Phases												
Actuated Green, G (s)	10.1	32.2			18.1	18.1	11.3	11.3	11.3			
Effective Green, g (s)	10.1	32.2			18.1	18.1	11.3	11.3	11.3			
Actuated g/C Ratio	0.20	0.63			0.35	0.35	0.22	0.22	0.22			
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)	673	2213			1244	556	369	369	347			
v/s Ratio Prot	c0.12	0.12			c0.23	0.05	0.10	c0.10	0.03			
v/s Ratio Perm												
v/c Ratio	0.59	0.19			0.67	0.15	0.46	0.47	0.12			
Uniform Delay, d1	18.8	4.1			14.1	11.5	17.5	17.5	16.1			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	1.3	0.0			1.4	0.1	0.9	0.9	0.2			
Delay (s)	20.1	4.1			15.5	11.6	18.4	18.4	16.3			
Level of Service	C	A			B	B	B	B	B			
Approach Delay (s)		11.9			14.6			17.6		0.0		
Approach LOS		B			B			B		A		
Intersection Summary												
HCM Average Control Delay		14.3			HCM Level of Service				B			
HCM Volume to Capacity ratio		0.59										
Actuated Cycle Length (s)		51.5			Sum of lost time (s)				12.0			
Intersection Capacity Utilization		49.3%			ICU Level of Service				A			
Analysis Period (min)		15										
c Critical Lane Group												

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	11/22/2011				Analysis Year	2011			
Analysis Time Period	36 NT+P AM (Buildout)								
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		206	2	26		
%Thrus Left Lane									
Approach		Northbound				Southbound			
Movement	L	T	R		L	T	R		
Volume (veh/h)	3	276	103		15	966	3		
%Thrus Left Lane	50				50				
		Eastbound		Westbound		Northbound		Southbound	
		L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR			LTR		TR		TR	
PHF	0.90			0.90		0.90		0.90	
Flow Rate (veh/h)	33			258		156		552	
% 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		0.5		0.5		0.5
hRT-adj	-0.6		-0.6		-0.7		-0.7		-0.7
hHV-adj	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			0.23		0.14		0.24	
hd, final value (s)	7.52			6.84		7.17		6.86	
k, final value	0.07			0.49		0.31		0.51	
Move-up time, m (s)	2.0			2.0		2.3		2.3	
Service Time, ts (s)	5.5			4.8		4.9		4.6	
Capacity and Level of Service									
		Eastbound		Westbound		Northbound		Southbound	
		L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	283			508		406		516	
Delay (s/veh)	11.07			16.25		13.08		16.44	
LOS	B			C		B		C	
Approach: Delay (s/veh)	11.07			16.25		15.20		53.55	
LOS	B			C		C		F	
Intersection Delay (s/veh)					38.45				
Intersection LOS					E				

HCM Signalized Intersection Capacity Analysis
1: Via De La Valle & El Camino Real

Near Term + Project (Buildout) PM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	6	478	547	184	425	3	573	2	438	0	2	1
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	16	12
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			1.00	1.00		1.00	
Flt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1861			1774	1583		2016	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00		1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1861			1774	1583		2016	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	7	531	608	204	472	3	637	2	487	0	2	1
RTOR Reduction (vph)	0	0	178	0	0	0	0	0	228	0	1	0
Lane Group Flow (vph)	7	531	430	204	475	0	0	639	259	0	2	0
Turn Type	Prot		Perm	Prot			Split		Perm	Split		
Protected Phases	7	4		3	8		2			6	6	
Permitted Phases			4					2				
Actuated Green, G (s)	0.9	40.4	40.4	13.0	52.5		40.1	40.1		1.8		
Effective Green, g (s)	0.9	40.4	40.4	13.0	52.5		40.1	40.1		1.8		
Actuated g/C Ratio	0.01	0.36	0.36	0.12	0.47		0.36	0.36		0.02		
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)	14	676	575	207	878		639	570		33		
v/s Ratio Prot	0.00	c0.29		c0.12	0.26		c0.36			c0.00		
v/s Ratio Perm			0.27					0.16				
v/c Ratio	0.50	0.79	0.75	0.99	0.54		1.00	0.45		0.06		
Uniform Delay, d1	55.0	31.6	31.0	49.1	20.9		35.6	27.2		53.9		
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00		
Incremental Delay, d2	25.4	6.0	5.3	57.9	0.7		35.6	0.6		0.8		
Delay (s)	80.4	37.6	36.3	107.0	21.5		71.2	27.8		54.7		
Level of Service	F	D	D	F	C		E	C		D		
Approach Delay (s)		37.1			47.2		52.4			54.7		
Approach LOS		D			D		D			D		

Intersection Summary			
HCM Average Control Delay	45.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	111.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	83.9%	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
2: San Dieguito Road & El Camino Real

Near Term + Project (Buildout) PM
3/2/2012

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↰	↑	↱	↰	↑
Volume (vph)	219	264	0	588	382	342	317
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	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	243	293	0	653	424	380	352
RTOR Reduction (vph)	0	242	0	0	253	0	0
Lane Group Flow (vph)	243	51	0	653	171	380	352
Turn Type	Perm	Prot		Perm	Prot		
Protected Phases	1		3	8		7	
Permitted Phases		1			8		6
Actuated Green, G (s)	12.6	12.6		29.3	29.3	18.7	12.6
Effective Green, g (s)	12.6	12.6		29.3	29.3	18.7	12.6
Actuated g/C Ratio	0.17	0.17		0.40	0.40	0.26	0.17
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	596	275		752	639	456	614
v/s Ratio Prot	0.07			c0.35		c0.21	
v/s Ratio Perm		0.03			0.11		c0.10
v/c Ratio	0.41	0.18		0.87	0.27	0.83	0.57
Uniform Delay, d1	26.7	25.6		19.9	14.5	25.5	27.5
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.3		10.4	0.2	12.3	1.3
Delay (s)	27.1	25.9		30.3	14.7	37.8	28.8
Level of Service	C	C		C	B	D	C
Approach Delay (s)	26.5			24.2			33.5
Approach LOS	C			C			C

Intersection Summary			
HCM Average Control Delay	27.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	72.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.1%	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
3: Derby Downs Road & El Camino Real

Near Term + Project (Buildout) PM
3/2/2012

							
Movement	WBL	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	 			 			 
Volume (vph)	65	6	0	929	111	8	533
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
Frt	0.99			0.98		1.00	1.00
Flt Protected	0.96			1.00		0.95	1.00
Satd. Flow (prot)	3410			3483		1770	3539
Flt Permitted	0.96			1.00		0.95	1.00
Satd. Flow (perm)	3410			3483		1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	72	7	0	1032	123	9	592
RTOR Reduction (vph)	6	0	0	12	0	0	0
Lane Group Flow (vph)	73	0	0	1143	0	9	592
Turn Type			Prot				Prot
Protected Phases	8		5		2		6
Permitted Phases							
Actuated Green, G (s)	3.2				20.0		0.6
Effective Green, g (s)	3.2				20.0		0.6
Actuated g/C Ratio	0.09				0.56		0.02
Clearance Time (s)	4.0				4.0		4.0
Vehicle Extension (s)	3.0				3.0		3.0
Lane Grp Cap (vph)	305				1946		30
v/s Ratio Prot	c0.02				c0.33		0.01
v/s Ratio Perm							
v/c Ratio	0.24				0.59		0.30
Uniform Delay, d1	15.2				5.2		17.4
Progression Factor	1.00				1.00		1.00
Incremental Delay, d2	0.4				0.5		5.6
Delay (s)	15.6				5.6		23.0
Level of Service	B				A		C
Approach Delay (s)	15.6				5.6		2.5
Approach LOS	B				A		A
Intersection Summary							
HCM Average Control Delay	5.0			HCM Level of Service			A
HCM Volume to Capacity ratio	0.55						
Actuated Cycle Length (s)	35.8			Sum of lost time (s)			12.0
Intersection Capacity Utilization	39.2%			ICU Level of Service			A
Analysis Period (min)	15						
c Critical Lane Group							

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

Near Term + Project (Buildout) PM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	22	14	26	21	155	26	845	66	89	477	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	1751		1770	1616		1770	3501		1770	3510	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1751		1770	1616		1770	3501		1770	3510	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	26	24	16	29	23	172	29	939	73	99	530	31
RTOR Reduction (vph)	0	14	0	0	150	0	0	6	0	0	4	0
Lane Group Flow (vph)	26	26	0	29	45	0	29	1006	0	99	557	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	6.5		1.6	6.7		1.6	23.7		3.7	25.8	
Effective Green, g (s)	1.4	6.5		1.6	6.7		1.6	23.7		3.7	25.8	
Actuated g/C Ratio	0.03	0.13		0.03	0.13		0.03	0.46		0.07	0.50	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	48	221		55	210		55	1611		127	1758	
v/s Ratio Prot	0.01	0.01		c0.02	c0.03		0.02	c0.29		c0.06	0.16	
v/s Ratio Perm												
v/c Ratio	0.54	0.12		0.53	0.22		0.53	0.62		0.78	0.32	
Uniform Delay, d1	24.7	20.0		24.6	20.0		24.6	10.5		23.5	7.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.9	0.2		8.8	0.5		8.8	0.8		25.4	0.1	
Delay (s)	36.6	20.2		33.4	20.6		33.4	11.3		48.9	7.7	
Level of Service	D	C		C	C		C	B		D	A	
Approach Delay (s)		26.7			22.2			11.9			13.9	
Approach LOS		C			C			B			B	
Intersection Summary												
HCM Average Control Delay	14.2				HCM Level of Service				B			
HCM Volume to Capacity ratio	0.49											
Actuated Cycle Length (s)	51.5				Sum of lost time (s)				12.0			
Intersection Capacity Utilization	57.7%				ICU Level of Service				B			
Analysis Period (min)	15											
c Critical Lane Group												

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

Near Term + Project (Buildout) PM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	7	42	33	53	30	20	48	998	134	23	512	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	1863	1583	1770	1751		1770	3476		1770	3529	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1751		1770	3476		1770	3529	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	8	47	37	59	33	22	53	1109	149	26	569	11
RTOR Reduction (vph)	0	0	33	0	19	0	0	13	0	0	2	0
Lane Group Flow (vph)	8	47	4	59	36	0	53	1245	0	26	578	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)	0.6	4.8	4.8	2.2	6.4		1.4	22.0		0.6	21.2	
Effective Green, g (s)	0.6	4.8	4.8	2.2	6.4		1.4	22.0		0.6	21.2	
Actuated g/C Ratio	0.01	0.11	0.11	0.05	0.14		0.03	0.48		0.01	0.46	
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)	23	196	167	85	246		54	1677		23	1641	
v/s Ratio Prot	0.00	c0.03		c0.03	0.02		c0.03	c0.36		0.01	0.16	
v/s Ratio Perm			0.00									
v/c Ratio	0.35	0.24	0.02	0.69	0.15		0.98	0.74		1.13	0.35	
Uniform Delay, d1	22.3	18.7	18.3	21.4	17.2		22.1	9.5		22.5	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	8.9	0.6	0.1	21.7	0.3		115.3	1.8		231.0	0.1	
Delay (s)	31.2	19.4	18.4	43.1	17.5		137.4	11.3		253.5	7.9	
Level of Service	C	B	B	D	B		F	B		F	A	
Approach Delay (s)		20.0			30.7			16.4			18.5	
Approach LOS		B			C			B			B	
Intersection Summary:												
HCM Average Control Delay			17.9						B			
HCM Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			45.6					12.0				
Intersection Capacity Utilization			54.8%						A			
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

Near Term + Project (Buildout) PM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	128	870	16	152	939	222	41	32	69	411	36	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.95		1.00	1.00		0.95	0.95	
Frt	1.00	1.00		1.00	0.97		1.00	0.85		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.97	1.00		0.95	0.98	
Satd. Flow (prot)	1770	5071		1770	3438		1812	1583		1681	1612	
Flt Permitted	0.95	1.00		0.95	1.00		0.97	1.00		0.95	0.98	
Satd. Flow (perm)	1770	5071		1770	3438		1812	1583		1681	1612	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	142	967	18	169	1043	247	46	36	77	457	40	149
RTOR Reduction (vph)	0	2	0	0	21	0	0	0	70	0	34	0
Lane Group Flow (vph)	142	983	0	169	1269	0	0	82	7	329	283	0
Turn Type	Prot			Prot			Split			Prot	Split	
Protected Phases	7	4		3	8		2	2		2	6	
Permitted Phases												
Actuated Green, G (s)	7.8	27.9		11.1	31.2			7.6	7.6	17.3	17.3	
Effective Green, g (s)	7.8	27.9		11.1	31.2			7.6	7.6	17.3	17.3	
Actuated g/C Ratio	0.10	0.35		0.14	0.39			0.10	0.10	0.22	0.22	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	173	1771		246	1342			172	151	364	349	
v/s Ratio Prot	c0.08	0.19		0.10	c0.37			c0.05	0.00	c0.20	0.18	
v/s Ratio Perm												
v/c Ratio	0.82	0.56		0.69	0.95			0.48	0.05	0.90	0.81	
Uniform Delay, d1	35.4	21.0		32.7	23.5			34.3	32.9	30.5	29.7	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	25.7	0.4		7.7	13.5			2.1	0.1	24.8	12.9	
Delay (s)	61.1	21.4		40.5	37.1			36.3	33.0	55.3	42.7	
Level of Service	E	C		D	D			D	C	E	D	
Approach Delay (s)		26.4			37.5			34.7			49.1	
Approach LOS		C			D			C			D	
Intersection Summary:												
HCM Average Control Delay			35.9						D			
HCM Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			79.9					16.0				
Intersection Capacity Utilization			73.8%						D			
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

Near Term + Project (Buildout) PM
3/2/2012

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑		↑
Volume (veh/h)	1329	64	0	1647	0	115
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)	1477	71	0	1830	0	128
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		0.72	0.86
vC, conflicting volume			1548		2427	528
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1082		1061	0
IC, single (s)			4.1		6.8	6.9
IC, 2 stage (s)						
IF (s)			2.2		3.5	3.3
p0 queue free %			100		100	86
cM capacity (veh/h)			553		157	937
Direction Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	591	591	366	915	915	128
Volume Left	0	0	0	0	0	0
Volume Right	0	0	71	0	0	128
cSH	1700	1700	1700	1700	1700	937
Volume to Capacity	0.35	0.35	0.22	0.54	0.54	0.14
Queue Length 95th (ft)	0	0	0	0	0	12
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.4
Lane LOS						A
Approach Delay (s)	0.0			0.0		9.4
Approach LOS						A
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			48.9%		ICU Level of Service	A
Analysis Period (min)			15			

Baseline

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

Near Term + Project (Buildout) PM
3/2/2012

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	↑
Volume (vph)	0	1058	1402	0	1012	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		3432	1441
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3432	1441
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1176	1558	0	1124	332
RTOR Reduction (vph)	0	0	0	0	3	12
Lane Group Flow (vph)	0	1176	1558	0	1154	287
Turn Type						Perm
Protected Phases		2.6	6.2		4	
Permitted Phases						4
Actuated Green, G (s)		42.2	42.2		27.4	27.4
Effective Green, g (s)		42.2	42.2		27.4	27.4
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)		1832	1832		1154	484
v/s Ratio Prot		0.33	0.44		0.34	
v/s Ratio Perm						0.20
v/c Ratio		0.64	0.85		1.00	0.59
Uniform Delay, d1		14.2	16.9		27.0	22.4
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.8	4.0		26.6	2.0
Delay (s)		15.0	20.9		53.6	24.4
Level of Service		B	C		D	C
Approach Delay (s)		15.0	20.9		47.6	
Approach LOS		B	C		D	
Intersection Summary						
HCM Average Control Delay			28.5		HCM Level of Service	C
HCM Volume to Capacity ratio			0.91			
Actuated Cycle Length (s)			81.5		Sum of lost time (s)	11.9
Intersection Capacity Utilization			131.6%		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-15 NB Ramps

Near Term + Project (Buildout) PM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑		↔	↑		↔	↑		↔	↑	
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	14	12	12	12
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0				
Lane Util. Factor	0.99	0.95			0.91	1.00	0.95	0.95	0.95			
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)	3504	3539			5085	1689	1681	1538	1604			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (perm)	3504	3539			5085	1689	1681	1538	1604			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	269	1969	0	0	1717	1159	721	27	1138	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	485	0	4	4	0	0	0
Lane Group Flow (vph)	269	1969	0	0	1717	674	649	618	611	0	0	0
Turn Type	Prot				Prot	Split		Prot				
Protected Phases	5	2			6	6	8	8	8			
Permitted Phases												
Actuated Green, G (s)	9.8	64.0			50.2	50.2	48.0	48.0	48.0			
Effective Green, g (s)	9.8	64.0			50.2	50.2	48.0	48.0	48.0			
Actuated g/C Ratio	0.08	0.53			0.42	0.42	0.40	0.40	0.40			
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	1887			2127	707	672	615	642			
v/s Ratio Prot	0.08	0.56			0.34	0.40	0.39	0.40	0.38			
v/s Ratio Perm												
v/c Ratio	0.94	1.04			0.81	0.95	0.97	1.00	0.95			
Uniform Delay, d1	54.8	28.0			30.7	33.8	35.2	36.0	34.9			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	37.5	33.1			3.4	24.1	26.2	37.4	24.0			
Delay (s)	92.3	61.1			34.1	57.9	61.4	73.4	58.9			
Level of Service	F	E			C	E	E	E	E			
Approach Delay (s)		64.8			43.7			64.6		0.0		
Approach LOS		E			D			E		A		
Intersection Summary												
HCM Average Control Delay		56.1			HCM Level of Service				E			
HCM Volume to Capacity ratio		1.03										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)				8.0			
Intersection Capacity Utilization		110.5%			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
10: Del Mar Heights Road & High Bluff Drive

Near Term + Project (Buildout) PM
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
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	0.99		1.00	0.89		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	5056		3433	3155		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	5056		3433	3155		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	2854	288	73	2240	89	708	74	194	72	33	91
RTOR Reduction (vph)	0	0	61	0	3	0	0	99	0	0	0	85
Lane Group Flow (vph)	277	2854	227	73	2326	0	708	169	0	72	33	6
Turn Type	Prot		Perm	Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	23.0	79.4	79.4	6.6	63.0		29.0	28.8		9.0	8.8	8.8
Effective Green, g (s)	23.0	79.4	79.4	6.6	63.0		29.0	28.8		9.0	8.8	8.8
Actuated g/C Ratio	0.16	0.57	0.57	0.05	0.45		0.21	0.21		0.06	0.06	0.06
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
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)	291	2888	899	84	2278		712	650		114	117	100
v/s Ratio Prot	0.16	0.56		0.04	0.46		0.21	0.05		0.04	0.02	
v/s Ratio Perm			0.14									0.00
v/c Ratio	0.95	0.99	0.25	0.87	1.02		0.99	0.26		0.63	0.28	0.06
Uniform Delay, d1	57.9	29.7	15.2	66.2	38.4		55.3	46.6		63.8	62.5	61.6
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	39.7	13.9	0.1	56.4	24.4		32.1	0.2		10.9	1.3	0.2
Delay (s)	97.6	43.7	15.4	122.6	62.8		87.4	46.8		74.7	63.8	61.8
Level of Service	F	D	B	F	E		F	D		E	E	E
Approach Delay (s)		45.7			64.6			76.3			66.9	
Approach LOS		D			E			E			E	
Intersection Summary												
HCM Average Control Delay			57.0				HCM Level of Service				E	
HCM Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			139.8				Sum of lost time (s)				8.0	
Intersection Capacity Utilization			89.4%				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
11: Del Mar Heights Road & Third Ave.

Near Term + Project (Buildout) PM
3/2/2012

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↓	↑↑↑	↓	↑
Volume (vph)	2633	221	172	2047	306	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	1.00
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)	2926	246	191	2274	340	264
RTOR Reduction (vph)	0	94	0	0	0	122
Lane Group Flow (vph)	2926	152	191	2274	340	142
Turn Type	Prot		Prot		Prot	
Protected Phases	4	4	3	8	2	2
Permitted Phases						
Actuated Green, G (s)	52.1	52.1	8.0	64.1	13.9	13.9
Effective Green, g (s)	52.1	52.1	8.0	64.1	13.9	13.9
Actuated g/C Ratio	0.61	0.61	0.09	0.75	0.16	0.16
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3081	959	165	3790	555	256
v/s Ratio Prot	c0.58	0.10	c0.11	0.45	c0.10	0.09
v/s Ratio Perm						
v/c Ratio	0.95	0.16	1.16	0.60	0.61	0.55
Uniform Delay, d1	15.7	7.4	39.0	5.0	33.5	33.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.5	0.1	118.8	0.3	2.0	2.6
Delay (s)	23.2	7.5	157.8	5.3	35.6	35.8
Level of Service	C	A	F	A	D	D
Approach Delay (s)	22.0			17.1	35.6	
Approach LOS	C			B	D	
Intersection Summary						
HCM Average Control Delay	21.4		HCM Level of Service		C	
HCM Volume to Capacity ratio	0.91					
Actuated Cycle Length (s)	86.0		Sum of lost time (s)		12.0	
Intersection Capacity Utilization	79.1%		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
12: Del Mar Heights Road & First Ave.

Near Term + Project (Buildout) PM
3/2/2012

						
Movement	EBT	EBR	WBL	WBT	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)	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)	2986	204	204	2182	283	283
RTOR Reduction (vph)	0	84	0	0	0	78
Lane Group Flow (vph)	2986	120	204	2182	283	205
Turn Type	Prot		Prot		Prot	
Protected Phases	4	4	3	8	2	2
Permitted Phases						
Actuated Green, G (s)	46.1	46.1	4.5	54.6	15.8	15.8
Effective Green, g (s)	46.1	46.1	4.5	54.6	15.8	15.8
Actuated g/C Ratio	0.59	0.59	0.06	0.70	0.20	0.20
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2990	931	197	3541	357	319
v/s Ratio Prot	0.59	0.08	0.06	0.43	0.16	0.13
v/s Ratio Perm						
v/c Ratio	1.00	0.13	1.04	0.62	0.79	0.64
Uniform Delay, d1	16.1	7.2	37.0	6.3	29.7	28.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	16.0	0.1	73.7	0.3	11.4	4.4
Delay (s)	32.1	7.3	110.7	6.7	41.2	33.1
Level of Service	C	A	F	A	D	C
Approach Delay (s)	30.5			15.5	37.1	
Approach LOS	C			B	D	
Intersection Summary:						
HCM Average Control Delay	25.3		HCM Level of Service			C
HCM Volume to Capacity ratio	0.95					
Actuated Cycle Length (s)	78.4		Sum of lost time (s)			12.0
Intersection Capacity Utilization	81.3%		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
13: Del Mar Heights Road & El Camino Real

Near Term + Project (Buildout) PM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔	↔	↔	↔	
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
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	0.98		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	4909		3433	4973		3433	5085	1583	3433	4645	
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	4973		3433	5085	1583	3433	4645	
Peak-hour 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)	578	2019	607	202	1162	201	747	506	361	168	198	271
RTOR Reduction (vph)	0	36	0	0	15	0	0	0	93	0	169	0
Lane Group Flow (vph)	578	2590	0	202	1348	0	747	506	268	168	300	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	29.4	74.6		9.7	54.9		32.5	37.0	37.0	10.0	14.5	
Effective Green, g (s)	29.4	74.6		9.7	54.9		32.5	37.0	37.0	10.0	14.5	
Actuated g/C Ratio	0.20	0.51		0.07	0.37		0.22	0.25	0.25	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	
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)	685	2486		226	1853		757	1277	398	233	457	
v/s Ratio Prot	c0.17	c0.53		0.06	0.27		c0.22	0.10		0.05	0.06	
v/s Ratio Perm									c0.17			
v/c Ratio	0.84	1.04		0.89	0.73		0.99	0.40	0.67	0.72	0.66	
Uniform Delay, d1	56.7	36.4		68.3	39.8		57.2	45.9	49.7	67.3	64.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	9.3	30.2		32.8	1.5		29.1	0.2	4.5	10.5	3.4	
Delay (s)	66.1	66.5		101.1	41.2		86.3	46.1	54.2	77.8	67.4	
Level of Service	E	E		F	D		F	D	D	E	E	
Approach Delay (s)		66.4			48.9			66.5			70.1	
Approach LOS		E			D			E			E	
Intersection Summary												
HCM Average Control Delay		62.9										
HCM Volume to Capacity ratio		0.97										
Actuated Cycle Length (s)		147.3										
Intersection Capacity Utilization		93.9%										
Analysis Period (min)		15										
c Critical Lane Group												

Baseline

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

Near Term + Project (Buildout) PM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔	↔	↔	↔	
Volume (vph)	153	1322	628	82	705	74	446	172	149	80	128	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.91	1.00	0.95	0.95	
Frt	1.00	0.95		1.00	0.99		1.00	0.93	1.00	0.92	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	3433	4840		3433	5013		3433	4731	1770	3252	3252	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	3433	4840		3433	5013		3433	4731	1770	3252	3252	
Peak-hour 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)	170	1469	698	91	783	82	496	191	166	89	142	167
RTOR Reduction (vph)	0	88	0	0	13	0	0	133	0	0	134	0
Lane Group Flow (vph)	170	2079	0	91	852	0	496	224	0	89	175	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	8.0	38.2		3.6	33.8		13.4	16.3		7.3	10.2	
Effective Green, g (s)	8.0	38.2		3.6	33.8		13.4	16.3		7.3	10.2	
Actuated g/C Ratio	0.10	0.47		0.04	0.42		0.16	0.20		0.09	0.13	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	337	2271		152	2082		565	947		159	407	
v/s Ratio Prot	c0.05	c0.43		0.03	0.17		c0.14	0.05		0.05	c0.05	
v/s Ratio Perm												
v/c Ratio	0.50	0.92		0.60	0.41		0.88	0.24		0.56	0.43	
Uniform Delay, d1	34.8	20.1		38.2	16.8		33.2	27.3		35.5	32.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	6.3		6.2	0.1		14.4	0.1		4.2	0.7	
Delay (s)	36.0	26.4		44.4	16.9		47.6	27.5		39.7	33.6	
Level of Service	D	C		D	B		D	C		D	C	
Approach Delay (s)		27.1			19.5			39.2			35.0	
Approach LOS		C			B			D			D	
Intersection Summary												
HCM Average Control Delay		28.5										
HCM Volume to Capacity ratio		0.82										
Actuated Cycle Length (s)		81.4										
Intersection Capacity Utilization		77.3%										
Analysis Period (min)		15										
c Critical Lane Group												

Baseline

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

Near Term + Project (Buildout) PM

3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	49	1333	176	8	730	23	86	14	32	28	8	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
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	1.00		1.00	0.90		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	4996		1770	5062		1770	1669		1770	1642	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	4996		1770	5062		1770	1669		1770	1642	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	54	1481	196	9	811	26	96	16	36	31	9	34
RTOR Reduction (vph)	0	17	0	0	4	0	0	33	0	0	32	0
Lane Group Flow (vph)	54	1660	0	9	833	0	96	19	0	31	11	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	1.7	23.8		0.9	23.0		3.0	3.5		2.1	2.6	
Effective Green, g (s)	1.7	23.8		0.9	23.0		3.0	3.5		2.1	2.6	
Actuated g/C Ratio	0.04	0.51		0.02	0.50		0.06	0.08		0.05	0.06	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	65	2568		34	2515		115	126		80	92	
v/s Ratio Prot	c0.03	c0.33		0.01	0.16		c0.05	c0.01		0.02	0.01	
v/s Ratio Perm												
v/c Ratio	0.83	0.65		0.26	0.33		0.83	0.15		0.39	0.12	
Uniform Delay, d1	22.2	8.2		22.4	7.0		21.4	20.0		21.5	20.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	56.7	0.6		4.1	0.1		38.1	0.5		3.1	0.6	
Delay (s)	78.9	8.8		26.5	7.1		59.5	20.6		24.6	21.3	
Level of Service	E	A		C	A		E	C		C	C	
Approach Delay (s)		10.9			7.3			45.8			22.7	
Approach LOS		B			A			D			C	

Intersection Summary			
HCM Average Control Delay	12.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	46.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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

Near Term + Project (Buildout) PM

3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	312	1013	65	22	514	25	40	46	35	24	33	213
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	0.99		1.00	0.94		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	5039		1770	5050		1770	1742		1770	1621	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5039		1770	5050		1770	1742		1770	1621	
Peak-hour 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)	347	1126	72	24	571	28	44	51	39	27	37	237
RTOR Reduction (vph)	0	8	0	0	7	0	0	33	0	0	203	0
Lane Group Flow (vph)	347	1190	0	24	592	0	44	57	0	27	71	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	14.8	30.2		0.7	16.1		1.4	8.2		1.4	8.2	
Effective Green, g (s)	14.8	30.2		0.7	16.1		1.4	8.2		1.4	8.2	
Actuated g/C Ratio	0.26	0.53		0.01	0.28		0.02	0.15		0.02	0.15	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	464	2693		22	1439		44	253		44	235	
v/s Ratio Prot	c0.20	c0.24		0.01	0.12		c0.02	0.03		0.02	c0.04	
v/s Ratio Perm												
v/c Ratio	0.75	0.44		1.09	0.41		1.00	0.22		0.61	0.30	
Uniform Delay, d1	19.1	8.0		27.9	16.4		27.6	21.3		27.3	21.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.5	0.1		221.9	0.2		135.7	0.5		22.8	0.7	
Delay (s)	25.6	8.1		249.8	16.6		163.2	21.8		50.0	22.3	
Level of Service	C	A		F	B		F	C		D	C	
Approach Delay (s)		12.1			25.5			68.2			24.8	
Approach LOS		B			C			E			C	

Intersection Summary			
HCM Average Control Delay	19.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	56.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

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

Near Term + Project (Buildout) PM
3/2/2012

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑	↑↑↑	↑↑	↑
Volume (vph)	862	194	92	448	129	255
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)	4945		1770	5085	3433	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	4945		1770	5085	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	958	216	102	498	143	283
RTOR Reduction (vph)	63	0	0	0	0	214
Lane Group Flow (vph)	1111	0	102	498	143	69
Turn Type			Prot		Prot	
Protected Phases	4		3	8	2	2
Permitted Phases						
Actuated Green, G (s)	15.8		2.6	22.4	7.9	7.9
Effective Green, g (s)	15.8		2.6	22.4	7.9	7.9
Actuated g/C Ratio	0.41		0.07	0.58	0.21	0.21
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)	2040		120	2974	708	327
v/s Ratio Prot	c0.22		c0.06	0.10	0.04	c0.04
v/s Ratio Perm						
v/c Ratio	0.54		0.85	0.17	0.20	0.21
Uniform Delay, d1	8.5		17.7	3.7	12.6	12.6
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3		40.4	0.0	0.1	0.3
Delay (s)	8.8		58.1	3.7	12.7	12.9
Level of Service	A		E	A	B	B
Approach Delay (s)	8.8			12.9	12.9	
Approach LOS	A			B	B	
Intersection Summary						
HCM Average Control Delay			10.7		HCM Level of Service	B
HCM Volume to Capacity ratio			0.47			
Actuated Cycle Length (s)			38.3		Sum of lost time (s)	12.0
Intersection Capacity Utilization			43.4%		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
18: Del Mar Highlands Town Ctr. & El Camino Real

Near Term + Project (Buildout) PM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NET	NER	SWL	SWT	SWR
Lane Configurations	↑	↑	↑	↑	↑	↑	↑↑↑	↑↑↑	↑	↑↑↑	↑↑↑	↑
Volume (vph)	255	51	51	194	37	255	184	869	168	346	463	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	
Frt	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			1788	1583	3433	4962		3433	4980	
Flt Permitted	0.95	0.98			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1681	1658			1788	1583	3433	4962		3433	4980	
Peak-hour 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	216	41	283	204	966	187	384	514	82
RTOR Reduction (vph)	0	19	0	0	0	196	0	35	0	0	26	0
Lane Group Flow (vph)	201	177	0	0	257	87	204	1118	0	384	570	0
Turn Type	Split			Split		Perm	Prot			Prot		
Protected Phases	2	2		6	6		3	8		7	4	
Permitted Phases						6						
Actuated Green, G (s)	13.2	13.2			15.1	15.1	6.9	19.2		10.1	22.4	
Effective Green, g (s)	13.2	13.2			15.1	15.1	6.9	19.2		10.1	22.4	
Actuated g/C Ratio	0.18	0.18			0.21	0.21	0.09	0.26		0.14	0.30	
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)	301	297			367	325	322	1294		471	1516	
v/s Ratio Prot	c0.12	0.11			c0.14		0.06	c0.23		c0.11	c0.11	
v/s Ratio Perm						0.05						
v/c Ratio	0.67	0.60			0.70	0.27	0.63	0.86		0.82	0.38	
Uniform Delay, d1	28.2	27.8			27.1	24.6	32.1	26.0		30.8	20.1	
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.5	3.2			5.9	0.4	4.0	6.2		10.4	0.2	
Delay (s)	33.7	31.0			33.1	25.0	36.2	32.2		41.3	20.3	
Level of Service	C	C			C	C	D	C		D	C	
Approach Delay (s)		32.3			28.9			32.8			28.5	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay					30.8			HCM Level of Service			C	
HCM Volume to Capacity ratio					0.80							
Actuated Cycle Length (s)					73.6			Sum of lost time (s)			20.0	
Intersection Capacity Utilization					59.8%			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
19: Townsgate Drive & Carmel Country Road

Near Term + Project (Buildout) PM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	138	108	178	14	56	118	116	564	10	187	644	104
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	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.90		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	1673		1770	3530		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	1673		1770	3530		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)	153	120	198	16	62	131	129	627	11	208	716	116
RTOR Reduction (vph)	0	0	137	0	107	0	0	1	0	0	0	81
Lane Group Flow (vph)	153	120	61	16	86	0	129	637	0	208	716	35
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)	8.6	18.7	18.7	0.7	10.8		6.8	15.4		9.8	18.4	18.4
Effective Green, g (s)	8.6	18.7	18.7	0.7	10.8		6.8	15.4		9.8	18.4	18.4
Actuated g/C Ratio	0.14	0.31	0.31	0.01	0.18		0.11	0.25		0.16	0.30	0.30
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
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)	251	575	488	20	298		199	897		286	1075	481
v/s Ratio Prot	c0.09	0.06	0.04	0.01	c0.05		0.07	0.18		c0.12	c0.20	0.02
v/s Ratio Perm												
v/c Ratio	0.61	0.21	0.13	0.80	0.29		0.65	0.71		0.73	0.67	0.07
Uniform Delay, d1	24.4	15.5	15.1	29.9	21.6		25.8	20.6		24.1	18.4	15.0
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	4.2	0.2	0.1	110.1	0.5		7.1	2.6		8.9	1.6	0.1
Delay (s)	28.6	15.7	15.2	140.0	22.1		32.8	23.2		33.0	20.0	15.1
Level of Service	C	B	B	F	C		C	C		C	B	B
Approach Delay (s)		19.7			31.1			24.8			22.1	
Approach LOS		B			C			C			C	
Intersection Summary												
HCM Average Control Delay		23.2										
HCM Volume to Capacity ratio		0.60										
Actuated Cycle Length (s)		60.6						16.0				
Intersection Capacity Utilization		57.4%						B				
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

Near Term + Project (Buildout) PM
3/2/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	217	12		144	2	129	29	849	206	165	623	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	0.93		1.00	1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1735		1770	1863	1583	1770	4936		1770	5048	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1735		1770	1863	1583	1770	4936		1770	5048	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	241	13	11	160	2	143	32	943	229	183	692	36
RTOR Reduction (vph)	0	10	0	0	0	125	0	53	0	0	7	0
Lane Group Flow (vph)	241	14	0	160	2	18	32	1119	0	183	721	0
Turn Type	Prot			Prot		Prot	Prot			Prot		
Protected Phases	1	6		5	2	2	7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	10.8	4.4		14.0	7.6	7.6	2.1	19.2		8.1	25.2	
Effective Green, g (s)	10.8	4.4		14.0	7.6	7.6	2.1	19.2		8.1	25.2	
Actuated g/C Ratio	0.18	0.07		0.23	0.12	0.12	0.03	0.31		0.13	0.41	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	310	124		402	229	195	60	1536		232	2062	
v/s Ratio Prot	c0.14	0.01		0.09	0.00	c0.01	0.02	c0.23		c0.10	0.14	
v/s Ratio Perm												
v/c Ratio	0.78	0.11		0.40	0.01	0.09	0.53	0.73		0.79	0.35	
Uniform Delay, d1	24.3	26.8		20.3	23.7	24.0	29.3	18.9		26.0	12.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.6	0.4		0.6	0.0	0.2	8.8	1.8		16.1	0.1	
Delay (s)	35.9	27.2		20.9	23.8	24.2	38.1	20.7		42.1	12.7	
Level of Service	D	C		C	C	C	D	C		D	B	
Approach Delay (s)		35.1			22.5			21.2			18.6	
Approach LOS		D			C			C			B	
Intersection Summary												
HCM Average Control Delay		21.8										
HCM Volume to Capacity ratio		0.64										
Actuated Cycle Length (s)		61.7						16.0				
Intersection Capacity Utilization		58.8%						B				
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

Near Term + Project (Buildout) PM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑	↗	↖	↑	↗
Volume (vph)	330	244	127	33	102	18	97	416	40	26	477	279
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0		5.0		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85		0.98		1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583		1813		1770	3493		1770	3343	
Flt Permitted	0.95	1.00	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583		1813		1770	3493		1770	3343	
Peak-hour 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)	367	271	141	37	113	20	108	462	44	29	530	310
RTOR Reduction (vph)	0	0	76	0	7	0	0	8	0	0	102	0
Lane Group Flow (vph)	367	271	65	0	163	0	108	498	0	29	738	0
Turn Type	Prot		Prot	Split			Prot			Prot		
Protected Phases	7	4!	4!	8!	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	17.9	33.7	33.7		11.8		5.2	23.7		2.0	20.5	
Effective Green, g (s)	17.9	33.7	33.7		11.8		5.2	23.7		2.0	20.5	
Actuated g/C Ratio	0.24	0.46	0.46		0.16		0.07	0.32		0.03	0.28	
Clearance Time (s)	4.0	5.0	5.0		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)	432	855	727		291		125	1128		48	934	
v/s Ratio Prot	c0.21	0.15	0.04		c0.09		c0.06	c0.14		0.02	c0.22	
v/s Ratio Perm												
v/c Ratio	0.85	0.32	0.09		0.56		0.86	0.44		0.60	0.79	
Uniform Delay, d1	26.5	12.6	11.2		28.4		33.8	19.6		35.3	24.5	
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	14.4	0.2	0.1		2.5		42.1	0.3		19.6	4.6	
Delay (s)	40.9	12.8	11.2		30.9		75.8	19.9		54.9	29.1	
Level of Service	D	B	B		C		E	B		D	C	
Approach Delay (s)		25.7			30.9			29.7			29.9	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	28.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	73.4	Sum of lost time (s)	23.0
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		
! Phase conflict between lane groups.			
c Critical Lane Group			

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

Near Term + Project (Buildout) PM
3/2/2012

Movement	EBL	EBR	EBR2	NWL	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↖	↗	↗	↖	↖	↗	↖	↑	↑	↖	↑	↗
Volume (vph)	74	279	324	99	173	144	266	1106	95	184	718	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97		0.97	0.91		1.00	0.91	
Frt	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	0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1583	1583	1770	3278		3433	5025		1770	5041	
Flt Permitted	0.95	1.00	1.00	0.95	0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1583	1583	1770	3278		3433	5025		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)	82	310	360	110	192	160	296	1229	106	204	798	49
RTOR Reduction (vph)	0	0	285	0	145	0	0	13	0	0	9	0
Lane Group Flow (vph)	82	310	95	110	207	0	296	1322	0	204	838	0
Turn Type		Perm	Perm	Split			Prot			Prot		
Protected Phases		2		6	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)		18.0	18.0	6.9	6.9		10.5	21.1		10.0	20.6	
Effective Green, g (s)		18.0	18.0	6.9	6.9		10.5	21.1		10.0	20.6	
Actuated g/C Ratio		0.25	0.25	0.10	0.10		0.15	0.29		0.14	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)		443	396	170	314		501	1473		246	1442	
v/s Ratio Prot		0.05		0.06	c0.06		0.09	c0.26		c0.12	0.17	
v/s Ratio Perm		c0.20	0.06									
v/c Ratio		0.19	0.78	0.24	0.65	0.66	0.59	0.90		0.83	0.58	
Uniform Delay, d1		21.2	25.2	21.5	31.4	31.4	28.7	24.4		30.2	22.0	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2	9.7	0.3	8.2	5.1	1.9	7.6		20.1	0.6	
Delay (s)		21.4	34.9	21.9	39.6	36.6	30.6	32.0		50.2	22.6	
Level of Service		C	C	C	D	D	C	C		D	C	
Approach Delay (s)		27.2			37.3			31.7			28.0	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM Average Control Delay	30.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

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

Near Term + Project (Buildout) PM
3/2/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕	↗		↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	217	26	163	4	11	4	118	25	8	2	7	114
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)	241	29	181	4	12	4	131	28	9	2	8	127
Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1							
Volume Total (vph)	270	181	21	188	137							
Volume Left (vph)	241	0	4	131	2							
Volume Right (vph)	0	181	4	9	127							
Hadj (s)	0.48	-0.67	-0.05	0.16	-0.52							
Departure Headway (s)	5.8	4.7	5.3	5.4	4.8							
Degree Utilization, x	0.44	0.23	0.03	0.25	0.18							
Capacity (veh/h)	596	743	611	631	697							
Control Delay (s)	12.0	7.9	8.5	10.1	8.8							
Approach Delay (s)	10.3		8.5	10.1	8.8							
Approach LOS	B		A	B	A							
Intersection Summary												
Delay			10.0									
HCM Level of Service			A									
Intersection Capacity Utilization			45.9%	ICU Level of Service				A				
Analysis Period (min)			15									

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

Near Term + Project (Buildout) PM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	52	72	57	27	9	111	779	138	6	382	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.99		1.00	0.98		1.00	0.97	
Flt Protected		0.97	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1800	1583		1784		1770	3460		1770	3444	
Flt Permitted		0.97	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1800	1583		1784		1770	3460		1770	3444	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	132	58	80	63	30	10	123	866	153	7	424	93
RTOR Reduction (vph)	0	0	68	0	5	0	0	15	0	0	22	0
Lane Group Flow (vph)	0	190	12	0	98	0	123	1004	0	7	495	0
Turn Type	Split		Prot	Split			Prot			Prot		
Protected Phases	4	4	4	6	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		8.8	8.8		6.7		5.6	26.4		0.6	21.4	
Effective Green, g (s)		8.8	8.8		6.7		5.6	26.4		0.6	21.4	
Actuated g/C Ratio		0.15	0.15		0.11		0.10	0.45		0.01	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)		271	238		204		169	1561		18	1260	
v/s Ratio Prot		c0.11	0.01		c0.05		c0.07	c0.29		0.00	0.14	
v/s Ratio Perm												
v/c Ratio		0.70	0.05		0.48		0.73	0.64		0.39	0.39	
Uniform Delay, d1		23.6	21.3		24.3		25.7	12.4		28.8	13.7	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		7.9	0.1		1.8		14.5	0.9		13.4	0.2	
Delay (s)		31.5	21.4		26.0		40.2	13.3		42.1	13.9	
Level of Service		C	C		C		D	B		D	B	
Approach Delay (s)		28.5			26.0			16.2			14.3	
Approach LOS		C			C			B			B	
Intersection Summary												
HCM Average Control Delay	17.9			HCM Level of Service					B			
HCM Volume to Capacity ratio	0.62											
Actuated Cycle Length (s)	58.5			Sum of lost time (s)					12.0			
Intersection Capacity Utilization	51.1%			ICU Level of Service					A			
Analysis Period (min)	15											
c Critical Lane Group												

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

Near Term + Project (Buildout) PM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑					↑	↑↑	↑
Volume (vph)	0	665	141	631	924	0	0	0	0	906	1	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.95		0.97	0.95					0.95	0.91	0.95
Frt		0.97		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3446		3433	3539					1681	1612	1504
Flt Permitted		1.00		0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3446		3433	3539					1681	1612	1504
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	739	157	701	1027	0	0	0	0	1007	1	83
RTOR Reduction (vph)	0	26	0	0	0	0	0	0	0	0	1	49
Lane Group Flow (vph)	0	870	0	701	1027	0	0	0	0	503	512	26
Turn Type				Prot						Split		Prot
Protected Phases		4		3	8					6	6	6
Permitted Phases												
Actuated Green, G (s)		18.4		15.4	37.8					23.7	23.7	23.7
Effective Green, g (s)		18.4		15.4	37.8					23.7	23.7	23.7
Actuated g/C Ratio		0.26		0.22	0.54					0.34	0.34	0.34
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)		912		761	1925					573	550	513
v/s Ratio Prot		c0.25		c0.20	0.29					0.30	c0.32	0.02
v/s Ratio Perm												
v/c Ratio		0.95		0.92	0.53					0.88	0.93	0.05
Uniform Delay, d1		25.1		26.5	10.2					21.5	22.1	15.4
Progression Factor		1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		19.5		16.5	0.3					14.2	22.7	0.0
Delay (s)		44.6		42.9	10.5					35.7	44.9	15.4
Level of Service		D		D	B					D	D	B
Approach Delay (s)		44.6			23.6		0.0				38.6	
Approach LOS		D			C		A				D	
Intersection Summary												
HCM Average Control Delay		33.1				HCM Level of Service				C		
HCM Volume to Capacity ratio		0.94										
Actuated Cycle Length (s)		69.5				Sum of lost time (s)				12.0		
Intersection Capacity Utilization		87.5%				ICU Level of Service				E		
Analysis Period (min)		15										
c Critical Lane Group												

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

Near Term + Project (Buildout) PM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑	↑				↑	↑↑	↑
Volume (vph)	127	1468	0	0	1059	872	452	7	700	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0				4.0	4.0	4.0
Lane Util. Factor		0.97			0.95	1.00	0.95	0.91	0.95			
Frt		1.00			1.00	0.85	1.00	0.87	0.85			
Flt Protected		0.95			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (prot)		3433			3539	1583	1681	1469	1504			
Flt Permitted		0.95			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (perm)		3433			3539	1583	1681	1469	1504			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	141	1631	0	0	1177	969	502	8	778	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	524	0	11	11	0	0	0
Lane Group Flow (vph)	141	1631	0	0	1177	445	447	410	409	0	0	0
Turn Type		Prot				Prot	Split		Prot			
Protected Phases		7				8	2		2			
Permitted Phases												
Actuated Green, G (s)		3.5			24.1	24.1	19.5	19.5	19.5			
Effective Green, g (s)		3.5			24.1	24.1	19.5	19.5	19.5			
Actuated g/C Ratio		0.06			0.41	0.41	0.33	0.33	0.33			
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)		203			1443	646	555	485	496			
v/s Ratio Prot		0.04			0.33	0.28	0.27	c0.28	0.27			
v/s Ratio Perm												
v/c Ratio		0.69			0.82	0.69	0.81	0.85	0.83			
Uniform Delay, d1		27.3			15.5	14.4	18.1	18.4	18.2			
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		9.9			3.7	3.1	8.3	12.8	10.7			
Delay (s)		37.1			19.2	17.5	26.4	31.2	29.0			
Level of Service		D			B	B	C	C	C			
Approach Delay (s)					17.8			28.8			0.0	
Approach LOS					B			C			A	
Intersection Summary												
HCM Average Control Delay		20.8				HCM Level of Service				C		
HCM Volume to Capacity ratio		0.86										
Actuated Cycle Length (s)		59.1				Sum of lost time (s)				8.0		
Intersection Capacity Utilization		87.5%				ICU Level of Service				E		
Analysis Period (min)		15										
c Critical Lane Group												

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

Near Term + Project (Buildout) PM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	→	↱	↰	→	↱	↰	→	↱	↰	→	↱
Volume (vph)	50	37	50	490	31	132	109	1018	220	209	1544	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	0.91	0.95	0.95	0.91	0.95	1.00	0.91	1.00	0.91	0.91	0.91
Flt	1.00	0.98	0.85	1.00	0.99	0.85	1.00	0.97	1.00	0.95	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	1649	1504	1681	1615	1504	1770	4950	1770	5065	5065	5065
Flt Permitted	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 (perm)	1681	1649	1504	1681	1615	1504	1770	4950	1770	5065	5065	5065
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	56	41	56	544	34	147	121	1131	244	232	1716	48
RTOR Reduction (vph)	0	7	44	0	2	103	0	35	0	0	3	0
Lane Group Flow (vph)	50	48	4	299	292	29	121	1340	0	232	1761	0
Turn Type	Split		Prot	Split		Prot	Prot		Prot			
Protected Phases	4	4	4	8	8	8	5	2	1			
Permitted Phases											6	
Actuated Green, G (s)	6.5	6.5	6.5	17.3	17.3	17.3	7.5	27.4		12.5	32.4	
Effective Green, g (s)	6.5	6.5	6.5	17.3	17.3	17.3	7.5	27.4		12.5	32.4	
Actuated g/C Ratio	0.08	0.08	0.08	0.22	0.22	0.22	0.09	0.34		0.16	0.41	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
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)	137	134	123	365	351	326	167	1702		278	2059	
v/s Ratio Prot	c0.03	0.03	0.00	0.18	c0.18	0.02	0.07	0.27		c0.13		
v/s Ratio Perm											c0.35	
v/c Ratio	0.36	0.36	0.03	0.82	0.83	0.09	0.72	0.79		0.83	0.86	
Uniform Delay, d1	34.6	34.6	33.7	29.7	29.8	24.9	35.1	23.5		32.6	21.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.7	1.6	0.1	13.4	15.3	0.1	14.4	2.5		19.0	3.7	
Delay (s)	36.3	36.2	33.8	43.1	45.1	25.0	49.5	26.0		51.5	25.2	
Level of Service	D	D	C	D	D	C	D	C		D	C	
Approach Delay (s)		35.5			40.6			27.9			28.3	
Approach LOS		D			D			C			C	
Intersection Summary												
HCM Average Control Delay		30.5										
HCM Volume to Capacity ratio		0.78										
Actuated Cycle Length (s)		79.7										
Intersection Capacity Utilization		69.2%										
Analysis Period (min)		15										
c Critical Lane Group												

Baseline

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

Near Term + Project (Buildout) PM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	→	↱	↰	→	↱	↰	→	↱	↰	→	↱
Volume (vph)	0	0	0	223	860	220	405	1117	0	0	768	845
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	0.95	1.00	0.95	1.00	0.95	0.95	0.95
Flt	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	3433	5085	1583	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	3433	5085	1583	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	248	956	244	450	1241	0	0	853	939
RTOR Reduction (vph)	0	0	0	0	0	57	0	0	0	0	7	7
Lane Group Flow (vph)	0	0	0	248	956	187	450	1241	0	0	1316	462
Confl. Peds. (#/hr)											200	
Turn Type			Split			Prot	Prot					Prot
Protected Phases			8			8	5	2				6
Permitted Phases											6	
Actuated Green, G (s)			16.4			16.4	10.0	40.1			26.1	26.1
Effective Green, g (s)			16.4			16.4	10.0	40.1			26.1	26.1
Actuated g/C Ratio			0.25			0.25	0.16	0.62			0.40	0.40
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)			873			1293	402	2200			1678	551
v/s Ratio Prot			0.07			c0.19	0.12	c0.13			0.32	c0.34
v/s Ratio Perm												
v/c Ratio			0.28			0.74	0.47	0.85			0.78	0.84
Uniform Delay, d1			19.3			22.1	20.3	26.5			16.7	17.3
Progression Factor			1.00			1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2			0.2			2.3	0.9	11.8			2.5	10.8
Delay (s)			19.5			24.3	21.2	38.3			19.2	28.1
Level of Service			B			C	C	D			B	C
Approach Delay (s)		0.0				23.0		15.7			21.6	
Approach LOS		A				C		B			C	
Intersection Summary												
HCM Average Control Delay		20.0										
HCM Volume to Capacity ratio		0.81										
Actuated Cycle Length (s)		64.5										
Intersection Capacity Utilization		114.6%										
Analysis Period (min)		15										
c Critical Lane Group												

Baseline

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

Near Term + Project (Buildout) PM
3/2/2012

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	294	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	0.86	0.91					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	3190	1441					6097		1770	5085	
Flt Permitted	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1610	3190	1441					6097		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)	597	1146	148	0	0	0	0	1027	491	327	727	0
RTOR Reduction (vph)	0	1	80	0	0	0	0	39	0	0	0	0
Lane Group Flow (vph)	537	1220	53	0	0	0	0	1479	0	327	727	0
Turn Type	Split		Prot							Prot		
Protected Phases	4	4	4					2		1	6	
Permitted Phases												
Actuated Green, G (s)	31.6	31.6	31.6					20.8		15.6	40.4	
Effective Green, g (s)	31.6	31.6	31.6					20.8		15.6	40.4	
Actuated g/C Ratio	0.40	0.40	0.40					0.26		0.20	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)	636	1260	569					1585		345	2568	
v/s Ratio Prot	0.33	c0.38	0.04					c0.24		c0.18	0.14	
v/s Ratio Perm												
v/c Ratio	0.84	0.97	0.09					1.07dr		0.95	0.28	
Uniform Delay, d1	22.0	23.7	15.2					28.9		31.8	11.4	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	10.0	18.0	0.1					10.4		34.6	0.1	
Delay (s)	32.0	41.7	15.3					39.4		66.4	11.5	
Level of Service	C	D	B					D		E	B	
Approach Delay (s)		37.1			0.0			39.4			28.5	
Approach LOS		D			A			D			C	

Intersection Summary												
HCM Average Control Delay		35.8		HCM Level of Service		D						
HCM Volume to Capacity ratio		0.95										
Actuated Cycle Length (s)		80.0		Sum of lost time (s)		12.0						
Intersection Capacity Utilization		114.6%		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
30: Valley Centre Drive & Carmel View Road

Near Term + Project (Buildout) PM
3/2/2012

Movement	EBL	EBT	WBL	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	68	402	0	374	97	31	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		0.95		1.00	1.00
Frt	1.00	1.00		0.97		1.00	0.85
Flt Protected	0.95	1.00		1.00		0.95	1.00
Satd. Flow (prot)	1770	3539		3430		1770	1583
Flt Permitted	0.95	1.00		1.00		0.95	1.00
Satd. Flow (perm)	1770	3539		3430		1770	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	76	447	0	416	108	34	52
RTOR Reduction (vph)	0	0	0	46	0	0	46
Lane Group Flow (vph)	76	447	0	478	0	34	6
Turn Type	Prot		Prot			Prot	
Protected Phases	7	4	3	8		6	6
Permitted Phases							
Actuated Green, G (s)	1.3	13.6		8.3		3.0	3.0
Effective Green, g (s)	1.3	13.6		8.3		3.0	3.0
Actuated g/C Ratio	0.05	0.55		0.34		0.12	0.12
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)	94	1957		1157		216	193
v/s Ratio Prot	c0.04	0.13		c0.14		c0.02	0.00
v/s Ratio Perm							
v/c Ratio	0.81	0.23		0.41		0.16	0.03
Uniform Delay, d1	11.5	2.8		6.3		9.7	9.5
Progression Factor	1.00	1.00		1.00		1.00	1.00
Incremental Delay, d2	38.1	0.1		0.2		0.3	0.1
Delay (s)	49.6	2.9		6.5		10.0	9.6
Level of Service	D	A		A		B	A
Approach Delay (s)		9.7		6.5		9.8	
Approach LOS		A		A		A	

Intersection Summary							
HCM Average Control Delay		8.2		HCM Level of Service		A	
HCM Volume to Capacity ratio		0.39					
Actuated Cycle Length (s)		24.6		Sum of lost time (s)		12.0	
Intersection Capacity Utilization		30.5%		ICU Level of Service		A	
Analysis Period (min)		15					
c Critical Lane Group							

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

Near Term + Project (Buildout) PM
3/2/2012

Movement	EBL	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL	SBT	SBR
Lane Configurations	↰	↱	↱	↰	↱	↱	↰	↱	↱	↰	↱	↱
Volume (vph)	122	293	331	126	162	99	370	850	332	272	174	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.88	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	0.94		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)	1770	2787	1583	1770	1757		1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	2787	1583	1770	1757		1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	136	326	368	140	180	110	411	944	369	302	193	164
RTOR Reduction (vph)	0	0	302	0	26	0	0	0	241	0	0	131
Lane Group Flow (vph)	136	326	66	140	264	0	411	944	128	302	193	33
Turn Type	Prot	custom	custom	Prot			Prot		Prot	Prot		Prot
Protected Phases	7			3	8		5	2	2	1	6	6
Permitted Phases		4	4									
Actuated Green, G (s)	8.9	14.4	14.4	11.7	17.2		22.0	27.9	27.9	10.4	16.3	16.3
Effective Green, g (s)	8.9	14.4	14.4	11.7	17.2		22.0	27.9	27.9	10.4	16.3	16.3
Actuated g/C Ratio	0.11	0.18	0.18	0.15	0.21		0.27	0.35	0.35	0.13	0.20	0.20
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	196	499	284	258	376		484	1228	549	444	717	321
v/s Ratio Prot	c0.08			0.08	c0.15		c0.23	c0.27	0.08	0.09	0.05	0.02
v/s Ratio Perm		0.12	0.04									
v/c Ratio	0.69	0.65	0.23	0.54	0.70		0.85	0.77	0.23	0.68	0.27	0.10
Uniform Delay, d1	34.4	30.7	28.3	31.9	29.2		27.6	23.4	18.7	33.4	27.0	26.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.2	3.1	0.4	2.3	5.8		13.1	3.0	0.2	4.3	0.2	0.1
Delay (s)	44.6	33.7	28.7	34.2	35.1		40.7	26.3	18.9	37.7	27.2	26.2
Level of Service	D	C	C	C	D		D	C	B	D	C	C
Approach Delay (s)				34.8			28.2			31.8		
Approach LOS				C			C			C		
Intersection Summary												
HCM Average Control Delay		30.8		HCM Level of Service					C			
HCM Volume to Capacity ratio		0.75										
Actuated Cycle Length (s)		80.4		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												

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

Near Term + Project (Buildout) PM
3/2/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↱	↰	↱	↱	↰	↱	↱	↰	↱	↱
Volume (vph)	935	0	221	0	0	0	0	667	213	358	266	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	
Frt	1.00	1.00	0.85					0.96		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1681	1583					3411		3433	3539	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1681	1681	1583					3411		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)	1039	0	246	0	0	0	0	741	237	398	296	0
RTOR Reduction (vph)	0	0	160	0	0	0	0	48	0	0	0	0
Lane Group Flow (vph)	519	520	86	0	0	0	0	930	0	398	296	0
Turn Type	Split		Prot							Prot		
Protected Phases	4	4	4					2		1	6	
Permitted Phases												
Actuated Green, G (s)	22.2	22.2	22.2					20.4		9.0	33.4	
Effective Green, g (s)	22.2	22.2	22.2					20.4		9.0	33.4	
Actuated g/C Ratio	0.35	0.35	0.35					0.32		0.14	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)	587	587	553					1094		486	1859	
v/s Ratio Prot	0.31	c0.31	0.05					c0.27		c0.12	0.08	
v/s Ratio Perm												
v/c Ratio	0.88	0.89	0.16					0.85		0.82	0.16	
Uniform Delay, d1	19.5	19.5	14.2					20.2		26.5	7.8	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	14.7	14.9	0.1					6.5		10.3	0.0	
Delay (s)	34.2	34.4	14.4					26.7		36.9	7.9	
Level of Service	C	C	B					C		D	A	
Approach Delay (s)	30.5		0.0					26.7		24.5		
Approach LOS	C		A					C		C		
Intersection Summary												
HCM Average Control Delay		27.8		HCM Level of Service					C			
HCM Volume to Capacity ratio		0.86										
Actuated Cycle Length (s)		63.6		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
33: Carmel Country Road & Carmel Canyon Road

Near Term + Project (Buildout) PM
3/2/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↰	↱		↰	↱		↰	↱		↰	↱	
Volume (vph)	131	487	48	94	436	412	57	132	107	237	54	67
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	0.93		1.00	0.93		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3492		1770	3281		1770	1738		3433	1708	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3492		1770	3281		1770	1738		3433	1708	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	146	541	53	104	484	458	63	147	119	263	60	74
RTOR Reduction (vph)	0	11	0	0	257	0	0	47	0	0	52	0
Lane Group Flow (vph)	146	583	0	104	685	0	63	219	0	263	82	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	6.1	17.5		5.0	16.4		4.9	13.8		9.2	18.1	
Effective Green, g (s)	6.1	17.5		5.0	16.4		4.9	13.8		9.2	18.1	
Actuated g/C Ratio	0.10	0.28		0.08	0.27		0.08	0.22		0.15	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)	176	994		144	875		141	390		514	503	
v/s Ratio Prot	c0.08	0.17		0.06	c0.21		0.04	c0.13		c0.08	0.05	
v/s Ratio Perm												
v/c Ratio	0.83	0.59		0.72	0.78		0.45	0.56		0.51	0.16	
Uniform Delay, d1	27.2	18.9		27.6	20.9		27.0	21.2		24.1	16.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	26.4	0.9		16.3	4.6		2.2	1.9		0.9	0.2	
Delay (s)	53.6	19.8		43.9	25.5		29.3	23.0		24.9	16.2	
Level of Service	D	B		D	C		C	C		C	B	
Approach Delay (s)		26.4			27.3			24.2			22.0	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	25.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	61.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

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

Near Term + Project (Buildout) PM
3/2/2012

Movement	WBL	WBR	SEL	SET	NWL	NWR	NWR2	SWL	SWR
Lane Configurations			↰	↱	↰	↱		↰	↱
Volume (vph)	0	0	277	508	640	0	196	151	273
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor			0.97	0.95	0.95		1.00	0.97	1.00
Flt			1.00	1.00	1.00		0.85	1.00	0.85
Flt Protected			0.95	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)			3433	3539	3539		1583	3433	1583
Flt Permitted			0.95	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)			3433	3539	3539		1583	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	308	564	711	0	218	168	303
RTOR Reduction (vph)	0	0	0	0	0	0	136	0	207
Lane Group Flow (vph)	0	0	308	564	711	0	82	168	96
Turn Type			Prot				Perm		Perm
Protected Phases			5	2	6			4	
Permitted Phases							6		4
Actuated Green, G (s)			4.1	22.9	14.8		14.8	8.3	8.3
Effective Green, g (s)			4.1	22.9	14.8		14.8	8.3	8.3
Actuated g/C Ratio			0.10	0.58	0.38		0.38	0.21	0.21
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)			359	2067	1336		598	727	335
v/s Ratio Prot			c0.09	0.16	c0.20			0.05	
v/s Ratio Perm							0.05		c0.06
v/c Ratio			0.86	0.27	0.53		0.14	0.23	0.29
Uniform Delay, d1			17.3	4.0	9.5		8.0	12.8	13.0
Progression Factor			1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2			18.0	0.1	0.4		0.1	0.2	0.5
Delay (s)			35.2	4.1	9.9		8.1	13.0	13.4
Level of Service			D	A	A		A	B	B
Approach Delay (s)	0.0			15.1	9.5			13.3	
Approach LOS	A			B	A			B	

Intersection Summary			
HCM Average Control Delay	12.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	39.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	41.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

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

Near Term + Project (Buildout) PM
3/2/2012

Movement	EBL2	EBL	EBR	SEL	SET	SER	NWL	NWT	NWR	SWL	SWR
Lane Configurations	↰	↰	↰	↰	↰			↰	↰		
Volume (vph)	411	0	248	292	386	0	0	413	263	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		
Lane Util. Factor	0.95	0.95	1.00	0.97	0.95			0.95	1.00		
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		
Flt Protected	0.95	0.95	1.00	0.95	1.00			1.00	1.00		
Satd. Flow (prot)	1681	1681	1583	3433	3539			3539	1583		
Flt Permitted	0.95	0.95	1.00	0.95	1.00			1.00	1.00		
Satd. Flow (perm)	1681	1681	1583	3433	3539			3539	1583		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	457	0	276	324	429	0	0	459	292	0	0
RTOR Reduction (vph)	0	0	200	0	0	0	0	0	205	0	0
Lane Group Flow (vph)	228	229	76	324	429	0	0	459	87	0	0
Turn Type	Split		Prot	Prot				Prot			
Protected Phases	4	4	4	1	6			2	2		
Permitted Phases											
Actuated Green, G (s)	11.2	11.2	11.2	5.2	21.3			12.1	12.1		
Effective Green, g (s)	11.2	11.2	11.2	5.2	21.3			12.1	12.1		
Actuated g/C Ratio	0.28	0.28	0.28	0.13	0.53			0.30	0.30		
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		
Lane Grp Cap (vph)	465	465	438	441	1861			1057	473		
v/s Ratio Prot	0.14	c0.14	0.05	c0.09	0.12			c0.13	0.06		
v/s Ratio Perm											
v/c Ratio	0.49	0.49	0.17	0.73	0.23			0.43	0.18		
Uniform Delay, d1	12.3	12.3	11.1	17.0	5.2			11.4	10.5		
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		
Incremental Delay, d2	0.8	0.8	0.2	6.3	0.1			0.3	0.2		
Delay (s)	13.1	13.1	11.3	23.2	5.2			11.7	10.7		
Level of Service	B	B	B	C	A			B	B		
Approach Delay (s)		12.4			13.0			11.3		0.0	
Approach LOS		B			B			B		A	
Intersection Summary											
HCM Average Control Delay		12.2				HCM Level of Service		B			
HCM Volume to Capacity ratio		0.51									
Actuated Cycle Length (s)		40.5				Sum of lost time (s)		12.0			
Intersection Capacity Utilization		41.1%				ICU Level of Service		A			
Analysis Period (min)		15									
c Critical Lane Group											

Baseline

Synchro 7 - Report
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ALL-WAY STOP CONTROL ANALYSIS									
General Information					Site Information				
Analyst	Jacob Swim				Intersection	Carmel Creek Rd./Del Mar Trail			
Agency/Co.	USAI				Jurisdiction	City of San Diego			
Date Performed	11/22/2011				Analysis Year	2011			
Analysis Time Period	36 NT+P PM (Buildout)								
Project ID 002407 - San Diego Corporate Center Lots									
East/West Street: Del Mar Trail					North/South Street: Carmel Creek Road				
Volume Adjustments and Site Characteristics									
Approach	Eastbound				Westbound				
Movement	L	T	R		L	T	R		
Volume (veh/h)	5	5	4		57	12	10		
%Thrus Left Lane									
Approach	Northbound				Southbound				
Movement	L	T	R		L	T	R		
Volume (veh/h)	12	792	103		15	452	10		
%Thrus 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		87		453	554	267	262	
% 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	
x, initial	0.01		0.08		0.40	0.49	0.24	0.23	
hd, final value (s)	6.80		6.68		5.56	5.40	6.13	6.07	
x, final value	0.03		0.16		0.70	0.83	0.45	0.44	
Move-up time, m (s)	2.0		2.0		2.3		2.3		
Service Time, ts (s)	4.8		4.7		3.3	3.1	3.8	3.8	
Capacity and Level of Service									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Capacity (veh/h)	264		337		643	663	517	512	
Delay (s/veh)	9.99		10.96		20.19	29.02	13.83	13.48	
LOS	A		B		C	D	B	B	
Approach: Delay (s/veh)	9.99		10.96		25.05		13.66		
LOS	A		B		D		B		
Intersection Delay (s/veh)	20.49								
Intersection LOS	C								

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APPENDIX K

YEAR 2030 FACTORING WORKSHEETS

Year 2030

Intersection 1

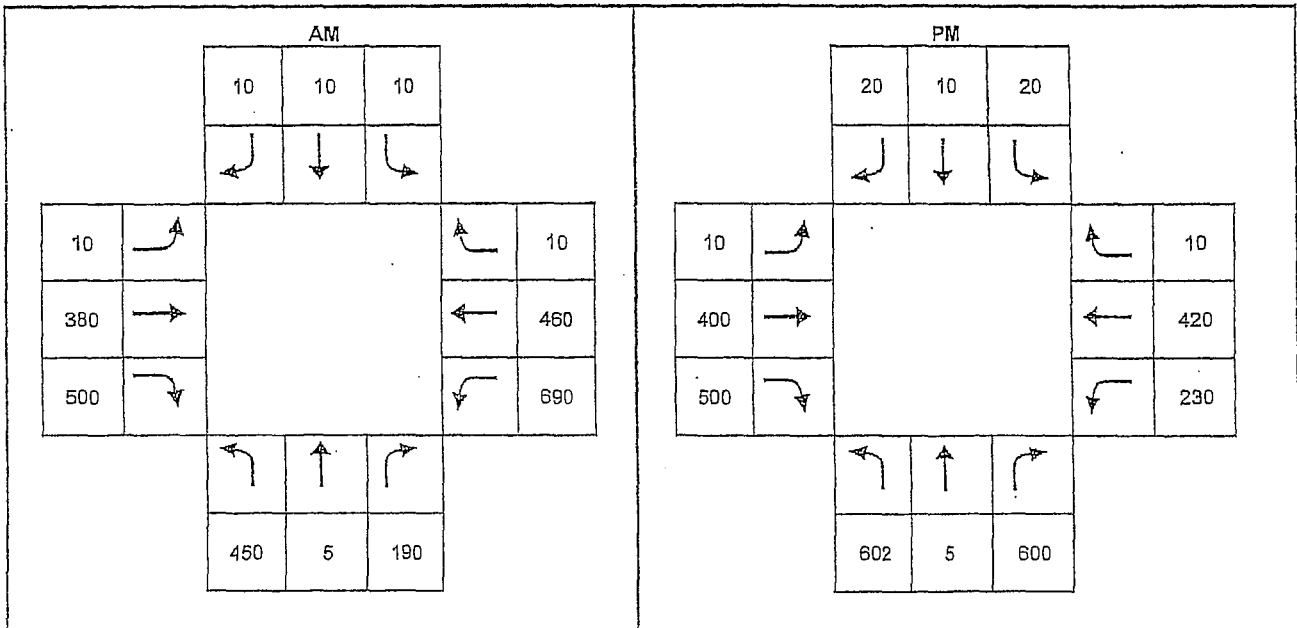
Analyst: Jacob Swirn
 Intersection: El Camino Real / Via de la Valle
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: Via de la Valle
 N/S Street Name: El Camino Real

Factored Turns

Note: Year 2030 volumes come from the I-5 / SR-56 NB Connector Study by LLG.

Turn Movement	Near Term turn (v) AM	Near Term turn (v) PM	Near Term ADT	Year 2030 ADT	Increase %	Year 2030 turn (v) AM	Year 2030 turn (v) PM
NLT						450	602
NTH						5	5
NRT						190	600
SLT						10	20
STH						10	10
SRT						10	20
ELT						10	10
ETH						380	400
ERT						500	500
WLT						690	230
WTH						460	420
WRT						10	10



Delay

22.2

LOS

C

Delay

19.1

LOS

B

Year 2030

Intersection 2

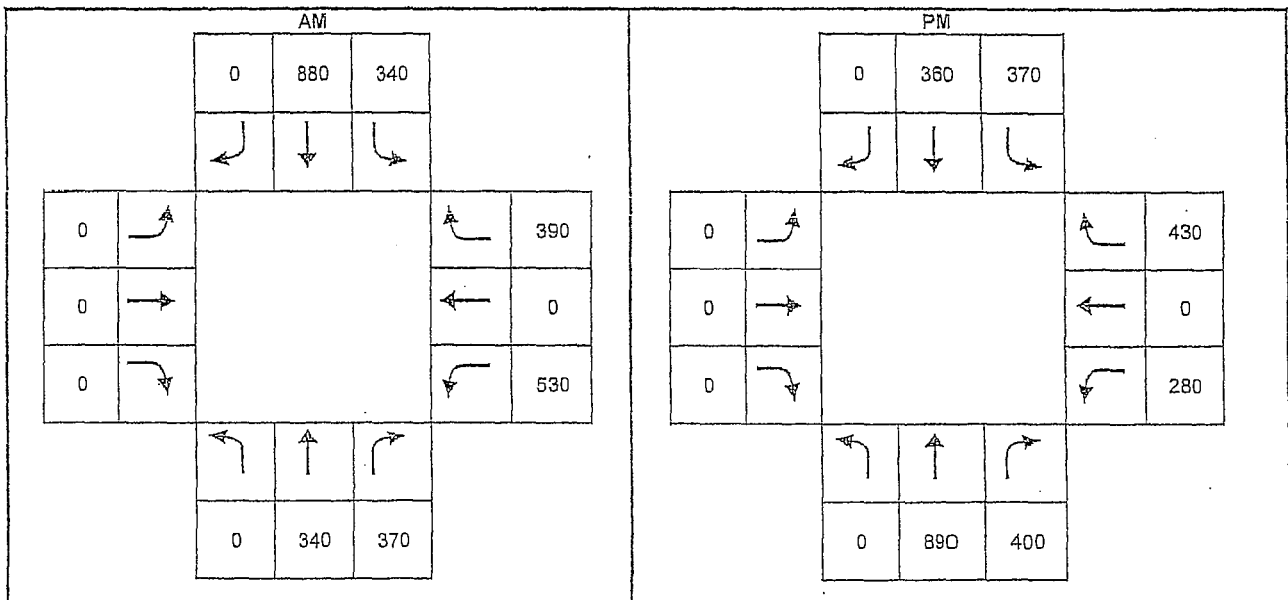
Analyst: Jacob Swim
 Intersection: El Camino Real / San Dieguito Road
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: San Dieguito Road
 N/S Street Name: El Camino Real

Factored Turns

Note: Year 2030 volumes come from the I-5 / SR-56 NB Connector Study by LLG.

Turn	Near Term	Near Term	Near Term	Year 2030	Increase	Year 2030	Year 2030
Movement	turn (v) AM	turn (v) PM	ADT	ADT	%	turn (v) AM	turn (v) PM
NLT						0	0
NTH						340	890
NRT						370	400
SLT						340	370
STH						880	360
SRT						0	0
ELT						0	0
ETH						0	0
ERT						0	0
WLT						530	280
WTH						0	0
WRT						390	430



Delay

24.2

LOS

C

Delay

47.2

LOS

D

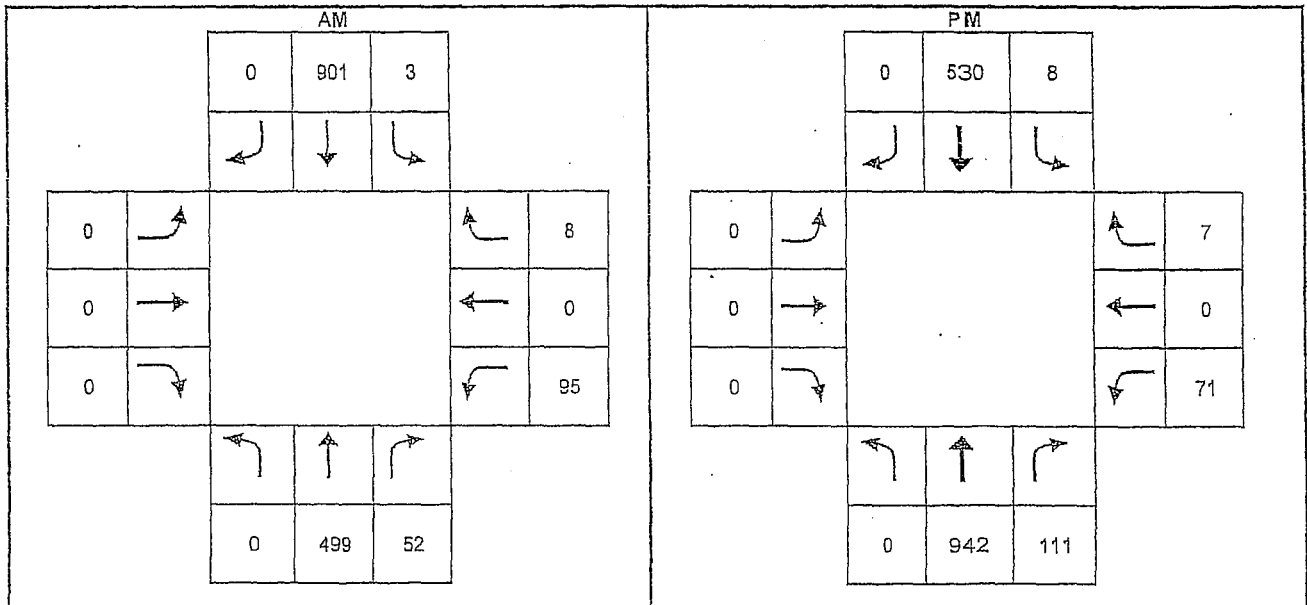
Year 2030

Intersection 3

Analyst: Jacob Swim
 Intersection: El Camino Real / Derby Downs Road
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: Derby Downs Rd.
 N/S Street Name: El Camino Real
 Factored Turns

Turn Movement	Near Term turn (v) AM	Near Term turn (v) PM	Near Term ADT	Year 2030 ADT	Increase %	Year 2030 turn (v) AM	Year 2030 turn (v) PM
NLT	0	0	No Volume	No Volume	100%	0	0
NTH	456	861	26,500	29,000	109%	499	942
NRT	52	111	No Volume	No Volume	100%	52	111
SLT	3	8	No Volume	No Volume	100%	3	8
STH	823	484	26,500	29,000	109%	901	530
SRT	0	0	No Volume	No Volume	100%	0	0
ELT	0	0	No Volume	No Volume	100%	0	0
ETH	0	0	No Volume	No Volume	100%	0	0
ERT	0	0	No Volume	No Volume	100%	0	0
WLT	87	65	26,500	29,000	109%	95	71
WTH	0	0	No Volume	No Volume	100%	0	0
WRT	7	6	26,500	29,000	109%	8	7



Delay
4.3

LOS
A

Delay
5.1

LOS
A

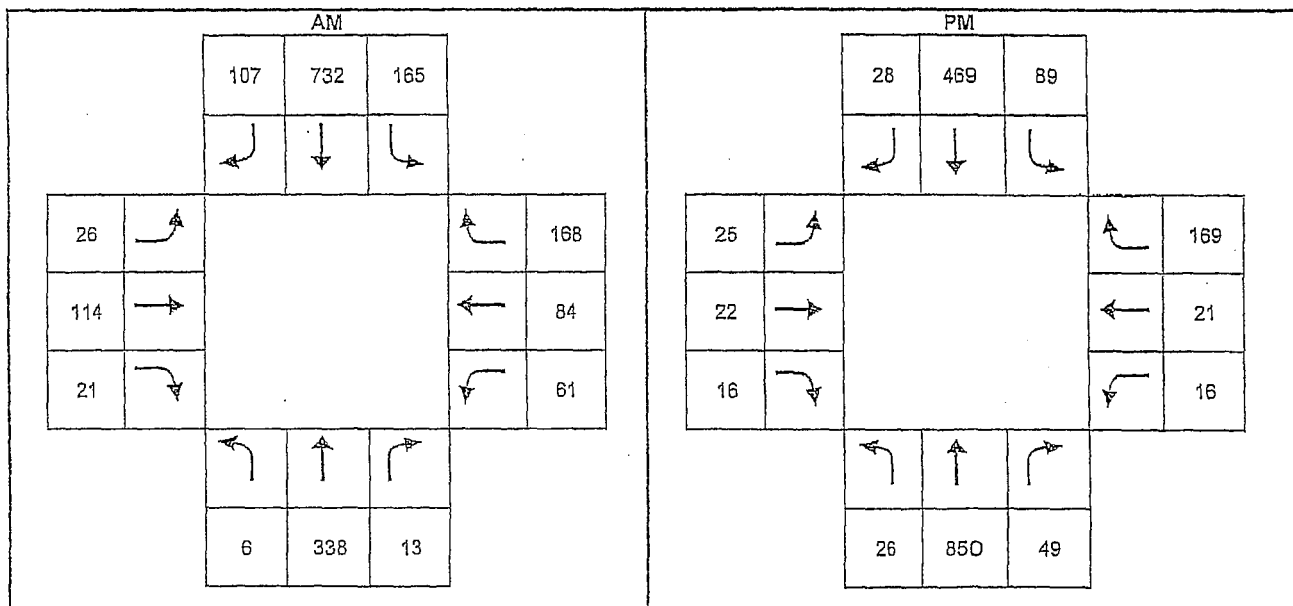
Year 2030

Intersection 4

Analyst: Jacob Swim
 Intersection: El Camino Real / Half Mile Drive
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: Half Mile Dr.
 N/S Street Name: El Camino Real
 Factored Turns

Turn Movement	Near Term turn (v) AM	Near Term turn (v) PM	Near Term ADT	Year 2030 ADT	Increase %	Year 2030 turn (v) AM	Year 2030 turn (v) PM
NLT	6	26	No Volume	No Volume	100%	6	26
NTH	309	777	26,500	29,000	109%	338	850
NRT	13	49	No Volume	No Volume	100%	13	49
SLT	165	89	No Volume	No Volume	100%	165	89
STH	668	428	26,500	29,000	109%	732	469
SRT	107	28	No Volume	No Volume	100%	107	28
ELT	24	23	26,500	29,000	109%	26	25
ETH	114	22	No Volume	No Volume	100%	114	22
ERT	20	14	26,500	29,000	109%	21	16
WLT	56	14	26,500	29,000	109%	61	16
WTH	84	21	No Volume	No Volume	100%	84	21
WRT	153	155	26,500	29,000	109%	168	169



Delay
22.9

LOS
C

Delay
14.0

LOS
B

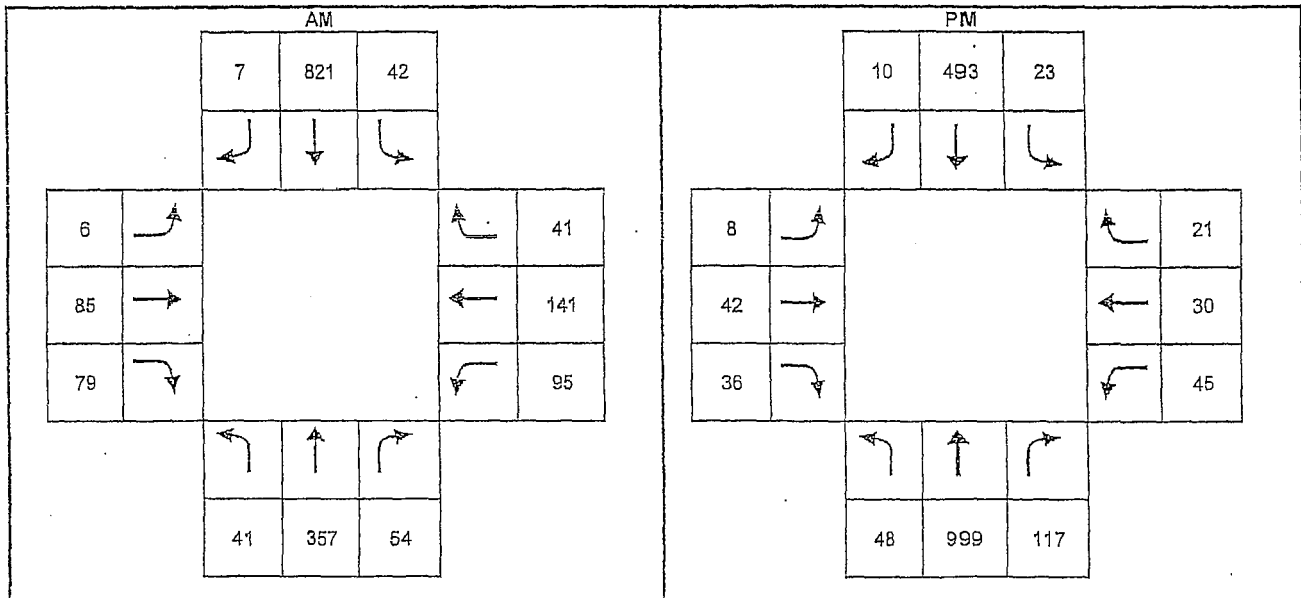
Year 2030

Intersection 5

Analyst: Jacob Swim
 Intersection: El Camino Real / Quarter Mile Drive
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: Quarter Mile Dr.
 N/S Street Name: El Camino Real
 Factored Turns

Turn Movement	Near Term turn (v) AM	Near Term turn (v) PM	Near Term ADT	Year 2030 ADT	Increase %	Year 2030 turn (v) AM	Year 2030 turn (v) PM
NLT	41	48	No Volume	No Volume	100%	41	48
NTH	327	913	26,500	29,000	109%	357	999
NRT	54	117	No Volume	No Volume	100%	54	117
SLT	42	23	No Volume	No Volume	100%	42	23
STH	750	450	26,500	29,000	109%	821	493
SRT	7	10	No Volume	No Volume	100%	7	10
ELT	5	7	26,500	29,000	109%	6	8
ETH	85	42	No Volume	No Volume	100%	85	42
ERT	72	33	26,500	29,000	109%	79	36
WLT	87	41	26,500	29,000	109%	95	45
WTH	141	30	No Volume	No Volume	100%	141	30
WRT	37	20	26,500	29,000	109%	41	21



Delay

20.6

LOS

C

Delay

12.1

LOS

B

Year 2030

Intersection 6

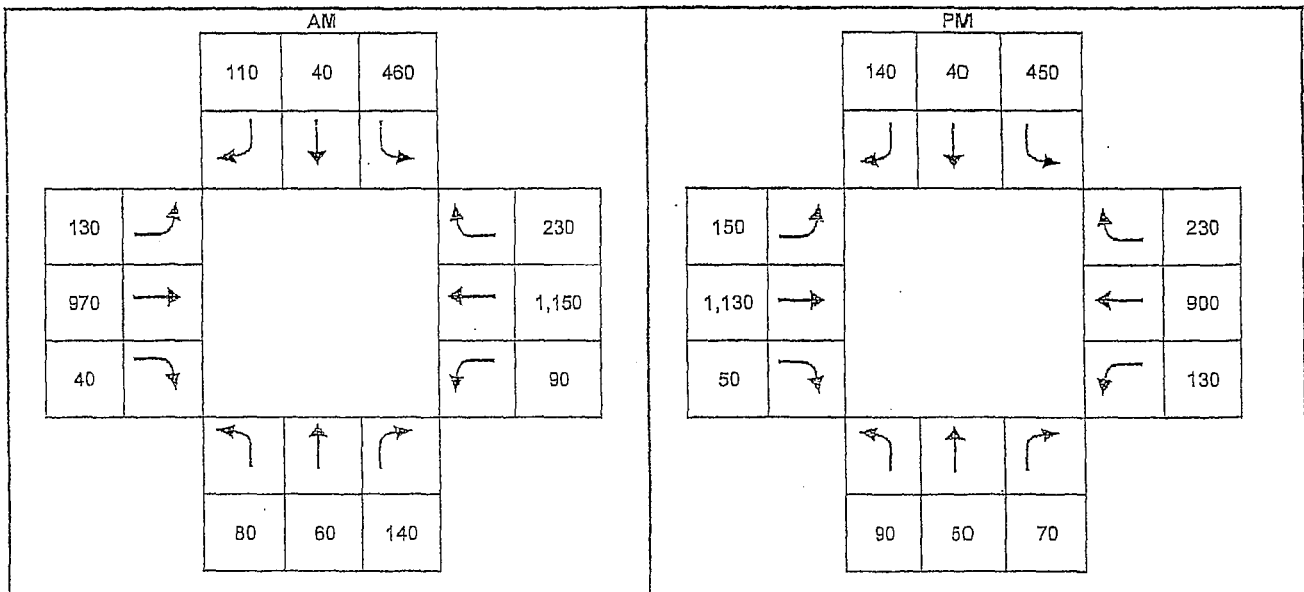
Analyst: Jacob Swim
 Intersection: Del Mar Heights Road / Mango Drive
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: Del Mar Heights Rd.
 N/S Street Name: Mango Dr.

Factored Turns

Note: Year 2030 volumes come from the I-5 / SR-56 NB Connector Study by LLG.

Turn Movement	Near Term turn (v) AM	Near Term turn (v) PM	Near Term ADT	Year 2030 ADT	Increase %	Year 2030 turn (v) AM	Year 2030 turn (v) PM
NLT						80	90
NTH						60	50
NRT						140	70
SLT						460	450
STH						40	40
SRT						110	140
ELT						130	150
ETH						970	1130
ERT						40	50
WLT						90	130
WTH						1150	900
WRT						230	230



Delay

36.8

LOS

D

Delay

29.3

LOS

C

Year 2030

Intersection 7

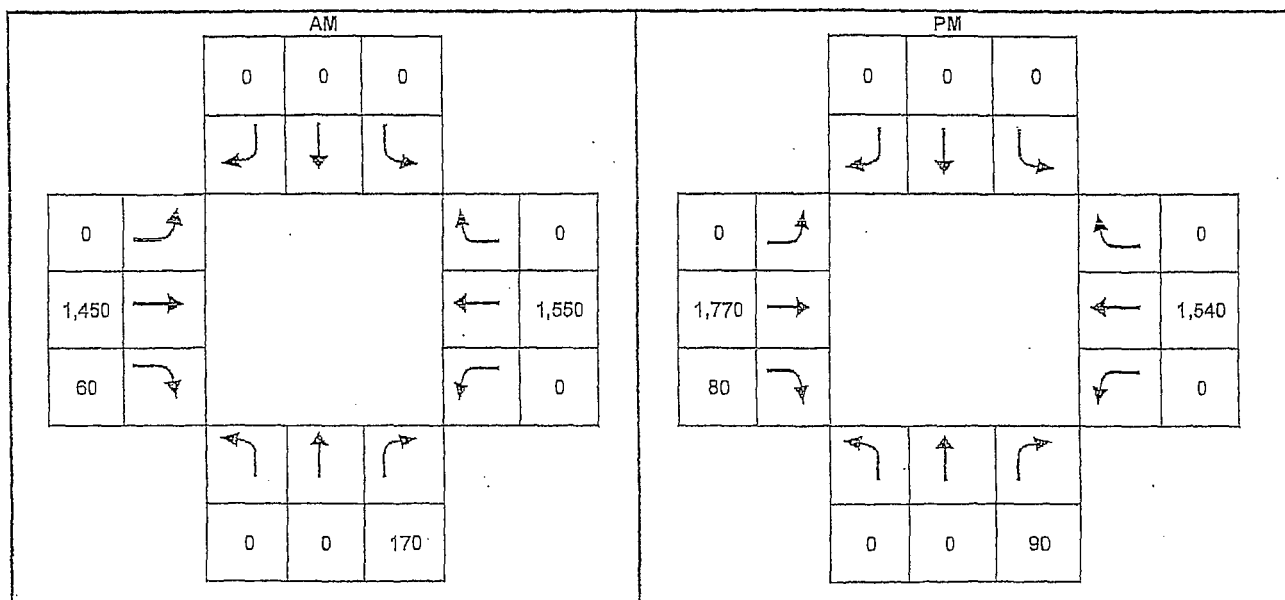
Analyst: Jacob Swim
 Intersection: Del Mar Heights Road / Portofino Drive
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Unsignalized

E/W Street Name: Del Mar Heights Rd.
 N/S Street Name: Portofino Dr.

Factored Turns

Note: Year 2030 volumes come from the I-5 / SR-56 NB Connector Study by LLG.

Turn Movement	Near Term turn (v) AM	Near Term turn (v) PM	Near Term ADT	Year 2030 ADT	Increase %	Year 2030 turn (v) AM	Year 2030 turn (v) PM
NLT						0	0
NTH						0	0
NRT						170	90
SLT						0	0
STH						0	0
SRT						0	0
ELT						0	0
ETH						1450	1770
ERT						60	80
WLT						0	0
WTH						1550	1540
WRT						0	0



Delay: 9.8
 LOS: A

Delay: 9.6
 LOS: A

Year 2030

Intersection 8

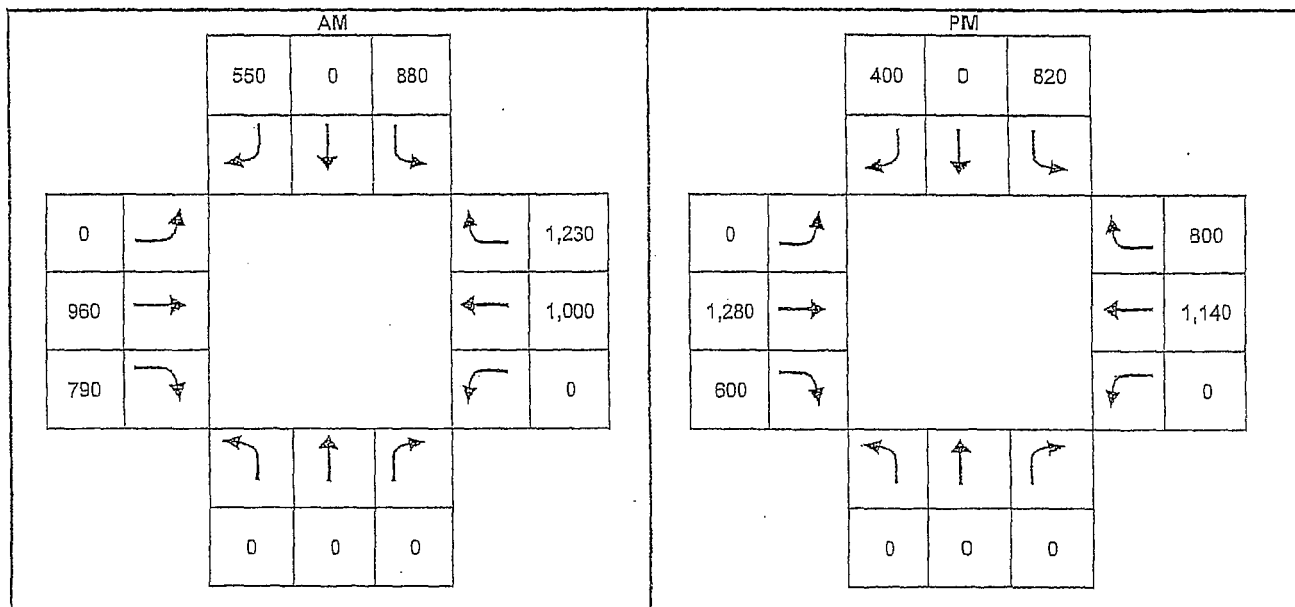
Analyst: Jacob Swim
 Intersection: Del Mar Heights Road / I-5 SB Ramps
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: Del Mar Heights Rd.
 N/S Street Name: I-5 SB Ramps

Factored Turns

Note: Year 2030 volumes come from the I-5 / SR-56 NB Connector Study by LLG.

Turn Movement	Near Term turn (v) AM	Near Term turn (v) PM	Near Term ADT	Year 2030 ADT	Increase %	Year 2030 turn (v) AM	Year 2030 turn (v) PM
NLT						0	0
NTH						0	0
NRT						0	0
SLT						880	820
STH						0	0
SRT						550	400
ELT						0	0
ETH						960	1280
ERT						790	600
WLT						0	0
WTH						1000	1140
WRT						1230	800



Delay
14.8

LOS
B

Delay
14.9

LOS
B

Year 2030

Intersection 9

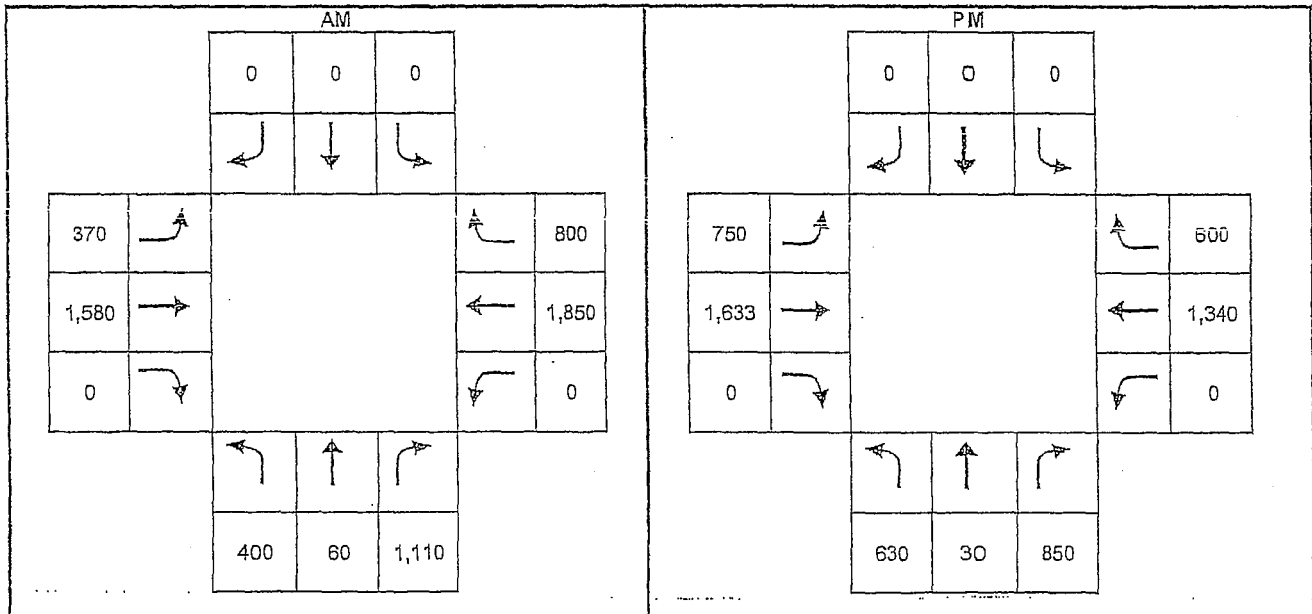
Analyst: Jacob Swim
 Intersection: Del Mar Heights Road / I-5 NB Ramps
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: Del Mar Heights Rd.
 N/S Street Name: I-5 NB Ramps

Factored Turns

Note: Year 2030 volumes come from the I-5 / SR-56 NB Connector Study by LLG.

Turn Movement	Near Term turn (v) AM	Near Term turn (v) PM	Near Term ADT	Year 2030 ADT	Increase %	Year 2030 turn (v) AM	Year 2030 turn (v) PM
NLT						400	630
NTH						60	30
NRT						1110	850
SLT						0	0
STH						0	0
SRT						0	0
ELT						370	750
ETH						1580	1633
ERT						0	0
WLT						0	0
WTH						1850	1340
WRT						800	600



Delay	LOS
67.2	E

Delay	LOS
53.0	D

Year 2030

Intersection 10

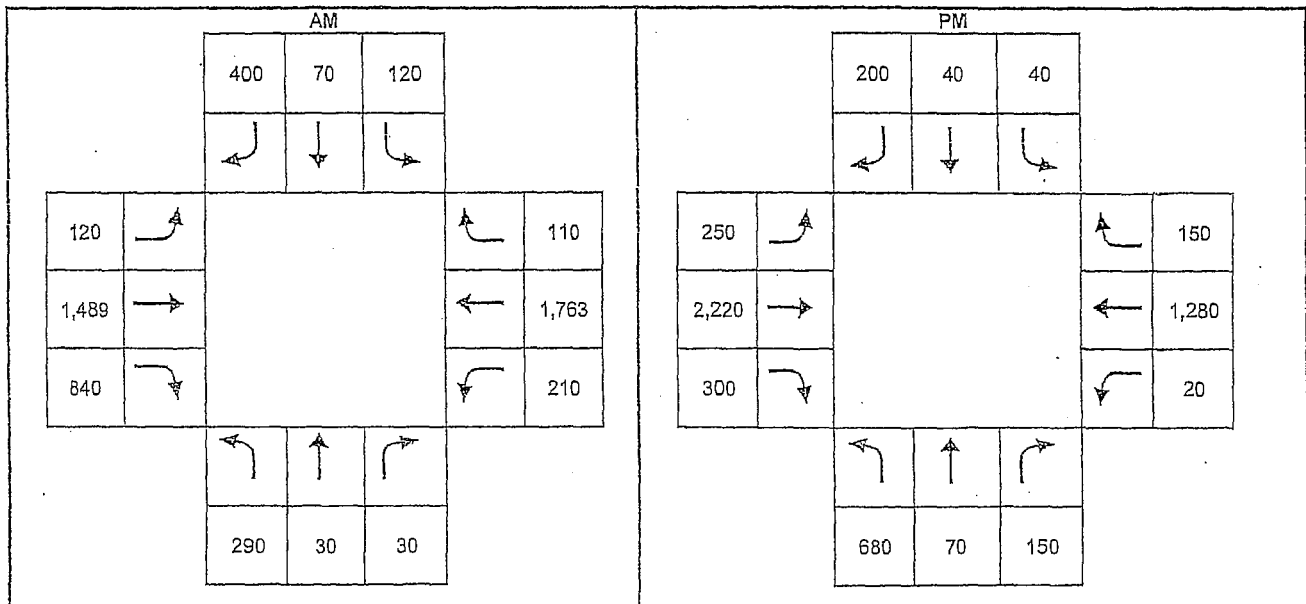
Analyst: Jacob Swim
 Intersection: Del Mar Heights Road / High Bluff Drive
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: Del Mar Heights Rd.
 N/S Street Name: High Bluff Dr.

Factored Turns

Note: Year 2030 volumes come from the I-5 / SR-56 NB Connector Study by LLG.

Turn Movement	Near Term turn (v) AM	Near Term turn (v) PM	Near Term ADT	Year 2030 ADT	Increase %	Year 2030 turn (v) AM	Year 2030 turn (v) PM
NLT						290	680
NTH						30	70
NRT						30	150
SLT						120	40
STH						70	40
SRT						400	200
ELT						120	250
ETH	1,401	2,089	40,648	43,200	106%	1489	2220
ERT						840	300
WLT						210	20
WTH	1,864	1,353	54,775	51,800	95%	1763	1280
WRT						110	150



Delay
44.0

LOS
D

Delay
40.1

LOS
D

Year 2030

Intersection 11

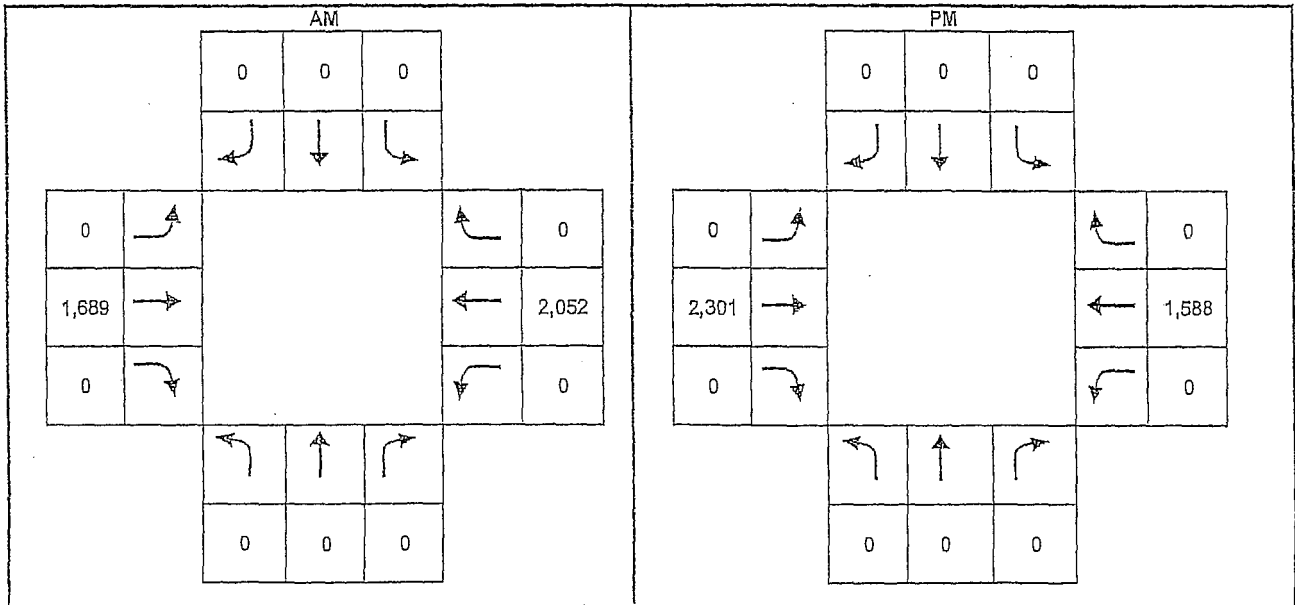
Analyst: Jacob Swim
 Intersection: Del Mar Heights Road / Third Avenue
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: Del Mar Heights Rd.
 N/S Street Name: Third Ave.

Factored Turns

NOT BUILT

Turn Movement	Near Term turn (v) AM	Near Term turn (v) PM	Near Term ADT	Year 2030 ADT	Increase %	Year 2030 turn (v) AM	Year 2030 turn (v) PM
NLT	0	0					
NTH	0	0					
NRT	0	0					
SLT	0	0					
STH	0	0					
SRT	0	0					
ELT	0	0					
ETH	1,689	2,301				1689	2301
ERT	0	0					
WLT	0	0					
WTH	2,052	1,588				2052	1588
WRT	0	0					



Delay
DNE

LOS
DNE

Delay
DNE

LOS
DNE

Year 2030

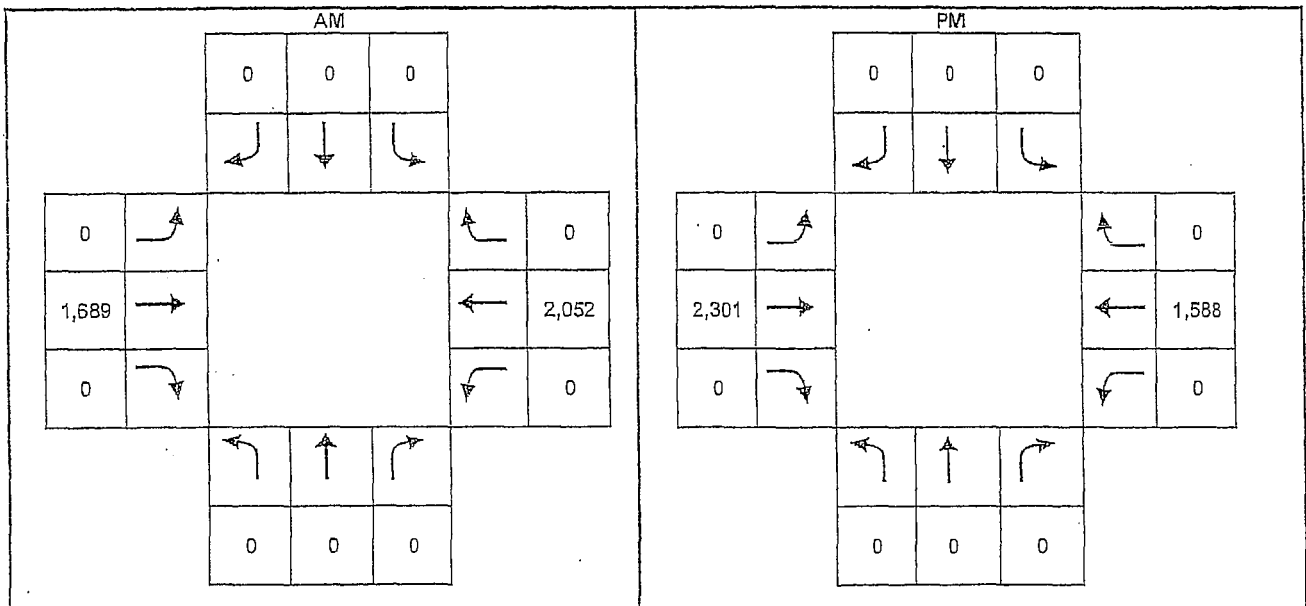
Intersection 12

Analyst: Jacob Swim
 Intersection: Del Mar Heights Road / First Avenue
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: Del Mar Heights Rd.
 N/S Street Name: First Ave.
 Factored Turns

NOT BUILT

Turn Movement	Near Term turn (v) AM	Near Term turn (v) PM	Near Term ADT	Year 2030 ADT	Increase %	Year 2030 turn (v) AM	Year 2030 turn (v) PM
NLT	0	0					
NTH	0	0					
NRT	0	0					
SLT	0	0					
STH	0	0					
SRT	0	0					
ELT	0	0					
ETH	1,689	2,301				1689	2301
ERT	0	0					
WLT	0	0					
WTH	2,052	1,588				2052	1588
WRT	0	0					



Delay
DNE

LOS
DNE

Delay
DNE

LOS
DNE

Year 2030

Intersection 13

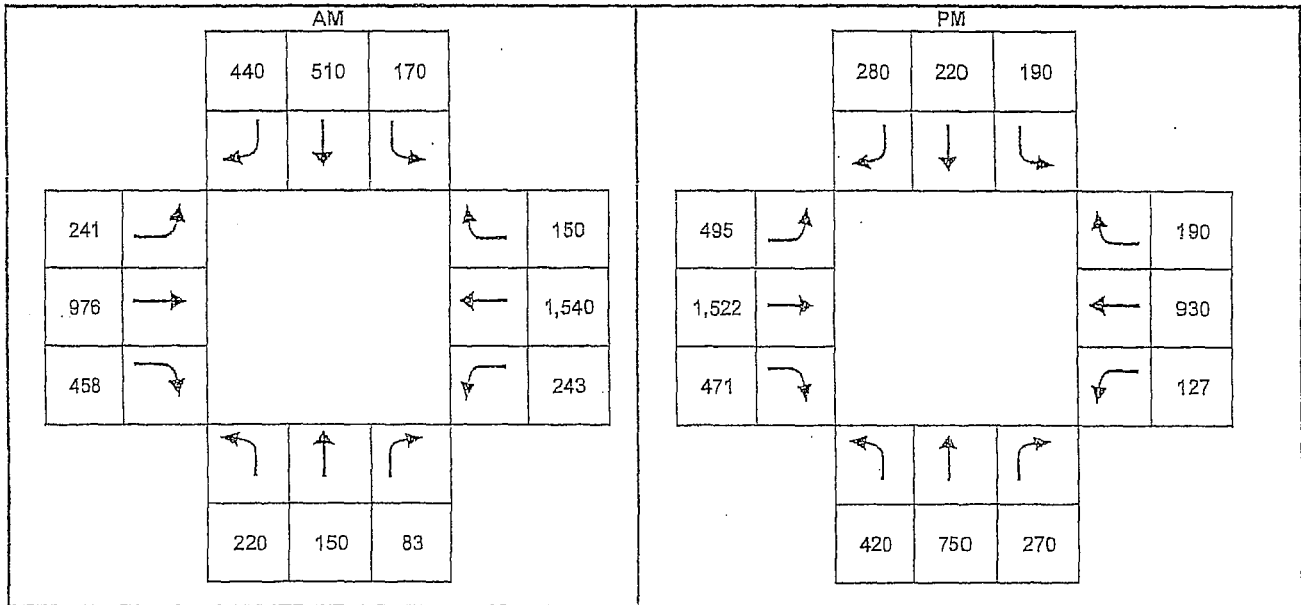
Analyst: Jacob Swim
 Intersection: Del Mar Heights Road / El Camino Real
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: Del Mar Heights Rd.
 N/S Street Name: El Camino Real

Factored Turns

Note: Year 2030 volumes come from the I-5 / SR-56 NB Connector Study by LLG.

Turn	Near Term	Near Term	Near Term	Year 2030	Increase	Year 2030	Year 2030
Movement	turn (v) AM	turn (v) PM	ADT	ADT	%	turn (v) AM	turn (v) PM
NLT	233	444	54,775	51,800	95%	220	420
NTH						150	750
NRT	79	257	40,648	42,770	105%	83	270
SLT						170	190
STH						510	220
SRT						440	280
ELT	220	452	26,500	29,000	109%	241	495
ETH	893	1,392	39,511	43,200	109%	976	1,522
ERT	388	399	19,500	23,000	118%	458	471
WLT	206	108	19,500	23,000	118%	243	127
WTH						1,540	930
WRT						150	190



Delay

35.0

LOS

C

Delay

41.5

LOS

D

Year 2030

Intersection 14

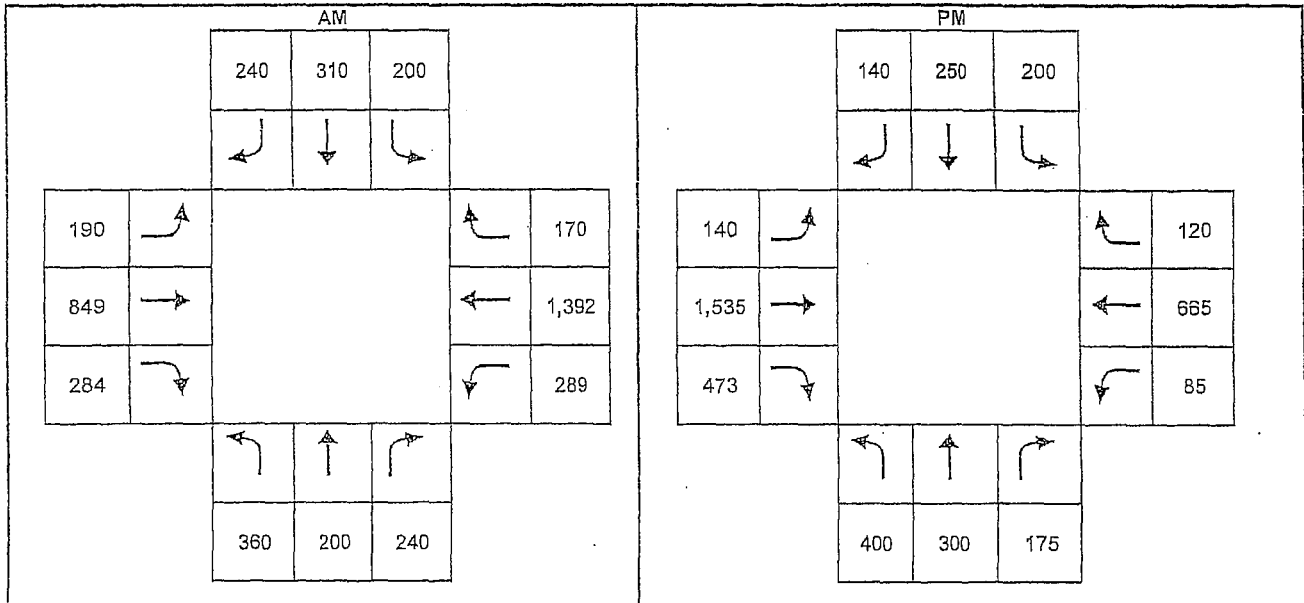
Analyst: Jacob Swim
 Intersection: Del Mar Heights Road / Carmel Country Rd
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: Del Mar Heights Rd.
 N/S Street Name: Carmel Country Rd.

Factored Turns

Note: Year 2030 volumes come from the I-5 / SR-56 NB Connector Study by LLG.

Turn Movement	Near Term turn (v) AM	Near Term turn (v) PM	Near Term ADT	Year 2030 ADT	Increase %	Year 2030 turn (v) AM	Year 2030 turn (v) PM
NLT						360	400
NTH						200	300
NRT						240	175
SLT						200	200
STH						310	250
SRT						240	140
ELT						190	140
ETH	609	1,101	24,670	34,400	139%	849	1535
ERT	275	458	21,570	22,280	103%	284	473
WLT	280	82	21,570	22,280	103%	289	85
WTH	1,141	545	31,440	38,370	122%	1392	665
WRT						170	120



Delay
33.6

LOS
C

Delay
34.1

LOS
C

Year 2030

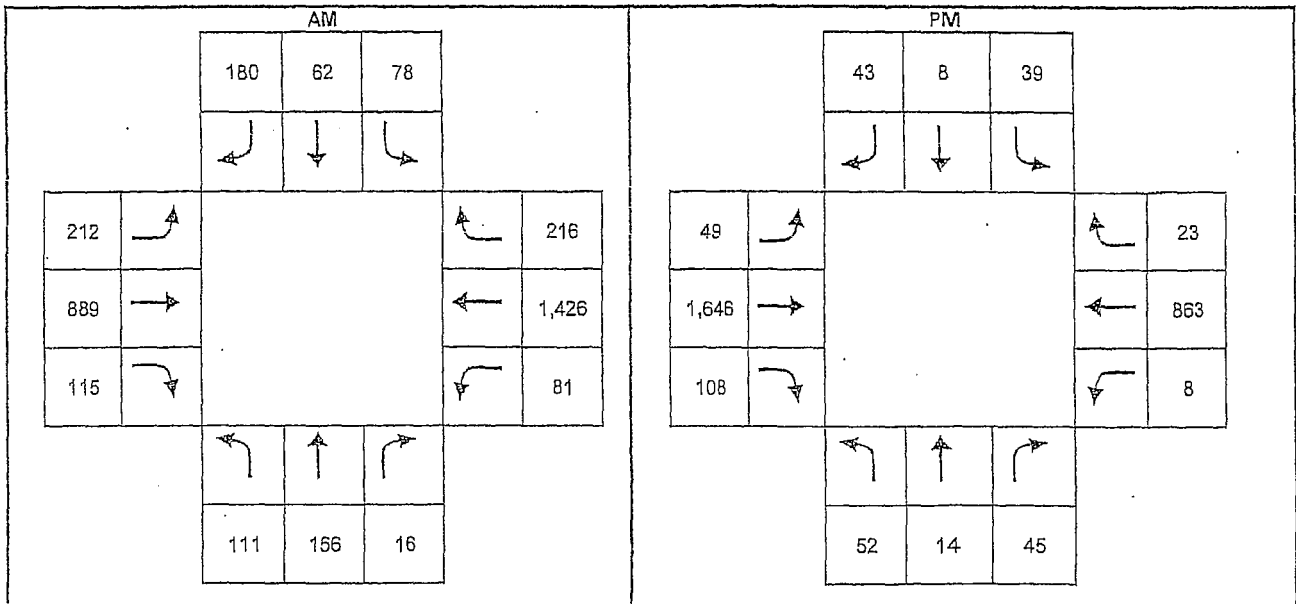
Intersection 15

Analyst: Jacob Swim
 Intersection: Del Mar Heights Road / Torrey Ridge Drive
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: Del Mar Heights Rd.
 N/S Street Name: Torrey Ridge Dr.

Factored Turns

Turn Movement	Near Term turn (v) AM	Near Term turn (v) PM	Near Term ADT	Year 2030 ADT	Increase %	Year 2030 turn (v) AM	Year 2030 turn (v) PM
NLT	79	37	24,670	34,400	139%	111	52
NTH	156	14	No Volume	No Volume	100%	156	14
NRT	11	32	24,670	34,400	139%	16	45
SLT	56	28	24,670	34,400	139%	78	39
STH	62	8	No Volume	No Volume	100%	62	8
SRT	129	31	24,670	34,400	139%	180	43
ELT	212	49	No Volume	No Volume	100%	212	49
ETH	638	1,180	24,670	34,400	139%	889	1,646
ERT	115	108	No Volume	No Volume	100%	115	108
WLT	81	8	No Volume	No Volume	100%	81	8
WTH	1,023	619	24,670	34,400	139%	1,426	863
WRT	216	23	No Volume	No Volume	100%	216	23



Delay

29.5

LOS

C

Delay

11.9

LOS

B

Year 2030

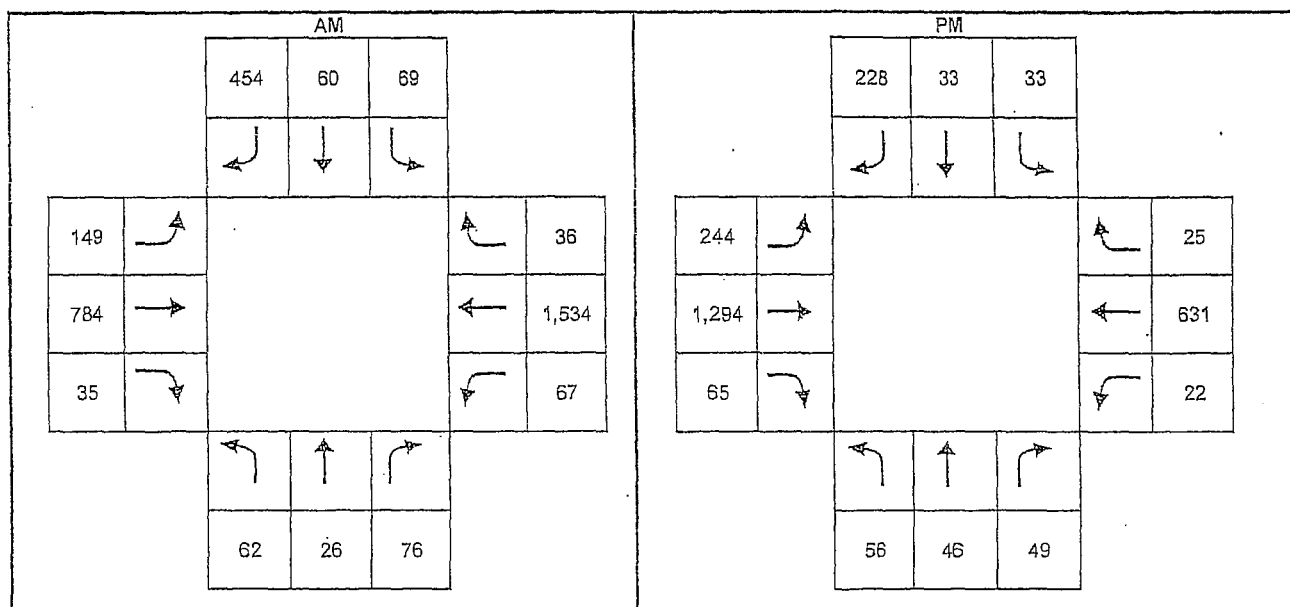
Intersection 16

Analyst: Jacob Swirn
 Intersection: Del Mar Heights Road / Lansdale Drive
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: Del Mar Heights Rd.
 N/S Street Name: Lansdale Dr.

Factored Turns

Turn	Near Term	Near Term	Near Term	Year 2030	Increase	Year 2030	Year 2030
Movement	turn (v) AM	turn (v) PM	ADT	ADT	%	turn (v) AM	turn (v) PM
NLT	44	40	24,670	34,400	139%	62	56
NTH	26	46	No Volume	No Volume	100%	26	46
NRT	55	35	24,670	34,400	139%	76	49
SLT	49	24	24,670	34,400	139%	69	33
STH	60	33	No Volume	No Volume	100%	60	33
SRT	325	164	24,670	34,400	139%	454	228
ELT	149	244	No Volume	No Volume	100%	149	244
ETH	562	928	24,670	34,400	139%	784	1294
ERT	35	65	No Volume	No Volume	100%	35	65
WLT	67	22	No Volume	No Volume	100%	67	22
WTH	1,100	452	24,670	34,400	139%	1534	631
WRT	36	25	No Volume	No Volume	100%	36	25



Delay

32.7

LOS

C

Delay

18.7

LOS

B

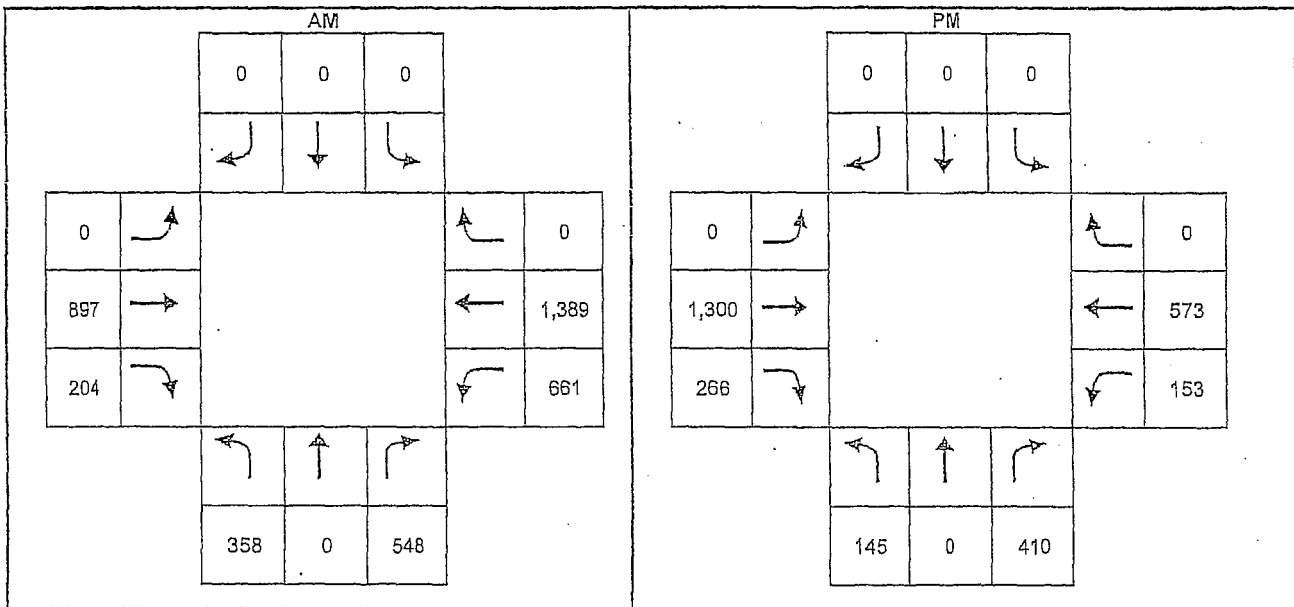
Year 2030

Intersection 17

Analyst: Jacob Swirn
 Intersection: Del Mar Heights Road / Carmel Canyon Rd
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: Del Mar Heights Rd.
 N/S Street Name: Carmel Canyon Rd.
 Factored Turns

Turn Movement	Near Term turn (v) AM	Near Term turn (v) PM	Near Term ADT	Year 2030 ADT	Increase %	Year 2030 turn (v) AM	Year 2030 turn (v) PM
NLT	256	104	24,670	34,400	139%	358	145
NTH	0	0	No Volume	No Volume	100%	0	0
NRT	342	255	17,470	28,010	160%	548	410
SLT	0	0	No Volume	No Volume	100%	0	0
STH	0	0	No Volume	No Volume	100%	0	0
SRT	0	0	No Volume	No Volume	100%	0	0
ELT	0	0	No Volume	No Volume	100%	0	0
ETH	559	811	17,470	28,010	160%	897	1300
ERT	123	160	4,500	7,500	167%	204	266
WLT	397	92	4,500	7,500	167%	661	153
WTH	996	411	24,670	34,400	139%	1389	573
WRT	0	0	No Volume	No Volume	100%	0	0



Delay

29.4

LOS

C

Delay

16.0

LOS

B

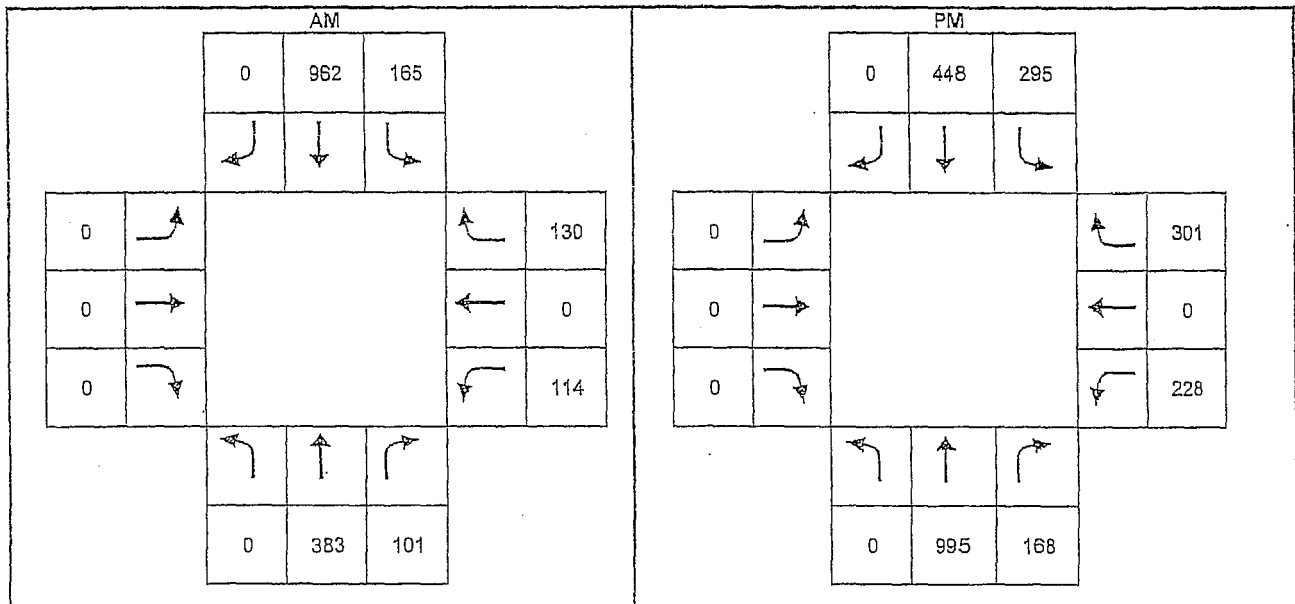
Year 2030

Intersection 18

Analyst: Jacob Swim
 Intersection: El Camino Real / Del Mar Highlands Town Ctr.
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: Del Mar Highlands Town Ctr.
 N/S Street Name: El Camino Real
 Factored Turns

Turn	Near Term	Near Term	Near Term	Year 2030	Increase	Year 2030	Year 2030
Movement	turn (v) AM	turn (v) PM	ADT	ADT	%	turn (v) AM	turn (v) PM
NLT	0	0	No Volume	No Volume	100%	0	0
NTH	325	844	19,500	23,000	118%	383	995
NRT	101	168	No Volume	No Volume	100%	101	168
SLT	165	295	No Volume	No Volume	100%	165	295
STH	815	380	19,500	23,000	118%	962	448
SRT	0	0	No Volume	No Volume	100%	0	0
ELT	0	0	No Volume	No Volume	100%	0	0
ETH	0	0	No Volume	No Volume	100%	0	0
ERT	0	0	No Volume	No Volume	100%	0	0
WLT	97	194	19,500	23,000	118%	114	228
WTH	0	0	No Volume	No Volume	100%	0	0
WRT	110	255	19,500	23,000	118%	130	301



Delay

6.2

LOS

A

Delay

14.2

LOS

B

Year 2030

Intersection 19

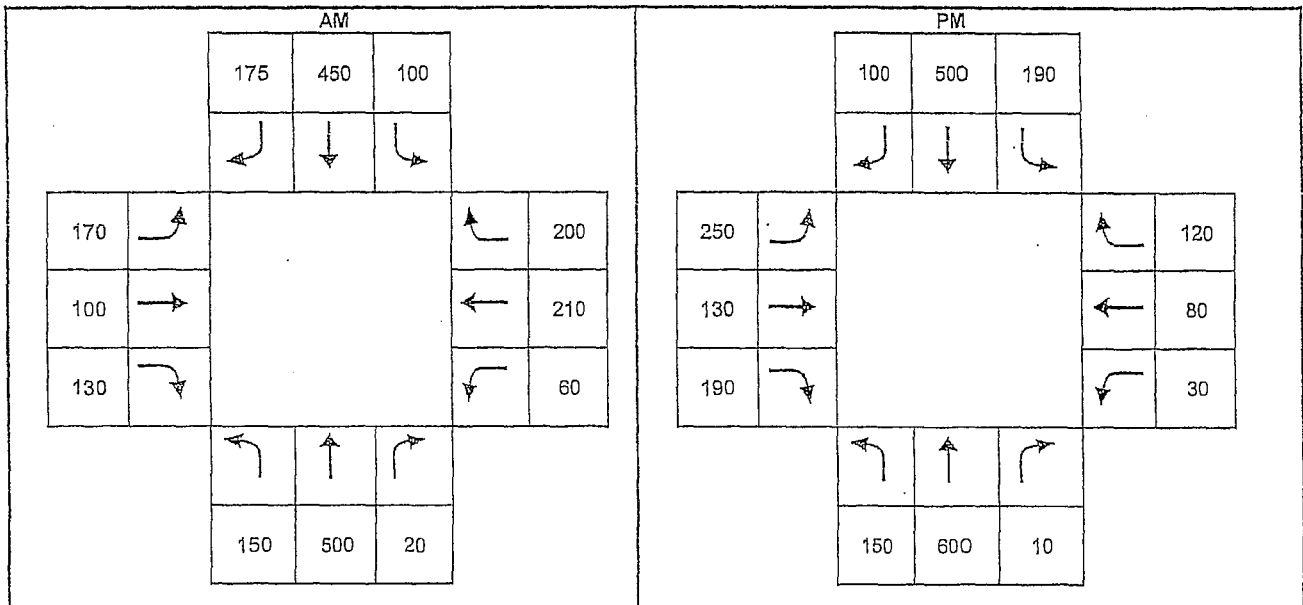
Analyst: Jacob Swim
 Intersection: Carmel Country Road / Townsgate Drive
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: Townsgate Dr.
 N/S Street Name: Carmel Country Rd.

Factored Turns

Note: Year 2030 volumes come from the I-5 / SR-56 NB Connector Study by LLG.

Turn Movement	Near Term turn (v) AM	Near Term turn (v) PM	Near Term ADT	Year 2030 ADT	Increase %	Year 2030 turn (v) AM	Year 2030 turn (v) PM
NLT						150	150
NTH						500	600
NRT						20	10
SLT						100	190
STH						450	500
SRT						175	100
ELT						170	250
ETH						100	130
ERT						130	190
WLT						60	30
WTH						210	80
WRT						200	120



Delay
32.0

LOS
C

Delay
29.8

LOS
C

Year 2030

Intersection 20

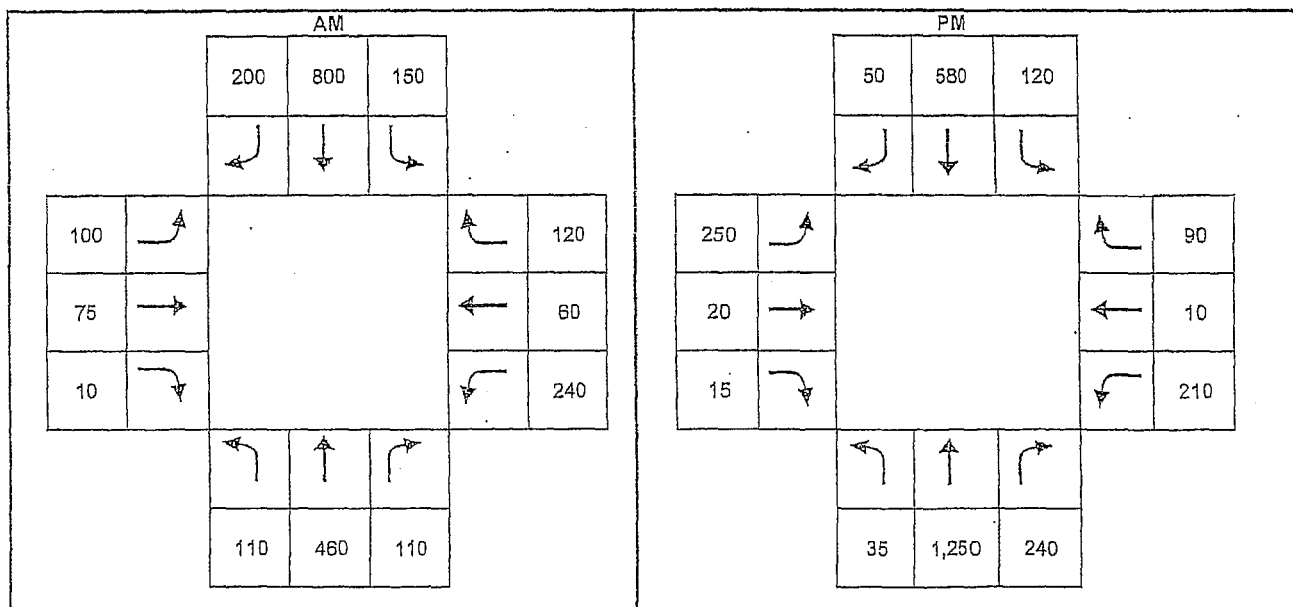
Analyst: Jacob Swim
 Intersection: El Camino Real / Townsgate Drive
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: Townsgate Dr.
 N/S Street Name: El Camino Real

Factored Turns

Note: Year 2030 volumes come from the I-5 / SR-56 NB Connector Study by LLG.

Turn Movement	Near Term turn (v) AM	Near Term turn (v) PM	Near Term ADT	Year 2030 ADT	Increase %	Year 2030 turn (v) AM	Year 2030 turn (v) PM
NLT						110	35
NTH						460	1250
NRT						110	240
SLT						150	120
STH						800	580
SRT						200	50
ELT						100	250
ETH						75	20
ERT						10	15
WLT						240	210
WTH						60	10
WRT						120	90



Delay

22.5

LOS

C

Delay

24.3

LOS

C

Year 2030

Intersection 21

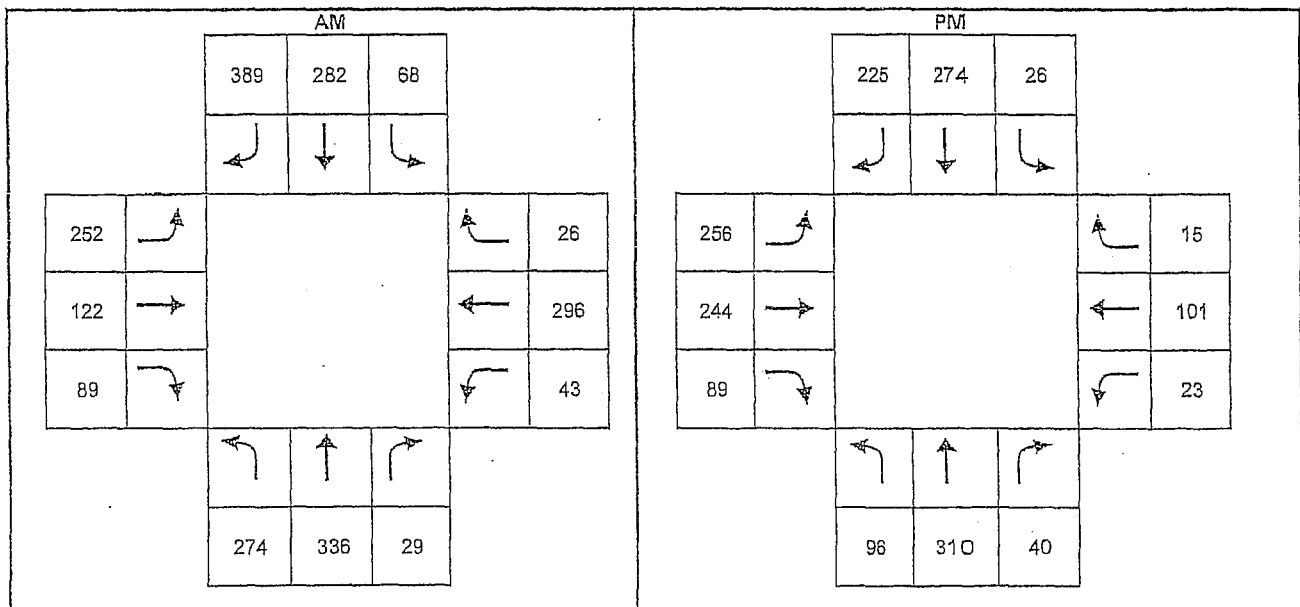
Analyst: Jacob Swim
 Intersection: Carmel Country Road / Carmel Creek Rd
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: Carmel Creek Rd.
 N/S Street Name: Carmel Country Rd.

Factored Turns

Note: Year 2030 volumes come from the I-5 / SR-56 NB Connector Study by LLG.

Turn Movement	Near Term turn (v) AM	Near Term turn (v) PM	Near Term ADT	Year 2030 ADT	Increase %	Year 2030 turn (v) AM	Year 2030 turn (v) PM
NLT	277	97	15,180	15,000	99%	274	96
NTH	383	354	21,470	18,800	88%	336	310
NRT	29	40	No Volume	No Volume	100%	29	40
SLT	68	26	No Volume	No Volume	100%	68	26
STH	404	392	13,590	9,500	70%	282	274
SRT	393	228	15,180	15,000	99%	389	225
ELT	287	293	21,470	18,800	88%	252	256
ETH	122	244	No Volume	No Volume	100%	122	244
ERT	127	127	13,590	9,500	70%	89	89
WLT	62	33	13,590	9,500	70%	43	23
WTH	300	102	15,180	15,000	99%	296	101
WRT	30	18	21,470	18,800	88%	26	15



Delay
41.5

LOS
D

Delay
19.7

LOS
B

Year 2030

Intersection 22

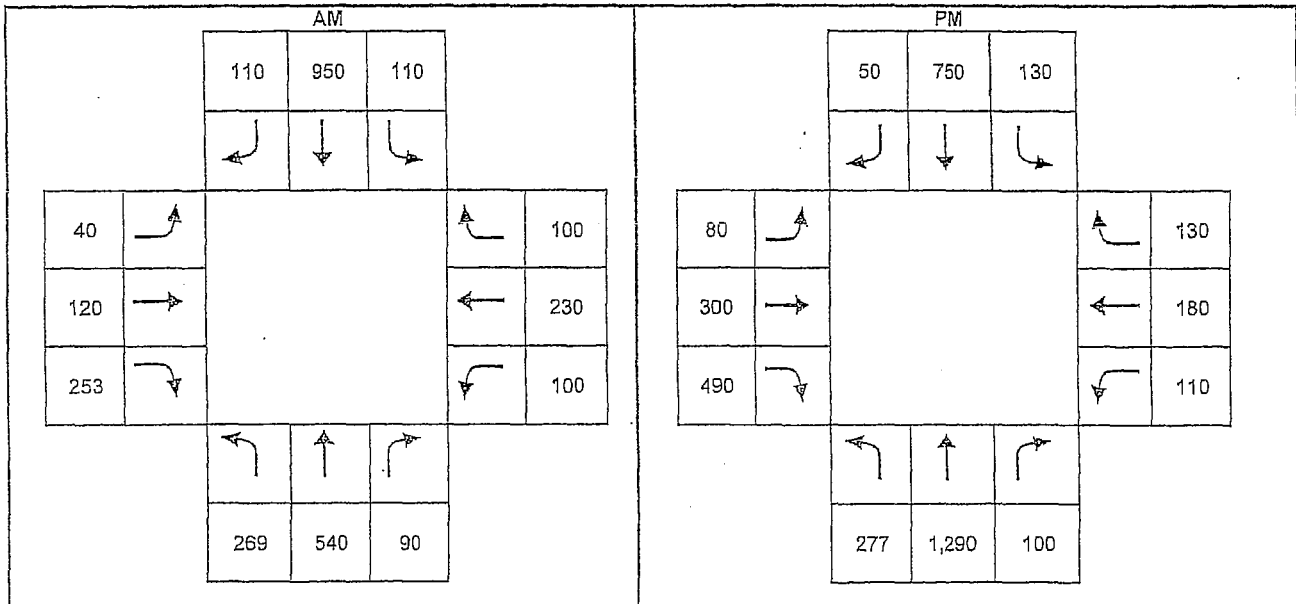
Analyst: Jacob Swim
 Intersection: El Camino Real / High Bluff Drive
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: High Bluff Dr.
 N/S Street Name: El Camino Real

Factored Turns

Note: Year 2030 volumes come from the I-5 / SR-56 NB Connector Study by LLG.

Turn Movement	Near Term turn (v) AM	Near Term turn (v) PM	Near Term ADT	Year 2030 ADT	Increase %	Year 2030 turn (v) AM	Year 2030 turn (v) PM
NLT						269	277
NTH						540	1290
NRT						90	100
SLT						110	130
STH						950	750
SRT						110	50
ELT						40	80
ETH						120	300
ERT						253	490
WLT						100	110
WTH						230	180
WRT						100	130



Delay

22.9

LOS

C

Delay

33.6

LOS

C

Year 2030

Intersection 23

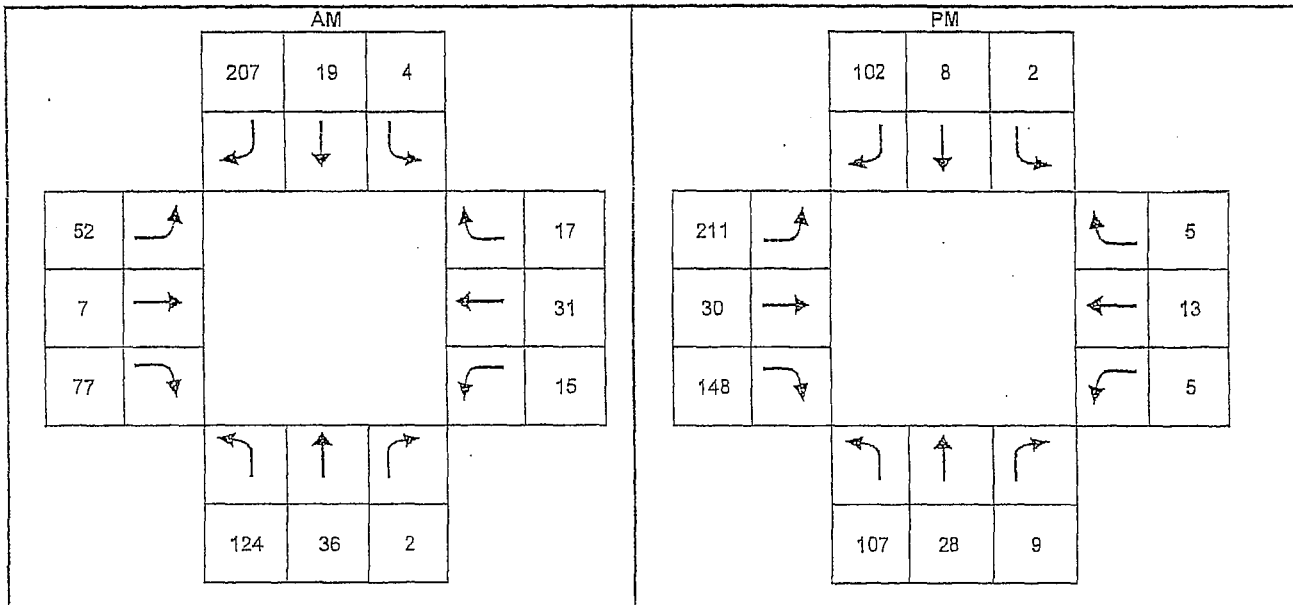
Analyst: Jacob Swim
 Intersection: Carmel View Road / High Bluff Drive
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Unsignalized

E/W Street Name: High Bluff Dr.
 N/S Street Name: Carmel View Rd.

Factored Turns

Note: Year 2030 volumes were factored using an increase % of 115 to be consistent with other volumes increases on nearby streets

Turn Movement	Near Term turn (v) AM	Near Term turn (v) PM	Near Term ADT	Year 2030 ADT	Increase %	Year 2030 turn (v) AM	Year 2030 turn (v) PM
NLT	108	93	No Volume	No Volume	115%	124	107
NTH	31	25	No Volume	No Volume	115%	36	28
NRT	2	8	No Volume	No Volume	115%	2	9
SLT	3	2	No Volume	No Volume	115%	4	2
STH	16	7	No Volume	No Volume	115%	19	8
SRT	180	89	No Volume	No Volume	115%	207	102
ELT	45	183	No Volume	No Volume	115%	52	211
ETH	6	26	No Volume	No Volume	115%	7	30
ERT	67	129	No Volume	No Volume	115%	77	148
WLT	13	4	No Volume	No Volume	115%	15	5
WTH	27	11	No Volume	No Volume	115%	31	13
WRT	14	4	No Volume	No Volume	115%	17	5



Delay

8.9

LOS

A

Delay

9.8

LOS

A

Year 2030

Intersection 24

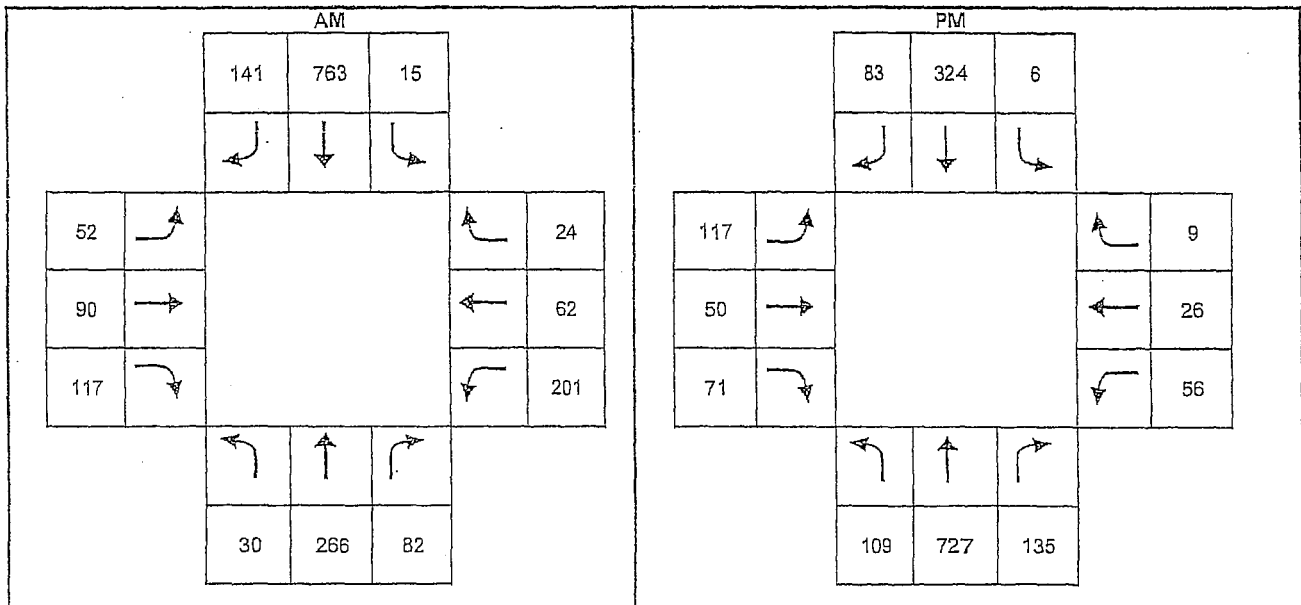
Analyst: Jacob Swim
 Intersection: Carmel Creek Road / Carmel Grove Rd
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: Carmel Grove Rd.
 N/S Street Name: Carmel Creek Rd.

Factored Turns

Note: Year 2030 volumes were factored using an decrease of 98% to be consistent with other volumes decreases on nearby streets.

Turn	Near Term	Near Term	Near Term	Year 2030	Increase	Year 2030	Year 2030
Movement	turn (v) AM	turn (v) PM	ADT	ADT	%	turn (v) AM	turn (v) PM
NLT	31	111	No Volume	No Volume	98%	30	109
NTH	272	742	No Volume	No Volume	98%	266	727
NRT	83	138	No Volume	No Volume	98%	82	135
SLT	15	6	No Volume	No Volume	98%	15	6
STH	779	331	No Volume	No Volume	98%	763	324
SRT	144	84	No Volume	No Volume	98%	141	83
ELT	54	119	No Volume	No Volume	98%	52	117
ETH	92	52	No Volume	No Volume	98%	90	50
ERT	119	72	No Volume	No Volume	98%	117	71
WLT	205	57	No Volume	No Volume	98%	201	56
WTH	63	27	No Volume	No Volume	98%	62	26
WRT	25	9	No Volume	No Volume	98%	24	9



Delay

15.3

LOS

B

Delay

11.4

LOS

B

Year 2030

Intersection 25

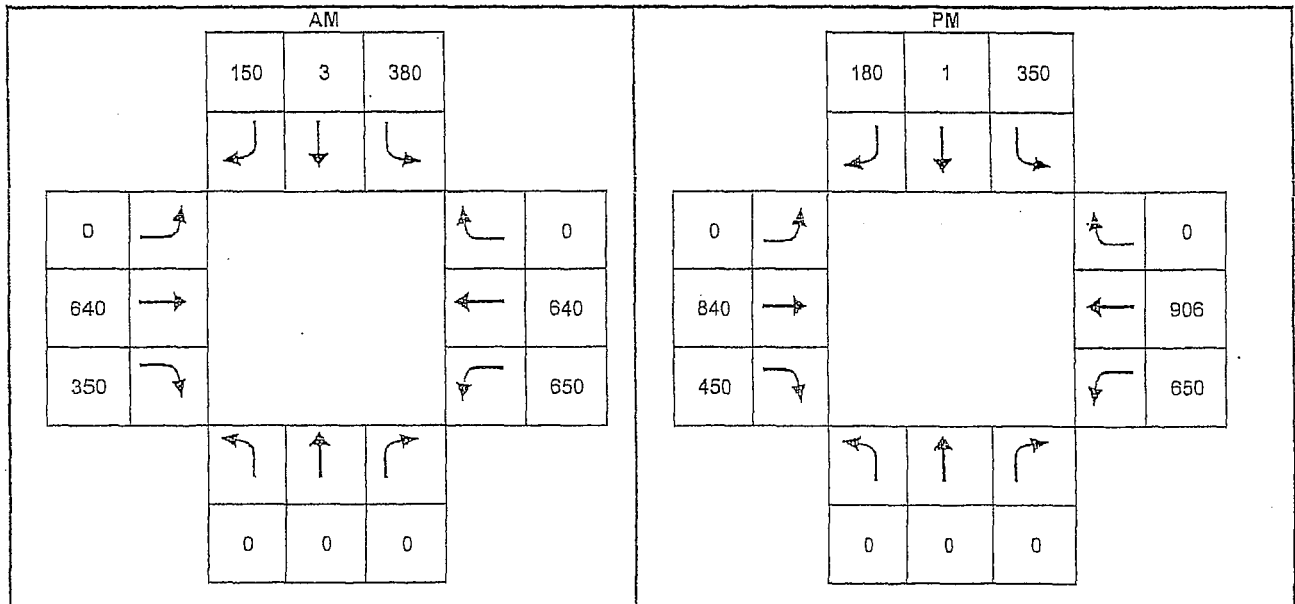
Analyst: Jacob Swim
 Intersection: Carmel Valley Road / I-5 SB Ramps
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: Carmel Valley Rd.
 N/S Street Name: I-5 SB Ramps

Factored Turns

Note: Year 2030 volumes come from the I-5 / SR-56 NB Connector Study by LLG.

Turn Movement	Near Term turn (v) AM	Near Term turn (v) PM	Near Term ADT	Year 2030 ADT	Increase %	Year 2030 turn (v) AM	Year 2030 turn (v) PM
NLT						0	0
NTH						0	0
NRT						0	0
SLT						380	350
STH						3	1
SRT						150	180
ELT						0	0
ETH						640	840
ERT						350	450
WLT						650	650
WTH						640	906
WRT						0	0



Delay

25.3

LOS

C

Delay

30.9

LOS

C

Year 2030

Intersection 26

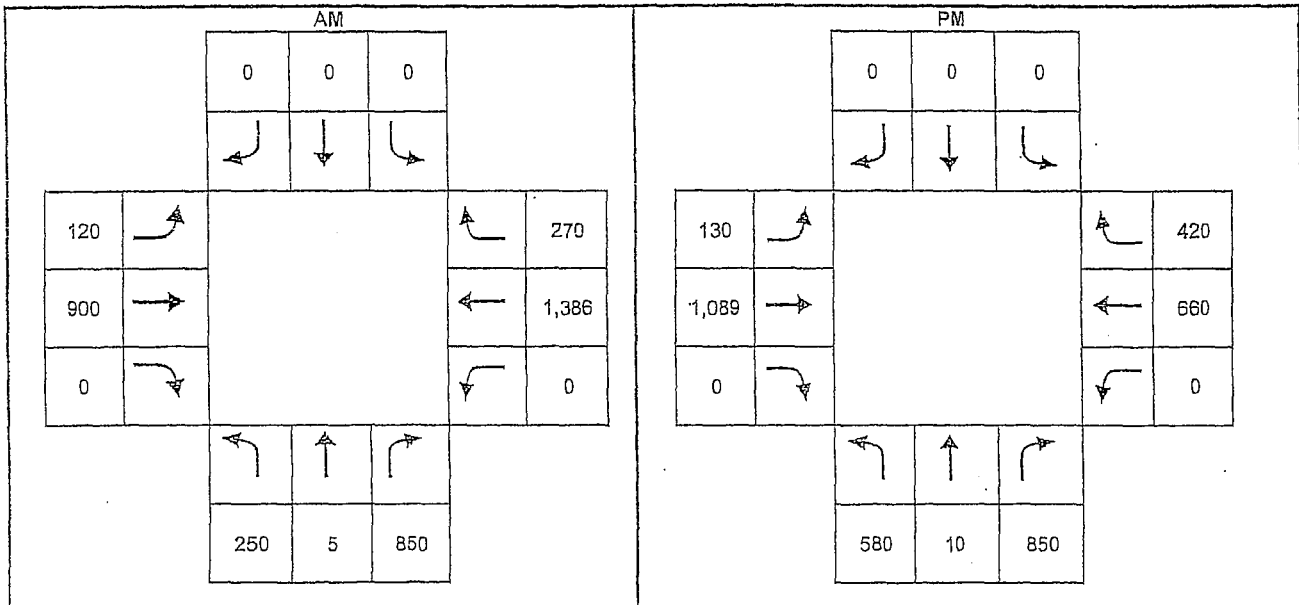
Analyst: Jacob Swim
 Intersection: Carmel Valley Road / I-5 NB Ramps
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: Carmel Valley Rd.
 N/S Street Name: I-5 NB Ramps

Factored Turns

Note: Year 2030 volumes come from the I-5 / SR-56 NB Connector Study by LLG.

Turn Movement	Near Term turn (v) AM	Near Term turn (v) PM	Near Term ADT	Year 2030 ADT	Increase %	Year 2030 turn (v) AM	Year 2030 turn (v) PM
NLT						250	580
NTH						5	10
NRT						850	850
SLT						0	0
STH						0	0
SRT						0	0
ELT						120	130
ETH						900	1089
ERT						0	0
WLT						0	0
WTH						1386	660
WRT						270	420



Delay

26.8

LOS

C

Delay

19.6

LOS

B

Year 2030

Intersection 27

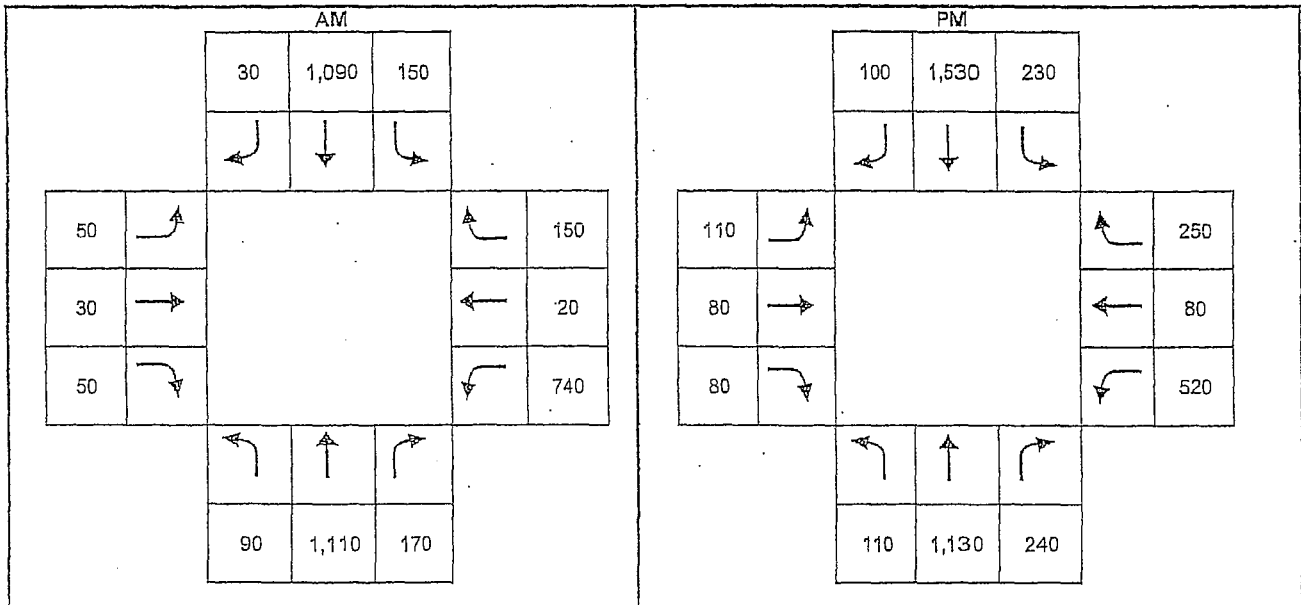
Analyst: Jacob Swim
 Intersection: El Camino Real / Valley Centre Drive
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: Valley Centre Dr.
 N/S Street Name: El Camino Real

Factored Turns

Note: Year 2030 volumes come from the I-5 / SR-56 NB Connector Study by LLG.

Turn Movement	Near Term turn (v) AM	Near Term turn (v) PM	Near Term ADT	Year 2030 ADT	Increase %	Year 2030 turn (v) AM	Year 2030 turn (v) PM
NLT						90	110
NTH						1110	1130
NRT						170	240
SLT						150	230
STH						1090	1530
SRT						30	100
ELT						50	110
ETH						30	80
ERT						50	80
WLT						740	520
WTH						20	80
WRT						150	250



Delay
22.0

LOS
C

Delay
27.4

LOS
C

Year 2030

Intersection 28

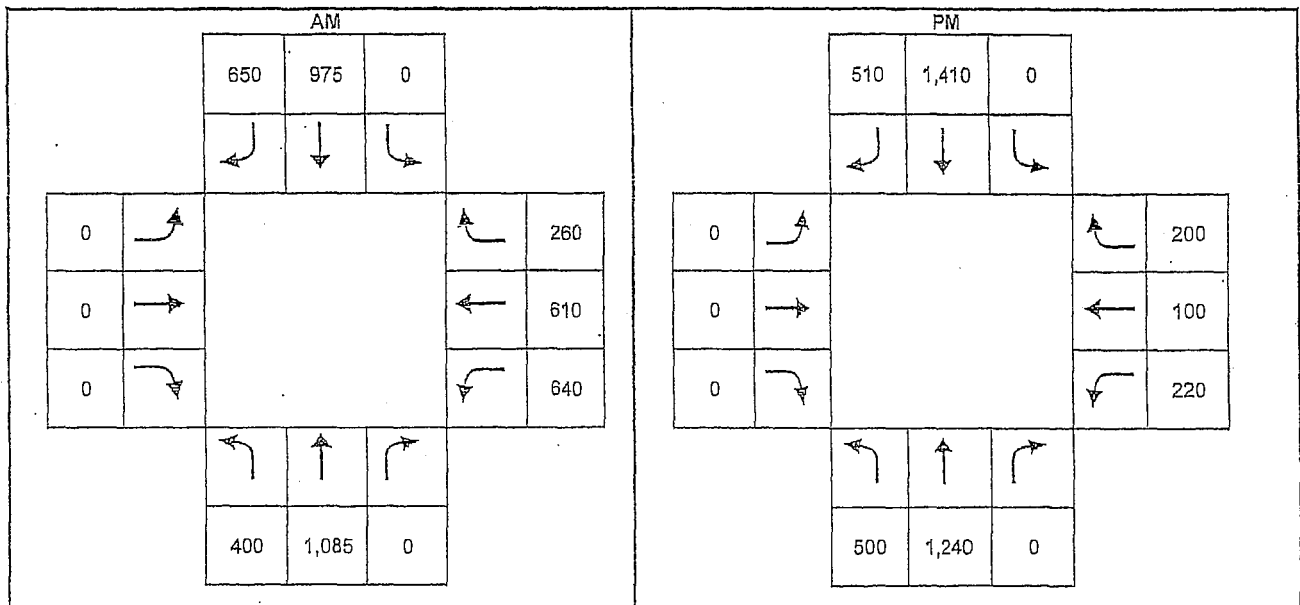
Analyst: Jacob Swim
 Intersection: El Camino Real / Carmel Valley Rd
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: Carmel Valley Rd.
 N/S Street Name: El Camino Real

Factored Turns

Note: Year 2030 volumes come from the I-5 / SR-56 NB Connector Study by LLG.

Turn Movement	Near Term turn (v) AM	Near Term turn (v) PM	Near Term ADT	Year 2030 ADT	Increase %	Year 2030 turn (v) AM	Year 2030 turn (v) PM
NLT						400	500
NTH						1085	1240
NRT						0	0
SLT						0	0
STH						975	1410
SRT						650	510
ELT						0	0
ETH						0	0
ERT						0	0
WLT						640	220
WTH						610	100
WRT						260	200



Delay
22.0

LOS
C

Delay
17.6

LOS
B

Year 2030

Intersection 29

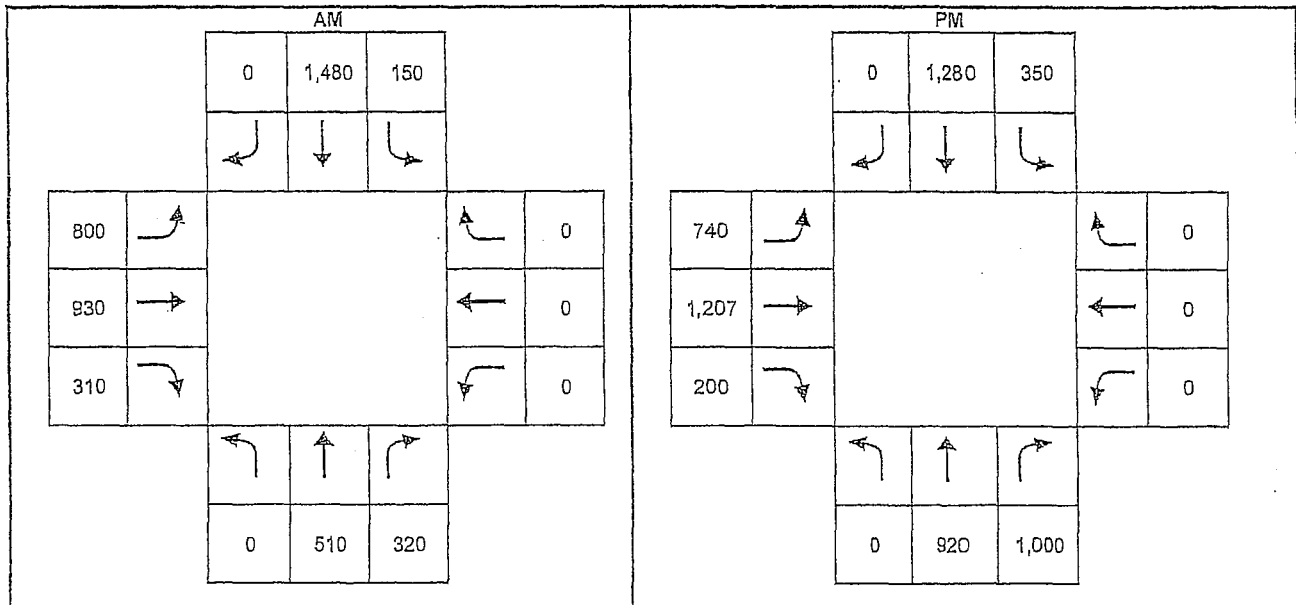
Analyst: Jacob Swim
 Intersection: El Camino Real / SR-56 EB On Ramp
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: SR-56 EB On Ramp
 N/S Street Name: El Camino Real

Factored Turns

Note: Year 2030 volumes come from the I-5 / SR-56 NB Connector Study by LLG.

Turn Movement	Near Term turn (v) AM	Near Term turn (v) PM	Near Term ADT	Year 2030 ADT	Increase %	Year 2030 turn (v) AM	Year 2030 turn (v) PM
NLT						0	0
NTH						510	920
NRT						320	1000
SLT						150	350
STH						1480	1280
SRT						0	0
ELT						800	740
ETH						930	1207
ERT						310	200
WLT						0	0
WTH						0	0
WRT						0	0



Delay
23.1

LOS
C

Delay
89.0

LOS
F

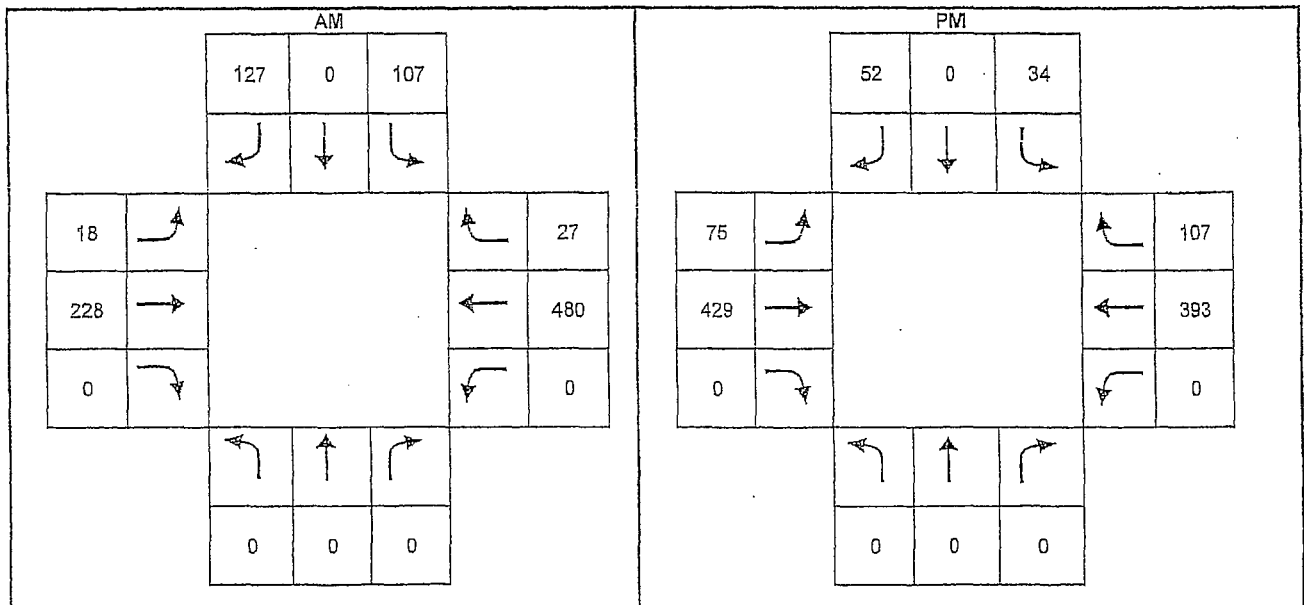
Year 2030

Intersection 30

Analyst: Jacob Swim
 Intersection: Carmel View Road / Valley Centre Drive
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: Valley Centre Dr.
 N/S Street Name: Carmel View Rd.
 Factored Turns

Turn Movement	Near Term turn (v) AM	Near Term turn (v) PM	Near Term ADT	Year 2030 ADT	Increase %	Year 2030 turn (v) AM	Year 2030 turn (v) PM
NLT	0	0	No Volume	No Volume	110%	0	0
NTH	0	0	No Volume	No Volume	110%	0	0
NRT	0	0	No Volume	No Volume	110%	0	0
SLT	97	31	No Volume	No Volume	110%	107	34
STH	0	0	No Volume	No Volume	110%	0	0
SRT	115	47	No Volume	No Volume	110%	127	52
ELT	16	68	No Volume	No Volume	110%	18	75
ETH	207	390	No Volume	No Volume	110%	228	429
ERT	0	0	No Volume	No Volume	110%	0	0
WLT	0	0	No Volume	No Volume	110%	0	0
WTH	437	357	No Volume	No Volume	110%	480	393
WRT	25	97	No Volume	No Volume	110%	27	107



Delay
7.7

LOS
A

Delay
6.2

LOS
A

Year 2030

Intersection 31

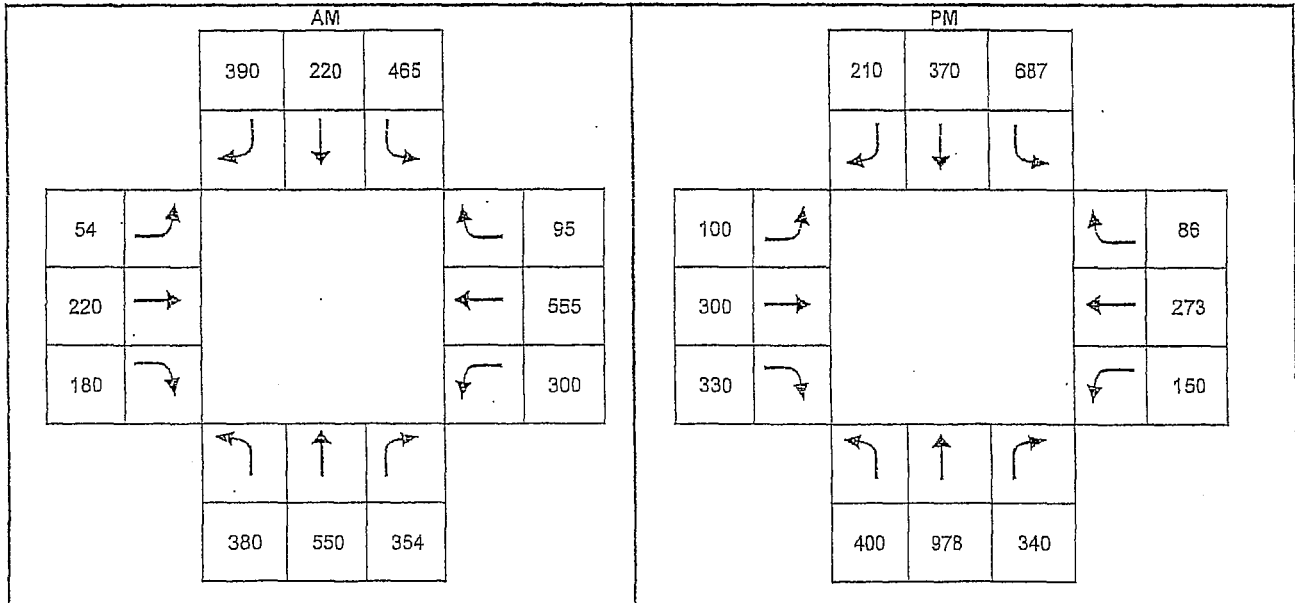
Analyst: Jacob Swim
 Intersection: Carmel Creek Road / SR-56 WB Ramp
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: SR-56 WB Ramp
 N/S Street Name: Carmel Creek Rd.

Factored Turns

Note: Year 2030 volumes come from the I-5 / SR-56 NB Connector Study by LLG.

Turn Movement	Near Term turn (v) AM	Near Term turn (v) PM	Near Term ADT	Year 2030 ADT	Increase %	Year 2030 turn (v) AM	Year 2030 turn (v) PM
NLT						380	400
NTH						550	978
NRT						354	340
SLT						465	687
STH						220	370
SRT						390	210
ELT						54	100
ETH						220	300
ERT						180	330
WLT						300	150
WTH						555	273
WRT						95	86



Delay
47.0

LOS
D

Delay
42.6

LOS
D

Year 2030

Intersection 32

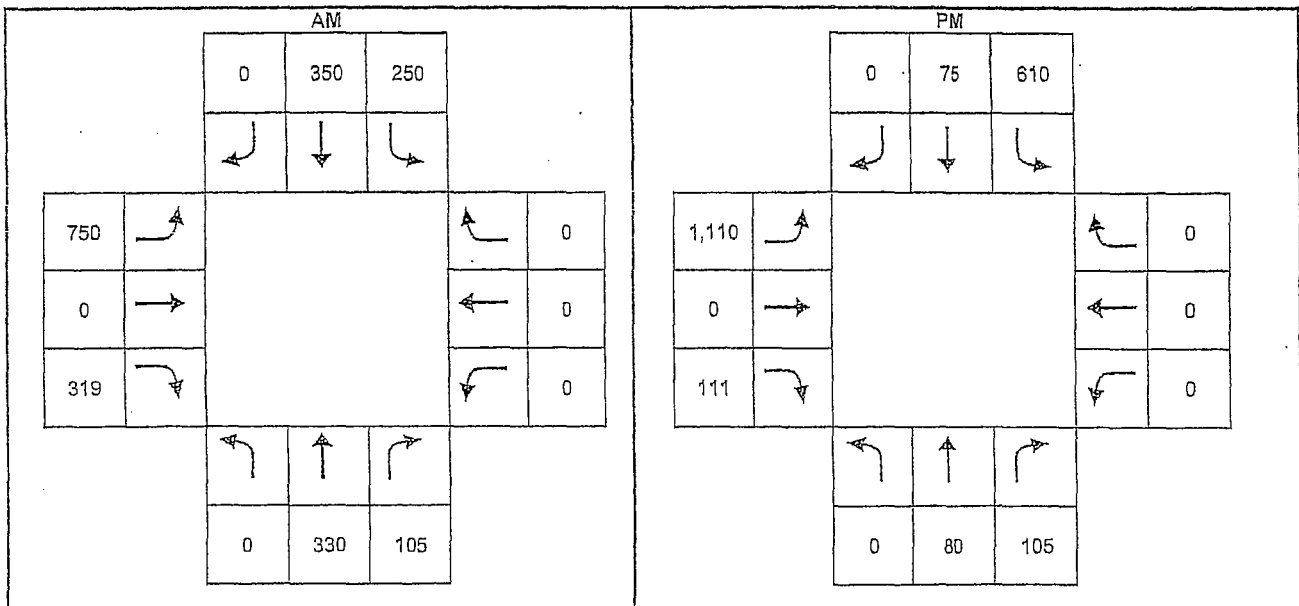
Analyst: Jacob Swim
 Intersection: Carmel Creek Road / SR-56 EB Ramps
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: SR-56 EB Ramp
 N/S Street Name: Carmel Creek Rd.

Factored Turns

Note: Year 2030 volumes come from the I-5 / SR-56 NB Connector Study by LLG.

Turn Movement	Near Term turn (v) AM	Near Term turn (v) PM	Near Term ADT	Year 2030 ADT	Increase %	Year 2030 turn (v) AM	Year 2030 turn (v) PM
NLT						0	0
NTH						330	80
NRT						105	105
SLT						250	610
STH						350	75
SRT						0	0
ELT						750	1110
ETH						0	0
ERT						319	111
WLT						0	0
WTH						0	0
WRT						0	0



Delay

15.0

LOS

B

Delay

22.9

LOS

C

Year 2030

Intersection 33

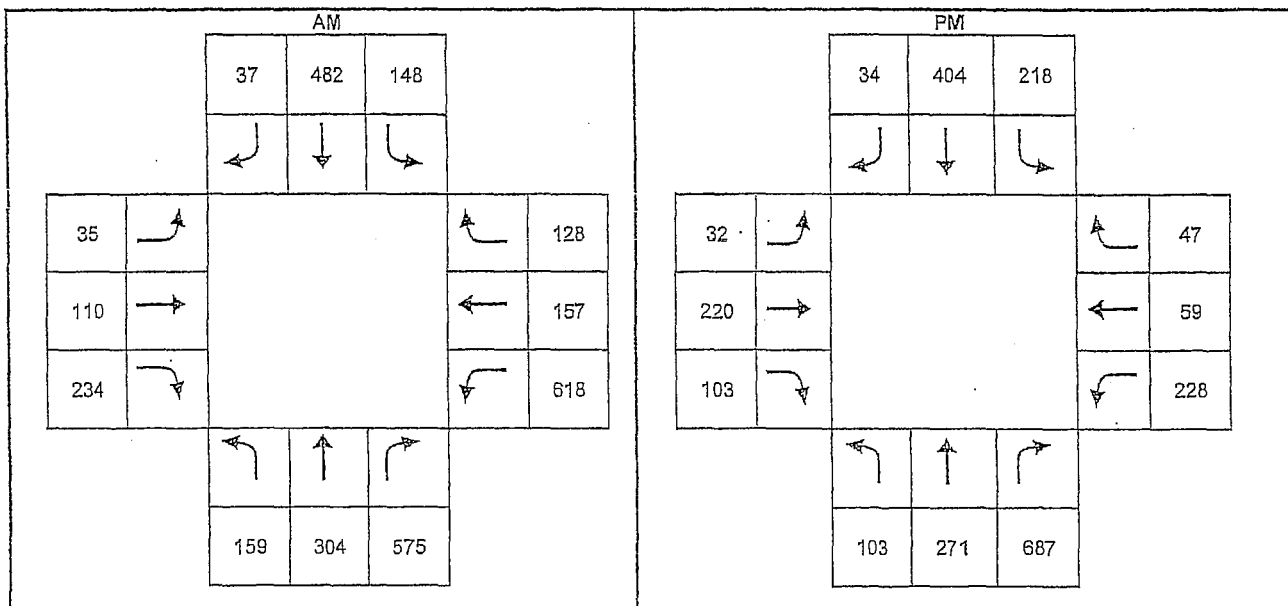
Analyst: Jacob Swim
 Intersection: Carmel Country Road / Carmel Canyon Rd
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: Carmel Canyon Rd.
 N/S Street Name: Carmel Country Rd.

Factored Turns

Note: Year 2030 volumes come from the I-5 / SR-56 NB Connector Study by LLG.

Turn Movement	Near Term turn (v) AM	Near Term turn (v) PM	Near Term ADT	Year 2030 ADT	Increase %	Year 2030 turn (v) AM	Year 2030 turn (v) PM
NLT	145	94	4,100	4,500	110%	159	103
NTH	435	387	13,590	9,500	70%	304	271
NRT	345	412	4,500	7,500	167%	575	687
SLT	89	131	4,500	7,500	167%	148	218
STH	501	419	26,990	26,000	96%	482	404
SRT	34	31	4,100	4,500	110%	37	34
ELT	49	45	13,590	9,500	70%	35	32
ETH	66	132	4,500	7,500	167%	110	220
ERT	243	107	26,990	26,000	96%	234	103
WLT	642	237	26,990	26,000	96%	618	228
WTH	143	54	4,100	4,500	110%	157	59
WRT	183	67	13,590	9,500	70%	128	47



Delay
34.5

LOS
C

Delay
33.4

LOS
C

Year 2030

Intersection 34

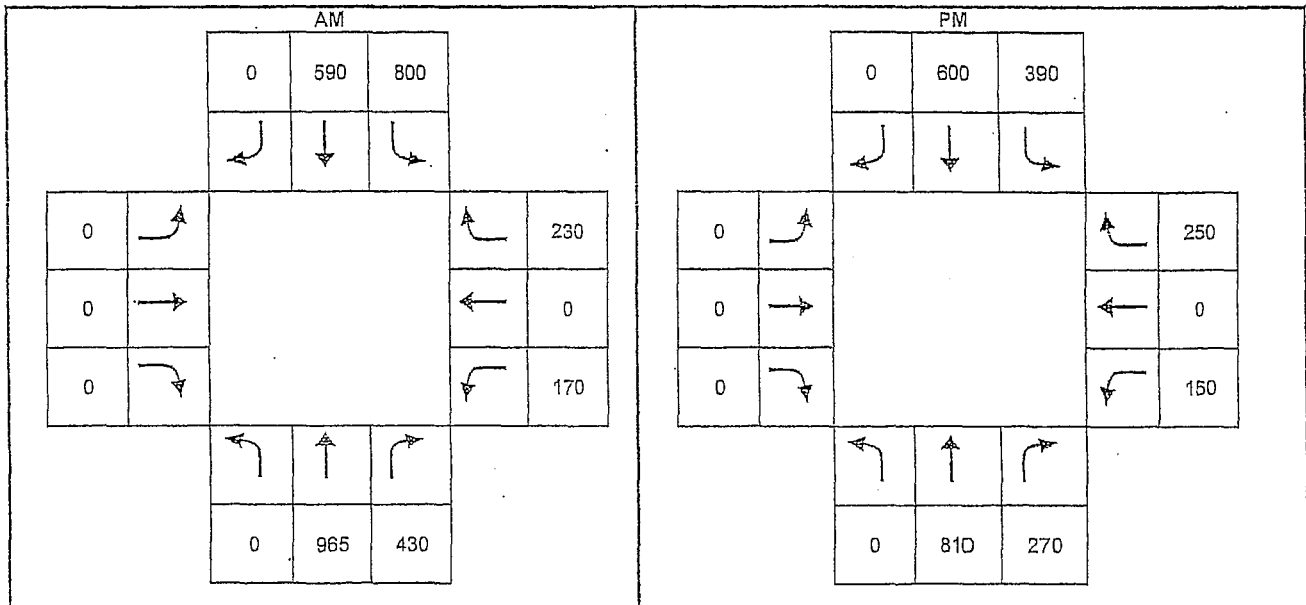
Analyst: Jacob Swim
 Intersection: Carmel Country Road / SR-56 WB Ramps
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: SR-56 WB Ramps
 N/S Street Name: Carmel Country Rd.

Factored Turns

Note: Year 2030 volumes come from the I-5 / SR-56 NB Connector Study by LLG.

Turn Movement	Near Term turn (v) AM	Near Term turn (v) PM	Near Term ADT	Year 2030 ADT	Increase %	Year 2030 turn (v) AM	Year 2030 turn (v) PM
NLT						0	0
NTH						965	810
NRT						430	270
SLT						800	390
STH						590	600
SRT						0	0
ELT						0	0
ETH						0	0
ERT						0	0
WLT						170	150
WTH						0	0
WRT						230	250



Delay
17.1

LOS
B

Delay
9.9

LOS
A

Year 2030

Intersection 35

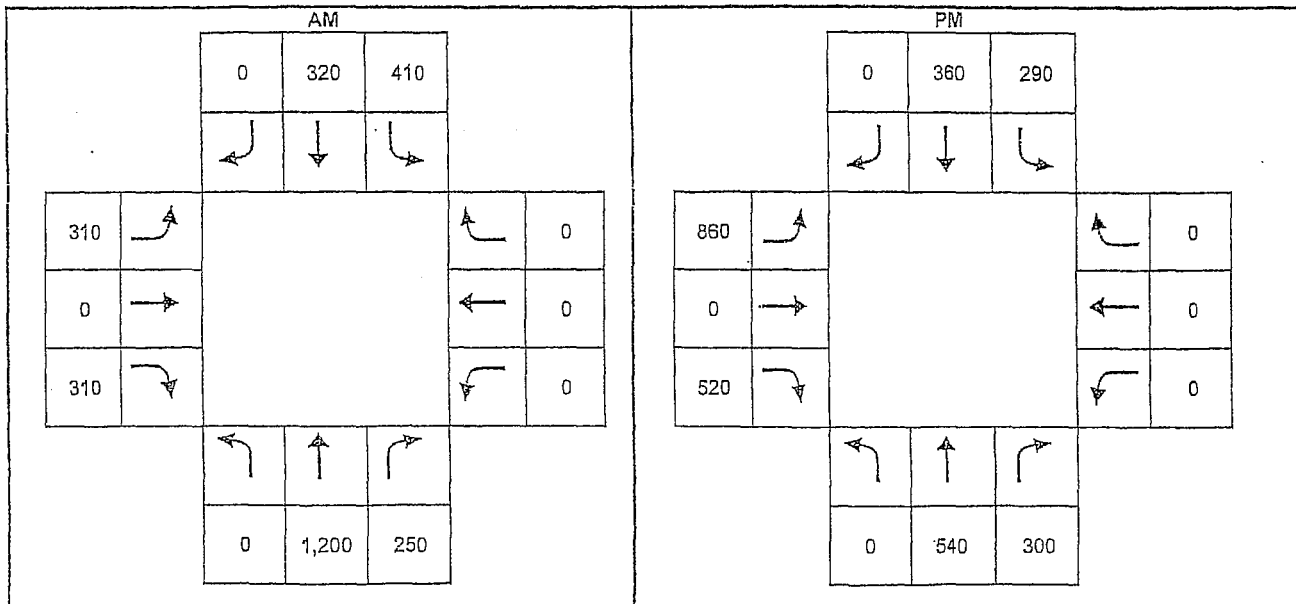
Analyst: Jacob Swim
 Intersection: Carmel Country Road / SR-56 EB Ramps
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Signalized

E/W Street Name: SR-56 EB Ramps
 N/S Street Name: Carmel Country Rd.

Factored Turns

Note: Year 2030 volumes come from the I-5 / SR-56 NB Connector Study by LLG.

Turn	Near Term	Near Term	Near Term	Year 2030	Increase	Year 2030	Year 2030
Movement	turn (v) AM	turn (v) PM	ADT	ADT	%	turn (v) AM	turn (v) PM
NLT						0	0
NTH						1200	540
NRT						250	300
SLT						410	290
STH						320	360
SRT						0	0
ELT						310	860
ETH						0	0
ERT						310	520
WLT						0	0
WTH						0	0
WRT						0	0



Delay	LOS
20.1	C

Delay	LOS
18.2	B

Year 2030

Intersection 36

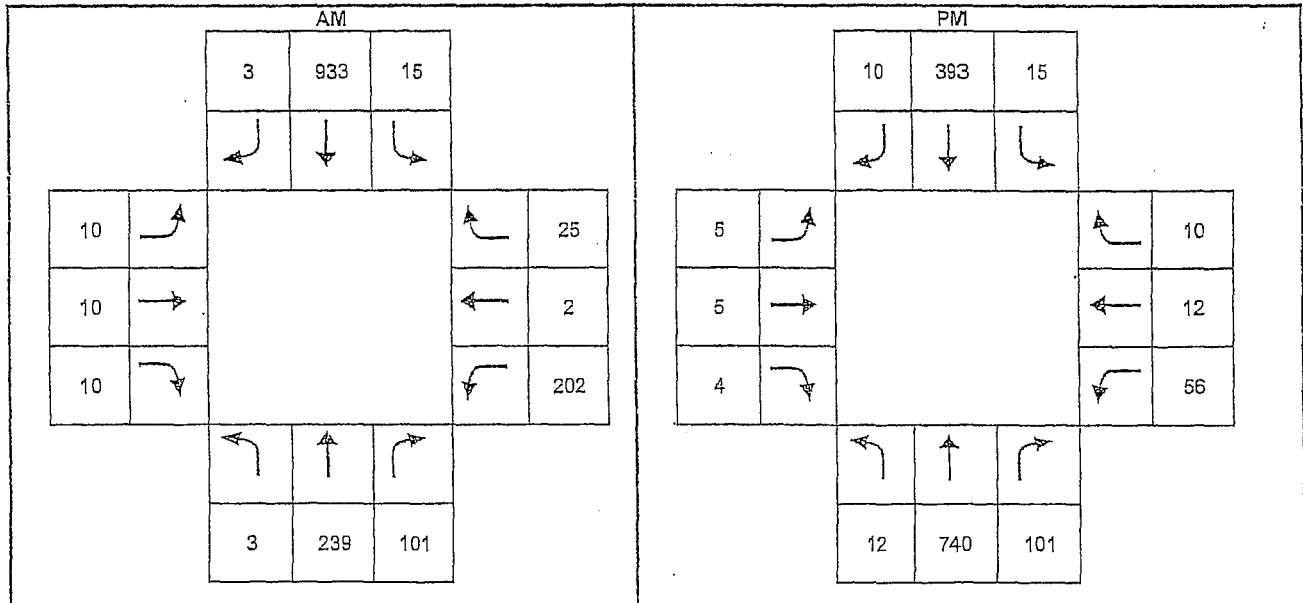
Analyst: Jacob Swim
 Intersection: Carmel Creek Road / Del Mar Trail
 Future Condition: Year 2030
 Date: 10/26/2010
 Company: Urban Systems Associates, Inc.
 Project Number: 002407
 Intersection Control: Unsignalized

E/W Street Name: Del Mar Trail
 N/S Street Name: Carmel Creek Rd.

Factored Turns

Note: Year 2030 volumes come from the I-5 / SR-56 NB Connector Study by LLG.

Turn	Near Term	Near Term	Near Term	Year 2030	Increase	Year 2030	Year 2030
Movement	turn (v) AM	turn (v) PM	ADT	ADT	%	turn (v) AM	turn (v) PM
NLT	3	12	No Volume	No Volume	98%	3	12
NTH	244	755	No Volume	No Volume	98%	239	740
NRT	103	103	No Volume	No Volume	98%	101	101
SLT	15	15	No Volume	No Volume	98%	15	15
STH	952	401	No Volume	No Volume	98%	933	393
SRT	3	10	No Volume	No Volume	98%	3	10
ELT	10	5	No Volume	No Volume	98%	10	5
ETH	10	5	No Volume	No Volume	98%	10	5
ERT	10	4	No Volume	No Volume	98%	10	4
WLT	206	57	No Volume	No Volume	98%	202	56
WTH	2	12	No Volume	No Volume	98%	2	12
WRT	26	10	No Volume	No Volume	98%	25	10



Delay
43.3

LOS
E

Delay
20.6

LOS
C

APPENDIX L

YEAR 2030 WITHOUT PROJECT SYNCHRO WORKSHEETS

HCM Signalized Intersection Capacity Analysis
1: Via De La Valle & El Camino Real

Year 2030 AM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↗↘	↘	↗↘	↗↘	↘	↗↘	↗	↗	↘	↗	↘
Volume (vph)	10	380	500	690	460	10	450	35	190	10	10	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		0.95	0.95	1.00		1.00	
Flt	1.00	1.00	0.95	1.00	1.00		1.00	1.00	0.85		0.96	
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	3528		1681	1687	1583		1750	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.74	0.71	1.00		0.89	
Satd. Flow (perm)	1770	3539	1583	3433	3528		1302	1251	1583		14579	
Peak-hour 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	556	767	511	11	500	6	211	11	11	11
RTOR Reduction (vph)	0	0	392	0	2	0	0	0	158	0	8	0
Lane Group Flow (vph)	11	422	164	767	520	0	255	251	53	0	25	0
Turn Type	Prot		Perm	Prot			Perm		Perm		Perm	
Protected Phases	7	4		3	8			2				6
Permitted Phases			4				2		2	6		
Actuated Green, G (s)	0.8	17.3	17.3	14.6	31.1		14.6	14.6	14.6		14.6	
Effective Green, g (s)	0.8	17.3	17.3	14.6	31.1		14.6	14.6	14.6		14.6	
Actuated g/C Ratio	0.01	0.30	0.30	0.25	0.53		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	
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)	24	1047	468	857	1876		325	312	395		394	
v/s Ratio Prot	0.01	0.12		0.22	0.15							
v/s Ratio Perm			0.10				0.20	0.20	0.03		0.02	
v/c Ratio	0.46	0.40	0.35	0.89	0.28		0.78	0.80	0.43		0.06	
Uniform Delay, d1	28.6	16.5	16.2	21.2	7.5		20.5	20.6	17.0		16.7	
Progression Factor	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	11.8	0.1		11.7	13.9	0.2		0.1	
Delay (s)	41.9	16.7	16.6	33.0	7.6		32.2	34.5	17.2		16.8	
Level of Service	D	B	B	C	A		C	C	B		B	
Approach Delay (s)	17.0	22.7	22.7	22.7	22.7		28.6	28.6	28.6		16.8	
Approach LOS	B			C			C				B	
Intersection Summary												
HCM Average Control Delay	22.2			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.68											
Actuated Cycle Length (s)	58.5			Sum of lost time (s)			12.0					
Intersection Capacity Utilization	64.0%			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: San Dieguito Road & El Camino Real

Year 2030 AM
12/1/2010

Movement	WBL	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↕↕	↕	↕	↕	↕	↕	↕↕
Volume (vph)	530	390	0	340	970	340	880
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	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	589	433	0	378	1111	378	978
RTOR Reduction (vph)	0	329	0	0	185	0	0
Lane Group Flow (vph)	589	104	0	378	226	378	978
Turn Type	custom		Prot	custom		Prot	
Protected Phases	3		8	3		7	
Permitted Phases	8			4			6
Actuated Green, G (s)	20.4	15.2		15.2	34.6	15.4	20.4
Effective Green, g (s)	20.4	15.2		15.2	34.6	15.4	20.4
Actuated g/C Ratio	0.32	0.24		0.24	0.55	0.24	0.32
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)	1112	382		449	869	433	1146
v/s Ratio Prot	0.17			0.20		0.21	
v/s Ratio Perm		0.07			0.14		0.28
v/c Ratio	0.53	0.27		0.84	0.26	0.87	0.85
Uniform Delay, d1	17.4	19.4		22.8	7.5	22.9	19.9
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.4		13.4	0.2	17.4	6.3
Delay (s)	17.8	19.8		36.1	7.6	40.2	26.2
Level of Service	B	B		D	A	D	C
Approach Delay (s)	18.7			21.9			30.1
Approach LOS	B			C			C
Intersection Summary							
HCM Average Control Delay	24.2			HCM Level of Service			C
HCM Volume to Capacity ratio	0.86						
Actuated Cycle Length (s)	63.0			Sum of lost time (s)			12.0
Intersection Capacity Utilization	61.9%			ICU Level of Service			B
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 AM
12/1/2010

Movement	WBL	WBR	NBL	NBR	SBL	SBR
Lane Configurations	TT	T	T	T	T	T
Volume (vph)	95	8	0	499	52	901
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97		0.95		1.00	0.95
Flt	0.99		0.99		1.00	1.00
Flt Protected	0.96		1.00		0.95	1.00
Satd. Flow (prot)	3414		3489		1770	3539
Flt Permitted	0.96		1.00		0.95	1.00
Satd. Flow (perm)	3414		3489		1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	106	9	0	554	58	1001
RTOR Reduction (vph)	8	0	0	12	0	0
Lane Group Flow (vph)	107	0	0	600	0	1001
Turn Type		Prot		Prot		
Protected Phases	8	5	2	1	6	6
Permitted Phases						
Actuated Green, G (s)	3.3		16.7		0.6	21.3
Effective Green, g (s)	3.3		16.7		0.6	21.3
Actuated g/C Ratio	0.10		0.51		0.02	0.65
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)	346		1787		33	2312
v/s Ratio Prot	0.03		0.17		0.00	0.28
v/s Ratio Perm						
v/c Ratio	0.31		0.34		0.09	0.49
Uniform Delay, d1	13.6		4.7		15.7	2.7
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	0.5		0.1		1.2	0.1
Delay (s)	14.1		4.8		16.9	2.9
Level of Service	B		A		B	A
Approach Delay (s)	14.1		14.8		2.9	
Approach LOS	B		A		A	
Intersection Summary						
HCM Average Control Delay	4.3					
HCM Volume to Capacity ratio	0.42					
Actuated Cycle Length (s)	32.6					
Intersection Capacity Utilization	34.9%					
Analysis Period (min)	15					
Critical Lane Group						

Baseline

Synchro 7 - Report
Page 3

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

Year 2030 AM
12/1/2010

Movement	WBL	WBR	NBL	NBR	SBL	SBR
Lane Configurations	TT	T	T	T	T	T
Volume (vph)	26	144	21	61	188	338
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Flt	1.00	0.98	1.00	0.90	1.00	0.99
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	1820	1770	1676	1770	3520
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	1820	1770	1676	1770	3520
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	29	127	23	66	187	376
RTOR Reduction (vph)	0	12	0	123	0	4
Lane Group Flow (vph)	29	138	0	68	157	386
Turn Type	Prot		Prot		Prot	
Protected Phases	7	4	6	2	6	6
Permitted Phases						
Actuated Green, G (s)	0.8	10.7	2.8	12.7	0.7	14.4
Effective Green, g (s)	0.8	10.7	2.8	12.7	0.7	14.4
Actuated g/C Ratio	0.02	0.22	0.05	0.26	0.01	0.29
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)	29	395	101	432	25	1028
v/s Ratio Prot	0.02	0.06	0.04	0.09	0.00	0.11
v/s Ratio Perm						
v/c Ratio	1.00	0.35	0.67	0.36	0.28	0.38
Uniform Delay, d1	24.2	16.4	22.8	15.0	24.1	13.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	167.1	0.5	18.3	0.5	6.0	0.2
Delay (s)	191.4	16.9	39.1	15.5	30.1	14.1
Level of Service	F	B	D	B	C	B
Approach Delay (s)	191.4	15.2	20.1	14.1	23.2	
Approach LOS	D		C		B	
Intersection Summary						
HCM Average Control Delay	22.9					
HCM Volume to Capacity ratio	0.55					
Actuated Cycle Length (s)	49.3					
Intersection Capacity Utilization	58.4%					
Analysis Period (min)	15					
Critical Lane Group						

Baseline

Synchro 7 - Report
Page 4

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

Year 2030 AM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	6	85	79	95	141	41	41	357	54	42	821	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	0.95	0.95	1.00	0.95	0.95	1.00
Flt	1.00	1.00	0.85	1.00	0.97	1.00	0.98	1.00	0.98	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1770	1863	1583	1770	1799	1770	3470	1770	3470	1770	3535	1770
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (perm)	1770	1863	1583	1770	1799	1770	3470	1770	3470	1770	3535	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)	7	94	88	106	157	46	46	397	60	47	912	8
RTOR Reduction (vph)	0	0	72	0	19	0	0	17	0	0	1	0
Lane Group Flow (vph)	7	94	15	106	184	0	46	440	0	47	919	8
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7			3		6	5		2			6
Permitted Phases			4									
Actuated Green, G (s)	0.6	8.7	8.7	3.5	11.6	1.4	18.6	1.4	18.6	1.4	18.6	1.4
Effective Green, g (s)	0.6	8.7	8.7	3.5	11.6	1.4	18.6	1.4	18.6	1.4	18.6	1.4
Actuated g/C Ratio	0.01	0.18	0.18	0.07	0.24	0.03	0.39	0.03	0.39	0.03	0.39	0.03
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)	22	336	286	129	433	51	1339	51	1364	51	1364	51
v/s Ratio Prot	0.00	0.05	0.01	0.06	0.10	0.03	0.13	0.03	0.13	0.03	0.13	0.03
v/s Ratio Perm			0.01									
v/c Ratio	0.32	0.20	0.06	0.82	0.42	0.90	0.38	0.92	0.38	0.90	0.67	0.90
Uniform Delay, d1	23.6	17.0	16.3	22.0	15.5	23.3	10.4	23.3	10.4	23.3	12.3	23.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.2	0.5	0.1	32.6	0.7	89.8	0.1	96.7	0.1	96.7	1.3	96.7
Delay (s)	31.8	17.5	16.4	54.6	16.2	113.2	10.5	120.0	10.5	120.0	13.6	120.0
Level of Service	C	B	B	D	B	F	B	F	B	F	B	F
Approach Delay (s)		17.5			29.3		19.9		19.9		18.8	
Approach LOS		B			C		B		B		B	
Intersection Summary												
HCM Average Control Delay	20.6			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.61											
Actuated Cycle Length (s)	48.2			Sum of lost time (s)			16.0					
Intersection Capacity Utilization	48.2%			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
6: Del Mar Heights Road & Mango Drive

Year 2030 AM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↑		↰	↑↑			↑	↑	↰	↑	
Volume (vph)	130	970	40	90	1150	230	80	60	140	460	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	0.98	
Satd. Flow (prot)	1770	5055		1770	3451			1811	1583	1681	1633	
Flt Permitted	0.95	1.00		0.95	1.00			0.49	1.00	0.62	0.71	
Satd. Flow (perm)	1770	5055		1770	3451			912	1583	1090	1189	
Peak-hour 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	1078	44	100	1278	256	89	67	156	511	44	122
RTOR Reduction (vph)	0	4	0	0	18	0	0	0	106	0	22	0
Lane Group Flow (vph)	144	1118	0	100	1516	0	0	156	50	337	310	0
Turn Type	Prot			Prot		Perm		Perm	Perm			
Protected Phases	7	4		3	6			2		6		
Permitted Phases						2			2		6	
Actuated Green, G (s)	8.8	41.0		8.4	40.6			28.7	28.7	28.7	28.7	
Effective Green, g (s)	8.8	41.0		8.4	40.6			28.7	28.7	28.7	28.7	
Actuated g/C Ratio	0.40	0.46		0.09	0.45			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	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	173	2300		165	1555			291	504	347	379	
v/s Ratio Prot	0.08	0.22		0.06	0.44			0.17	0.03	0.31	0.27	
v/s Ratio Perm												
v/c Ratio	0.83	0.49		0.61	0.87			0.54	0.10	0.97	0.84	
Uniform Delay, d1	39.9	17.2		39.3	24.2			25.2	21.6	30.3	28.5	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	27.5	0.2		6.2	17.0			1.9	0.1	40.4	14.8	
Delay (s)	67.5	17.3		45.4	41.3			27.1	21.7	70.7	43.4	
Level of Service	E	B		D	D			C	C	E	D	
Approach Delay (s)	23.0			41.5				24.4			57.0	
Approach LOS	C			D				C			E	
Intersection Summary												
HCM Average Control Delay	36.8			HCM Level of Service			D					
HCM Volume to Capacity ratio	0.96											
Actuated Cycle Length (s)	90.1			Sum of lost time (s)			12.0					
Intersection Capacity Utilization	84.4%			ICU Level of Service			E					
Analysis Period (min)	15											
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 AM
12/1/2010

	→		←		←		→							
Movement	EBL	EBR	WBL	WBR	NBL	NBR								
Lane Configurations	↑↑	↑		↑↑		↑								
Volume (veh/h)	1450	90	0	1550	0	170								
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)	1611	67	0	1722	0	189								
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			0.87		0.87		0.87							
vC, conflicting volume			1678		2506		570							
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol			1259		2209		0							
IC, single (s)			4.1		6.8		6.9							
IC, 2 stage (s)														
IF (s)			2.2		3.5		3.3							
p0 queue free %			100		100		80							
CM capacity (veh/h)			477		33		944							
Direction Lane	EBL	EBR	WBL	WBR	NBL	NBR								
Volume Total	644	644	369	661	881	189								
Volume Left	0	0	0	0	0	0								
Volume Right	0	0	67	0	0	189								
cSH	1700	1700	1700	1700	1700	944								
Volume to Capacity	0.38	0.38	0.23	0.51	0.51	0.20								
Queue Length 95th (ft)	0	0	0	0	0	19								
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.8								
Lane LOS							A							
Approach Delay (s)	0.0		0.0		9.8									
Approach LOS					A									
Intersection Summary														
Average Delay	0.5													
Intersection Capacity Utilization	46.5%													
ICU Level of Service	A													
Analysis Period (min)	15													

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

Year 2030 AM
4/26/2011

	→		←		←		→	
Movement	EBL	EBR	WBL	WBR	NBL	NBR		
Lane Configurations	↑↑	↑	↑↑	↑	↑↑	↑		
Volume (vph)	0	980	1000	0	880	550		
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	0.95	0.95	0.97	0.91	0.98	0.85		
Flt	1.00	1.00	0.96	1.00	0.96	1.00		
Flt Protected	1.00	1.00	0.96	1.00	0.96	1.00		
Satd. Flow (prot)	3539	3539	3404	1441	3404	1441		
Flt Permitted	1.00	1.00	0.96	1.00	0.96	1.00		
Satd. Flow (perm)	3539	3539	3404	1441	3404	1441		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90		
Adj. Flow (vph)	0	1067	1111	0	978	611		
RTOR Reduction (vph)	0	0	0	0	14	53		
Lane Group Flow (vph)	0	1067	1111	0	1080	442		
Turn Type							Perm	
Protected Phases	2.6						6.2	
Permitted Phases							4	
Actuated Green, G (s)	39.4						39.4	
Effective Green, g (s)	39.4						39.4	
Actuated g/C Ratio	0.56						0.56	
Clearance Time (s)	4.0						4.0	
Vehicle Extension (s)	3.0						3.0	
Lane Grp Cap (vph)	1992						1992	
v/s Ratio Prot	0.30						0.31	
v/s Ratio Perm							0.31	
v/c Ratio	0.54						0.55	
Uniform Delay, d1	9.6						9.7	
Progression Factor	1.00						1.00	
Incremental Delay, d2	0.3						0.3	
Delay (s)	9.9						10.1	
Level of Service	A						B	
Approach Delay (s)	9.9						10.1	
Approach LOS	A						B	
Intersection Summary								
HCM Average Control Delay	26.1				HCM Level of Service			
HCM Volume to Capacity ratio	0.71				C			
Actuated Cycle Length (s)	70.0				Sum of lost time (s)			
Intersection Capacity Utilization	143.6%				8.0			
Analysis Period (min)	15				ICU Level of Service			
Critical Lane Group	H							

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

Year 2030 AM
4/26/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	T	T		T	T		T	T				
Volume (vph)	370	1580	0	0	1850	0	0	1110	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0				
Lane Util. Factor	0.97	0.85			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	1478	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	1478	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	1756	0	0	2056	889	444	67	1233	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	294	0	8	8	0	0	0
Lane Group Flow (vph)	411	1756	0	0	2056	595	400	670	658	0	0	0
Turn Type	Prot				Prot	Spill		Prot				
Protected Phases	5	2			6	6	8	8	8			
Permitted Phases												
Actuated Green, G (s)	16.5	70.0			49.5	49.5	52.0	52.0	52.0			
Effective Green, g (s)	16.5	70.0			49.5	49.5	52.0	52.0	52.0			
Actuated g/C Ratio	0.13	0.54			0.38	0.38	0.40	0.40	0.40			
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)	436	1906			1936	803	672	591	602			
v/s Ratio Prot	0.12	0.50			0.40	0.38	0.24	0.35	0.44			
v/s Ratio Perm												
v/c Ratio	0.94	0.92			1.06	0.99	0.60	1.13	1.09			
Uniform Delay, d1	56.3	27.5			40.2	39.9	30.7	39.0	39.0			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	28.9	8.8			39.2	33.5	1.4	79.8	64.7			
Delay (s)	85.2	36.3			79.5	73.4	32.1	118.8	103.7			
Level of Service	F	D			E	E	C	F	F			
Approach Delay (s)		45.6			77.6		93.2				0.0	
Approach LOS		D			E		F				A	
Intersection Summary												
HCM Average Control Delay	71.5				HCM Level of Service				E			
HCM Volume to Capacity ratio	1.09				Sum of lost time (s)				12.0			
Actuated Cycle Length (s)	130.0				ICU Level of Service				F			
Intersection Capacity Utilization	96.2%				Analysis Period (min)				15			
c Critical Lane Group												

Baseline

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

Year 2030 AM
12/1/2010

Movement	EBLE	EBT	EBR	WBLE	WBT	WBR	NBLE	NBT	NBR	SBLE	SBT	SBR
Lane Configurations	↑↑↑			↑↑↑			↑↑	↑		↑		
Volume (vph)	120	1409	340	210	1783	110	290	30	30	120	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
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	0.92		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	5041		3433	3274		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	5041		3433	3274		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	1654	933	233	1959	122	322	33	33	133	78	444
RTOR Reduction (vph)	0	0	412	0	8	0	0	28	0	0	0	141
Lane Group Flow (vph)	133	1654	521	233	2073	0	322	38	0	133	78	303
Turn Type	Prot		Perm	Prot			Prot			Prot		Perm
Protected Phases	5		4	5			5			5		6
Permitted Phases												
Actuated Green, G (s)	16.2	33.0	33.0	12.9	37.7		9.4	14.6		13.0	19.0	19.0
Effective Green, g (s)	16.2	33.0	33.0	12.9	37.7		9.4	14.6		13.0	19.0	19.0
Actuated g/C Ratio	0.09	0.37	0.37	0.14	0.42		0.10	0.16		0.15	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)	161	1858	579	253	2105		357	529		270	392	333
v/s Ratio Prot	0.08	0.53	0.13	0.13	0.41		0.09	0.07		0.08	0.04	
v/s Ratio Perm			0.33									0.19
v/c Ratio	0.83	0.89	0.90	0.92	0.99		0.90	0.07		0.49	0.20	0.91
Uniform Delay, d1	40.3	26.9	27.1	38.2	26.0		40.0	32.1		35.0	29.4	34.8
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	27.9	5.8	17.1	35.9	16.1		24.9	0.1		1.4	0.3	28.0
Delay (s)	68.2	32.7	44.2	74.1	42.1		64.9	32.2		36.5	29.6	62.8
Level of Service	E	C	D	E	D		E	C		D	C	E
Approach Delay (s)		35.4		45.3			59.3			53.5		
Approach LOS		D		D			E			D		
Intersection Summary												
HCM Average Control Delay	44.0				HCM Level of Service				D			
HCM Volume to Capacity ratio	0.93				Sum of lost time (s)				12.0			
Actuated Cycle Length (s)	90.3				ICU Level of Service				D			
Intersection Capacity Utilization	79.6%				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 AM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	YY	↑↑↑		YY	↑↑↑		YY	↑↑↑		YY	↑↑↑	
Volume (vph)	241	976	458	243	1540	150	220	150	83	170	510	440
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	0.95		1.00	0.95	1.00	0.95	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	4842		3433	5017		3433	5085	1583	3433	4732	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	4842		3433	5017		3433	5085	1583	3433	4732	
Peak-hour 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)	268	1084	509	270	1711	167	244	167	92	189	567	469
RTOR Reduction (vph)	0	113	0	0	16	0	0	0	71	0	156	0
Lane Group Flow (vph)	268	1480	0	270	1862	0	244	167	121	189	900	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	7	4		9	6		5	2		1	5	
Permitted Phases												
Actuated Green, G (s)	7.2	26.9		8.5	28.2		6.6	17.5	17.5	6.0	16.9	
Effective Green, g (s)	7.2	26.9		8.5	28.2		6.6	17.5	17.5	6.0	16.9	
Actuated g/C Ratio	0.10	0.36		0.11	0.38		0.09	0.23	0.23	0.08	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)	330	1739		390	1889		303	1188	370	275	1068	
v/s Ratio Prot	0.08	0.31		0.08	0.37		0.07	0.03		0.06	0.19	
v/s Ratio Perm									0.01			
v/c Ratio	0.81	0.85		0.69	0.99		0.81	0.14	0.06	0.69	0.95	
Uniform Delay, d1	33.2	22.2		31.9	23.2		33.5	22.7	22.3	33.5	27.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	14.1	4.2		5.2	17.3		14.4	0.1	0.1	7.0	6.2	
Delay (s)	47.3	26.4		37.2	40.5		47.9	22.8	22.4	40.5	33.9	
Level of Service	D	C		D	D		D	C	C	D	C	
Approach Delay (s)		29.1			40.1			34.9			34.9	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM Average Control Delay	35.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	74.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.3%	ICU Level of Service	D
Analysis Period (min)	15		
d1: Default 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
14: Del Mar Heights Road & Carmel Country Rd.

Year 2030 AM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	YY	↑↑↑		YY	↑↑↑		YY	↑↑↑		YY	↑↑↑	
Volume (vph)	190	849	284	289	1392	170	360	200	240	200	310	240
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	0.95		1.00	0.95	1.00	0.95	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	4894		3433	5002		3433	4669	1770	3307		
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	4894		3433	5002		3433	4669	1770	3307		
Peak-hour 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)	211	945	316	321	1547	189	400	222	267	222	344	267
RTOR Reduction (vph)	0	66	0	0	17	0	0	178	0	0	131	0
Lane Group Flow (vph)	211	1193	0	321	1719	0	400	311	0	222	480	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	6		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	7.0	29.1		11.0	33.1		12.6	16.6		13.4	17.4	
Effective Green, g (s)	7.0	29.1		11.0	33.1		12.6	16.6		13.4	17.4	
Actuated g/C Ratio	0.08	0.34		0.13	0.36		0.15	0.19		0.16	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)	279	1654		439	1923		502	900		275	668	
v/s Ratio Prot	0.06	0.24		0.09	0.34		0.12	0.07		0.13	0.15	
v/s Ratio Perm												
v/c Ratio	0.76	0.72		0.79	0.89		0.80	0.35		0.81	0.72	
Uniform Delay, d1	38.7	25.0		36.1	24.9		35.5	30.1		35.1	32.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.1	1.5		6.2	5.8		8.6	0.2		15.8	3.7	
Delay (s)	49.8	26.5		42.3	30.7		44.1	30.3		50.9	35.8	
Level of Service	D	C		D	C		D	C		D	D	
Approach Delay (s)		29.9			32.6			36.5			30.8	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	33.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	86.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.0%	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
15: Del Mar Heights Road & Torrey Ridge Dr.

Year 2030 AM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SEB
Lane Configurations	↔	↑↑↑		↔	↑↑↑		↔	↑	↔	↔	↑	↔
Volume (vph)	212	889	115	81	1426	216	111	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	0.99		1.00	0.99		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	4998		1770	4985		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	4998		1770	4985		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	988	128	90	1584	240	123	173	18	87	69	200
RTOR Reduction (vph)	0	16	0	0	21	0	0	4	0	0	124	0
Lane Group Flow (vph)	236	1100	0	90	1803	0	323	187	0	87	146	20
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	6		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	13.5	40.2		7.4	34.1		8.0	15.7		5.8	13.5	
Effective Green, g (s)	13.5	40.2		7.4	34.1		8.0	15.7		5.8	13.5	
Actuated g/C Ratio	0.16	0.47		0.09	0.40		0.09	0.18		0.07	0.16	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	281	2361		154	1999		166	339		121	263	
v/s Ratio Prot	0.13	0.22		0.05	0.36		0.07	0.10		0.05	0.09	
v/s Ratio Perm												
v/c Ratio	0.84	0.47		0.58	0.90		0.74	0.55		0.72	0.56	
Uniform Delay, d1	34.8	15.2		37.4	23.9		37.5	31.5		38.9	33.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	19.3	0.1		5.6	6.1		16.2	1.9		18.4	2.5	
Delay (s)	54.0	15.3		42.9	30.1		53.8	33.4		57.3	35.5	
Level of Service	D	B		D	C		D	C		E	D	
Approach Delay (s)	22.1			30.7			41.4			40.8		
Approach LOS	C			C			D			D		
Intersection Summary												
HCM Average Control Delay	29.5			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.77											
Actuated Cycle Length (s)	85.1			Sum of lost time (s)			12.0					
Intersection Capacity Utilization	77.9%			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
16: Del Mar Heights Road & Lansdale Drive

Year 2030 AM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SEB
Lane Configurations	↔	↑↑↑		↔	↑↑↑		↔	↑	↔	↔	↑	↔
Volume (vph)	149	784	35	67	1534	35	62	26	76	69	60	454
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	0.99		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	5053		1770	5068		1770	1655		1770	1616	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5053		1770	5068		1770	1655		1770	1616	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	166	871	39	74	1704	40	69	29	84	77	67	504
RTOR Reduction (vph)	0	6	0	0	3	0	0	64	0	0	197	0
Lane Group Flow (vph)	166	904	0	74	1741	0	69	49	0	77	374	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	6		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	8.3	29.3		6.4	27.4		3.5	17.3		4.8	18.6	
Effective Green, g (s)	8.3	29.3		6.4	27.4		3.5	17.3		4.8	18.6	
Actuated g/C Ratio	0.13	0.40		0.09	0.37		0.05	0.23		0.07	0.25	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	199	2006		153	1882		84	388		115	407	
v/s Ratio Prot	0.09	0.18		0.04	0.34		0.04	0.03		0.04	0.23	
v/s Ratio Perm												
v/c Ratio	0.83	0.45		0.48	0.93		0.82	0.13		0.67	0.92	
Uniform Delay, d1	32.1	16.3		32.1	22.2		34.8	22.3		33.7	26.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	24.8	0.2		2.4	8.3		45.0	0.1		13.8	25.4	
Delay (s)	56.9	16.5		34.5	30.5		79.8	22.4		47.5	52.3	
Level of Service	E	B		C	C		E	C		D	D	
Approach Delay (s)	22.7			30.6			44.2			51.7		
Approach LOS	C			C			D			D		
Intersection Summary												
HCM Average Control Delay	32.7			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.85											
Actuated Cycle Length (s)	73.8			Sum of lost time (s)			12.0					
Intersection Capacity Utilization	86.6%			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
17: Del Mar Heights Road & Carmel Canyon Road

Year 2030 AM
12/1/2010

Movement	EBL	EBR	WBL	WBR	NBL	NBR
Lane Configurations	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑	↑
Volume (vph)	897	204	661	1389	356	548
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
Flt. Protected	0.97		1.00	1.00	1.00	0.85
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	4944		1770	5085	3433	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	4944		1770	5085	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	997	227	734	1543	398	609
RTOR Reduction (vph)	40	0	0	0	0	501
Lane Group Flow (vph)	1184	0	734	1543	398	108
Turn Type			Prot	Perm		
Protected Phases	1		3	0	2	
Permitted Phases			2			
Actuated Green, G (s)	22.1		37.7	63.8	15.5	15.5
Effective Green, g (s)	22.1		37.7	63.8	15.5	15.5
Actuated g/C Ratio	0.25		0.43	0.73	0.18	0.18
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1252		764	3716	610	281
v/s Ratio Prot	0.24		0.41	0.30	0.12	
v/s Ratio Perm			0.07			
v/c Ratio	0.95		0.96	0.42	0.65	0.38
Uniform Delay, d1	32.0		24.1	4.5	33.4	31.7
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	14.2		23.3	0.1	2.5	0.9
Delay (s)	46.3		47.4	4.6	35.9	32.6
Level of Service	D		D	A	D	C
Approach Delay (s)	46.3			18.1	33.9	
Approach LOS	D			B	C	
Intersection Summary						
HCM Average Control Delay	29.4		HCM Level of Service		C	
HCM Volume to Capacity ratio	0.89					
Actuated Cycle Length (s)	87.3		Sum of lost time (s)		12.0	
Intersection Capacity Utilization	78.7%		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
18: Del Mar Highlands Town Ctr. & El Camino Real

Year 2030 AM
12/1/2010

Movement	WBL	WBR	NBR2	SEL	SER	NEO	NEP	NEB	NEP	NEB	SWL	SWR	SWL	SWR
Lane Configurations	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Volume (vph)	114	0	130	0	0	0	0	383	101	165	962	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.97	0.91	0.97	0.91	0.97	0.91
Flt. Protected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00
Flt Permitted	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1770	1583	1583	1583	1583	1583	1583	4926	3433	5085	3433	5085	3433	5085
Flt Permitted	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	1583	1583	1583	1583	1583	1583	4926	3433	5085	3433	5085	3433	5085
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	127	0	144	0	0	0	0	426	112	183	1069	0	0	0
RTOR Reduction (vph)	0	0	91	0	0	0	0	70	0	0	0	0	0	0
Lane Group Flow (vph)	127	0	144	0	0	0	0	466	0	183	1069	0	0	0
Turn Type	custom					Prot					Prot			
Protected Phases	2					3					7			
Permitted Phases	8													
Actuated Green, G (s)	4.4		12.8		12.8		12.8		5.3		22.1		22.1	
Effective Green, g (s)	4.4		12.8		12.8		12.8		5.3		22.1		22.1	
Actuated g/C Ratio	0.13		0.37		0.37		0.37		0.15		0.64		0.64	
Clearance Time (s)	4.0		4.0		4.0		4.0		4.0		4.0		4.0	
Vehicle Extension (s)	3.0		3.0		3.0		3.0		3.0		3.0		3.0	
Lane Grp Cap (vph)	228		587		587		1828		527		3257		3257	
v/s Ratio Prot	0.07		0.07		0.07		0.09		0.05		0.21		0.21	
v/s Ratio Perm			0.03		0.03									
v/c Ratio	0.56		0.09		0.09		0.26		0.35		0.33		0.33	
Uniform Delay, d1	14.1		7.1		7.1		7.5		13.1		2.8		2.8	
Progression Factor	1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Incremental Delay, d2	3.2		0.1		0.1		0.1		0.4		0.1		0.1	
Delay (s)	17.3		7.1		7.1		7.6		13.5		2.9		2.9	
Level of Service	B		A		A		A		B		A		A	
Approach Delay (s)	11.9		0.0		0.0		7.6		4.4		4.4		4.4	
Approach LOS	B		A		A		A		A		A		A	
Intersection Summary														
HCM Average Control Delay			6.2			HCM Level of Service			A					
HCM Volume to Capacity ratio			0.37											
Actuated Cycle Length (s)			34.5			Sum of lost time (s)			8.0					
Intersection Capacity Utilization			38.2%			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
19: Townsgate Drive & Carmel Country Road

Year 2030 AM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↑	↵	↵	↵	↵	↵	↑	↵	↵	↑	↵
Volume (vph)	170	100	130	60	210	200	150	500	20	100	150	175
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	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	0.93		1.00	0.99		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	1726		1770	3519		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	1726		1770	3519		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)	189	111	144	67	233	222	167	556	22	111	160	194
RTOR Reduction (vph)	0	0	87	0	41	0	0	4	0	0	0	151
Lane Group Flow (vph)	189	111	57	67	414	0	167	574	0	111	500	43
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)	12.7	30.1	30.1	4.1	21.5		9.0	19.7		6.0	16.7	16.7
Effective Green, g (s)	12.7	30.1	30.1	4.1	21.5		9.0	19.7		6.0	16.7	16.7
Actuated g/C Ratio	0.17	0.40	0.40	0.05	0.28		0.12	0.26		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)	296	739	628	96	489		210	913		140	779	348
vs Ratio Prot	0.11	0.06		0.04	0.24		0.09	0.16		0.06	0.14	
vs Ratio Perm			0.04									0.03
v/c Ratio	0.64	0.15	0.09	0.70	0.85		0.80	0.69		0.79	0.64	0.72
Uniform Delay, d1	29.5	14.7	14.3	35.3	25.6		32.6	24.9		34.3	26.9	23.7
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	4.5	0.1	0.1	19.8	12.8		18.5	1.4		25.7	1.8	0.2
Delay (s)	33.9	14.8	14.4	55.1	38.4		51.0	26.2		60.0	28.7	23.9
Level of Service	C	B	B	E	D		D	C		E	C	C
Approach Delay (s)		22.8			40.6			31.8			31.9	
Approach LOS		C			D			C			C	
Intersection Summary												
HCM Average Control Delay	32.0			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.75											
Actuated Cycle Length (s)	75.9			Sum of lost time (s)			16.0					
Intersection Capacity Utilization	66.8%			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
20: Townsgate Drive & El Camino Real

Year 2030 AM
12/1/2010

Movements	SE	ES	WE	NW	NW	NW	NE	NE	NE	SW	SW	SW
Lane Configurations	↰	↑		↰	↑		↰	↑↑	↑		↑↑	↑
Volume (vph)	100	75	10	240	60	120	110	460	110	150	800	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	0.97		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	4938		1770	4933	
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	4938		1770	4933	
Peak-hour 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	133	122	511	122	167	809	222
RTOR Reduction (vph)	0	7	0	0	0	105	0	51	0	0	52	0
Lane Group Flow (vph)	111	87	0	267	67	28	122	582	0	167	1059	0
Turn Type	Prot			Prot		Perm	Prot			Prot		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases						2						
Actuated Green, G (s)	6.9	6.8		13.4	13.3	13.3	5.8	16.3		9.8	20.3	
Effective Green, g (s)	6.9	6.8		13.4	13.3	13.3	5.8	16.3		9.8	20.3	
Actuated g/C Ratio	0.11	0.11		0.22	0.21	0.21	0.09	0.26		0.16	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)	196	200		381	398	338	165	1292		278	1607	
v/s Ratio Prot	0.06	0.05		0.15	0.04	0.07	0.12	0.09		0.09	0.21	
v/s Ratio Perm						0.02						
v/c Ratio	0.57	0.43		0.70	0.17	0.08	0.74	0.45		0.60	0.66	
Uniform Delay, d1	26.3	26.0		22.6	20.0	19.6	27.5	19.3		24.4	18.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.7	1.5		5.7	0.2	0.1	15.9	0.3		3.6	1.0	
Delay (s)	30.0	27.5		28.3	20.2	19.7	43.4	19.5		28.1	19.0	
Level of Service	C	C		C	C	B	D	B		C	B	
Approach Delay (s)		26.8			24.7			23.4			20.2	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay	22.5			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.65											
Actuated Cycle Length (s)	62.3			Sum of lost time (s)			16.0					
Intersection Capacity Utilization	56.0%			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
21: Carmel Creek Road & Carmel Country Road

Year 2030 AM
12/1/2010

Movement	SEB	EBT	EBR	EWB	WBT	WBR	WSB	EBT	NBT	NBR	SEB	EBT	EBR	EWB	WBT	WBR	WSB
Lane Configurations	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
Volume (vph)	252	122	89	43	296	26	274	336	29	168	282	389					
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		0.95	1.00		0.95	1.00						
Flt	1.00	1.00	0.95		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	1663	1583		1834		1770	3497		1770	3231						
Flt Permitted	0.95	1.00	1.00		0.95		0.95	1.00		0.95	1.00						
Satd. Flow (perm)	1770	1663	1583		1749		1770	3497		1770	3231						
Peak-hour 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)	280	136	99	48	329	29	304	373	32	76	313	432					
RTOR Reduction (vph)	0	0	52	0	3	0	0	7	0	0	282	0					
Lane Group Flow (vph)	280	136	47	0	403	0	304	398	0	76	463	0					
Turn Type	Prot	Perm	Perm		Prot		Prot			Prot							
Protected Phases	7	4			8		5	2			6						
Permitted Phases		4	8					27.3									
Actuated Green, G (s)	15.6	41.2	41.2		21.6		16.7	27.3			16.9	17.5					
Effective Green, g (s)	15.6	41.2	41.2		21.6		16.7	27.3			16.9	17.5					
Actuated g/C Ratio	0.18	0.47	0.47		0.25		0.19	0.31			0.09	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)	316	878	746		432		338	1092			140	647					
v/s Ratio Prot	0.16	0.07			0.17		0.11				0.04	0.14					
v/s Ratio Perm			0.03														
v/c Ratio	0.89	0.15	0.06		0.93		0.90	0.36			0.54	0.72					
Uniform Delay, d1	35.0	13.2	12.6		32.2		34.5	23.3			38.7	32.6					
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00			1.00	1.00					
Incremental Delay, d2	24.3	0.1	0.0		27.1		25.2	0.2			4.2	3.8					
Delay (s)	59.3	13.3	12.6		59.3		59.7	23.5			43.0	36.4					
Level of Service	E	B	B		E		E	C			D	D					
Approach Delay (s)		38.2			59.3			39.1				37.0					
Approach LOS		D			E			D				D					
Intersection Summary																	
HCM Average Control Delay		41.5															
HCM Volume to Capacity ratio		0.86															
Actuated Cycle Length (s)		87.4															
Intersection Capacity Utilization		82.3%															
Analysis Period (min)		15															
Critical Lane Group																	

Baseline

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

Year 2030 AM
12/1/2010

Movement	SEB	EBT	EBR	EWB	WBT	WBR	WSB	EBT	NBT	NBR	SEB	EBT	EBR	EWB	WBT	WBR	WSB
Lane Configurations	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
Volume (vph)	40	120	253	100	230	100	269	540	190	110	950	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	1.00	1.00		0.97		0.97	0.91		1.00	0.91						
Flt	1.00	0.85	0.85		1.00		0.95	0.98		1.00	0.98						
Flt Protected	0.95	1.00	1.00		0.95		0.97	1.00		0.95	1.00						
Satd. Flow (prot)	1770	1583	1583		1770		1770	3433		1770	3433						
Flt Permitted	0.95	1.00	1.00		0.95		0.97	1.00		0.95	1.00						
Satd. Flow (perm)	1770	1583	1583		1770		1770	3433		1770	3433						
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90					
Adj. Flow (vph)	44	133	281	111	256	111	299	600	100	122	1056	122					
RTOR Reduction (vph)	0	0	232	0	77	0	0	32	0	0	20	0					
Lane Group Flow (vph)	44	133	49	111	290	0	299	668	0	122	1158	0					
Turn Type		Perm	Perm	Split			Prot			Prot							
Protected Phases		2	2	6	6		3	8		7							
Permitted Phases		2	2														
Actuated Green, G (s)		10.1	10.1	7.0	7.0		7.0	19.7		4.7							
Effective Green, g (s)		10.1	10.1	7.0	7.0		7.0	19.7		4.7							
Actuated g/C Ratio		0.18	0.18	0.18	0.12		0.12	0.34		0.08							
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)		311	278	278	215		418	1705		145							
v/s Ratio Prot		0.02		0.06	0.09		0.09	0.13		0.07							
v/s Ratio Perm			0.08	0.03													
v/c Ratio		0.14	0.46	0.16	0.52		0.72	0.39		0.84							
Uniform Delay, d1		20.0	21.3	20.2	23.7		24.3	14.4		26.0							
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00		1.00							
Incremental Delay, d2		0.2	1.3	0.3	2.1		5.7	0.1		33.4							
Delay (s)		20.2	22.6	20.5	25.8		30.1	14.5		59.4							
Level of Service		C	C	C	C		C	B		E							
Approach Delay (s)		21.1		29.1			19.1			24.2							
Approach LOS		C		C			B			C							
Intersection Summary																	
HCM Average Control Delay			22.9														
HCM Volume to Capacity ratio			0.66														
Actuated Cycle Length (s)			57.5														
Intersection Capacity Utilization			54.9%														
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 AM
12/1/2010

Movement	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB
Lane Configurations	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Volume (vph)	52	7	77	15	31	17	124	36	2	4	19	207	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	58	8	86	17	34	19	138	40	2	4	21	230	
Direction Lane	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB
Volume Total (vph)	86	86	70	180	256								
Volume Left (vph)	58	0	17	138	4								
Volume Right (vph)	0	86	19	2	230								
Head (s)	0.47	0.67	0.08	0.16	0.50								
Departure Headway (s)	6.1	4.9	5.2	4.9	4.2								
Degree Utilization	0.11	0.12	0.10	0.25	0.30								
Capacity (veh/h)	549	669	626	690	806								
Control Delay (s)	8.6	17.4	8.7	9.6	9.0								
Approach Delay (s)	7.9		8.7	9.6	9.0								
Approach LOS	A		A	A	A								
Intersection Summary													
Delay	8.9												
HCM Level of Service	A												
Intersection Capacity Utilization	43.1%												
Analysis Period (min)	15												

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

Year 2030 AM
12/1/2010

Movement	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB
Lane Configurations	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB
Volume (vph)	52	90	117	201	62	24	30	266	82	15	763	141	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Flt	1.00	0.85	0.99	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96
Flt Protected	0.98	1.00	0.97	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1829	1583	1779	1770	3414	1770	3414	1770	3414	1770	3414	1770	3414
Flt Permitted	0.84	1.00	0.70	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1560	1583	1281	1281	1770	3414	1770	3414	1770	3414	1770	3414	1770
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	58	100	130	223	69	27	33	296	91	17	848	157	
RTOR Reduction (vph)	0	0	88	0	5	0	0	45	0	0	25	0	
Lane Group Flow (vph)	0	158	42	0	314	0	33	342	0	17	980	0	
Turn Type	Perm	Perm	Perm	Perm	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	4	4	8	8	5	2	5	2	5	2	5	2	5
Permitted Phases	4	4	8	8	5	2	5	2	5	2	5	2	5
Actuated Green, G (s)	16.1	16.1	16.1	16.1	15	21.3	15	21.3	15	21.3	15	21.3	15
Effective Green, g (s)	16.1	16.1	16.1	16.1	15	21.3	15	21.3	15	21.3	15	21.3	15
Actuated C/G Ratio	0.32	0.32	0.32	0.32	0.03	0.43	0.03	0.43	0.03	0.43	0.03	0.43	0.03
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	501	509	412	412	53	1451	53	1451	53	1451	53	1451	53
v/s Ratio Prot	0.10	0.03	c0.24	c0.24	c0.02	0.10	c0.02	0.10	c0.02	0.10	c0.02	0.10	c0.02
v/s Ratio Perm	0.10	0.03	c0.24	c0.24	c0.02	0.10	c0.02	0.10	c0.02	0.10	c0.02	0.10	c0.02
Uniform Delay, d1	12.8	11.8	15.3	15.3	24.0	9.2	24.0	9.2	24.0	9.2	24.0	9.2	24.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.1	8.1	8.1	20.6	0.1	20.6	0.1	20.6	0.1	20.6	0.1	20.6
Delay (s)	13.2	11.9	23.4	23.4	44.6	9.3	44.6	9.3	44.6	9.3	44.6	9.3	44.6
Level of Service	B	B	C	C	D	A	D	A	D	A	D	A	D
Approach Delay (s)	12.6		23.4		12.1		12.1		12.1		12.1		12.1
Approach LOS	B		C		B		B		B		B		B
Intersection Summary													
HCM Average Control Delay	15.3												
HCM Volume to Capacity ratio	0.72												
Actuated Cycle Length (s)	50.1												
Sum of lost time (s)	12.0												
Intersection Capacity Utilization	58.7%												
Analysis Period (min)	15												
Critical Lane Group													

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

Year 2030 AM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑					↑	↑	↑
Volume (vph)	0	640	350	650	640	0	0	0	0	380	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	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.96	1.00
Satd. Flow (prot)		3351		3433	3539					1681	1602	1504
Flt Permitted		1.00		0.95	1.00					0.95	0.96	1.00
Satd. Flow (perm)		3351		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	711	389	722	711	0	0	0	0	422	3	167
RTOR Reduction (vph)	0	105	0	0	0	0	0	0	0	0	4	111
Lane Group Flow (vph)	0	995	0	722	711	0	0	0	0	224	214	39
Turn Type				Prot						Prot		Perm
Protected Phases		4		3	6					1	6	
Permitted Phases												6
Actuated Green, G (s)		22.9		16.7	43.6					18.0	18.0	18.0
Effective Green, g (s)		22.9		16.7	43.6					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)		1103		824	2217					435	414	389
v/s Ratio Prot		0.30		0.21	0.20					0.13	0.13	
v/s Ratio Perm												0.03
v/c Ratio		0.90		0.88	0.32					0.51	0.52	0.10
Uniform Delay, d1		22.3		25.5	6.1					22.1	22.1	19.6
Progression Factor		1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		10.2		10.3	0.1					1.0	1.1	0.1
Delay (s)		32.5		35.8	6.2					23.1	23.2	19.7
Level of Service		C		D	A					C	C	B
Approach Delay (s)		32.5			21.1			0.0			22.5	
Approach LOS		C			C			A			C	
Intersection Summary												
HCM Average Control Delay	25.3			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.77			Sum of lost time (s)			12.0					
Actuated Cycle Length (s)	69.6			ICU Level of Service			C					
Intersection Capacity Utilization	69.6%			Analysis Period (min)			15					
Analysis Period (min)	15			Critical Lane Group								
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 AM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	SBR
Lane Configurations	↑↑	↑↑			↑↑	↑	↑	↑	↑			
Volume (vph)	120	900	0	0	1386	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	1581	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	1581	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	1000	0	0	1540	300	270	5	944	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	161	0	72	72	0	0	0
Lane Group Flow (vph)	133	1000	0	0	1540	139	250	415	419	0	0	0
Turn Type	Prot	Prot			Perm	Prot	Perm		Perm			
Protected Phases	7	7			8	2	2		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	0.57			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	0.04	0.28			0.44	0.44	0.15	0.29	0.29			
v/s Ratio Perm						0.09			0.28			
v/c Ratio	0.60	0.50			0.94	0.19	0.45	0.87	0.85			
Uniform Delay, d1	37.0	10.3			20.5	12.7	21.1	25.1	24.9			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	8.8	0.2			11.1	0.1	0.6	15.0	12.5			
Delay (s)	45.8	10.5			31.6	12.8	21.7	40.1	37.4			
Level of Service	D	B			C	B	C	D	D			
Approach Delay (s)		14.5			28.5			35.3			0.0	
Approach LOS		B			C			D			A	
Intersection Summary												
HCM Average Control Delay	26.8			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.69			Sum of lost time (s)			12.0					
Actuated Cycle Length (s)	80.0			ICU Level of Service			C					
Intersection Capacity Utilization	69.6%			Analysis Period (min)			15					
Analysis Period (min)	15			Critical Lane Group								
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 AM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SSR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	50	30	50	740	20	150	90	1110	170	150	1090	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	0.91	0.91
Flt	1.00	0.97	0.85	1.00	0.99	0.85	1.00	0.99	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	1612	1504	1770	1498	1900	1770	1506	1900
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	1582	1504	1681	1612	1504	1770	1498	1900	1770	1506	1900
Peak-hour 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	167	100	1233	189	167	1211	33
RTOR Reduction (vph)	0	6	25	0	2	54	0	31	0	0	4	0
Lane Group Flow (vph)	50	44	20	427	432	96	100	1391	0	167	1240	0
Turn Type	Prot	Perm	Perm	Spill	Perm	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	8	8	8	8	8	8	8	8	8	8
Permitted Phases	4	8	8	8	8	8	8	8	8	8	8	8
Actuated Green, G (s)	2.5	27.1	27.1	20.6	20.6	20.6	3.7	27.4	19.7	19.7	19.7	19.7
Effective Green, g (s)	2.5	27.1	27.1	20.6	20.6	20.6	3.7	27.4	19.7	19.7	19.7	19.7
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	688	652	554	531	496	105	2185	558	1596	1596	1596
v/s Ratio Prot	c0.03	0.00	0.00	0.26	c0.27	c0.08	0.28	0.09	0.09	0.09	0.09	0.09
v/s Ratio Perm	0.03	0.01	0.01	0.06	0.06	0.06	0.24	0.24	0.24	0.24	0.24	0.24
v/c Ratio	0.75	0.06	0.03	0.77	0.81	0.19	0.95	0.64	0.30	0.76	0.76	0.76
Uniform Delay, d1	29.7	10.3	10.2	18.8	19.2	15.0	29.3	13.7	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	6.6	9.3	0.2	72.2	0.6	0.3	2.4	2.4	2.4
Delay (s)	65.5	10.3	10.2	25.4	28.5	15.2	101.5	14.3	16.5	21.9	21.9	21.9
Level of Service	F	B	B	C	C	B	F	B	B	C	C	C
Approach Delay (s)	29.3	25.2	25.2	25.2	25.2	25.2	25.2	25.2	25.2	25.2	25.2	25.2
Approach LOS	C	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary												
HCM Average Control Delay	22.0			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.81											
Actuated Cycle Length (s)	62.5			Sum of lost time (s)			16.0					
Intersection Capacity Utilization	72.8%			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
28: Carmel Valley Road & El Camino Real

Year 2030 AM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SSR
Lane Configurations												
Volume (vph)	0	0	0	640	610	260	400	1085	0	975	650	650
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	0.95
Flt pb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt pb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.85	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3433	5085	5583	3433	3539	3539	3433	3539	3539	4388	1023	1023
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	3433	5085	5583	3433	3539	3539	3433	3539	3539	4388	1023	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	1206	0	1083	722	722
RTOR Reduction (vph)	0	0	0	0	0	62	0	0	0	0	15	15
Lane Group Flow (vph)	0	0	0	711	678	227	444	1206	0	1083	1378	397
Confl. Peds. (l/hr)												200
Turn Type				Prot		Perm	Prot		Perm			Perm
Protected Phases				3		8	5		2			6
Permitted Phases												
Actuated Green, G (s)				16.0		16.0	16.0		9.6		40.4	26.8
Effective Green, g (s)				16.0		16.0	16.0		9.6		40.4	26.8
Actuated g/C Ratio				0.25		0.25	0.25		0.15		0.63	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)				1853		1263	993		512		2220	1826
v/s Ratio Prot				c0.21		0.13			c0.13		0.34	0.31
v/s Ratio Perm							0.14					c0.39
v/s Ratio				0.83		0.54	0.58		0.87		0.54	0.75
Uniform Delay, d1				22.9		21.0	21.2		26.8		6.8	16.0
Progression Factor				1.00		1.00	1.00		1.00		1.00	1.00
Incremental Delay, d2				7.0		0.4	2.0		14.4		0.3	1.8
Delay (s)				30.0		21.4	23.3		41.1		7.1	17.8
Level of Service				C		C	C		D		A	B
Approach Delay (s)		0.0			25.4				16.2			24.0
Approach LOS		A			C				B			C
Intersection Summary												
HCM Average Control Delay				22.0		HCM Level of Service				C		
HCM Volume to Capacity ratio				0.89								
Actuated Cycle Length (s)				64.4		Sum of lost time (s)				12.0		
Intersection Capacity Utilization				104.6%		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
29: SR-56 EB Ramp & El Camino Real

Year 2030 AM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	
Lane Configurations	←	←	←	←	←	←	←	←	←	←	←	
Volume (vph)	800	930	310	0	0	0	0	510	320	150	1480	
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	
Lane Util. Factor	0.91	0.86	0.91					0.86		1.00	0.91	
Flt. Protected	1.00	1.00	0.85					0.94		1.00	1.00	
Flt. Permitted	0.95	0.99	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1610	3162	1441					6037		1770	5085	
Satd. Flow (perm)	0.95	0.99	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1610	3162	1441					6037		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	
Adj. Flow (vph)	889	1033	344	0	0	0	0	567	356	167	1644	
RTOR Reduction (vph)	0	2	3	0	0	0	0	55	0	0	0	
Lane Group Flow (vph)	890	1314	307	0	0	0	0	668	0	167	1644	
Turn Type	Prot			Perm						Prot		
Protected Phases	7			4						6		
Permitted Phases				4								
Actuated Green, G (s)	32.0			32.0			17.5			8.0		
Effective Green, g (s)	32.0			32.0			17.5			8.0		
Actuated g/C Ratio	0.46			0.46			0.25			0.12		
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)	741			1456			683			1520		
V/S Ratio Prot	0.40			0.42			0.14			0.09		
V/S Ratio Perm				0.21								
Uniform Delay, d1	16.8			17.3			12.9			22.7		
Progression Factor	1.00			1.00			1.00			1.00		
Incremental Delay, d2	10.2			8.1			0.5			21.9		
Delay (s)	27.0			25.4			13.4			23.2		
Level of Service	C			C			B			C		
Approach Delay (s)	24.2						0.0			23.2		
Approach LOS	C						A			C		
Intersection Summary												
HCM Average Control Delay				23.1				HCM Level of Service				C
HCM Volume to Capacity ratio				0.83								
Actuated Cycle Length (s)				69.5				Sum of lost time (s)				8.0
Intersection Capacity Utilization				104.6%				ICU Level of Service				G
Analysis Period (min)				15								
Critical Lane Group												

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

Year 2030 AM
12/1/2010

	←	→	↵	←	→	↵	←	→	↵
Movement	EBL	EBT	WBL	WBT	WBR	SBL	SBR		
Lane Configurations	↵	↵	↵	↵	↵	↵	↵		
Volume (vph)	18	228	0	480	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		
Lane Util. Factor	1.00	0.95		0.95		1.00	1.00		
Flt	1.00	1.00		0.99		1.00	0.85		
Flt Protected	0.95	1.00		1.00		0.95	1.00		
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	253	0	533	30	119	141		
RTOR Reduction (vph)	0	0	0	8	0	0	110		
Lane Group Flow (vph)	20	253	0	555	0	119	31		
Turn Type	Prot		Prot			Perm			
Protected Phases	7	4	3	8		6			
Permitted Phases						6			
Actuated Green, G (s)	0.5	12.6		8.1		5.8	5.8		
Effective Green, g (s)	0.5	12.6		8.1		5.8	5.8		
Actuated g/C Ratio	0.02	0.49		0.31		0.22	0.22		
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)	34	1689		1077		389	348		
v/s Ratio Prot	0.01	0.07		0.16		0.07			
v/s Ratio Perm						0.02			
v/c Ratio	0.59	0.15		0.52		0.31	0.09		
Uniform Delay, d1	12.8	3.9		7.5		8.6	8.2		
Progression Factor	1.00	1.00		1.00		1.00	1.00		
Incremental Delay, d2	23.4	0.0		0.4		0.4	0.1		
Delay (s)	36.2	3.9		8.0		9.1	8.3		
Level of Service	D	A		A		A	A		
Approach Delay (s)		6.3		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	0.43		
Actuated Cycle Length (s)	26.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	28.7%	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 AM
12/1/2010

	←	→	↵	←	→	↵	←	→	↵	←	→	↵	←	→	↵
Movement	EBL	EBT	EBRT	WBL	WBT	WBRT	NBL	NBT	NBRT	SBL	SBR	SBR			
Lane Configurations	↵	↵	↵	↵	↵	↵	↵	↵	↵	↵	↵	↵			
Volume (vph)	54	220	180	300	555	95	380	550	354	465	220	390			
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			
Flt	1.00	0.85	0.85	1.00	0.98	1.00	1.00	1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95			
Satd. Flow (prot)	1770	2787	1583	1770	1822	1770	1770	3539	1583	3433	3539	1583			
Flt Permitted	0.26	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)	493	2787	1583	1770	1822	1770	1770	3539	1583	3433	3539	1583			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Adj. Flow (vph)	60	244	200	333	617	106	422	611	393	517	244	433			
RTOR Reduction (vph)	0	0	166	0	7	0	0	0	291	0	0	112			
Lane Group Flow (vph)	60	244	34	333	716	0	422	611	102	517	244	321			
Turn Type	custom	custom	custom	Prot		Prot		Perm	Prot		Perm				
Protected Phases				3	8			2			6				
Permitted Phases	4	4	4					2			6				
Actuated Green, G (s)	15.1	15.1	15.1	18.2	37.3		20.0	22.8	22.8	16.1	16.9	18.9			
Effective Green, g (s)	15.1	15.1	15.1	18.2	37.3		20.0	22.8	22.8	16.1	16.9	18.9			
Actuated g/C Ratio	0.17	0.17	0.17	0.21	0.42		0.23	0.26	0.26	0.18	0.21	0.21			
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	84	477	271	365	771		401	915	409	627	758	339			
v/s Ratio Prot				0.19	0.39		0.24	0.17		0.15	0.07				
v/s Ratio Perm	0.12	0.09	0.02						0.06			0.20			
v/c Ratio	0.71	0.51	0.19	0.91	0.93		1.05	0.67	0.25	0.82	0.32	0.95			
Uniform Delay, d1	34.5	33.2	31.0	34.2	24.2		34.1	29.3	25.9	34.7	29.2	34.1			
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	24.9	0.9	0.2	26.3	17.3		59.4	1.9	0.3	8.7	0.2	34.6			
Delay (s)	59.4	34.1	31.2	60.6	41.4		93.5	31.2	26.2	43.3	29.5	68.8			
Level of Service	E	C	C	E	D		F	C	C	D	C	E			
Approach Delay (s)					17.5			48.2				49.7			
Approach LOS					D			D				D			

Intersection Summary			
HCM Average Control Delay	47.0	HCM Level of Service	D
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	88.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	90.2%	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
32: SR-56 EB Ramps & Carmel Creek Road

Year 2030 AM
12/1/2010

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	←	→	↖	↖	↗	↗	↖	↖	↗	↖	↖	↗
Lane Configurations	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖
Volume (vph)	750	0	319	0	0	0	0	330	105	250	350	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.97	0.95	0.97	0.95	0.95
Flt	1.00	1.00	0.85	1.00	1.00	1.00	1.00	0.96	1.00	1.00	1.00	1.00
Flt Protected	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1681	1681	1583	1681	1681	1681	1681	3411	3433	3433	3539	3539
Flt Permitted	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1681	1681	1583	1681	1681	1681	1681	3411	3433	3433	3539	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	833	0	354	0	0	0	0	367	117	279	389	0
RTOR Reduction (vph)	0	0	210	0	0	0	0	66	0	0	0	0
Lane Group Flow (vph)	416	417	144	0	0	0	0	428	0	278	389	0
Turn Type	Prot	Perm	Perm	Prot	Perm	Perm	Prot	Perm	Perm	Perm	Perm	Perm
Protected Phases	7	4	4	2	2	2	2	2	2	2	2	2
Permitted Phases	4	4	4	4	4	4	4	4	4	4	4	4
Actuated Green, G (s)	22.1	22.1	22.1	12.5	7.8	24.3	12.5	7.8	24.3	12.5	7.8	24.3
Effective Green, g (s)	22.1	22.1	22.1	12.5	7.8	24.3	12.5	7.8	24.3	12.5	7.8	24.3
Actuated g/C Ratio	0.41	0.41	0.41	0.23	0.14	0.45	0.23	0.14	0.45	0.23	0.14	0.45
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)	683	683	643	784	492	1581	784	492	1581	784	492	1581
v/s Ratio Prot	0.25	0.25	0.25	0.13	0.08	0.11	0.13	0.08	0.11	0.13	0.08	0.11
v/s Ratio Perm	0.61	0.61	0.09	0.55	0.57	0.25	0.55	0.57	0.25	0.55	0.57	0.25
vc Ratio	0.61	0.61	0.22	0.55	0.57	0.25	0.55	0.57	0.25	0.55	0.57	0.25
Uniform Delay, d1	12.7	12.8	10.5	18.4	21.7	9.4	18.4	21.7	9.4	18.4	21.7	9.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.5	1.6	0.2	0.8	1.5	0.1	0.8	1.5	0.1	0.8	1.5	0.1
Delay (s)	14.3	14.4	10.7	19.2	23.2	9.5	19.2	23.2	9.5	19.2	23.2	9.5
Level of Service	B	B	B	B	C	A	B	C	A	B	C	A
Approach Delay (s)	13.3	13.3	10.0	19.2	19.2	15.2	19.2	19.2	15.2	19.2	19.2	15.2
Approach LOS	B	B	A	B	B	B	B	B	A	B	B	A
Intersection Summary												
HCM Average Control Delay	15.0			HCM Level of Service			B					
HCM Volume to Capacity ratio	0.58											
Actuated Cycle Length (s)	54.4			Sum of lost time (s)			12.0					
Intersection Capacity Utilization	50.4%			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
33: Carmel Country Road & Carmel Canyon Road

Year 2030 AM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SWR
Lane Configurations	T	T		T	T		T	T		T	T	
Volume (vph)	148	482	37	159	304	575	35	110	234	618	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	0.90		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	3501		1770	3192		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	3501		1770	3192		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	536	41	177	338	639	39	122	260	687	174	142
RTOR Reduction (vph)	0	8	0	0	468	0	0	102	0	0	37	0
Lane Group Flow (vph)	164	569	0	177	509	0	39	260	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	15.8		9.0	16.8		3.4	16.3		16.0	28.9	
Effective Green, g (s)	8.0	15.8		9.0	16.8		3.4	16.3		16.0	28.9	
Actuated g/C Ratio	0.11	0.22		0.12	0.23		0.05	0.22		0.22	0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	194	757		218	734		82	373		751	687	
v/s Ratio Prot	0.09	0.16		0.10	0.16		0.02	0.17		0.20	0.16	
v/s Ratio Perm												
v/c Ratio	0.85	0.75		0.81	0.69		0.48	0.75		0.91	0.41	
Uniform Delay, d1	31.9	26.8		31.2	25.8		34.0	26.5		27.9	15.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	27.1	4.2		20.1	2.8		4.3	8.3		15.6	0.4	
Delay (s)	59.0	31.0		51.3	28.6		38.3	34.8		43.5	16.3	
Level of Service	E	C		D	C		D	C		D	B	
Approach Delay (s)	37.3			32.1			35.1			35.0		
Approach LOS	D			C			D			C		
Intersection Summary												
HCM Average Control Delay	34.5			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.81											
Actuated Cycle Length (s)	73.1			Sum of lost time (s)			16.0					
Intersection Capacity Utilization	86.3%			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 Rd.

Year 2030 AM
12/1/2010

Movement	WBL	WBR	SELT	SETR	NWLT	NWLR	NWRT	SWLT	SWLR
Lane Configurations			↑↑	↑↑	↑↑			↑↑	↑↑
Volume (vph)	0	0	800	590	965	0	430	370	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor			0.97	0.95	0.95		1.00	0.97	1.00
Flt			1.00	1.00	1.00		0.85	1.00	0.85
Flt Protected			0.95	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)			3433	3539	3539		1583	3433	1583
Flt Permitted			0.95	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)			3433	3539	3539		1583	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	889	656	1072	0	478	409	256
RTOR Reduction (vph)	0	0	0	0	0	0	117	0	157
Lane Group Flow (vph)	0	0	889	656	1072	0	361	489	99
Turn Type			Prot			custom		custom	
Protected Phases			5	2	6		4		
Permitted Phases						2		6	
Actuated Green, G (s)			21.9	53.1	27.2		53.1	9.2	27.2
Effective Green, g (s)			21.9	53.1	27.2		53.1	9.2	27.2
Actuated G/C Ratio			0.31	0.76	0.39		0.76	0.13	0.39
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)			1069	2673	1369		1196	449	612
v/s Ratio Prot			0.26	0.19	0.30		0.06		
v/s Ratio Perm							0.23	0.06	
v/c Ratio			0.83	0.25	0.76		0.30	0.42	0.16
Uniform Delay, d1			22.5	2.6	19.0		2.7	28.1	14.1
Progression Factor			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
Delay (s)			28.1	2.6	22.0		2.9	28.7	14.2
Level of Service			C	A	C		A	C	B
Approach Delay (s)	0.0			17.3	16.1			20.4	
Approach LOS	A			B	B			C	
Intersection Summary									
HCM Average Control Delay	17.1		HCM Level of Service		B				
HCM Volume to Capacity ratio	0.74								
Actuated Cycle Length (s)	70.3		Sum of lost time (s)		12.0				
Intersection Capacity Utilization	64.3%		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
35: SR-56 EB Ramps & Carmel Country Rd.

Year 2030 AM
12/1/2010

Movement	EBL2	SEEBL	EBR2	SEET	SEET	SEET	NWLT	NWLR	NWLR	SWLT	SWR	
Lane Configurations												
Volume (vph)	310	5	310	410	320	0	0	1200	250	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			
Lane Util. Factor	0.95	0.95	1.00	0.97	0.95			0.95	1.00			
Flt	1.00	1.00	0.85	1.00	1.00			1.00	0.85			
Flt Protected	0.95	0.95	1.00	0.95	1.00			1.00	1.00			
Satd. Flow (prot)	1681	1681	1583	3433	3539			3539	1583			
Flt Permitted	0.95	0.95	1.00	0.95	1.00			1.00	1.00			
Satd. Flow (perm)	1681	1681	1583	3433	3539			3539	1583			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	344	6	344	456	356	0	0	1333	276	0	0	
RTOR Reduction (vph)	0	0	276	0	0	0	0	0	162	0	0	
Lane Group Flow (vph)	175	175	69	456	356	0	0	1333	116	0	0	
Turn Type	Split		Prot	Prot				Prot				
Protected Phases	4	4	4	4	6		2	2				
Permitted Phases												
Actuated Green, G (s)	11.1	11.1	11.1	9.0	36.1		23.1	23.1				
Effective Green, g (s)	11.1	11.1	11.1	9.0	36.1		23.1	23.1				
Actuated G/C Ratio	0.20	0.20	0.20	0.16	0.65		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)	338	338	318	560	2314		1481	662				
v/s Ratio Prot	0.10	0.10	0.04	0.13	0.10		0.38	0.07				
v/s Ratio Perm												
v/c Ratio	0.52	0.52	0.22	0.81	0.15		0.90	0.18				
Uniform Delay, d1	19.7	19.7	18.4	22.3	3.7		15.0	10.1				
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00				
Incremental Delay, d2	1.3	1.3	0.3	8.9	0.0		7.8	0.1				
Delay (s)	21.0	21.0	18.8	31.2	3.7		22.8	10.2				
Level of Service	C	C	B	C	A		C	B				
Approach Delay (s)		19.9		19.1			20.6		0.0			
Approach LOS		B		B			C		A			
Intersection Summary												
HCM Average Control Delay	20.1		HCM Level of Service		C							
HCM Volume to Capacity ratio	0.78											
Actuated Cycle Length (s)	55.2		Sum of lost time (s)		12.0							
Intersection Capacity Utilization	63.6%		ICU Level of Service		B							
Analysis Period (min)	15											
c = Critical Lane Group												

Baseline

Synchro 7 - Report
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ALL-WAY STOP CONTROL ANALYSIS										
General Information					Site Information					
Analyst: Jacob 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 AM										
Project ID 002407 - San Diego Corporate Center Leds										
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	239	101	15	933	3				
%Thrus 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)	33		253		135	245	533	521		
% Heavy Vehicles	2		2		2	2	2	2		
No. Lanes	1		1		2	2	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	0.0	0.0		
Prop. Right-Turns	0.3		0.1		0.0	0.5	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	-0.3	0.0	0.0		
Departure Headway and Service Time										
hd, initial value (s)	3.20		3.20		3.20	3.20	3.20	3.20		
k, initial	0.03		0.22		0.12	0.22	0.47	0.46		
hd, final value (s)	7.35		6.75		7.07	6.73	6.23	6.21		
k, final value	0.07		0.47		0.27	0.46	0.92	0.90		
Move-up time, m (s)	2.0		2.0		2.3		2.3			
Service Time, ts (s)	5.4		4.8		4.8	4.4	3.9	3.9		
Capacity and Level of Service										
	Eastbound		Westbound		Northbound		Southbound			
	L1	L2	L1	L2	L1	L2	L1	L2		
Capacity (veh/h)	283		503		385	495	577	579		
Delay (s/veh)	10.89		15.70		12.31	15.01	45.37	41.31		
LOS	B		C		B	C	E	E		
Approach Delay (s/veh)	10.89		15.70		14.05		43.36			
LOS	B		C		B		E			
Intersection Delay (s/veh)	32.19									
Intersection LOS	D									

HCM Signalized Intersection Capacity Analysis 1: Via De La Valle & El Camino Real

 Year 2030 PM
 12/1/2010

	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Volume (vph)	10	400	1500	230	420	10	602	5	600	20	10	20	10	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	0.95	0.95	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Flt	1.00	1.00	0.85	1.00	1.00	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	0.95
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	0.95
Satd. Flow (prot)	1770	3539	1583	3433	3527	1681	1687	1583	1728	1728	1728	1728	1728	1728
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.72	0.89	1.00	0.84	0.84	0.84	0.84	0.84	0.84
Satd. Flow (perm)	1770	3539	1583	3433	3527	1276	1220	1583	1486	1486	1486	1486	1486	1486
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	11	444	558	256	467	11	669	6	667	22	11	22	11	22
RTOR Reduction (vph)	0	0	386	0	2	0	0	0	213	0	14	0	0	0
Lane Group Flow (vph)	11	444	170	256	476	11	334	341	454	0	41	0	0	0
Turn Type	Prot	Perm	Prot	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm
Protected Phases	4		8		2	2	6		6		6		6	
Permitted Phases		4			2	2	6		6		6		6	
Actuated Green, G (s)	0.8	17.6	17.6	6.9	23.7	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1
Effective Green, g (s)	0.8	17.6	17.6	6.9	23.7	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1
Actuated G/C Ratio	0.01	0.31	0.31	0.12	0.41	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	25	1081	484	411	1451	467	447	580	544					
v/s Ratio Prot	0.01	0.13	0.07	0.13										
v/s Ratio Perm		0.11				0.26	0.28	0.29	0.03					
W/C Ratio	0.44	0.31	0.35	0.62	0.33	0.72	0.76	0.78	0.08					
Uniform Delay, d1	28.2	15.9	15.6	24.1	11.5	15.7	16.0	16.2	11.9					
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00					
Incremental Delay, d2	11.9	0.3	0.4	2.9	0.1	5.2	7.5	6.8	0.1					
Delay (s)	40.1	16.1	16.0	27.0	11.7	20.8	23.5	23.0	12.0					
Level of Service	D	B	B	C	B	C	C	C	B					
Approach Delay (s)	16.3		17.0		22.6		12.0							
Approach LOS	B		B		C		B							
Intersection Summary														
HCM Average Control Delay	19.1				HCM Level of Service				B					
HCM Volume to Capacity Ratio	0.62													
Actuated Cycle Length (s)	57.6				Sum of lost time (s)				12.0					
Intersection Capacity Utilization	61.5%				ICU Level of Service				B					
Analysis Period (min)	15													
Critical Lane Group														

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

Year 2030 PM
12/1/2010

Movement	WBL	WBR	NBL	NBR	SBL	SBR
Lane Configurations	↵↵	↵	↵	↵	↵	↵↵
Volume (vph)	280	430	0	890	400	370
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	0.95
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	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	311	478	0	989	441	400
RTOR Reduction (vph)	0	226	0	89	0	0
Lane Group Flow (vph)	311	252	0	989	355	400
Turn Type	custom		Prot	custom		Prot
Protected Phases	1		3	6		7
Permitted Phases	8			4		6
Actuated Green, G (s)	16.4	63.0		63.0	95.0	16.4
Effective Green, g (s)	16.4	63.0		63.0	95.0	16.4
Actuated g/C Ratio	0.14	0.53		0.53	0.40	0.14
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)	472	835		983	1280	415
v/s Ratio Prot	0.09			0.53		0.23
v/s Ratio Perm		0.16			0.22	0.11
v/c Ratio	0.66	0.30		1.01	0.28	0.82
Uniform Delay, d1	48.8	15.8		28.2	3.2	45.6
Progression Factor	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.3	0.2		30.2	0.1	41.5
Delay (s)	52.2	16.1		58.4	3.3	87.1
Level of Service	D	B		E	A	F
Approach Delay (s)	30.3			41.3		74.2
Approach LOS	C			D		E
Intersection Summary						
HCM Average Control Delay	47.2			HCM Level of Service		
HCM Volume to Capacity ratio	0.97			D		
Actuated Cycle Length (s)	119.4			Sum of lost time (s)		
Intersection Capacity Utilization	85.3%			ICU Level of Service		
Analysis Period (min)	15			E		
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 PM
12/1/2010

Movement	WBL	WBR	NBL	NBR	SBL	SBR
Lane Configurations	TT	T	T	T	T	TT
Volume (vph)	71	7	0	942	111	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0		4.0
Lane Util. Factor	0.97			0.95		1.00
Flt	0.99			0.98		1.00
Flt Protected	0.96			1.00		0.95
Satd. Flow (prot)	3409			3483		1770
Flt Permitted	0.96			1.00		0.95
Satd. Flow (perm)	3409			3483		1770
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	79	8	0	1047	123	9
RTOR Reduction (vph)	7	0	0	12	0	0
Lane Group Flow (vph)	80	8	0	1158	9	589
Turn Type			Prot		Prot	
Protected Phases	8		5		6	
Permitted Phases						
Actuated Green, G (s)	3.2		20.5		0.6	25.1
Effective Green, g (s)	3.2		20.5		0.6	25.1
Actuated g/C Ratio	0.09		0.56		0.02	0.68
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)	301		1967		29	2447
v/s Ratio Prot	0.02		0.33		0.01	0.17
v/s Ratio Perm						
v/c Ratio	0.26		0.59		0.31	0.24
Uniform Delay, d1	15.5		5.2		17.6	2.1
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	0.5		0.5		6.0	0.1
Delay (s)	15.9		5.6		23.7	2.1
Level of Service	B		A		C	A
Approach Delay (s)	15.9		15.6		2.4	
Approach LOS	B		A		A	
Intersection Summary						
HCM Average Control Delay	5.1			HCM Level of Service		
HCM Volume to Capacity ratio	0.55			A		
Actuated Cycle Length (s)	36.3			Sum of lost time (s)		
Intersection Capacity Utilization	39.6%			ICU Level of Service		
Analysis Period (min)	15					
Critical Lane Group						

Baseline

Synchro 7 - Report
Page 3

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

Year 2030 PM
12/1/2010

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	25	22	16	16	21	169	26	850	49	89	469	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	
Flt	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	3510		1770	3509	
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	3510		1770	3509	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	28	24	16	18	23	188	29	944	54	98	521	31
RTOR Reduction (vph)	0	16	0	0	165	0	0	5	0	0	5	0
Lane Group Flow (vph)	28	26	0	18	46	0	29	993	0	99	547	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		6	2		6	6	
Permitted Phases												
Actuated Green, G (s)	1.4	5.8		0.7	6.1		1.6	22.8		4.2	25.4	
Effective Green, g (s)	1.4	5.8		0.7	6.1		1.6	22.8		4.2	25.4	
Actuated g/C Ratio	0.03	0.13		0.01	0.12		0.03	0.45		0.08	0.50	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	49	235		25	195		58	1585		147	1765	
v/s Ratio Prot	0.02	0.02		0.01	0.03		0.02	0.26		0.06	0.16	
v/s Ratio Perm												
v/c Ratio	0.57	0.11		0.72	0.23		0.52	0.59		0.67	0.31	
Uniform Delay, d1	24.3	19.2		24.8	20.1		24.1	10.6		22.5	7.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	15.1	0.2		68.2	0.6		7.9	0.8		11.5	0.1	
Delay (s)	39.3	19.4		93.0	20.7		31.9	11.4		34.0	7.5	
Level of Service	D	B		F	C		C	B		C	A	
Approach Delay (s)		27.4			26.4			12.0			11.5	
Approach LOS		C			C			B			B	
Intersection Summary												
HCM Average Control Delay	14.0						HCM Level of Service					
HCM Volume to Capacity ratio	0.61						B					
Actuated Cycle Length (s)	50.5						Sum of lost time (s)					
Intersection Capacity Utilization	58.2%						ICU Level of Service					
Analysis Period (min)	15						B					
Critical Lane Group												

Baseline

Synchro 7 - Report
Page 4

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

Year 2030 PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
Volume (vph)	8	42	36	46	30	21	48	999	117	23	493	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	
Flt	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	1863	1583	1770	1748		1770	3484		1770	3529	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1748		1770	3484		1770	3529	
Peak-hour 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)	9	47	40	50	33	23	53	1110	130	26	548	11
RTOR Reduction (vph)	0	0	37	0	21	0	0	8	0	0	1	0
Lane Group Flow (vph)	9	47	37	50	35	0	53	1232	0	26	558	0
Turn Type	Prot			Perm			Prot			Prot		
Protected Phases	7	4		3	8		6	2		6	6	
Permitted Phases												
Actuated Green, G (s)	0.9	4.3	4.3	1.8	5.2		3.2	28.7		1.3	26.8	
Effective Green, g (s)	0.9	4.3	4.3	1.8	5.2		3.2	28.7		1.3	26.8	
Actuated g/C Ratio	0.02	0.08	0.08	0.03	0.10		0.06	0.55		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)	31	154	131	61	174		109	1919		44	1815	
v/s Ratio Prot	0.01	0.03	0.03	0.03	0.02		0.03	0.35		0.01	0.16	
v/s Ratio Perm												
v/c Ratio	0.29	0.31	0.03	0.02	0.20		0.29	0.64		0.59	0.31	
Uniform Delay, d1	25.3	22.5	22.0	25.0	21.5		23.7	8.1		25.1	7.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.1	1.1	0.1	55.5	0.6		3.4	0.7		19.5	0.1	
Delay (s)	30.4	23.6	22.1	80.4	22.1		27.0	8.9		44.6	7.4	
Level of Service	C	C	C	F	C		C	A		D	A	
Approach Delay (s)		23.6		49.6				9.6			9.0	
Approach LOS		C		D				A			A	
Intersection Summary												
HCM Average Control Delay	12.1						HCM Level of Service					
HCM Volume to Capacity ratio	0.66						B					
Actuated Cycle Length (s)	52.1						Sum of lost time (s)					
Intersection Capacity Utilization	53.0%						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
6: Del Mar Heights Road & Mango Drive

Year 2030 PM
12/1/2010

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↶↶		↶	↶↶		↶	↶	↶	↶	↶	↶
Volume (vph)	150	1130	50	130	900	230	90	50	70	450	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	4.0		4.0
Lane Util. Factor	1.00	0.91		1.00	0.95		1.00	1.00	0.95	0.95		1.00
Flt Protected	1.00	0.99		1.00	0.97		1.00	0.85	1.00	0.93		1.00
Flt Permitted	0.95	1.00		0.95	1.00		0.97	1.00	0.95	0.98		1.00
Satd. Flow (prot)	1770	5053		1770	3431		1805	1583	1681	1617		1770
Flt Permitted	0.95	1.00		0.95	1.00		0.49	1.00	0.66	0.79		0.95
Satd. Flow (perm)	1770	5053		1770	3431		918	1583	1164	1306		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)	167	1256	55	144	1000	256	100	56	78	500	44	166
RTOR Reduction (vph)	0	7	0	0	37	0	0	0	53	0	49	0
Lane Group Flow (vph)	167	1305	0	144	1219	0	0	156	25	350	301	0
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	7	4		3	6		2	2	6		6	
Permitted Phases							2	2	6			
Actuated Green, G (s)	6.8	23.1		6.1	22.4		19.2	19.2	19.2	19.2		19.2
Effective Green, g (s)	6.8	23.1		6.1	22.4		19.2	19.2	19.2	19.2		19.2
Actuated g/C Ratio	0.11	0.38		0.10	0.37		0.32	0.32	0.32	0.32		0.32
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0		4.0
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)	199	1933		179	1272		292	503	370	415		415
v/s Ratio Prot	0.09	0.26		0.08	0.36		0.17	0.02	0.30	0.23		0.23
v/s Ratio Perm							0.53	0.05	0.95	0.73		0.73
Uniform Delay, d1	26.3	15.5		26.6	18.5		16.9	14.3	20.1	18.3		18.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	25.4	0.9		22.4	16.1		1.9	0.0	32.8	6.2		6.2
Delay (s)	51.7	16.5		49.0	34.6		18.8	14.3	52.9	24.4		24.4
Level of Service	D	B		D	C		B	B	D	C		C
Approach Delay (s)		20.4			36.1		17.3		38.7			38.7
Approach LOS		C			D		B		D			D
Intersection Summary												
HCM Average Control Delay	29.3				HCM Level of Service				C			
HCM Volume to Capacity ratio	0.94				Sum of lost time (s)				12.0			
Actuated Cycle Length (s)	60.4				ICU Level of Service				D			
Intersection Capacity Utilization	79.3%				Analysis Period (min)				15			
Critical Lane Group	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 PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑		↑↑	↑↑		↑	↑	↑	↑	↑	↑
Volume (veh/h)	1770	80	0	1540	0	90						
Sign Control	Free	Free	Slop									
Grade	0%	0%	0%									
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90						
Hourly flow rate (vph)	1967	89	0	1711	0	100						
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		0.81		0.81								
VC conflicting volume		2056		2867								
VC1, stage 1 conf vol												
VC2, stage 2 conf vol												
VCu, unblocked vol		1486		2486								
IC single (s)		4.1		6.0								
IC 2 stage (s)												
IC (s)		2.2		3.5								
pD queue free %		100		100								
CM capacity (veh/h)		364		20								
Direction of travel	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume Total	1770	80	0	1540	0	90						
Volume Left	0	0	0	0	0	0						
Volume Right	0	0	0	0	0	0						
cSH	1700	1700	1700	1700	1700	879						
Volume to Capacity	0.96	0.46	0.28	0.50	0.50	0.11						
Queue Length 85th (ft)	0	0	0	0	0	10						
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.6						
Lane LOS	A	A	A	A	A	A						
Approach Delay (s)	0.0			0.0								
Approach LOS	A			A								
Intersection Summary												
Average Delay	0.2											
Intersection Capacity Utilization	48.2%											
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 PM
4/26/2011

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	↑
Volume (vph)	0	1280	1140	0	820	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		3425	1441
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3425	1441
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1422	1267	0	911	444
RTOR Reduction (vph)	0	0	0	0	4	49
Lane Group Flow (vph)	0	1422	1267	0	951	351
Turn Type					Perm	
Protected Phases		2, 6	6, 2		4	
Permitted Phases						4
Actuated Green, G (s)		49.0	49.0		23.0	23.0
Effective Green, g (s)		49.0	49.0		23.0	23.0
Actuated g/C Ratio		0.61	0.61		0.29	0.29
Clearance Time (s)					4.0	4.0
Vehicle Extension (s)					3.0	3.0
Lane Grp Cap (vph)		2168	2168		985	414
v/s Ratio Prot		0.40	0.36		0.28	
v/s Ratio Perm						0.24
v/c Ratio		0.66	0.58		0.97	0.85
Uniform Delay, d1		10.0	9.4		28.1	26.8
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.7	0.4		20.5	14.8
Delay (s)		10.8	9.8		48.6	41.6
Level of Service		B	A		D	D
Approach Delay (s)		10.8	9.8		48.6	
Approach LOS		B	A		D	
Intersection Summary						
HCM Average Control Delay	22.4		HCM Level of Service		C	
HCM Volume to Capacity ratio	0.75		Sum of lost time (s)		8.0	
Actuated Cycle Length (s)	80.0		ICU Level of Service		H	
Intersection Capacity Utilization	122.5%		Analysis Period (min)		15	
c 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 PM
4/26/2011

Movement	EB	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEB	SEBT	SEBR
Lane Configurations	↑↑	↑↑			↑↑	↑		↔	↑			
Volume (vph)	750	1633	0	0	1340	600	630	30	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			0.91	1.00	0.95	0.91	0.95			
Flt	1.00	1.00			1.00	0.85	1.00	0.89	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	1494	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	1494	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	1814	0	0	1489	667	700	33	944	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	330	0	10	10	0	0	0
Lane Group Flow (vph)	833	1814	0	0	1489	337	581	548	528	0	0	0
Turn Type	Prot					Prot	Split		Prot			
Protected Phases	6	2			6	6	8	8	8			
Permitted Phases												
Actuated Green, G (s)	29.0	69.0			36.0	36.0	43.0	43.0	43.0			
Effective Green, g (s)	29.0	69.0			36.0	36.0	43.0	43.0	43.0			
Actuated g/C Ratio	0.24	0.57			0.30	0.30	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)	830	2035			1526	475	602	535	539			
v/s Ratio Prot	0.24	0.51			0.29	0.21	0.35	0.37	0.35			
v/s Ratio Perm												
v/c Ratio	1.00	0.89			0.98	0.71	0.97	1.02	0.98			
Uniform Delay, d1	45.5	22.2			41.6	37.3	37.8	38.5	38.1			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	32.1	6.4			17.9	8.6	27.9	45.4	33.6			
Delay (s)	77.6	28.7			59.5	46.0	65.7	83.9	71.7			
Level of Service	E	C			E	D	E	F	E			
Approach Delay (s)		44.1			55.3			73.7			0.0	
Approach LOS		D			E			E			A	
Intersection Summary												
HCM Average Control Delay	55.5			HCM Level of Service				E				
HCM Volume to Capacity ratio	1.00											
Actuated Cycle Length (s)	120.0			Sum of lost time (s)				12.0				
Intersection Capacity Utilization	95.4%			ICU Level of Service				F				
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 PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↑	↱	↰	↑↑↑	↱	↰	↑↑	↱	↰	↑	↱
Volume (vph)	250	2220	300	120	1280	150	680	70	150	40	40	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	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	0.98	1.00	0.90	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	5005	1583	1770	5005	3433	3177	1770	1863	1583	3433	3177
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	5005	1583	1770	5005	3433	3177	1770	1863	1583	3433	3177
Peak-hour 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	2467	333	22	1422	167	756	78	167	44	44	222
RTOR Reduction (vph)	0	0	106	0	13	0	0	96	0	0	0	201
Lane Group Flow (vph)	278	2467	227	22	1576	0	756	149	0	44	44	21
Turn Type	Prot		Perm	Prot		Prot		Prot		Prot		Perm
Protected Phases	1	4		3	8	5	2		1	6		6
Permitted Phases			4									6
Actuated Green, G (s)	16.0	54.9	54.9	1.6	38.5	23.0	29.0		4.1	10.1	10.1	10.1
Effective Green, g (s)	16.0	54.9	54.9	1.6	38.5	23.0	29.0		4.1	10.1	10.1	10.1
Actuated g/C Ratio	0.17	0.52	0.52	0.02	0.36	0.22	0.27		0.04	0.10	0.10	0.10
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0
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)	302	2644	823	27	1825	748	872		69	178	151	859
v/s Ratio Prot	0.16	0.49		0.01	0.31	0.22	0.05		0.02	0.02		0.02
v/s Ratio Perm			0.14									0.01
v/c Ratio	0.92	0.93	0.28	0.81	0.86	1.01	0.17		0.64	0.25		0.11
Uniform Delay, d1	43.1	23.6	14.2	51.9	31.1	41.3	29.2		50.0	44.2		43.8
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	31.8	6.9	0.2	95.3	4.5	35.6	0.1		17.7	0.7		0.4
Delay (s)	74.9	30.5	14.4	147.1	35.6	76.9	29.2		67.7	45.0		44.2
Level of Service	E	C	B	F	D	E	C		E	D		D
Approach Delay (s)		32.8			37.2		65.2			47.6		
Approach LOS		C			D		E			D		
Intersection Summary												
HCM Average Control Delay	40.1			HCM Level of Service				D				
HCM Volume to Capacity ratio	0.86											
Actuated Cycle Length (s)	105.6			Sum of lost time (s)				12.0				
Intersection Capacity Utilization	82.3%			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
13: Del Mar Heights Road & El Camino Real

Year 2030 PM
12/1/2010

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	↖↗	↑↑↑		↖↗	↑↑↑		↖↗	↑↑↑	↑	↖↗	↑↑↑
Volume (vph)	495	1522	471	127	930	190	420	750	270	190	220
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	0.96		1.00	0.97		1.00	1.00	0.95	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	4905		3433	4958		3433	5085	1583	3433	4658
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	4905		3433	4958		3433	5085	1583	3433	4658
Peak-hour 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)	550	1691	523	141	1033	211	467	833	300	211	244
RTOR Reduction (vph)	0	61	0	0	34	0	0	0	93	0	237
Lane Group Flow (vph)	550	2153	0	141	1210	0	467	833	207	211	318
Turn Type	Prot			Prot			Prot		Perm	Prot	
Protected Phases	1	4		3	6		5	2		6	
Permitted Phases									2		
Actuated Green, G (s)	16.2	38.3		4.8	26.9		13.0	21.3	21.3	8.0	16.3
Effective Green, g (s)	16.2	38.3		4.8	26.9		13.0	21.3	21.3	8.0	16.3
Actuated g/C Ratio	0.18	0.49		0.05	0.50		0.15	0.24	0.24	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
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)	629	2125		186	1508		505	1225	381	311	859
v/s Ratio Prot	0.16	0.44		0.04	0.24		0.14	0.16		0.06	0.07
v/s Ratio Perm									0.13		
v/c Ratio	0.87	1.01		0.76	0.80		0.92	0.68	0.54	0.68	0.37
Uniform Delay, d1	35.1	25.0		41.2	28.3		37.2	30.5	29.3	39.0	31.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.9	22.8		18.1	3.2		22.8	1.6	1.6	5.8	0.3
Delay (s)	48.0	47.9		59.3	31.5		60.0	32.0	30.9	44.7	31.8
Level of Service	D	D		E	C		E	C	C	D	C
Approach Delay (s)		47.9			34.1			40.0			35.4
Approach LOS		D			C			D			D
Intersection Summary											
HCM Average Control Delay	41.5			HCM Level of Service				D			
HCM Volume to Capacity ratio	0.90										
Actuated Cycle Length (s)	88.4			Sum of lost time (s)				12.0			
Intersection Capacity Utilization	79.4%			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
14: Del Mar Heights Road & Carmel Country Rd.

Year 2030 PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵↵↵	↵↵↵		↵↵↵	↵↵↵		↵↵↵	↵↵↵		↵↵	↵↵	
Volume (vph)	140	1535	473	85	665	120	400	300	175	200	250	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.91		1.00	0.95	
Flt Protected	1.00	0.96		1.00	0.96		1.00	0.94		1.00	0.95	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	4906		3433	4969		3433	4804		1770	3340	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	4906		3433	4969		3433	4804		1770	3340	
Peak-hour 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)	156	1706	526	94	739	133	444	333	194	222	278	156
RTOR Reduction (vph)	0	59	0	0	28	0	0	110	0	0	91	0
Lane Group Flow (vph)	156	2173	0	94	844	0	444	417	0	222	343	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	8.0	39.2		9.6	34.8		12.7	13.9		12.5	13.7	
Effective Green, g (s)	8.0	39.2		9.6	34.8		12.7	13.9		12.5	13.7	
Actuated g/C Ratio	0.09	0.46		0.04	0.41		0.15	0.16		0.15	0.16	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	322	2257		145	2030		512	784		260	538	
v/s Ratio Prot	60.05	60.44		0.03	0.17		60.13	0.09		0.13	60.10	
v/s Ratio Perm												
v/c Ratio	0.48	0.96		0.65	0.42		0.87	0.53		0.85	0.64	
Uniform Delay, d1	36.6	22.3		40.2	18.0		35.4	32.7		35.5	33.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	11.5		9.6	0.1		14.4	0.7		22.8	2.5	
Delay (s)	37.8	33.8		49.8	18.1		49.8	33.4		58.3	35.9	
Level of Service	D	C		D	B		D	C		E	D	
Approach Delay (s)		34.0			21.2			40.9			43.5	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM Average Control Delay	34.1			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.87											
Actuated Cycle Length (s)	85.2			Sum of lost time (s)			16.0					
Intersection Capacity Utilization	79.7%			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
15: Del Mar Heights Road & Torrey Ridge Dr.

Year 2030 PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SEB
Lane Configurations	↖ ↗	↖ ↗		↖ ↗	↖ ↗		↖	↗		↖	↗	
Volume (vph)	49	1646	108	8	863	23	52	14	45	39	8	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Flt Protected	1.00	0.99		1.00	1.00		1.00	0.89		1.00	0.87	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5038		1770	5065		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	5038		1770	5065		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	1829	120	9	958	26	58	16	50	43	9	48
RTOR Reduction (vph)	0	7	0	0	3	0	0	45	0	0	44	0
Lane Group Flow (vph)	54	1942	0	9	982	0	58	21	0	43	13	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	3.2	30.5		0.7	26.0		2.4	5.1		1.4	4.1	
Effective Green, g (s)	3.2	30.5		0.7	26.0		2.4	5.1		1.4	4.1	
Actuated g/C Ratio	0.06	0.57		0.01	0.52		0.04	0.09		0.03	0.08	
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)	105	2861		23	2641		79	157		46	124	
v/s Ratio Prot	60.03	60.39		0.01	0.19		60.03	60.01		60.02	60.01	
v/s Ratio Perm												
v/c Ratio	0.51	0.68		0.39	0.97		0.73	0.13		0.93	0.10	
Uniform Delay, d1	24.5	8.2		26.3	7.6		25.3	22.3		26.1	23.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.2	0.7		10.7	0.1		29.4	0.4		107.1	0.4	
Delay (s)	28.7	8.9		36.9	7.7		54.7	22.7		133.2	23.4	
Level of Service	C	A		D	A		D	C		F	C	
Approach Delay (s)		9.3			8.0			37.7			70.6	
Approach LOS		A			A			D			E	
Intersection Summary												
HCM Average Control Delay	11.9			HCM Level of Service			B					
HCM Volume to Capacity ratio	0.53											
Actuated Cycle Length (s)	53.7			Sum of lost time (s)			8.0					
Intersection Capacity Utilization	56.9%			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
16: Del Mar Heights Road & Lansdale Drive

Year 2030 PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑		↑↑↑	↑↑↑		↑	↑	↑	↑	↑	↑
Volume (vph)	244	1294	65	22	631	25	56	46	49	33	33	228
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
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	0.99		1.00	0.92		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	5049		1770	5056		1770	1719		1770	1619	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5049		1770	5056		1770	1719		1770	1619	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	271	1438	72	24	701	28	62	51	54	37	37	253
RTOR Reduction (vph)	0	7	0	0	6	0	0	45	0	0	213	0
Lane Group Flow (vph)	271	1503	0	24	723	0	62	60	0	37	77	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	1			3			5			1		6
Permitted Phases												
Actuated Green, G (s)	11.3	27.6		0.7	17.0		2.4	9.7		4.5	8.8	
Effective Green, g (s)	11.3	27.6		0.7	17.0		2.4	9.7		4.5	8.8	
Actuated g/C Ratio	0.20	0.50		0.01	0.31		0.04	0.17		0.03	0.16	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	360	2511		22	1549		77	300		48	257	
v/s Ratio Prot	c0.15	c0.30		0.01	0.14		c0.04	0.04		0.02	c0.05	
v/s Ratio Perm												
v/c Ratio	0.75	0.60		1.09	0.47		0.81	0.20		0.77	0.30	
Uniform Delay, d1	20.8	10.0		27.4	15.6		26.3	19.6		26.8	20.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.6	0.4		221.9	0.2		43.8	0.3		53.1	0.7	
Delay (s)	29.4	10.4		249.3	15.8		70.1	19.9		79.9	21.3	
Level of Service	C	B		F	B		E	B		E	C	
Approach Delay (s)		13.3			23.2			39.6			27.9	
Approach LOS		B			C			D			C	
Intersection Summary												
HCM Average Control Delay		18.7			HCM Level of Service			B				
HCM Volume to Capacity ratio		0.57										
Actuated Cycle Length (s)		55.5			Sum of lost time (s)			12.0				
Intersection Capacity Utilization		62.3%			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
17: Del Mar Heights Road & Carmel Canyon Road

Year 2030 PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑		↑↑↑	↑↑↑		↑	↑	↑	↑	↑	↑
Volume (vph)	1300	266		153	573		145	410		1900	1900	
Ideal Flow (vphpl)	1900	1900		1900	1900		1900	1900		1900	1900	
Total Lost time (s)	4.0			4.0			4.0			4.0		
Lane Util. Factor	0.91			1.00	0.91		0.97			1.00		
Flt	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)	4956			1770	5085		3433			1583		
Flt Permitted	1.00			0.95	1.00		0.95			1.00		
Satd. Flow (perm)	4956			1770	5085		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	0.90
Adj. Flow (vph)	1444	296		170	637		161	456				
RTOR Reduction (vph)	48	0		0	0		0	229				
Lane Group Flow (vph)	1692	0		170	637		161	227				
Turn Type				Prot						Perm		
Protected Phases				3						2		
Permitted Phases												
Actuated Green, G (s)				7.8	34.1		11.9			11.9		
Effective Green, g (s)				7.8	34.1		11.9			11.9		
Actuated g/C Ratio				0.41	0.63		0.22			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)				2047	256		3211			757		
v/s Ratio Prot				c0.34	c0.40		c0.13			c0.05		
v/s Ratio Perm												
v/c Ratio				0.83	0.66		0.20			0.21		
Uniform Delay, d1				14.1	21.9		4.2			17.2		
Progression Factor				1.00	1.00		1.00			1.00		
Incremental Delay, d2				2.9	6.3		0.0			0.1		
Delay (s)				17.0	28.2		4.2			17.4		
Level of Service				B	C		A			B		
Approach Delay (s)				17.0			9.3			121.7		
Approach LOS				B			A			C		
Intersection Summary												
HCM Average Control Delay					16.0			HCM Level of Service				B
HCM Volume to Capacity ratio					0.75							
Actuated Cycle Length (s)					54.0			Sum of lost time (s)				12.0
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

18: Del Mar Highlands Town Ctr. & El Camino Real

Year 2030 PM
12/1/2010

Movement	WBL	WBR	WBR2/3	WSEL	WFSR	WFSR2	WFSR3	WSEL	WFSR	WFSR2	WFSR3	WSEL	WFSR	WFSR2	WFSR3
Lane Configurations	↵		↵					↵				↵↵↵		↵↵↵	
Volume (vph)	228	0	301	0	0	0	0	0	0	0	0	995	168	295	449
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	
Lane Util. Factor	1.00		1.00									0.91		0.97	0.91
Flt	1.00		0.05									0.98		1.00	1.00
Flt Protected	0.95		1.00									1.00		0.95	1.00
Satd. Flow (prot)	1770		1583									4975		3433	5085
Flt Permitted	0.95		1.00									1.00		0.95	1.00
Satd. Flow (perm)	1770		1583									4975		3433	5085
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	253	0	334	0	0	0	0	0	0	0	0	1106	187	328	499
RTOR Reduction (vph)	0	0	211	0	0	0	0	0	0	0	0	37	0	0	0
Lane Group Flow (vph)	253	0	123	0	0	0	0	0	0	0	0	1256	0	328	498
Turn Type	custom						Prot						Prot		
Protected Phases	2						3						7		
Permitted Phases	8												7		
Actuated Green, G (s)	12.7		18.7									19.7		9.3	33.0
Effective Green, g (s)	12.7		18.7									19.7		9.3	33.0
Actuated g/C Ratio	0.24		0.37									0.37		0.17	0.61
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)	419		581									1825		595	3125
v/s Ratio Prot	0.14											0.25		0.10	0.10
v/s Ratio Perm			0.08												
v/c Ratio	0.60		0.21									0.69		0.55	0.16
Uniform Delay, d1	18.3		11.7									14.4		20.3	4.4
Progression Factor	1.00		1.00									1.00		1.00	1.00
Incremental Delay, d2	2.5		0.2									1.1		1.1	0.0
Delay (s)	20.7		11.8									15.5		21.4	4.4
Level of Service	C		B									B		C	A
Approach Delay (s)	15.7			0.0								15.5			11.2
Approach LOS	B			A								B			B
Intersection Summary															
HCM Average Control Delay	14.2						HCM Level of Service						B		
HCM Volume to Capacity ratio	0.63														
Actuated Cycle Length (s)	53.7						Sum of lost time (s)						12.0		
Intersection Capacity Utilization	54.0%						ICU Level of Service						A		
Analysis Period (min)	15														
c Critical Lane Group															

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

Year 2030 PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↑	↵	↵	↑	↵	↵	↑↑	↵	↵	↑↑	↵
Volume (vph)	250	130	190	30	80	120	150	600	10	190	500	190
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	0.91	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	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1695	1770	3531	1770	3539	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1695	1770	3531	1770	3539	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)	278	144	211	33	89	133	167	667	11	211	556	111
RTOR Reduction (vph)	0	0	135	0	69	0	0	2	0	0	0	83
Lane Group Flow (vph)	278	144	76	33	153	0	167	676	0	211	556	28
Turn Type	Prot		Perm	Prot			Prot			Prot		Perm
Protected Phases	1	4		3		5	2		6		6	
Permitted Phases			4									6
Actuated Green, G (s)	14.8	26.5	26.5	2.1	13.8		10.2	17.4		11.5	10.7	18.7
Effective Green, g (s)	14.8	26.5	26.5	2.1	13.8		10.2	17.4		11.5	18.7	18.7
Actuated g/C Ratio	0.20	0.36	0.36	0.03	0.19		0.14	0.24		0.16	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
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)	356	672	571	51	318		246	836		277	900	403
v/s Ratio Prot	0.16	0.08		0.02	0.09		0.09	0.19		0.12	0.16	
v/s Ratio Perm			0.05									0.02
v/c Ratio	0.78	0.21	0.13	0.65	0.48		0.68	0.81		0.76	0.62	0.07
Uniform Delay, d1	27.8	16.3	15.8	35.3	26.7		30.1	28.5		29.7	24.2	20.8
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	10.6	0.2	0.1	24.8	1.1		7.2	5.8		11.7	1.3	0.1
Delay (s)	38.4	16.4	15.9	60.2	27.8		37.3	34.3		41.4	25.5	20.9
Level of Service	D	B	B	E	C		D	C		D	C	C
Approach Delay (s)		25.9			32.0			33.3			28.7	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay	29.8					HCM Level of Service					C	
HCM Volume to Capacity ratio	0.71					Sum of lost time (s)					16.0	
Actuated Cycle Length (s)	73.5					ICU Level of Service					C	
Intersection Capacity Utilization	66.2%					Analysis Period (min)					15	
Analysis Period (min)	15					Critical Lane Group					EBB	
Critical Lane Group												

Baseline

Synchro 7 - Report
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HCM Signalized Intersection Capacity Analysis
20: Townsgate Drive & El Camino Real

Year 2030 PM
12/1/2010

Movement	SEB	SEB	SEB	NWB	NWB	NWB	NEB	NEB	NEB	SWB	SWB	SWB
Lane Configurations	↵	↑	↵	↑	↵	↑	↵	↑	↵	↑	↵	↑
Volume (vph)	250	20	15	210	10	90	85	1250	1240	120	580	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	1.00	0.91	1.00	0.91	1.00	0.91
Flt	1.00	0.93	0.93	1.00	1.00	0.85	1.00	0.98	1.00	0.99	1.00	0.99
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	1741	1770	1863	1583	1770	4962	1770	4962	1770	5024	5024
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	1741	1770	1863	1583	1770	4962	1770	4962	1770	5024	5024
Peak-hour 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	100	39	1389	267	133	644	56
RTOR Reduction (vph)	0	16	0	0	0	92	0	28	0	0	9	0
Lane Group Flow (vph)	278	23	0	233	11	8	39	1628	0	133	691	0
Turn Type	Prot			Prot		Perm	Prot			Prot		
Protected Phases	1	6	5	2	2	7	4	3	8	3	8	8
Permitted Phases												
Actuated Green, G (s)	15.2	5.0	16.5	6.3	6.3	3.6	32.2	8.2	36.8	8.2	36.8	36.8
Effective Green, g (s)	15.2	5.0	16.5	6.3	6.3	3.6	32.2	8.2	36.8	8.2	36.8	36.8
Actuated g/C Ratio	0.20	0.06	0.21	0.08	0.08	0.05	0.41	0.14	0.47	0.14	0.47	0.47
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)	345	112	375	151	128	82	2051	186	2373	186	2373	2373
v/s Ratio Prot	0.16	0.01	0.33	0.04	0.04	0.02	0.33	0.08	0.14	0.08	0.14	0.14
v/s Ratio Perm						0.01						
v/c Ratio	0.81	0.21	0.62	0.07	0.06	0.48	0.79	0.72	0.29	0.72	0.29	0.29
Uniform Delay, d1	29.9	34.6	27.9	33.1	33.1	36.2	20.0	33.7	12.6	33.7	12.6	12.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.8	0.9	3.2	0.2	0.2	4.3	2.2	12.3	0.1	12.3	0.1	0.1
Delay (s)	42.8	35.5	31.0	33.3	33.3	40.5	22.2	46.0	12.6	46.0	12.6	12.6
Level of Service	D	D	C	C	C	D	C	D	B	D	B	B
Approach Delay (s)		41.8		31.8		22.6		18.0		18.0		
Approach LOS		D		C		C		B		B		
Intersection Summary												
HCM Average Control Delay	24.3					HCM Level of Service					C	
HCM Volume to Capacity ratio	0.72					Sum of lost time (s)					16.0	
Actuated Cycle Length (s)	77.9					ICU Level of Service					C	
Intersection Capacity Utilization	66.7%					Analysis Period (min)					15	
Analysis Period (min)	15					Critical Lane Group					SEB	
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 PM
12/1/2010

	EBL	EBT	EBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	←	↑	↓	←	↑	↓	←	↑	↓
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	256	244	89	23	101	15	96	310	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00
Flt Protected	1.00	1.00	0.85	0.99	1.00	0.98	1.00	0.99	1.00
Flt Permitted	0.95	1.00	1.00	0.99	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1563	1820	1770	3479	1770	3300	3300
Flt Permitted	0.95	1.00	1.00	0.89	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1563	1640	1770	3479	1770	3300	3300
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)	284	271	99	26	112	17	107	344	154
RTOR Reduction (vph)	0	0	53	0	7	0	13	0	188
Lane Group Flow (vph)	284	271	46	0	148	0	107	375	0
Turn Type	Prot	Perm	Perm	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	8	8	5	2	1	6	6
Permitted Phases		4	8						
Actuated Green, G (s)	13.4	25.6	25.6	8.2	4.2	16.4	1.7	13.9	13.9
Effective Green, g (s)	13.4	25.6	25.6	8.2	4.2	16.4	1.7	13.9	13.9
Actuated g/C Ratio	0.24	0.46	0.46	0.15	0.08	0.29	0.03	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
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)	426	856	728	241	133	1024	54	824	824
v/s Ratio Prot	c0.16	c0.15			c0.05	0.11	0.02	c0.11	c0.11
v/s Ratio Perm		0.03		c0.09					
v/c Ratio	0.67	0.32	0.06	0.61	0.80	0.37	0.04	0.44	0.44
Uniform Delay, d1	19.1	9.5	8.4	22.3	25.3	15.5	26.6	17.6	17.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.9	0.2	0.0	4.6	28.6	0.2	9.9	0.4	0.4
Delay (s)	23.1	9.7	8.4	26.9	53.9	15.8	36.5	18.0	18.0
Level of Service	C	A	A	C	D	B	D	B	B
Approach Delay (s)	15.3			26.9	24.0		40.4	18.9	
Approach LOS	B			C	C		D	B	
Intersection Summary									
HCM Average Control Delay	19.7			HCM Level of Service			B		
HCM Volume to Capacity ratio	0.57								
Actuated Cycle Length (s)	55.7			Sum of lost time (s)			16.0		
Intersection Capacity Utilization	55.1%			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
22: High Bluff Drive & El Camino Real

Year 2030 PM
12/1/2010

Movement	EBL	EBT	EBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations									
Volume (vph)	80	300	290	110	180	130	277	1290	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97	0.97	0.91	1.00	0.91
Flt. Protected	1.00	0.85	0.85	1.00	0.94	0.94	1.00	0.99	1.00
Flt. Permitted	0.95	1.00	1.00	0.95	0.97	0.97	0.95	1.00	0.95
Satd. Flow (prot)	1770	1583	1583	1770	3291	3291	3433	5030	5037
Flt. Permitted	0.95	1.00	1.00	0.95	0.97	0.97	0.95	1.00	0.95
Satd. Flow (perm)	1770	1583	1583	1770	3291	3291	3433	5030	5037
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)	89	333	322	122	200	144	308	1433	111
RTOR Reduction (vph)	0	0	214	0	131	0	12	0	10
Lane Group Flow (vph)	89	333	330	122	213	0	308	1532	0
Turn Type	Perm			Split			Prot		
Protected Phases	2			6			7		
Permitted Phases	2						4		
Actuated Green, G (s)	17.4	17.4	17.4	6.3	6.3		10.0	22.0	7.0
Effective Green, g (s)	17.4	17.4	17.4	6.3	6.3		10.0	22.0	7.0
Actuated g/C Ratio	0.25	0.25	0.25	0.09	0.09		0.16	0.32	0.10
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)	448	401	401	162	302		500	1611	180
v/s Ratio Prot	0.05	0.05	0.07	0.06	0.06		0.09	0.30	0.08
v/s Ratio Perm	c0.21			0.21					
v/c Ratio	0.20	0.83	0.82	0.75	0.71		0.62	0.95	0.80
Uniform Delay, d1	20.2	24.3	24.2	30.4	30.3		27.5	22.8	30.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	13.6	12.9	17.8	7.3		2.3	12.6	21.9
Delay (s)	20.4	37.8	37.1	48.3	37.6		29.8	35.5	52.0
Level of Service	C	D	D	D	D		C	D	D
Approach Delay (s)	35.6			40.4			34.5		
Approach LOS	D			D			C		
Intersection Summary									
HCM Average Control Delay	33.6			HCM Level of Service			C		
HCM Volume to Capacity ratio	0.87								
Actuated Cycle Length (s)	68.7			Sum of lost time (s)			16.0		
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 Unsignalized Intersection Capacity Analysis
23: High Bluff Drive & Carmel Vista Road

Year 2030 PM
12/1/2010

Movement	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB
Lane Configurations	1	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	Stop
Volume (vph)	211	30	148	5	13	5	107	28	9	2	8	102	102
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	234	33	164	6	14	6	119	31	10	2	9	113	113
Direction	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB
Volume Total (vph)	268	164	26	160	124								
Volume Left (vph)	234	0	6	119	2								
Volume Right (vph)	0	164	6	10	113								
Adj (s)	0.47	0.67	0.05	0.15	0.51								
Departure Headway (s)	5.7	4.6	5.2	5.3	4.7								
Degree Utilization, x	0.43	0.21	0.04	0.24	0.16								
Capacity (veh/h)	603	751	626	638	701								
Control Delay (s)	11.8	7.6	8.4	9.9	8.6								
Approach Delay (s)	10.2		8.4	9.9	8.6								
Approach LOS	B		A	A	A								
Intersection Summary													
Delay													
HCM Level of Service													
Intersection Capacity Utilization													
Analysis Period (min)													

Baseline

Synchro 7 - Report
Page 2

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

Year 2030 PM
12/1/2010

Movement	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB	SEB
Lane Configurations	1	1	1	1	1	1	1	1	1	1	1	1	1
Volume (vph)	117	50	71	56	26	9	109	727	135	6	324	63	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt. Protected	0.97	1.00	0.97	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1800	1583	1783	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770
Flt. Permitted	0.77	1.00	0.72	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1429	1583	1314	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	130	56	79	62	29	10	121	808	150	7	360	92	92
RTOR Reduction (vph)	0	0	62	0	8	0	0	18	0	0	31	0	0
Lane Group Flow (vph)	0	186	17	0	93	0	121	940	0	7	421	0	0
Turn Type	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm
Protected Phases	4	4	8	5	12	4	6	6	6	6	6	6	6
Permitted Phases	4	4	8	5	12	4	6	6	6	6	6	6	6
Actuated Green, G (s)	8.3	8.3	8.3	3.6	18.7	0.6	15.7	0.6	15.7	0.6	15.7	0.6	15.7
Effective Green, g (s)	8.3	8.3	8.3	3.6	18.7	0.6	15.7	0.6	15.7	0.6	15.7	0.6	15.7
Actuated G/C Ratio	0.21	0.21	0.21	0.09	0.47	0.02	0.40	0.02	0.40	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	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	300	332	275	161	1632	27	1360	27	1360	27	1360	27	1360
V/C Ratio Prot	0.13	0.01	0.07	0.07	0.07	0.00	0.12	0.00	0.12	0.00	0.12	0.00	0.12
V/C Ratio Perm	0.62	0.05	0.34	0.75	0.56	0.20	0.31	0.20	0.31	0.20	0.31	0.20	0.31
Uniform Delay, d1	14.2	12.5	13.3	17.6	7.6	19.3	8.2	17.6	7.6	19.3	8.2	17.6	7.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.9	0.1	0.7	17.8	0.5	5.1	0.1	17.8	0.5	5.1	0.1	17.8	0.5
Delay (s)	18.2	12.6	14.0	35.4	8.1	24.3	8.4	35.4	8.1	24.3	8.4	35.4	8.1
Level of Service	B	B	B	D	A	C	A	D	A	C	A	D	A
Approach Delay (s)	18.5		14.0	11.1		8.6		18.5		14.0	11.1		8.6
Approach LOS	B		B	B		A		B		B	B		A
Intersection Summary													
HCM Average Control Delay													
HCM Volume to Capacity ratio													
Actuated Cycle Length (s)													
Intersection Capacity Utilization													
Analysis Period (min)													
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 PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑					↑	↑↑	
Volume (vph)	0	840	450	650	906	0	0	0	0	350	1	190
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. Protected		0.95		1.00	1.00					1.00	0.99	0.95
Flt. Permitted		1.00		0.95	1.00					0.95	0.96	1.00
Satd. Flow (prot)		3354		3433	3539					1681	1598	1504
Flt. Permitted		1.00		0.95	1.00					0.95	0.96	1.00
Satd. Flow (perm)		3354		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	933	500	722	1007	0	0	0	0	389	1	200
RTOR Reduction (vph)	0	78	0	0	0	0	0	0	0	5	130	0
Lane Group Flow (vph)	0	1355	0	722	1007	0	0	0	0	206	199	50
Turn Type				Prot						Prot		
Protected Phases				3						6		
Permitted Phases				6						6		
Actuated Green, G (s)	38.0			20.7			19.0			19.0		
Effective Green, g (s)	38.0			20.7			19.0			19.0		
Actuated g/C Ratio	0.42			0.23			0.21			0.21		
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)	1421			792			356			338		
v/s Ratio Prot	0.40			0.21			0.12			0.12		
v/s Ratio Perm	0.03			0.03			0.03			0.03		
v/c Ratio	0.95			0.91			0.50			0.59		
Uniform Delay, d1	25.0			33.6			31.8			31.8		
Progression Factor	1.00			1.00			1.00			1.00		
Incremental Delay, d2	14.2			14.7			2.3			2.6		
Delay (s)	39.2			48.3			34.0			34.5		
Level of Service	D			D			C			C		
Approach Delay (s)	38.2			23.5			0.0			32.7		
Approach LOS	D			C			A			C		
Intersection Summary												
HCM Average Control Delay	30.9			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.85											
Actuated Cycle Length (s)	89.7			Sum of lost time (s)			12.0					
Intersection Capacity Utilization	77.7%			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
26: Carmel Valley Road & I-5 NB Ramps

Year 2030 PM
12/1/2010

Movement	EB	EBT	EBR	WB	WBT	WBR	NB	NBT	NBR	SB	SBT	SBR
Lane Configurations	↑↑	↑↑			↑↑	↑	↑	↑				
Volume (vph)	130	1089	0	0	660	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. Protected	1.00	1.00			1.00	0.85	1.00	0.88	0.85			
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	1210	0	0	733	467	644	11	944	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	331	0	12	12	0	0	0
Lane Group Flow (vph)	144	1210	0	0	733	136	554	514	507	0	0	0
Turn Type	Prot			Perm			Prot			Perm		
Protected Phases	7			8			5			2		
Permitted Phases	6			8			2			2		
Actuated Green, G (s)	3.6			25.1			17.5			26.9		
Effective Green, g (s)	3.6			25.1			17.5			26.9		
Actuated g/C Ratio	0.06			0.42			0.29			0.45		
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)	206			1480			1032			462		
v/s Ratio Prot	0.04			0.34			0.21			0.33		
v/s Ratio Perm	0.09			0.09			0.09			0.34		
v/c Ratio	0.70			0.82			0.71			0.73		
Uniform Delay, d1	27.7			15.4			19.0			13.6		
Progression Factor	1.00			1.00			1.00			1.00		
Incremental Delay, d2	9.9			3.6			2.3			0.4		
Delay (s)	37.6			19.3			21.3			14.0		
Level of Service	D			B			C			B		
Approach Delay (s)	21.0			19.6			18.6			18.6		
Approach LOS	C			B			B			A		
Intersection Summary												
HCM Average Control Delay	19.6			HCM Level of Service			B					
HCM Volume to Capacity ratio	0.80											
Actuated Cycle Length (s)	60.0			Sum of lost time (s)			8.0					
Intersection Capacity Utilization	77.7%			ICU Level of Service			D					
Analysis Period (min)	15											
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 PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↱	↰	↱	↱	↰	↱	↱	↰	↱	↱
Volume (vph)	110	80	80	520	80	250	110	1130	240	230	1530	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	0.95	0.95
Flt	1.00	0.99	0.85	1.00	0.99	0.85	1.00	0.97	1.00	0.99	0.95	0.95
Flt Protected	0.95	0.99	1.00	0.95	0.97	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1681	1665	1504	1681	1621	1504	1770	14952	1770	1770	15039	1770
Flt Permitted	0.95	0.94	1.00	0.95	0.97	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1681	1577	1504	1681	1621	1504	1770	14952	1770	1770	15039	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)	122	89	89	578	89	278	122	1256	267	256	1700	111
RTOR Reduction (vph)	0	3	51	0	4	46	0	41	0	0	9	0
Lane Group Flow (vph)	109	108	29	347	344	204	122	1482	0	256	1802	0
Turn Type	Prot	Perm	Split	Perm	Prot	Prot	Prot	Prot	Prot	Prot	Perm	Perm
Protected Phases	7	4	8	8	5	2	6	6	6	6	6	6
Permitted Phases												
Actuated Green, G (s)	6.4	29.4	29.4	19.0	19.0	19.0	7.0	42.6	31.6	31.6	31.6	31.6
Effective Green, g (s)	6.4	28.4	29.4	19.0	19.0	19.0	7.0	42.6	31.6	31.6	31.6	31.6
Actuated g/C Ratio	0.08	0.37	0.37	0.24	0.24	0.24	0.09	0.53	0.40	0.40	0.40	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	134	587	553	399	385	357	165	2637	899	1900	1900	1900
v/s Ratio Prot	c0.06	0.01	0.21	c0.21	c0.07	0.30	0.14	0.36	0.14	0.36	0.36	0.36
v/s Ratio Perm		0.05	0.02		0.14							
v/c Ratio	0.81	0.18	0.05	0.87	0.89	0.57	0.79	0.56	0.37	0.91	0.91	0.91
Uniform Delay, d1	36.2	17.2	16.3	29.3	29.5	26.9	35.8	12.5	17.1	22.8	22.8	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	30.0	0.2	0.0	17.9	22.2	2.2	22.6	0.3	0.3	6.3	6.3	6.3
Delay (s)	66.2	17.3	16.4	47.2	51.7	29.1	58.4	12.8	17.4	29.1	29.1	29.1
Level of Service	E	B	B	D	D	C	E	B	B	C	C	C
Approach Delay (s)	34.8			44.1			16.1			27.7		
Approach LOS	C			D			B			C		
Intersection Summary												
HCM Average Control Delay	27.4		HCM Level of Service					C				
HCM Volume to Capacity ratio	0.88											
Actuated Cycle Length (s)	80.0		Sum of lost time (s)					16.0				
Intersection Capacity Utilization	78.3%		ICU Level of Service					D				
Analysis Period (min)	15											
I 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 PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	220	100	200	500	1240	0	0	1410	510
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	0.81	1.00	0.97	0.95			0.86	0.86
Flt, ped/bikes				1.00	1.00	1.00	1.00	1.00			0.99	0.71
Flt, 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			4691	971
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	5085	1583	3433	3539			4691	971
Peak-hour 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	1378	0	0	1567	567
RTOR Reduction (vph)	0	0	0	0	0	64	0	0	0	0	7	154
Lane Group Flow (vph)	0	0	0	244	111	158	556	1378	0	0	1651	322
Confl. Peds. (#/hr)												200
Turn Type				Prot		Perm	Prot					Perm
Protected Phases				3		8						6
Permitted Phases							6					6
Actuated Green, G (s)				12.2		12.2	14.6				36.0	36.0
Effective Green, g (s)				12.2		12.2	14.6				36.0	36.0
Actuated g/C Ratio				0.16		0.16	0.20				0.48	0.48
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)				560		829	258				2258	467
v/s Ratio Prot				0.07		0.02	c0.16				0.35	
v/s Ratio Perm							c0.10					0.33
v/c Ratio				0.44		0.13	0.61				0.73	0.69
Uniform Delay, d				28.2		28.8	29.1				15.5	15.1
Progression Factor				1.00		1.00	1.00				1.00	1.00
Incremental Delay, d2				0.5		0.1	4.2				1.2	4.4
Delay (s)				28.7		28.9	33.3				16.8	19.4
Level of Service				C		C	D				B	B
Approach Delay (s)				0.0		30.1					17.4	
Approach LOS				A		C					B	
Intersection Summary												
HCM Average Control Delay				17.6	HCM Level of Service						B	
HCM Volume to Capacity ratio				0.73								
Actuated Cycle Length (s)				74.8	Sum of lost time (s)						12.0	
Intersection Capacity Utilization				116.6%	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
29: SR-56 EB on ramp & El Camino Real

Year 2030 PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	SPR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Volume (vph)	740	1207	200	0	0	0	0	920	1000	350	1280	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 Protected	1.00	1.00	0.85					0.92	1.00	1.00		
Satd. Flow (prot)	1610	3184	1441					5907	1770	5085		
Flt Permitted	0.95	1.00	1.00					1.00	0.95	1.00		
Satd. Flow (perm)	1610	3184	1441					5907	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	1022	1111	359	1422	0
RTOR Reduction (vph)	0	1	19	0	0	0	0	19	0	0	0	0
Lane Group Flow (vph)	707	1477	181	0	0	0	0	2114	0	389	1422	0
Turn Type	Prot		Perm					Prot			Perm	
Protected Phases	7							2			6	
Permitted Phases			4								6	
Actuated Green, G (s)	52.0	52.0	52.0					42.0	24.0	70.0		
Effective Green, g (s)	52.0	52.0	52.0					42.0	24.0	70.0		
Actuated g/C Ratio	0.40	0.40	0.40					0.32	0.18	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)	844	1274	576					1908	327	2738		
v/s Ratio Prot	0.44	0.46						0.36	0.22	0.26		
v/s Ratio Perm			0.13								0.00	
v/c Ratio	1.10	1.16	0.31					2.06	1.19	0.52		
Uniform Delay, d1	39.0	39.0	26.8					44.0	53.0	19.2		
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.00		
Incremental Delay, d2	65.2	81.0	0.3					56.9	111.7	0.2		
Delay (s)	104.2	120.0	27.1					100.9	164.7	19.4		
Level of Service	F	F	C					F	F	B		
Approach Delay (s)		107.5						100.9		50.6		
Approach LOS		F				A		F		D		
Intersection Summary												
HCM Average Control Delay	89.0			HCM Level of Service			F					
HCM Volume to Capacity ratio	1.15											
Actuated Cycle Length (s)	130.0			Sum of lost time (s)			12.0					
Intersection Capacity Utilization	116.6%			ICU Level of Service			H					
Analysis Period (min)	15											
dr = Defacto Right Lane. Recorded 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
30: Valley Centre Drive & Carmel View Road

Year 2030 PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	SPR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱
Volume (vph)	75	429	0	0	393	107	34	52				
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	
Lane Util. Factor	1.00	0.95			0.95		1.00		1.00			
Flt Protected	1.00	1.00			0.97		1.00		0.85			
Satd. Flow (prot)	1770	3539			3426		1770		1583			
Flt Permitted	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (perm)	1770	3539			3426		1770		1583			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Adj. Flow (vph)	83	477	0	0	437	119	38	58				
RTOR Reduction (vph)	0	0	0	0	48	0	0	52				
Lane Group Flow (vph)	83	477	0	0	508	0	38	58				
Turn Type	Prot			Prot				Perm				
Protected Phases	7			6				6				
Permitted Phases									6			
Actuated Green, G (s)	2.1	15.0			8.9			2.9	2.9			
Effective Green, g (s)	2.1	15.0			8.9			2.9	2.9			
Actuated g/C Ratio	0.08	0.58			0.34			0.11	0.11			
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)	144	2050			1177			198	177			
v/s Ratio Prot	0.05	0.13			0.15			0.02				
v/s Ratio Perm									0.00			
v/c Ratio	0.58	0.23			0.43			0.19	0.04			
Uniform Delay, d1	11.5	2.7			6.6			10.4	10.3			
Progression Factor	1.00	1.00			1.00			1.00	1.00			
Incremental Delay, d2	5.5	0.1			0.3			0.5	0.1			
Delay (s)	17.0	2.7			6.8			10.9	10.3			
Level of Service	B	A			A			B	B			
Approach Delay (s)		4.8			6.8			10.6				
Approach LOS		A			A			B				
Intersection Summary												
HCM Average Control Delay	6.2			HCM Level of Service			A					
HCM Volume to Capacity ratio	0.40											
Actuated Cycle Length (s)	25.9			Sum of lost time (s)			12.0					
Intersection Capacity Utilization	31.8%			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 PM
12/1/2010

Movement	EBL	EBR	EBR2	WBL	WBT	WBR	NBL	NBR	NBR2	SBL	SBR	SBR2
Lane Configurations	↰	↱	↱	↰	↱	↱	↰	↱	↱	↰	↱	↱
Volume (vph)	100	300	330	150	273	86	400	978	340	687	370	210
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	0.88	1.00	1.00	1.00		1.00	0.95	1.00	0.97	0.95	1.00
Flt	1.00	0.85	0.85	1.00	0.96		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)	1770	2787	1583	1770	1796		1770	3539	1583	3433	3539	1583
Flt Permitted	0.52	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	975	2787	1583	1770	1796		1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.80	0.90
Adj. Flow (vph)	111	333	367	167	303	96	444	1087	378	763	411	233
RTOR Reduction (vph)	0	0	305	0	13	0	0	0	174	0	0	172
Lane Group Flow (vph)	111	333	62	167	386	0	444	1087	204	763	411	67
Turn Type	custom	custom	custom	Prot			Prot		Perm	Prot		Perm
Protected Phases				3	8		5	2		1	6	
Permitted Phases	4	4	4						2			
Actuated Green, G (s)	14.8	14.8	14.8	9.1	27.9		25.1	28.4	28.4	20.0	23.3	23.3
Effective Green, g (s)	14.8	14.8	14.8	9.1	27.9		25.1	28.4	28.4	20.0	23.3	23.3
Actuated g/C Ratio	0.17	0.17	0.17	0.10	0.32		0.28	0.32	0.32	0.23	0.26	0.26
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	163	467	265	182	567		503	1138	509	778	934	418
v/s Ratio Prot	0.09	0.21		0.09	0.21		0.25	0.31		0.22	0.12	
v/s Ratio Perm	0.11	0.12	0.04						0.13		0.44	0.15
v/c Ratio	0.68	0.71	0.23	0.32	0.68		0.88	0.96	0.40	0.98	0.44	0.15
Uniform Delay, d1	34.5	34.7	31.8	39.2	26.3		30.2	29.3	23.3	34.0	27.1	24.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.1	5.1	0.5	43.4	3.4		16.6	16.9	0.5	27.4	0.3	0.2
Delay (s)	45.6	39.8	32.3	82.6	29.7		46.8	46.2	23.8	61.4	27.4	25.1
Level of Service	D	D	C	F	C		D	D	C	E	C	C
Approach Delay (s)					45.3				41.9			45.4
Approach LOS					D				D			D
Intersection Summary												
HCM Average Control Delay	42.6				HCM Level of Service				D			
HCM Volume to Capacity ratio	0.84											
Actuated Cycle Length (s)	88.3				Sum of lost time (s)				8.0			
Intersection Capacity Utilization	85.1%				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 PM
12/1/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	SBR
Lane Configurations	↑↑	↑↑	↑↑					↑↑	↑↑	↑↑	↑↑	↑↑
Volume (vph)	1110	0	111	0	0	0	0	80	105	610	75	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					0.91		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1681	1583					3238		3433	3539	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1681	1681	1583					3238		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	0	89	117	678	83	0
RTOR Reduction (vph)	0	0	65	0	0	0	0	0	104	0	0	0
Lane Group Flow (vph)	616	617	66	0	0	0	0	102	0	678	83	0
Turn Type	Prot		Perm							Prot		Perm
Protected Phases	7		4					2		6		
Permitted Phases												
Actuated Green, G (s)	33.1		33.1					7.5		17.3	28.8	
Effective Green, g (s)	33.1		33.1					7.5		17.3	28.8	
Actuated g/C Ratio	0.47		0.47					0.11		0.25	0.41	
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)	796		796					347		850	1458	
v/s Ratio Prot	0.37		0.37					0.03		0.20	0.02	
v/s Ratio Perm												
v/c Ratio	0.77		0.78					0.29		0.80	0.06	
Uniform Delay, d1	15.3		15.3					28.8		24.7	12.4	
Progression Factor	1.00		1.00					1.00		1.00	1.00	
Incremental Delay, d2	4.7		4.7					0.5		5.3	0.0	
Delay (s)	20.0		20.1					29.2		29.9	12.4	
Level of Service	C		C					C		C	B	
Approach Delay (s)			19.1					29.2		29.9		28.0
Approach LOS			B					C		C		C
Intersection Summary												
HCM Average Control Delay	22.9				HCM Level of Service				C			
HCM Volume to Capacity ratio	0.72											
Actuated Cycle Length (s)	69.9				Sum of lost time (s)				12.0			
Intersection Capacity Utilization	63.7%				ICU Level of Service				B			
Analysis Period (min)	15											
c - Critical Lane Group												

Baseline

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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

Intersection Summary			
HCM Average Control Delay	33.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	75.4	Sum of lost time (s)	20.0
Intersection Capacity Utilization	79.4%	ICU Level of Service	D
Analysis Period (min)	15		

d: Defacto Right Lane: Record with 1 though lane as a right lane.
c: Critical Lane Group

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

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Intersections Summary			
HCM Average Control Delay	9.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	47.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	47.8%	ICU Level of Service	A
Analysis Period (min)	15		
p - Critical Lane Group			

critical lane group

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