APPENDIX A

TRAFFIC COUNTS

MARKS TRAFFIC DATA SERVICE

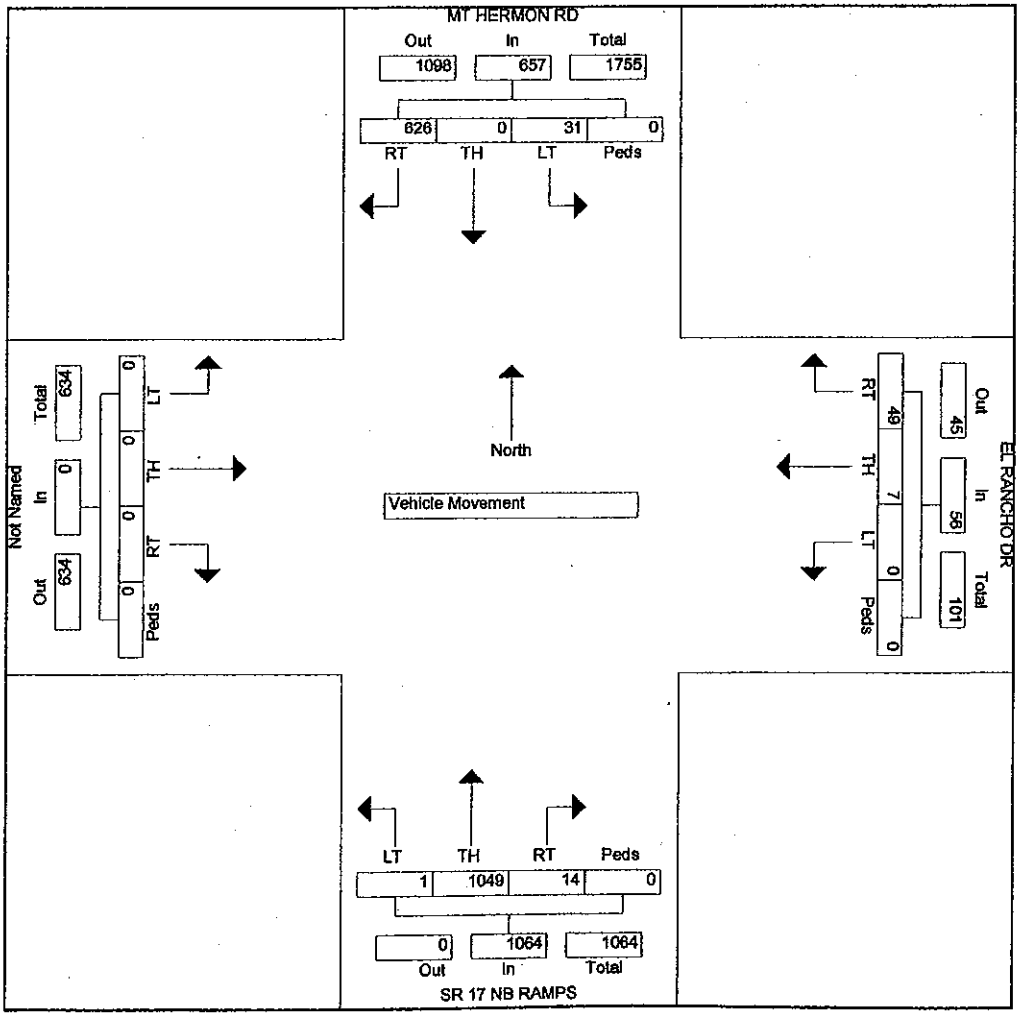
AM 01
SCOTTS VALLEY
FPSJ C
TITO [916] 715 - 4006

File Name : 17.nb.e.rancho.a
Site Code : 00000000
Start Date : 06/04/2002
Page : 1

Groups Printed: Vehicle Movement

	MT HERMON RD Southbound				EL RANCHO DR Westbound				SR 17 NB RAMPS Northbound				Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	162	0	3	165	5	1	0	6	0	184	0	184	0	0	0	0	355
07:15	149	0	2	151	5	5	0	10	1	219	0	220	0	0	0	0	381
07:30	143	0	9	152	13	1	0	14	2	238	0	240	0	0	0	0	406
07:45	152	0	3	155	11	0	0	11	4	290	0	294	0	0	0	0	460
Total	606	0	17	623	34	7	0	41	7	931	0	938	0	0	0	0	1602
08:00	163	0	7	170	17	1	0	18	2	263	0	265	0	0	0	0	453
08:15	159	0	11	170	9	2	0	11	5	249	1	255	0	0	0	0	436
08:30	152	0	10	162	12	4	0	16	3	247	0	250	0	0	0	0	428
08:45	162	0	4	166	6	0	0	6	4	238	0	242	0	0	0	0	414
Total	636	0	32	668	44	7	0	51	14	997	1	1012	0	0	0	0	1731
Grand Total	1242	0	49	1291	78	14	0	92	21	1928	1	1950	0	0	0	0	3333
Apprch %	96.2	0.0	3.8		84.8	15.2	0.0		1.1	98.9	0.1		0.0	0.0	0.0		
Total %	37.3	0.0	1.5	38.7	2.3	0.4	0.0	2.8	0.6	57.8	0.0	58.5	0.0	0.0	0.0	0.0	

	MT HERMON RD Southbound				EL RANCHO DR Westbound				SR 17 NB RAMPS Northbound				Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour From 07:00 to 08:45 - Peak 1 of 1																	
Intersection	07:45																
Volume	626	0	31	657	49	7	0	56	14	1049	1	1064	0	0	0	0	1777
Percent	95.3	0.0	4.7		87.5	12.5	0.0		1.3	98.6	0.1		0.0	0.0	0.0		
High Int.	08:00				08:00				07:45				6:45:00 AM				07:45
Volume	163	0	11	170	17	4	0	18	5	290	1	294	0	0	0	0	460
Peak Factor				0.966				0.778				0.905					0.966



MARKS TRAFFIC DATA SERVICE

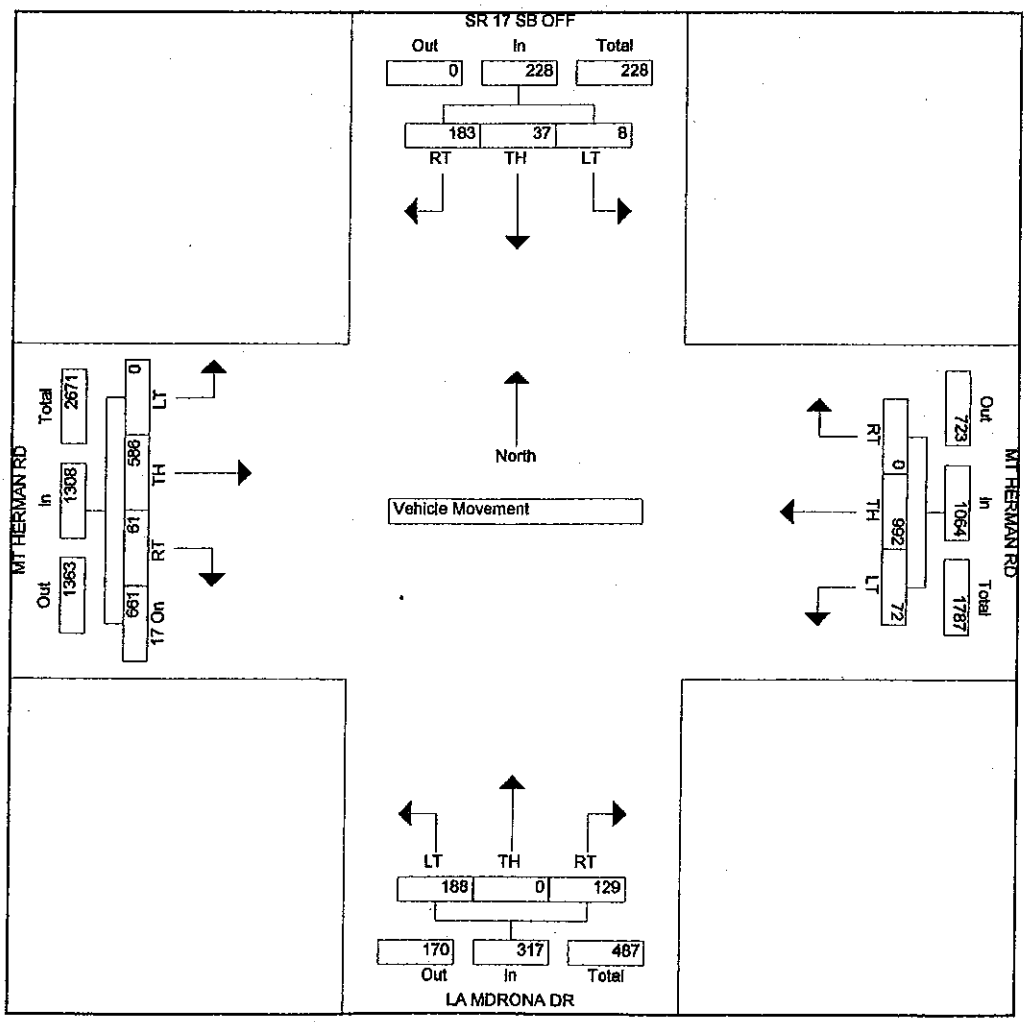
AM 02
SCOTTS VALLEY
PSJ RR
ITO [916] 715 - 4006

File Name : 17.sb.hermon.a
Site Code : 00000000
Start Date : 05/30/2002
Page : 1

Groups Printed: Vehicle Movement

	SR 17 SB OFF Southbound				MT HERMAN RD Westbound				LA MDRONA DR Northbound				MT HERMAN RD Eastbound					
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	17 On	App. Total	Int. Total
07:00	40	1	1	42	0	194	6	200	20	0	10	30	0	164	0	105	269	541
07:15	39	1	0	40	0	227	20	247	24	0	19	43	7	148	0	150	305	635
07:30	47	3	0	50	0	206	20	226	30	0	22	52	9	121	0	137	267	595
07:45	41	8	2	51	0	304	15	319	27	0	46	73	13	128	0	165	306	749
Total	167	13	3	183	0	931	61	992	101	0	97	198	29	561	0	557	1147	2520
08:00	51	3	2	56	0	250	25	275	34	0	61	95	10	125	0	164	299	725
08:15	51	4	2	57	0	221	21	242	32	0	50	82	26	187	0	188	401	782
08:30	40	22	2	64	0	217	11	228	36	0	31	67	12	146	0	144	302	661
08:45	49	1	1	51	0	236	12	248	16	0	22	38	9	159	0	167	335	672
Total	191	30	7	228	0	924	69	993	118	0	164	282	57	617	0	663	1337	2840
Grand Total	358	43	10	411	0	1855	130	1985	219	0	261	480	86	1178	0	1220	2484	5360
Apprch %	87.1	10.5	2.4		0.0	93.5	6.5		45.6	0.0	54.4		3.5	47.4	0.0	49.1		
Total %	6.7	0.8	0.2	7.7	0.0	34.6	2.4	37.0	4.1	0.0	4.9	9.0	1.6	22.0	0.0	22.8	46.3	

	SR 17 SB OFF Southbound				MT HERMAN RD Westbound				LA MDRONA DR Northbound				MT HERMAN RD Eastbound					
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	17 On	App. Total	Int. Total
Peak Hour From 07:00 to 08:45 - Peak 1 of 1																		
Intersection	07:45																	
Volume	183	37	8	228	0	992	72	1064	129	0	188	317	61	586	0	661	1308	2917
Percent	80.3	16.2	3.5		0.0	93.2	6.8		40.7	0.0	59.3		4.7	44.8	0.0	50.5		
High Int.	08:30				07:45				08:00				08:15					08:15
Volume	51	22	2	64	0	304	25	319	36	0	61	95	26	187	0	188	401	782
Peak Factor				0.891				0.834				0.834					0.815	0.933



MARKS TRAFFIC DATA SERVICE

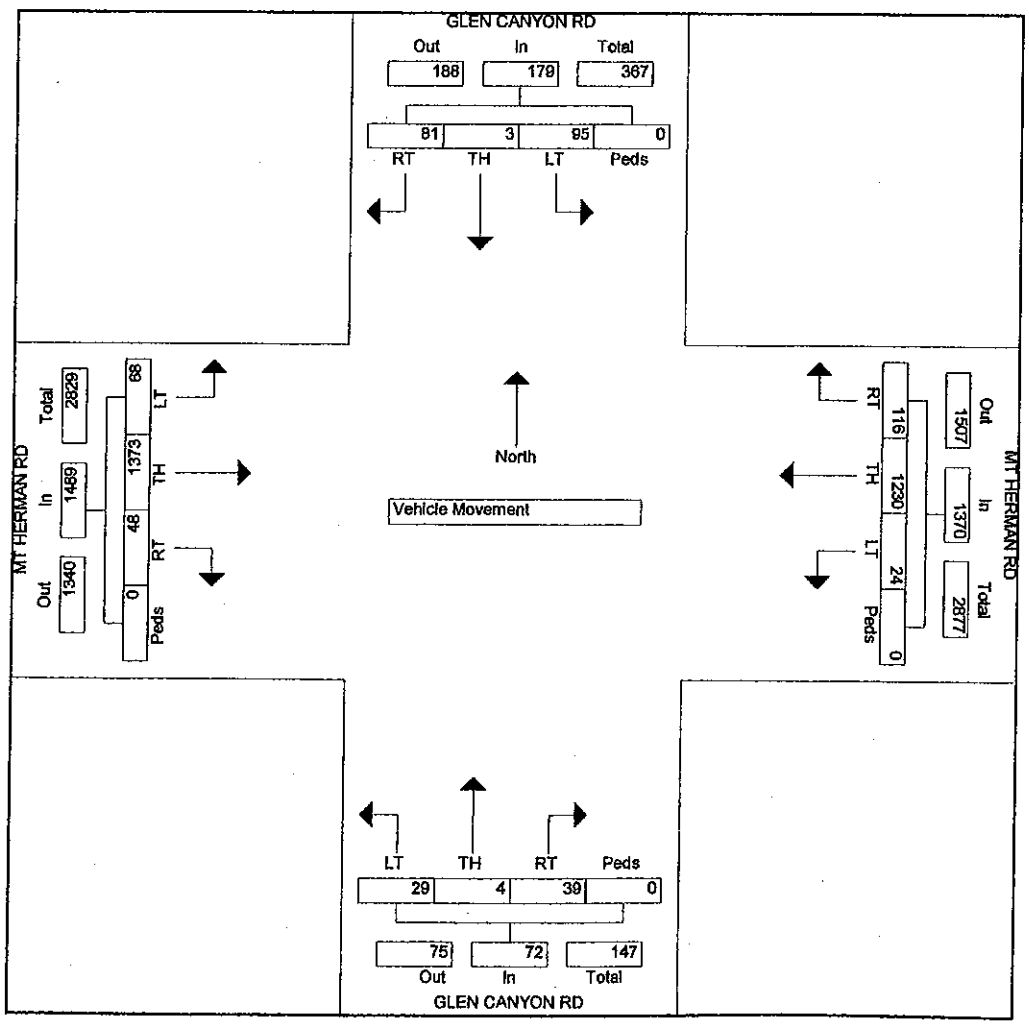
AM 03
SCOTTS VALLEY
EPSJ RH
TITO [916] 715 - 4006

File Name : g.canyon.m.herman.a
Site Code : 00000000
Start Date : 06/04/2002
Page : 1

Groups Printed: Vehicle Movement

	GLEN CANYON RD Southbound				MT HERMAN RD Westbound				GLEN CANYON RD Northbound				MT HERMAN RD Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	15	1	17	33	11	198	2	211	4	1	3	8	7	256	4	267	519
07:15	14	2	9	25	21	244	6	271	5	0	3	8	5	286	13	304	608
07:30	15	1	27	43	11	270	5	286	9	3	3	15	10	314	11	335	679
07:45	27	1	30	58	25	330	5	360	12	0	6	18	11	362	13	386	822
Total	71	5	83	159	68	1042	18	1128	30	4	15	49	33	1218	41	1292	2628
08:00	20	1	30	51	30	314	5	349	13	1	9	23	15	393	27	435	858
08:15	16	0	16	32	29	300	8	337	4	2	6	12	10	319	16	345	726
08:30	18	1	19	38	32	286	6	324	10	1	8	19	12	299	12	323	704
08:45	15	2	21	38	17	304	3	324	8	0	9	17	7	293	16	316	695
Total	69	4	86	159	108	1204	22	1334	35	4	32	71	44	1304	71	1419	2983
Grand Total	140	9	169	318	176	2246	40	2462	65	8	47	120	77	2522	112	2711	5611
Apprch %	44.0	2.8	53.1		7.1	91.2	1.6		54.2	6.7	39.2		2.8	93.0	4.1		
Total %	2.5	0.2	3.0	5.7	3.1	40.0	0.7	43.9	1.2	0.1	0.8	2.1	1.4	44.9	2.0	48.3	

	GLEN CANYON RD Southbound				MT HERMAN RD Westbound				GLEN CANYON RD Northbound				MT HERMAN RD Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour From 07:00 to 08:45 - Peak 1 of 1																	
Intersection	07:45																
Volume	81	3	95	179	116	1230	24	1370	39	4	29	72	48	1373	68	1489	3110
Percent	45.3	1.7	53.1		8.5	89.8	1.8		54.2	5.6	40.3		3.2	92.2	4.6		
High Int.	07:45				07:45				08:00				08:00				08:00
Volume	27	1	30	58	32	330	8	360	13	2	9	23	15	393	27	435	858
Peak Factor				0.772				0.951				0.783				0.856	0.906



MARKS TRAFFIC DATA SERVICE

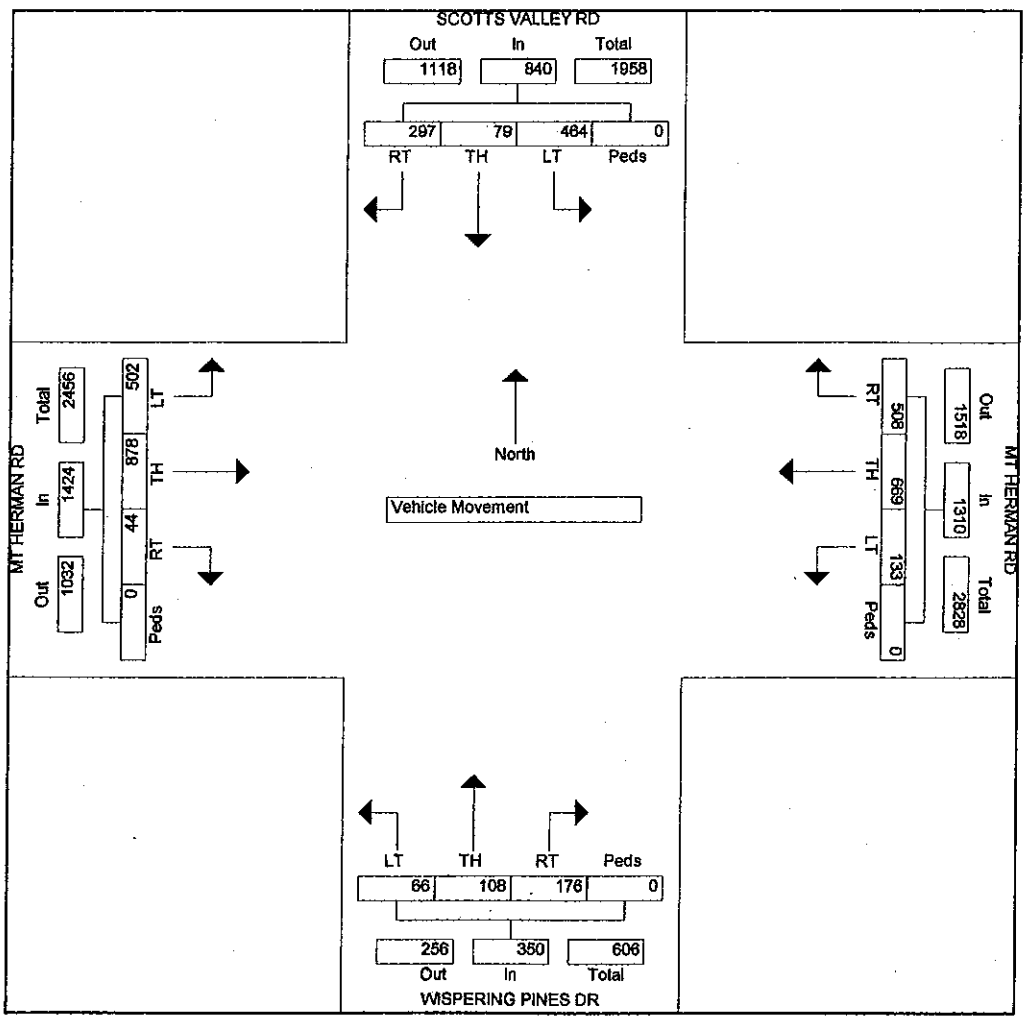
AM 04
SCOTTS VALLEY
PSJ LS
ITO [916] 715 - 4006

File Name : s.valley.m.hermon.a
Site Code : 00000000
Start Date : 06/04/2002
Page : 1

Groups Printed: Vehicle Movement

	SCOTTS VALLEY RD Southbound				MT HERMAN RD Westbound				WISPERING PINES DR Northbound				MT HERMAN RD Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	25	7	52	84	82	113	22	217	33	20	11	64	4	180	65	249	614
07:15	41	10	51	102	104	124	18	246	40	53	10	103	7	185	94	286	737
07:30	58	20	89	167	83	174	27	284	51	17	13	81	11	215	102	328	860
07:45	53	15	130	198	152	172	38	362	41	28	21	90	12	223	136	371	1021
Total	177	52	322	551	421	583	105	1109	165	118	55	338	34	803	397	1234	3232
08:00	84	22	156	262	142	159	31	332	52	36	19	107	11	219	151	381	1082
08:15	102	22	89	213	131	164	37	332	32	27	13	72	10	221	113	344	961
08:30	76	24	59	159	100	188	26	314	34	25	24	83	5	220	71	296	852
08:45	74	12	65	151	119	185	35	339	29	26	21	76	16	227	114	357	923
Total	336	80	369	785	492	696	129	1317	147	114	77	338	42	887	449	1378	3818
Grand Total	513	132	691	1336	913	1279	234	2426	312	232	132	676	76	1690	846	2612	7050
Apprch %	38.4	9.9	51.7		37.6	52.7	9.6		46.2	34.3	19.5		2.9	64.7	32.4		
Total %	7.3	1.9	9.8	19.0	13.0	18.1	3.3	34.4	4.4	3.3	1.9	9.6	1.1	24.0	12.0	37.0	

	SCOTTS VALLEY RD Southbound				MT HERMAN RD Westbound				WISPERING PINES DR Northbound				MT HERMAN RD Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour From 07:00 to 08:45 - Peak 1 of 1																	
Intersection	07:30																
Volume	297	79	464	840	508	669	133	1310	176	108	66	350	44	878	502	1424	3924
Percent	35.4	9.4	55.2		38.8	51.1	10.2		50.3	30.9	18.9		3.1	61.7	35.3		
High Int.	08:00				07:45				08:00				08:00				08:00
Volume	102	22	156	262	152	174	38	362	52	36	21	107	12	223	151	381	1082
Peak Factor				0.802				0.905				0.818				0.934	0.907



MARKS TRAFFIC DATA SERVICE

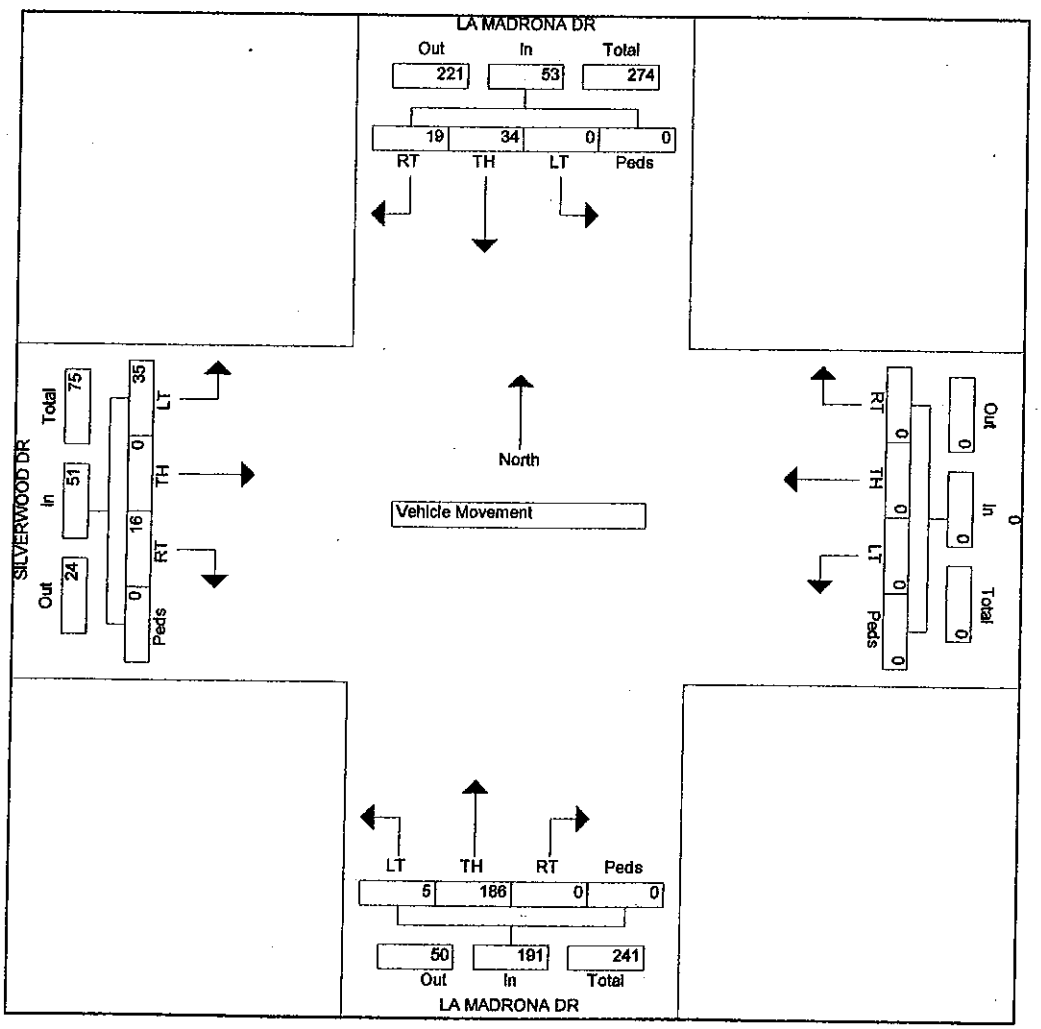
AM 05
SCOTTS VALLEY
FPSJ RA
TITO [916] 715 - 4006

File Name : l.madrona.silverwood.a
Site Code : 00000000
Start Date : 06/04/2002
Page : 1

Groups Printed: Vehicle Movement

	LA MADRONA DR Southbound				0 Westbound				LA MADRONA DR Northbound				SILVERWOOD DR Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	6	1	0	7	0	0	0	0	0	15	1	16	0	0	8	8	31
07:15	4	5	0	9	0	0	0	0	0	30	0	30	0	0	9	9	48
07:30	4	9	0	13	0	0	0	0	0	12	0	12	1	0	10	11	36
07:45	4	9	0	13	0	0	0	0	0	39	0	39	7	0	7	14	66
Total	18	24	0	42	0	0	0	0	0	96	1	97	8	0	34	42	181
08:00	7	11	0	18	0	0	0	0	0	63	1	64	7	0	10	17	99
08:15	3	8	0	11	0	0	0	0	0	59	2	61	1	0	7	8	80
08:30	5	6	0	11	0	0	0	0	0	25	2	27	1	0	11	12	50
08:45	3	10	0	13	0	0	0	0	0	12	1	13	1	0	5	6	32
Total	18	35	0	53	0	0	0	0	0	159	6	165	10	0	33	43	261
Grand Total	36	59	0	95	0	0	0	0	0	255	7	262	18	0	67	85	442
Apprch %	37.9	62.1	0.0		0.0	0.0	0.0		0.0	97.3	2.7		21.2	0.0	78.8		
Total %	8.1	13.3	0.0	21.5	0.0	0.0	0.0	0.0	0.0	57.7	1.6	59.3	4.1	0.0	15.2	19.2	

	LA MADRONA DR Southbound				0 Westbound				LA MADRONA DR Northbound				SILVERWOOD DR Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour From 07:00 to 08:45 - Peak 1 of 1																	
Intersection	07:45																
Volume	19	34	0	53	0	0	0	0	0	186	5	191	16	0	35	51	295
Percent	35.8	64.2	0.0		0.0	0.0	0.0		0.0	97.4	2.6		31.4	0.0	68.6		
High Int.	08:00				6:45:00 AM				08:00				08:00				08:00
Volume	7	11	0	18	0	0	0	0	0	63	2	64	7	0	11	17	99
Peak Factor				0.736								0.746				0.750	0.745



MARKS TRAFFIC DATA SERVICE

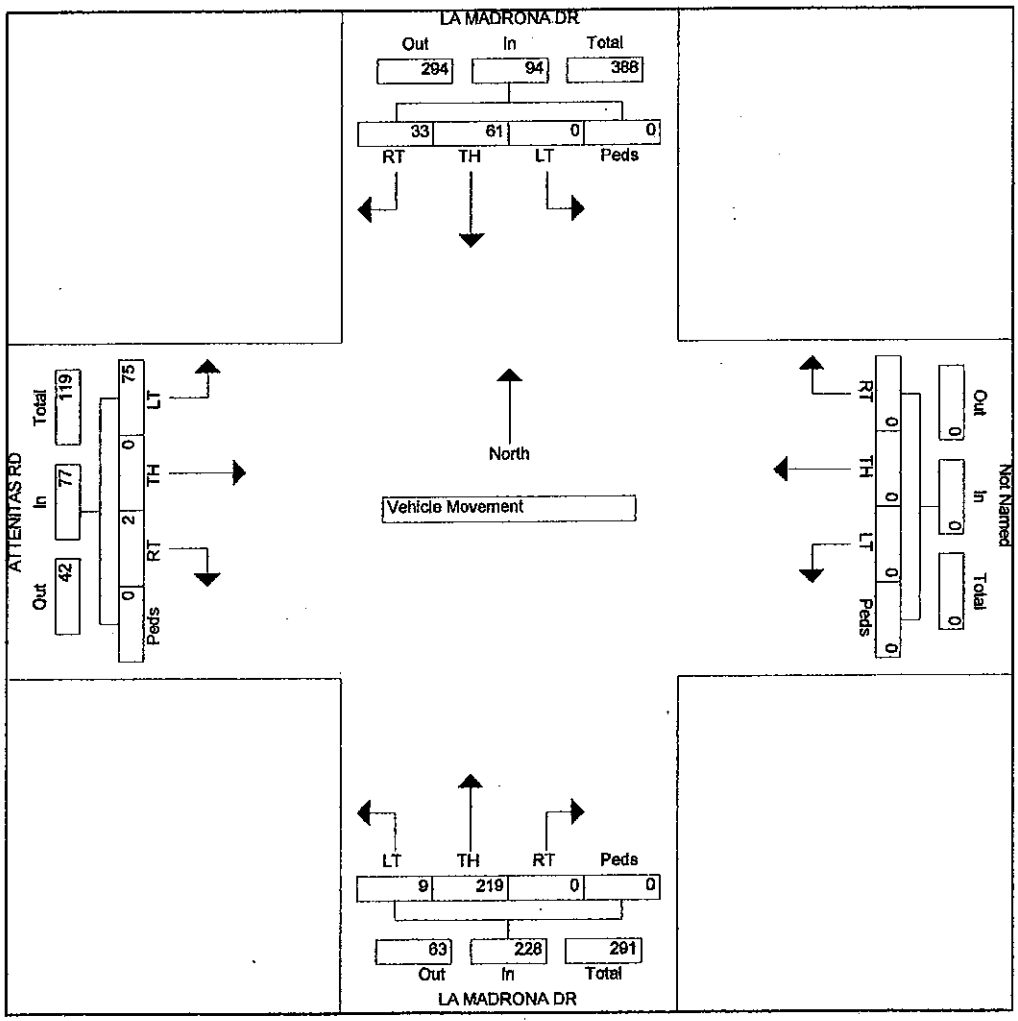
M 06
COTTS VALLEY
PSJ M
ITO [916] 715 - 4006

File Name : l.madrona.attenitas.a
Site Code : 00000000
Start Date : 06/04/2002
Page : 1

Groups Printed: Vehicle Movement

	LA MADRONA DR Southbound				Westbound				LA MADRONA DR Northbound				ATTENITAS RD Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	4	12	0	16	0	0	0	0	0	26	0	26	0	0	14	14	56
07:15	5	11	0	16	0	0	0	0	0	41	0	41	0	0	9	9	66
07:30	6	13	0	19	0	0	0	0	0	25	1	26	2	0	14	16	61
07:45	12	17	0	29	0	0	0	0	0	46	3	49	0	0	17	17	95
Total	27	53	0	80	0	0	0	0	0	138	4	142	2	0	54	56	278
08:00	7	18	0	25	0	0	0	0	0	72	3	75	1	0	19	20	120
08:15	10	13	0	23	0	0	0	0	0	68	3	71	1	0	18	19	113
08:30	4	13	0	17	0	0	0	0	0	33	0	33	0	0	21	21	71
08:45	2	12	0	14	0	0	0	0	0	17	0	17	1	0	17	18	49
Total	23	56	0	79	0	0	0	0	0	190	6	196	3	0	75	78	353
Grand Total	50	109	0	159	0	0	0	0	0	328	10	338	5	0	129	134	631
Apprch %	31.4	68.6	0.0		0.0	0.0	0.0		0.0	97.0	3.0		3.7	0.0	96.3		
Total %	7.9	17.3	0.0	25.2	0.0	0.0	0.0	0.0	0.0	52.0	1.6	53.6	0.8	0.0	20.4	21.2	

	LA MADRONA DR Southbound				Westbound				LA MADRONA DR Northbound				ATTENITAS RD Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour From 07:00 to 08:45 - Peak 1 of 1																	
Intersection	07:45																
Volume	33	61	0	94	0	0	0	0	0	219	9	228	2	0	75	77	399
Percent	35.1	64.9	0.0		0.0	0.0	0.0		0.0	96.1	3.9		2.6	0.0	97.4		
High Int.	07:45				6:45:00 AM				08:00				08:30				08:00
Volume	12	18	0	29	0	0	0	0	0	72	3	75	1	0	21	21	120
Peak Factor				0.810								0.760				0.917	0.831



MARKS TRAFFIC DATA SERVICE

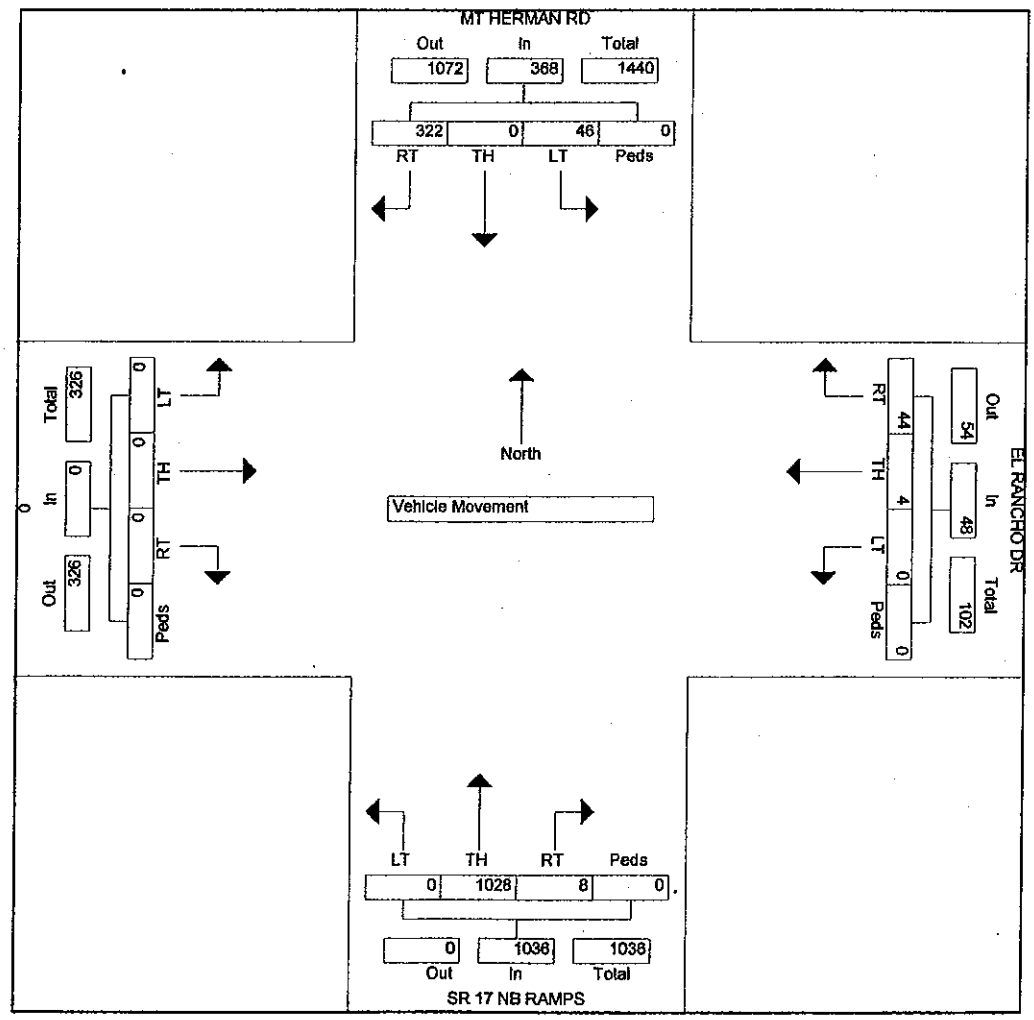
PM 01
SCOTTS VALLEY
FPS J C
TITO [916] 715 - 4006

File Name : 17.nb.rancho.p
Site Code : 00000000
Start Date : 06/05/2002
Page : 1

Groups Printed: Vehicle Movement

	MT HERMAN RD Southbound				EL RANCHO DR Westbound				SR 17 NB RAMPS Northbound				0 Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
16:00	67	0	9	76	22	4	0	26	2	215	0	217	0	0	0	0	319
16:15	62	0	12	74	14	2	0	16	1	221	0	222	0	0	0	0	312
16:30	76	0	8	84	12	2	0	14	2	236	0	238	0	0	0	0	336
16:45	81	0	13	94	13	0	0	13	5	233	0	238	0	0	0	0	345
Total	286	0	42	328	61	8	0	69	10	905	0	915	0	0	0	0	1312
17:00	76	0	12	88	11	1	0	12	0	265	0	265	0	0	0	0	365
17:15	88	0	12	100	10	2	0	12	0	261	0	261	0	0	0	0	373
17:30	77	0	9	86	10	1	0	11	3	269	0	272	0	0	0	0	369
17:45	83	0	6	89	10	1	0	11	0	240	0	240	0	0	0	0	340
Total	324	0	39	363	41	5	0	46	3	1035	0	1038	0	0	0	0	1447
Grand Total	610	0	81	691	102	13	0	115	13	1940	0	1953	0	0	0	0	2759
Apprch %	88.3	0.0	11.7		88.7	11.3	0.0		0.7	99.3	0.0		0.0	0.0	0.0		
Total %	22.1	0.0	2.9	25.0	3.7	0.5	0.0	4.2	0.5	70.3	0.0	70.8	0.0	0.0	0.0	0.0	

	MT HERMAN RD Southbound				EL RANCHO DR Westbound				SR 17 NB RAMPS Northbound				0 Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour From 16:00 to 17:45 - Peak 1 of 1																	
Intersection	16:45																
Volume	322	0	46	368	44	4	0	48	8	1028	0	1036	0	0	0	0	1452
Percent	87.5	0.0	12.5		91.7	8.3	0.0		0.8	99.2	0.0		0.0	0.0	0.0		
High Int.	17:15				16:45				17:30				3:45:00 PM				17:15
Volume	88	0	13	100	13	2	0	13	5	269	0	272	0	0	0	0	373
Peak Factor				0.920				0.923				0.952					0.973



MARKS TRAFFIC DATA SERVICE

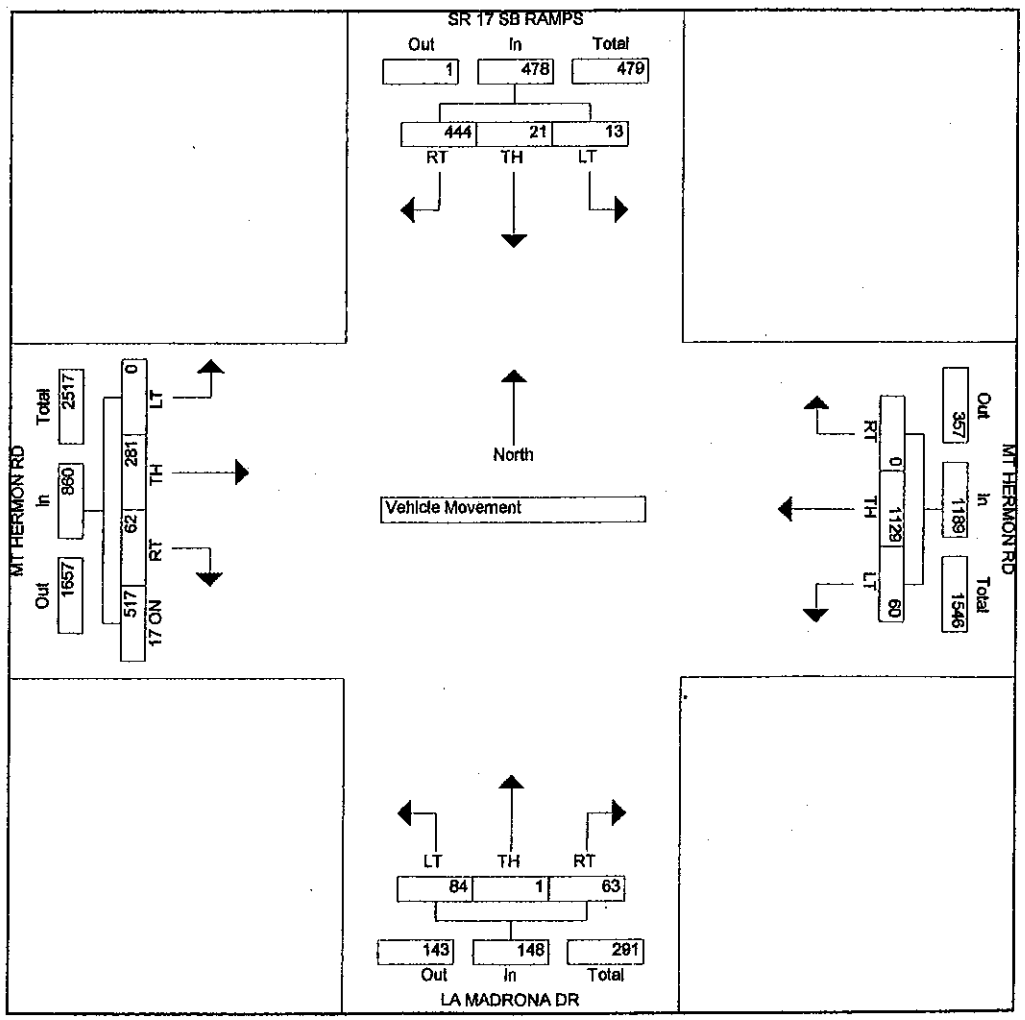
PM 02
SCOTTS VALLEY
PSJ RR
ITO [916] 715 - 4006

File Name : 17sb.m.herman.p
Site Code : 00000000
Start Date : 06/05/2000
Page : 1

Groups Printed: Vehicle Movement

	SR 17 SB RAMPS Southbound				MT HERMON RD Westbound				LA MADRONA DR Northbound				MT HERMON RD Eastbound					
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	17 ON	App. Total	Int. Total
16:00	100	3	6	109	0	248	15	263	24	0	12	36	13	63	0	163	239	647
16:15	102	4	4	110	0	242	8	250	11	0	19	30	8	69	0	101	178	568
16:30	105	7	12	124	0	225	19	244	9	0	23	32	15	63	0	151	229	629
16:45	89	4	6	99	0	280	16	296	10	0	10	20	9	72	0	125	206	621
Total	396	18	28	442	0	995	58	1053	54	0	64	118	45	267	0	540	852	2465
17:00	133	11	1	145	0	293	17	310	11	0	26	37	20	73	0	150	243	735
17:15	112	1	6	119	0	308	14	322	21	1	16	38	16	59	0	84	159	638
17:30	110	5	0	115	0	248	13	261	21	0	32	53	17	77	0	158	252	681
17:45	126	7	1	134	0	245	14	259	10	0	18	28	12	61	0	58	131	552
Total	481	24	8	513	0	1094	58	1152	63	1	92	156	65	270	0	450	785	2606
Grand Total	877	42	36	955	0	2089	116	2205	117	1	156	274	110	537	0	990	1637	5071
Apprch %	91.8	4.4	3.8		0.0	94.7	5.3		42.7	0.4	56.9		6.7	32.8	0.0	60.5		
Total %	17.3	0.8	0.7	18.8	0.0	41.2	2.3	43.5	2.3	0.0	3.1	5.4	2.2	10.6	0.0	19.5	32.3	

	SR 17 SB RAMPS Southbound				MT HERMON RD Westbound				LA MADRONA DR Northbound				MT HERMON RD Eastbound					
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	17 ON	App. Total	Int. Total
Peak Hour From 16:00 to 17:45 - Peak 1 of 1																		
Intersection	16:45																	
Volume	444	21	13	478	0	1129	60	1189	63	1	84	148	62	281	0	517	860	2675
Percent	92.9	4.4	2.7		0.0	95.0	5.0		42.6	0.7	56.8		7.2	32.7	0.0	60.1		
High Int.	17:00				17:15				17:30				17:30					17:00
Volume	133	11	6	145	0	308	17	322	21	1	32	53	20	77	0	158	252	735
Peak Factor				0.824				0.923				0.698					0.853	0.910



MARKS TRAFFIC DATA SERVICE

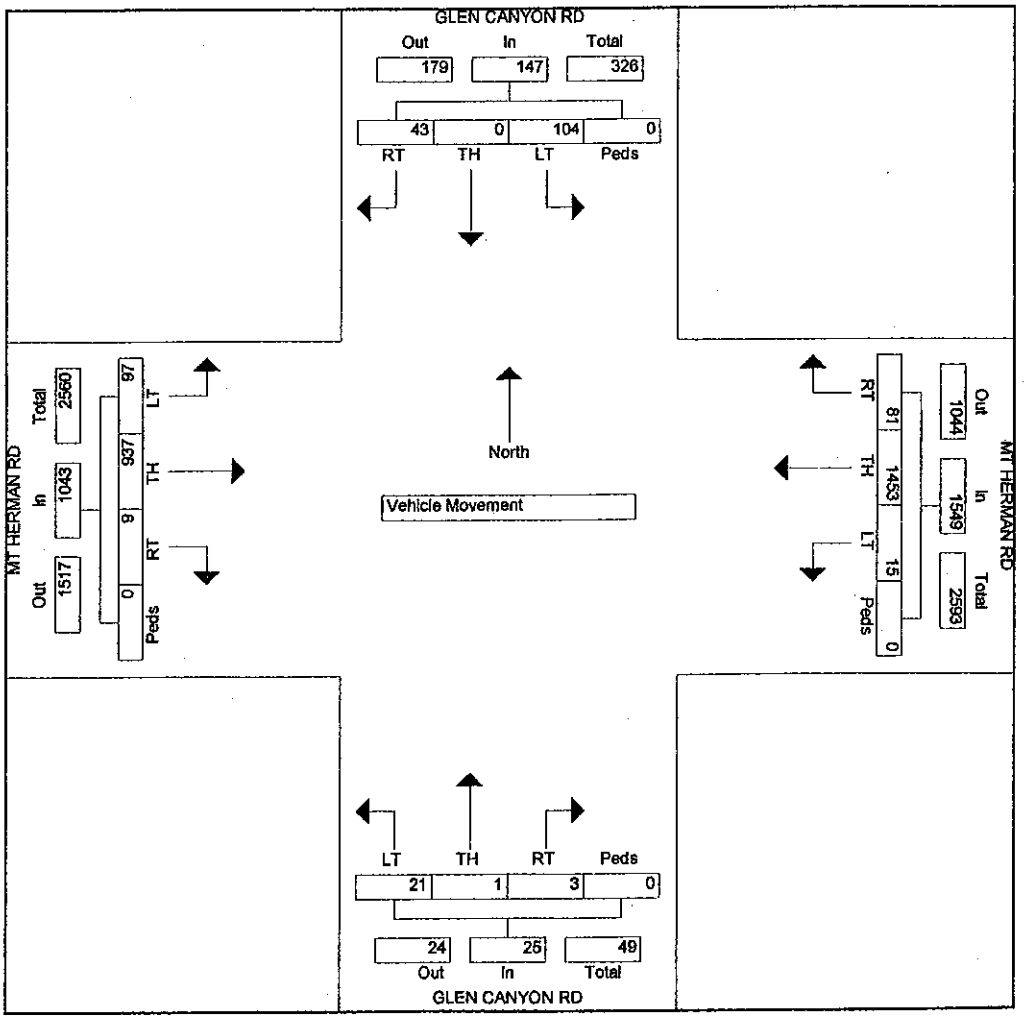
M 03
COTTS VALLEY
PSJ RH
TO [916] 715 - 4006

File Name : g.canyon.m.herman.p
Site Code : 00000000
Start Date : 06/04/2002
Page : 1

Groups Printed: Vehicle Movement

	GLEN CANYON RD Southbound				MT HERMAN RD Westbound				GLEN CANYON RD Northbound				MT HERMAN RD Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
16:00	10	1	7	18	16	344	9	369	4	0	5	9	4	261	22	287	683
16:15	22	0	8	30	18	317	8	343	2	0	2	4	3	225	24	252	629
16:30	13	0	22	35	27	353	0	380	2	0	3	5	4	191	28	223	643
16:45	12	1	13	26	11	270	4	285	1	1	3	5	1	179	19	199	515
Total	57	2	50	109	72	1284	21	1377	9	1	13	23	12	856	93	961	2470
17:00	8	0	19	27	15	383	4	402	0	0	4	4	0	272	25	297	730
17:15	19	0	20	39	18	400	8	426	0	1	11	12	5	246	31	282	759
17:30	6	0	45	51	32	352	2	386	1	0	3	4	2	222	23	247	688
17:45	10	0	20	30	16	318	1	335	2	0	3	5	2	197	18	217	587
Total	43	0	104	147	81	1453	15	1549	3	1	21	25	9	937	97	1043	2764
Grand Total	100	2	154	256	153	2737	36	2926	12	2	34	48	21	1793	190	2004	5234
Apprch %	39.1	0.8	60.2		5.2	93.5	1.2		25.0	4.2	70.8		1.0	89.5	9.5		
Total %	1.9	0.0	2.9	4.9	2.9	52.3	0.7	55.9	0.2	0.0	0.6	0.9	0.4	34.3	3.6	38.3	

	GLEN CANYON RD Southbound				MT HERMAN RD Westbound				GLEN CANYON RD Northbound				MT HERMAN RD Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour From	16:00 to 17:45 - Peak 1 of 1																
Intersection	17:00																
Volume	43	0	104	147	81	1453	15	1549	3	1	21	25	9	937	97	1043	2764
Percent	29.3	0.0	70.7		5.2	93.8	1.0		12.0	4.0	84.0		0.9	89.8	9.3		
High Int.	17:30				17:15				17:15				17:00				17:15
Volume	19	0	45	51	32	400	8	426	2	1	11	12	5	272	31	297	759
Peak Factor				0.721				0.909				0.521				0.878	0.910



MARKS TRAFFIC DATA SERVICE

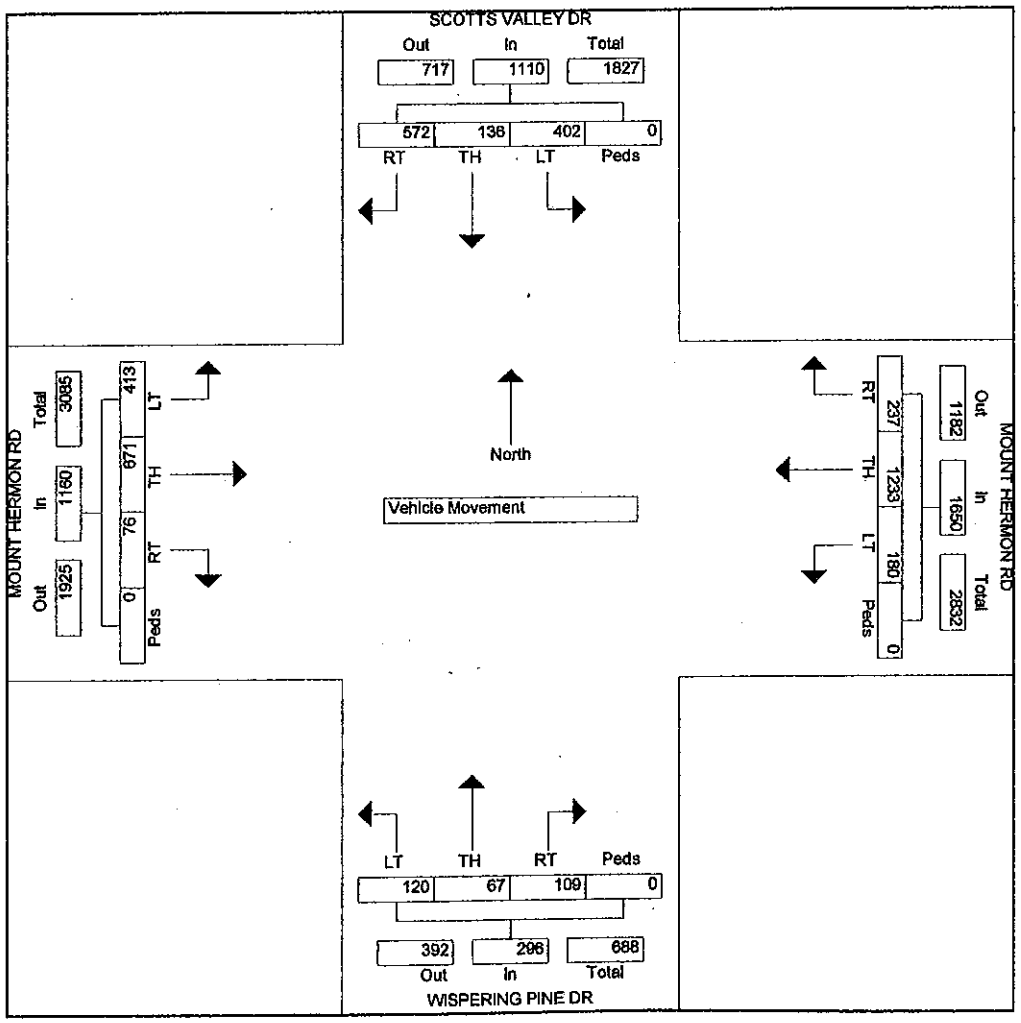
M 04
COTTS VALLEY
PSJ LS
TO [916] 715 - 4006

File Name : s.valley.m.hermon.p
Site Code : 00000000
Start Date : 06/04/2002
Page : 1

Groups Printed: Vehicle Movement

	SCOTTS VALLEY DR Southbound				MOUNT HERMON RD Westbound				WISPERING PINE DR Northbound				MOUNT HERMON RD Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
16:00	123	11	95	229	64	322	21	407	16	23	34	73	18	163	113	294	1003
16:15	129	34	91	254	59	282	39	380	21	22	31	74	17	155	100	272	980
16:30	131	28	82	241	64	316	37	417	29	14	26	69	16	143	110	269	996
16:45	145	40	101	286	59	260	38	357	25	22	36	83	18	162	106	286	1012
Total	528	113	369	1010	246	1180	135	1561	91	81	127	299	69	623	429	1121	3991
17:00	155	40	111	306	63	347	55	465	34	14	23	71	27	192	99	318	1160
17:15	141	28	108	277	51	310	50	411	21	17	35	73	15	174	98	287	1048
17:30	120	25	79	224	72	313	26	411	22	17	21	60	19	178	103	300	995
17:45	130	15	92	237	44	261	50	355	10	14	37	61	17	152	99	268	921
Total	546	108	390	1044	230	1231	181	1642	87	62	116	265	78	696	399	1173	4124
Grand Total	1074	221	759	2054	476	2411	316	3203	178	143	243	564	147	1319	828	2294	8115
Apprch %	52.3	10.8	37.0		14.9	75.3	9.9		31.6	25.4	43.1		6.4	57.5	36.1		
Total %	13.2	2.7	9.4	25.3	5.9	29.7	3.9	39.5	2.2	1.8	3.0	7.0	1.8	16.3	10.2	28.3	

	SCOTTS VALLEY DR Southbound				MOUNT HERMON RD Westbound				WISPERING PINE DR Northbound				MOUNT HERMON RD Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour From 16:00 to 17:45 - Peak 1 of 1																	
Intersection 16:30																	
Volume	572	136	402	1110	237	1233	180	1650	109	67	120	296	76	671	413	1160	4216
Percent	51.5	12.3	36.2		14.4	74.7	10.9		36.8	22.6	40.5		6.6	57.8	35.6		
High Int.	17:00				17:00				16:45				17:00				17:00
Volume	155	40	111	306	64	347	55	465	34	22	36	83	27	192	110	318	1160
Peak Factor				0.907				0.887				0.892				0.912	0.909



MARKS TRAFFIC DATA SERVICE

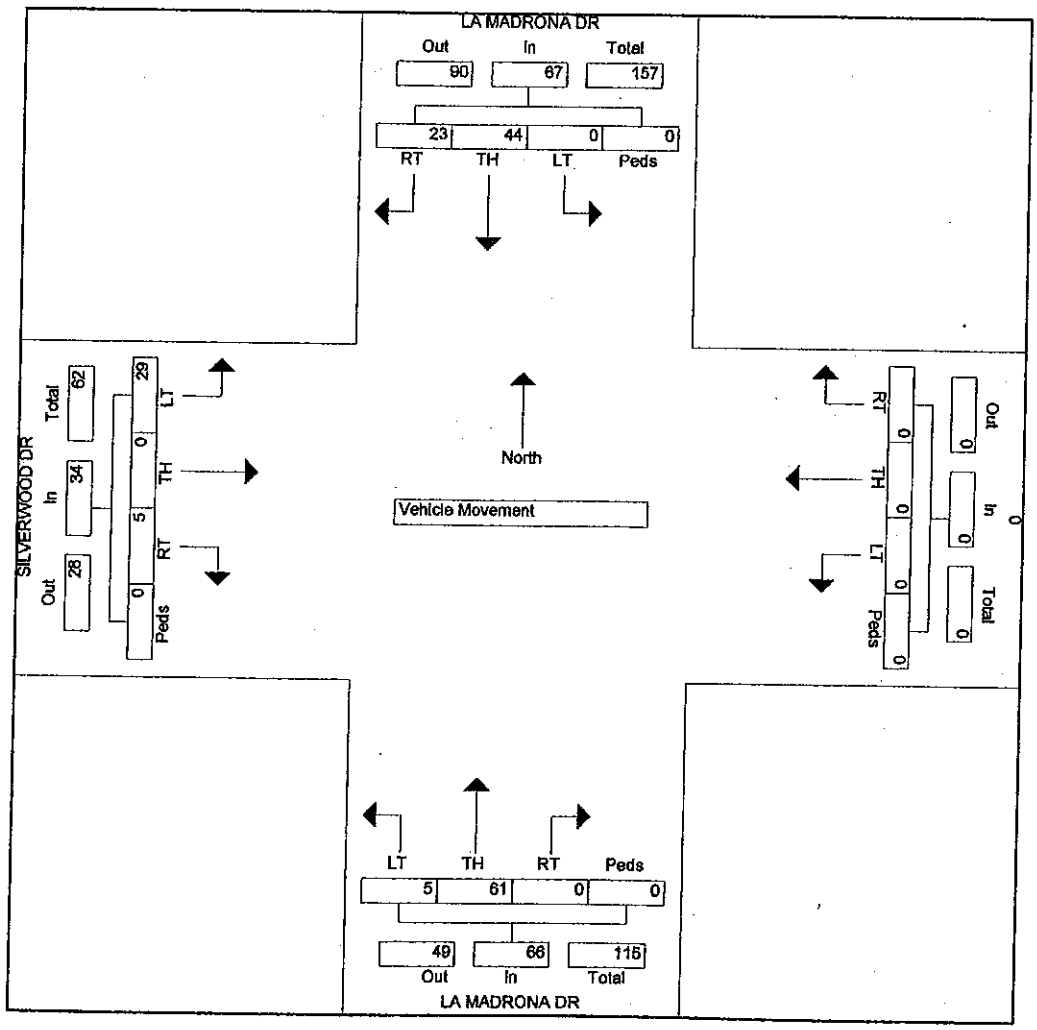
PM 05
SCOTTS VALLEY
FPSJ RA
TITO [916] 715 - 4006

File Name : l.madrona.silverwood.p
Site Code : 00000000
Start Date : 06/04/2002
Page : 1

Groups Printed: Vehicle Movement

	LA MADRONA DR Southbound				0 Westbound				LA MADRONA DR Northbound				SILVERWOOD DR Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
16:00	4	7	0	11	0	0	0	0	0	13	0	13	2	0	8	10	34
16:15	4	9	0	13	0	0	0	0	0	19	0	19	0	0	4	4	36
16:30	6	11	0	17	0	0	0	0	0	11	0	11	0	0	6	6	34
16:45	4	7	0	11	0	0	0	0	0	12	1	13	2	0	3	5	29
Total	18	34	0	52	0	0	0	0	0	55	1	56	4	0	21	25	133
17:00	6	12	0	18	0	0	0	0	0	17	2	19	1	0	8	9	46
17:15	7	13	0	20	0	0	0	0	0	15	2	17	2	0	8	10	47
17:30	6	9	0	15	0	0	0	0	0	16	1	17	1	0	6	7	39
17:45	4	10	0	14	0	0	0	0	0	13	0	13	1	0	7	8	35
Total	23	44	0	67	0	0	0	0	0	61	5	66	5	0	29	34	167
Grand Total	41	78	0	119	0	0	0	0	0	116	6	122	9	0	50	59	300
Apprch %	34.5	65.5	0.0		0.0	0.0	0.0		0.0	95.1	4.9		15.3	0.0	84.7		
Total %	13.7	26.0	0.0	39.7	0.0	0.0	0.0	0.0	0.0	38.7	2.0	40.7	3.0	0.0	16.7	19.7	

	LA MADRONA DR Southbound				0 Westbound				LA MADRONA DR Northbound				SILVERWOOD DR Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour From 16:00 to 17:45 - Peak 1 of 1																	
Intersection	17:00																
Volume	23	44	0	67	0	0	0	0	0	61	5	66	5	0	29	34	167
Percent	34.3	65.7	0.0		0.0	0.0	0.0		0.0	92.4	7.6		14.7	0.0	85.3		
High Int.	17:15				3:45:00 PM				17:00				17:15				17:15
Volume	7	13	0	20	0	0	0	0	0	17	2	19	2	0	8	10	47
Peak Factor				0.837								0.868				0.850	0.888



MARKS TRAFFIC DATA SERVICE

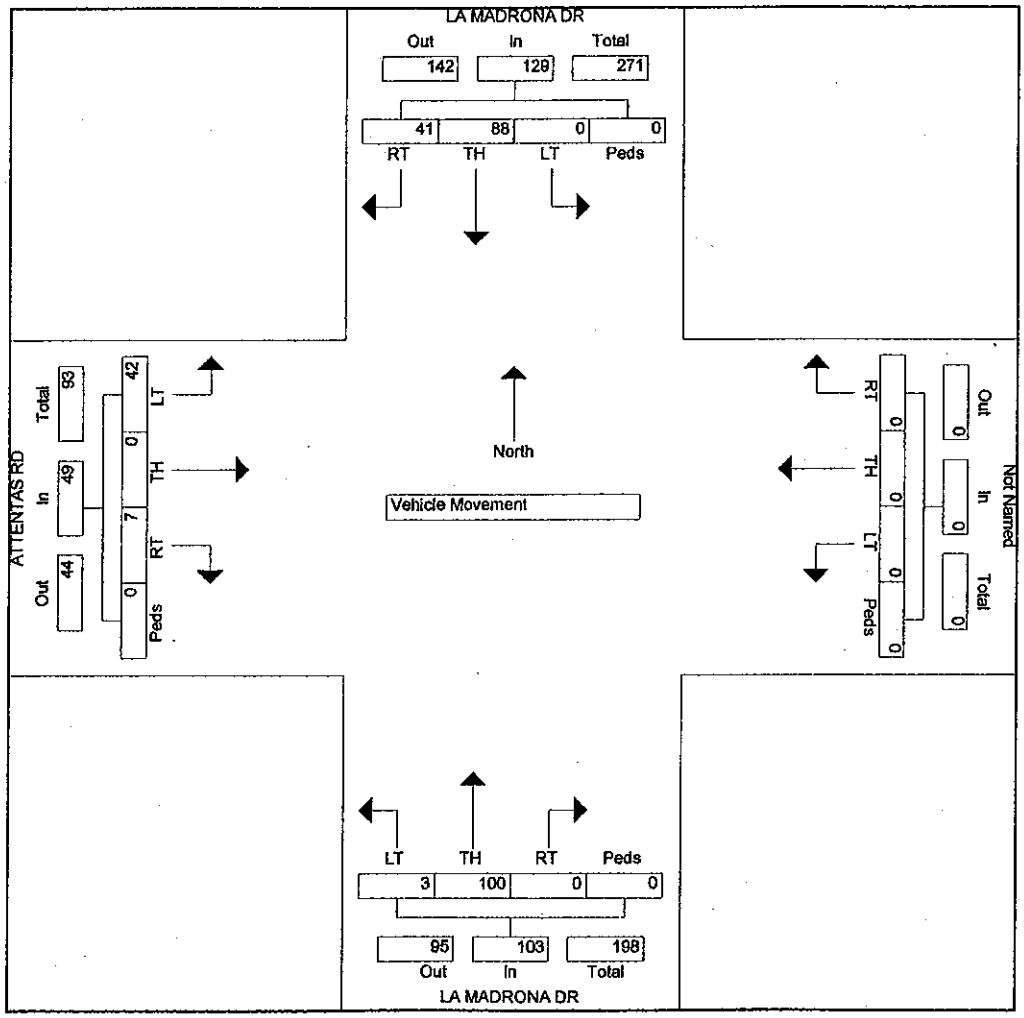
PM 06
SCOTTS VALLEY
FPSJ M
TITO [916] 715 - 4006

File Name : l.madrona.attentas.p
Site Code : 00000000
Start Date : 06/04/2002
Page : 1

Groups Printed: Vehicle Movement

	LA MADRONA DR Southbound				Westbound				LA MADRONA DR Northbound				ATTENTAS RD Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
16:00	6	21	0	27	0	0	0	0	0	33	1	34	0	0	6	6	67
16:15	3	12	0	15	0	0	0	0	0	24	1	25	0	0	8	8	48
16:30	11	20	0	31	0	0	0	0	0	22	1	23	0	0	9	9	63
16:45	6	17	0	23	0	0	0	0	0	16	0	16	0	0	9	9	48
Total	26	70	0	96	0	0	0	0	0	95	3	98	0	0	32	32	226
17:00	11	29	0	40	0	0	0	0	0	24	1	25	2	0	9	11	76
17:15	8	25	0	33	0	0	0	0	0	24	0	24	1	0	7	8	65
17:30	9	20	0	29	0	0	0	0	0	35	1	36	2	0	16	18	83
17:45	13	14	0	27	0	0	0	0	0	17	1	18	2	0	10	12	57
Total	41	88	0	129	0	0	0	0	0	100	3	103	7	0	42	49	281
Grand Total	67	158	0	225	0	0	0	0	0	195	6	201	7	0	74	81	507
Apprch %	29.8	70.2	0.0		0.0	0.0	0.0		0.0	97.0	3.0		8.6	0.0	91.4		
Total %	13.2	31.2	0.0	44.4	0.0	0.0	0.0	0.0	0.0	38.5	1.2	39.6	1.4	0.0	14.6	16.0	

	LA MADRONA DR Southbound				Westbound				LA MADRONA DR Northbound				ATTENTAS RD Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour From 16:00 to 17:45 - Peak 1 of 1																	
Intersection	17:00																
Volume	41	88	0	129	0	0	0	0	0	100	3	103	7	0	42	49	281
Percent	31.8	68.2	0.0		0.0	0.0	0.0		0.0	97.1	2.9		14.3	0.0	85.7		
High Int.	17:00				3:45:00 PM				17:30				17:30				17:30
Volume	13	29	0	40	0	0	0	0	0	35	1	36	2	0	16	18	83
Peak Factor				0.806								0.715				0.681	0.846



APPENDIX B

INTERSECTION LEVEL OF SERVICE

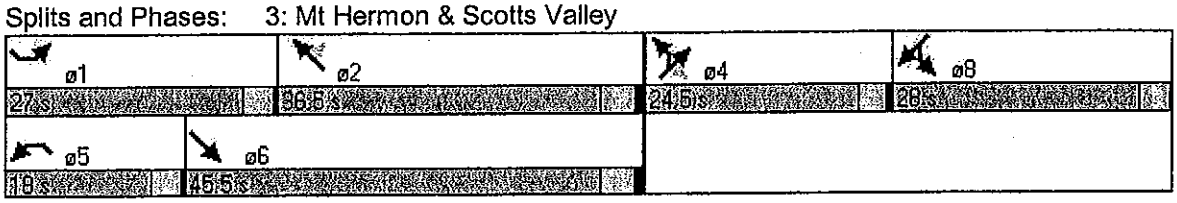
CALCULATION WORKSHEETS

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	502	878	133	669	508	66	108	176	464	79	297
Turn Type	Prot		Prot		Perm	Split		Perm	Split		Free
Protected Phases	1	6	5	2		4	4		8	8	
Permitted Phases					2			4			Free
Detector Phases	1	6	5	2	2	4	4	4	8	8	
Minimum Initial (s)	4.0	10.0	4.0	10.0	10.0	6.0	6.0	6.0	4.0	4.0	
Minimum Split (s)	7.5	25.5	7.5	25.5	25.5	24.5	24.5	24.5	24.5	24.5	
Total Split (s)	27.0	45.5	18.0	36.5	36.5	24.5	24.5	24.5	28.0	28.0	0.0
Total Split (%)	23%	39%	16%	31%	31%	21%	21%	21%	24%	24%	0%
Yellow Time (s)	3.0	3.5	3.0	3.5	3.5	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	0.5	1.0	0.5	1.0	1.0	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Coord	None	Coord	Coord	None	None	None	None	None	
Act Effct Green (s)	21.5	53.5	12.6	44.5	44.5	13.0	13.0	13.0	20.9	20.9	116.0
Actuated g/C Ratio	0.19	0.46	0.11	0.38	0.38	0.11	0.11	0.11	0.18	0.18	1.00
v/c Ratio	0.87	0.62	0.76	0.54	0.59	0.39	0.60	0.55	0.82	0.26	0.21
Uniform Delay, d1	45.9	23.6	50.2	27.8	0.0	47.8	49.0	0.0	45.7	40.8	0.0
Delay	48.0	25.8	75.2	21.1	3.0	46.2	47.9	6.3	45.5	40.1	0.0
LOS	D	C	E	C	A	D	D	A	D	D	A
Approach Delay		33.6		19.6			26.7			28.9	
Approach LOS		C		B			C			C	

Intersection Summary

Cycle Length: 116
Actuated Cycle Length: 116
Offset: 19 (16%), Referenced to phase 2:NWT and 6:SET, Start of Yellow
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 27.3 Intersection LOS: C
Intersection Capacity Utilization 67.5% ICU Level of Service B

Splits and Phases: 3: Mt Hermon & Scotts Valley



Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	68	1373	48	24	1230	29	4	39	95	3	81
Turn Type	Prot		Perm	Prot		Perm		Perm	Perm		Perm
Protected Phases	1	6		5	2		4			8	
Permitted Phases			6			4		4	8		8
Detector Phases	1	6	6	5	2	4	4	4	8	8	8
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	23.5	23.5	8.0	23.5	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (s)	18.0	73.0	73.0	14.0	69.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	16%	63%	63%	12%	59%	25%	25%	25%	25%	25%	25%
Yellow Time (s)	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Coord	Coord	None	Coord	None	None	None	None	None	None
Act Effct Green (s)	10.2	92.2	92.2	7.2	87.3		11.2	11.2	11.2	11.2	11.2
Actuated g/C Ratio	0.09	0.79	0.79	0.06	0.75		0.10	0.10	0.10	0.10	0.10
v/c Ratio	0.48	0.54	0.04	0.24	0.56		0.26	0.23	0.41	0.48	0.36
Uniform Delay, d1	51.5	5.5	1.2	54.0	7.1		49.5	0.0	50.3	50.4	0.0
Delay	54.8	5.0	2.8	51.3	9.2		45.9	12.7	47.1	47.8	9.5
LOS	D	A	A	D	A		D	B	D	D	A
Approach Delay		7.2			9.9		27.9			31.0	
Approach LOS		A			A		C			C	

Intersection Summary

Cycle Length: 116

Actuated Cycle Length: 116

Offset: 23 (20%), Referenced to phase 2:NWT and 6:SET, Start of Yellow

Natural Cycle: 70

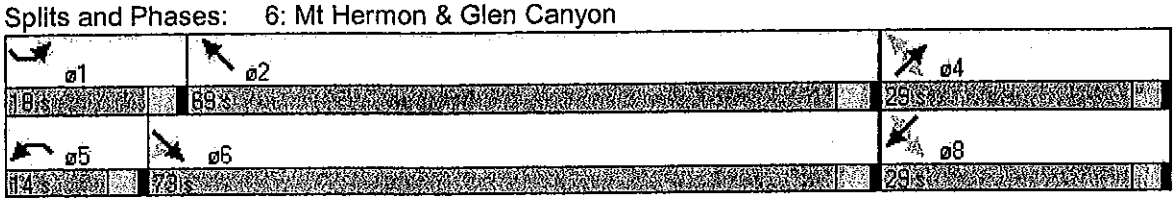
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 10.2 Intersection LOS: B

Intersection Capacity Utilization 65.2% ICU Level of Service B

Splits and Phases: 6: Mt Hermon & Glen Canyon

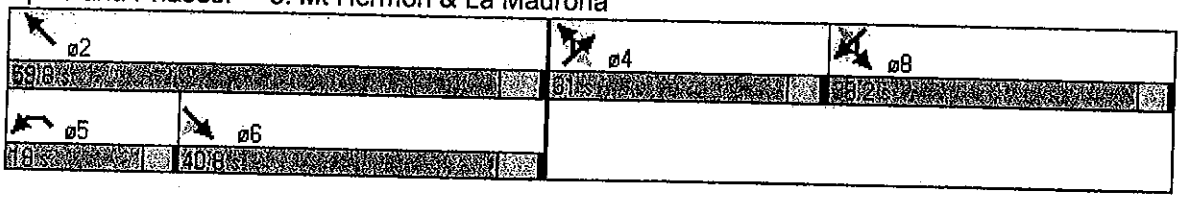


Lane Group	SET	SER	NWL	NWT	NET	NER	SWT	SWR
Lane Configurations	↑↑	↱	↰	↑↑	↲	↱	↲	↱
Volume (vph)	1247	61	72	992	0	129	37	183
Turn Type		Perm	Prot			Perm		Perm
Protected Phases	6		5	2	4		8	
Permitted Phases		6				4		8
Detector Phases	6	6	5	2	4	4	8	8
Minimum Initial (s)	7.0	7.0	4.0	7.0	4.0	4.0	4.0	4.0
Minimum Split (s)	23.3	23.3	8.0	21.3	20.6	20.6	35.2	35.2
Total Split (s)	40.8	40.8	19.0	59.8	31.0	31.0	38.2	38.2
Total Split (%)	32%	32%	15%	46%	24%	24%	30%	30%
Yellow Time (s)	4.3	4.3	3.2	4.3	3.6	3.6	3.2	3.2
All-Red Time (s)	1.0	1.0	0.5	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	Coord	Coord	None	Coord	None	None	None	None
Act Effct Green (s)	70.5	70.5	10.5	83.0	20.1	20.1	14.0	14.0
Actuated g/C Ratio	0.55	0.55	0.08	0.64	0.16	0.16	0.11	0.11
v/c Ratio	0.69	0.08	0.53	0.47	0.73	0.38	0.24	0.69
Uniform Delay, d1	21.9	9.1	58.1	11.8	51.9	0.0	52.6	17.7
Delay	39.2	15.5	56.1	14.4	51.1	7.0	48.7	17.9
LOS	D	B	E	B	D	A	D	B
Approach Delay	38.1			17.2	33.1		24.0	
Approach LOS	D			B	C		C	

Intersection Summary

Cycle Length: 129
Actuated Cycle Length: 129
Offset: 54.5 (42%), Referenced to phase 2:NWT and 6:SET, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 28.9 Intersection LOS: C
Intersection Capacity Utilization 69.2% ICU Level of Service B

Splits and Phases: 8: Mt Hermon & La Madrona



Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	75	2	9	219	61	33
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (veh/h)	90	2	11	264	73	40
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
vC, conflicting volume	379	93	113			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	85	100	99			
cM capacity (veh/h)	618	964	1476			

Direction, Lane #	SE 1	NE 1	NE 2	SW 1
Volume Total	93	11	264	113
Volume Left	90	11	0	0
Volume Right	2	0	0	40
cSH	624	1476	1700	1700
Volume to Capacity	0.15	0.01	0.16	0.07
Queue Length (ft)	13	1	0	0
Control Delay (s)	11.8	7.5	0.0	0.0
Lane LOS	B	A		
Approach Delay (s)	11.8	0.3	0.0	
Approach LOS	B			

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	25.7%	ICU Level of Service	A

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	35	16	5	186	84	19
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (veh/h)	47	21	7	248	45	25
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
vC, conflicting volume	319	58	71			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	98	100			
cM capacity (veh/h)	671	1008	1530			

Direction, Lane #	SE 1	SE 2	NE 1	SW 1
Volume Total	47	21	255	71
Volume Left	47	0	7	0
Volume Right	0	21	0	25
cSH	671	1008	1530	1700
Volume to Capacity	0.07	0.02	0.00	0.04
Queue Length (ft)	6	2	0	0
Control Delay (s)	10.8	8.6	0.2	0.0
Lane LOS	B	A	A	
Approach Delay (s)	10.1		0.2	0.0
Approach LOS	B			

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	24.7%	ICU Level of Service	A

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑			↑	↱		✣			↰	↱
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	31	0	0	7	49	1	1049	14	0	0	626
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (veh/h)	0	32	0	0	7	51	1	1081	14	0	0	645
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
vC, conflicting volume	1145	1098		0	1107	1736	1089	645			1096	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	100	85	100	100	92	81	100				100	
cM capacity (veh/h)	133	213	1085	166	87	262	940				637	

Direction, Lane #	SE 1	NW 1	NW 2	NE 1	SW 1	SW 2
Volume Total	32	7	51	1097	0	645
Volume Left	0	0	0	1	0	0
Volume Right	0	0	51	14	0	645
cSH	213	87	262	940	1700	1700
Volume to Capacity	0.15	0.08	0.19	0.00	0.00	0.38
Queue Length (ft)	13	7	17	0	0	0
Control Delay (s)	24.9	49.9	22.0	0.0	0.0	0.0
Lane LOS	C	E	C	A		
Approach Delay (s)	24.9	25.6		0.0	0.0	
Approach LOS	C	D				

Intersection Summary					
Average Delay	1.3				
Intersection Capacity Utilization	111.1%	ICU Level of Service	G		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑			↑	↱		↔			↰	↱
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	46	0	0	4	44	0	1028	8	0	0	322
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (veh/h)	0	47	0	0	4	45	0	1060	8	0	0	332
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
vC, conflicting volume	1111	1068		1088	1396	1064	332			1068		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	79	100	100	97	83	100			100		
cM capacity (veh/h)	152	222	1085	161	141	271	1227			652		

Direction, Lane #	SE 1	NW 1	NW 2	NE 1	SW 1	SW 2
Volume Total	47	4	45	1068	0	332
Volume Left	0	0	0	0	0	0
Volume Right	0	0	45	8	0	332
cSH	222	141	271	1227	1700	1700
Volume to Capacity	0.21	0.03	0.17	0.00	0.00	0.20
Queue Length (ft)	20	2	15	0	0	0
Control Delay (s)	25.6	31.3	20.9	0.0	0.0	0.0
Lane LOS	D	D	C			
Approach Delay (s)	25.6	21.8		0.0	0.0	
Approach LOS	D	C				

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	90.2%	ICU Level of Service	E	

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	29	5	5	61	44	23
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (veh/h)	39	7	7	81	59	31
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
vC, conflicting volume	169	74	89			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	99	100			
cM capacity (veh/h)	818	988	1506			

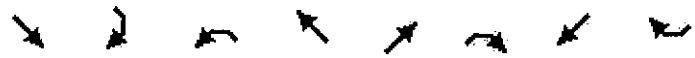
Direction, Lane #	SE 1	SE 2	NE 1	SW 1
Volume Total	39	7	88	89
Volume Left	39	0	7	0
Volume Right	0	7	0	31
cSH	818	988	1506	1700
Volume to Capacity	0.05	0.01	0.00	0.05
Queue Length (ft)	4	1	0	0
Control Delay (s)	9.6	8.7	0.6	0.0
Lane LOS	A	A	A	
Approach Delay (s)	9.5		0.6	0.0
Approach LOS	A			

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	15.0%	ICU Level of Service	A

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	42	7	3	100	88	41
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (veh/h)	51	8	4	120	106	49
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
vC, conflicting volume	258	131	155			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	99	100			
cM capacity (veh/h)	729	919	1425			

Direction, Lane #	SE 1	NE 1	NE 2	SW 1
Volume Total	59	4	120	155
Volume Left	51	4	0	0
Volume Right	8	0	0	49
cSH	751	1425	1700	1700
Volume to Capacity	0.08	0.00	0.07	0.09
Queue Length (ft)	6	0	0	0
Control Delay (s)	10.2	7.5	0.0	0.0
Lane LOS	B	A		
Approach Delay (s)	10.2	0.2		0.0
Approach LOS	B			

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	18.6%	ICU Level of Service	A

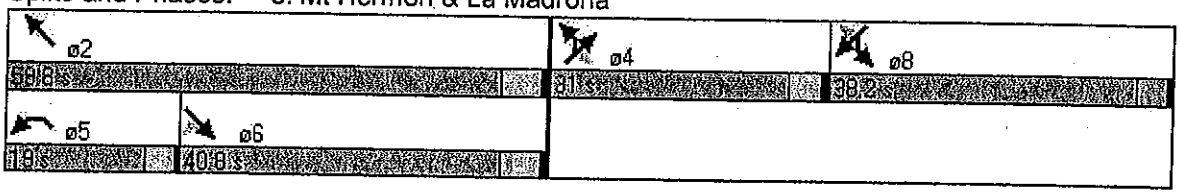


Lane Group	SET	SER	NWL	NWT	NET	NER	SWT	SWR
Lane Configurations								
Volume (vph)	798	62	60	1129	0	63	21	444
Turn Type		Perm	Prot			Perm		Perm
Protected Phases	6		5	2	4		8	
Permitted Phases		6				4		8
Detector Phases	6	6	5	2	4	4	8	8
Minimum Initial (s)	7.0	7.0	4.0	7.0	4.0	4.0	4.0	4.0
Minimum Split (s)	23.3	23.3	8.0	21.3	20.6	20.6	35.2	35.2
Total Split (s)	40.8	40.8	19.0	59.8	31.0	31.0	38.2	38.2
Total Split (%)	32%	32%	15%	46%	24%	24%	30%	30%
Yellow Time (s)	4.3	4.3	3.2	4.3	3.6	3.6	3.2	3.2
All-Red Time (s)	1.0	1.0	0.5	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	Coord	Coord	None	Coord	None	None	None	None
Act Effct Green (s)	63.9	63.9	9.6	75.6	12.2	12.2	29.3	29.3
Actuated g/C Ratio	0.50	0.50	0.07	0.59	0.09	0.09	0.23	0.23
v/c Ratio	0.49	0.09	0.49	0.59	0.54	0.32	0.09	0.94
Uniform Delay, d1	22.2	7.7	58.4	16.8	55.8	0.0	39.3	28.1
Delay	24.8	12.4	56.5	18.6	55.1	11.9	36.8	33.3
LOS	C	B	E	B	E	B	D	C
Approach Delay	23.9			20.5	36.5		33.5	
Approach LOS	C			C	D		C	

Intersection Summary

Cycle Length: 129
Actuated Cycle Length: 129
Offset: 54.5 (42%), Referenced to phase 2:NWT and 6:SET, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 24.8 Intersection LOS: C
Intersection Capacity Utilization 78.7% ICU Level of Service C

Splits and Phases: 8: Mt Hermon & La Madrona

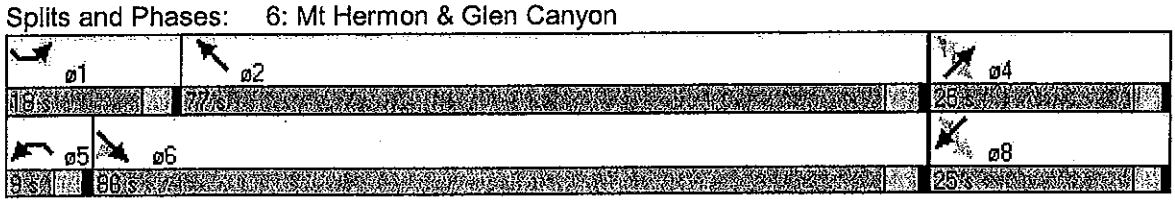


Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	97	937	9	15	1453	21	1	3	104	0	43
Turn Type	Prot		Perm	Prot		Perm		Perm	Perm		Perm
Protected Phases	1	6		5	2		4			8	
Permitted Phases			6			4		4	8		8
Detector Phases	1	6	6	5	2	4	4	4	8	8	8
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	23.5	23.5	8.0	23.5	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (s)	18.0	86.0	86.0	9.0	77.0	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (%)	15%	72%	72%	8%	64%	21%	21%	21%	21%	21%	21%
Yellow Time (s)	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Coord	Coord	None	Coord	None	None	None	None	None	None
Act Effct Green (s)	11.7	99.6	99.6	5.0	86.8		11.5	11.5	11.5	11.5	11.5
Actuated g/C Ratio	0.10	0.83	0.83	0.04	0.72		0.10	0.10	0.10	0.10	0.10
v/c Ratio	0.62	0.35	0.01	0.22	0.66		0.17	0.02	0.45	0.45	0.23
Uniform Delay, d1	52.0	3.5	0.0	58.5	9.2		50.9	0.0	52.3	52.3	0.0
Delay	64.6	2.8	2.9	56.1	11.0		46.9	28.3	49.3	49.3	18.1
LOS	E	A	A	E	B		D	C	D	D	B
Approach Delay		8.5			11.5		44.8			39.4	
Approach LOS		A			B		D			D	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 2 (2%), Referenced to phase 2:NWT and 6:SET, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 12.1 Intersection LOS: B
Intersection Capacity Utilization 72.7% ICU Level of Service C

Splits and Phases: 6: Mt Hermon & Glen Canyon

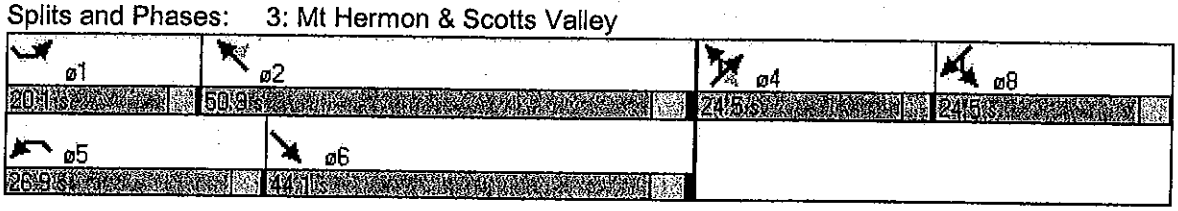


Lane Group	SBL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	413	671	180	1233	237	120	67	109	402	136	572
Turn Type	Prot		Prot		Perm	Split		Perm	Split		Free
Protected Phases	1	6	5	2		4	4		8	8	
Permitted Phases					2			4			Free
Detector Phases	1	61	5	2	2	41	4	4	8	8	
Minimum Initial (s)	4.0	10.0	4.0	10.0	10.0	6.0	6.0	6.0	4.0	4.0	
Minimum Split (s)	7.5	25.5	7.5	25.5	25.5	24.5	24.5	24.5	24.5	24.5	
Total Split (s)	20.1	44.1	26.9	50.9	50.9	24.5	24.5	24.5	24.5	24.5	0.0
Total Split (%)	17%	37%	22%	42%	42%	20%	20%	20%	20%	20%	0%
Yellow Time (s)	3.0	3.5	3.0	3.5	3.5	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	0.5	1.0	0.5	1.0	1.0	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Coord	None	Coord	Coord	None	None	None	None	None	
Act Effct Green (s)	16.1	55.5	17.3	56.6	56.6	12.6	12.6	12.6	18.7	18.7	120.0
Actuated g/C Ratio	0.13	0.46	0.14	0.47	0.47	0.11	0.11	0.11	0.16	0.16	1.00
v/c Ratio	0.98	0.51	0.78	0.81	0.31	0.57	0.58	0.44	0.83	0.51	0.40
Uniform Delay, d1	51.8	22.3	49.6	27.1	4.2	51.1	51.2	0.0	49.0	46.5	0.0
Delay	79.7	24.8	37.1	49.8	18.7	49.8	49.9	8.1	49.3	46.4	0.0
LOS	E	C	D	D	B	D	D	A	D	D	A
Approach Delay		44.4		43.9			34.5			23.5	
Approach LOS		D		D			C			C	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 66 (55%), Referenced to phase 2:NWT and 6:SET, Start of Yellow
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 38.0 Intersection LOS: D
Intersection Capacity Utilization 81.9% ICU Level of Service D

Splits and Phases: 3: Mt Hermon & Scotts Valley

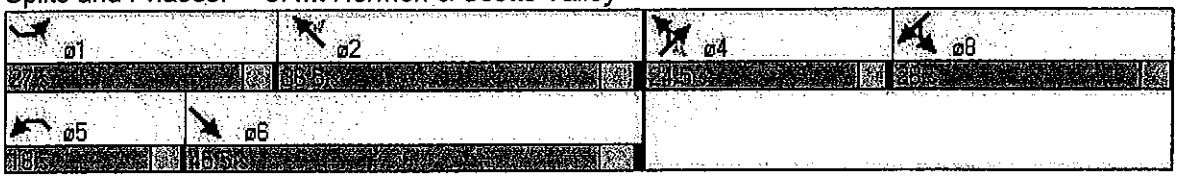


Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	585	895	135	678	544	66	118	179	502	85	309
Turn Type	Prot		Prot		Perm	Split		Perm	Split		Free
Protected Phases	1	6	5	2		4	4		8	8	
Permitted Phases					2			4			Free
Detector Phases	1	6	5	2	2	4	4	4	8	8	
Minimum Initial (s)	4.0	10.0	4.0	10.0	10.0	6.0	6.0	6.0	4.0	4.0	
Minimum Split (s)	7.5	25.5	7.5	25.5	25.5	24.5	24.5	24.5	24.5	24.5	
Total Split (s)	27.0	45.5	18.0	36.5	36.5	24.5	24.5	24.5	28.0	28.0	0.0
Total Split (%)	23%	39%	16%	31%	31%	21%	21%	21%	24%	24%	0%
Yellow Time (s)	3.0	3.5	3.0	3.5	3.5	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	0.5	1.0	0.5	1.0	1.0	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Coord	None	Coord	Coord	None	None	None	None	None	
Act Effct Green (s)	22.1	51.8	12.8	42.4	42.4	13.5	13.5	13.5	21.9	21.9	116.0
Actuated g/C Ratio	0.19	0.45	0.11	0.37	0.37	0.12	0.12	0.12	0.19	0.19	1.00
v/c Ratio	0.90	0.66	0.76	0.58	0.65	0.37	0.63	0.55	0.85	0.26	0.21
Uniform Delay, d1	45.9	25.0	50.1	29.5	2.0	47.3	48.9	0.0	45.5	40.2	0.0
Delay	50.8	27.1	70.5	22.0	3.0	46.8	47.9	6.2	45.8	39.6	0.0
LOS	D	C	E	C	A	D	D	A	D	D	A
Approach Delay		35.7		19.2			27.0			29.4	
Approach LOS		D		B			C			C	

Intersection Summary

Cycle Length: 116
Actuated Cycle Length: 116
Offset: 19 (16%), Referenced to phase 2:NWT and 6:SET, Start of Yellow
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 28.1 Intersection LOS: C
Intersection Capacity Utilization 73.3% ICU Level of Service C

Splits and Phases: 3: Mt Hermon & Scotts Valley



Timings
6: Mt Hermon & Glen Canyon

8/13/2002

Lane Group	SEL	SET	SER	NWL	NWT	NEU	NEL	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	99	1400	48	24	1248	29	4	39	123	3	110
Turn Type	Prot		Perm	Prot		Perm		Perm	Perm		Perm
Protected Phases	1	6		5	2		4			8	
Permitted Phases			6			4		4	8		8
Detector Phases	1	6	6	5	2	4	4	4	8	8	8
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	23.5	23.5	8.0	23.5	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (s)	18.0	73.0	73.0	14.0	69.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	16%	63%	63%	12%	59%	25%	25%	25%	25%	25%	25%
Yellow Time (s)	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Coord	Coord	None	Coord	None	None	None	None	None	None
Act Effct Green (s)	11.8	88.6	88.6	7.2	80.1		12.2	12.2	12.2	12.2	12.2
Actuated g/C Ratio	0.10	0.76	0.76	0.06	0.69		0.11	0.11	0.11	0.11	0.11
v/c Ratio	0.61	0.57	0.04	0.24	0.64		0.24	0.21	0.50	0.51	0.42
Uniform Delay, d1	49.9	6.4	1.5	54.0	9.8		47.6	0.0	49.0	49.1	0.0
Delay	56.7	5.4	2.9	51.3	11.4		45.2	12.6	47.3	47.4	8.2
LOS	E	A	A	D	B		D	B	D	D	A
Approach Delay		8.6			12.0		27.4			30.0	
Approach LOS		A			B		C			C	

Intersection Summary

Cycle Length: 116

Actuated Cycle Length: 116

Offset: 23 (20%), Referenced to phase 2:NWT and 6:SET, Start of Yellow

Natural Cycle: 75

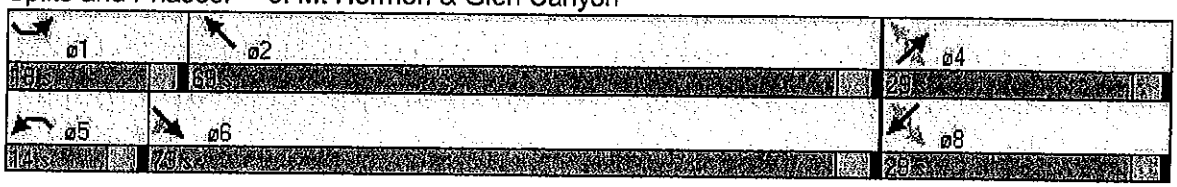
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 12.0 Intersection LOS: B

Intersection Capacity Utilization 70.2% ICU Level of Service C

Splits and Phases: 6: Mt Hermon & Glen Canyon



Lane Group	SET	SER	NWT	NWT	NET	NER	SWT	SWR
Lane Configurations	↑↑	↱	↰	↑↑	↰	↱	↰	↱
Volume (vph)	1306	77	91	1026	0	153	49	201
Turn Type		Perm	Prot			Perm		Perm
Protected Phases	6		5	2	4		8	
Permitted Phases		6				4		8
Detector Phases	6	6	5	2	4	4	8	8
Minimum Initial (s)	7.0	7.0	4.0	7.0	4.0	4.0	4.0	4.0
Minimum Split (s)	23.3	23.3	8.0	21.3	20.6	20.6	35.2	35.2
Total Split (s)	40.8	40.8	19.0	59.8	31.0	31.0	38.2	38.2
Total Split (%)	32%	32%	15%	46%	24%	24%	30%	30%
Yellow Time (s)	4.3	4.3	3.2	4.3	3.6	3.6	3.2	3.2
All-Red Time (s)	1.0	1.0	0.5	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	Coord	Coord	None	Coord	None	None	None	None
Act Effct Green (s)	64.9	64.9	11.7	80.6	20.9	20.9	15.6	15.6
Actuated g/C Ratio	0.50	0.50	0.09	0.62	0.16	0.16	0.12	0.12
v/c Ratio	0.79	0.11	0.61	0.50	0.76	0.42	0.28	0.74
Uniform Delay, d1	26.4	11.0	56.4	13.2	51.6	0.0	51.6	23.8
Delay	47.1	16.3	56.0	15.8	75.0	6.4	48.1	22.5
LOS	D	B	E	B	D	A	D	C
Approach Delay	45.4			19.1	31.7		28.2	
Approach LOS	D			B	C		C	

Intersection Summary

Cycle Length: 129

Actuated Cycle Length: 129

Offset: 54.5 (42%), Referenced to phase 2:NWT and 6:SET, Start of Yellow

Natural Cycle: 110

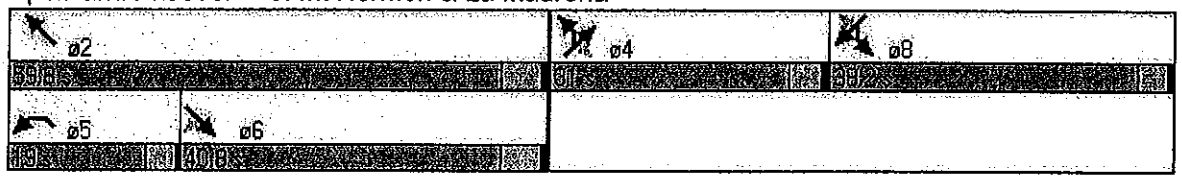
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 33.0 Intersection LOS: C

Intersection Capacity Utilization 72.9% ICU Level of Service C

Splits and Phases: 8: Mt Hermon & La Madrona



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	75	0	2	1	0	25	9	232	1	42	66	33
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (veh/h)	90	0	2	1	0	30	11	280	1	51	80	40
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
vC, conflicting volume	533	503	99	505	522	280	119			281		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free%	79	100	100	100	100	96	99			96		
cM capacity (veh/h)	424	449	956	460	438	759	1469			1282		

Direction, Lane #	SE 1	NW 1	NE 1	SW 1
Volume Total	93	31	292	170
Volume Left	90	1	11	51
Volume Right	2	30	1	40
cSH	430	740	1469	1282
Volume to Capacity	0.22	0.04	0.01	0.04
Queue Length (ft)	20	3	1	3
Control Delay (s)	15.7	10.1	0.3	2.6
Lane LOS	C	B	A	A
Approach Delay (s)	15.7	10.1	0.3	2.6
Approach LOS	C	B		

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	46.6%	ICU Level of Service	A

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	43	16	5	192	36	22
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (veh/h)	57	21	7	256	48	29
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
vC, conflicting volume	332	63	77			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	91	98	100			
cM capacity (veh/h)	660	1002	1521			

Direction, Lane #	SE 1	SE 2	NE 1	SW 1
Volume Total	57	21	263	77
Volume Left	57	0	7	0
Volume Right	0	21	0	29
cSH	660	1002	1521	1700
Volume to Capacity	0.09	0.02	0.00	0.05
Queue Length (ft)	7	2	0	0
Control Delay (s)	11.0	8.7	0.2	0.0
Lane LOS	B	A	A	
Approach Delay (s)	10.3		0.2	0.0
Approach LOS	B			

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	25.2%	ICU Level of Service	A

HCM Unsignalized Intersection Capacity Analysis
16: SR 17 NB on-ramp & Mt Hermon

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑			↑	↱		↔		↰		↱
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	33	0	0	9	54	1	1097	14	0	0	652
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (veh/h)	0	34	0	0	9	56	1	1131	14	0	0	672
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None						None				
Median storage veh)												
vC, conflicting volume	1201	1147	0	1157	1812	1138	672			1145		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	83	100	100	88	77	100			100		
cM capacity (veh/h)	114	199	1085	150	78	245	919			610		

Direction, Lane #	SE 1	NW 1	NW 2	NE 1	SW 1	SW 2
Volume Total	34	9	56	1146	0	672
Volume Left	0	0	0	1	0	0
Volume Right	0	0	56	14	0	672
cSH	199	78	245	919	1700	1700
Volume to Capacity	0.17	0.12	0.23	0.00	0.00	0.40
Queue Length (ft)	15	10	21	0	0	0
Control Delay (s)	26.8	57.1	23.9	0.0	0.0	0.0
Lane LOS	D	F	C	A		
Approach Delay (s)	26.8	28.7		0.0	0.0	
Approach LOS	D	D				

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	115.4%	ICU Level of Service	G

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑			↑	↱		↔			↰	↱
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	51	0	0	4	45	0	1063	8	0	0	355
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (veh/h)	0	53	0	0	4	46	0	1096	8	0	0	366
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
vC, conflicting volume	1148	1104		0	1126	1468	1100	363			1104	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	100	75	100	100	97	82	100				100	
cM capacity (veh/h)	141	211	1085	147	129	258	1196				632	

Direction, Lane #	SE 1	NW 1	NW 2	NE 1	SW 1	SW 2
Volume Total	53	4	46	1104	0	366
Volume Left	0	0	0	0	0	0
Volume Right	0	0	46	8	0	366
cSH	211	129	258	1196	1700	1700
Volume to Capacity	0.25	0.03	0.18	0.00	0.00	0.21
Queue Length (ft)	24	2	16	0	0	0
Control Delay (s)	27.6	33.9	22.0	0.0	0.0	0.0
Lane LOS	D	D	C			
Approach Delay (s)	27.6	23.0		0.0	0.0	
Approach LOS	D	C				

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	94.0%	ICU Level of Service	E	

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	35	5	5	62	48	33
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (veh/h)	47	7	7	83	64	44
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
vC, conflicting volume	182	86	108			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	99	100			
cM capacity (veh/h)	804	973	1483			

Direction, Lane #	SE 1	SE 2	NE 1	SW 1		
Volume Total	47	7	89	108		
Volume Left	47	0	7	0		
Volume Right	0	7	0	44		
cSH	804	973	1483	1700		
Volume to Capacity	0.06	0.01	0.00	0.06		
Queue Length (ft)	5	1	0	0		
Control Delay (s)	9.8	8.7	0.6	0.0		
Lane LOS	A	A	A			
Approach Delay (s)	9.6		0.6	0.0		
Approach LOS	A					

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	16.1%	ICU Level of Service	A

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	42	0	7	1	0	28	3	107	0	12	102	41
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (veh/h)	51	0	8	1	0	34	4	129	0	14	123	49
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
vC, conflicting volume	346	313	148	321	387	129	172			129		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	91	100	99	100	100	96	100			99		
cM capacity (veh/h)	580	595	899	620	576	921	1405			1457		

Direction, Lane #	SE 1	NW 1	NE 1	SW 1
Volume Total	59	35	133	187
Volume Left	51	1	4	14
Volume Right	8	34	0	49
cSH	611	906	1405	1457
Volume to Capacity	0.10	0.04	0.00	0.01
Queue Length (ft)	8	3	0	1
Control Delay (s)	11.5	9.1	0.2	0.7
Lane LOS	B	A	A	A
Approach Delay (s)	11.5	9.1	0.2	0.7
Approach LOS	B	A		

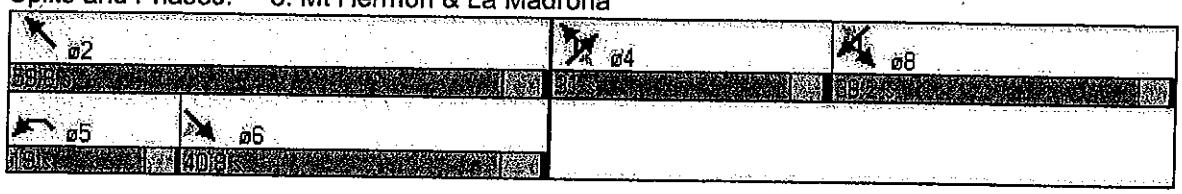
Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	22.5%	ICU Level of Service	A

Lane Group	SET	SER	NWT	NWL	NET	NER	SWT	SWR
Lane Configurations								
Volume (vph)	839	71	69	1156	0	87	28	460
Turn Type		Perm	Prot			Perm		Perm
Protected Phases	6		5	2	4		8	
Permitted Phases		6				4		8
Detector Phases	6	6	5	2	4	4	8	8
Minimum Initial (s)	7.0	7.0	4.0	7.0	4.0	4.0	4.0	4.0
Minimum Split (s)	23.3	23.3	8.0	21.3	20.6	20.6	35.2	35.2
Total Split (s)	40.8	40.8	19.0	59.8	31.0	31.0	38.2	38.2
Total Split (%)	32%	32%	15%	46%	24%	24%	30%	30%
Yellow Time (s)	4.3	4.3	3.2	4.3	3.6	3.6	3.2	3.2
All-Red Time (s)	1.0	1.0	0.5	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	Coord	Coord	None	Coord	None	None	None	None
Act Effct Green (s)	61.4	61.4	10.3	73.6	13.1	13.1	30.3	30.3
Actuated g/C Ratio	0.48	0.48	0.08	0.57	0.10	0.10	0.23	0.23
v/c Ratio	0.54	0.10	0.62	0.62	0.58	0.38	0.11	0.94
Uniform Delay, d1	24.3	8.8	58.2	18.3	55.3	0.0	38.7	27.9
Delay	27.1	18.4	56.2	20.0	54.6	10.0	36.6	35.0
LOS	C	B	E	C	D	A	D	D
Approach Delay	26.0			22.1	33.3		35.2	
Approach LOS	C			C	C		D	

Intersection Summary

Cycle Length: 129
Actuated Cycle Length: 129
Offset: 54.5 (42%), Referenced to phase 2:NWT and 6:SET, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 26.4 Intersection LOS: C
Intersection Capacity Utilization 81.2% ICU Level of Service D

Splits and Phases: 8: Mt Hermon & La Madrona



Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	114	954	97	16	1478	21	1	3	165	0	70
Turn Type	Prot		Perm	Prot		Perm		Perm	Perm		Perm
Protected Phases	1	6		5	2		4			8	
Permitted Phases			6			4		4	8		8
Detector Phases	1	6	6	5	2	4	4	4	8	8	8
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	23.5	23.5	8.0	25.5	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (s)	18.0	86.0	86.0	9.0	77.0	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (%)	15%	72%	72%	8%	64%	21%	21%	21%	21%	21%	21%
Yellow Time (s)	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Coord	Coord	None	Coord	None	None	None	None	None	None
Act Effct Green (s)	12.1	95.1	95.1	5.0	82.6		15.8	13.3	13.3	15.8	15.8
Actuated g/C Ratio	0.10	0.79	0.79	0.04	0.69		0.11	0.11	0.11	0.11	0.11
v/c Ratio	0.70	0.37	0.01	0.22	0.72		0.15	0.02	0.58	0.58	0.29
Uniform Delay, d1	52.2	4.4	0.0	58.5	11.4		48.2	0.0	50.7	50.7	0.0
Delay	62.7	3.1	3.1	56.1	13.1		45.6	27.7	49.4	49.4	10.3
LOS	E	A	A	E	B		D	C	D	D	B
Approach Delay		9.4			13.6		43.6			38.0	
Approach LOS		A			B		D			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 2 (2%), Referenced to phase 2:NWT and 6:SET, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 14.1 Intersection LOS: B

Intersection Capacity Utilization 76.9% ICU Level of Service C

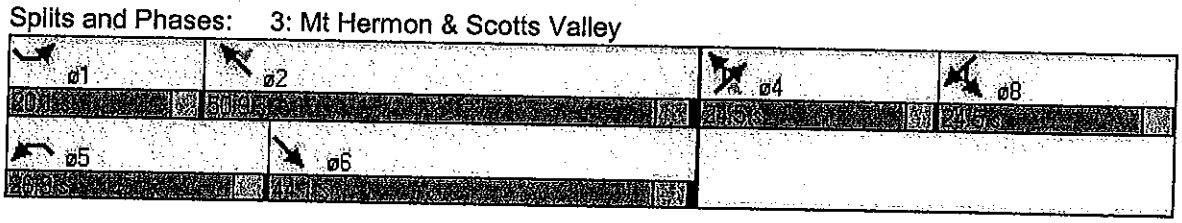
Splits and Phases: 6: Mt Hermon & Glen Canyon

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	429	678	183	1218	271	120	74	111	426	145	547
Turn Type	Prot		Prot		Perm	Split		Perm	Split		Free
Protected Phases	1	6	5	2		4	4		8	8	
Permitted Phases					2			4			Free
Detector Phases	1	6	5	2	2	4	4	4	8	8	
Minimum Initial (s)	4.0	10.0	4.0	10.0	10.0	6.0	6.0	6.0	4.0	4.0	
Minimum Split (s)	7.5	25.5	7.5	25.5	25.5	24.5	24.5	24.5	24.5	24.5	
Total Split (s)	20.1	44.1	26.9	50.9	50.9	24.5	24.5	24.5	24.5	24.5	0.0
Total Split (%)	17%	37%	22%	42%	42%	20%	20%	20%	20%	20%	0%
Yellow Time (s)	3.0	3.5	3.0	3.5	3.5	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	0.5	1.0	0.5	1.0	1.0	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Coord	None	Coord	Coord	None	None	None	None	None	
Act Effct Green (s)	16.1	54.6	17.4	55.9	55.9	12.7	12.7	12.7	19.3	19.3	120.0
Actuated g/C Ratio	0.13	0.46	0.15	0.47	0.47	0.11	0.11	0.11	0.16	0.16	1.00
v/c Ratio	1.02	0.52	0.78	0.88	0.35	0.58	0.59	0.44	0.85	0.53	0.38
Uniform Delay, d1	52.0	22.9	49.5	27.8	4.5	51.1	51.1	0.0	49.0	46.3	0.0
Delay	88.1	25.4	84.9	53.4	19.7	49.9	49.9	8.1	51.2	46.3	0.0
LOS	F	C	C	D	B	D	D	A	D	D	A
Approach Delay		48.1		46.1			34.7			25.5	
Approach LOS		D		D			C			C	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 66 (55%), Referenced to phase 2:NWT and 6:SET, Start of Yellow
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 40.5 Intersection LOS: D
Intersection Capacity Utilization 83.8% ICU Level of Service D

Splits and Phases: 3: Mt Hermon & Scotts Valley



HCM Unsignalized Intersection Capacity Analysis
16: SR 17 NB on-ramp & Mt Hermon

8/13/2002

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑			↑	↱		4			↰	↱
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	33	0	0	9	54	1	1185	14	0	0	660
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (veh/h)	0	34	0	0	9	56	1	1222	14	0	0	680
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
vC, conflicting volume	1291	1238	0	1248	1911	1229	680			1286		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	81	100	100	86	74	100			100		
cM capacity (veh/h)	93	175	1085	128	68	217	912			564		

Direction, Lane #	SE 1	NW 1	NW 2	NE 1	SW 1	SW 2
Volume Total	34	9	56	1237	0	680
Volume Left	0	0	0	1	0	0
Volume Right	0	0	56	14	0	680
cSH	175	68	217	912	1700	1700
Volume to Capacity	0.19	0.14	0.26	0.00	0.00	0.40
Queue Length (ft)	17	11	25	0	0	0
Control Delay (s)	30.4	66.2	27.2	0.0	0.0	0.0
Lane LOS	D	F	D	A		
Approach Delay (s)	30.4	32.8		0.0	0.0	
Approach LOS	D	D				

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	120.7%	ICU Level of Service	H	

Movement	SBL	SBR	NBL	NBT	SWL	SWT
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	43	16	5	196	37	22
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (veh/h)	57	21	7	261	49	29
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
vC, conflicting volume	339	64	79			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	91	98	100			
cM capacity (veh/h)	654	1000	1520			

Direction, Lane #	SE 1	SE 2	NE 1	SW 1
Volume Total	57	21	268	79
Volume Left	57	0	7	0
Volume Right	0	21	0	29
cSH	654	1000	1520	1700
Volume to Capacity	0.09	0.02	0.00	0.05
Queue Length (ft)	7	2	0	0
Control Delay (s)	11.0	8.7	0.2	0.0
Lane LOS	B	A	A	
Approach Delay (s)	10.4		0.2	0.0
Approach LOS	B			

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	25.5%	ICU Level of Service	A

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	76	0	2	1	0	25	9	264	1	42	281	38
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (veh/h)	90	0	2	1	0	30	11	318	1	51	339	46
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
vC, conflicting volume	630	801	358	802	820	319	378			319		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	66	100	100	100	100	96	99			96		
cM capacity (veh/h)	267	302	686	290	294	722	1180			1241		

Direction, Lane #	SE 1	NW 1	NE 1	SW 1
Volume Total	93	31	330	429
Volume Left	90	1	11	51
Volume Right	2	30	1	40
cSH	271	683	1180	1241
Volume to Capacity	0.34	0.05	0.01	0.04
Queue Length (ft)	37	4	1	3
Control Delay (s)	25.0	10.5	0.4	1.3
Lane LOS	D	B	A	A
Approach Delay (s)	25.0	10.5	0.4	1.3
Approach LOS	D	B		

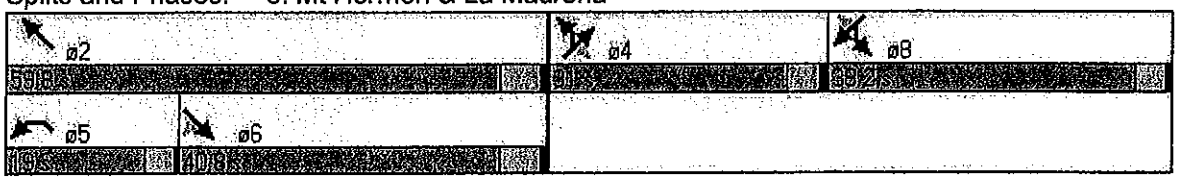
Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	62.3%	ICU Level of Service	B

Lane Group	SET	SER	NWL	NWT	NET	NER	SWT	SWR
Lane Configurations	↑↑	↱	↰	↑↑	↰	↱	↰	↱
Volume (vph)	1306	147	181	1026	0	174	104	201
Turn Type		Perm	Prot			Perm		Perm
Protected Phases	6		5	2	4		8	
Permitted Phases		6				4		8
Detector Phases	6	6	5	2	4	4	8	8
Minimum Initial (s)	7.0	7.0	4.0	7.0	4.0	4.0	4.0	4.0
Minimum Split (s)	23.8	23.8	8.6	21.3	20.6	20.6	35.2	35.2
Total Split (s)	40.8	40.8	19.0	59.8	31.0	31.0	38.2	38.2
Total Split (%)	32%	32%	15%	46%	24%	24%	30%	30%
Yellow Time (s)	4.3	4.3	3.2	4.3	3.6	3.6	3.2	3.2
All-Red Time (s)	1.0	1.0	0.5	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	Coord	Coord	None	Coord	None	None	None	None
Act Effct Green (s)	60.0	60.0	15.0	78.9	21.6	21.6	16.5	16.5
Actuated g/C Ratio	0.47	0.47	0.12	0.61	0.17	0.17	0.13	0.13
v/c Ratio	0.85	0.21	0.95	0.51	0.77	0.44	0.51	0.78
Uniform Delay, d1	30.7	13.2	56.6	14.1	51.3	0.0	52.5	25.2
Delay	52.5	16.8	91.6	16.5	50.8	6.0	50.4	23.9
LOS	D	B	F	B	D	A	D	C
Approach Delay	48.9			27.8	30.7		33.4	
Approach LOS	D			C	C		C	

Intersection Summary

Cycle Length: 129
Actuated Cycle Length: 129
Offset: 54.5 (42%), Referenced to phase 2:NWT and 6:SET, Start of Yellow
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 37.8 Intersection LOS: D
Intersection Capacity Utilization 79.0% ICU Level of Service C

Splits and Phases: 8: Mt Hermon & La Madrona

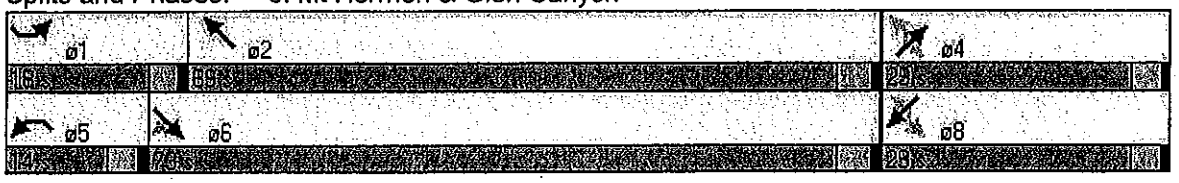


Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	99	1466	48	24	1258	29	4	39	127	3	110
Turn Type	Prot		Perm	Prot		Perm		Perm	Perm		Perm
Protected Phases	1	6		5	2		4			8	
Permitted Phases			6			4		4	8		8
Detector Phases	1	6	6	5	2	4	4	4	8	8	8
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	23.5	23.5	8.0	23.5	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (s)	18.0	73.0	73.0	14.0	69.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	16%	63%	63%	12%	59%	25%	25%	25%	25%	25%	25%
Yellow Time (s)	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Coord	Coord	None	Coord	None	None	None	None	None	None
Act Effct Green (s)	11.8	88.3	88.3	7.2	79.9		12.4	12.4	12.4	12.4	12.4
Actuated g/C Ratio	0.10	0.76	0.76	0.06	0.69		0.11	0.11	0.11	0.11	0.11
v/c Ratio	0.61	0.60	0.04	0.24	0.65		0.23	0.21	0.50	0.58	0.41
Uniform Delay, d1	49.9	6.8	1.6	54.0	10.1		47.4	0.0	48.9	49.0	0.0
Delay	56.7	5.8	3.1	51.3	11.6		45.0	12.6	47.2	47.4	8.2
LOS	E	A	A	D	B		D	B	D	D	A
Approach Delay		8.8			12.2		27.3			30.8	
Approach LOS		A			B		C			C	

Intersection Summary

Cycle Length: 116
Actuated Cycle Length: 116
Offset: 23 (20%), Referenced to phase 2:NWT and 6:SET, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 12.1 Intersection LOS: B
Intersection Capacity Utilization 70.6% ICU Level of Service C

Splits and Phases: 6: Mt Hermon & Glen Canyon



Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	635	928	186	683	548	66	118	183	631	85	309
Turn Type	Prot		Prot		Perm	Split		Perm	Split		Free
Protected Phases	1	6	5	2		4	4		8	8	
Permitted Phases					2			4			Free
Detector Phases	1	6	5	2	2	4	4	4	8	8	
Minimum Initial (s)	4.0	10.0	4.0	10.0	10.0	6.0	6.0	6.0	4.0	4.0	
Minimum Split (s)	7.5	25.5	7.5	25.5	25.5	24.5	24.5	24.5	24.5	24.5	
Total Split (s)	27.0	45.5	18.0	36.5	36.5	24.5	24.5	24.5	28.0	28.0	0.0
Total Split (%)	23%	39%	16%	31%	31%	21%	21%	21%	24%	24%	0%
Yellow Time (s)	3.0	3.5	3.0	3.5	3.5	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	0.5	1.0	0.5	1.0	1.0	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Coord	None	Coord	Coord	None	None	None	None	None	
Act Effct Green (s)	22.1	51.2	12.8	41.9	41.9	13.5	13.5	13.5	22.5	22.5	116.0
Actuated g/C Ratio	0.19	0.44	0.11	0.36	0.36	0.12	0.12	0.12	0.19	0.19	1.00
v/c Ratio	0.90	0.69	0.76	0.59	0.65	0.37	0.63	0.56	0.88	0.26	0.21
Uniform Delay, d1	45.9	25.8	50.1	30.0	2.2	47.3	48.9	0.0	45.4	39.7	0.0
Delay	50.8	28.9	70.0	22.4	3.0	45.8	47.9	6.1	47.9	39.4	0.0
LOS	D	C	E	C	A	D	D	A	D	D	A
Approach Delay		36.7		19.4			26.7			31.1	
Approach LOS		D		B			C			C	

Intersection Summary

Cycle Length: 116

Actuated Cycle Length: 116

Offset: 19 (16%), Referenced to phase 2:NWT and 6:SET, Start of Yellow

Natural Cycle: 95

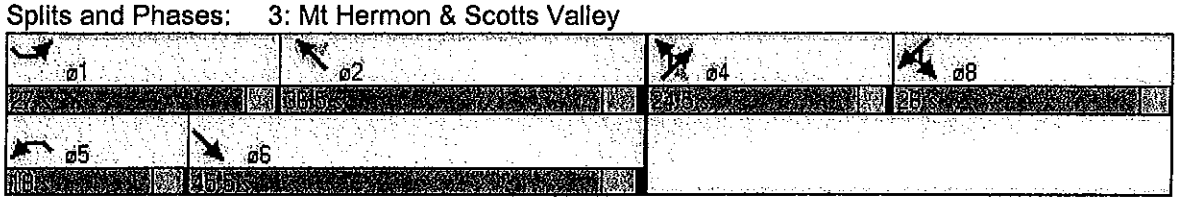
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 28.9 Intersection LOS: C

Intersection Capacity Utilization 74.8% ICU Level of Service C

Splits and Phases: 3: Mt Hermon & Scotts Valley



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑			↑	↱		↔			↰	↱
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	53	0	0	4	45	0	1079	8	0	0	403
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (veh/h)	0	55	0	0	4	46	0	1112	8	0	0	415
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
vC, conflicting volume	1155	1121		0	1144	1532	1116	415			1121	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	100	74	100	100	96	82	100				100	
cM capacity (veh/h)	136	206	1085	141	117	252	1144				623	

Direction, Lane #	SE 1	NW 1	NW 2	NE 1	SW 1	SW 2
Volume Total	55	4	46	1121	0	415
Volume Left	0	0	0	0	0	0
Volume Right	0	0	46	8	0	415
cSH	206	117	252	1144	1700	1700
Volume to Capacity	0.26	0.04	0.18	0.00	0.00	0.24
Queue Length (ft)	26	3	16	0	0	0
Control Delay (s)	28.6	37.0	22.4	0.0	0.0	0.0
Lane LOS	D	E	C			
Approach Delay (s)	28.6	28.6		0.0	0.0	
Approach LOS	D	C				

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	98.1%	ICU Level of Service	E

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	35	5	5	63	52	33
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (veh/h)	47	7	7	84	69	44
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
vC, conflicting volume	189	91	113			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	99	100			
cM capacity (veh/h)	797	966	1476			

Direction, Lane #	SE 1	SE 2	NE 1	SW 1
Volume Total	47	7	91	113
Volume Left	47	0	7	0
Volume Right	0	7	0	44
cSH	797	966	1476	1700
Volume to Capacity	0.06	0.01	0.00	0.07
Queue Length (ft)	5	1	0	0
Control Delay (s)	9.8	8.8	0.6	0.0
Lane LOS	A	A	A	
Approach Delay (s)	9.7		0.6	0.0
Approach LOS	A			

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	16.3%	ICU Level of Service	A

HCM Unsignalized Intersection Capacity Analysis
11: Altenitas & La Madrona

8/9/2002

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	42	0	7	1	0	28	3	304	0	12	142	41
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (veh/h)	51	0	8	1	0	34	4	366	0	14	171	49
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
vC, conflicting volume	682	598	196	607	623	366	220			366		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	86	100	99	100	100	95	100			99		
cM capacity (veh/h)	369	410	845	400	396	679	1349			1192		

Direction, Lane #	SE 1	NW 1	NE 1	SW 1
Volume Total	59	35	370	235
Volume Left	51	1	4	14
Volume Right	8	34	0	49
cSH	402	663	1349	1192
Volume to Capacity	0.15	0.05	0.00	0.01
Queue Length (ft)	13	4	0	1
Control Delay (s)	15.5	10.7	0.1	0.6
Lane LOS	C	B	A	A
Approach Delay (s)	15.5	10.7	0.1	0.6
Approach LOS	C	B		

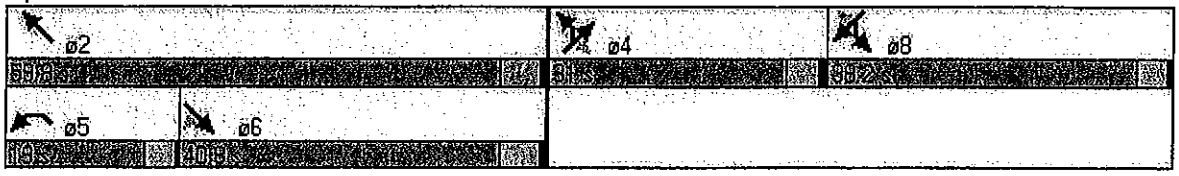
Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	30.5%	ICU Level of Service	A

Lane Group	SET	SER	NWL	NWT	NET	NER	SWL	SWR
Lane Configurations								
Volume (vph)	839	84	86	1156	0	220	38	460
Turn Type		Perm	Prot			Perm		Perm
Protected Phases	6		5	2	4		8	
Permitted Phases		6				4		8
Detector Phases	6	6	5	2	4	4	8	8
Minimum Initial (s)	7.0	7.0	4.0	7.0	4.0	4.0	4.0	4.0
Minimum Split (s)	23.3	23.3	8.0	21.3	20.6	20.6	35.2	35.2
Total Split (s)	40.8	40.8	19.0	59.8	31.0	31.0	38.2	38.2
Total Split (%)	32%	32%	15%	46%	24%	24%	30%	30%
Yellow Time (s)	4.3	4.3	3.2	4.3	3.6	3.6	3.2	3.2
All-Red Time (s)	1.0	1.0	0.5	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	Coord	Coord	None	Coord	None	None	None	None
Act Effct Green (s)	53.4	53.4	11.3	68.8	17.9	17.9	30.8	30.8
Actuated g/C Ratio	0.41	0.41	0.09	0.53	0.14	0.14	0.23	0.23
v/c Ratio	0.62	0.14	0.59	0.66	0.70	0.56	0.13	0.94
Uniform Delay, d1	29.6	10.9	56.6	21.6	53.0	0.0	38.9	27.9
Delay	33.3	15.5	56.0	23.8	52.2	5.8	37.2	35.0
LOS	C	B	E	C	D	A	D	D
Approach Delay	31.7			26.0	25.3		35.2	
Approach LOS	C			C	C		D	

Intersection Summary

Cycle Length: 129
Actuated Cycle Length: 129
Offset: 54.5 (42%), Referenced to phase 2:NWT and 6:SET, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 29.2 Intersection LOS: C
Intersection Capacity Utilization 85.1% ICU Level of Service D

Splits and Phases: 8: Mt Hermon & La Madrona

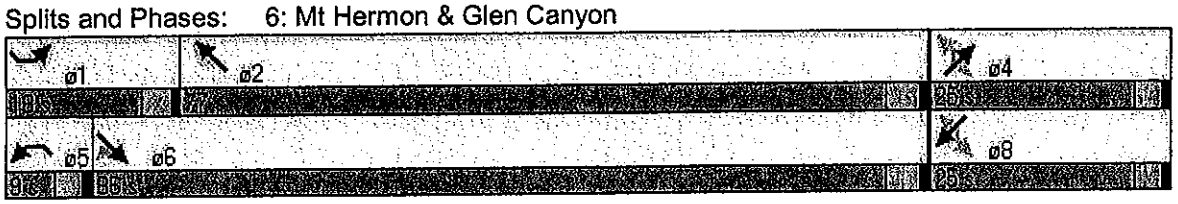


Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	114	966	9	15	1538	21	1	3	156	0	70
Turn Type	Prot		Perm	Prot		Perm		Perm	Perm		Perm
Protected Phases	1	6		5	2		4			8	
Permitted Phases			6			4		4	8		8
Detector Phases	1	6	6	5	2	4	4	4	8	8	8
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	23.5	23.5	8.0	23.5	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (s)	18.0	86.0	86.0	9.0	77.0	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (%)	15%	72%	72%	8%	64%	21%	21%	21%	21%	21%	21%
Yellow Time (s)	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Coord	Coord	None	Coord	None	None	None	None	None	None
Act Effct Green (s)	12.1	95.0	95.0	5.0	82.5		13.4	13.4	13.4	13.4	13.4
Actuated g/C Ratio	0.10	0.79	0.79	0.04	0.69		0.11	0.11	0.11	0.11	0.11
v/c Ratio	0.70	0.38	0.01	0.22	0.75		0.15	0.02	0.59	0.58	0.29
Uniform Delay, d1	52.2	4.5	0.0	58.5	12.0		48.2	0.0	50.6	50.6	0.0
Delay	63.0	3.2	3.1	56.1	13.8		45.5	27.7	49.4	49.8	10.8
LOS	E	A	A	E	B		D	C	D	D	B
Approach Delay		9.4			14.1		43.6			38.0	
Approach LOS		A			B		D			D	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 2 (2%), Referenced to phase 2:NWT and 6:SET, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 14.4 Intersection LOS: B
Intersection Capacity Utilization 78.9% ICU Level of Service C

Splits and Phases: 6: Mt Hermon & Glen Canyon

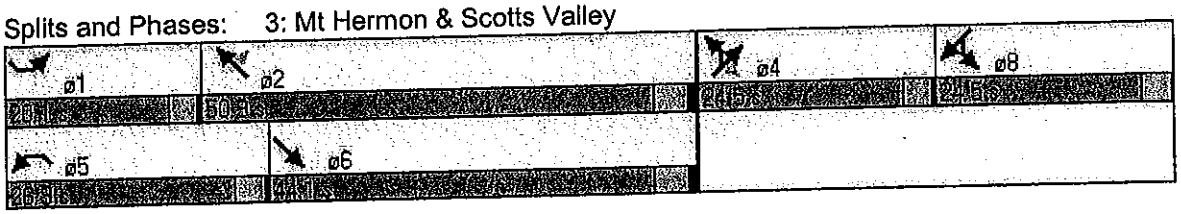


Lane Group	SEL	SET	NWL	NW	NWR	NEL	NET	NER	SWL	SW	SWR
Lane Configurations											
Volume (vph)	429	684	187	1278	297	120	74	112	431	145	547
Turn Type	Prot		Prot		Perm	Split		Perm	Split		Free
Protected Phases	1	6	5	2		4	4		8	8	
Permitted Phases					2			4			Free
Detector Phases	1	6	5	2	2	4	4	4	8	8	
Minimum Initial (s)	4.0	10.0	4.0	10.0	10.0	6.0	6.0	6.0	4.0	4.0	
Minimum Split (s)	7.5	25.5	7.5	25.5	25.5	24.5	24.5	24.5	24.5	24.5	
Total Split (s)	20.1	44.1	26.9	50.9	50.9	24.5	24.5	24.5	24.5	24.5	0.0
Total Split (%)	17%	37%	22%	42%	42%	20%	20%	20%	20%	20%	0%
Yellow Time (s)	3.0	3.5	3.0	3.5	3.5	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	0.5	1.0	0.5	1.0	1.0	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Coord	None	Coord	Coord	None	None	None	None	None	
Act Effct Green (s)	16.1	54.3	17.6	55.8	55.8	12.7	12.7	12.7	19.4	19.4	120.0
Actuated g/C Ratio	0.13	0.45	0.15	0.47	0.47	0.11	0.11	0.11	0.16	0.16	1.00
v/c Ratio	1.02	0.53	0.79	0.85	0.38	0.58	0.59	0.44	0.86	0.53	0.38
Uniform Delay, d1	52.0	23.3	49.4	28.5	4.9	51.1	51.1	0.0	48.9	46.1	0.0
Delay	88.1	25.6	73.0	55.1	19.9	49.9	49.9	8.0	61.7	46.3	0.0
LOS	F	C	C	E	B	D	D	A	D	D	A
Approach Delay		48.1		46.9			34.6			25.8	
Approach LOS		D		D			C			C	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 66 (55%), Referenced to phase 2:NWT and 6:SET, Start of Yellow
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 41.0 Intersection LOS: D
Intersection Capacity Utilization 84.9% ICU Level of Service D

Splits and Phases: 3: Mt Hermon & Scotts Valley



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑			↑	↱		↕			↰	↱
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	38	0	0	10	62	1	1219	15	0	0	757
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (veh/h)	0	39	0	0	10	64	1	1257	15	0	0	780
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
vC, conflicting volume	1386	1274		0	1286	2047	1264	780			1272	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	100	77	100	100	82	69	100				100	
cM capacity (veh/h)	77	167	1085	116	56	207	837				546	

Direction, Lane #	SE 1	NW 1	NW 2	NE 1	SW 1	SW 2
Volume Total	39	10	64	1273	0	780
Volume Left	0	0	0	1	0	0
Volume Right	0	0	64	15	0	780
cSH	167	56	207	837	1700	1700
Volume to Capacity	0.23	0.18	0.31	0.00	0.00	0.46
Queue Length (ft)	22	15	31	0	0	0
Control Delay (s)	33.1	83.5	30.0	0.1	0.0	0.0
Lane LOS	D	F	D	A		
Approach Delay (s)	33.1	37.4		0.1	0.0	
Approach LOS	D	E				

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	28.8%	ICU Level of Service	H

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	85	35	11	417	47	27
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (veh/h)	113	47	15	556	63	36
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
vC, conflicting volume	666	81	99			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	73	95	99			
cM capacity (veh/h)	420	979	1494			

Direction, Lane #	SE 1	SE 2	NE 1	SW 1
Volume Total	113	47	571	99
Volume Left	113	0	15	0
Volume Right	0	47	0	36
cSH	420	979	1494	1700
Volume to Capacity	0.27	0.05	0.01	0.06
Queue Length (ft)	27	4	1	0
Control Delay (s)	16.7	8.9	0.3	0.0
Lane LOS	C	A	A	
Approach Delay (s)	14.4		0.3	0.0
Approach LOS	B			

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	49.7%	ICU Level of Service	A

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	149	0	4	1	0	25	20	512	1	42	111	46
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (veh/h)	180	0	5	1	0	30	24	617	1	51	134	55
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
vC, conflicting volume	958	929	161	938	956	617	189			618		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	15	100	99	99	100	94	98			95		
cM capacity (veh/h)	210	249	883	232	240	490	1385			962		

Direction, Lane #	SE 1	NW 1	NE 1	SW 1
Volume Total	184	31	642	240
Volume Left	180	1	24	51
Volume Right	5	30	1	55
cSH	215	470	1385	962
Volume to Capacity	0.86	0.07	0.02	0.05
Queue Length (ft)	166	5	1	4
Control Delay (s)	76.4	13.2	0.5	2.3
Lane LOS	F	B	A	A
Approach Delay (s)	76.4	13.2	0.5	2.6
Approach LOS	F	B		

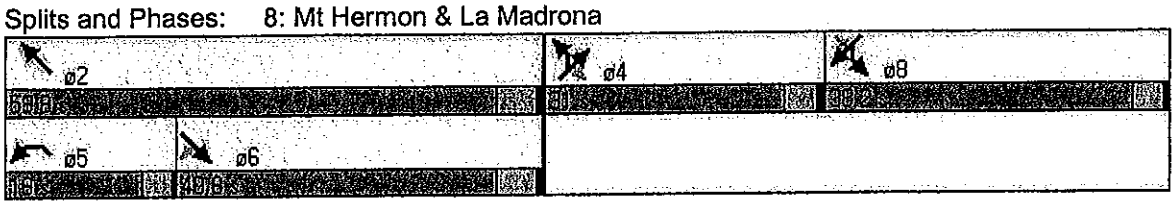
Intersection Summary			
Average Delay	14.0		
Intersection Capacity Utilization	74.0%	ICU Level of Service	C

Lane Group	SET	SER	NWL	NWT	NET	NER	SWT	SWR
Lane Configurations								
Volume (vph)	1353	94	106	1167	0	329	59	255
Turn Type		Perm	Prot			Perm		Perm
Protected Phases	6		5	2	4		8	
Permitted Phases		6				4		8
Detector Phases	6	6	5	2	4	4	8	8
Minimum Initial (s)	7.0	7.0	4.0	7.0	4.0	4.0	4.0	4.0
Minimum Split (s)	23.3	23.3	8.0	21.3	20.6	20.6	35.2	35.2
Total Split (s)	40.8	40.8	19.0	59.8	31.0	31.0	38.2	38.2
Total Split (%)	32%	32%	15%	46%	24%	24%	30%	30%
Yellow Time (s)	4.3	4.3	3.2	4.3	3.6	3.6	3.2	3.2
All-Red Time (s)	1.0	1.0	0.5	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	Coord	Coord	None	Coord	None	None	None	None
Act Effct Green (s)	48.5	48.5	12.4	65.0	27.0	27.0	25.1	25.1
Actuated g/C Ratio	0.38	0.38	0.10	0.50	0.21	0.21	0.19	0.19
v/c Ratio	1.09	0.17	0.67	0.70	1.28	0.63	0.20	0.84
Uniform Delay, d1	40.2	17.7	56.3	24.6	51.0	7.8	43.6	44.0
Delay	104.6	21.1	55.9	26.2	153.8	9.9	41.3	48.1
LOS	F	C	E	C	F	A	D	D
Approach Delay	99.1			28.7	92.4		42.7	
Approach LOS	F			C	F		D	

Intersection Summary

Cycle Length: 129
Actuated Cycle Length: 129
Offset: 54.5 (42%), Referenced to phase 2:NWT and 6:SET, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.28
Intersection Signal Delay: 69.5 Intersection LOS: E
Intersection Capacity Utilization 89.8% ICU Level of Service D

Splits and Phases: 8: Mt Hermon & La Madrona



Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	120	1459	48	30	1622	36	5	48	170	4	155
Turn Type	Prot		Perm	Prot		Perm		Perm	Perm		Perm
Protected Phases	1	6		5	2		4			8	
Permitted Phases			6			4		4	8		8
Detector Phases	1	6	6	5	2	4	4	4	8	8	8
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	23.5	23.5	8.0	23.5	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (s)	18.0	73.0	73.0	14.0	69.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	16%	63%	63%	12%	59%	25%	25%	25%	25%	25%	25%
Yellow Time (s)	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Coord	Coord	None	Coord	None	None	None	None	None	None
Act Effct Green (s)	12.5	86.4	86.4	7.5	77.5		14.0	14.0	14.0	14.0	14.0
Actuated g/C Ratio	0.11	0.74	0.74	0.06	0.67		0.12	0.12	0.12	0.12	0.12
v/c Ratio	0.69	0.61	0.04	0.29	0.87		0.27	0.22	0.61	0.64	0.47
Uniform Delay, d1	49.9	7.7	1.8	53.9	15.0		46.3	0.0	48.4	48.6	0.0
Delay	59.9	6.8	3.1	51.1	21.8		44.8	11.3	47.1	47.4	6.8
LOS	E	A	A	D	C		D	B	D	D	A
Approach Delay		10.6			22.2		26.5			29.2	
Approach LOS		B			C		C			C	

Intersection Summary

Cycle Length: 116

Actuated Cycle Length: 116

Offset: 23 (20%), Referenced to phase 2:NWT and 6:SET, Start of Yellow

Natural Cycle: 90

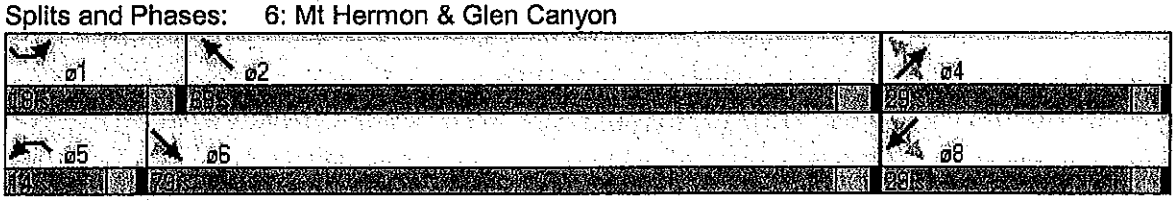
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 18.1 Intersection LOS: B

Intersection Capacity Utilization 86.1% ICU Level of Service D

Splits and Phases: 6: Mt Hermon & Glen Canyon

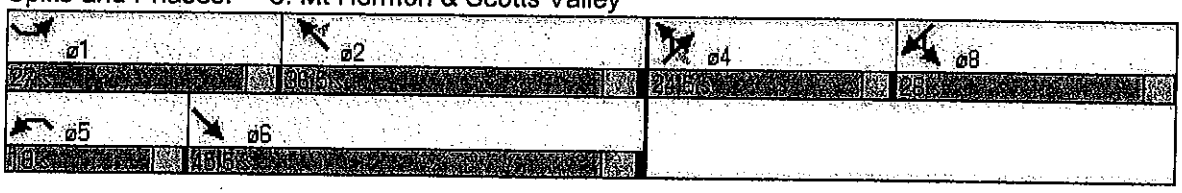


Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	585	965	174	929	686	92	145	222	755	127	512
Turn Type	Prot		Prot		Perm	Split		Perm	Split		Free
Protected Phases	1	6	5	2		4	4		8	8	
Permitted Phases					2			4			Free
Detector Phases	1	6	5	2	2	4	4	4	8	8	
Minimum Initial (s)	4.0	10.0	4.0	10.0	10.0	6.0	6.0	6.0	4.0	4.0	
Minimum Split (s)	7.5	25.5	7.5	25.5	25.5	24.5	24.5	24.5	24.5	24.5	
Total Split (s)	27.0	45.5	18.0	36.5	36.5	24.5	24.5	24.5	28.0	28.0	0.0
Total Split (%)	23%	39%	16%	31%	31%	21%	21%	21%	24%	24%	0%
Yellow Time (s)	3.0	3.5	3.0	3.5	3.5	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	0.5	1.0	0.5	1.0	1.0	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Coord	None	Coord	Coord	None	None	None	None	None	
Act Effct Green (s)	22.8	47.1	13.9	38.1	38.1	15.0	15.0	15.0	24.0	24.0	116.0
Actuated g/C Ratio	0.20	0.41	0.12	0.33	0.33	0.13	0.13	0.13	0.21	0.21	1.00
v/c Ratio	0.95	0.78	0.90	0.88	0.87	0.46	0.69	0.62	1.17	0.36	0.36
Uniform Delay, d1	45.9	29.8	50.3	36.7	10.3	46.8	48.3	4.8	46.0	39.4	0.0
Delay	59.8	33.7	66.6	35.9	8.5	45.7	47.5	8.5	118.2	40.0	0.0
LOS	E	C	E	D	A	D	D	A	F	D	A
Approach Delay		45.2		28.4			28.2			67.7	
Approach LOS		D		C			C			E	

Intersection Summary

Cycle Length: 116
Actuated Cycle Length: 116
Offset: 19 (16%), Referenced to phase 2:NWT and 6:SET, Start of Yellow
Natural Cycle: 135
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.17
Intersection Signal Delay: 43.3 Intersection LOS: D
Intersection Capacity Utilization 91.9% ICU Level of Service E

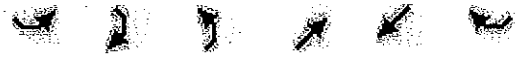
Splits and Phases: 3: Mt Hermon & Scotts Valley



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑			↑	↱		✣			↰	↱
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	64	0	0	5	52	0	1162	8	0	0	490
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (veh/h)	0	66	0	0	5	54	0	1198	8	0	0	505
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
vC, conflicting volume	1258	1206		0	1235	1707	1202			505		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	64	100	100	94	76	100			100		
cM capacity (veh/h)	108	183	1085	110	91	225	1059			578		

Direction, Lane #	SE 1	NW 1	NW 2	NE 1	SW 1	SW 2
Volume Total	66	5	54	1206	0	505
Volume Left	0	0	0	0	0	0
Volume Right	0	0	54	8	0	505
cSH	183	91	225	1059	1700	1700
Volume to Capacity	0.36	0.06	0.24	0.00	0.00	0.30
Queue Length (ft)	38	4	23	0	0	0
Control Delay (s)	35.2	46.9	25.9	0.0	0.0	0.0
Lane LOS	E	E	D			
Approach Delay (s)	35.2	27.8		0.0	0.0	
Approach LOS	E	D				

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	108.2%	ICU Level of Service	E



Movement	SEL	SER	NEL	NER	SWL	SWR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	57	9	9	112	70	42
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (veh/h)	76	12	12	149	93	56
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
vC, conflicting volume	295	121	149			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	99	99			
cM capacity (veh/h)	691	930	1432			

Direction, Lane #	SE 1	SE 2	NE 1	SW 1
Volume Total	76	12	161	149
Volume Left	76	0	12	0
Volume Right	0	12	0	56
cSH	691	930	1432	1700
Volume to Capacity	0.11	0.01	0.01	0.09
Queue Length (ft)	9	1	1	0
Control Delay (s)	10.9	8.9	0.6	0.0
Lane LOS	B	A	A	
Approach Delay (s)	10.6		0.6	0.0
Approach LOS	B			

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	20.7%	ICU Level of Service	A

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	78	0	11	1	0	28	5	269	0	12	229	81
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (veh/h)	94	0	13	1	0	34	6	324	0	14	269	98
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
vC, conflicting volume	716	685	317	696	731	324	366			324		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	71	100	98	100	100	96	99			99		
cM capacity (veh/h)	325	366	723	345	343	717	1192			1236		

Direction, Lane #	SE 1	NW 1	NE 1	SW 1
Volume Total	107	35	330	381
Volume Left	94	1	6	14
Volume Right	13	34	0	98
cSH	348	691	1192	1236
Volume to Capacity	0.31	0.05	0.01	0.01
Queue Length (ft)	32	4	0	1
Control Delay (s)	19.9	10.5	0.2	0.4
Lane LOS	C	B	A	A
Approach Delay (s)	19.9	10.5	0.2	0.4
Approach LOS	C	B		

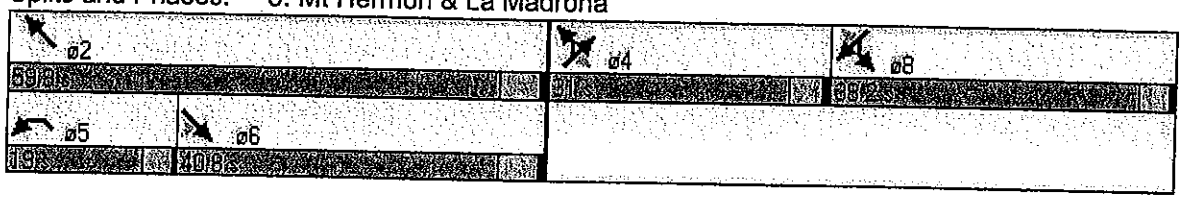
Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	45.8%	ICU Level of Service	A

Lane Group	SET	SER	NWL	NWT	NET	NER	SWT	SWR
Lane Configurations								
Volume (vph)	1059	130	111	1351	0	184	61	704
Turn Type		Perm	Prot			Perm		Perm
Protected Phases	6		5	2	4		8	
Permitted Phases		6				4		8
Detector Phases	6	6	5	2	4	4	8	8
Minimum Initial (s)	7.0	7.0	4.0	7.0	4.0	4.0	4.0	4.0
Minimum Split (s)	23.3	23.3	8.0	21.8	20.6	20.6	35.2	35.2
Total Split (s)	40.8	40.8	19.0	59.8	31.0	31.0	38.2	38.2
Total Split (%)	32%	32%	15%	46%	24%	24%	30%	30%
Yellow Time (s)	4.3	4.3	3.2	4.3	3.6	3.6	3.2	3.2
All-Red Time (s)	1.0	1.0	0.5	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	Coord	Coord	None	Coord	None	None	None	None
Act Effct Green (s)	44.8	44.8	12.6	61.5	21.3	21.8	34.2	34.2
Actuated g/C Ratio	0.35	0.35	0.10	0.48	0.17	0.17	0.27	0.27
v/c Ratio	0.93	0.25	0.69	0.86	0.77	0.46	0.18	1.20
Uniform Delay, d1	40.4	17.0	56.3	30.0	51.5	0.0	36.6	24.9
Delay	67.7	19.5	56.0	36.2	50.9	5.9	37.1	109.8
LOS	E	B	E	D	D	A	D	F
Approach Delay	62.4			37.7	29.8		102.1	
Approach LOS	E			D	C		F	

Intersection Summary

Cycle Length: 129
Actuated Cycle Length: 129
Offset: 54.5 (42%), Referenced to phase 2:NWT and 6:SET, Start of Yellow
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.20
Intersection Signal Delay: 57.8 Intersection LOS: E
Intersection Capacity Utilization 110.0% ICU Level of Service G

Splits and Phases: 8: Mt Hermon & La Madrona



Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	185	1172	10	19	1963	22	1	3	198	0	130
Turn Type	Prot		Perm	Prot		Perm		Perm	Perm		Perm
Protected Phases	1	6		5	2		4			8	
Permitted Phases			6			4		4	8		8
Detector Phases	1	6	6	5	2	4	4	4	8	8	8
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	23.5	23.5	8.0	23.5	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (s)	18.0	86.0	86.0	9.0	77.0	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (%)	15%	72%	72%	8%	64%	21%	21%	21%	21%	21%	21%
Yellow Time (s)	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Coord	Coord	None	Coord	None	None	None	None	None	None
Act Effct Green (s)	14.0	93.6	93.6	5.0	79.2		14.8	14.8	14.8	14.8	14.8
Actuated g/C Ratio	0.12	0.78	0.78	0.04	0.66		0.12	0.12	0.12	0.12	0.12
v/c Ratio	0.98	0.47	0.01	0.28	1.00		0.74	0.02	0.67	0.67	0.42
Uniform Delay, d1	52.9	5.4	0.3	58.7	20.3		47.0	0.0	50.3	50.3	0.0
Delay	81.8	5.7	3.8	56.3	43.0		44.6	27.8	49.3	49.3	7.6
LOS	F	A	A	E	D		D	C	D	D	A
Approach Delay		16.0			46.1		42.8			33.7	
Approach LOS		B			D		D			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 2 (2%), Referenced to phase 2:NWT and 6:SET, Start of Yellow

Natural Cycle: 150

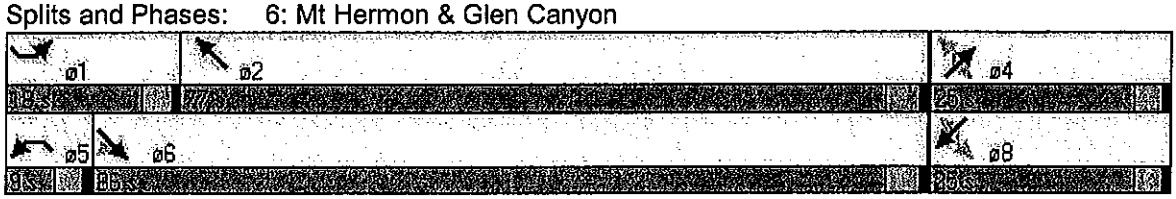
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 32.7 Intersection LOS: C

Intersection Capacity Utilization 98.7% ICU Level of Service F

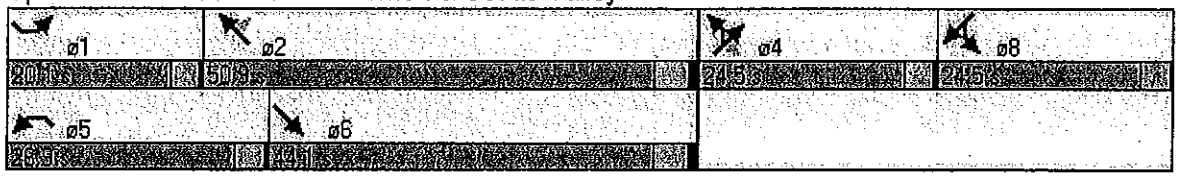
Splits and Phases: 6: Mt Hermon & Glen Canyon



Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	594	914	211	1480	323	409	222	358	538	176	821
Turn Type	Prot		Prot		Perm	Split		Perm	Split		Free
Protected Phases	1	6	5	2		4	4		8	8	
Permitted Phases					2			4			Free
Detector Phases	1	6	5	2	2	4	4	4	8	8	
Minimum Initial (s)	4.0	10.0	4.0	10.0	10.0	6.0	6.0	6.0	4.0	4.0	
Minimum Split (s)	7.5	25.5	7.5	25.5	25.5	24.5	24.5	24.5	24.5	24.5	
Total Split (s)	20.1	44.1	26.9	50.9	50.9	24.5	24.5	24.5	24.5	24.5	0.0
Total Split (%)	17%	37%	22%	42%	42%	20%	20%	20%	20%	20%	0%
Yellow Time (s)	3.0	3.5	3.0	3.5	3.5	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	0.5	1.0	0.5	1.0	1.0	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Coord	None	Coord	Coord	None	None	None	None	None	
Act Effct Green (s)	16.1	41.3	18.7	46.9	46.9	20.5	20.5	20.5	20.5	20.5	120.0
Actuated g/C Ratio	0.13	0.37	0.16	0.39	0.39	0.17	0.17	0.17	0.17	0.17	1.00
v/c Ratio	1.42	0.88	0.84	1.18	0.47	1.18	1.19	0.78	1.00	0.61	0.57
Uniform Delay, d1	52.0	34.9	49.2	36.5	9.0	49.7	49.8	12.9	49.7	46.0	0.0
Delay	194.5	45.6	30.1	128.3	25.1	132.9	136.8	16.6	77.5	46.7	0.0
LOS	F	D	C	F	C	F	F	B	E	D	A
Approach Delay		100.1		101.5			91.9			32.4	
Approach LOS		F		F			F			C	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 66 (55%), Referenced to phase 2:NWT and 6:SET, Start of Yellow
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.42
Intersection Signal Delay: 82.4 Intersection LOS: F
Intersection Capacity Utilization 112.5% ICU Level of Service G

Splits and Phases: 3: Mt Hermon & Scotts Valley



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑			↑	↱		↔		↰		↱
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	38	0	0	10	64	1	1307	15	0	0	766
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (veh/h)	0	39	0	0	10	66	1	1347	15	0	0	789
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
vC, conflicting volume	1428	1365	0	1877	2146	1355	789			1863		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	73	100	100	79	64	100			100		
cM capacity (veh/h)	60	147	1085	97	48	183	831			504		

Direction, Lane #	SE 1	NW 1	NW 2	NE 1	SW 1	SW 2
Volume Total	39	10	66	1364	0	789
Volume Left	0	0	0	1	0	0
Volume Right	0	0	66	15	0	789
cSH	147	48	183	831	1700	1700
Volume to Capacity	0.27	0.21	0.36	0.00	0.00	0.46
Queue Length (ft)	25	18	38	0	0	0
Control Delay (s)	38.1	98.5	35.4	0.1	0.0	0.0
Lane LOS	E	F	E	A		
Approach Delay (s)	38.1	43.9		0.1	0.0	
Approach LOS	E	E				

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	134.1%	ICU Level of Service	H

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	85	35	11	421	48	27
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (veh/h)	113	47	15	561	64	36
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
vC, conflicting volume	678	82	100			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	73	95	99			
cM capacity (veh/h)	417	978	1493			

Direction, Lane #	SE 1	SE 2	NE 1	SW 1
Volume Total	113	47	576	100
Volume Left	113	0	15	0
Volume Right	0	47	0	36
cSH	417	978	1493	1700
Volume to Capacity	0.27	0.05	0.01	0.06
Queue Length (ft)	27	4	1	0
Control Delay (s)	16.8	8.9	0.3	0.0
Lane LOS	C	A	A	
Approach Delay (s)	14.5		0.3	0.0
Approach LOS	B			

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	50.0%	ICU Level of Service	A

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	149	0	4	1	0	25	20	544	1	42	326	46
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (veh/h)	180	0	5	1	0	30	24	655	1	51	393	55
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
vC, conflicting volume	1256	1227	420	1281	1254	656	448			657		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	99	99	100	94	98			95		
cM capacity (veh/h)	131	165	633	144	159	465	1112			931		

Direction, Lane #	SE 1	NW 1	NE 1	SW 1
Volume Total	184	31	681	499
Volume Left	180	1	24	51
Volume Right	5	30	1	55
cSH	133	429	1112	931
Volume to Capacity	1.38	0.07	0.02	0.05
Queue Length (ft)	302	6	2	4
Control Delay (s)	273.3	14.1	0.6	1.5
Lane LOS	F	B	A	A
Approach Delay (s)	273.3	14.1	0.6	1.5
Approach LOS	F	B		

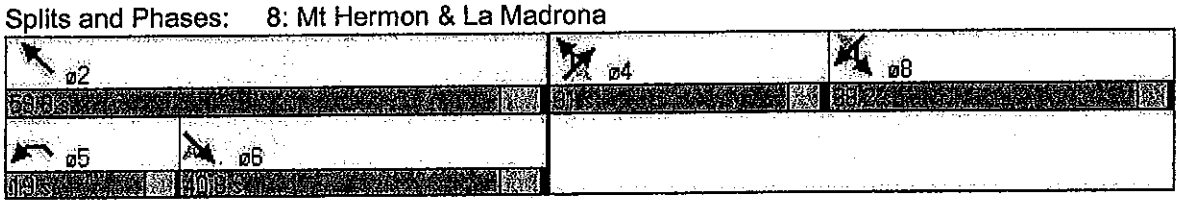
Intersection Summary			
Average Delay	37.2		
Intersection Capacity Utilization	89.6%	ICU Level of Service	D

Lane Group	SET	SER	NWL	NWT	NET	NER	SWL	SWR
Lane Configurations	↑↑	↱	↰	↑↑	↰	↱	↰	↱
Volume (vph)	1353	164	196	1167	0	350	114	256
Turn Type		Perm	Prot			Perm		Perm
Protected Phases	6		5	2	4		8	
Permitted Phases		6				4		8
Detector Phases	6	6	5	2	4	4	8	8
Minimum Initial (s)	7.0	7.0	4.0	7.0	4.0	4.0	4.0	4.0
Minimum Split (s)	23.3	23.3	8.0	21.3	20.6	20.6	35.2	35.2
Total Split (s)	40.8	40.8	19.0	59.8	31.0	31.0	38.2	38.2
Total Split (%)	32%	32%	15%	46%	24%	24%	30%	30%
Yellow Time (s)	4.3	4.3	3.2	4.3	3.6	3.6	3.2	3.2
All-Red Time (s)	1.0	1.0	0.5	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	Coord	Coord	None	Coord	None	None	None	None
Act Effct Green (s)	45.9	45.9	15.0	64.9	27.0	27.0	25.1	25.1
Actuated g/C Ratio	0.36	0.36	0.12	0.50	0.21	0.21	0.19	0.19
v/c Ratio	1.16	0.30	1.02	0.71	1.32	0.66	0.37	0.84
Uniform Delay, d1	41.5	19.7	57.0	24.7	51.0	8.7	45.1	44.3
Delay	106.0	22.0	106.6	26.3	191.5	10.6	43.4	48.5
LOS	F	C	F	C	F	B	D	D
Approach Delay	105.9			37.9	95.8		48.4	
Approach LOS	F			D	F		D	

Intersection Summary

Cycle Length: 129
Actuated Cycle Length: 129
Offset: 54.5 (42%), Referenced to phase 2:NWT and 6:SET, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.32
Intersection Signal Delay: 75.2 Intersection LOS: E
Intersection Capacity Utilization 102.1% ICU Level of Service F

Splits and Phases: 8: Mt Hermon & La Madrona



Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	120	1525	48	30	1632	36	5	48	174	4	155
Turn Type	Prot		Perm	Prot		Perm		Perm	Perm		Perm
Protected Phases	1	6		5	2		4			8	
Permitted Phases			6			4		4	8		8
Detector Phases	1	6	6	5	2	4	4	4	8	8	8
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	23.5	23.5	8.0	23.5	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (s)	18.0	73.0	73.0	14.0	69.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	16%	63%	63%	12%	59%	25%	25%	25%	25%	25%	25%
Yellow Time (s)	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Coord	Coord	None	Coord	None	None	None	None	None	None
Act Effct Green (s)	12.5	86.2	86.2	7.6	77.3		14.2	14.2	14.2	14.2	14.2
Actuated g/C Ratio	0.11	0.74	0.74	0.06	0.67		0.12	0.12	0.12	0.12	0.12
v/c Ratio	0.69	0.64	0.04	0.29	0.87		0.27	0.22	0.61	0.65	0.47
Uniform Delay, d1	49.9	8.1	1.9	53.9	15.3		46.2	0.0	48.2	48.5	0.0
Delay	59.8	7.5	3.4	51.1	22.4		44.1	11.3	47.1	47.4	6.8
LOS	E	A	A	D	C		D	B	D	D	A
Approach Delay		11.1			22.9		26.4			29.4	
Approach LOS		B			C		C			C	

Intersection Summary

Cycle Length: 116

Actuated Cycle Length: 116

Offset: 23 (20%), Referenced to phase 2:NWT and 6:SET, Start of Yellow

Natural Cycle: 100

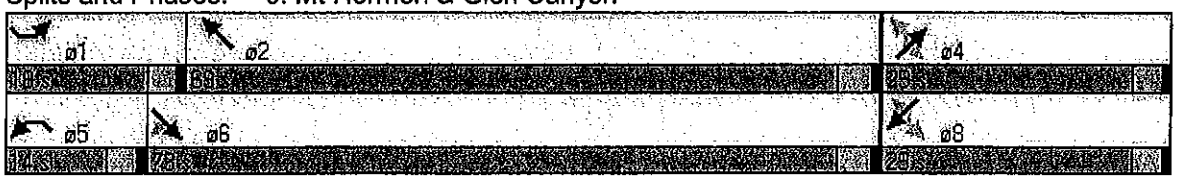
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 18.4 Intersection LOS: B

Intersection Capacity Utilization 86.6% ICU Level of Service D

Splits and Phases: 6: Mt Hermon & Glen Canyon

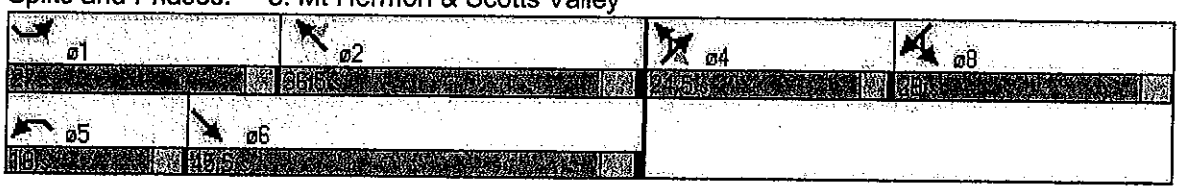


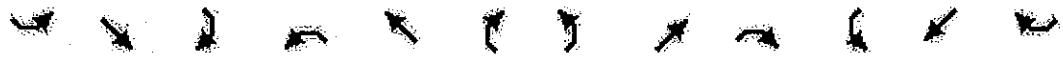
Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	583	998	175	934	690	92	145	226	784	127	512
Turn Type	Prot		Prot		Perm	Split		Perm	Split		Free
Protected Phases	1	6	5	2		4	4		8	8	
Permitted Phases					2			4			Free
Detector Phases	1	6	5	2	2	4	4	4	8	8	
Minimum Initial (s)	4.0	10.0	4.0	10.0	10.0	6.0	6.0	6.0	4.0	4.0	
Minimum Split (s)	7.5	25.5	7.5	25.5	25.5	24.5	24.5	24.5	24.5	24.5	
Total Split (s)	27.0	45.5	18.0	36.5	36.5	24.5	24.5	24.5	28.0	28.0	0.0
Total Split (%)	23%	39%	16%	31%	31%	21%	21%	21%	24%	24%	0%
Yellow Time (s)	3.0	3.5	3.0	3.5	3.5	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	0.5	1.0	0.5	1.0	1.0	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Coord	None	Coord	Coord	None	None	None	None	None	
Act Effct Green (s)	22.8	47.1	13.9	38.1	38.1	15.0	15.0	15.0	24.0	24.0	116.0
Actuated g/C Ratio	0.20	0.41	0.12	0.33	0.33	0.13	0.13	0.13	0.21	0.21	1.00
v/c Ratio	0.95	0.81	0.91	0.88	0.87	0.46	0.69	0.53	1.21	0.36	0.36
Uniform Delay, d1	45.9	30.3	50.4	36.8	10.5	46.8	48.3	5.8	46.0	39.4	0.0
Delay	59.8	35.4	66.5	35.9	8.7	45.7	47.5	9.0	132.0	40.0	0.0
LOS	E	D	E	D	A	D	D	A	F	D	A
Approach Delay		44.1		28.4			28.3			76.3	
Approach LOS		D		C			C			E	

Intersection Summary

Cycle Length: 116
Actuated Cycle Length: 116
Offset: 19 (16%), Referenced to phase 2:NWT and 6:SET, Start of Yellow
Natural Cycle: 135
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.21
Intersection Signal Delay: 46.1 Intersection LOS: D
Intersection Capacity Utilization 92.9% ICU Level of Service F

Splits and Phases: 3: Mt Hermon & Scotts Valley

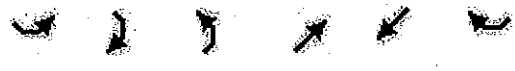




Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑			↑	↱		✣		↰		↱
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	64	0	0	5	53	0	1178	8	0	0	541
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (veh/h)	0	66	0	0	5	55	0	1214	8	0	0	558
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
vC, conflicting volume	1276	1223	0	1252	1776	1219	568			1223		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	63	100	100	94	75	100			100		
cM capacity (veh/h)	103	179	1085	107	83	220	1013			570		

Direction, Lane #	SE 1	NW 1	NW 2	NE 1	SW 1	SW 2						
Volume Total	66	5	55	1223	0	558						
Volume Left	0	0	0	0	0	0						
Volume Right	0	0	55	8	0	558						
cSH	179	83	220	1013	1700	1700						
Volume to Capacity	0.37	0.06	0.25	0.00	0.00	0.33						
Queue Length (ft)	39	5	24	0	0	0						
Control Delay (s)	36.8	51.5	26.7	0.0	0.0	0.0						
Lane LOS	E	F	D									
Approach Delay (s)	36.8	28.8		0.0	0.0							
Approach LOS	E	D										

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	112.3%	ICU Level of Service	G



Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	57	9	9	113	74	42
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (veh/h)	76	12	12	151	99	56
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
vC, conflicting volume	301	127	155			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	99	99			
cM capacity (veh/h)	684	924	1426			

Direction, Lane #	SE 1	SE 2	NE 1	SW 1
Volume Total	76	12	163	155
Volume Left	76	0	12	0
Volume Right	0	12	0	56
cSH	684	924	1426	1700
Volume to Capacity	0.11	0.01	0.01	0.09
Queue Length (ft)	9	1	1	0
Control Delay (s)	10.9	8.9	0.6	0.0
Lane LOS	B	A	A	
Approach Delay (s)	10.6		0.6	0.0
Approach LOS	B			

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	20.8%	ICU Level of Service	A

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	78	0	11	1	0	28	5	466	0	12	263	81
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (veh/h)	94	0	13	1	0	34	6	561	0	14	317	98
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
vC, conflicting volume	1002	968	366	981	1017	561	414			561		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	54	100	98	99	100	94	99			99		
cM capacity (veh/h)	204	249	679	221	233	527	1144			1010		

Direction, Lane #	SE 1	NW 1	NE 1	SW 1								
Volume Total	107	35	567	429								
Volume Left	94	1	6	14								
Volume Right	13	34	0	98								
cSH	223	503	1144	1010								
Volume to Capacity	0.48	0.07	0.01	0.01								
Queue Length (ft)	60	6	0	1								
Control Delay (s)	35.2	12.7	0.2	0.4								
Lane LOS	E	B	A	A								
Approach Delay (s)	35.2	12.7	0.2	0.4								
Approach LOS	E	B										

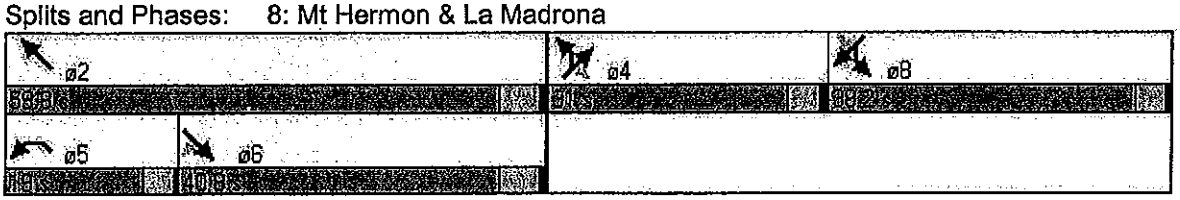
Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	52.2%	ICU Level of Service	A

Lane Group	SET	SER	NWL	NWT	NET	NER	SWL	SWR
Lane Configurations								
Volume (vph)	1059	143	128	1351	0	317	71	704
Turn Type		Perm	Prot			Perm		Perm
Protected Phases	6		5	2	4		8	
Permitted Phases		6				4		8
Detector Phases	6	6	5	2	4	4	8	8
Minimum Initial (s)	7.0	7.0	4.0	7.0	4.0	4.0	4.0	4.0
Minimum Split (s)	23.3	23.3	8.0	21.3	20.6	20.6	35.2	35.2
Total Split (s)	40.8	40.8	19.0	59.8	31.0	31.0	38.2	38.2
Total Split (%)	32%	32%	15%	46%	24%	24%	30%	30%
Yellow Time (s)	4.3	4.3	3.2	4.3	3.6	3.6	3.2	3.2
All-Red Time (s)	1.0	1.0	0.5	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	Coord	Coord	None	Coord	None	None	None	None
Act Effct Green (s)	40.6	40.6	13.4	58.1	24.8	24.8	34.2	34.2
Actuated g/C Ratio	0.31	0.31	0.10	0.45	0.19	0.19	0.27	0.27
v/c Ratio	1.02	0.29	0.75	0.91	0.86	0.59	0.20	1.17
Uniform Delay, d1	44.2	18.9	56.1	33.1	50.4	0.0	36.8	24.1
Delay	87.4	20.7	58.9	41.0	55.3	4.5	37.3	102.1
LOS	F	C	E	D	E	A	D	F
Approach Delay	79.4			42.5	28.0		94.6	
Approach LOS	E			D	C		F	

Intersection Summary

Cycle Length: 129
Actuated Cycle Length: 129
Offset: 54.5 (42%), Referenced to phase 2:NWT and 6:SET, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.17
Intersection Signal Delay: 61.5 Intersection LOS: E
Intersection Capacity Utilization 118.8% ICU Level of Service G

Splits and Phases: 8: Mt Hermon & La Madrona

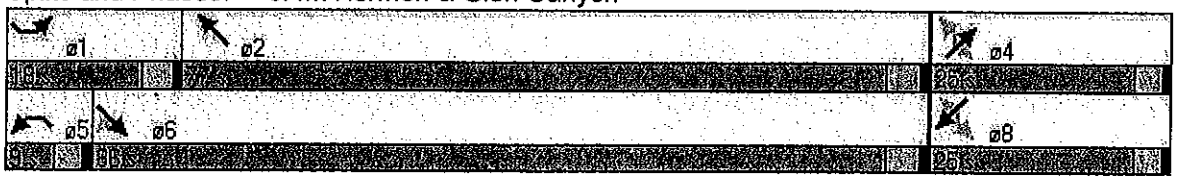


Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	185	1184	10	19	2023	22	1	3	199	0	130
Turn Type	Prot		Perm	Prot		Perm		Perm	Perm		Perm
Protected Phases	1	6		5	2		4			8	
Permitted Phases			6			4		4	8		8
Detector Phases	1	6	6	5	2	4	4	4	8	8	8
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	23.5	23.5	8.0	23.5	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (s)	18.0	86.0	86.0	9.0	77.0	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (%)	15%	72%	72%	8%	64%	21%	21%	21%	21%	21%	21%
Yellow Time (s)	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Coord	Coord	None	Coord	None	None	None	None	None	None
Act Effct Green (s)	14.0	93.5	93.5	5.0	79.1		14.9	14.9	14.9	14.9	14.9
Actuated g/C Ratio	0.12	0.78	0.78	0.04	0.66		0.12	0.12	0.12	0.12	0.12
v/c Ratio	0.98	0.47	0.01	0.28	1.03		0.14	0.02	0.68	0.67	0.42
Uniform Delay, d1	52.9	5.5	0.3	58.7	20.3		46.8	0.0	50.2	50.2	0.0
Delay	80.2	5.7	3.8	56.3	52.0		44.6	27.3	49.3	49.3	7.6
LOS	F	A	A	E	D		D	C	D	D	A
Approach Delay		15.7			52.1		42.7			33.8	
Approach LOS		B			D		D			C	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 2 (2%), Referenced to phase 2:NWT and 6:SET, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 37.7 Intersection LOS: D
Intersection Capacity Utilization 100.7% ICU Level of Service F

Splits and Phases: 6: Mt Hermon & Glen Canyon

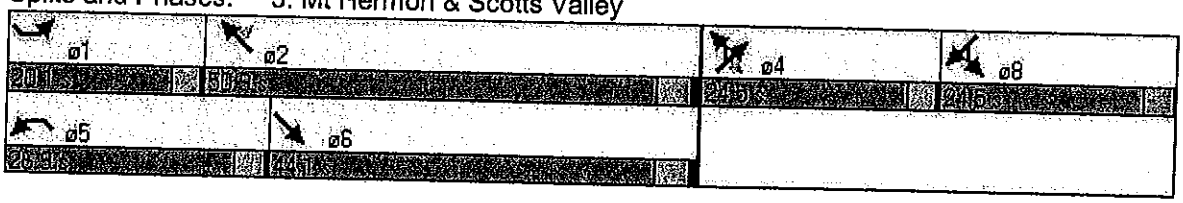


Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	594	920	215	1510	349	409	222	359	536	176	821
Turn Type	Prot		Prot		Perm	Split		Perm	Split		Free
Protected Phases	1	6	5	2		4	4		8	8	
Permitted Phases					2			4			Free
Detector Phases	1	6	5	2	2	4	4	4	8	8	
Minimum Initial (s)	4.0	10.0	4.0	10.0	10.0	6.0	6.0	6.0	4.0	4.0	
Minimum Split (s)	7.5	25.5	7.5	25.5	25.5	24.5	24.5	24.5	24.5	24.5	
Total Split (s)	20.1	44.1	26.9	50.9	50.9	24.5	24.5	24.5	24.5	24.5	0.0
Total Split (%)	17%	37%	22%	42%	42%	20%	20%	20%	20%	20%	0%
Yellow Time (s)	3.0	3.5	3.0	3.5	3.5	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	0.5	1.0	0.5	1.0	1.0	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Coord	None	Coord	Coord	None	None	None	None	None	
Act Effct Green (s)	16.1	44.0	19.0	46.9	46.9	20.5	20.5	20.5	20.5	20.5	120.0
Actuated g/C Ratio	0.13	0.37	0.16	0.39	0.39	0.17	0.17	0.17	0.17	0.17	1.00
v/c Ratio	1.42	0.89	0.84	1.20	0.50	1.18	1.19	0.79	1.01	0.51	0.57
Uniform Delay, d1	52.0	35.3	49.0	36.5	9.5	49.7	49.8	13.0	49.7	46.0	0.0
Delay	194.5	46.7	29.9	126.4	25.9	132.9	136.3	17.0	79.5	46.7	0.0
LOS	F	D	C	F	C	F	F	B	E	D	A
Approach Delay		100.5		99.4			91.9			33.2	
Approach LOS		F		F			F			C	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 66 (55%), Referenced to phase 2:NWT and 6:SET, Start of Yellow
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.42
Intersection Signal Delay: 82.2 Intersection LOS: F
Intersection Capacity Utilization 113.6% ICU Level of Service G

Splits and Phases: 3: Mt Hermon & Scotts Valley



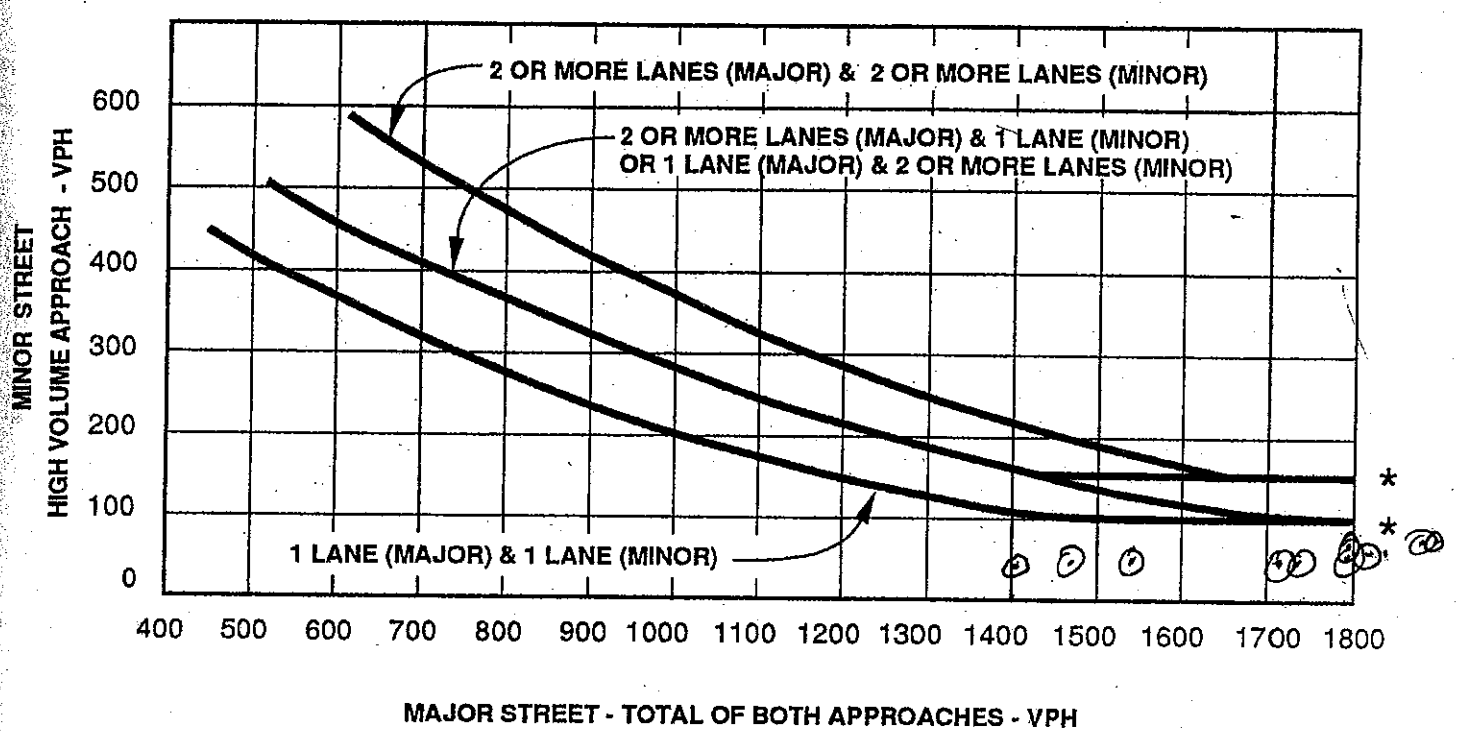
APPENDIX C

PEAK-HOUR VOLUME

TRAFFIC SIGNAL WARRANTS

Figure 9-8
PEAK HOUR VOLUME WARRANT
(Urban Areas)

Mt. Hermon / El Rancho - SR 17 Ramps



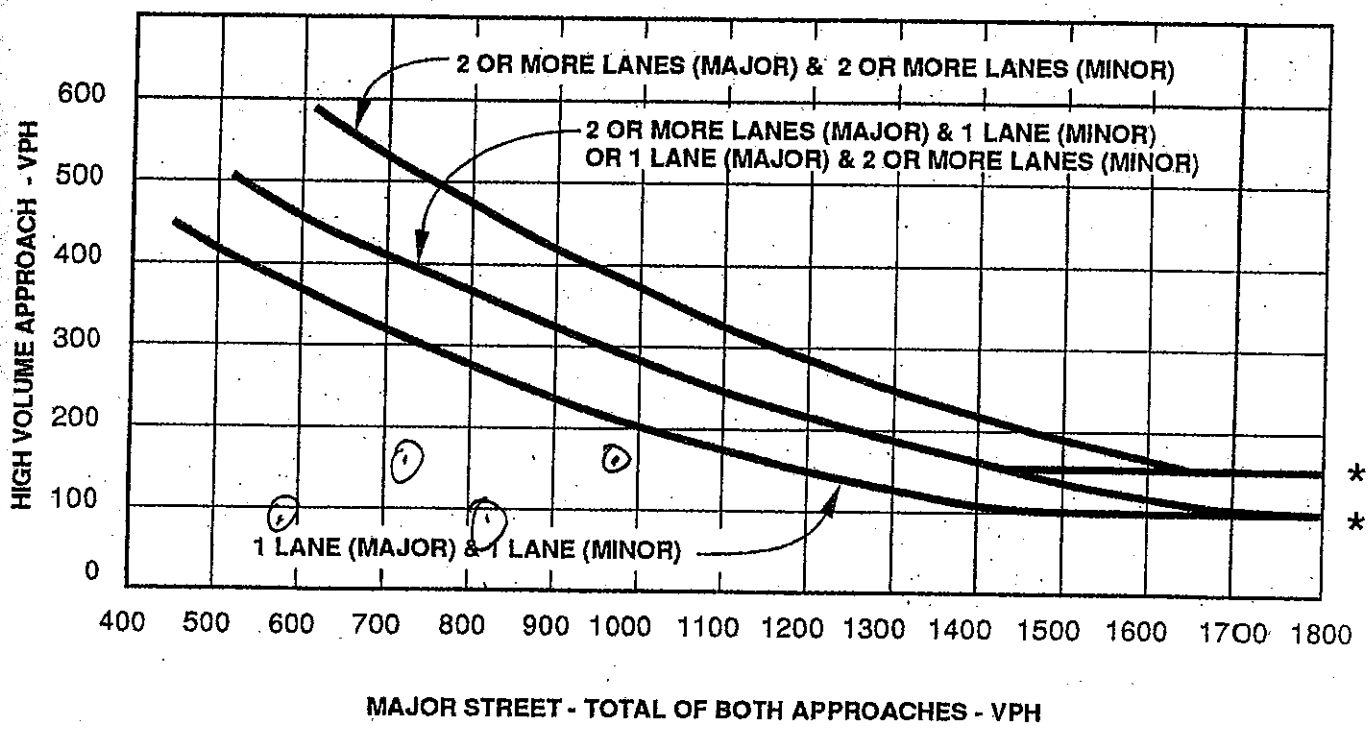
* NOTE:

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Scenario	Peak Hour	Major St. Volume	Minor St. Volume	Warrant Met?
Existing	Am	1721	56	NO
	Pm	1404	48	NO
Background	Am	1797	63	NO
	Pm	1474	49	NO
Project	Am	1873	63	NO
	Pm	1543	50	NO
Cum. No Project	Am	2030	72	NO
	Pm	1724	57	NO
Cum Plus Project	Am	2126	74	NO
	Pm	1791	58	NO

Figure 9-8
PEAK HOUR VOLUME WARRANT
(Urban Areas)

Altenitas / La Madrona

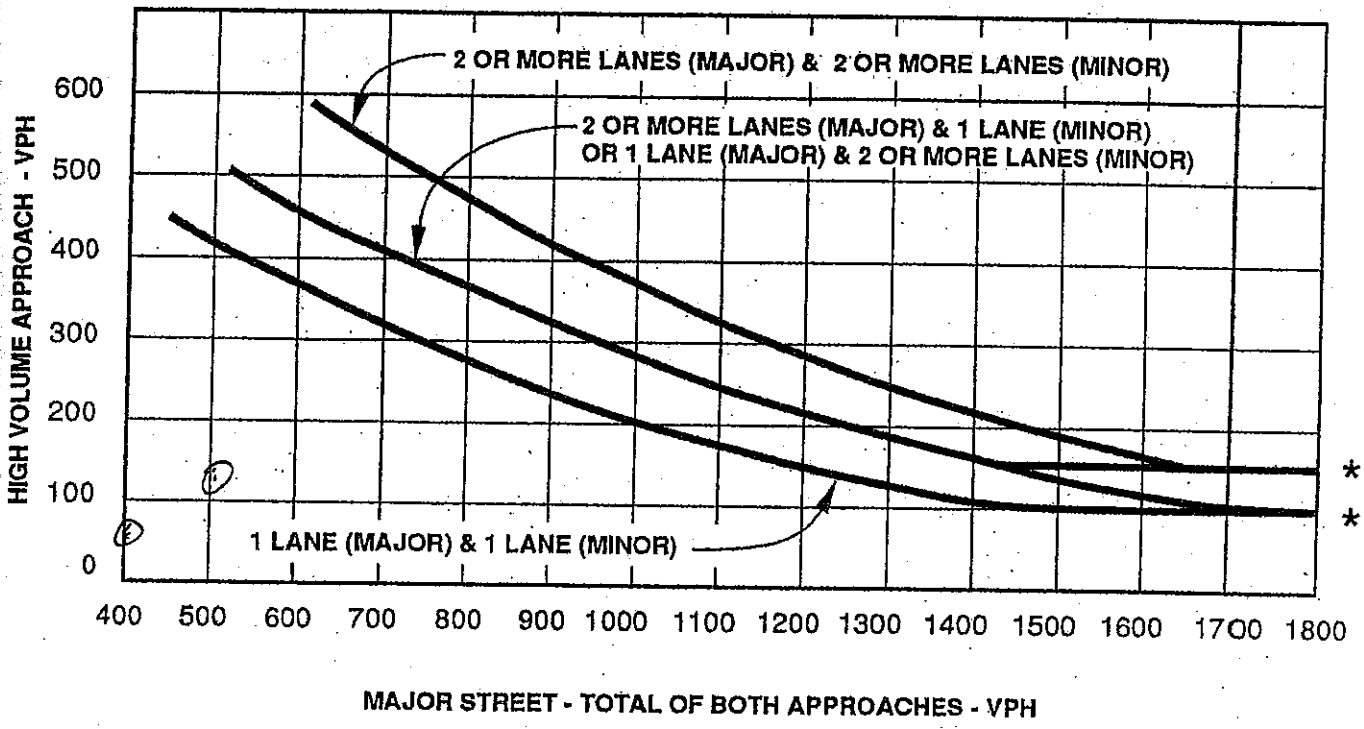


* NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Scenario	Peak Hour	Major St. Volume	Minor St. Volume	Warrant Met?
Cumm No Project	Am	732	153	NO
	Pm	590	89	NO
m Plus Project	Am	979	153	NO
	Pm	827	89	NO

Figure 9-8
PEAK HOUR VOLUME WARRANT
(Urban Areas)

Silverwood / La Madrona



* NOTE:

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Scenario	Peak Hour	Major St. Volume	Minor St. Volume	Warrant Met
Cum. No Project	Am	502	120	NO
	Pm	233	66	NO
Cum Plus Project	Am	507	120	NO
	Pm	238	66	NO

APPENDIX D

FREEWAY LEVEL OF SERVICE

CALCULATION WORKSHEETS

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Merge Analysis

Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002
Analysis time period: Existing AM peak
Freeway/dir or travel: NB
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2337	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	633	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1064	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2337	633	1064	vph

Peak-hour factor, PHF	0.95	0.95	0.91	
Peak 15-min volume, v15	615	167	292	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2502	671	1177	pcph

Estimation of V12 Merge Areas

L = 0.00 (Equation 25-2 or 25-3)
EQ

P = 1.000 Using Equation 0
FM

$v_{12} = v_F (P_{FM}) =$ 2502 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3173	4800	No
v_{R12}	3173	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_{R12} + 0.0078\, v_A - 0.00627\, L =$ 26.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, $M_S = 0.379$

Space mean speed in ramp influence area, $S_R =$ 59.4 mph

Space mean speed in outer lanes, $S_0 =$ N/A mph

Space mean speed for all vehicles, $S =$ 59.4 mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002
Analysis time period: Existing AM Peak
Freeway/dir or travel: NB SR 17
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3401	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	1064	vph
Length of first accel/decel lane	1000	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	633	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3401	1064	633	vph

Peak 15-min volume, v15	895	292	167	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3641	1177	671	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 0.00 (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3641 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3641	4800	No
v_{12}	3641	4400	No
$v_{FO} = v_F - v_R$	2464	4800	No
v_R	1177	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086 v_{12} - 0.009 L_D$ = 26.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.534

Space mean speed in ramp influence area, S_R = 55 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 55.0 mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Merge Analysis

Analyst: JN
Agency/Co.:
Date performed: 8/9/2002
Analysis time period: Existing AM peak
Freeway/dir or travel: SB
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2202	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	661	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	228	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2202	661	228	vph

Peak-hour factor, PHF	0.95	0.90	0.90	
Peak 15-min volume, v15	579	184	63	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2357	740	255	pcph

Estimation of V12 Merge Areas

L_{EQ} = 0.00 (Equation 25-2 or 25-3)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2357 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3097	4800	No
v_{R12}	3097	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 26.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M_S = 0.372

Space mean speed in ramp influence area, S_R = 59.6 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 59.6 mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002
Analysis time period: Existing AM Peak
Freeway/dir or travel: SB SR 17
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2430	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	228	vph
Length of first accel/decel lane	1000	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	661	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2430	228	661	vph

Peak-hour factor, PHF	0.95	0.90	0.90	
Peak 15-min volume, v15	639	63	184	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2601	255	740	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 0.00 (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v - v_F) P_{FD}$ = 2601 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2601	4800	No
v_{12}	2601	4400	No
$v_{FO} = v - v_R$	2346	4800	No
v_R	255	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 17.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.451

Space mean speed in ramp influence area, S_R = 57 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 57.4 mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Merge Analysis

Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002
Analysis time period: Existing PM peak
Freeway/dir or travel: NB
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2104	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	326	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1036	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2104	326	1036	vph

Peak-hour factor, PHF	0.95	0.92	0.95	
Peak 15-min volume, v15	554	89	273	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2252	357	1098	pcph

Estimation of V12 Merge Areas

L_{EQ} = 0.00 (Equation 25-2 or 25-3)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2252 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2609	4800	No
v_{R12}	2609	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 22.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M_S = 0.339

Space mean speed in ramp influence area, S_R = 60.5 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 60.5 mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002
Analysis time period: Existing PM Peak
Freeway/dir or travel: NB SR 17
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3140	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	1036	vph
Length of first accel/decel lane	1000	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	326	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3140	1036	326	vph

Peak-hour factor, PHF	0.95	0.95	0.92	
Peak 15-min volume, v15	826	273	89	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3361	1098	357	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 0.00 (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v - v_F) P_{FD}$ = 3361 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3361	4800	No
v_{12}	3361	4400	No
$v_{FO} = v - v_R$	2263	4800	No
v_R	1098	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 24.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.527

Space mean speed in ramp influence area, S_R = 55 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 55.2 mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Merge Analysis

Analyst: JN
Agency/Co.:
Date performed: 8/9/2002
Analysis time period: Existing PM peak
Freeway/dir or travel: SB
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2492	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	517	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	478	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2492	517	478	vph

Peak-hour factor, PHF	0.95	0.90	0.82	
Peak 15-min volume, v15	656	144	146	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2668	578	587	pcph

Estimation of V12 Merge Areas

L = 0.00 (Equation 25-2 or 25-3)
EQ

P = 1.000 Using Equation 0
FM

$v_{12} = v_F (P_{FM}) = 2668$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3246	4800	No
v_{R12}	3246	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A = 27.4$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, $M_S = 0.386$

Space mean speed in ramp influence area, $S_R = 59.2$ mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, $S = 59.2$ mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002
Analysis time period: Existing PM Peak
Freeway/dir or travel: SB SR 17
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2970	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	478	vph
Length of first accel/decel lane	1000	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	517	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2970	478	517	vph

Peak-hour factor, PHF	0.95	0.82	0.90	
Peak 15-min volume, v15	782	146	144	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3179	587	578	pcph

Estimation of V12 Diverge Areas

L = 0.00 (Equation 25-8 or 25-9)
EQ

P = 1.000 Using Equation 0
FD

$v_{12} = v_R + (v_F - v_R) P_{FD} = 3179$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3179	4800	No
v_{12}	3179	4400	No
$v_{FO} = v_F - v_R$	2592	4800	No
v_R	587	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 22.6$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, $D_S = 0.481$

Space mean speed in ramp influence area, $S_R = 57$ mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, $S = 56.5$ mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Merge Analysis

Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002
Analysis time period: Background AM peak
Freeway/dir or travel: NB
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2420	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	659	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1112	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2420	659	1112	vph

Peak-hour factor, PHF	0.95	0.95	0.91	
Peak 15-min volume, v15	637	173	305	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2591	699	1231	pcph

Estimation of V12 Merge Areas

L = 0.00 (Equation 25-2 or 25-3)
EQ

P = 1.000 Using Equation 0
FM

$v_{12} = v_F (P_{FM}) = 2591$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3290	4800	No
v_{R12}	3290	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A = 27.7$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, $M_S = 0.391$

Space mean speed in ramp influence area, $S_R = 59.1$ mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, $S = 59.1$ mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002
Analysis time period: Background AM Peak
Freeway/dir or travel: NB SR 17
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3532	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	1112	vph
Length of first accel/decel lane	1000	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	659	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3532	1112	659	vph

Peak-hour factor, PHF	0.95	0.91	0.95	
Peak 15-min volume, v15	929	305	173	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3781	1231	699	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 0.00 (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v - v_F) P_{FD}$ = 3781 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3781	4800	No
v_{12}	3781	4400	No
$v_{FO} = v - v_R$	2550	4800	No
v_R	1231	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 27.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.539

Space mean speed in ramp influence area, S_R = 55 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 54.9 mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Merge Analysis

Analyst: JN
Agency/Co.:
Date performed: 8/9/2002
Analysis time period: Background AM peak
Freeway/dir or travel: SB
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2234	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	698	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	258	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2234	698	258	vph

Peak-hour factor, PHF	0.95	0.90	0.90	
Peak 15-min volume, v15	588	194	72	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2392	781	289	pcph

Estimation of V12 Merge Areas

L = 0.00 (Equation 25-2 or 25-3)
EQ

P = 1.000 Using Equation 0
FM

$v_{12} = v_F (P_{FM}) = 2392$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3173	4800	No
v_{R12}	3173	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 26.7$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, $M_S = 0.379$

Space mean speed in ramp influence area, $S_R = 59.4$ mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, $S = 59.4$ mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002
Analysis time period: Background AM Peak
Freeway/dir or travel: SB SR 17
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2492	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	258	vph
Length of first accel/decel lane	1000	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	698	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2492	258	698	vph

Peak-hour factor, PHF	0.95	0.90	0.90	
Peak 15-min volume, v15	656	72	194	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2668	289	781	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 0.00 (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2668 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2668	4800	No
v_{12}	2668	4400	No
$v_{FO} = v_F - v_R$	2379	4800	No
v_R	289	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 18.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.454

Space mean speed in ramp influence area, S_R = 57 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 57.3 mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Merge Analysis

Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002
Analysis time period: Background PM peak
Freeway/dir or travel: NB
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2149	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	356	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1071	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2149	356	1071	vph

Peak-hour factor, PHF	0.95	0.92	0.95	
Peak 15-min volume, v15	566	97	282	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2301	390	1135	pcph

Estimation of V12 Merge Areas

L = 0.00 (Equation 25-2 or 25-3)
EQ

P = 1.000 Using Equation 0
FM

$v_{12} = v_F (P_{FM}) = 2301$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2691	4800	No
v_{R12}	2691	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 23.2$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, $M_S = 0.344$

Space mean speed in ramp influence area, $S_R = 60.4$ mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, $S = 60.4$ mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002
Analysis time period: Background PM Peak
Freeway/dir or travel: NB SR 17
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3220	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	1071	vph
Length of first accel/decel lane	1000	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	356	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3220	1071	356	vph

Peak-hour factor, PHF	0.95	0.95	0.92	
Peak 15-min volume, v15	847	282	97	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3447	1135	390	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 0.00 (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v - v_F) P_{FD}$ = 3447 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v$	3447	4800	No
v_{12}	3447	4400	No
$v_{FO} = v - v_R$	2312	4800	No
v_R	1135	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 24.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.530

Space mean speed in ramp influence area, S_R = 55 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 55.2 mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Merge Analysis

Analyst: JN
Agency/Co.:
Date performed: 8/9/2002
Analysis time period: Background PM peak
Freeway/dir or travel: SB
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2588	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	566	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	503	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2588	566	503	vph

Peak-hour factor, PHF	0.95	0.90	0.82	
Peak 15-min volume, v15	681	157	153	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2771	633	618	pcph

Estimation of V12 Merge Areas

L = 0.00 (Equation 25-2 or 25-3)
EQ

P = 1.000 Using Equation 0
FM

$v_{12} = v_F (P_{FM}) = 2771$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3404	4800	No
v_{R12}	3404	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 28.6$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $M_S = 0.403$

Space mean speed in ramp influence area, $S_R = 58.7$ mph

Space mean speed in outer lanes, $S_0 = N/A$ mph

Space mean speed for all vehicles, $S = 58.7$ mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002
Analysis time period: Background PM Peak
Freeway/dir or travel: SB SR 17
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3091	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	503	vph
Length of first accel/decel lane	1000	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	566	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3091	503	566	vph

Peak-hour factor, PHF	0.95	0.82	0.90	
Peak 15-min volume, v15	813	153	157	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3309	618	633	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 0.00 (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3309 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3309	4800	No
v_{12}	3309	4400	No
$v_{FO} = v_F - v_R$	2691	4800	No
v_R	618	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 23.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.484

Space mean speed in ramp influence area, S_R = 56 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 56.5 mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Merge Analysis

Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002
Analysis time period: Project AM peak
Freeway/dir or travel: NB
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2420	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	667	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1200	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2420	667	1200	vph

Peak-hour factor, PHF	0.95	0.95	0.91	
Peak 15-min volume, v15	637	176	330	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2591	707	1328	pcph

Estimation of V12 Merge Areas

L = 0.00 (Equation 25-2 or 25-3)
EQ

P = 1.000 Using Equation 0
FM

$v_{12} = v_F (P_{FM}) = 2591$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3298	4800	No
v_{R12}	3298	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 27.7$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, $M_S = 0.392$

Space mean speed in ramp influence area, $S_R = 59.0$ mph

Space mean speed in outer lanes, $S_0 = N/A$ mph

Space mean speed for all vehicles, $S = 59.0$ mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002
Analysis time period: Project AM Peak
Freeway/dir or travel: NB SR 17
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3620	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	1200	vph
Length of first accel/decel lane	1000	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	667	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3620	1200	667	vph

Peak-hour factor, PHF	0.95	0.91	0.95	
Peak 15-min volume, v15	953	330	176	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3875	1328	707	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 0.00 (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v - v_F) P_{FD}$ = 3875 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3875	4800	No
v_{12}	3875	4400	No
$v_{FO} = v - v_R$	2547	4800	No
v_R	1328	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 28.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.548

Space mean speed in ramp influence area, S_R = 55 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 54.7 mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Merge Analysis

Analyst: JN
Agency/Co.:
Date performed: 8/9/2002
Analysis time period: Project AM peak
Freeway/dir or travel: SB
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2234	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	711	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	313	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2234	711	313	vph

Peak-hour factor, PHF	0.95	0.90	0.90	
Peak 15-min volume, v15	588	197	87	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2392	796	350	pcph

Estimation of V12 Merge Areas

L_{EQ} = 0.00 (Equation 25-2 or 25-3)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2392 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3188	4800	No
v_{R12}	3188	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_{R12} + 0.0078\, v_A - 0.00627\, L$ = 26.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M_S = 0.381

Space mean speed in ramp influence area, S_R = 59.3 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 59.3 mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002
Analysis time period: Project AM Peak
Freeway/dir or travel: SB SR 17
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2547	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	313	vph
Length of first accel/decel lane	1000	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	711	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2547	313	711	vph

Peak-hour factor, PHF	0.95	0.90	0.90	
Peak 15-min volume, v15	670	87	198	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2727	350	796	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 0.00 (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v - v_F) P_{FD}$ = 2727 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v$	2727	4800	No
v_{12}	2727	4400	No
$v_{FO} = v - v_R$	2377	4800	No
v_R	350	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 18.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.460

Space mean speed in ramp influence area, S_R = 57 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 57.1 mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Merge Analysis

Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002
Analysis time period: Project PM peak
Freeway/dir or travel: NB
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2149	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	407	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1087	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2149	407	1087	vph

Peak-hour factor, PHF	0.95	0.92	0.95	
Peak 15-min volume, v15	566	111	286	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2301	445	1152	pcph

Estimation of V12 Merge Areas

L = 0.00 (Equation 25-2 or 25-3)
EQ

P = 1.000 Using Equation 0
FM

$v_{12} = v_F (P_{FM}) = 2301$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2746	4800	No
v_{R12}	2746	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_{R12} + 0.0078\, v_A - 0.00627\, L = 23.6$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, $M_S = 0.347$

Space mean speed in ramp influence area, $S_R = 60.3$ mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, $S = 60.3$ mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002
Analysis time period: Project PM Peak
Freeway/dir or travel: NB SR 17
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3236	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	1087	vph
Length of first accel/decel lane	1000	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	407	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3236	1087	407	vph

Peak-hour factor, PHF	0.95	0.95	0.92	
Peak 15-min volume, v15	852	286	111	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3464	1152	445	pcph

Estimation of V12 Diverge Areas

L = 0.00 (Equation 25-8 or 25-9)
EQ

P = 1.000 Using Equation 0
FD

$v_{12} = v_R + (v_F - v_R) P_{FD} = 3464$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3464	4800	No
v_{12}	3464	4400	No
$v_{FO} = v_F - v_R$	2312	4800	No
v_R	1152	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 25.0$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, $D_S = 0.532$

Space mean speed in ramp influence area, $S_R = 55$ mph

Space mean speed in outer lanes, $S_0 =$ N/A mph

Space mean speed for all vehicles, $S = 55.1$ mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Merge Analysis

Analyst: JN
Agency/Co.:
Date performed: 8/9/2002
Analysis time period: Project PM peak
Freeway/dir or travel: SB
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2588	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	646	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	513	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2588	646	513	vph

Peak-hour factor, PHF	0.95	0.90	0.82	
Peak 15-min volume, v15	681	179	156	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2771	723	630	pcph

Estimation of V12 Merge Areas

L = 0.00 (Equation 25-2 or 25-3)
EQ

P = 1.000 Using Equation 0
FM

$v_{12} = v_F (P_{FM}) = 2771$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3494	4800	No
v_{R12}	3494	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_{R12} + 0.0078\, v_A - 0.00627\, L = 29.3$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $M_S = 0.414$

Space mean speed in ramp influence area, $S_R = 58.4$ mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, $S = 58.4$ mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002
Analysis time period: Project PM Peak
Freeway/dir or travel: SB SR 17
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3101	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	513	vph
Length of first accel/decel lane	1000	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	646	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3101	513	646	vph

Peak-hour factor, PHF	0.95	0.82	0.90	
Peak 15-min volume, v15	816	156	179	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3320	630	723	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 0.00 (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v - v_F) P_{FD}$ = 3320 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3320	4800	No
v_{12}	3320	4400	No
$v_{FO} = v - v_R$	2690	4800	No
v_R	630	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 23.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.485

Space mean speed in ramp influence area, S_R = 56 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 56.4 mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Merge Analysis

Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002
Analysis time period: Cum No Project AM peak
Freeway/dir or travel: NB
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2629	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	757	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1219	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2629	757	1219	vph

Peak-hour factor, PHF	0.95	0.95	0.91	
Peak 15-min volume, v15	692	199	335	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2814	802	1349	pcph

Estimation of V12 Merge Areas

L = 0.00 (Equation 25-2 or 25-3)
EQ

P = 1.000 Using Equation 0
FM

v = v (P) = 2814 pc/h
12 F FM

Capacity Checks

	Actual	Maximum	LOS F?
v FO	3616	4800	No
v R12	3616	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A = 30.2$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $M_S = 0.431$

Space mean speed in ramp influence area, $S_R = 57.9$ mph

Space mean speed in outer lanes, $S_0 = N/A$ mph

Space mean speed for all vehicles, $S = 57.9$ mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

[redacted]

[redacted]

[redacted]Phone: Fax:
E-mail:

[redacted]

Diverge Analysis

[redacted]Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002
Analysis time period: Cum No Project AM Peak
Freeway/dir or travel: NB SR 17
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3848	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	1219	vph
Length of first accel/decel lane	1000	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	757	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3848	1219	757	vph

Peak-hour factor, PHF	0.95	0.91	0.95	
Peak 15-min volume, v15	1013	335	199	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4119	1349	802	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 0.00 (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v - v_F) P_{FD}$ = 4119 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4119	4800	No
v_{12}	4119	4400	No
$v_{FO} = v - v_R$	2770	4800	No
v_R	1349	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 30.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.549

Space mean speed in ramp influence area, S_R = 55 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 54.6 mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Merge Analysis

Analyst: JN
Agency/Co.:
Date performed: 8/9/2002
Analysis time period: Cum No Project AM peak
Freeway/dir or travel: SB
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2544	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	717	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	323	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2544	717	323	vph

Peak-hour factor, PHF	0.95	0.90	0.90	
Peak 15-min volume, v15	669	199	90	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2723	802	361	pcph

Estimation of V12 Merge Areas

L = 0.00 (Equation 25-2 or 25-3)
EQ

P = 1.000 Using Equation 0
FM

$v_{12} = v_F (P_{FM}) = 2723$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3525	4800	No
v_{R12}	3525	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A = 29.5$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $M_S = 0.418$

Space mean speed in ramp influence area, $S_R = 58.3$ mph

Space mean speed in outer lanes, $S_0 = N/A$ mph

Space mean speed for all vehicles, $S = 58.3$ mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002
Analysis time period: Cum No Project AM Peak
Freeway/dir or travel: SB SR 17
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2867	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	323	vph
Length of first accel/decel lane	1000	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	717	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2867	323	717	vph

eak-hour factor, PHF	0.95	0.90	0.90	
eak 15-min volume, v15	754	90	199	v
rucks and buses	3	1	1	%
ecreational vehicles	1	1	1	%
errain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
rucks and buses PCE, ET	1.5	1.5	1.5	
ecreational vehicle PCE, ER	1.2	1.2	1.2	
leavy vehicle adjustment, fHV	0.983	0.993	0.993	
river population factor, fP	1.00	1.00	1.00	
low rate, vp	3069	361	802	pcph

Estimation of V12 Diverge Areas

L = 0.00 (Equation 25-8 or 25-9)
EQ

P = 1.000 Using Equation 0
FD

$v_{12} = v_R + (v_F - v_R) P_{FD} = 3069$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3069	4800	No
v_{12}	3069	4400	No
$v_{FO} = v_F - v_R$	2708	4800	No
v_R	361	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 21.6$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, $D_S = 0.460$

Space mean speed in ramp influence area, $S_R = 57$ mph

Space mean speed in outer lanes, $S_0 = N/A$ mph

Space mean speed for all vehicles, $S = 57.1$ mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Merge Analysis

Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002
Analysis time period: Cum No Project PM peak
Freeway/dir or travel: NB
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2475	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	490	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1162	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2475	490	1162	vph

Peak-hour factor, PHF	0.95	0.92	0.95	
Peak 15-min volume, v15	651	133	306	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2650	536	1232	pcph

Estimation of V12 Merge Areas

L = 0.00 (Equation 25-2 or 25-3)
EQ

P = 1.000 Using Equation 0
FM

$v_{12} = v_F (P_{FM}) = 2650$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3186	4800	No
v_{R12}	3186	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 26.9$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, $M_S = 0.380$

Space mean speed in ramp influence area, $S_R = 59.4$ mph

Space mean speed in outer lanes, $S_0 = N/A$ mph

Space mean speed for all vehicles, $S = 59.4$ mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002
Analysis time period: Cum No Project PM Peak
Freeway/dir or travel: NB SR 17
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3637	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	1162	vph
Length of first accel/decel lane	1000	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	490	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3637	1162	490	vph

Peak-hour factor, PHF	0.95	0.95	0.92	
Peak 15-min volume, v15	957	306	133	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3894	1232	536	pcph

Estimation of V12 Diverge Areas

L = 0.00 (Equation 25-8 or 25-9)
EQ

P = 1.000 Using Equation 0
FD

$v_{12} = v_R + (v_F - v_R) P_{FD} = 3894$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3894	4800	No
v_{12}	3894	4400	No
$v_{FO} = v_F - v_R$	2662	4800	No
v_R	1232	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 28.7$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $D_S = 0.539$

Space mean speed in ramp influence area, $S_R = 55$ mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 54.9 mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Merge Analysis

Analyst: JN
Agency/Co.:
Date performed: 8/9/2002
Analysis time period: Cum No Project PM peak
Freeway/dir or travel: SB
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2629	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	686	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	786	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2629	686	786	vph

Peak-hour factor, PHF	0.95	0.90	0.82	
Peak 15-min volume, v15	692	191	240	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2814	768	965	pcph

Estimation of V12 Merge Areas

L_{EQ} = 0.00 (Equation 25-2 or 25-3)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2814 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3582	4800	No
v_{R12}	3582	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_{R12} + 0.0078\, v_{R12} - 0.00627\, L_A$ = 29.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, M_S = 0.426

Space mean speed in ramp influence area, S_R = 58.1 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 58.1 mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002
Analysis time period: Cum No Project PM Peak
Freeway/dir or travel: SB SR 17
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3415	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	786	vph
Length of first accel/decel lane	1000	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	686	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3415	786	686	vph

Peak-hour factor, PHF	0.95	0.82	0.90	
Peak 15-min volume, v15	899	240	191	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3656	965	768	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 0.00 (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3656 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3656	4800	No
v_{12}	3656	4400	No
$v_{FO} = v_F - v_R$	2691	4800	No
v_R	965	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086 v_{12} - 0.009 L_D$ = 26.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.515

Space mean speed in ramp influence area, S_R = 56 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 55.6 mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Merge Analysis

Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002
Analysis time period: Cum Plus Project AM peak
Freeway/dir or travel: NB
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2629	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	765	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1307	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2629	765	1307	vph

Peak-hour factor, PHF	0.95	0.95	0.91	
Peak 15-min volume, v15	692	201	359	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2814	811	1446	pcph

Estimation of V12 Merge Areas

L = 0.00 (Equation 25-2 or 25-3)
EQ

P = 1.000 Using Equation 0
FM

$v_{12} = v_F (P_{FM}) = 2814$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3625	4800	No
v_{R12}	3625	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A = 30.2$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $M_S = 0.432$

Space mean speed in ramp influence area, $S_R = 57.9$ mph

Space mean speed in outer lanes, $S_0 = N/A$ mph

Space mean speed for all vehicles, $S = 57.9$ mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002 Plus
Analysis time period: Cum ~~No~~ Project AM Peak
Freeway/dir or travel: NB SR 17
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3936	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	1307	vph
Length of first accel/decel lane	1000	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	765	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3936	1307	765	vph

Peak-hour factor, PHF	0.95	0.91	0.95	
Peak 15-min volume, v15	1036	359	201	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4214	1446	811	pcph

Estimation of V12 Diverge Areas

L = 0.00 (Equation 25-8 or 25-9)
EQ

P = 1.000 Using Equation 0
FD

$v_{12} = v_R + (v_F - v_R) P_{FD} = 4214$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4214	4800	No
v_{12}	4214	4400	No
$v_{FO} = v_F - v_R$	2768	4800	No
v_R	1446	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 31.5$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $D_S = 0.558$

Space mean speed in ramp influence area, $S_R = 54$ mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, $S = 54.4$ mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Merge Analysis

Analyst: JN
Agency/Co.:
Date performed: 8/9/2002
Analysis time period: Cum Plus Project AM peak
Freeway/dir or travel: SB
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2544	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	730	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	378	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2544	730	378	vph

Peak-hour factor, PHF	0.95	0.90	0.90	
Peak 15-min volume, v15	669	203	105	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2723	817	423	pcph

Estimation of V12 Merge Areas

L_{EQ} = 0.00 (Equation 25-2 or 25-3)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2723 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3540	4800	No
v_{R12}	3540	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 29.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, M_S = 0.420

Space mean speed in ramp influence area, S_R = 58.2 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 58.2 mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002
Analysis time period: Cum Plus Project AM Peak
Freeway/dir or travel: SB SR 17
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2922	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	378	vph
Length of first accel/decel lane	1000	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	730	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2922	378	730	vph

Peak-hour factor, PHF	0.95	0.90	0.90	
Peak 15-min volume, v15	769	105	203	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Grade	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3128	423	817	pcph

Estimation of V12 Diverge Areas

L = 0.00 (Equation 25-8 or 25-9)
EQ

P = 1.000 Using Equation 0
FD

$v_{12} = v_R + (v_F - v_R) P_{FD} = 3128$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3128	4800	No
v_{12}	3128	4400	No
$v_{FO} = v_F - v_R$	2705	4800	No
v_R	423	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 22.2$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, $D_S = 0.466$

Space mean speed in ramp influence area, $S_R = 57$ mph

Space mean speed in outer lanes, $S_0 = N/A$ mph

Space mean speed for all vehicles, $S = 57.0$ mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Merge Analysis

Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002
Analysis time period: Cum Plus Project PM peak
Freeway/dir or travel: NB
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2475	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	541	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1178	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2475	541	1178	vph

Peak-hour factor, PHF	0.95	0.92	0.95	
Peak 15-min volume, v15	651	147	310	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2650	592	1249	pcph

Estimation of V12 Merge Areas

L = 0.00 (Equation 25-2 or 25-3)
EQ

P = 1.000 Using Equation 0
FM

$v_{12} = v_F (P_{FM}) = 2650$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3242	4800	No
v_{R12}	3242	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 27.4$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, $M = 0.386$

Space mean speed in ramp influence area, $S_R = 59.2$ mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, $S = 59.2$ mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002
Analysis time period: Cum Plus Project PM Peak
Freeway/dir or travel: NB SR 17
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3653	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	1178	vph
Length of first accel/decel lane	1000	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	541	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3653	1178	541	vph

Peak-hour factor, PHF	0.95	0.95	0.92	
Peak 15-min volume, v15	961	310	147	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3911	1249	592	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 0.00 (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v - v_F) P_{FD}$ = 3911 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v$	3911	4800	No
v_{12}	3911	4400	No
$v_{FO} = v - v_R$	2662	4800	No
v_R	1249	2000	No

Level of Service Determination (if not F)

Density, D_R = 4.252 + 0.0086 v_{12} - 0.009 L_D = 28.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.540

Space mean speed in ramp influence area, S_R = 55 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 54.9 mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Merge Analysis

Analyst: JN
Agency/Co.:
Date performed: 8/9/2002
Analysis time period: Cum Plus Project PM peak
Freeway/dir or travel: SB
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2629	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	766	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	796	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2629	766	796	vph

ak-hour factor, PHF	0.95	0.90	0.82	
ak 15-min volume, v15	692	213	243	v
ucks and buses	3	1	1	%
creational vehicles	1	1	1	%
rrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
ucks and buses PCE, ET	1.5	1.5	1.5	
creational vehicle PCE, ER	1.2	1.2	1.2	
eavy vehicle adjustment, fHV	0.983	0.993	0.993	
iver population factor, fP	1.00	1.00	1.00	
ow rate, vp	2814	857	978	pcph

Estimation of V12 Merge Areas

L = 0.00 (Equation 25-2 or 25-3)
EQ
P = 1.000 Using Equation 0
FM
v = v (P) = 2814 pc/h
12 F FM

Capacity Checks

	Actual	Maximum	LOS F?
v FO	3671	4800	No
v R12	3671	4600	No

Level of Service Determination (if not F)

ensity, D = 5.475 + 0.00734 v + 0.0078 v - 0.00627 L = 30.6 pc/mi/ln
R R 12 A
evel of service for ramp-freeway junction areas of influence D

Speed Estimation

termediate speed variable, M = 0.439
S
pace mean speed in ramp influence area, S = 57.7 mph
R
pace mean speed in outer lanes, S = N/A mph
0
pace mean speed for all vehicles, S = 57.7 mph

HCS2000: Ramps and Ramp Junctions Release 4.1b

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: JN
Agency/Co.: F&P
Date performed: 8/9/2002
Analysis time period: Cum Plus Project PM Peak
Freeway/dir or travel: SB SR 17
Junction: Mt Hermon
Jurisdiction: Santa Cruz County
Analysis Year: 2002
Description:

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3425	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	796	vph
Length of first accel/decel lane	1000	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	766	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1000	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3425	796	766	vph

Peak-hour factor, PHF	0.95	0.82	0.90	
Peak 15-min volume, v15	901	243	213	v
Trucks and buses	3	1	1	%
Recreational vehicles	1	1	1	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.983	0.993	0.993	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3667	978	857	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 0.00 (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3667 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3667	4800	No
v_{12}	3667	4400	No
$v_{FO} = v_F - v_R$	2689	4800	No
v_R	978	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 26.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.516

Space mean speed in ramp influence area, S_R = 56 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 55.6 mph

APPENDIX E

APPROVED AND PENDING PROJECTS LISTS

Trip Generation Approved Projects

Project	Size	Daily Trips	A.M. Peak Hour Trips In	Out	Total	P.M. Peak Hour Trips In	Out	Total
Residential								
Granite Greek Estates	3 du	57	1	3	4	4	2	6
Ridgecrest	6 du	57	1	3	4	4	2	6
Monte Fiore/ The Ridge	17 du	134	3	6	9	10	6	16
Torrey Oaks (Single Family)	1 du	67	1	4	5	5	3	8
Torrey Oaks (Townhomes)	4 du	23	0	1	1	1	1	2
Glen Canyon Apartments	41 du	272	3	18	21	17	8	25
Glen Canyon Townhomes	20 du	117	1	7	8	7	4	11
Brooks/Blue Bonnet (High Density Residential)	31 du	272	3	18	21	17	8	25
Bethany Drive Land Division	2 du	15	0	1	1	1	1	2
Tabor Drive	1 du	10	0	1	1	1	1	2
Glenwood	53 du	715	44	128	172	198	127	325
Various SFD	3 du	57	1	3	4	4	2	6
Commercial/ Other								
SV Highschool	300 stu	537	97	41	138	18	27	45
Tear Drop Schilling (Office)	15 ksf	167	21	3	24	4	19	23
Tear Drop Schilling (Restaurant)	7 ksf	285	22	23	45	8	10	18
Oak Creek Businnes Park, Phase II & III	48.31 ksf	536	66	9	75	12	60	72
Phase II Enterprise Technology Center	192.555 ksf	1,562	198	41	239	31	177	208
Old El Pueblo Industrial Building	15.285 ksf	107	12	2	14	2	13	15
Total		**4,990**	**474**	**312**	**786**	**344**	**471**	**815**

Notes: du= duelling units
ksf= 1,000 square feet
stu= students

Trip Generation Cumulative Projects

Project	Size	Daily Trips	A.M. Peak Hour Trips In	Out	Total	P.M. Peak Hour Trips In	Out	Total
Residential								
Skypark Town Center (High Density Residential)	120 du	272	3	18	21	17	8	25
Gateway South Specific Plan (Single Family)	30 du	287	6	17	23	21	12	33
Polo Ranch (Single Family)	40 du	383	8	23	31	28	16	44
Polo Ranch Off-Site Affordable(Triplex)	6 du	57	0	2	2	2	1	3
Thevinen	6 du	57	1	3	4	4	2	6
Wells/ Civic Center	5 du	48	1	3	4	4	2	6
Kelly Court	3 apts/ 11 SF	77	1	3	4	3	1	4
Commercial/ Other								
Bethany College Expansion	400 stu	952	62	14	76	27	85	112
Skypark Town Center	200,000 sf	5,590	156	71	227	297	361	658
Gateway South Specific Plan (Commercial)	11 acres	1,850	28	16	44	89	89	178
Polo Ranch (Park)	2 acres	100	0	0	0	23	23	46
Total		**9,673**	**266**	**170**	**436**	**515**	**600**	**1,115**

Notes: du= duelling units
stu= students
apts= apartments
sf= single family