

**APPENDIX F
TRANSPORTATION DATA**

HCM Signalized Intersection Capacity Analysis

1: Tamal Vista Blvd. & Wornum Dr.

6/27/2014



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	51	287	148	143	381	221
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.99	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1570	1863	1559	1770	1863
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1570	1863	1559	1770	1863
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	57	319	164	159	423	246
RTOR Reduction (vph)	0	140	0	81	0	0
Lane Group Flow (vph)	57	179	164	78	423	246
Confl. Peds. (#/hr)	9	2		3		
Confl. Bikes (#/hr)				1		
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	3	1	2	3	1	6
Permitted Phases		3		2		
Actuated Green, G (s)	16.0	42.0	21.0	37.0	26.0	51.0
Effective Green, g (s)	16.0	42.0	21.0	37.0	26.0	51.0
Actuated g/C Ratio	0.21	0.56	0.28	0.49	0.35	0.68
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	377	962	521	852	613	1266
v/s Ratio Prot	0.03	c0.06	c0.09	0.02	c0.24	0.13
v/s Ratio Perm		0.05		0.03		
v/c Ratio	0.15	0.19	0.31	0.09	0.69	0.19
Uniform Delay, d1	24.0	8.1	21.3	10.1	21.0	4.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.4	1.6	0.2	6.3	0.3
Delay (s)	24.8	8.5	22.9	10.3	27.3	4.8
Level of Service	C	A	C	B	C	A
Approach Delay (s)	11.0		16.7			19.0
Approach LOS	B		B			B






















Intersection Summary

HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 2: Madera Boulevard/Tamal Vista Blvd. & Council Crest Dr.

6/27/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop				Stop
Volume (vph)	2	5	3	148	6	101	9	214	171	99	140	1
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	3	6	4	187	8	128	11	271	216	125	177	1
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2				
Volume Total (vph)	13	195	128	11	271	216	125	178				
Volume Left (vph)	3	187	0	11	0	0	125	0				
Volume Right (vph)	4	0	128	0	0	216	0	1				
Hadj (s)	-0.11	0.51	-0.67	0.53	0.03	-0.67	0.53	0.03				
Departure Headway (s)	6.5	6.6	5.4	6.5	6.0	3.2	6.4	5.9				
Degree Utilization, x	0.02	0.36	0.19	0.02	0.45	0.19	0.22	0.29				
Capacity (veh/h)	492	515	622	531	582	1121	538	583				
Control Delay (s)	9.7	12.0	8.5	8.4	12.5	5.8	10.1	10.2				
Approach Delay (s)	9.7	10.7		9.5			10.1					
Approach LOS	A	B		A			B					
Intersection Summary												
Delay			10.0									
Level of Service			A									
Intersection Capacity Utilization			42.1%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

3: Madera Boulevard & Tamalpais Drive

6/27/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	80	752	39	148	602	213	51	55	178	171	77	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	0.95	0.95	1.00
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.96		1.00	0.93	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	0.98	1.00
Satd. Flow (prot)	1770	3508		1770	3539	1515		1819	1470	1681	1728	1524
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	0.98	1.00
Satd. Flow (perm)	1770	3508		1770	3539	1515		1819	1470	1681	1728	1524
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	90	845	44	166	676	239	57	62	200	192	87	128
RTOR Reduction (vph)	0	3	0	0	0	116	0	0	176	0	0	110
Lane Group Flow (vph)	90	886	0	166	676	123	0	119	25	113	166	18
Confl. Peds. (#/hr)			2			7	15		36	36		15
Confl. Bikes (#/hr)			2			2			1			
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases						6			8			4
Actuated Green, G (s)	10.5	56.3		14.8	60.6	60.6		14.7	14.7	17.2	17.2	17.2
Effective Green, g (s)	10.5	57.3		14.8	61.6	61.6		14.7	14.7	17.2	17.2	17.2
Actuated g/C Ratio	0.09	0.48		0.12	0.51	0.51		0.12	0.12	0.14	0.14	0.14
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0		4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	3.0		2.0	3.0	3.0		2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	154	1675		218	1816	777		222	180	240	247	218
v/s Ratio Prot	0.05	c0.25		c0.09	0.19			c0.07		0.07	c0.10	
v/s Ratio Perm						0.08			0.02			0.01
v/c Ratio	0.58	0.53		0.76	0.37	0.16		0.54	0.14	0.47	0.67	0.08
Uniform Delay, d1	52.7	21.9		50.9	17.6	15.5		49.4	47.0	47.2	48.7	44.6
Progression Factor	1.00	1.00		0.97	0.82	1.40		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.6	1.2		12.9	0.6	0.4		1.2	0.1	0.5	5.6	0.1
Delay (s)	56.3	23.1		62.0	15.0	22.1		50.7	47.1	47.8	54.3	44.6
Level of Service	E	C		E	B	C		D	D	D	D	D
Approach Delay (s)		26.2			23.8			48.4			49.4	
Approach LOS		C			C			D			D	

Intersection Summary

HCM 2000 Control Delay	31.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	60.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

4: Tamalpais Drive & US 101 SB Off-Ramp

6/27/2014



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↓↓	↓
Volume (vph)	0	720	648	0	719	368
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0
Lane Util. Factor		0.95	0.95		0.97	0.91
Frbp, ped/bikes		1.00	1.00		1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3433	1441
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3433	1441
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	0	818	736	0	817	418
RTOR Reduction (vph)	0	0	0	0	0	88
Lane Group Flow (vph)	0	818	736	0	817	330
Confl. Peds. (#/hr)						4
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		29.9	29.9		21.1	21.1
Effective Green, g (s)		30.9	30.9		21.1	21.1
Actuated g/C Ratio		0.51	0.51		0.35	0.35
Clearance Time (s)		5.0	5.0		4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1822	1822		1207	506
v/s Ratio Prot		c0.23	0.21		c0.24	0.23
v/s Ratio Perm						
v/c Ratio		0.45	0.40		0.68	0.65
Uniform Delay, d1		9.2	8.9		16.5	16.4
Progression Factor		0.92	1.23		1.00	1.00
Incremental Delay, d2		0.8	0.6		1.5	3.0
Delay (s)		9.2	11.6		18.1	19.4
Level of Service		A	B		B	B
Approach Delay (s)		9.2	11.6		18.5	
Approach LOS		A	B		B	

Intersection Summary

HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	86.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: US 101 NB Off-Ramp & Tamalpais Dr

6/27/2014



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘↘	↘↘
Volume (vph)	899	0	0	680	452	422
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.95			0.95	0.97	0.88
Fr _t	1.00			1.00	1.00	0.85
Fl _t Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			3539	3433	2787
Fl _t Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			3539	3433	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	977	0	0	739	491	459
RTOR Reduction (vph)	0	0	0	0	0	137
Lane Group Flow (vph)	977	0	0	739	491	323
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Actuated Green, G (s)	36.0			36.0	15.0	15.0
Effective Green, g (s)	37.0			37.0	15.0	15.0
Actuated g/C Ratio	0.62			0.62	0.25	0.25
Clearance Time (s)	5.0			5.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	2182			2182	858	696
v/s Ratio Prot	c0.28			0.21	c0.14	
v/s Ratio Perm						0.12
v/c Ratio	0.45			0.34	0.57	0.46
Uniform Delay, d ₁	6.1			5.6	19.7	19.1
Progression Factor	1.06			1.00	1.00	1.00
Incremental Delay, d ₂	0.6			0.4	0.9	0.5
Delay (s)	7.1			6.0	20.6	19.6
Level of Service	A			A	C	B
Approach Delay (s)	7.1			6.0	20.1	
Approach LOS	A			A	C	

Intersection Summary

HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

1: Tamal Vista Blvd. & Wornum Dr.

6/27/2014



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	106	169	283	228	472	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.99	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1570	1863	1549	1770	1863
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1570	1863	1549	1770	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	115	184	308	248	513	350
RTOR Reduction (vph)	0	81	0	79	0	0
Lane Group Flow (vph)	115	103	308	169	513	350
Confl. Peds. (#/hr)	18	1		6		
Confl. Bikes (#/hr)		1		9		
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	3	1	2	3	1	6
Permitted Phases		3		2		
Actuated Green, G (s)	16.0	42.0	21.0	37.0	26.0	51.0
Effective Green, g (s)	16.0	42.0	21.0	37.0	26.0	51.0
Actuated g/C Ratio	0.21	0.56	0.28	0.49	0.35	0.68
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	377	962	521	846	613	1266
v/s Ratio Prot	c0.06	0.04	c0.17	0.04	c0.29	0.19
v/s Ratio Perm		0.03		0.07		
v/c Ratio	0.31	0.11	0.59	0.20	0.84	0.28
Uniform Delay, d1	24.8	7.7	23.3	10.7	22.5	4.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	0.2	4.9	0.5	12.8	0.5
Delay (s)	26.9	7.9	28.2	11.2	35.4	5.3
Level of Service	C	A	C	B	D	A
Approach Delay (s)	15.2		20.6			23.2
Approach LOS	B		C			C






















Intersection Summary

HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 2: Madera Boulevard/Tamal Vista Blvd. & Council Crest Dr.

6/27/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop				Stop
Volume (vph)	2	3	3	203	3	164	8	363	143	235	202	6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	2	3	3	226	3	182	9	403	159	261	224	7
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2				
Volume Total (vph)	9	229	182	9	403	159	261	231				
Volume Left (vph)	2	226	0	9	0	0	261	0				
Volume Right (vph)	3	0	182	0	0	159	0	7				
Hadj (s)	-0.14	0.53	-0.67	0.53	0.03	-0.67	0.53	0.01				
Departure Headway (s)	7.8	7.5	6.3	7.2	6.7	3.2	7.1	6.6				
Degree Utilization, x	0.02	0.48	0.32	0.02	0.75	0.14	0.51	0.42				
Capacity (veh/h)	406	458	542	478	522	1121	486	531				
Control Delay (s)	10.9	16.0	11.0	9.1	25.9	5.5	16.2	13.1				
Approach Delay (s)	10.9	13.8		20.0			14.7					
Approach LOS	B	B		C			B					
Intersection Summary												
Delay			16.5									
Level of Service			C									
Intersection Capacity Utilization			60.2%		ICU Level of Service				B			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

3: Madera Boulevard & Tamalpais Drive

6/27/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	164	572	59	236	663	305	41	72	186	226	61	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	0.95	0.95	1.00
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.97		1.00	0.96	1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	0.97	1.00
Satd. Flow (prot)	1770	3477		1770	3539	1537		1829	1526	1681	1720	1509
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	0.97	1.00
Satd. Flow (perm)	1770	3477		1770	3539	1537		1829	1526	1681	1720	1509
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	178	622	64	257	721	332	45	78	202	246	66	185
RTOR Reduction (vph)	0	6	0	0	0	175	0	0	177	0	0	160
Lane Group Flow (vph)	178	680	0	257	721	157	0	123	25	157	155	25
Confl. Peds. (#/hr)			6			3	20		15	15		20
Confl. Bikes (#/hr)			1									1
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases						6			8			4
Actuated Green, G (s)	16.5	51.6		20.6	55.7	55.7		14.8	14.8	16.0	16.0	16.0
Effective Green, g (s)	16.5	52.6		20.6	56.7	56.7		14.8	14.8	16.0	16.0	16.0
Actuated g/C Ratio	0.14	0.44		0.17	0.47	0.47		0.12	0.12	0.13	0.13	0.13
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0		4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	3.0		2.0	3.0	3.0		2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	243	1524		303	1672	726		225	188	224	229	201
v/s Ratio Prot	0.10	0.20		c0.15	c0.20			c0.07		c0.09	0.09	
v/s Ratio Perm						0.10			0.02			0.02
v/c Ratio	0.73	0.45		0.85	0.43	0.22		0.55	0.13	0.70	0.68	0.12
Uniform Delay, d1	49.6	23.5		48.2	21.0	18.6		49.4	46.9	49.7	49.5	45.8
Progression Factor	1.00	1.00		0.87	0.76	1.61		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.4	0.9		16.4	0.7	0.6		1.5	0.1	7.8	6.1	0.1
Delay (s)	59.0	24.5		58.4	16.7	30.5		50.9	47.0	57.5	55.6	45.9
Level of Service	E	C		E	B	C		D	D	E	E	D
Approach Delay (s)		31.6			28.4			48.5			52.6	
Approach LOS		C			C			D			D	

Intersection Summary

HCM 2000 Control Delay	35.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

4: Tamalpais Drive & US 101 SB Off-Ramp

6/27/2014



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↓↓	↓
Volume (vph)	0	972	1074	0	642	341
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0
Lane Util. Factor		0.95	0.95		0.97	0.91
Frbp, ped/bikes		1.00	1.00		1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00
Frt		1.00	1.00		0.98	0.85
Flt Protected		1.00	1.00		0.96	1.00
Satd. Flow (prot)		3539	3539		3390	1441
Flt Permitted		1.00	1.00		0.96	1.00
Satd. Flow (perm)		3539	3539		3390	1441
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1057	1167	0	698	371
RTOR Reduction (vph)	0	0	0	0	20	24
Lane Group Flow (vph)	0	1057	1167	0	771	254
Confl. Peds. (#/hr)						17
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		30.7	30.7		20.3	20.3
Effective Green, g (s)		31.7	31.7		20.3	20.3
Actuated g/C Ratio		0.53	0.53		0.34	0.34
Clearance Time (s)		5.0	5.0		4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1869	1869		1146	487
v/s Ratio Prot		0.30	c0.33		c0.23	0.18
v/s Ratio Perm						
v/c Ratio		0.57	0.62		0.67	0.52
Uniform Delay, d1		9.5	10.0		17.0	15.9
Progression Factor		0.67	1.28		1.00	1.00
Incremental Delay, d2		1.2	1.3		1.6	1.0
Delay (s)		7.6	14.0		18.6	16.9
Level of Service		A	B		B	B
Approach Delay (s)		7.6	14.0		18.2	
Approach LOS		A	B		B	

Intersection Summary

HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	102.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: US 101 NB Off-Ramp & Tamalpias Dr

6/27/2014



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘↘	↗↗
Volume (vph)	876	0	0	760	760	483
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.95			0.95	0.97	0.88
Fr _t	1.00			1.00	1.00	0.85
Fl _t Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			3539	3433	2787
Fl _t Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			3539	3433	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	952	0	0	826	826	525
RTOR Reduction (vph)	0	0	0	0	0	134
Lane Group Flow (vph)	952	0	0	826	826	391
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Actuated Green, G (s)	32.5			32.5	18.5	18.5
Effective Green, g (s)	33.5			33.5	18.5	18.5
Actuated g/C Ratio	0.56			0.56	0.31	0.31
Clearance Time (s)	5.0			5.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	1975			1975	1058	859
v/s Ratio Prot	c0.27			0.23	c0.24	
v/s Ratio Perm						0.14
v/c Ratio	0.48			0.42	0.78	0.45
Uniform Delay, d ₁	8.0			7.6	18.9	16.7
Progression Factor	0.96			1.00	1.00	1.00
Incremental Delay, d ₂	0.7			0.7	3.8	0.4
Delay (s)	8.4			8.3	22.7	17.1
Level of Service	A			A	C	B
Approach Delay (s)	8.4			8.3	20.5	
Approach LOS	A			A	C	

Intersection Summary

HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	93.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

1: Tamal Vista Blvd. & Wornum Dr.

6/27/2014



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	52	287	149	146	381	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1570	1863	1559	1770	1863
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1570	1863	1559	1770	1863
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	58	319	166	162	423	249
RTOR Reduction (vph)	0	140	0	82	0	0
Lane Group Flow (vph)	58	179	166	80	423	249
Confl. Peds. (#/hr)	9	2		3		
Confl. Bikes (#/hr)				1		
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	3	1	2	3	1	6
Permitted Phases		3		2		
Actuated Green, G (s)	16.0	42.0	21.0	37.0	26.0	51.0
Effective Green, g (s)	16.0	42.0	21.0	37.0	26.0	51.0
Actuated g/C Ratio	0.21	0.56	0.28	0.49	0.35	0.68
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	377	962	521	852	613	1266
v/s Ratio Prot	0.03	c0.06	c0.09	0.02	c0.24	0.13
v/s Ratio Perm		0.05		0.03		
v/c Ratio	0.15	0.19	0.32	0.09	0.69	0.20
Uniform Delay, d1	24.0	8.1	21.3	10.1	21.0	4.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.4	1.6	0.2	6.3	0.3
Delay (s)	24.9	8.5	23.0	10.3	27.3	4.8
Level of Service	C	A	C	B	C	A
Approach Delay (s)	11.0		16.7			19.0
Approach LOS	B		B			B






















Intersection Summary

HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 2: Madera Boulevard/Tamal Vista Blvd. & Council Crest Dr.

6/27/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop				Stop
Volume (vph)	2	5	3	148	6	105	9	214	191	103	140	1
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	3	6	4	187	8	133	11	271	242	130	177	1
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2				
Volume Total (vph)	13	195	133	11	271	242	130	178				
Volume Left (vph)	3	187	0	11	0	0	130	0				
Volume Right (vph)	4	0	133	0	0	242	0	1				
Hadj (s)	-0.11	0.51	-0.67	0.53	0.03	-0.67	0.53	0.03				
Departure Headway (s)	6.5	6.6	5.4	6.5	6.0	3.2	6.4	5.9				
Degree Utilization, x	0.02	0.36	0.20	0.02	0.45	0.21	0.23	0.29				
Capacity (veh/h)	490	514	620	529	580	1122	536	581				
Control Delay (s)	9.7	12.1	8.6	8.4	12.6	5.9	10.2	10.2				
Approach Delay (s)	9.7	10.7		9.4			10.2					
Approach LOS	A	B		A			B					
Intersection Summary												
Delay			10.0									
Level of Service			A									
Intersection Capacity Utilization			42.3%	ICU Level of Service								A
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

3: Madera Boulevard & Tamalpais Drive

6/27/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	82	752	39	148	602	230	51	56	178	171	77	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	0.95	0.95	1.00
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.96		1.00	0.93	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	0.98	1.00
Satd. Flow (prot)	1770	3508		1770	3539	1515		1820	1470	1681	1728	1524
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	0.98	1.00
Satd. Flow (perm)	1770	3508		1770	3539	1515		1820	1470	1681	1728	1524
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	92	845	44	166	676	258	57	63	200	192	87	128
RTOR Reduction (vph)	0	3	0	0	0	126	0	0	175	0	0	110
Lane Group Flow (vph)	92	886	0	166	676	132	0	120	25	113	166	18
Confl. Peds. (#/hr)			2			7	15		36	36		15
Confl. Bikes (#/hr)			2			2			1			
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases						6			8			4
Actuated Green, G (s)	10.6	56.2		14.8	60.4	60.4		14.8	14.8	17.2	17.2	17.2
Effective Green, g (s)	10.6	57.2		14.8	61.4	61.4		14.8	14.8	17.2	17.2	17.2
Actuated g/C Ratio	0.09	0.48		0.12	0.51	0.51		0.12	0.12	0.14	0.14	0.14
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0		4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	3.0		2.0	3.0	3.0		2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	156	1672		218	1810	775		224	181	240	247	218
v/s Ratio Prot	0.05	c0.25		c0.09	0.19			c0.07		0.07	c0.10	
v/s Ratio Perm						0.09			0.02			0.01
v/c Ratio	0.59	0.53		0.76	0.37	0.17		0.54	0.14	0.47	0.67	0.08
Uniform Delay, d1	52.6	22.0		50.9	17.7	15.7		49.4	46.9	47.2	48.7	44.6
Progression Factor	1.00	1.00		0.96	0.82	1.40		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.6	1.2		12.9	0.6	0.5		1.2	0.1	0.5	5.6	0.1
Delay (s)	56.3	23.2		61.9	15.1	22.5		50.6	47.0	47.8	54.3	44.6
Level of Service	E	C		E	B	C		D	D	D	D	D
Approach Delay (s)		26.3			23.9			48.4			49.4	
Approach LOS		C			C			D			D	

Intersection Summary

HCM 2000 Control Delay	31.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	60.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

4: Tamalpais Drive & US 101 SB Off-Ramp

6/27/2014



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑↑	↑
Volume (vph)	0	720	665	0	719	368
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0
Lane Util. Factor		0.95	0.95		0.97	0.91
Frbp, ped/bikes		1.00	1.00		1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3433	1441
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3433	1441
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	0	818	756	0	817	418
RTOR Reduction (vph)	0	0	0	0	0	83
Lane Group Flow (vph)	0	818	756	0	817	335
Confl. Peds. (#/hr)						4
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		29.9	29.9		21.1	21.1
Effective Green, g (s)		30.9	30.9		21.1	21.1
Actuated g/C Ratio		0.51	0.51		0.35	0.35
Clearance Time (s)		5.0	5.0		4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1822	1822		1207	506
v/s Ratio Prot		c0.23	0.21		c0.24	0.23
v/s Ratio Perm						
v/c Ratio		0.45	0.41		0.68	0.66
Uniform Delay, d1		9.2	9.0		16.5	16.4
Progression Factor		0.92	1.24		1.00	1.00
Incremental Delay, d2		0.8	0.7		1.5	3.2
Delay (s)		9.2	11.8		18.1	19.7
Level of Service		A	B		B	B
Approach Delay (s)		9.2	11.8		18.6	
Approach LOS		A	B		B	

Intersection Summary

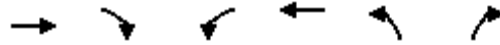
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	86.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: US 101 NB Off-Ramp & Tamalpias Dr

6/27/2014



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘↘	↘↘
Volume (vph)	899	0	0	681	468	422
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.95			0.95	0.97	0.88
Flt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			3539	3433	2787
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			3539	3433	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	977	0	0	740	509	459
RTOR Reduction (vph)	0	0	0	0	0	136
Lane Group Flow (vph)	977	0	0	740	509	323
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Actuated Green, G (s)	35.7			35.7	15.3	15.3
Effective Green, g (s)	36.7			36.7	15.3	15.3
Actuated g/C Ratio	0.61			0.61	0.26	0.26
Clearance Time (s)	5.0			5.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	2164			2164	875	710
v/s Ratio Prot	c0.28			0.21	c0.15	
v/s Ratio Perm						0.12
v/c Ratio	0.45			0.34	0.58	0.46
Uniform Delay, d1	6.3			5.7	19.6	18.8
Progression Factor	1.06			1.00	1.00	1.00
Incremental Delay, d2	0.6			0.4	1.0	0.5
Delay (s)	7.3			6.2	20.5	19.3
Level of Service	A			A	C	B
Approach Delay (s)	7.3			6.2	20.0	
Approach LOS	A			A	B	

Intersection Summary			
HCM 2000 Control Delay	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

1: Tamal Vista Blvd. & Wornum Dr.

6/27/2014



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	106	169	285	237	472	323
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.99	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1570	1863	1549	1770	1863
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1570	1863	1549	1770	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	115	184	310	258	513	351
RTOR Reduction (vph)	0	81	0	79	0	0
Lane Group Flow (vph)	115	103	310	179	513	351
Confl. Peds. (#/hr)	18	1		6		
Confl. Bikes (#/hr)		1		9		
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	3	1	2	3	1	6
Permitted Phases		3		2		
Actuated Green, G (s)	16.0	42.0	21.0	37.0	26.0	51.0
Effective Green, g (s)	16.0	42.0	21.0	37.0	26.0	51.0
Actuated g/C Ratio	0.21	0.56	0.28	0.49	0.35	0.68
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	377	962	521	846	613	1266
v/s Ratio Prot	c0.06	0.04	c0.17	0.05	c0.29	0.19
v/s Ratio Perm		0.03		0.07		
v/c Ratio	0.31	0.11	0.60	0.21	0.84	0.28
Uniform Delay, d1	24.8	7.7	23.3	10.7	22.5	4.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	0.2	4.9	0.6	12.8	0.5
Delay (s)	26.9	7.9	28.3	11.3	35.4	5.3
Level of Service	C	A	C	B	D	A
Approach Delay (s)	15.2		20.6			23.1
Approach LOS	B		C			C






















Intersection Summary

HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 2: Madera Boulevard/Tamal Vista Blvd. & Council Crest Dr.

6/27/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop				Stop
Volume (vph)	2	3	3	205	3	175	8	363	152	236	202	6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	2	3	3	228	3	194	9	403	169	262	224	7
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2				
Volume Total (vph)	9	231	194	9	403	169	262	231				
Volume Left (vph)	2	228	0	9	0	0	262	0				
Volume Right (vph)	3	0	194	0	0	169	0	7				
Hadj (s)	-0.14	0.53	-0.67	0.53	0.03	-0.67	0.53	0.01				
Departure Headway (s)	7.8	7.5	6.3	7.3	6.7	3.2	7.1	6.6				
Degree Utilization, x	0.02	0.48	0.34	0.02	0.76	0.15	0.52	0.42				
Capacity (veh/h)	405	457	542	474	518	1121	483	528				
Control Delay (s)	11.0	16.2	11.4	9.2	26.5	5.6	16.4	13.2				
Approach Delay (s)	11.0	14.0		20.1			14.9					
Approach LOS	B	B		C			B					
Intersection Summary												
Delay			16.6									
Level of Service			C									
Intersection Capacity Utilization			60.4%	ICU Level of Service				B				
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

3: Madera Boulevard & Tamalpais Drive

6/27/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖		↖	↗	↖	↗	↖
Volume (vph)	165	572	59	236	663	313	41	72	186	227	61	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	0.95	0.95	1.00
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.97		1.00	0.96	1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	0.97	1.00
Satd. Flow (prot)	1770	3477		1770	3539	1537		1829	1526	1681	1720	1509
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	0.97	1.00
Satd. Flow (perm)	1770	3477		1770	3539	1537		1829	1526	1681	1720	1509
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	179	622	64	257	721	340	45	78	202	247	66	186
RTOR Reduction (vph)	0	6	0	0	0	180	0	0	177	0	0	161
Lane Group Flow (vph)	179	680	0	257	721	160	0	123	25	158	155	25
Confl. Peds. (#/hr)			6			3	20		15	15		20
Confl. Bikes (#/hr)			1									1
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases						6			8			4
Actuated Green, G (s)	16.6	51.6		20.6	55.6	55.6		14.8	14.8	16.0	16.0	16.0
Effective Green, g (s)	16.6	52.6		20.6	56.6	56.6		14.8	14.8	16.0	16.0	16.0
Actuated g/C Ratio	0.14	0.44		0.17	0.47	0.47		0.12	0.12	0.13	0.13	0.13
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0		4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	3.0		2.0	3.0	3.0		2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	244	1524		303	1669	724		225	188	224	229	201
v/s Ratio Prot	0.10	0.20		c0.15	c0.20			c0.07		c0.09	0.09	
v/s Ratio Perm						0.10			0.02			0.02
v/c Ratio	0.73	0.45		0.85	0.43	0.22		0.55	0.13	0.71	0.68	0.12
Uniform Delay, d1	49.6	23.5		48.2	21.0	18.7		49.4	46.9	49.7	49.5	45.8
Progression Factor	1.00	1.00		0.87	0.76	1.63		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.4	0.9		16.4	0.7	0.6		1.5	0.1	8.0	6.1	0.1
Delay (s)	59.0	24.5		58.4	16.8	31.0		50.9	47.0	57.7	55.6	45.9
Level of Service	E	C		E	B	C		D	D	E	E	D
Approach Delay (s)		31.6			28.6			48.5			52.7	
Approach LOS		C			C			D			D	

Intersection Summary

HCM 2000 Control Delay	35.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

4: Tamalpais Drive & US 101 SB Off-Ramp

6/27/2014



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑↑	↑
Volume (vph)	0	973	1082	0	642	341
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0
Lane Util. Factor		0.95	0.95		0.97	0.91
Frbp, ped/bikes		1.00	1.00		1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00
Frt		1.00	1.00		0.98	0.85
Flt Protected		1.00	1.00		0.96	1.00
Satd. Flow (prot)		3539	3539		3390	1441
Flt Permitted		1.00	1.00		0.96	1.00
Satd. Flow (perm)		3539	3539		3390	1441
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1058	1176	0	698	371
RTOR Reduction (vph)	0	0	0	0	20	24
Lane Group Flow (vph)	0	1058	1176	0	771	254
Confl. Peds. (#/hr)						17
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		30.7	30.7		20.3	20.3
Effective Green, g (s)		31.7	31.7		20.3	20.3
Actuated g/C Ratio		0.53	0.53		0.34	0.34
Clearance Time (s)		5.0	5.0		4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1869	1869		1146	487
v/s Ratio Prot		0.30	c0.33		c0.23	0.18
v/s Ratio Perm						
v/c Ratio		0.57	0.63		0.67	0.52
Uniform Delay, d1		9.5	10.0		17.0	16.0
Progression Factor		0.67	1.28		1.00	1.00
Incremental Delay, d2		1.2	1.3		1.6	1.0
Delay (s)		7.6	14.1		18.6	17.0
Level of Service		A	B		B	B
Approach Delay (s)		7.6	14.1		18.2	
Approach LOS		A	B		B	

Intersection Summary

HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	102.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: US 101 NB Off-Ramp & Tamalpias Dr

6/27/2014



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘↘	↗↗
Volume (vph)	877	0	0	760	768	483
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.95			0.95	0.97	0.88
Fr _t	1.00			1.00	1.00	0.85
Fl _t Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			3539	3433	2787
Fl _t Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			3539	3433	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	953	0	0	826	835	525
RTOR Reduction (vph)	0	0	0	0	0	134
Lane Group Flow (vph)	953	0	0	826	835	391
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Actuated Green, G (s)	32.5			32.5	18.5	18.5
Effective Green, g (s)	33.5			33.5	18.5	18.5
Actuated g/C Ratio	0.56			0.56	0.31	0.31
Clearance Time (s)	5.0			5.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	1975			1975	1058	859
v/s Ratio Prot	c0.27			0.23	c0.24	
v/s Ratio Perm						0.14
v/c Ratio	0.48			0.42	0.79	0.45
Uniform Delay, d ₁	8.0			7.6	19.0	16.7
Progression Factor	0.96			1.00	1.00	1.00
Incremental Delay, d ₂	0.7			0.7	4.0	0.4
Delay (s)	8.4			8.3	23.0	17.1
Level of Service	A			A	C	B
Approach Delay (s)	8.4			8.3	20.7	
Approach LOS	A			A	C	

Intersection Summary

HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	93.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

1: Tamal Vista Blvd. & Wornum Dr.

7/2/2014



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	103	325	252	327	597	353
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.99	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1570	1863	1559	1770	1863
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1570	1863	1559	1770	1863
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	114	361	280	363	663	392
RTOR Reduction (vph)	0	127	0	44	0	0
Lane Group Flow (vph)	114	234	280	319	663	392
Confl. Peds. (#/hr)	9	2		3		
Confl. Bikes (#/hr)				1		
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	3	1	2	3	1	6
Permitted Phases		3		2		
Actuated Green, G (s)	16.0	42.0	21.0	37.0	26.0	51.0
Effective Green, g (s)	16.0	42.0	21.0	37.0	26.0	51.0
Actuated g/C Ratio	0.21	0.56	0.28	0.49	0.35	0.68
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	377	962	521	852	613	1266
v/s Ratio Prot	0.06	0.08	c0.15	c0.08	c0.37	0.21
v/s Ratio Perm		0.06		0.12		
v/c Ratio	0.30	0.24	0.54	0.37	1.08	0.31
Uniform Delay, d1	24.8	8.4	22.9	11.8	24.5	4.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	0.6	3.9	1.3	60.4	0.6
Delay (s)	26.9	9.0	26.8	13.1	84.9	5.5
Level of Service	C	A	C	B	F	A
Approach Delay (s)	13.3		19.1			55.4
Approach LOS	B		B			E

Intersection Summary






















HCM 2000 Control Delay	35.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

2: Madera Boulevard/Tamal Vista Blvd. & Council Crest Dr.

7/2/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop				Stop
Volume (vph)	11	13	10	252	34	201	28	393	191	171	242	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	14	11	274	37	218	30	427	208	186	263	12
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2				
Volume Total (vph)	37	311	218	30	427	208	186	275				
Volume Left (vph)	12	274	0	30	0	0	186	0				
Volume Right (vph)	11	0	218	0	0	208	0	12				
Hadj (s)	-0.08	0.47	-0.67	0.53	0.03	-0.67	0.53	0.00				
Departure Headway (s)	8.4	7.8	6.6	7.8	7.2	3.2	7.8	7.2				
Degree Utilization, x	0.09	0.67	0.40	0.07	0.86	0.18	0.40	0.55				
Capacity (veh/h)	393	450	524	446	487	1121	438	474				
Control Delay (s)	12.1	24.0	12.8	10.1	39.2	5.7	14.7	17.7				
Approach Delay (s)	12.1	19.4		27.4			16.5					
Approach LOS	B	C		D			C					
Intersection Summary												
Delay			21.6									
Level of Service			C									
Intersection Capacity Utilization			62.6%		ICU Level of Service				B			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

3: Madera Boulevard & Tamalpais Drive

7/2/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	1127	51	176	873	371	62	76	240	256	129	190
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	0.95	0.95	1.00
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.96		1.00	0.93	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	0.98	1.00
Satd. Flow (prot)	1770	3512		1770	3539	1515		1822	1470	1681	1731	1524
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	0.98	1.00
Satd. Flow (perm)	1770	3512		1770	3539	1515		1822	1470	1681	1731	1524
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	134	1266	57	198	981	417	70	85	270	288	145	213
RTOR Reduction (vph)	0	2	0	0	0	194	0	0	236	0	0	177
Lane Group Flow (vph)	134	1321	0	198	981	224	0	155	34	170	263	36
Confl. Peds. (#/hr)			2			7	15		36	36		15
Confl. Bikes (#/hr)			2			2			1			
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases						6			8			4
Actuated Green, G (s)	13.5	51.2		16.8	54.5	54.5		14.9	14.9	20.1	20.1	20.1
Effective Green, g (s)	13.5	52.2		16.8	55.5	55.5		14.9	14.9	20.1	20.1	20.1
Actuated g/C Ratio	0.11	0.44		0.14	0.46	0.46		0.12	0.12	0.17	0.17	0.17
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0		4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	3.0		2.0	3.0	3.0		2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	199	1527		247	1636	700		226	182	281	289	255
v/s Ratio Prot	0.08	c0.38		c0.11	c0.28			c0.09		0.10	c0.15	
v/s Ratio Perm						0.15			0.02			0.02
v/c Ratio	0.67	0.86		0.80	0.60	0.32		0.69	0.18	0.60	0.91	0.14
Uniform Delay, d1	51.1	30.7		50.0	24.0	20.3		50.3	47.1	46.3	49.1	42.6
Progression Factor	1.00	1.00		0.96	0.88	0.87		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.9	6.8		15.9	1.6	1.2		6.7	0.2	2.5	30.2	0.1
Delay (s)	58.0	37.5		63.8	22.7	18.9		57.0	47.3	48.8	79.3	42.7
Level of Service	E	D		E	C	B		E	D	D	E	D
Approach Delay (s)		39.4			26.8			50.8			59.2	
Approach LOS		D			C			D			E	

Intersection Summary		
HCM 2000 Control Delay	38.8	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.83	D
Actuated Cycle Length (s)	120.0	Sum of lost time (s)
Intersection Capacity Utilization	84.2%	16.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		E

HCM Signalized Intersection Capacity Analysis

4: Tamalpais Drive & US 101 SB Off-Ramp

7/2/2014



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↘↘	↗
Volume (vph)	0	1040	1015	0	1159	458
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0
Lane Util. Factor		0.95	0.95		0.97	0.91
Frbp, ped/bikes		1.00	1.00		1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3433	1441
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3433	1441
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	0	1182	1153	0	1317	520
RTOR Reduction (vph)	0	0	0	0	0	23
Lane Group Flow (vph)	0	1182	1153	0	1317	497
Confl. Peds. (#/hr)						4
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		27.0	27.0		24.0	24.0
Effective Green, g (s)		28.0	28.0		24.0	24.0
Actuated g/C Ratio		0.47	0.47		0.40	0.40
Clearance Time (s)		5.0	5.0		4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1651	1651		1373	576
v/s Ratio Prot		c0.33	0.33		c0.38	0.34
v/s Ratio Perm						
v/c Ratio		0.72	0.70		0.96	0.86
Uniform Delay, d1		12.8	12.7		17.5	16.5
Progression Factor		0.92	1.15		1.00	1.00
Incremental Delay, d2		2.7	2.3		15.4	12.6
Delay (s)		14.5	16.8		32.9	29.1
Level of Service		B	B		C	C
Approach Delay (s)		14.5	16.8		31.9	
Approach LOS		B	B		C	

Intersection Summary

HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	108.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: US 101 NB Off-Ramp & Tamalpias Dr

7/2/2014



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘↘	↘↘
Volume (vph)	1480	0	0	868	743	676
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.95			0.95	0.97	0.88
Fr _t	1.00			1.00	1.00	0.85
Fl _t Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			3539	3433	2787
Fl _t Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			3539	3433	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1609	0	0	943	808	735
RTOR Reduction (vph)	0	0	0	0	0	25
Lane Group Flow (vph)	1609	0	0	943	808	710
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Actuated Green, G (s)	32.5			32.5	18.5	18.5
Effective Green, g (s)	33.5			33.5	18.5	18.5
Actuated g/C Ratio	0.56			0.56	0.31	0.31
Clearance Time (s)	5.0			5.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	1975			1975	1058	859
v/s Ratio Prot	c0.45			0.27	0.24	
v/s Ratio Perm						c0.25
v/c Ratio	0.81			0.48	0.76	0.83
Uniform Delay, d ₁	10.7			8.0	18.8	19.3
Progression Factor	1.11			1.00	1.00	1.00
Incremental Delay, d ₂	3.5			0.8	3.3	6.6
Delay (s)	15.4			8.8	22.1	25.8
Level of Service	B			A	C	C
Approach Delay (s)	15.4			8.8	23.9	
Approach LOS	B			A	C	

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	95.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

1: Tamal Vista Blvd. & Wornum Dr.

7/2/2014



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	146	230	373	304	582	378
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.99	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1570	1863	1549	1770	1863
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1570	1863	1549	1770	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	159	250	405	330	633	411
RTOR Reduction (vph)	0	68	0	49	0	0
Lane Group Flow (vph)	159	182	405	281	633	411
Confl. Peds. (#/hr)	18	1		6		
Confl. Bikes (#/hr)		1		9		
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	3	1	2	3	1	6
Permitted Phases		3		2		
Actuated Green, G (s)	16.0	42.0	21.0	37.0	26.0	51.0
Effective Green, g (s)	16.0	42.0	21.0	37.0	26.0	51.0
Actuated g/C Ratio	0.21	0.56	0.28	0.49	0.35	0.68
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	377	962	521	846	613	1266
v/s Ratio Prot	c0.09	0.07	c0.22	0.07	c0.36	0.22
v/s Ratio Perm		0.05		0.11		
v/c Ratio	0.42	0.19	0.78	0.33	1.03	0.32
Uniform Delay, d1	25.5	8.1	24.8	11.5	24.5	4.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.4	0.4	10.9	1.1	45.0	0.7
Delay (s)	28.9	8.6	35.7	12.6	69.5	5.6
Level of Service	C	A	D	B	E	A
Approach Delay (s)	16.5		25.3			44.3
Approach LOS	B		C			D

Intersection Summary






















HCM 2000 Control Delay	32.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

2: Madera Boulevard/Tamal Vista Blvd. & Council Crest Dr.

7/2/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop				Stop
Volume (vph)	11	12	20	263	17	184	26	475	159	264	264	11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	12	13	21	277	18	194	27	500	167	278	278	12
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2				
Volume Total (vph)	45	295	194	27	500	167	278	289				
Volume Left (vph)	12	277	0	27	0	0	278	0				
Volume Right (vph)	21	0	194	0	0	167	0	12				
Hadj (s)	-0.19	0.50	-0.67	0.53	0.03	-0.67	0.53	0.01				
Departure Headway (s)	8.6	8.1	6.9	8.0	7.4	3.2	7.8	7.3				
Degree Utilization, x	0.11	0.66	0.37	0.06	1.0	0.15	0.61	0.59				
Capacity (veh/h)	393	436	508	436	478	1121	446	476				
Control Delay (s)	12.7	24.4	12.8	10.3	76.2	5.6	20.9	19.0				
Approach Delay (s)	12.7	19.8		56.6			20.0					
Approach LOS	B	C		F			C					
Intersection Summary												
Delay			33.9									
Level of Service			D									
Intersection Capacity Utilization			71.8%	ICU Level of Service								C
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

3: Madera Boulevard & Tamalpais Drive

7/2/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	212	675	70	306	841	401	55	99	225	297	93	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	0.95	0.95	1.00
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.97		1.00	0.96	1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	0.97	1.00
Satd. Flow (prot)	1770	3476		1770	3539	1537		1830	1526	1681	1724	1509
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	0.97	1.00
Satd. Flow (perm)	1770	3476		1770	3539	1537		1830	1526	1681	1724	1509
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	230	734	76	333	914	436	60	108	245	323	101	224
RTOR Reduction (vph)	0	6	0	0	0	237	0	0	212	0	0	190
Lane Group Flow (vph)	230	804	0	333	914	199	0	168	33	207	217	34
Confl. Peds. (#/hr)			6			3	20		15	15		20
Confl. Bikes (#/hr)			1									1
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases						6			8			4
Actuated Green, G (s)	20.0	42.0		26.4	48.4	48.4		16.4	16.4	18.2	18.2	18.2
Effective Green, g (s)	20.0	43.0		26.4	49.4	49.4		16.4	16.4	18.2	18.2	18.2
Actuated g/C Ratio	0.17	0.36		0.22	0.41	0.41		0.14	0.14	0.15	0.15	0.15
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0		4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	3.0		2.0	3.0	3.0		2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	295	1245		389	1456	632		250	208	254	261	228
v/s Ratio Prot	0.13	0.23		c0.19	c0.26			c0.09		0.12	c0.13	
v/s Ratio Perm						0.13			0.02			0.02
v/c Ratio	0.78	0.65		0.86	0.63	0.31		0.67	0.16	0.81	0.83	0.15
Uniform Delay, d1	47.9	32.1		45.0	28.0	23.9		49.2	45.7	49.3	49.4	44.2
Progression Factor	1.00	1.00		0.96	0.85	1.19		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.2	2.6		15.0	1.9	1.2		5.5	0.1	17.0	18.9	0.1
Delay (s)	59.1	34.7		58.1	25.7	29.6		54.7	45.9	66.3	68.3	44.3
Level of Service	E	C		E	C	C		D	D	E	E	D
Approach Delay (s)		40.1			33.1			49.5			59.4	
Approach LOS		D			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	41.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

4: Tamalpais Drive & US 101 SB Off-Ramp

7/2/2014



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↓↓	↓
Volume (vph)	0	1131	1355	0	884	404
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0
Lane Util. Factor		0.95	0.95		0.97	0.91
Frbp, ped/bikes		1.00	1.00		1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00
Frt		1.00	1.00		0.98	0.85
Flt Protected		1.00	1.00		0.96	1.00
Satd. Flow (prot)		3539	3539		3397	1441
Flt Permitted		1.00	1.00		0.96	1.00
Satd. Flow (perm)		3539	3539		3397	1441
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1229	1473	0	961	439
RTOR Reduction (vph)	0	0	0	0	9	9
Lane Group Flow (vph)	0	1229	1473	0	1062	320
Confl. Peds. (#/hr)						17
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		27.8	27.8		23.2	23.2
Effective Green, g (s)		28.8	28.8		23.2	23.2
Actuated g/C Ratio		0.48	0.48		0.39	0.39
Clearance Time (s)		5.0	5.0		4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1698	1698		1313	557
v/s Ratio Prot		0.35	c0.42		c0.31	0.22
v/s Ratio Perm						
v/c Ratio		0.72	0.87		0.81	0.57
Uniform Delay, d1		12.4	13.9		16.4	14.5
Progression Factor		0.85	1.16		1.00	1.00
Incremental Delay, d2		2.7	5.2		3.8	1.4
Delay (s)		13.2	21.3		20.2	15.9
Level of Service		B	C		C	B
Approach Delay (s)		13.2	21.3		19.2	
Approach LOS		B	C		B	

Intersection Summary

HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	114.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: US 101 NB Off-Ramp & Tamalpais Dr

7/2/2014



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘↘	↘↘
Volume (vph)	1252	0	0	965	969	760
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.95			0.95	0.97	0.88
Fr _t	1.00			1.00	1.00	0.85
Fl _t Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			3539	3433	2787
Fl _t Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			3539	3433	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1361	0	0	1049	1053	826
RTOR Reduction (vph)	0	0	0	0	0	46
Lane Group Flow (vph)	1361	0	0	1049	1053	780
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Actuated Green, G (s)	32.0			32.0	19.0	19.0
Effective Green, g (s)	33.0			33.0	19.0	19.0
Actuated g/C Ratio	0.55			0.55	0.32	0.32
Clearance Time (s)	5.0			5.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	1946			1946	1087	882
v/s Ratio Prot	c0.38			0.30	c0.31	
v/s Ratio Perm						0.28
v/c Ratio	0.70			0.54	0.97	0.88
Uniform Delay, d ₁	9.9			8.6	20.2	19.5
Progression Factor	1.03			1.00	1.00	1.00
Incremental Delay, d ₂	1.7			1.1	19.9	10.5
Delay (s)	12.0			9.7	40.1	29.9
Level of Service	B			A	D	C
Approach Delay (s)	12.0			9.7	35.6	
Approach LOS	B			A	D	

Intersection Summary			
HCM 2000 Control Delay	21.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	105.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

1: Tamal Vista Blvd. & Wornum Dr.

7/2/2014



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	104	325	253	330	597	356
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1570	1863	1559	1770	1863
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1570	1863	1559	1770	1863
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	116	361	281	367	663	396
RTOR Reduction (vph)	0	126	0	44	0	0
Lane Group Flow (vph)	116	235	281	323	663	396
Confl. Peds. (#/hr)	9	2		3		
Confl. Bikes (#/hr)				1		
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	3	1	2	3	1	6
Permitted Phases		3		2		
Actuated Green, G (s)	16.0	42.0	21.0	37.0	26.0	51.0
Effective Green, g (s)	16.0	42.0	21.0	37.0	26.0	51.0
Actuated g/C Ratio	0.21	0.56	0.28	0.49	0.35	0.68
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	377	962	521	852	613	1266
v/s Ratio Prot	0.07	0.08	c0.15	c0.08	c0.37	0.21
v/s Ratio Perm		0.06		0.13		
v/c Ratio	0.31	0.24	0.54	0.38	1.08	0.31
Uniform Delay, d1	24.8	8.4	22.9	11.8	24.5	4.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	0.6	4.0	1.3	60.4	0.6
Delay (s)	26.9	9.0	26.9	13.1	84.9	5.5
Level of Service	C	A	C	B	F	A
Approach Delay (s)	13.4		19.1			55.2
Approach LOS	B		B			E

Intersection Summary






















HCM 2000 Control Delay	35.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

2: Madera Boulevard/Tamal Vista Blvd. & Council Crest Dr.

7/2/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop				Stop
Volume (vph)	11	13	10	252	34	205	28	393	211	175	242	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	14	11	274	37	223	30	427	229	190	263	12
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2				
Volume Total (vph)	37	311	223	30	427	229	190	275				
Volume Left (vph)	12	274	0	30	0	0	190	0				
Volume Right (vph)	11	0	223	0	0	229	0	12				
Hadj (s)	-0.08	0.47	-0.67	0.53	0.03	-0.67	0.53	0.00				
Departure Headway (s)	8.4	7.8	6.6	7.8	7.3	3.2	7.8	7.3				
Degree Utilization, x	0.09	0.67	0.41	0.07	0.86	0.20	0.41	0.55				
Capacity (veh/h)	393	449	524	444	486	1122	438	473				
Control Delay (s)	12.2	24.1	13.0	10.1	39.6	5.8	15.0	17.7				
Approach Delay (s)	12.2	19.4		27.0			16.6					
Approach LOS	B	C		D			C					
Intersection Summary												
Delay			21.5									
Level of Service			C									
Intersection Capacity Utilization			62.8%		ICU Level of Service				B			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

3: Madera Boulevard & Tamalpais Drive

7/2/2014



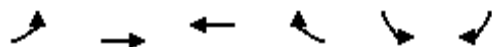
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	121	1127	51	176	873	388	62	77	240	256	129	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	0.95	0.95	1.00
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.96		1.00	0.93	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	0.98	1.00
Satd. Flow (prot)	1770	3512		1770	3539	1515		1822	1471	1681	1731	1524
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	0.98	1.00
Satd. Flow (perm)	1770	3512		1770	3539	1515		1822	1471	1681	1731	1524
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	136	1266	57	198	981	436	70	87	270	288	145	213
RTOR Reduction (vph)	0	2	0	0	0	206	0	0	234	0	0	177
Lane Group Flow (vph)	136	1321	0	198	981	230	0	157	36	170	263	36
Confl. Peds. (#/hr)			2			7	15		36	36		15
Confl. Bikes (#/hr)			2			2			1			
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases						6			8			4
Actuated Green, G (s)	13.6	50.6		16.3	53.3	53.3		16.0	16.0	20.1	20.1	20.1
Effective Green, g (s)	13.6	51.6		16.3	54.3	54.3		16.0	16.0	20.1	20.1	20.1
Actuated g/C Ratio	0.11	0.43		0.14	0.45	0.45		0.13	0.13	0.17	0.17	0.17
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0		4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	3.0		2.0	3.0	3.0		2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	200	1510		240	1601	685		242	196	281	289	255
v/s Ratio Prot	0.08	c0.38		c0.11	c0.28			c0.09		0.10	c0.15	
v/s Ratio Perm						0.15			0.02			0.02
v/c Ratio	0.68	0.87		0.82	0.61	0.34		0.65	0.18	0.60	0.91	0.14
Uniform Delay, d1	51.1	31.2		50.5	24.9	21.2		49.3	46.2	46.3	49.1	42.6
Progression Factor	1.00	1.00		0.97	0.88	0.87		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.4	7.4		19.1	1.7	1.3		4.4	0.2	2.5	30.2	0.1
Delay (s)	58.5	38.6		67.9	23.7	19.7		53.8	46.4	48.8	79.3	42.7
Level of Service	E	D		E	C	B		D	D	D	E	D
Approach Delay (s)		40.5			28.0			49.1			59.2	
Approach LOS		D			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	39.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

4: Tamalpais Drive & US 101 SB Off-Ramp

7/2/2014



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑↑	↑
Volume (vph)	0	1040	1032	0	1159	458
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0
Lane Util. Factor		0.95	0.95		0.97	0.91
Frbp, ped/bikes		1.00	1.00		1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3433	1441
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3433	1441
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	0	1182	1173	0	1317	520
RTOR Reduction (vph)	0	0	0	0	0	22
Lane Group Flow (vph)	0	1182	1173	0	1317	498
Confl. Peds. (#/hr)						4
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		27.0	27.0		24.0	24.0
Effective Green, g (s)		28.0	28.0		24.0	24.0
Actuated g/C Ratio		0.47	0.47		0.40	0.40
Clearance Time (s)		5.0	5.0		4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1651	1651		1373	576
v/s Ratio Prot		c0.33	0.33		c0.38	0.35
v/s Ratio Perm						
v/c Ratio		0.72	0.71		0.96	0.86
Uniform Delay, d1		12.8	12.8		17.5	16.5
Progression Factor		0.93	1.15		1.00	1.00
Incremental Delay, d2		2.7	2.4		15.4	12.8
Delay (s)		14.6	17.1		32.9	29.3
Level of Service		B	B		C	C
Approach Delay (s)		14.6	17.1		31.9	
Approach LOS		B	B		C	

Intersection Summary

HCM 2000 Control Delay	22.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	108.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: US 101 NB Off-Ramp & Tamalpias Dr

7/2/2014



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘↘	↗↗
Volume (vph)	1480	0	0	869	759	676
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.95			0.95	0.97	0.88
Fr _t	1.00			1.00	1.00	0.85
Fl _t Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			3539	3433	2787
Fl _t Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			3539	3433	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1609	0	0	945	825	735
RTOR Reduction (vph)	0	0	0	0	0	25
Lane Group Flow (vph)	1609	0	0	945	825	710
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Actuated Green, G (s)	32.5			32.5	18.5	18.5
Effective Green, g (s)	33.5			33.5	18.5	18.5
Actuated g/C Ratio	0.56			0.56	0.31	0.31
Clearance Time (s)	5.0			5.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	1975			1975	1058	859
v/s Ratio Prot	c0.45			0.27	0.24	
v/s Ratio Perm						c0.25
v/c Ratio	0.81			0.48	0.78	0.83
Uniform Delay, d ₁	10.7			8.0	18.9	19.3
Progression Factor	1.10			1.00	1.00	1.00
Incremental Delay, d ₂	3.5			0.8	3.7	6.6
Delay (s)	15.3			8.8	22.6	25.8
Level of Service	B			A	C	C
Approach Delay (s)	15.3			8.8	24.1	
Approach LOS	B			A	C	

Intersection Summary

HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	95.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

1: Tamal Vista Blvd. & Wornum Dr.

7/2/2014



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	146	230	375	313	582	379
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1570	1863	1549	1770	1863
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1570	1863	1549	1770	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	159	250	408	340	633	412
RTOR Reduction (vph)	0	66	0	49	0	0
Lane Group Flow (vph)	159	184	408	291	633	412
Confl. Peds. (#/hr)	18	1		6		
Confl. Bikes (#/hr)		1		9		
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	3	1	2	3	1	6
Permitted Phases		3		2		
Actuated Green, G (s)	16.0	42.0	21.0	37.0	26.0	51.0
Effective Green, g (s)	16.0	42.0	21.0	37.0	26.0	51.0
Actuated g/C Ratio	0.21	0.56	0.28	0.49	0.35	0.68
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	377	962	521	846	613	1266
v/s Ratio Prot	c0.09	0.07	c0.22	0.07	c0.36	0.22
v/s Ratio Perm		0.05		0.11		
v/c Ratio	0.42	0.19	0.78	0.34	1.03	0.33
Uniform Delay, d1	25.5	8.1	24.9	11.6	24.5	4.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.4	0.4	11.2	1.1	45.0	0.7
Delay (s)	28.9	8.6	36.1	12.7	69.5	5.6
Level of Service	C	A	D	B	E	A
Approach Delay (s)	16.5		25.5			44.3
Approach LOS	B		C			D






















Intersection Summary

HCM 2000 Control Delay	32.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 2: Madera Boulevard/Tamal Vista Blvd. & Council Crest Dr.

7/2/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop				Stop
Volume (vph)	11	12	20	265	17	195	26	475	168	265	264	11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	12	13	21	279	18	205	27	500	177	279	278	12
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2				
Volume Total (vph)	45	297	205	27	500	177	279	289				
Volume Left (vph)	12	279	0	27	0	0	279	0				
Volume Right (vph)	21	0	205	0	0	177	0	12				
Hadj (s)	-0.19	0.50	-0.67	0.53	0.03	-0.67	0.53	0.01				
Departure Headway (s)	8.7	8.1	7.0	8.0	7.5	3.2	7.9	7.3				
Degree Utilization, x	0.11	0.67	0.40	0.06	1.0	0.16	0.61	0.59				
Capacity (veh/h)	392	436	508	434	476	1121	444	475				
Control Delay (s)	12.7	24.8	13.2	10.3	78.0	5.6	21.2	19.2				
Approach Delay (s)	12.7	20.0		57.2			20.2					
Approach LOS	B	C		F			C					
Intersection Summary												
Delay			34.3									
Level of Service			D									
Intersection Capacity Utilization			71.9%		ICU Level of Service				C			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

3: Madera Boulevard & Tamalpais Drive

7/2/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	213	675	70	306	841	409	55	99	225	298	93	207
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	0.95	0.95	1.00
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.97		1.00	0.96	1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	0.97	1.00
Satd. Flow (prot)	1770	3476		1770	3539	1537		1830	1526	1681	1723	1509
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	0.97	1.00
Satd. Flow (perm)	1770	3476		1770	3539	1537		1830	1526	1681	1723	1509
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	232	734	76	333	914	445	60	108	245	324	101	225
RTOR Reduction (vph)	0	6	0	0	0	243	0	0	212	0	0	191
Lane Group Flow (vph)	232	804	0	333	914	202	0	168	33	207	218	34
Confl. Peds. (#/hr)			6			3	20		15	15		20
Confl. Bikes (#/hr)			1									1
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases						6			8			4
Actuated Green, G (s)	20.1	41.9		26.4	48.2	48.2		16.4	16.4	18.3	18.3	18.3
Effective Green, g (s)	20.1	42.9		26.4	49.2	49.2		16.4	16.4	18.3	18.3	18.3
Actuated g/C Ratio	0.17	0.36		0.22	0.41	0.41		0.14	0.14	0.15	0.15	0.15
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0		4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	3.0		2.0	3.0	3.0		2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	296	1242		389	1450	630		250	208	256	262	230
v/s Ratio Prot	0.13	0.23		c0.19	c0.26			c0.09		0.12	c0.13	
v/s Ratio Perm						0.13			0.02			0.02
v/c Ratio	0.78	0.65		0.86	0.63	0.32		0.67	0.16	0.81	0.83	0.15
Uniform Delay, d1	47.9	32.2		45.0	28.2	24.0		49.2	45.7	49.2	49.4	44.1
Progression Factor	1.00	1.00		0.96	0.85	1.20		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.8	2.6		15.0	1.9	1.2		5.5	0.1	16.0	18.9	0.1
Delay (s)	59.7	34.8		58.2	25.9	30.1		54.7	45.9	65.2	68.3	44.2
Level of Service	E	C		E	C	C		D	D	E	E	D
Approach Delay (s)		40.4			33.4			49.5			59.0	
Approach LOS		D			C			D			E	

Intersection Summary

HCM 2000 Control Delay	41.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

4: Tamalpais Drive & US 101 SB Off-Ramp

7/2/2014



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↓↓	↓
Volume (vph)	0	1132	1363	0	885	404
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0
Lane Util. Factor		0.95	0.95		0.97	0.91
Frbp, ped/bikes		1.00	1.00		1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00
Frt		1.00	1.00		0.98	0.85
Flt Protected		1.00	1.00		0.96	1.00
Satd. Flow (prot)		3539	3539		3397	1441
Flt Permitted		1.00	1.00		0.96	1.00
Satd. Flow (perm)		3539	3539		3397	1441
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1230	1482	0	962	439
RTOR Reduction (vph)	0	0	0	0	9	9
Lane Group Flow (vph)	0	1230	1482	0	1063	320
Confl. Peds. (#/hr)						17
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		27.8	27.8		23.2	23.2
Effective Green, g (s)		28.8	28.8		23.2	23.2
Actuated g/C Ratio		0.48	0.48		0.39	0.39
Clearance Time (s)		5.0	5.0		4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1698	1698		1313	557
v/s Ratio Prot		0.35	c0.42		c0.31	0.22
v/s Ratio Perm						
v/c Ratio		0.72	0.87		0.81	0.58
Uniform Delay, d1		12.4	14.0		16.4	14.5
Progression Factor		0.85	1.16		1.00	1.00
Incremental Delay, d2		2.7	5.4		3.8	1.4
Delay (s)		13.2	21.6		20.2	16.0
Level of Service		B	C		C	B
Approach Delay (s)		13.2	21.6		19.2	
Approach LOS		B	C		B	

Intersection Summary

HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	114.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: US 101 NB Off-Ramp & Tamalpias Dr

7/2/2014



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘↘	↘↘
Volume (vph)	1253	0	0	965	977	760
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.95			0.95	0.97	0.88
Flt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			3539	3433	2787
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			3539	3433	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1362	0	0	1049	1062	826
RTOR Reduction (vph)	0	0	0	0	0	46
Lane Group Flow (vph)	1362	0	0	1049	1062	780
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Actuated Green, G (s)	32.0			32.0	19.0	19.0
Effective Green, g (s)	33.0			33.0	19.0	19.0
Actuated g/C Ratio	0.55			0.55	0.32	0.32
Clearance Time (s)	5.0			5.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	1946			1946	1087	882
v/s Ratio Prot	c0.38			0.30	c0.31	
v/s Ratio Perm						0.28
v/c Ratio	0.70			0.54	0.98	0.88
Uniform Delay, d1	9.9			8.6	20.3	19.5
Progression Factor	1.04			1.00	1.00	1.00
Incremental Delay, d2	1.7			1.1	21.7	10.5
Delay (s)	12.0			9.7	41.9	29.9
Level of Service	B			A	D	C
Approach Delay (s)	12.0			9.7	36.7	
Approach LOS	B			A	D	

Intersection Summary

HCM 2000 Control Delay	22.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	105.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

MARKS TRAFFIC DATA

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TOWN OF CORTE MADERA

File Name : tamal vista-wornum-a

Site Code : 1

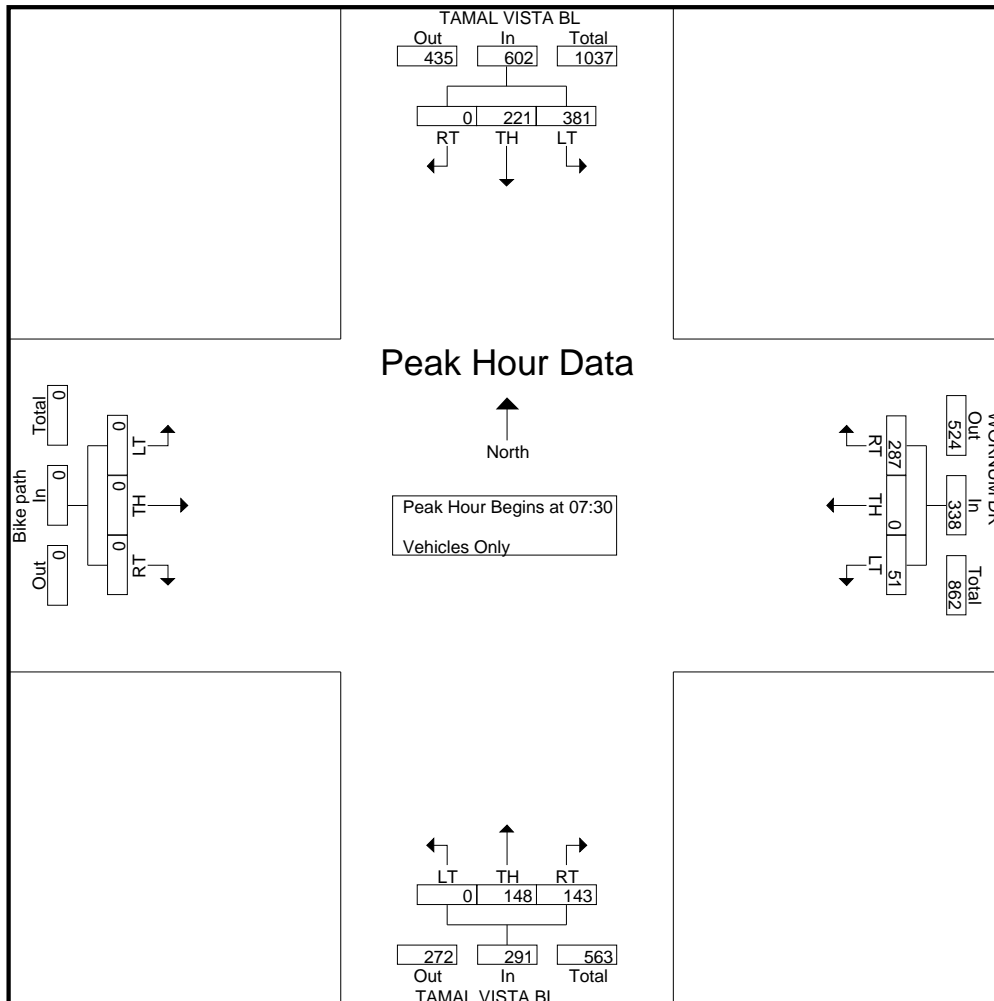
Start Date : 4/9/2014

Page No : 1

Groups Printed- Vehicles Only

Start Time	TAMAL VISTA BL Southbound				WORNUM DR Westbound				TAMAL VISTA BL Northbound				Bike path Eastbound				Int. Total
	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	
07:00	0	25	78	103	27	0	0	27	18	14	0	32	0	0	0	0	162
07:15	0	19	57	76	69	0	8	77	18	17	0	35	0	0	0	0	188
07:30	0	54	69	123	141	0	11	152	24	42	0	66	0	0	0	0	341
07:45	0	44	94	138	58	0	13	71	36	34	0	70	0	0	0	0	279
Total	0	142	298	440	295	0	32	327	96	107	0	203	0	0	0	0	970
08:00	0	65	102	167	56	0	14	70	34	52	0	86	0	0	0	0	323
08:15	0	58	116	174	32	0	13	45	49	20	0	69	0	0	0	0	288
08:30	0	61	92	153	49	0	14	63	27	40	0	67	0	0	0	0	283
08:45	0	67	85	152	33	0	18	51	34	37	0	71	0	0	0	0	274
Total	0	251	395	646	170	0	59	229	144	149	0	293	0	0	0	0	1168
Grand Total	0	393	693	1086	465	0	91	556	240	256	0	496	0	0	0	0	2138
Apprch %	0	36.2	63.8		83.6	0	16.4		48.4	51.6	0		0	0	0		
Total %	0	18.4	32.4	50.8	21.7	0	4.3	26	11.2	12	0	23.2	0	0	0	0	

Start Time	TAMAL VISTA BL Southbound				WORNUM DR Westbound				TAMAL VISTA BL Northbound				Bike path Eastbound				Int. Total
	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	54	69	123	141	0	11	152	24	42	0	66	0	0	0	0	341
07:45	0	44	94	138	58	0	13	71	36	34	0	70	0	0	0	0	279
08:00	0	65	102	167	56	0	14	70	34	52	0	86	0	0	0	0	323
08:15	0	58	116	174	32	0	13	45	49	20	0	69	0	0	0	0	288
Total Volume	0	221	381	602	287	0	51	338	143	148	0	291	0	0	0	0	1231
% App. Total	0	36.7	63.3		84.9	0	15.1		49.1	50.9	0		0	0	0		
PHF	.000	.850	.821	.865	.509	.000	.911	.556	.730	.712	.000	.846	.000	.000	.000	.000	.902



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TOWN OF CORTE MADERA

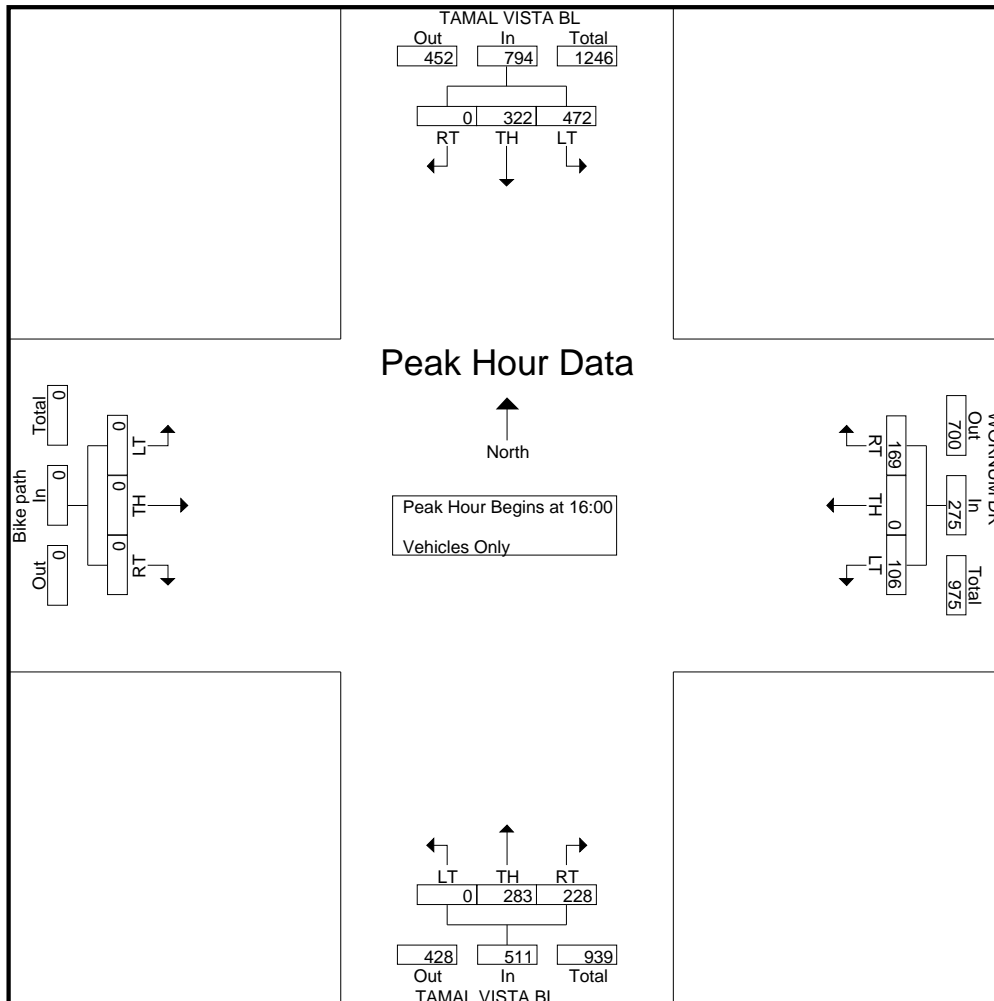
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 Site Code : 1
 Start Date : 4/9/2014
 Page No : 1

Groups Printed- Vehicles Only

Start Time	TAMAL VISTA BL Southbound				WORNUM DR Westbound				TAMAL VISTA BL Northbound				Bike path Eastbound				Int. Total
	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	
16:00	0	92	136	228	43	0	32	75	46	70	0	116	0	0	0	0	419
16:15	0	74	138	212	40	0	30	70	56	58	0	114	0	0	0	0	396
16:30	0	74	108	182	40	0	26	66	65	71	0	136	0	0	0	0	384
16:45	0	82	90	172	46	0	18	64	61	84	0	145	0	0	0	0	381
Total	0	322	472	794	169	0	106	275	228	283	0	511	0	0	0	0	1580
17:00	0	89	113	202	42	0	18	60	48	86	0	134	0	0	0	0	396
17:15	0	96	97	193	44	0	28	72	48	85	0	133	0	0	0	0	398
17:30	0	68	92	160	37	0	15	52	53	81	0	134	0	0	0	0	346
17:45	0	70	111	181	44	0	19	63	37	86	0	123	0	0	0	0	367
Total	0	323	413	736	167	0	80	247	186	338	0	524	0	0	0	0	1507
Grand Total	0	645	885	1530	336	0	186	522	414	621	0	1035	0	0	0	0	3087
Apprch %	0	42.2	57.8		64.4	0	35.6		40	60	0		0	0	0		
Total %	0	20.9	28.7	49.6	10.9	0	6	16.9	13.4	20.1	0	33.5	0	0	0	0	

Start Time	TAMAL VISTA BL Southbound				WORNUM DR Westbound				TAMAL VISTA BL Northbound				Bike path Eastbound				Int. Total
	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	
16:00	0	92	136	228	43	0	32	75	46	70	0	116	0	0	0	0	419
16:15	0	74	138	212	40	0	30	70	56	58	0	114	0	0	0	0	396
16:30	0	74	108	182	40	0	26	66	65	71	0	136	0	0	0	0	384
16:45	0	82	90	172	46	0	18	64	61	84	0	145	0	0	0	0	381
Total Volume	0	322	472	794	169	0	106	275	228	283	0	511	0	0	0	0	1580
% App. Total	0	40.6	59.4		61.5	0	38.5		44.6	55.4	0		0	0	0		
PHF	.000	.875	.855	.871	.918	.000	.828	.917	.877	.842	.000	.881	.000	.000	.000	.000	.943

Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 16:00



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TOWN OF CORTE MADERA

File Name : tamal vista-madera-a
 Site Code : 2
 Start Date : 4/9/2014
 Page No : 1

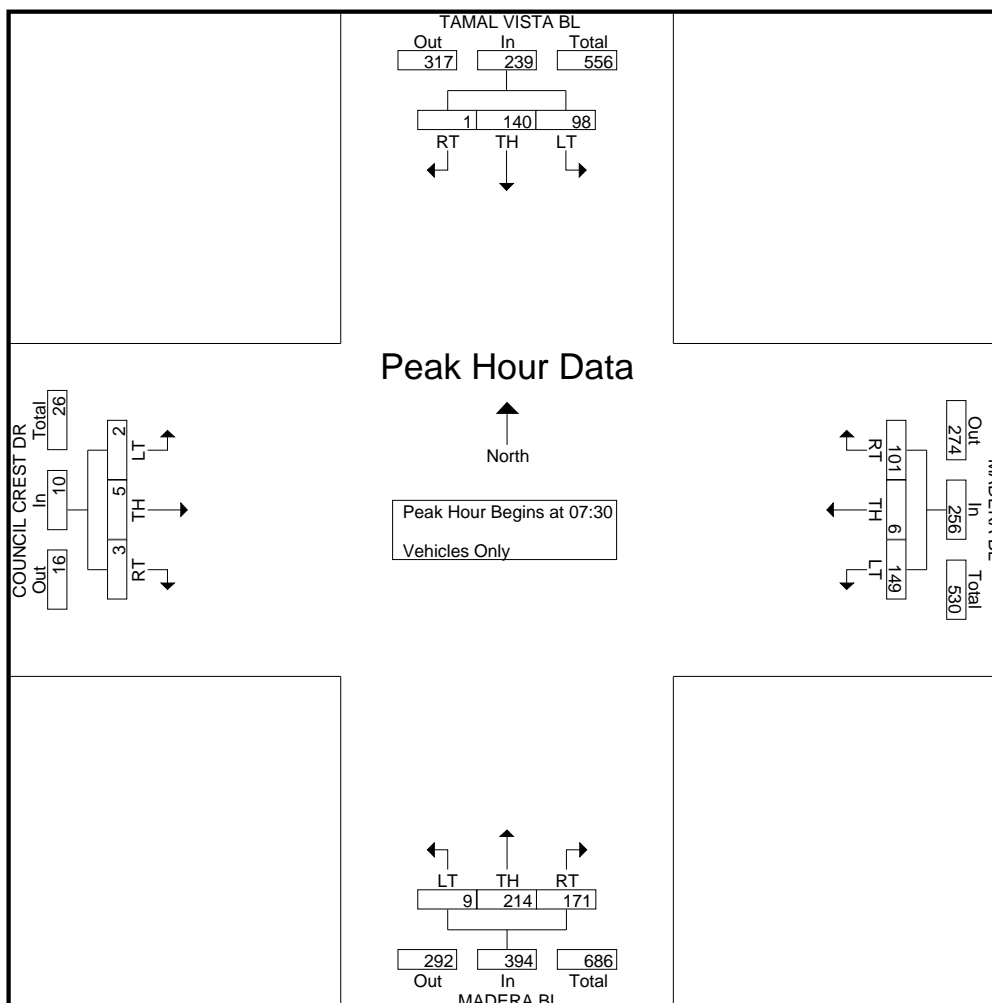
Groups Printed- Vehicles Only

Start Time	TAMAL VISTA BL Southbound				MADERA BL Westbound				MADERA BL Northbound				COUNCIL CREST DR Eastbound				Int. Total
	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	
07:00	1	14	11	26	23	0	12	35	24	14	1	39	1	0	0	1	101
07:15	0	16	11	27	10	4	25	39	16	24	0	40	1	0	1	2	108
07:30	0	36	24	60	28	0	34	62	37	42	1	80	0	3	0	3	205
07:45	0	35	23	58	21	5	37	63	43	49	4	96	1	0	0	1	218
Total	1	101	69	171	82	9	108	199	120	129	6	255	3	3	1	7	632
08:00	0	38	34	72	28	0	47	75	54	77	0	131	2	1	2	5	283
08:15	1	31	17	49	24	1	31	56	37	46	4	87	0	1	0	1	193
08:30	0	25	24	49	13	1	38	52	35	55	2	92	1	1	0	2	195
08:45	0	30	17	47	32	1	28	61	27	49	0	76	0	1	0	1	185
Total	1	124	92	217	97	3	144	244	153	227	6	386	3	4	2	9	856
Grand Total	2	225	161	388	179	12	252	443	273	356	12	641	6	7	3	16	1488
Apprch %	0.5	58	41.5		40.4	2.7	56.9		42.6	55.5	1.9		37.5	43.8	18.8		
Total %	0.1	15.1	10.8	26.1	12	0.8	16.9	29.8	18.3	23.9	0.8	43.1	0.4	0.5	0.2	1.1	

Start Time	TAMAL VISTA BL Southbound				MADERA BL Westbound				MADERA BL Northbound				COUNCIL CREST DR Eastbound				Int. Total
	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	
07:30	0	36	24	60	28	0	34	62	37	42	1	80	0	3	0	3	205
07:45	0	35	23	58	21	5	37	63	43	49	4	96	1	0	0	1	218
08:00	0	38	34	72	28	0	47	75	54	77	0	131	2	1	2	5	283
08:15	1	31	17	49	24	1	31	56	37	46	4	87	0	1	0	1	193
Total Volume	1	140	98	239	101	6	149	256	171	214	9	394	3	5	2	10	899
% App. Total	0.4	58.6	41		39.5	2.3	58.2		43.4	54.3	2.3		30	50	20		
PHF	.250	.921	.721	.830	.902	.300	.793	.853	.792	.695	.563	.752	.375	.417	.250	.500	.794

Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:30



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TOWN OF CORTE MADERA

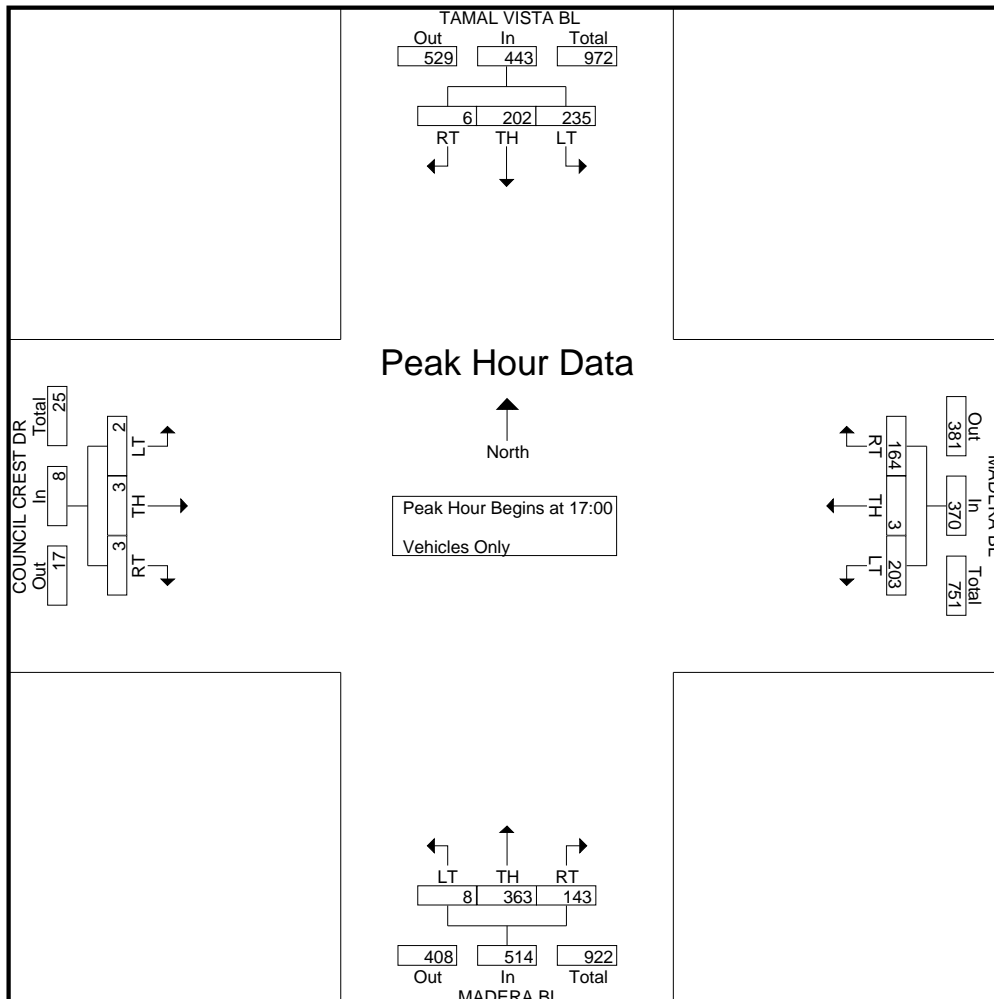
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 Start Date : 4/9/2014
 Page No : 1

Groups Printed- Vehicles Only

Start Time	TAMAL VISTA BL Southbound				MADERA BL Westbound				MADERA BL Northbound				COUNCIL CREST DR Eastbound				Int. Total
	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	
16:00	1	55	53	109	38	1	54	93	28	74	1	103	3	0	0	3	308
16:15	0	60	54	114	58	0	41	99	27	66	1	94	2	2	0	4	311
16:30	0	46	52	98	47	1	40	88	21	65	4	90	1	1	0	2	278
16:45	0	61	42	103	37	1	50	88	23	86	5	114	2	3	0	5	310
Total	1	222	201	424	180	3	185	368	99	291	11	401	8	6	0	14	1207
17:00	1	54	80	135	49	1	49	99	36	98	3	137	0	1	0	1	372
17:15	3	62	56	121	42	1	61	104	29	84	4	117	0	0	2	2	344
17:30	1	40	44	85	36	0	53	89	32	84	1	117	3	1	0	4	295
17:45	1	46	55	102	37	1	40	78	46	97	0	143	0	1	0	1	324
Total	6	202	235	443	164	3	203	370	143	363	8	514	3	3	2	8	1335
Grand Total	7	424	436	867	344	6	388	738	242	654	19	915	11	9	2	22	2542
Apprch %	0.8	48.9	50.3		46.6	0.8	52.6		26.4	71.5	2.1		50	40.9	9.1		
Total %	0.3	16.7	17.2	34.1	13.5	0.2	15.3	29	9.5	25.7	0.7	36	0.4	0.4	0.1	0.9	

Start Time	TAMAL VISTA BL Southbound				MADERA BL Westbound				MADERA BL Northbound				COUNCIL CREST DR Eastbound				Int. Total
	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	
17:00	1	54	80	135	49	1	49	99	36	98	3	137	0	1	0	1	372
17:15	3	62	56	121	42	1	61	104	29	84	4	117	0	0	2	2	344
17:30	1	40	44	85	36	0	53	89	32	84	1	117	3	1	0	4	295
17:45	1	46	55	102	37	1	40	78	46	97	0	143	0	1	0	1	324
Total Volume	6	202	235	443	164	3	203	370	143	363	8	514	3	3	2	8	1335
% App. Total	1.4	45.6	53		44.3	0.8	54.9		27.8	70.6	1.6		37.5	37.5	25		
PHF	.500	.815	.734	.820	.837	.750	.832	.889	.777	.926	.500	.899	.250	.750	.250	.500	.897

Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 17:00



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TOWN OF CORTE MADERA

File Name : madera-tamalpais-a

Site Code : 4

Start Date : 4/9/2014

Page No : 1

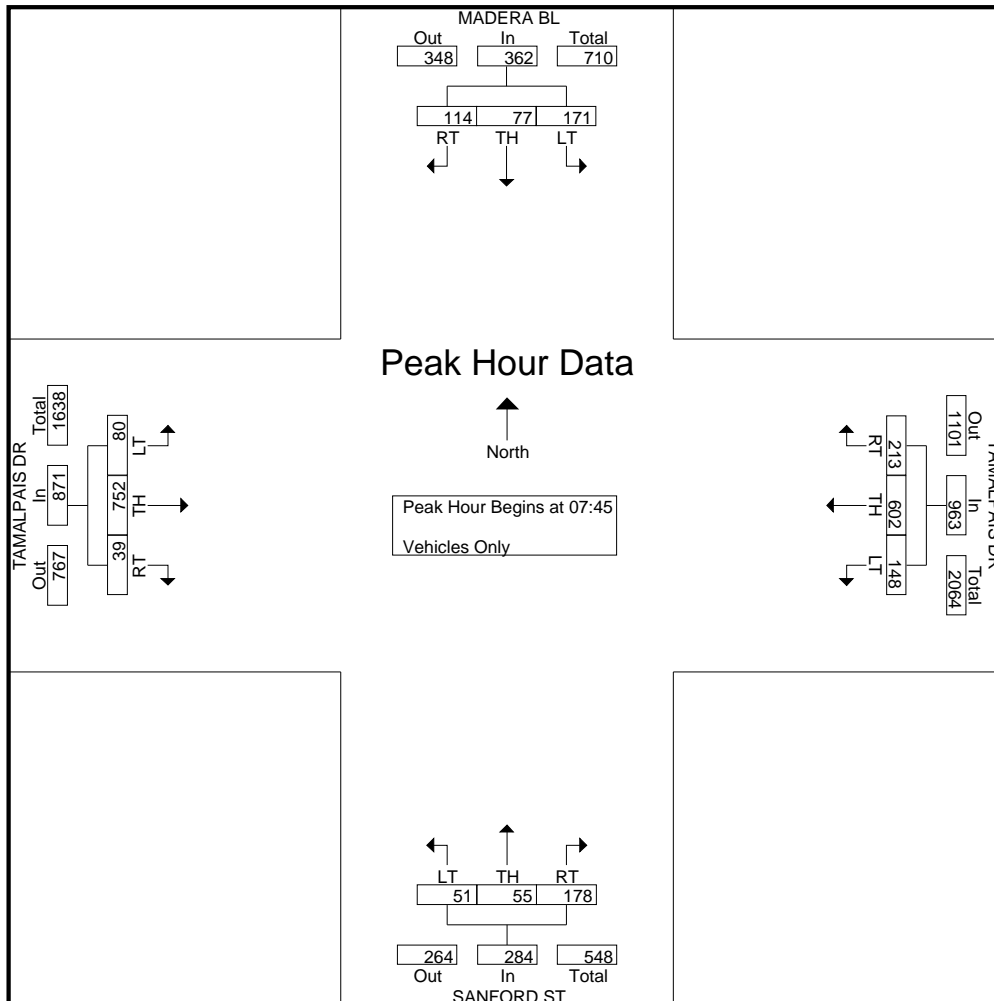
Groups Printed- Vehicles Only

Start Time	MADERA BL Southbound				TAMALPAIS DR Westbound				SANFORD ST Northbound				TAMALPAIS DR Eastbound				Int. Total
	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	
07:00	7	7	20	34	17	46	21	84	30	3	1	34	8	81	11	100	252
07:15	19	9	16	44	22	60	23	105	26	4	6	36	9	118	9	136	321
07:30	21	9	32	62	43	106	25	174	46	15	9	70	9	148	13	170	476
07:45	28	10	33	71	65	198	52	315	47	17	21	85	8	165	16	189	660
Total	75	35	101	211	147	410	121	678	149	39	37	225	34	512	49	595	1709
08:00	26	28	56	110	72	180	31	283	43	18	12	73	9	201	22	232	698
08:15	26	22	53	101	34	134	32	200	46	9	8	63	12	209	18	239	603
08:30	34	17	29	80	42	90	33	165	42	11	10	63	10	177	24	211	519
08:45	27	11	31	69	51	117	46	214	51	11	7	69	10	209	24	243	595
Total	113	78	169	360	199	521	142	862	182	49	37	268	41	796	88	925	2415
Grand Total	188	113	270	571	346	931	263	1540	331	88	74	493	75	1308	137	1520	4124
Apprch %	32.9	19.8	47.3		22.5	60.5	17.1		67.1	17.8	15		4.9	86.1	9		
Total %	4.6	2.7	6.5	13.8	8.4	22.6	6.4	37.3	8	2.1	1.8	12	1.8	31.7	3.3	36.9	

Start Time	MADERA BL Southbound				TAMALPAIS DR Westbound				SANFORD ST Northbound				TAMALPAIS DR Eastbound				Int. Total
	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	
07:45	28	10	33	71	65	198	52	315	47	17	21	85	8	165	16	189	660
08:00	26	28	56	110	72	180	31	283	43	18	12	73	9	201	22	232	698
08:15	26	22	53	101	34	134	32	200	46	9	8	63	12	209	18	239	603
08:30	34	17	29	80	42	90	33	165	42	11	10	63	10	177	24	211	519
Total Volume	114	77	171	362	213	602	148	963	178	55	51	284	39	752	80	871	2480
% App. Total	31.5	21.3	47.2		22.1	62.5	15.4		62.7	19.4	18		4.5	86.3	9.2		
PHF	.838	.688	.763	.823	.740	.760	.712	.764	.947	.764	.607	.835	.813	.900	.833	.911	.888

Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:45



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TOWN OF CORTE MADERA

File Name : madera-tamalpais-p
 Site Code : 4
 Start Date : 4/9/2014
 Page No : 1

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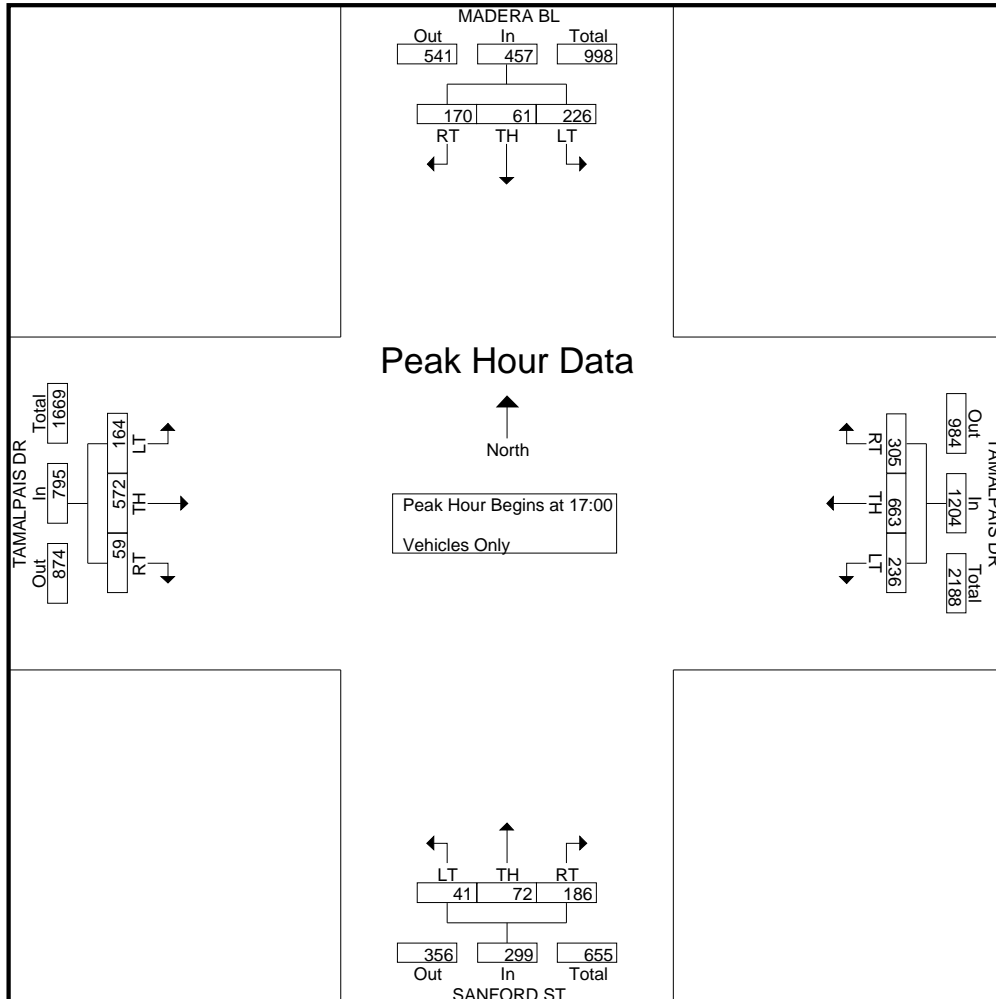
Start Time	MADERA BL Southbound				TAMALPAIS DR Westbound				SANFORD ST Northbound				TAMALPAIS DR Eastbound				Int. Total
	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	
16:00	48	13	57	118	59	135	39	233	44	17	7	68	12	144	29	185	604
16:15	46	18	59	123	47	146	40	233	37	12	8	57	8	158	41	207	620
16:30	53	15	53	121	58	127	41	226	44	15	8	67	10	151	40	201	615
16:45	50	21	45	116	65	171	47	283	45	10	8	63	13	158	41	212	674
Total	197	67	214	478	229	579	167	975	170	54	31	255	43	611	151	805	2513
17:00	39	22	57	118	74	150	46	270	47	21	6	74	15	139	41	195	657
17:15	51	17	56	124	66	182	63	311	40	17	9	66	19	172	54	245	746
17:30	36	14	59	109	76	168	62	306	50	15	10	75	12	144	29	185	675
17:45	44	8	54	106	89	163	65	317	49	19	16	84	13	117	40	170	677
Total	170	61	226	457	305	663	236	1204	186	72	41	299	59	572	164	795	2755
Grand Total	367	128	440	935	534	1242	403	2179	356	126	72	554	102	1183	315	1600	5268
Apprch %	39.3	13.7	47.1		24.5	57	18.5		64.3	22.7	13		6.4	73.9	19.7		
Total %	7	2.4	8.4	17.7	10.1	23.6	7.6	41.4	6.8	2.4	1.4	10.5	1.9	22.5	6	30.4	

Start Time	MADERA BL Southbound				TAMALPAIS DR Westbound				SANFORD ST Northbound				TAMALPAIS DR Eastbound				Int. Total
	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	

Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 17:00

17:00	39	22	57	118	74	150	46	270	47	21	6	74	15	139	41	195	657
17:15	51	17	56	124	66	182	63	311	40	17	9	66	19	172	54	245	746
17:30	36	14	59	109	76	168	62	306	50	15	10	75	12	144	29	185	675
17:45	44	8	54	106	89	163	65	317	49	19	16	84	13	117	40	170	677
Total Volume	170	61	226	457	305	663	236	1204	186	72	41	299	59	572	164	795	2755
% App. Total	37.2	13.3	49.5		25.3	55.1	19.6		62.2	24.1	13.7		7.4	71.9	20.6		
PHF	.833	.693	.958	.921	.857	.911	.908	.950	.930	.857	.641	.890	.776	.831	.759	.811	.923



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TOWN OF CORTE MADERA

File Name : 101sb-tamalpais-a
Site Code : 5
Start Date : 4/9/2014
Page No : 1

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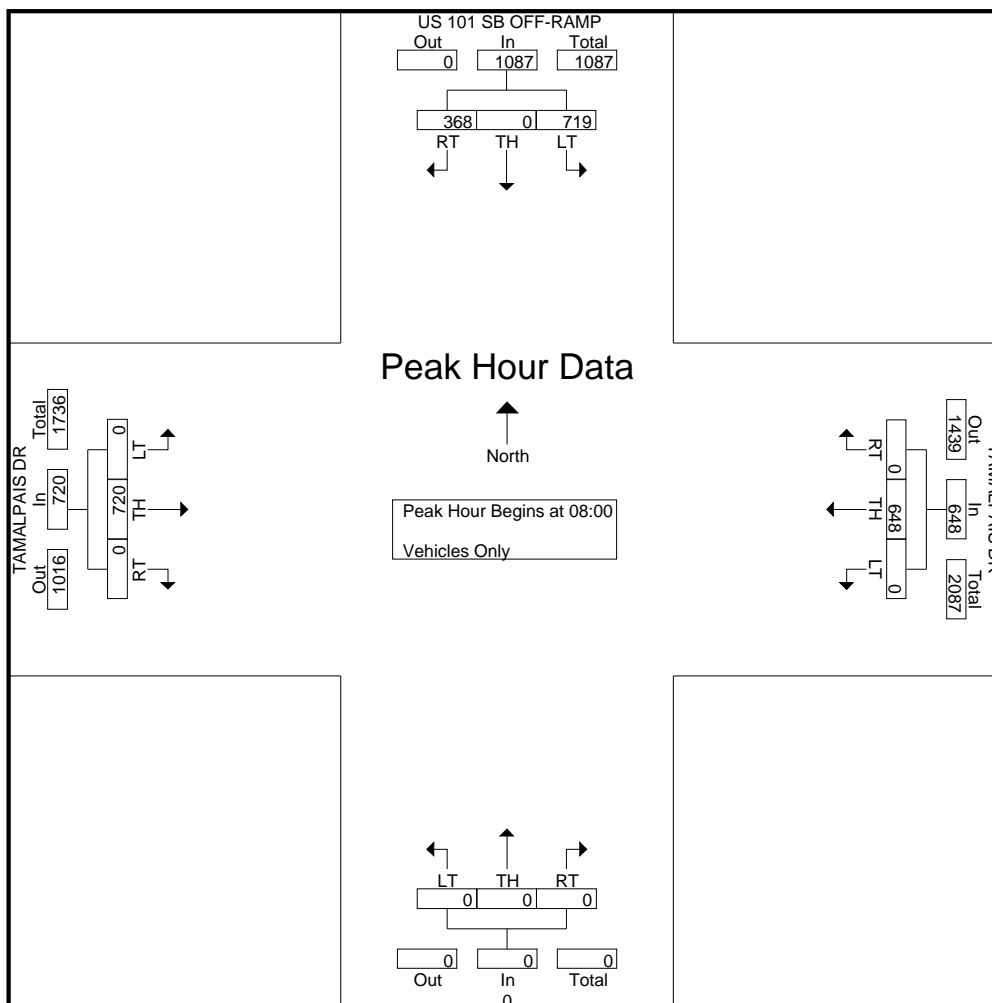
Start Time	US 101 SB OFF-RAMP Southbound				TAMALPAIS DR Westbound				0 Northbound				TAMALPAIS DR Eastbound				Int. Total
	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	
07:00	51	0	120	171	0	49	0	49	0	0	0	0	0	68	0	68	288
07:15	52	0	103	155	0	65	0	65	0	0	0	0	0	99	0	99	319
07:30	63	0	131	194	0	153	0	153	0	0	0	0	0	113	0	113	460
07:45	81	0	128	209	0	251	0	251	0	0	0	0	0	135	0	135	595
Total	247	0	482	729	0	518	0	518	0	0	0	0	0	415	0	415	1662
08:00	103	0	188	291	0	212	0	212	0	0	0	0	0	191	0	191	694
08:15	90	0	170	260	0	135	0	135	0	0	0	0	0	181	0	181	576
08:30	83	0	185	268	0	141	0	141	0	0	0	0	0	167	0	167	576
08:45	92	0	176	268	0	160	0	160	0	0	0	0	0	181	0	181	609
Total	368	0	719	1087	0	648	0	648	0	0	0	0	0	720	0	720	2455
Grand Total	615	0	1201	1816	0	1166	0	1166	0	0	0	0	0	1135	0	1135	4117
Apprch %	33.9	0	66.1		0	100	0		0	0	0	0	0	100	0		
Total %	14.9	0	29.2	44.1	0	28.3	0	28.3	0	0	0	0	0	27.6	0	27.6	

Start Time	US 101 SB OFF-RAMP Southbound				TAMALPAIS DR Westbound				0 Northbound				TAMALPAIS DR Eastbound				Int. Total
	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	
08:00	103	0	188	291	0	212	0	212	0	0	0	0	0	191	0	191	694
08:15	90	0	170	260	0	135	0	135	0	0	0	0	0	181	0	181	576
08:30	83	0	185	268	0	141	0	141	0	0	0	0	0	167	0	167	576
08:45	92	0	176	268	0	160	0	160	0	0	0	0	0	181	0	181	609
Total Volume	368	0	719	1087	0	648	0	648	0	0	0	0	0	720	0	720	2455
% App. Total	33.9	0	66.1		0	100	0		0	0	0	0	0	100	0		
PHF	.893	.000	.956	.934	.000	.764	.000	.764	.000	.000	.000	.000	.000	.942	.000	.942	.884

Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 08:00

08:00	103	0	188	291	0	212	0	212	0	0	0	0	0	191	0	191	694
08:15	90	0	170	260	0	135	0	135	0	0	0	0	0	181	0	181	576
08:30	83	0	185	268	0	141	0	141	0	0	0	0	0	167	0	167	576
08:45	92	0	176	268	0	160	0	160	0	0	0	0	0	181	0	181	609
Total Volume	368	0	719	1087	0	648	0	648	0	0	0	0	0	720	0	720	2455
% App. Total	33.9	0	66.1		0	100	0		0	0	0	0	0	100	0		
PHF	.893	.000	.956	.934	.000	.764	.000	.764	.000	.000	.000	.000	.000	.942	.000	.942	.884



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TOWN OF CORTE MADERA

File Name : 101sb-tamalpais-p

Site Code : 5

Start Date : 4/9/2014

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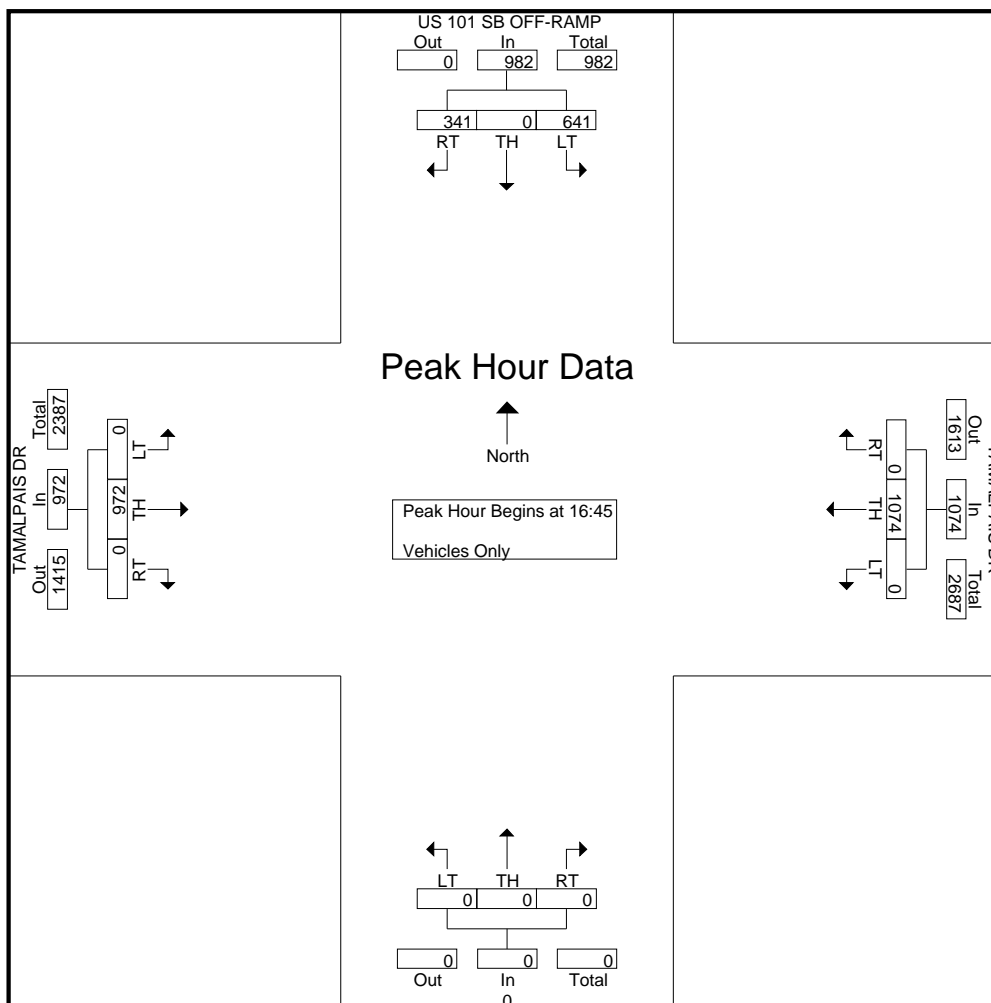
Start Time	US 101 SB OFF-RAMP Southbound				TAMALPAIS DR Westbound				0 Northbound				TAMALPAIS DR Eastbound				Int. Total
	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	
16:00	65	0	130	195	0	219	0	219	0	0	0	0	0	218	0	218	632
16:15	73	0	152	225	0	219	0	219	0	0	0	0	0	238	0	238	682
16:30	76	0	150	226	0	223	0	223	0	0	0	0	0	228	0	228	677
16:45	83	0	167	250	0	246	0	246	0	0	0	0	0	248	0	248	744
Total	297	0	599	896	0	907	0	907	0	0	0	0	0	932	0	932	2735
17:00	85	0	160	245	0	256	0	256	0	0	0	0	0	231	0	231	732
17:15	84	0	148	232	0	269	0	269	0	0	0	0	0	252	0	252	753
17:30	89	0	166	255	0	303	0	303	0	0	0	0	0	241	0	241	799
17:45	87	0	135	222	0	293	0	293	0	0	0	0	0	206	0	206	721
Total	345	0	609	954	0	1121	0	1121	0	0	0	0	0	930	0	930	3005
Grand Total	642	0	1208	1850	0	2028	0	2028	0	0	0	0	0	1862	0	1862	5740
Apprch %	34.7	0	65.3		0	100	0		0	0	0	0	0	100	0		
Total %	11.2	0	21	32.2	0	35.3	0	35.3	0	0	0	0	0	32.4	0	32.4	

Start Time	US 101 SB OFF-RAMP Southbound				TAMALPAIS DR Westbound				0 Northbound				TAMALPAIS DR Eastbound				Int. Total
	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	

Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 16:45

16:45	83	0	167	250	0	246	0	246	0	0	0	0	0	248	0	248	744
17:00	85	0	160	245	0	256	0	256	0	0	0	0	0	231	0	231	732
17:15	84	0	148	232	0	269	0	269	0	0	0	0	0	252	0	252	753
17:30	89	0	166	255	0	303	0	303	0	0	0	0	0	241	0	241	799
Total Volume	341	0	641	982	0	1074	0	1074	0	0	0	0	0	972	0	972	3028
% App. Total	34.7	0	65.3		0	100	0		0	0	0	0	0	100	0		
PHF	.958	.000	.960	.963	.000	.886	.000	.886	.000	.000	.000	.000	.000	.964	.000	.964	.947



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TOWN OF CORTE MADERA

File Name : 101nb-tamalpais-a

Site Code : 6

Start Date : 4/9/2014

Page No : 1

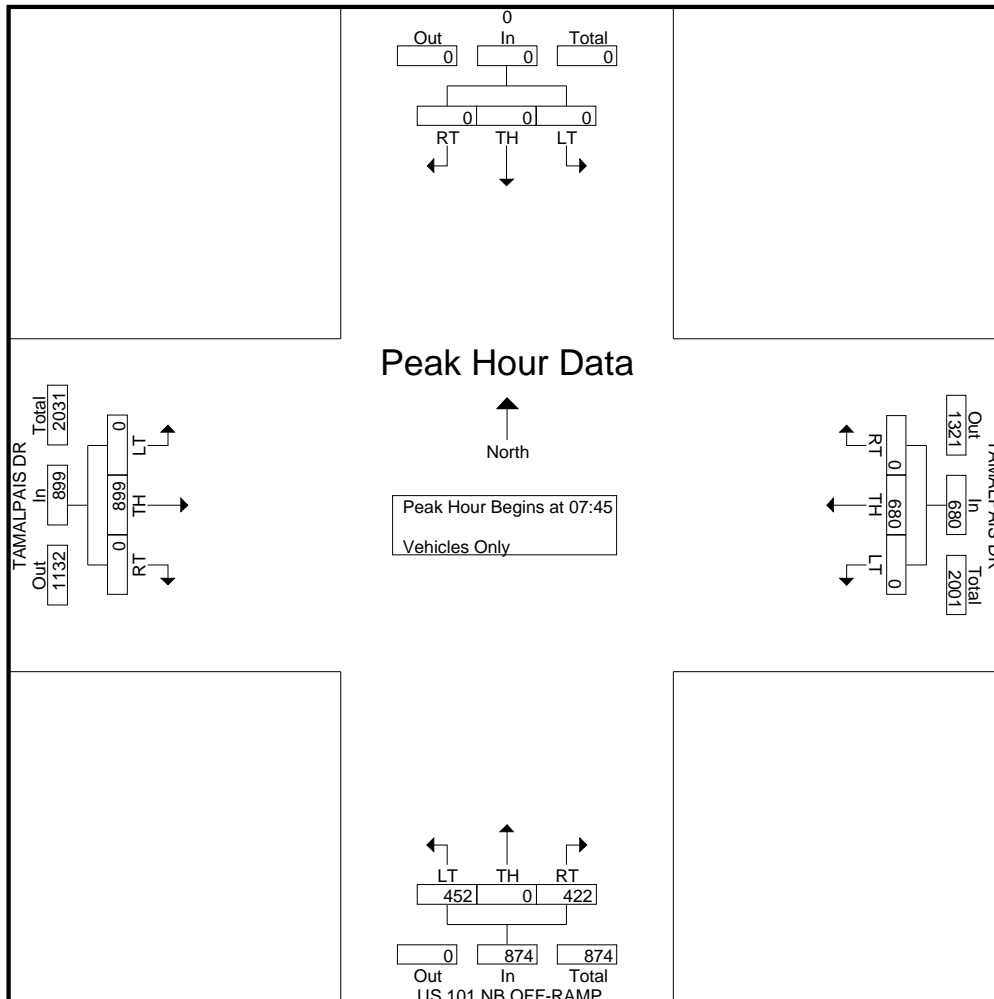
Groups Printed- Vehicles Only

Start Time	0 Southbound				TAMALPAIS DR Westbound				US 101 NB OFF-RAMP Northbound				TAMALPAIS DR Eastbound				Int. Total
	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	
07:00	0	0	0	0	0	63	0	63	25	0	35	60	0	128	0	128	251
07:15	0	0	0	0	0	90	0	90	40	0	53	93	0	114	0	114	297
07:30	0	0	0	0	0	138	0	138	47	0	108	155	0	145	0	145	438
07:45	0	0	0	0	0	202	0	202	97	0	155	252	0	193	0	193	647
Total	0	0	0	0	0	493	0	493	209	0	351	560	0	580	0	580	1633
08:00	0	0	0	0	0	182	0	182	120	0	121	241	0	229	0	229	652
08:15	0	0	0	0	0	162	0	162	104	0	76	180	0	239	0	239	581
08:30	0	0	0	0	0	134	0	134	101	0	100	201	0	238	0	238	573
08:45	0	0	0	0	0	125	0	125	120	0	113	233	0	215	0	215	573
Total	0	0	0	0	0	603	0	603	445	0	410	855	0	921	0	921	2379
Grand Total	0	0	0	0	0	1096	0	1096	654	0	761	1415	0	1501	0	1501	4012
Apprch %	0	0	0	0	0	100	0	100	46.2	0	53.8	0	0	100	0	0	
Total %	0	0	0	0	0	27.3	0	27.3	16.3	0	19	35.3	0	37.4	0	37.4	

Start Time	0 Southbound				TAMALPAIS DR Westbound				US 101 NB OFF-RAMP Northbound				TAMALPAIS DR Eastbound				Int. Total
	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	
07:45	0	0	0	0	0	202	0	202	97	0	155	252	0	193	0	193	647
08:00	0	0	0	0	0	182	0	182	120	0	121	241	0	229	0	229	652
08:15	0	0	0	0	0	162	0	162	104	0	76	180	0	239	0	239	581
08:30	0	0	0	0	0	134	0	134	101	0	100	201	0	238	0	238	573
Total Volume	0	0	0	0	0	680	0	680	422	0	452	874	0	899	0	899	2453
% App. Total	0	0	0	0	0	100	0	100	48.3	0	51.7	0	0	100	0	0	
PHF	.000	.000	.000	.000	.000	.842	.000	.842	.879	.000	.729	.867	.000	.940	.000	.940	.941

Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:45



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TOWN OF CORTE MADERA

File Name : 101nb-tamalpais-p

Site Code : 6

Start Date : 4/9/2014

Page No : 1

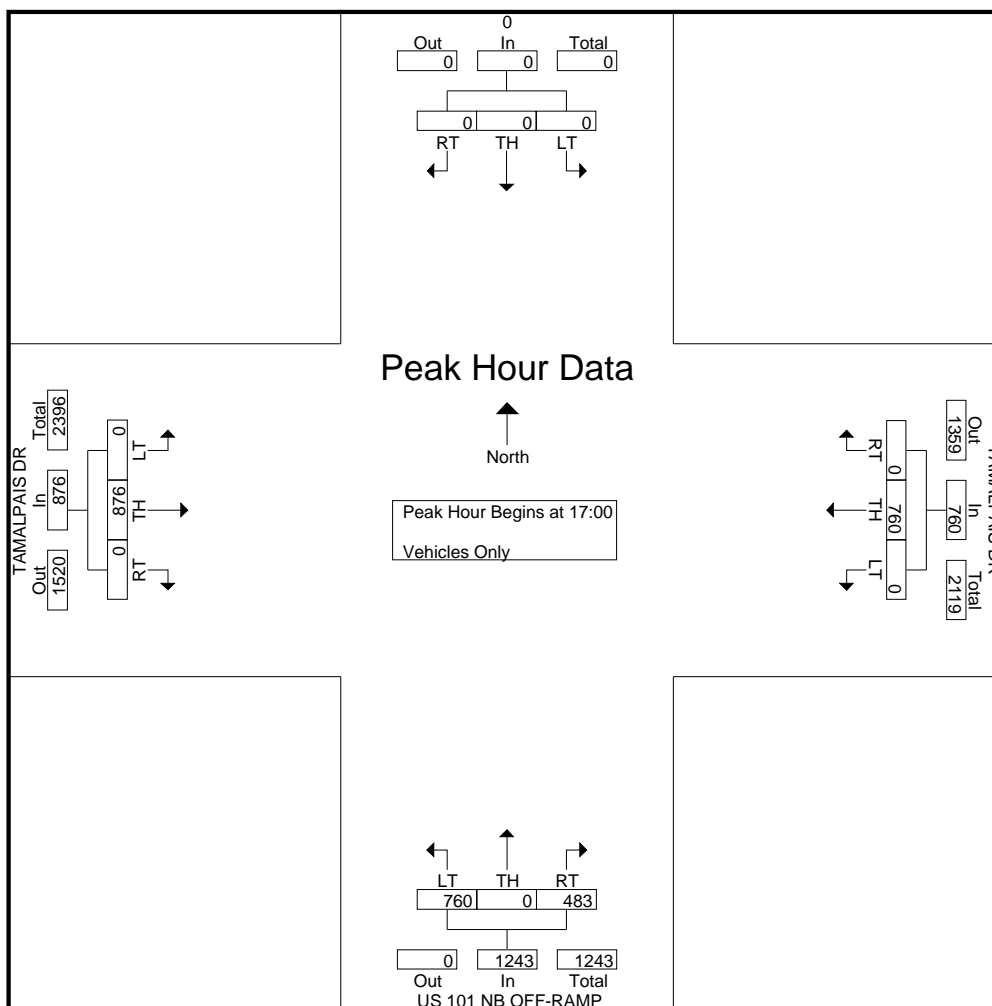
Groups Printed- Vehicles Only

Start Time	0 Southbound				TAMALPAIS DR Westbound				US 101 NB OFF-RAMP Northbound				TAMALPAIS DR Eastbound				Int. Total
	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	
16:00	0	0	0	0	0	191	0	191	127	0	169	296	0	255	0	255	742
16:15	0	0	0	0	0	142	0	142	117	0	128	245	0	204	0	204	591
16:30	0	0	0	0	0	183	0	183	110	0	152	262	0	197	0	197	642
16:45	0	0	0	0	0	200	0	200	101	0	166	267	0	228	0	228	695
Total	0	0	0	0	0	716	0	716	455	0	615	1070	0	884	0	884	2670
17:00	0	0	0	0	0	204	0	204	122	0	172	294	0	223	0	223	721
17:15	0	0	0	0	0	178	0	178	120	0	186	306	0	215	0	215	699
17:30	0	0	0	0	0	194	0	194	116	0	195	311	0	238	0	238	743
17:45	0	0	0	0	0	184	0	184	125	0	207	332	0	200	0	200	716
Total	0	0	0	0	0	760	0	760	483	0	760	1243	0	876	0	876	2879
Grand Total	0	0	0	0	0	1476	0	1476	938	0	1375	2313	0	1760	0	1760	5549
Apprch %	0	0	0	0	0	100	0	100	40.6	0	59.4	100	0	100	0	100	
Total %	0	0	0	0	0	26.6	0	26.6	16.9	0	24.8	41.7	0	31.7	0	31.7	

Start Time	0 Southbound				TAMALPAIS DR Westbound				US 101 NB OFF-RAMP Northbound				TAMALPAIS DR Eastbound				Int. Total
	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	
17:00	0	0	0	0	0	204	0	204	122	0	172	294	0	223	0	223	721
17:15	0	0	0	0	0	178	0	178	120	0	186	306	0	215	0	215	699
17:30	0	0	0	0	0	194	0	194	116	0	195	311	0	238	0	238	743
17:45	0	0	0	0	0	184	0	184	125	0	207	332	0	200	0	200	716
Total Volume	0	0	0	0	0	760	0	760	483	0	760	1243	0	876	0	876	2879
% App. Total	0	0	0	0	0	100	0	100	38.9	0	61.1	100	0	100	0	100	
PHF	.000	.000	.000	.000	.000	.931	.000	.931	.966	.000	.918	.936	.000	.920	.000	.920	.969

Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 17:00



Vehicle Traffic Increases Due to Alternative 2

Existing and Existing + Alternative 2 Conditions

Table A Estimated Traffic Volume Increases on Roadway Segments: Existing and Existing + Alternative 2

Location	AM Peak Hour				PM Peak Hour			
	Existing	Existing + Project	Difference Volume	Percent	Existing	Existing + Project	Difference Volume	Percent
Madera Blvd. west of Highway 101 Ramps	667	689	22	3.3%	899	917	18	2.0%
Madera Blvd. east of Tamal Vista Blvd.	530	548	18	3.4%	751	766	15	2.0%
Tamal Vista Blvd. north of Wornum Drive	1037	1040	3	0.3%	1246	1248	2	0.2%
Tamal Vista Blvd. north of Madera Blvd.	557	562	5	0.9%	972	980	8	0.8%
Madera Blvd. north of Tamalpais Drive	710	723	13	1.8%	998	1005	7	0.7%
Casa Buena Drive south of Tamalpais Drive	548	549	1	0.2%	655	655	0	0.0%
Tamalpais Drive west of Madera Blvd.	1638	1639	1	0.1%	1669	1670	1	0.1%
Tamalpais Drive east of Madera Blvd.	2064	2075	11	0.5%	2188	2194	6	0.3%

Source: Parisi Transportation Consulting, 2014

Table B Estimated Traffic Volume Increases on Freeway Ramps: Existing and Existing + Alternative 2

Location	AM Peak Hour				PM Peak Hour			
	Existing	Existing + Project	Difference Volume	Percent	Existing	Existing + Project	Difference Volume	Percent
Highway 101 Southbound Off-ramp to Madera Blvd.	377	395	18	4.8%	533	541	8	1.5%
Highway 101 Southbound On-ramp from Madera Blvd.	290	294	4	1.4%	366	376	10	2.7%
Highway 101 Southbound On-ramp to Tamalpais Drive	1087	1087	0	0.0%	982	983	1	0.1%
Highway 101 Southbound On-ramp (loop) from Westbound Tamalpais Drive	320	320	0	0.0%	440	440	0	0.0%
Highway 101 Southbound On-ramp	398	398	0	0.0%	226	226	0	0.0%

from Eastbound Tamalpais Drive								
Highway 101 Northbound On-ramp from Industrial Way	533	535	2	0.4%	1054	1060	6	0.6%
Highway 101 Northbound Off-ramp to Tamalpais Drive	874	884	10	1.1%	1246	1251	5	0.4%
Highway 101 Northbound On-Ramp (loop) from Eastbound Tamalpais Drive	490	490	0	0.0%	430	430	0	0.0%
Highway 101 On-ramp from Westbound Tamalpais Drive	476	476	0	0.0%	577	577	0	0.0%

Source: Parisi Transportation Consulting, 2014

Table C Estimated Traffic Volume Increases on Highway Segments: Existing and Existing + Alternative 2

Location	AM Peak Hour				PM Peak Hour			
	Existing	Existing + Project	Difference Volume	Percent	Existing	Existing + Project	Difference Volume	Percent
Highway 101 Southbound north of Industrial Way	8,498	8,526	18	0.2%	7,073	7,085	8	0.1%
Highway 101 Northbound north of Industrial Way	5,870	5,873	2	0.0%	7,210	7,219	6	0.1%
Highway 101 Southbound north of Madera Blvd.	8,156	8,184	18	0.2%	6,619	6,631	8	0.1%
Highway 101 Northbound north of Madera Blvd.	6,163	6,163	0	0.0%	7,318	7,318	0	0.0%
Highway 101 Southbound south of Tamalpais Blvd.	7,832	7,838	4	0.1%	6,162	6,176	9	0.1%
Highway 101 Northbound south of Tamalpais Blvd.	6,111	6,127	10	0.2%	7,658	7,666	5	0.1%

Source: Parisi Transportation Consulting, 2014

Table D Estimated Traffic Volume Increases at Study Intersections: Existing and Existing + Alternative 2

Intersection	AM Peak Hour				PM Peak Hour			
	Existing	Existing + Project	Difference Volume	Percent	Existing	Existing + Project	Difference Volume	Percent

Tamal Vista Blvd. / Wornum Drive	1231	1236	5	0.4%	1,580	1588	8	0.5%
Tamal Vista Blvd. / Madera Blvd.	899	917	18	2.0%	1,335	1350	15	1.1%
Tamalpais Drive / Madera Blvd.	2480	2493	13	0.5%	2,755	2762	7	0.3%
Tamalpais Drive / US 101 SB Off-Ramp	2455	2466	11	0.4%	3,028	3035	7	0.2%
Tamalpais Drive / US 101 NB Off-Ramp	2453	2464	11	0.4%	2,879	2885	6	0.2%

Source: Parisi Transportation Consulting, 2014

Cumulative and Cumulative + Project Conditions

Table E Estimated Traffic Increases on Roadway Segments: Cumulative and Cumulative + Alternative 2

Location	AM Peak Hour				PM Peak Hour			
	Cumulative	Cumulative + Project	Difference Volume	Percent	Cumulative	Cumulative + Project	Difference Volume	Percent
Madera Blvd. west of Highway 101 Ramps	999	1021	22	2.2%	1,047	1065	18	1.7%
Madera Blvd. east of Tamal Vista Blvd.	862	880	18	2.1%	899	914	15	1.7%
Tamal Vista Blvd. north of Wornum Drive	1,527	1530	3	0.2%	1,563	1565	2	0.1%
Tamal Vista Blvd. north of Madera Blvd.	1,029	1034	5	0.5%	1,209	1217	8	0.7%
Madera Blvd. north of Tamalpais Drive	1,141	1154	13	1.1%	1,308	1315	7	0.5%
Casa Buena Drive south of Tamalpais Drive	734	735	1	0.1%	848	848	0	0.0%
Tamalpais Drive west of Madera Blvd.	2,422	2423	1	0.0%	2,059	2060	1	0.0%
Tamalpais Drive east of Madera Blvd.	3,043	3054	11	0.4%	2,745	2751	6	0.2%

Source: Parisi Transportation Consulting, 2014

Table F Estimated Traffic Increases on Freeway Ramps: Cumulative and Cumulative + Alternative 2

Location	AM Peak Hour				PM Peak Hour			
	Cumulative	Cumulative + Project	Difference Volume	Percent	Cumulative	Cumulative + Project	Difference Volume	Percent
Highway 101 Southbound Off-ramp to	609	627	18	3.0%	627	635	8	1.3%

Madera Blvd.								
Highway 101 Southbound On-ramp from Madera Blvd.	390	394	4	1.0%	420	430	10	2.4%
Highway 101 Southbound On-ramp to Tamalpais Drive	1,632	1632	0	0.0%	1,288	1289	1	0.1%
Highway 101 Southbound On-ramp (loop) from Westbound Tamalpais Drive	430	430	0	0.0%	570	570	0	0.0%
Highway 101 Southbound On-ramp from Eastbound Tamalpais Drive	600	600	0	0.0%	230	230	0	0.0%
Highway 101 Northbound On-ramp from Industrial Way	980	982	2	0.2%	1,610	1616	6	0.4%
Highway 101 Northbound Off-ramp to Tamalpais Drive	1,419	1429	10	0.7%	1,729	1734	5	0.3%
Highway 101 Northbound On-Ramp (loop) from Eastbound Tamalpais Drive	680	680	0	0.0%	460	460	0	0.0%
Highway 101 On-ramp from Westbound Tamalpais Drive	590	590	0	0.0%	960	960	0	0.0%

Source: Parisi Transportation Consulting, 2014

Table G Estimated Traffic Increases on Highway Segments: Cumulative and Cumulative + Alternative 2

Location	AM Peak Hour				PM Peak Hour			
	Cumulative	Cumulative + Project	Difference Volume	Percent	Cumulative	Cumulative + Project	Difference Volume	Percent
Highway 101 Southbound north of Industrial Way	12,750	12,778	18	0.1%	10,910	10,922	8	0.1%
Highway 101 Northbound north of Industrial Way	8,510	8,513	2	0.0%	9,710	9,719	6	0.1%
Highway 101 Southbound north of Madera Blvd.	11,540	11,568	18	0.2%	10,040	10,052	8	0.1%
Highway 101 Northbound north of Madera Blvd.	8,770	870	0	0.0%	9,730	9,730	0	0.0%
Highway 101 Southbound south of Tamalpais Blvd.	10,670	10,676	4	0.0%	9,370	9,384	9	0.1%

Highway 101 Northbound south of Tamalpais Blvd.	9,140	9,156	10	0.1%	10,330	10,338	5	0.0%
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Source: Parisi Transportation Consulting, 2014

Table H Estimated Traffic Volume Increases at Study Intersections: Cumulative and Cumulative + Alternative 2

Intersection	AM Peak Hour				PM Peak Hour			
	Cumulative	Cumulative + Project	Difference Volume	Percent	Cumulative	Cumulative + Project	Difference Volume	Percent
Tamal Vista Blvd. / Wornum Drive	1,957	1962	5	0.3%	2,013	2021	8	0.4%
Tamal Vista Blvd. / Madera Blvd.	1,557	1575	18	1.2%	1,706	1721	15	0.9%
Tamalpais Drive / Madera Blvd.	3,670	3683	13	0.4%	3,480	3487	7	0.2%
Tamalpais Drive / US 101 SB Off-Ramp	3,672	3683	11	0.3%	3,774	3781	7	0.2%
Tamalpais Drive / US 101 NB Off-Ramp	3,767	3778	11	0.3%	3,946	3952	6	0.2%

Source: Parisi Transportation Consulting, 2014

Vehicle Traffic Increases Due to Alternative 3

Existing and Existing + Alternative 2 Conditions

Table I Estimated Traffic Volume Increases on Roadway Segments: Existing and Existing + Alternative 3

Location	AM Peak Hour				PM Peak Hour			
	Existing	Existing + Project	Difference Volume	Percent	Existing	Existing + Project	Difference Volume	Percent
Madera Blvd. west of Highway 101 Ramps	667	678	11	1.6%	899	908	9	1.0%
Madera Blvd. east of Tamal Vista Blvd.	530	539	9	1.7%	751	759	8	1.1%
Tamal Vista Blvd. north of Wornum Drive	1,037	1038	1	0.1%	1,246	1247	1	0.1%
Tamal Vista Blvd. north of Madera Blvd.	557	560	3	0.5%	972	976	4	0.4%
Madera Blvd. north of Tamalpais Drive	710	717	7	1.0%	998	1002	4	0.4%
Casa Buena Drive south of Tamalpais Drive	548	548	0	0.0%	655	655	0	0.0%
Tamalpais Drive west of Madera Blvd.	1,638	1639	1	0.1%	1,669	1670	1	0.1%
Tamalpais Drive east of Madera Blvd.	2,064	2070	6	0.3%	2,188	2191	3	0.1%

Source: Parisi Transportation Consulting, 2014

Table J Estimated Traffic Volume Increases on Freeway Ramps: Existing and Existing + Alternative 3

Location	AM Peak Hour				PM Peak Hour			
	Existing	Existing + Project	Difference Volume	Percent	Existing	Existing + Project	Difference Volume	Percent
Highway 101 Southbound Off-ramp to Madera Blvd.	377	386	9	2.4%	533	537	4	0.8%
Highway 101 Southbound On-ramp from Madera Blvd.	290	292	2	0.7%	366	371	5	1.4%
Highway 101 Southbound On-ramp to Tamalpais Drive	1,087	1087	0	0.0%	982	982	0	0.0%
Highway 101 Southbound On-ramp (loop) from Westbound Tamalpais Drive	320	320	0	0.0%	440	440	0	0.0%
Highway 101 Southbound On-ramp from Eastbound	398	398	0	0.0%	226	226	0	0.0%

Tamalpais Drive								
Highway 101 Northbound On-ramp from Industrial Way	533	534	1	0.2%	1,054	1057	3	0.3%
Highway 101 Northbound Off-ramp to Tamalpais Drive	874	879	5	0.6%	1,246	1249	3	0.2%
Highway 101 Northbound On-Ramp (loop) from Eastbound Tamalpais Drive	490	490	0	0.0%	430	430	0	0.0%
Highway 101 On-ramp from Westbound Tamalpais Drive	476	476	0	0.0%	577	577	0	0.0%

Source: Parisi Transportation Consulting, 2014

Table K Estimated Traffic Volume Increases on Highway Segments: Existing and Existing + Alternative 3

Location	AM Peak Hour				PM Peak Hour			
	Existing	Existing + Project	Difference Volume	Percent	Existing	Existing + Project	Difference Volume	Percent
Highway 101 Southbound north of Industrial Way	8,498	8,526	9	0.1%	7,073	7,085	4	0.1%
Highway 101 Northbound north of Industrial Way	5,870	5,873	1	0.0%	7,210	7,219	3	0.0%
Highway 101 Southbound north of Madera Blvd.	8,156	8,184	9	0.1%	6,619	6,631	4	0.1%
Highway 101 Northbound north of Madera Blvd.	6,163	6,163	0	0.0%	7,318	7,318	0	0.0%
Highway 101 Southbound south of Tamalpais Blvd.	7,832	7,838	2	0.0%	6,162	6,176	5	0.1%
Highway 101 Northbound south of Tamalpais Blvd.	6,111	6,127	5	0.1%	7,658	7,666	3	0.0%

Source: Parisi Transportation Consulting, 2014

Table L Estimated Traffic Volume Increases at Study Intersections: Existing and Existing + Alternative 3

Intersection	AM Peak Hour				PM Peak Hour			
	Existing	Existing + Project	Difference Volume	Percent	Existing	Existing + Project	Difference Volume	Percent
Tamal Vista Blvd. /	1,231	1234	3	0.2%	1,580	1584	4	0.3%

Wornum Drive								
Tamal Vista Blvd. / Madera Blvd.	899	908	9	1.0%	1,335	1343	8	0.6%
Tamalpais Drive / Madera Blvd.	2,480	2487	7	0.3%	2,755	2759	4	0.1%
Tamalpais Drive / US 101 SB Off-Ramp	2,455	2461	6	0.2%	3,028	3031	3	0.1%
Tamalpais Drive / US 101 NB Off-Ramp	2,453	2459	6	0.2%	2,879	2882	3	0.1%

Source: Parisi Transportation Consulting, 2014

Cumulative and Cumulative + Project Conditions

Table M Estimated Traffic Increases on Roadway Segments: Cumulative and Cumulative + Alternative 3

Location	AM Peak Hour				PM Peak Hour			
	Cumulative	Cumulative + Project	Difference Volume	Percent	Cumulative	Cumulative + Project	Difference Volume	Percent
Madera Blvd. west of Highway 101 Ramps	999	1010	11	1.1%	1,047	1056	9	0.9%
Madera Blvd. east of Tamal Vista Blvd.	862	871	9	1.0%	899	907	8	0.9%
Tamal Vista Blvd. north of Wornum Drive	1,527	1528	1	0.1%	1,563	1564	1	0.1%
Tamal Vista Blvd. north of Madera Blvd.	1,029	1032	3	0.3%	1,209	1213	4	0.3%
Madera Blvd. north of Tamalpais Drive	1,141	1148	7	0.6%	1,308	1312	4	0.3%
Casa Buena Drive south of Tamalpais Drive	734	734	0	0.0%	848	848	0	0.0%
Tamalpais Drive west of Madera Blvd.	2,422	2423	1	0.0%	2,059	2060	1	0.0%
Tamalpais Drive east of Madera Blvd.	3,043	3049	6	0.2%	2,745	2748	3	0.1%

Source: Parisi Transportation Consulting, 2014

Table N Estimated Traffic Increases on Freeway Ramps: Cumulative and Cumulative + Alternative 3

Location	AM Peak Hour				PM Peak Hour			
	Cumulative	Cumulative + Project	Difference Volume	Percent	Cumulative	Cumulative + Project	Difference Volume	Percent
Highway 101 Southbound Off-ramp to	609	618	9	1.5%	627	631	4	0.6%

Madera Blvd.								
Highway 101 Southbound On-ramp from Madera Blvd.	390	392	2	0.5%	420	425	5	1.2%
Highway 101 Southbound On-ramp to Tamalpais Drive	1,632	1632	0	0.0%	1,288	1288	0	0.0%
Highway 101 Southbound On-ramp (loop) from Westbound Tamalpais Drive	430	430	0	0.0%	570	570	0	0.0%
Highway 101 Southbound On-ramp from Eastbound Tamalpais Drive	600	600	0	0.0%	230	230	0	0.0%
Highway 101 Northbound On-ramp from Industrial Way	980	981	1	0.1%	1,610	1613	3	0.2%
Highway 101 Northbound Off-ramp to Tamalpais Drive	1,419	1424	5	0.4%	1,729	1732	3	0.2%
Highway 101 Northbound On-Ramp (loop) from Eastbound Tamalpais Drive	680	680	0	0.0%	460	460	0	0.0%
Highway 101 On-ramp from Westbound Tamalpais Drive	590	590	0	0.0%	960	960	0	0.0%

Source: Parisi Transportation Consulting, 2014

Table O Estimated Traffic Increases on Highway Segments: Cumulative and Cumulative + Alternative 3

Location	AM Peak Hour				PM Peak Hour			
	Cumulative	Cumulative + Project	Difference Volume	Percent	Cumulative	Cumulative + Project	Difference Volume	Percent
Highway 101 Southbound north of Industrial Way	12,750	12,778	9	0.1%	10,910	10,922	4	0.0%
Highway 101 Northbound north of Industrial Way	8,510	8,513	1	0.0%	9,710	9,719	3	0.0%
Highway 101 Southbound north of Madera Blvd.	11,540	11,568	9	0.1%	10,040	10,052	4	0.0%
Highway 101 Northbound north of Madera Blvd.	8,770	870	0	0.0%	9,730	9,730	0	0.0%
Highway 101 Southbound south of Tamalpais Blvd.	10,670	10,676	2	0.0%	9,370	9,384	5	0.1%

Highway 101 Northbound south of Tamalpais Blvd.	9,140	9,156	5	0.1%	10,330	10,338	3	0.0%
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Source: Parisi Transportation Consulting, 2014

Table P Estimated Traffic Volume Increases at Study Intersections: Cumulative and Cumulative + Alternative 3

Intersection	AM Peak Hour				PM Peak Hour			
	Cumulative	Cumulative + Project	Difference Volume	Percent	Cumulative	Cumulative + Project	Difference Volume	Percent
Tamal Vista Blvd. / Wornum Drive	1,957	1960	3	0.2%	2,013	2017	4	0.2%
Tamal Vista Blvd. / Madera Blvd.	1,557	1566	9	0.6%	1,706	1714	8	0.5%
Tamalpais Drive / Madera Blvd.	3,670	3677	7	0.2%	3,480	3484	4	0.1%
Tamalpais Drive / US 101 SB Off-Ramp	3,672	3678	6	0.2%	3,774	3777	3	0.1%
Tamalpais Drive / US 101 NB Off-Ramp	3,767	3773	6	0.2%	3,946	3949	3	0.1%

Source: Parisi Transportation Consulting, 2014