

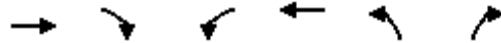
APPENDIX A: SYNCHRO DATA – EXISTING CONDITIONS



San Rafael Multi-Family TIS - Existing Conditions

1: Cijos St & 4th St

AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↖	↕	↘	
Volume (vph)	265	9	35	318	11	24
Satd. Flow (prot)	1498	0	1340	1511	1390	0
Flt Permitted			0.547		0.984	
Satd. Flow (perm)	1498	0	752	1511	1384	0
Satd. Flow (RTOR)	5				26	
Lane Group Flow (vph)	292	0	37	338	38	0
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases			6			
Total Split (s)	41.0		41.0	41.0	24.0	
Total Lost Time (s)	3.0		3.0	3.0	3.0	
Act Effect Green (s)	38.0		38.0	38.0	21.0	
Actuated g/C Ratio	0.58		0.58	0.58	0.32	
v/c Ratio	0.33		0.08	0.38	0.08	
Control Delay	8.1		6.5	8.8	9.1	
Queue Delay	0.0		0.0	0.6	0.0	
Total Delay	8.1		6.5	9.4	9.1	
LOS	A		A	A	A	
Approach Delay	8.1			9.1	9.1	
Approach LOS	A			A	A	

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 65

Offset: 52 (80%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.38

Intersection Signal Delay: 8.7

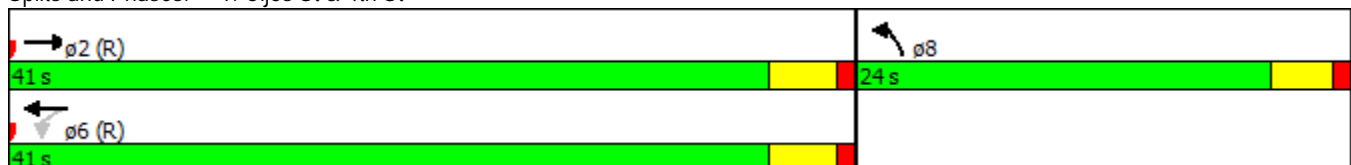
Intersection LOS: A

Intersection Capacity Utilization 54.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Cijos St & 4th St



San Rafael Multi-Family TIS - Existing Conditions

2: Lincoln Ave & 4th St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	252	19	58	287	25	20	184	41	51	248	45
Satd. Flow (prot)	1351	1421	0	1391	1569	0	0	1305	0	0	1340	0
Flt Permitted	0.426			0.475				0.963			0.926	
Satd. Flow (perm)	591	1421	0	667	1569	0	0	1258	0	0	1247	0
Satd. Flow (RTOR)		6			7			20			15	
Lane Group Flow (vph)	22	288	0	62	332	0	0	261	0	0	366	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8			4		
Total Split (s)	33.0	33.0		33.0	33.0		42.0	42.0		42.0	42.0	
Total Lost Time (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Act Effect Green (s)	30.0	30.0		30.0	30.0			39.0			39.0	
Actuated g/C Ratio	0.40	0.40		0.40	0.40			0.52			0.52	
v/c Ratio	0.09	0.50		0.23	0.53			0.39			0.56	
Control Delay	15.4	20.3		17.4	19.4			11.8			12.4	
Queue Delay	0.0	0.5		0.0	0.0			0.0			0.0	
Total Delay	15.4	20.8		17.4	19.4			11.8			12.4	
LOS	B	C		B	B			B			B	
Approach Delay		20.4			19.0			11.8			12.4	
Approach LOS		C			B			B			B	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 43 (57%), Referenced to phase 4:SBTL and 8:NBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 16.1

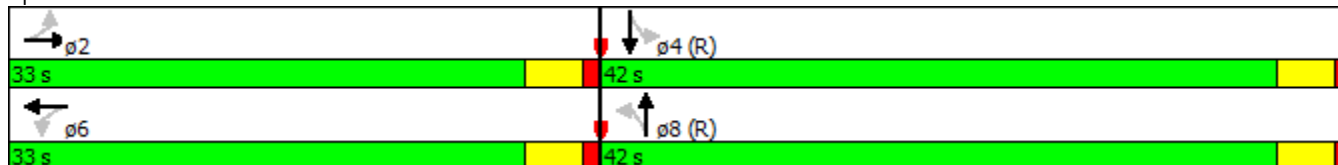
Intersection LOS: B

Intersection Capacity Utilization 74.6%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 2: Lincoln Ave & 4th St



San Rafael Multi-Family TIS - Existing Conditions
 3: Tamalpais Ave (West) South Leg & 4th St

AM Peak Hour

Intersection

Int Delay, s/veh 1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	305	38	0	373	0	96
Conflicting Peds, #/hr	0	34	0	0	0	49
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	5	0	0	6	0	3
Mvmt Flow	324	40	0	397	0	102

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	414
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	1156
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1156
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	626	-	-	1156	-
HCM Lane V/C Ratio	0.163	-	-	-	-
HCM Control Delay (s)	11.9	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0	-

San Rafael Multi-Family TIS - Existing Conditions
 4: 4th St & Tamalpais Ave (West) North Leg

AM Peak Hour

Intersection

Int Delay, s/veh 0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	401	348	7	0	25
Conflicting Peds, #/hr	0	0	0	39	0	50
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	5	6	0	0	8
Mvmt Flow	0	427	370	7	0	27

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	428	0	851
Stage 1	-	-	424
Stage 2	-	-	427
Critical Hdwy	4.1	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.2	-	3.5
Pot Cap-1 Maneuver	1142	-	333
Stage 1	-	-	664
Stage 2	-	-	662
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1142	-	306
Mov Cap-2 Maneuver	-	-	306
Stage 1	-	-	636
Stage 2	-	-	634

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1142	-	-	-	591
HCM Lane V/C Ratio	-	-	-	-	0.045
HCM Control Delay (s)	0	-	-	-	11.4
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

San Rafael Multi-Family TIS - Existing Conditions
5: Tamalpais Ave (East) & 4th St

AM Peak Hour

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	23	378	0	0	355	34	0	0	0	0	0	0
Conflicting Peds, #/hr	31	0	0	0	0	31	0	0	21	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	5	0	0	6	0	0	0	0	0	0	0
Mvmt Flow	24	402	0	0	378	36	0	0	0	0	0	0

Major/Minor

	Major1		Major2		Minor1				
Conflicting Flow All	414	0	0	423	0	0	868	886	454
Stage 1	-	-	-	-	-	-	472	472	-
Stage 2	-	-	-	-	-	-	396	414	-
Critical Hdwy	4.1	-	-	4.1	-	-	6.4	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.4	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	1156	-	-	1147	-	-	325	286	610
Stage 1	-	-	-	-	-	-	632	562	-
Stage 2	-	-	-	-	-	-	684	597	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1126	-	-	1117	-	-	303	0	584
Mov Cap-2 Maneuver	-	-	-	-	-	-	303	0	-
Stage 1	-	-	-	-	-	-	604	0	-
Stage 2	-	-	-	-	-	-	666	0	-

Approach

	EB	WB	NB
HCM Control Delay, s	0.5	0	0
HCM LOS			A

Minor Lane/Major Mvmt

	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	-	1126	-	-	1117	-	-
HCM Lane V/C Ratio	-	0.022	-	-	-	-	-
HCM Control Delay (s)	0	8.3	0	-	0	-	-
HCM Lane LOS	A	A	A	-	A	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	-

San Rafael Multi-Family TIS - Existing Conditions

6: Hetherton St & 4th St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↘	↑						↑↑↑	↗
Volume (vph)	0	258	121	168	256	0	0	0	0	106	813	144
Satd. Flow (prot)	0	1806	1298	1862	1626	0	0	0	0	0	4501	1348
Flt Permitted				0.515							0.994	
Satd. Flow (perm)	0	1806	1241	991	1626	0	0	0	0	0	4496	1275
Satd. Flow (RTOR)			82									
Lane Group Flow (vph)	0	274	129	179	272	0	0	0	0	0	978	153
Turn Type		NA	Perm	Perm	NA					Perm	NA	custom
Protected Phases		4			8						2	
Permitted Phases			4	8						2		5
Total Split (s)		37.0	37.0	37.0	37.0					38.0	38.0	31.0
Total Lost Time (s)		3.0	3.0	3.0	3.0						3.0	3.0
Act Effect Green (s)		34.0	34.0	34.0	34.0						35.0	28.0
Actuated g/C Ratio		0.45	0.45	0.45	0.45						0.47	0.37
v/c Ratio		0.33	0.21	0.40	0.37						0.47	0.32
Control Delay		12.2	4.6	14.6	13.0						5.8	9.8
Queue Delay		0.0	0.0	0.0	0.0						0.1	0.0
Total Delay		12.2	4.6	14.6	13.0						5.9	9.8
LOS		B	A	B	B						A	A
Approach Delay		9.8			13.7						6.4	
Approach LOS		A			B						A	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 0 (0%), Referenced to phase 2:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.47

Intersection Signal Delay: 8.7

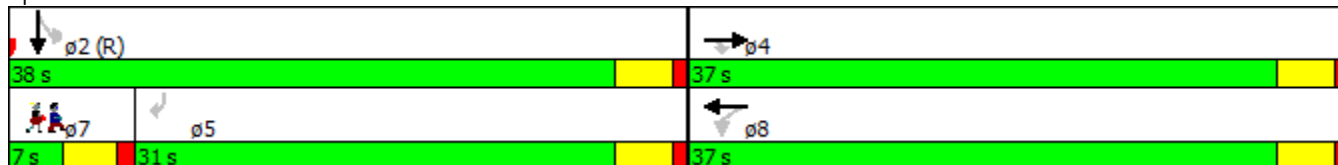
Intersection LOS: A

Intersection Capacity Utilization 76.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 6: Hetherton St & 4th St



Lane Group	ø7
Lane Configurations	
Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Total Split (s)	7.0
Total Lost Time (s)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

San Rafael Multi-Family TIS - Existing Conditions

7: Irwin St & 4th St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑			↗		↖	↑↔				
Volume (vph)	146	213	0	0	309	58	120	1090	47	0	0	0
Satd. Flow (prot)	1605	1782	0	0	1517	0	1399	2880	0	0	0	0
Flt Permitted	0.363						0.950					
Satd. Flow (perm)	611	1782	0	0	1517	0	1399	2880	0	0	0	0
Satd. Flow (RTOR)							15					
Lane Group Flow (vph)	155	227	0	0	391	0	128	1210	0	0	0	0
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases					4				8			
Permitted Phases	4								2			
Total Split (s)	33.0	33.0			33.0		42.0	42.0				
Total Lost Time (s)	3.0	3.0			3.0		3.0	3.0				
Act Effct Green (s)	30.0	30.0			30.0		39.0	39.0				
Actuated g/C Ratio	0.40	0.40			0.40		0.52	0.52				
v/c Ratio	0.64	0.32			0.64		0.18	0.81				
Control Delay	26.4	10.7			23.1		6.8	12.0				
Queue Delay	0.0	0.0			0.0		0.0	0.7				
Total Delay	26.4	10.7			23.1		6.8	12.7				
LOS	C	B			C		A	B				
Approach Delay					17.0				23.1			
Approach LOS					B				C			

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 4 (5%), Referenced to phase 2:NBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 15.0

Intersection LOS: B

Intersection Capacity Utilization 76.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 7: Irwin St & 4th St



San Rafael Multi-Family TIS - Existing Conditions

8: Lindaro St & 3rd St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↖↖↖			↖			↗	
Volume (vph)	0	0	0	236	1298	20	55	8	0	0	28	10
Satd. Flow (prot)	0	0	0	1455	4151	0	0	1507	0	0	1542	0
Flt Permitted				0.950				0.785				
Satd. Flow (perm)	0	0	0	1403	4151	0	0	1235	0	0	1542	0
Satd. Flow (RTOR)					5						11	
Lane Group Flow (vph)	0	0	0	251	1402	0	0	68	0	0	41	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8				4
Permitted Phases				6			8					
Total Split (s)				50.0	50.0		25.0	25.0			25.0	
Total Lost Time (s)				3.0	3.0			3.0			3.0	
Act Effect Green (s)				47.0	47.0			22.0			22.0	
Actuated g/C Ratio				0.63	0.63			0.29			0.29	
v/c Ratio				0.29	0.54			0.19			0.09	
Control Delay				2.5	2.8			14.1			16.0	
Queue Delay				0.0	0.0			0.0			0.0	
Total Delay				2.5	2.8			14.1			16.0	
LOS				A	A			B			B	
Approach Delay					2.8			14.1			16.0	
Approach LOS					A			B			B	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 63 (84%), Referenced to phase 6:WBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.54

Intersection Signal Delay: 3.5

Intersection LOS: A

Intersection Capacity Utilization 47.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 8: Lindaro St & 3rd St



San Rafael Multi-Family TIS - Existing Conditions
 9: Ritter St & 3rd St

AM Peak Hour

Intersection

Int Delay, s/veh 0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	0	0	0	1502	64	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	25
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	4	3	0
Mvmt Flow	0	0	0	1598	68	0

Major/Minor

	Major2	Minor1
Conflicting Flow All	0	639
Stage 1	-	0
Stage 2	-	639
Critical Hdwy	-	6.46
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	6.76
Follow-up Hdwy	-	3.83
Pot Cap-1 Maneuver	-	412
Stage 1	-	-
Stage 2	-	390
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	412
Mov Cap-2 Maneuver	-	412
Stage 1	-	-
Stage 2	-	390

Approach

	WB	NB
HCM Control Delay, s	0	15.5
HCM LOS		C

Minor Lane/Major Mvmt

	NBLn1	NBLn2	WBL	WBT
Capacity (veh/h)	412	-	-	-
HCM Lane V/C Ratio	0.165	-	-	-
HCM Control Delay (s)	15.5	0	0	-
HCM Lane LOS	C	A	A	-
HCM 95th %tile Q(veh)	0.6	-	-	-

San Rafael Multi-Family TIS - Existing Conditions
 10: 3rd St & Cijos St

AM Peak Hour

Intersection

Int Delay, s/veh 0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	0	1469	33	0	33
Conflicting Peds, #/hr	0	0	0	28	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	4	3	0	6
Mvmt Flow	0	0	1563	35	0	35

Major/Minor

	Major2	Minor2
Conflicting Flow All	-	0
Stage 1	-	-
Stage 2	-	-
Critical Hdwy	-	-
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	-	-
Pot Cap-1 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	-
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

Approach

	WB	SB
HCM Control Delay, s	0	19.9
HCM LOS		C

Minor Lane/Major Mvmt

	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	276
HCM Lane V/C Ratio	-	-	0.127
HCM Control Delay (s)	-	-	19.9
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.4

San Rafael Multi-Family TIS - Existing Conditions

11: Lincoln Ave & 3rd St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					←←←			←			→	
Volume (vph)	0	0	0	170	1357	61	28	177	0	0	221	104
Satd. Flow (prot)	0	0	0	0	4141	0	0	1302	0	0	1181	0
Flt Permitted					0.995			0.927				
Satd. Flow (perm)	0	0	0	0	4122	0	0	1211	0	0	1181	0
Satd. Flow (RTOR)					13						30	
Lane Group Flow (vph)	0	0	0	0	1690	0	0	218	0	0	346	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8			4	
Permitted Phases				6			8					
Total Split (s)				46.0	46.0		29.0	29.0			29.0	
Total Lost Time (s)					3.0			3.0			3.0	
Act Effct Green (s)					43.0			26.0			26.0	
Actuated g/C Ratio					0.57			0.35			0.35	
v/c Ratio					0.71			0.52			0.81	
Control Delay					4.2			25.3			39.2	
Queue Delay					0.3			0.0			0.0	
Total Delay					4.5			25.3			39.2	
LOS					A			C			D	
Approach Delay					4.5			25.3			39.2	
Approach LOS					A			C			D	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 20 (27%), Referenced to phase 4:SBT and 8:NBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 11.9

Intersection LOS: B

Intersection Capacity Utilization 82.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 11: Lincoln Ave & 3rd St



San Rafael Multi-Family TIS - Existing Conditions

12: Tamalpais Ave (West) & 3rd St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					←↑↑↑		↑	↑			↑	
Volume (vph)	0	0	0	237	1547	35	33	67	0	0	31	15
Satd. Flow (prot)	0	0	0	0	4142	0	1161	1402	0	0	1337	0
Flt Permitted					0.994		0.725					
Satd. Flow (perm)	0	0	0	0	4072	0	866	1402	0	0	1337	0
Satd. Flow (RTOR)					8						16	
Lane Group Flow (vph)	0	0	0	0	1935	0	35	71	0	0	49	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8			4	
Permitted Phases				6			8					
Total Split (s)				52.0	52.0		23.0	23.0			23.0	
Total Lost Time (s)					3.0		3.0	3.0			3.0	
Act Effct Green (s)					49.0		20.0	20.0			20.0	
Actuated g/C Ratio					0.65		0.27	0.27			0.27	
v/c Ratio					0.73		0.15	0.19			0.13	
Control Delay					5.5		27.7	27.4			20.2	
Queue Delay					0.2		0.0	0.0			0.0	
Total Delay					5.7		27.7	27.4			20.2	
LOS					A		C	C			C	
Approach Delay					5.7			27.5			20.2	
Approach LOS					A			C			C	

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 37 (49%), Referenced to phase 6:WBTL, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 7.2
 Intersection Capacity Utilization 107.6%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service G

Splits and Phases: 12: Tamalpais Ave (West) & 3rd St



San Rafael Multi-Family TIS - Existing Conditions
 13: 3rd St & Tamalpais Ave (East)

AM Peak Hour

Intersection

Int Delay, s/veh 0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	15	1801	0	8	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	44	0	16	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	93	4	0	100	0	0	0	0	0
Mvmt Flow	0	0	0	16	1916	0	9	0	0	0	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	1916	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	5.3	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	3.1	-	-
Pot Cap-1 Maneuver	141	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	141	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0		21
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	234	141	-	-	-	-	-
HCM Lane V/C Ratio	0.036	-	-	-	-	-	-
HCM Control Delay (s)	21	0	-	-	-	-	-
HCM Lane LOS	C	A	-	-	-	-	-
HCM 95th %tile Q(veh)	0.1	0	-	-	-	-	-

San Rafael Multi-Family TIS - Existing Conditions

14: Hetherton St & 3rd St

AM Peak Hour

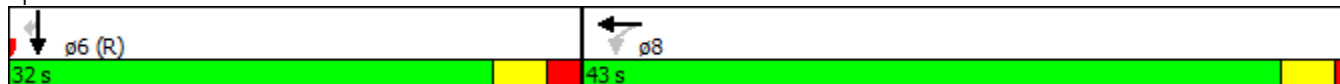


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↖↖↖						↗↗↗	↗
Volume (vph)	0	0	0	386	1422	0	0	0	0	0	715	387
Satd. Flow (prot)	0	0	0	1425	4173	0	0	0	0	0	4314	1330
Flt Permitted				0.950	0.999							
Satd. Flow (perm)	0	0	0	1362	4171	0	0	0	0	0	4314	1223
Satd. Flow (RTOR)												23
Lane Group Flow (vph)	0	0	0	395	1529	0	0	0	0	0	761	412
Turn Type				Perm	NA						NA	Perm
Protected Phases												6
Permitted Phases				8								6
Total Split (s)				43.0	43.0						32.0	32.0
Total Lost Time (s)				3.0	3.0						3.0	3.0
Act Effect Green (s)				40.0	40.0						29.0	29.0
Actuated g/C Ratio				0.53	0.53						0.39	0.39
v/c Ratio				0.54	0.69						0.46	0.85
Control Delay				9.9	9.6						10.8	28.8
Queue Delay				0.3	0.2						0.0	0.0
Total Delay				10.2	9.8						10.8	28.8
LOS				B	A						B	C
Approach Delay					9.9						17.1	
Approach LOS					A						B	

Intersection Summary

Cycle Length: 75	
Actuated Cycle Length: 75	
Offset: 3 (4%), Referenced to phase 6:SBT, Start of Green	
Control Type: Pretimed	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 12.6	Intersection LOS: B
Intersection Capacity Utilization 93.4%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 14: Hetherton St & 3rd St



San Rafael Multi-Family TIS - Existing Conditions

15: Irwin St & 3rd St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑	↑	↑	↑↑↑				
Volume (vph)	0	0	0	0	944	133	900	1137	0	0	0	0
Satd. Flow (prot)	0	0	0	0	4410	1395	1307	4220	0	0	0	0
Flt Permitted							0.950	0.987				
Satd. Flow (perm)	0	0	0	0	4410	1352	1307	4220	0	0	0	0
Satd. Flow (RTOR)						61	25	25				
Lane Group Flow (vph)	0	0	0	0	1004	141	526	1641	0	0	0	0
Turn Type					NA	Perm	Split	NA				
Protected Phases					8		2	2				
Permitted Phases						8						
Total Split (s)					30.0	30.0	45.0	45.0				
Total Lost Time (s)					3.0	3.0	3.0	3.0				
Act Effect Green (s)					27.0	27.0	42.0	42.0				
Actuated g/C Ratio					0.36	0.36	0.56	0.56				
v/c Ratio					0.63	0.27	0.71	0.69				
Control Delay					22.1	11.6	13.3	10.4				
Queue Delay					0.0	0.0	0.9	0.5				
Total Delay					22.1	11.6	14.3	10.9				
LOS					C	B	B	B				
Approach Delay					20.8			11.7				
Approach LOS					C			B				

Intersection Summary

Cycle Length: 75	
Actuated Cycle Length: 75	
Offset: 73 (97%), Referenced to phase 2:NBTL, Start of Green	
Control Type: Pretimed	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 14.9	Intersection LOS: B
Intersection Capacity Utilization 76.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 15: Irwin St & 3rd St



San Rafael Multi-Family TIS - Existing Conditions
 16: Lindaro St & 2nd St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		←↑↑↑						↑	↗	↘	↑	
Volume (vph)	31	2074	43	0	0	0	0	33	168	55	214	0
Satd. Flow (prot)	0	5181	0	0	0	0	0	1547	1186	1341	1426	0
Flt Permitted		0.999								0.734		
Satd. Flow (perm)	0	5180	0	0	0	0	0	1547	1153	1021	1426	0
Satd. Flow (RTOR)		8							17			
Lane Group Flow (vph)	0	2285	0	0	0	0	0	35	179	59	228	0
Turn Type	Perm	NA						NA	Perm	Perm	NA	
Protected Phases		6						4			8	
Permitted Phases	6								4	8		
Total Split (s)	43.0	43.0						32.0	32.0	32.0	32.0	
Total Lost Time (s)		3.0						3.0	3.0	3.0	3.0	
Act Effct Green (s)		40.0						29.0	29.0	29.0	29.0	
Actuated g/C Ratio		0.53						0.39	0.39	0.39	0.39	
v/c Ratio		0.83						0.06	0.39	0.15	0.41	
Control Delay		17.8						14.9	18.1	30.4	35.6	
Queue Delay		0.0						0.0	0.0	0.0	0.0	
Total Delay		17.8						14.9	18.1	30.4	35.6	
LOS		B						B	B	C	D	
Approach Delay		17.8						17.6			34.5	
Approach LOS		B						B			C	

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 0 (0%), Referenced to phase 6:EBTL, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 19.5
 Intersection LOS: B
 Intersection Capacity Utilization 73.0%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 16: Lindaro St & 2nd St



San Rafael Multi-Family TIS - Existing Conditions
 17: Lincoln Ave & Ritter St

AM Peak Hour

Intersection

Int Delay, s/veh 4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	4	5	5	46	200	0	31	330	26
Conflicting Peds, #/hr	0	0	0	0	0	0	12	0	0	0	0	12
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	-	-	-	None	-	-	-	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	4	5	0	6	2	0
Mvmt Flow	0	0	0	4	5	5	49	213	0	33	351	28

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	311	352	225	33	0	0	213	0	0
Stage 1	311	311	-	-	-	-	-	-	-
Stage 2	0	41	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2	-	-	-	4.1	-	-
Critical Hdwy Stg 1	5.4	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	686	576	819	-	-	-	1369	-	-
Stage 1	748	662	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	676	0	811	-	-	-	1355	-	-
Mov Cap-2 Maneuver	676	0	-	-	-	-	-	-	-
Stage 1	748	0	-	-	-	-	-	-	-
Stage 2	-	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5		7
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL2	SBL	SBT
Capacity (veh/h)	-	-	-	811	1355	-	-
HCM Lane V/C Ratio	-	-	-	0.007	0.003	-	-
HCM Control Delay (s)	-	-	-	9.5	7.7	-	7.7
HCM Lane LOS	-	-	-	A	A	-	A
HCM 95th %tile Q(veh)	-	-	-	0	0	-	-

San Rafael Multi-Family TIS - Existing Conditions
 17: Lincoln Ave & Ritter St

AM Peak Hour

Intersection

Int Delay, s/veh

Movement	NWL	NWR
Vol, veh/h	0	0
Conflicting Peds, #/hr	0	0
Sign Control	Stop	Stop
RT Channelized	-	-
Storage Length	-	-
Veh in Median Storage, #	0	-
Grade, %	0	-
Peak Hour Factor	94	94
Heavy Vehicles, %	0	0
Mvmt Flow	0	0

Major/Minor

Conflicting Flow All

Stage 1

Stage 2

Critical Hdwy

Critical Hdwy Stg 1

Critical Hdwy Stg 2

Follow-up Hdwy

Pot Cap-1 Maneuver

Stage 1

Stage 2

Platoon blocked, %

Mov Cap-1 Maneuver

Mov Cap-2 Maneuver

Stage 1

Stage 2

Approach

HCM Control Delay, s

HCM LOS

Minor Lane/Major Mvmt

San Rafael Multi-Family TIS - Existing Conditions
 18: Lincoln Ave & 2nd St

AM Peak Hour

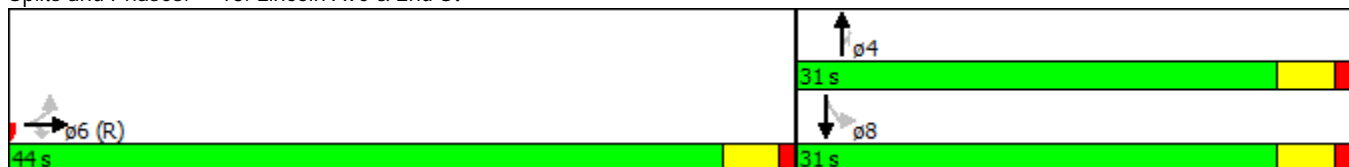


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4↑↑↑	↑					↑	↑		4↑↑	
Volume (vph)	150	2086	49	0	0	0	0	99	42	98	236	0
Satd. Flow (prot)	0	5021	1221	0	0	0	0	1481	1193	0	2499	0
Flt Permitted		0.997									0.839	
Satd. Flow (perm)	0	5012	1156	0	0	0	0	1481	1174	0	2127	0
Satd. Flow (RTOR)			52						17			
Lane Group Flow (vph)	0	2379	52	0	0	0	0	105	45	0	355	0
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		6						4				8
Permitted Phases	6		6						4	8		
Total Split (s)	44.0	44.0	44.0					31.0	31.0	31.0	31.0	
Total Lost Time (s)		3.0	3.0					3.0	3.0		3.0	
Act Effct Green (s)		41.0	41.0					28.0	28.0		28.0	
Actuated g/C Ratio		0.55	0.55					0.37	0.37		0.37	
v/c Ratio		0.87	0.08					0.19	0.10		0.45	
Control Delay		7.6	0.1					17.1	11.6		18.2	
Queue Delay		2.0	0.0					0.0	0.0		0.0	
Total Delay		9.5	0.1					17.1	11.6		18.2	
LOS		A	A					B	B		B	
Approach Delay		9.3						15.4			18.2	
Approach LOS		A						B			B	

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 14 (19%), Referenced to phase 6:EBTL, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 10.7
 Intersection LOS: B
 Intersection Capacity Utilization 66.4%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 18: Lincoln Ave & 2nd St



San Rafael Multi-Family TIS - Existing Conditions
 19: Francisco Blvd W./Tamalpais Ave (West) & 2nd St

AM Peak Hour



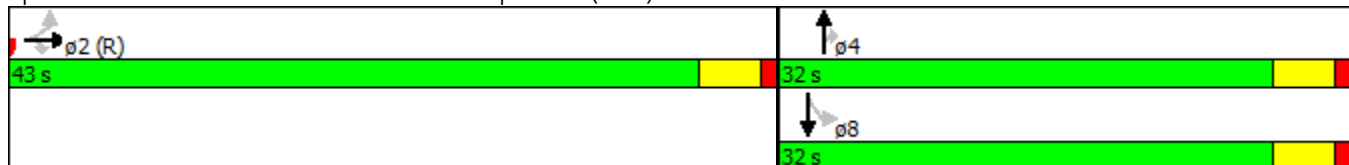
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4111	1					1	1	1	1	
Volume (vph)	58	2082	70	0	0	0	0	46	202	99	172	0
Satd. Flow (prot)	0	5207	1232	0	0	0	0	1436	1313	1121	1375	0
Flt Permitted		0.999								0.725		
Satd. Flow (perm)	0	5194	1206	0	0	0	0	1436	1313	856	1375	0
Satd. Flow (RTOR)			74						22			
Lane Group Flow (vph)	0	2277	74	0	0	0	0	49	215	105	183	0
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		2						4			8	
Permitted Phases	2		2						4	8		
Total Split (s)	43.0	43.0	43.0					32.0	32.0	32.0	32.0	
Total Lost Time (s)		3.0	3.0					3.0	3.0	3.0	3.0	
Act Effct Green (s)		40.0	40.0					29.0	29.0	29.0	29.0	
Actuated g/C Ratio		0.53	0.53					0.39	0.39	0.39	0.39	
v/c Ratio		0.82	0.11					0.09	0.41	0.32	0.34	
Control Delay		5.8	0.3					15.2	17.9	13.7	12.9	
Queue Delay		2.3	0.0					0.0	0.0	0.0	0.0	
Total Delay		8.2	0.3					15.2	17.9	13.7	12.9	
LOS		A	A					B	B	B	B	
Approach Delay		7.9						17.4			13.2	
Approach LOS		A						B			B	

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 24 (32%), Referenced to phase 2:EBTL, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 9.3
 Intersection Capacity Utilization 107.6%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service G

Splits and Phases: 19: Francisco Blvd W./Tamalpais Ave (West) & 2nd St



San Rafael Multi-Family TIS - Existing Conditions

20: US-101 SB Ramp/Hetherton St & 2nd St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑							↑	↑↑	
Volume (vph)	0	1158	1247	0	0	0	0	0	0	276	825	0
Satd. Flow (prot)	0	4800	1109	0	0	0	0	0	0	1366	2975	0
Flt Permitted										0.950		
Satd. Flow (perm)	0	4800	1095	0	0	0	0	0	0	1366	2975	0
Satd. Flow (RTOR)		52	52									
Lane Group Flow (vph)	0	1896	663	0	0	0	0	0	0	294	878	0
Turn Type		NA	Perm							Split	NA	
Protected Phases		2								4	4	
Permitted Phases			2									
Total Split (s)		43.0	43.0							32.0	32.0	
Total Lost Time (s)		3.0	3.0							3.0	3.0	
Act Effect Green (s)		40.0	40.0							29.0	29.0	
Actuated g/C Ratio		0.53	0.53							0.39	0.39	
v/c Ratio		0.93dr	1.09							0.56	0.76	
Control Delay		7.0	71.4							15.9	17.5	
Queue Delay		1.1	4.5							0.2	0.0	
Total Delay		8.1	75.9							16.1	17.6	
LOS		A	E							B	B	
Approach Delay		25.7									17.2	
Approach LOS		C									B	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 36 (48%), Referenced to phase 2:EBT, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 1.09

Intersection Signal Delay: 23.0

Intersection LOS: C

Intersection Capacity Utilization 87.2%

ICU Level of Service E

Analysis Period (min) 15

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

Splits and Phases: 20: US-101 SB Ramp/Hetherton St & 2nd St



San Rafael Multi-Family TIS - Existing Conditions

21: US 101 NB Ramp/Irwin St & 2nd St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖						↖↖↖	↖			
Volume (vph)	688	755	0	0	0	0	0	1359	449	0	0	0
Satd. Flow (prot)	1274	3887	0	0	0	0	0	4200	1232	0	0	0
Flt Permitted	0.950	0.985										
Satd. Flow (perm)	1264	3878	0	0	0	0	0	4200	1210	0	0	0
Satd. Flow (RTOR)	32	32							112			
Lane Group Flow (vph)	388	1147	0	0	0	0	0	1446	478	0	0	0
Turn Type	Perm	NA						NA	Perm			
Protected Phases		4						2				
Permitted Phases	4								2			
Total Split (s)	38.0	38.0						37.0	37.0			
Total Lost Time (s)	3.0	3.0						3.0	3.0			
Act Effct Green (s)	35.0	35.0						34.0	34.0			
Actuated g/C Ratio	0.47	0.47						0.45	0.45			
v/c Ratio	0.64	0.63						0.76	0.78			
Control Delay	10.0	8.0						20.3	24.5			
Queue Delay	0.2	0.1						0.0	0.0			
Total Delay	10.3	8.1						20.3	24.5			
LOS	B	A						C	C			
Approach Delay		8.6						21.4				
Approach LOS		A						C				

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 48 (64%), Referenced to phase 4:EBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 15.7

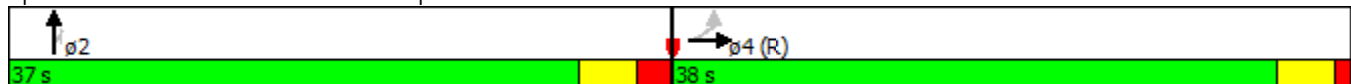
Intersection LOS: B

Intersection Capacity Utilization 76.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 21: US 101 NB Ramp/Irwin St & 2nd St



San Rafael Multi-Family TIS - Existing Conditions
 22: Nye St & Mission Ave

AM Peak Hour

Intersection													
Int Delay, s/veh	1.4												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	9	519	8	23	782	12	1	2	10	18	3	15
Conflicting Peds, #/hr	8	0	3	3	0	8	4	0	6	6	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	10	552	9	24	832	13	1	2	11	19	3	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	851	0	0	567	0	0	1485	1482	570	1481	1479	852
Stage 1	-	-	-	-	-	-	582	582	-	893	893	-
Stage 2	-	-	-	-	-	-	903	900	-	588	586	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	783	-	-	1000	-	-	102	125	519	103	125	358
Stage 1	-	-	-	-	-	-	497	497	-	335	359	-
Stage 2	-	-	-	-	-	-	330	356	-	493	495	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	776	-	-	991	-	-	89	116	511	93	116	353
Mov Cap-2 Maneuver	-	-	-	-	-	-	89	116	-	93	116	-
Stage 1	-	-	-	-	-	-	484	484	-	327	341	-
Stage 2	-	-	-	-	-	-	295	338	-	467	482	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.2			19			41.2		
HCM LOS							C			E		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	271	776	-	-	991	-	-	137
HCM Lane V/C Ratio	0.051	0.012	-	-	0.025	-	-	0.28
HCM Control Delay (s)	19	9.7	0	-	8.7	0	-	41.2
HCM Lane LOS	C	A	A	-	A	A	-	E
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	1.1

San Rafael Multi-Family TIS - Existing Conditions

23: Lincoln Ave & Mission Ave

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↖	↗
Volume (vph)	82	421	11	49	573	47	3	167	19	54	358	341
Satd. Flow (prot)	1427	1643	0	1463	1519	0	0	1296	0	0	1531	1263
Flt Permitted	0.140			0.498				0.995			0.937	
Satd. Flow (perm)	210	1643	0	765	1519	0	0	1290	0	0	1439	1181
Satd. Flow (RTOR)		3			7			8				332
Lane Group Flow (vph)	87	460	0	52	660	0	0	201	0	0	438	363
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4			8		8
Total Split (s)	10.0	45.0		35.0	35.0		30.0	30.0		30.0	30.0	30.0
Total Lost Time (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Act Effect Green (s)	42.0	42.0		34.0	34.0			27.0			27.0	27.0
Actuated g/C Ratio	0.56	0.56		0.45	0.45			0.36			0.36	0.36
v/c Ratio	0.38	0.50		0.15	0.95			0.43			0.85	0.57
Control Delay	12.6	12.4		6.2	35.3			12.1			39.7	7.1
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	12.6	12.4		6.2	35.3			12.1			39.7	7.1
LOS	B	B		A	D			B			D	A
Approach Delay		12.4			33.2			12.1			24.9	
Approach LOS		B			C			B			C	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 50 (67%), Referenced to phase 4:NBTL and 8:SBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 23.3

Intersection LOS: C

Intersection Capacity Utilization 98.8%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 23: Lincoln Ave & Mission Ave



San Rafael Multi-Family TIS - Existing Conditions
 24: Tamalapais Ave (West) & Mission Ave

AM Peak Hour

Intersection

Int Delay, s/veh 0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	445	7	52	581	3	3
Conflicting Peds, #/hr	0	8	8	0	17	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	473	7	55	618	3	3

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	498
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.16
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.23
Pot Cap-1 Maneuver	-	-	1055
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1048
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	18.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	268	-	-	1048	-
HCM Lane V/C Ratio	0.024	-	-	0.053	-
HCM Control Delay (s)	18.8	-	-	8.6	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-

San Rafael Multi-Family TIS - Existing Conditions
 25: Tamalpais Avenue (East) & Mission Ave

AM Peak Hour

Intersection

Int Delay, s/veh 0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	456	0	0	633	0	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	485	0	0	673	0	14

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	485
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.16
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.23
Pot Cap-1 Maneuver	-	-	1067
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1067
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	756	-	-	1067	-
HCM Lane V/C Ratio	0.018	-	-	-	-
HCM Control Delay (s)	9.9	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

San Rafael Multi-Family TIS - Existing Conditions
 26: Hetherton St/101 SB Off-Ramp & Mission Ave

AM Peak Hour

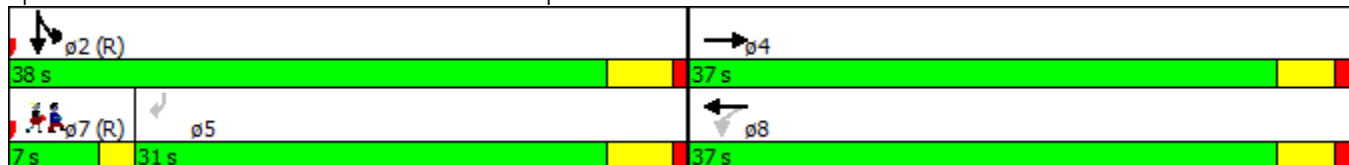


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑						↑↑	↑
Volume (vph)	0	455	79	60	130	0	0	0	0	161	881	481
Satd. Flow (prot)	0	3020	0	0	1949	0	0	0	0	0	3294	1485
Flt Permitted					0.757						0.992	
Satd. Flow (perm)	0	3020	0	0	1497	0	0	0	0	0	3293	1406
Satd. Flow (RTOR)		34										
Lane Group Flow (vph)	0	568	0	0	202	0	0	0	0	0	1108	512
Turn Type		NA		Perm	NA					Split	NA	custom
Protected Phases		4				8				2	2	
Permitted Phases				8								5
Total Split (s)		37.0		37.0	37.0					38.0	38.0	31.0
Total Lost Time (s)		3.0			3.0						3.0	3.0
Act Effct Green (s)		34.0			34.0						35.0	28.0
Actuated g/C Ratio		0.45			0.45						0.47	0.37
v/c Ratio		0.41			0.30						0.72	0.98
Control Delay		8.2			25.3						19.4	60.2
Queue Delay		0.0			0.0						0.2	0.0
Total Delay		8.2			25.3						19.7	60.2
LOS		A			C						B	E
Approach Delay		8.2			25.3						32.5	
Approach LOS		A			C						C	

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 58 (77%), Referenced to phase 2:SBTL and 7:Ped, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 26.1
 Intersection LOS: C
 Intersection Capacity Utilization 67.4%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 26: Hetherton St/101 SB Off-Ramp & Mission Ave



Lane Group	ø7
Lane Configurations	
Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Total Split (s)	7.0
Total Lost Time (s)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

San Rafael Multi-Family TIS - Existing Conditions
 27: Irwin St/101 NB On-Ramp & Mission Ave

AM Peak Hour



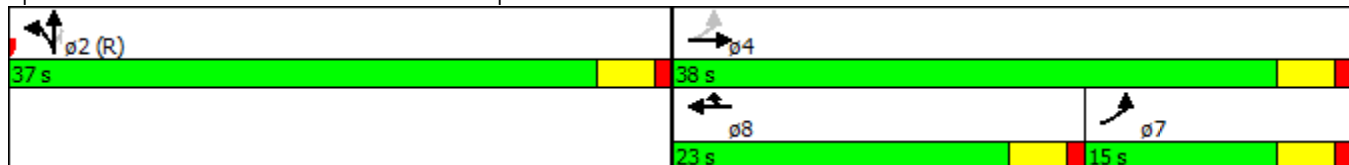
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↖	↗		↖↗	↗			
Volume (vph)	418	218	0	0	141	268	63	1240	32	0	0	0
Satd. Flow (prot)	1494	1631	0	0	1631	1337	0	3131	1322	0	0	0
Flt Permitted	0.604							0.998				
Satd. Flow (perm)	950	1631	0	0	1631	1337	0	3131	1260	0	0	0
Satd. Flow (RTOR)						79			79			
Lane Group Flow (vph)	445	232	0	0	150	285	0	1386	34	0	0	0
Turn Type	pm+pt	NA			NA	Prot	Split	NA	Perm			
Protected Phases	7	4			8	8	2	2				
Permitted Phases	4								2			
Total Split (s)	15.0	38.0			23.0	23.0	37.0	37.0	37.0			
Total Lost Time (s)	3.0	3.0			3.0	3.0		3.0	3.0			
Act Effct Green (s)	35.0	35.0			20.0	20.0		34.0	34.0			
Actuated g/C Ratio	0.47	0.47			0.27	0.27		0.45	0.45			
v/c Ratio	0.84	0.30			0.35	0.69		0.98	0.06			
Control Delay	37.6	15.5			25.0	27.8		30.8	0.4			
Queue Delay	0.0	0.0			0.0	0.0		37.7	0.0			
Total Delay	37.6	15.5			25.0	27.8		68.5	0.4			
LOS	D	B			C	C		E	A			
Approach Delay		30.0			26.8			66.9				
Approach LOS		C			C			E				

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 15 (20%), Referenced to phase 2:NBT, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 50.1
 Intersection Capacity Utilization 90.1%
 Analysis Period (min) 15

Intersection LOS: D
 ICU Level of Service E

Splits and Phases: 27: Irwin St/101 NB On-Ramp & Mission Ave



San Rafael Multi-Family TIS - Existing Conditions

28: 5th Ave & Lincoln Ave

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	309	15	6	214	19	7	178	18	15	330	22
Satd. Flow (prot)	1377	1691	0	1377	1625	0	0	1344	0	0	1398	0
Flt Permitted	0.526			0.421				0.989			0.987	
Satd. Flow (perm)	754	1691	0	605	1625	0	0	1331	0	0	1381	0
Satd. Flow (RTOR)		4			7			9			6	
Lane Group Flow (vph)	31	345	0	6	248	0	0	215	0	0	390	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	34.0	34.0		34.0	34.0		41.0	41.0		41.0	41.0	
Total Lost Time (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Act Effect Green (s)	31.0	31.0		31.0	31.0			38.0			38.0	
Actuated g/C Ratio	0.41	0.41		0.41	0.41			0.51			0.51	
v/c Ratio	0.10	0.49		0.02	0.37			0.32			0.56	
Control Delay	14.6	19.0		23.2	27.8			6.6			6.0	
Queue Delay	0.0	0.0		0.0	0.0			0.3			0.2	
Total Delay	14.6	19.0		23.2	27.8			6.9			6.2	
LOS	B	B		C	C			A			A	
Approach Delay		18.6			27.7			6.9			6.2	
Approach LOS		B			C			A			A	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 46 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 14.5

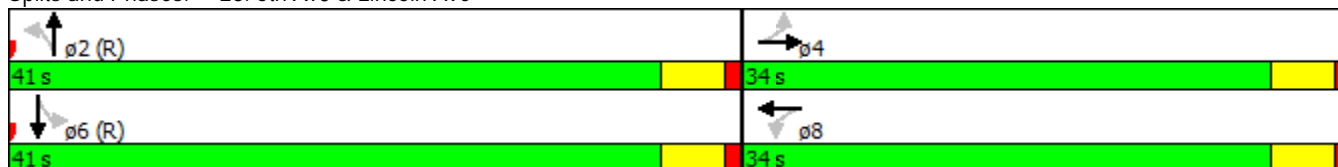
Intersection LOS: B

Intersection Capacity Utilization 63.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 28: 5th Ave & Lincoln Ave



San Rafael Multi-Family TIS - Existing Conditions
 29: 5th Ave & Tamalpais Ave (West)

AM Peak Hour

Intersection												
Int Delay, s/veh	3.1											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	3	300	19	42	261	1	8	8	11	9	54	16
Conflicting Peds, #/hr	4	0	14	14	0	4	14	0	0	0	0	14
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	3	319	20	45	278	1	9	9	12	10	57	17

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	293	0	0	353	0	0	769	732	357	742	742	306
Stage 1	-	-	-	-	-	-	350	350	-	382	382	-
Stage 2	-	-	-	-	-	-	419	382	-	360	360	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1263	-	-	1200	-	-	317	347	685	330	342	732
Stage 1	-	-	-	-	-	-	664	631	-	638	611	-
Stage 2	-	-	-	-	-	-	610	611	-	656	625	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1248	-	-	1186	-	-	251	323	669	299	318	715
Mov Cap-2 Maneuver	-	-	-	-	-	-	251	323	-	299	318	-
Stage 1	-	-	-	-	-	-	654	622	-	629	577	-
Stage 2	-	-	-	-	-	-	506	577	-	626	616	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.1	15.6	18.3
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	369	1248	-	-	1186	-	-	355
HCM Lane V/C Ratio	0.078	0.003	-	-	0.038	-	-	0.237
HCM Control Delay (s)	15.6	7.9	0	-	8.2	0	-	18.3
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.9

San Rafael Multi-Family TIS - Existing Conditions
 30: 5th Ave & Tamalpais Avenue (East)

AM Peak Hour

Intersection

Int Delay, s/veh 1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	7	313	0	0	280	1	24	2	26	0	0	0
Conflicting Peds, #/hr	4	0	0	0	0	4	0	0	10	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	7	333	0	0	298	1	26	2	28	0	0	0

Major/Minor	Major1	Major2	Minor1						
Conflicting Flow All	299	0	0	343	0	0	656	657	347
Stage 1	-	-	-	-	-	-	358	358	-
Stage 2	-	-	-	-	-	-	298	299	-
Critical Hdwy	4.13	-	-	4.13	-	-	6.43	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	5.43	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.43	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327
Pot Cap-1 Maneuver	1256	-	-	1210	-	-	429	383	694
Stage 1	-	-	-	-	-	-	705	626	-
Stage 2	-	-	-	-	-	-	751	664	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1252	-	-	1206	-	-	421	0	686
Mov Cap-2 Maneuver	-	-	-	-	-	-	421	0	-
Stage 1	-	-	-	-	-	-	694	0	-
Stage 2	-	-	-	-	-	-	748	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0.2	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	527	1252	-	-	1206	-	-
HCM Lane V/C Ratio	0.105	0.006	-	-	-	-	-
HCM Control Delay (s)	12.6	7.9	0	-	0	-	-
HCM Lane LOS	B	A	A	-	A	-	-
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-

San Rafael Multi-Family TIS - Existing Conditions

31: 5th Ave & Hetherton St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↗			↖						↖↖↖	↗
Volume (vph)	0	160	162	28	178	0	0	0	0	39	973	46
Satd. Flow (prot)	0	1829	0	0	1967	0	0	0	0	0	4587	1322
Flt Permitted					0.932						0.998	
Satd. Flow (perm)	0	1829	0	0	1845	0	0	0	0	0	4587	1266
Satd. Flow (RTOR)		52										
Lane Group Flow (vph)	0	342	0	0	219	0	0	0	0	0	1076	49
Turn Type		NA		Perm	NA					Split	NA	custom
Protected Phases		4			8					2	2	
Permitted Phases				8								5
Total Split (s)		37.0		37.0	37.0					38.0	38.0	31.0
Total Lost Time (s)		3.0			3.0						3.0	3.0
Act Effct Green (s)		34.0			34.0						35.0	28.0
Actuated g/C Ratio		0.45			0.45						0.47	0.37
v/c Ratio		0.40			0.26						0.50	0.10
Control Delay		4.6			16.8						5.1	6.4
Queue Delay		0.0			0.0						0.2	0.0
Total Delay		4.6			16.8						5.3	6.4
LOS		A			B						A	A
Approach Delay		4.6			16.8						5.4	
Approach LOS		A			B						A	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 67 (89%), Referenced to phase 2:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.50

Intersection Signal Delay: 6.7

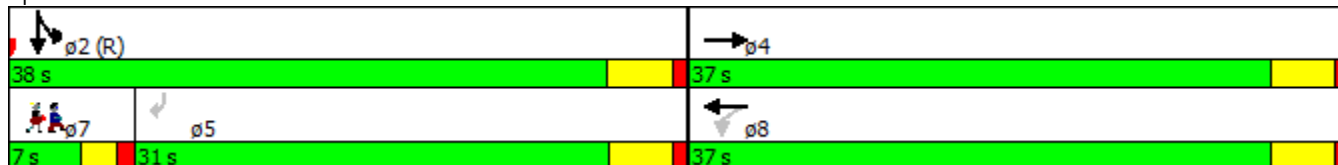
Intersection LOS: A

Intersection Capacity Utilization 61.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 31: 5th Ave & Hetherton St



Lane Group	ø7
Lane Configurations	
Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Total Split (s)	7.0
Total Lost Time (s)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

San Rafael Multi-Family TIS - Existing Conditions

32: 5th Ave & Irwin St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑			↗			↖	↗			
Volume (vph)	159	64	0	0	98	56	109	1183	8	0	0	0
Satd. Flow (prot)	1313	1383	0	0	1304	0	0	2682	0	0	0	0
Flt Permitted	0.601							0.996				
Satd. Flow (perm)	826	1383	0	0	1304	0	0	2682	0	0	0	0
Satd. Flow (RTOR)					42			1				
Lane Group Flow (vph)	169	68	0	0	164	0	0	1384	0	0	0	0
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Total Split (s)	28.0	28.0			28.0		47.0	47.0				
Total Lost Time (s)	3.0	3.0			3.0			3.0				
Act Effct Green (s)	25.0	25.0			25.0			44.0				
Actuated g/C Ratio	0.33	0.33			0.33			0.59				
v/c Ratio	0.61	0.15			0.35			0.88				
Control Delay	30.4	15.5			16.5			10.0				
Queue Delay	0.0	0.0			0.0			22.2				
Total Delay	30.4	15.5			16.5			32.1				
LOS	C	B			B			C				
Approach Delay		26.1			16.5			32.1				
Approach LOS		C			B			C				

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 7 (9%), Referenced to phase 2:NBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 29.9

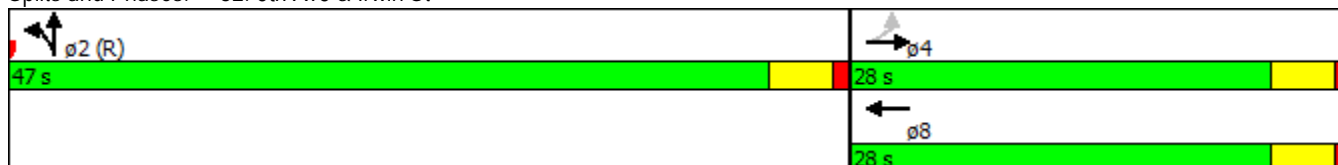
Intersection LOS: C

Intersection Capacity Utilization 86.2%

ICU Level of Service E

Analysis Period (min) 15

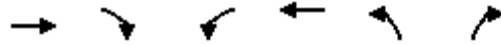
Splits and Phases: 32: 5th Ave & Irwin St



San Rafael Multi-Family TIS - Existing Conditions

1: Cijos St & 4th St

AM Peak Hour

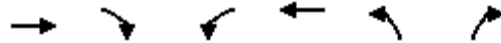


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	265	9	35	318	11	24
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	10	12	12	12
Storage Length (ft)		0	40		0	0
Storage Lanes		0	1		0	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97		0.97	
Frt	0.995				0.908	
Flt Protected			0.950		0.984	
Satd. Flow (prot)	1498	0	1340	1511	1390	0
Flt Permitted			0.547		0.984	
Satd. Flow (perm)	1498	0	752	1511	1384	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	5				26	
Link Speed (mph)	25			25	25	
Link Distance (ft)	315			331	229	
Travel Time (s)	8.6			9.0	6.2	
Confl. Peds. (#/hr)		43	43		8	14
Confl. Bikes (#/hr)		7				
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	6%	11%	6%	6%	0%	0%
Parking (#/hr)	2	2	2	2	2	2
Adj. Flow (vph)	282	10	37	338	12	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	292	0	37	338	38	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			10	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.24	1.07	1.35	1.24	1.24	1.07
Turning Speed (mph)		9	15		15	9
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases			6			
Minimum Split (s)	41.0		41.0	41.0	24.0	
Total Split (s)	41.0		41.0	41.0	24.0	
Total Split (%)	63.1%		63.1%	63.1%	36.9%	
Maximum Green (s)	36.8		36.8	36.8	20.0	
Yellow Time (s)	3.2		3.2	3.2	3.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	-1.2		-1.2	-1.2	-1.0	
Total Lost Time (s)	3.0		3.0	3.0	3.0	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	24.0				7.0	

San Rafael Multi-Family TIS - Existing Conditions

1: Cijos St & 4th St

AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Flash Dont Walk (s)	12.0				13.0	
Pedestrian Calls (#/hr)	0				0	
Act Effect Green (s)	38.0		38.0	38.0	21.0	
Actuated g/C Ratio	0.58		0.58	0.58	0.32	
v/c Ratio	0.33		0.08	0.38	0.08	
Control Delay	8.1		6.5	8.8	9.1	
Queue Delay	0.0		0.0	0.6	0.0	
Total Delay	8.1		6.5	9.4	9.1	
LOS	A		A	A	A	
Approach Delay	8.1			9.1	9.1	
Approach LOS	A			A	A	
Queue Length 50th (ft)	52		6	64	3	
Queue Length 95th (ft)	93		17	111	21	
Internal Link Dist (ft)	235			251	149	
Turn Bay Length (ft)			40			
Base Capacity (vph)	877		439	883	466	
Starvation Cap Reductn	0		0	244	0	
Spillback Cap Reductn	0		0	0	0	
Storage Cap Reductn	0		0	0	0	
Reduced v/c Ratio	0.33		0.08	0.53	0.08	

Intersection Summary

Area Type: Other
 Cycle Length: 65
 Actuated Cycle Length: 65
 Offset: 52 (80%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
 Natural Cycle: 65
 Control Type: Pretimed
 Maximum v/c Ratio: 0.38
 Intersection Signal Delay: 8.7
 Intersection Capacity Utilization 54.0%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 1: Cijos St & 4th St



San Rafael Multi-Family TIS - Existing Conditions

2: Lincoln Ave & 4th St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	252	19	58	287	25	20	184	41	51	248	45
Ideal Flow (vphpl)	1600	1700	1700	1600	1700	1700	1600	1700	1700	1600	1700	1700
Lane Width (ft)	10	9	12	10	12	12	12	10	8	12	10	9
Storage Length (ft)	45		0	75		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.98	0.99		0.96	0.99			0.99			0.99	
Fr _t		0.990			0.988			0.977			0.982	
Fl _t Protected	0.950			0.950				0.996			0.993	
Satd. Flow (prot)	1351	1421	0	1391	1569	0	0	1305	0	0	1340	0
Fl _t Permitted	0.426			0.475				0.963			0.926	
Satd. Flow (perm)	591	1421	0	667	1569	0	0	1258	0	0	1247	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			7			20			15	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		331			259			359			288	
Travel Time (s)		9.0			7.1			9.8			7.9	
Confl. Peds. (#/hr)	35		54	54		35	71		20	20		71
Confl. Bikes (#/hr)			5			1			5			4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	5%	6%	5%	2%	6%	12%	10%	5%	0%	2%	1%	4%
Parking (#/hr)							2	2	2	2	2	2
Adj. Flow (vph)	22	268	20	62	305	27	21	196	44	54	264	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	288	0	62	332	0	0	261	0	0	366	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.35	1.31	1.15	1.35	1.15	1.15	1.24	1.45	1.38	1.24	1.45	1.31
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	33.0	33.0		33.0	33.0		42.0	42.0		42.0	42.0	
Total Split (%)	44.0%	44.0%		44.0%	44.0%		56.0%	56.0%		56.0%	56.0%	
Maximum Green (s)	28.8	28.8		28.8	28.8		37.8	37.8		37.8	37.8	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.2	3.2		3.2	3.2	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-1.2	-1.2		-1.2	-1.2			-1.2			-1.2	
Total Lost Time (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effect Green (s)	30.0	30.0		30.0	30.0			39.0			39.0	

San Rafael Multi-Family TIS - Existing Conditions

2: Lincoln Ave & 4th St

AM Peak Hour

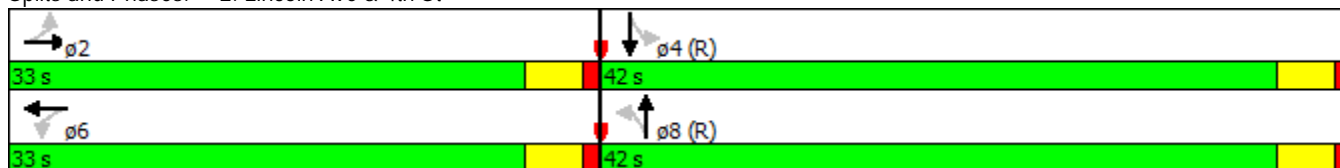


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.40	0.40		0.40	0.40			0.52			0.52	
v/c Ratio	0.09	0.50		0.23	0.53			0.39			0.56	
Control Delay	15.4	20.3		17.4	19.4			11.8			12.4	
Queue Delay	0.0	0.5		0.0	0.0			0.0			0.0	
Total Delay	15.4	20.8		17.4	19.4			11.8			12.4	
LOS	B	C		B	B			B			B	
Approach Delay		20.4			19.0			11.8			12.4	
Approach LOS		C			B			B			B	
Queue Length 50th (ft)	6	96		19	115			91			57	
Queue Length 95th (ft)	21	166		49	174			m166			94	
Internal Link Dist (ft)		251			179			279			208	
Turn Bay Length (ft)	45			75								
Base Capacity (vph)	236	572		266	631			663			655	
Starvation Cap Reductn	0	67		0	0			0			5	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.09	0.57		0.23	0.53			0.39			0.56	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 43 (57%), Referenced to phase 4:SBTL and 8:NBTL, Start of Green
 Natural Cycle: 50
 Control Type: Pretimed
 Maximum v/c Ratio: 0.56
 Intersection Signal Delay: 16.1
 Intersection LOS: B
 Intersection Capacity Utilization 74.6%
 ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Lincoln Ave & 4th St



San Rafael Multi-Family TIS - Existing Conditions
 3: Tamalpais Ave (West) South Leg & 4th St

AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	305	38	0	373	0	96
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.985					0.865
Flt Protected						
Satd. Flow (prot)	1697	0	0	1698	0	1512
Flt Permitted						
Satd. Flow (perm)	1697	0	0	1698	0	1512
Link Speed (mph)	25			25	25	
Link Distance (ft)	259			60	106	
Travel Time (s)	7.1			1.6	2.9	
Confl. Peds. (#/hr)		34				49
Confl. Bikes (#/hr)		4				
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	5%	0%	0%	6%	0%	3%
Adj. Flow (vph)	324	40	0	397	0	102
Shared Lane Traffic (%)						
Lane Group Flow (vph)	364	0	0	397	0	102
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			10	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	39.1%
Analysis Period (min)	15
	ICU Level of Service A

San Rafael Multi-Family TIS - Existing Conditions
 4: 4th St & Tamalpais Ave (West) North Leg

AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↔			↗
Volume (vph)	0	401	348	7	0	25
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.997			0.865
Flt Protected						
Satd. Flow (prot)	0	1714	1695	0	0	1442
Flt Permitted						
Satd. Flow (perm)	0	1714	1695	0	0	1442
Link Speed (mph)		25	25		25	
Link Distance (ft)		60	60		194	
Travel Time (s)		1.6	1.6		5.3	
Confl. Peds. (#/hr)				39		50
Confl. Bikes (#/hr)				1		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	5%	6%	0%	0%	8%
Adj. Flow (vph)	0	427	370	7	0	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	427	377	0	0	27
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	40.4%
ICU Level of Service	A
Analysis Period (min)	15

San Rafael Multi-Family TIS - Existing Conditions

5: Tamalpais Ave (East) & 4th St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕			↕			↕					
Volume (vph)	23	378	0	0	355	34	0	0	0	0	0	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor													
Fr _t	0.988												
Fl _t Protected	0.997												
Satd. Flow (prot)	0	1714	0	0	1686	0	0	1800	0	0	0	0	
Fl _t Permitted	0.997												
Satd. Flow (perm)	0	1714	0	0	1686	0	0	1800	0	0	0	0	
Link Speed (mph)	25												
Link Distance (ft)	60												
Travel Time (s)	1.6												
Confl. Peds. (#/hr)	31						31						21
Confl. Bikes (#/hr)	6												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Heavy Vehicles (%)	0%	5%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%	
Adj. Flow (vph)	24	402	0	0	378	36	0	0	0	0	0	0	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	426	0	0	414	0	0	0	0	0	0	0	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(ft)	12												
Link Offset(ft)	0												
Crosswalk Width(ft)	16												
Two way Left Turn Lane													
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	
Turning Speed (mph)	15	9		15	9		15	9		15	9		
Sign Control	Free				Free				Stop				

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	55.9%
ICU Level of Service	B
Analysis Period (min)	15

San Rafael Multi-Family TIS - Existing Conditions

6: Hetherton St & 4th St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↑↑↑	↗
Volume (vph)	0	258	121	168	256	0	0	0	0	106	813	144
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	13	10	15	11	12	12	12	12	12	12	12
Storage Length (ft)	0		0	100		0	0		0	0		140
Storage Lanes	0		1	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00
Ped Bike Factor			0.96	0.98							1.00	0.95
Frt			0.850									0.850
Flt Protected				0.950							0.994	
Satd. Flow (prot)	0	1806	1298	1862	1626	0	0	0	0	0	4501	1348
Flt Permitted				0.515							0.994	
Satd. Flow (perm)	0	1806	1241	991	1626	0	0	0	0	0	4496	1275
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)			82									
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		167			385			352			290	
Travel Time (s)		4.6			10.5			9.6			7.9	
Confl. Peds. (#/hr)			32	32						6		21
Confl. Bikes (#/hr)			6									2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	3%	10%	1%	7%	0%	0%	0%	0%	1%	5%	1%
Parking (#/hr)											2	2
Adj. Flow (vph)	0	274	129	179	272	0	0	0	0	113	865	153
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	274	129	179	272	0	0	0	0	0	978	153
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		6			15			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.03	1.17	0.95	1.12	1.07	1.07	1.07	1.07	1.07	1.12	1.24
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm	Perm	NA					Perm	NA	custom
Protected Phases		4			8						2	
Permitted Phases			4	8						2		5
Minimum Split (s)		29.0	29.0	29.0	29.0					29.0	29.0	29.0
Total Split (s)		37.0	37.0	37.0	37.0					38.0	38.0	31.0
Total Split (%)		49.3%	49.3%	49.3%	49.3%					50.7%	50.7%	41.3%
Maximum Green (s)		32.8	32.8	32.8	32.8					33.8	33.8	26.8
Yellow Time (s)		3.2	3.2	3.2	3.2					3.2	3.2	3.2
All-Red Time (s)		1.0	1.0	1.0	1.0					1.0	1.0	1.0
Lost Time Adjust (s)		-1.2	-1.2	-1.2	-1.2						-1.2	-1.2
Total Lost Time (s)		3.0	3.0	3.0	3.0						3.0	3.0
Lead/Lag												Lag
Lead-Lag Optimize?												
Walk Time (s)		10.0	10.0	10.0	10.0					10.0	10.0	10.0

San Rafael Multi-Family TIS - Existing Conditions
 6: Hetherton St & 4th St

AM Peak Hour

Lane Group	ø7
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Parking (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Minimum Split (s)	7.0
Total Split (s)	7.0
Total Split (%)	9%
Maximum Green (s)	3.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	
Walk Time (s)	

San Rafael Multi-Family TIS - Existing Conditions

6: Hetherton St & 4th St

AM Peak Hour

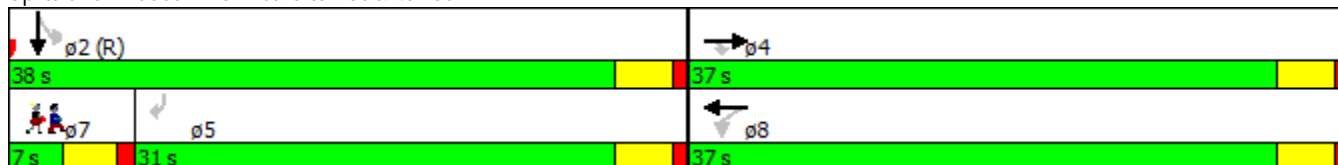


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		14.0	14.0	14.0	14.0					14.0	14.0	14.0
Pedestrian Calls (#/hr)		0	0	0	0					0	0	0
Act Effect Green (s)		34.0	34.0	34.0	34.0						35.0	28.0
Actuated g/C Ratio		0.45	0.45	0.45	0.45						0.47	0.37
v/c Ratio		0.33	0.21	0.40	0.37						0.47	0.32
Control Delay		12.2	4.6	14.6	13.0						5.8	9.8
Queue Delay		0.0	0.0	0.0	0.0						0.1	0.0
Total Delay		12.2	4.6	14.6	13.0						5.9	9.8
LOS		B	A	B	B						A	A
Approach Delay		9.8			13.7						6.4	
Approach LOS		A			B						A	
Queue Length 50th (ft)		94	20	31	47						28	29
Queue Length 95th (ft)		158	m37	m81	116						35	65
Internal Link Dist (ft)		87			305			272			210	
Turn Bay Length (ft)				100								140
Base Capacity (vph)		818	607	449	737						2098	476
Starvation Cap Reductn		0	0	0	0						211	0
Spillback Cap Reductn		0	1	0	0						77	0
Storage Cap Reductn		0	0	0	0						0	0
Reduced v/c Ratio		0.33	0.21	0.40	0.37						0.52	0.32

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 0 (0%), Referenced to phase 2:SBTL, Start of Green
 Natural Cycle: 65
 Control Type: Pretimed
 Maximum v/c Ratio: 0.47
 Intersection Signal Delay: 8.7
 Intersection LOS: A
 Intersection Capacity Utilization 76.1%
 ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Hetherton St & 4th St



San Rafael Multi-Family TIS - Existing Conditions
6: Hetherton St & 4th St



















AM Peak Hour

Lane Group	ø7
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

San Rafael Multi-Family TIS - Existing Conditions

7: Irwin St & 4th St

AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	146	213	0	0	309	58	120	1090	47	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	12	12	12	12	12	9	10	12	12	12	12
Storage Length (ft)	70		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00			1.00				
Fr _t					0.979			0.994				
Fl _t Protected	0.950						0.950					
Satd. Flow (prot)	1605	1782	0	0	1517	0	1399	2880	0	0	0	0
Fl _t Permitted	0.363						0.950					
Satd. Flow (perm)	611	1782	0	0	1517	0	1399	2880	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					15			9				
Link Speed (mph)		25			25			25				25
Link Distance (ft)		385			564			364				291
Travel Time (s)		10.5			15.4			9.9				7.9
Confl. Peds. (#/hr)	11						11		4			
Confl. Bikes (#/hr)							4		1			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	1%	0%	0%	3%	3%	10%	4%	4%	0%	0%	0%
Parking (#/hr)					2	2		2	2			
Adj. Flow (vph)	155	227	0	0	329	62	128	1160	50	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	155	227	0	0	391	0	128	1210	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		15			15			9				9
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.12	1.07	1.07	1.07	1.24	1.07	1.22	1.26	1.07	1.07	1.07	1.07
Turning Speed (mph)	25		9	15		20	25		20	15		9
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Minimum Split (s)	19.0	19.0			19.0		21.0	21.0				
Total Split (s)	33.0	33.0			33.0		42.0	42.0				
Total Split (%)	44.0%	44.0%			44.0%		56.0%	56.0%				
Maximum Green (s)	28.8	28.8			28.8		37.8	37.8				
Yellow Time (s)	3.2	3.2			3.2		3.2	3.2				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)	-1.2	-1.2			-1.2		-1.2	-1.2				
Total Lost Time (s)	3.0	3.0			3.0		3.0	3.0				
Lead/Lag												
Lead-Lag Optimize?												
Act Effect Green (s)	30.0	30.0			30.0		39.0	39.0				

San Rafael Multi-Family TIS - Existing Conditions

7: Irwin St & 4th St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.40	0.40			0.40		0.52	0.52				
v/c Ratio	0.64	0.32			0.64		0.18	0.81				
Control Delay	26.4	10.7			23.1		6.8	12.0				
Queue Delay	0.0	0.0			0.0		0.0	0.7				
Total Delay	26.4	10.7			23.1		6.8	12.7				
LOS	C	B			C		A	B				
Approach Delay		17.0			23.1			12.1				
Approach LOS		B			C			B				
Queue Length 50th (ft)	26	38			137		16	81				
Queue Length 95th (ft)	#147	64			229		m22	88				
Internal Link Dist (ft)		305			484			284			211	
Turn Bay Length (ft)	70											
Base Capacity (vph)	244	712			615		727	1501				
Starvation Cap Reductn	0	0			0		0	6				
Spillback Cap Reductn	0	0			0		0	85				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.64	0.32			0.64		0.18	0.85				

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 4 (5%), Referenced to phase 2:NBTL, Start of Green
 Natural Cycle: 45
 Control Type: Pretimed
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 15.0 Intersection LOS: B
 Intersection Capacity Utilization 76.1% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Irwin St & 4th St



San Rafael Multi-Family TIS - Existing Conditions

8: Lindaro St & 3rd St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↖↖↖			↖			↖	
Volume (vph)	0	0	0	236	1298	20	55	8	0	0	28	10
Ideal Flow (vphpl)	1800	1800	1800	1600	1600	1600	1600	1600	1800	1800	1600	1600
Lane Width (ft)	12	12	12	11	12	12	12	12	12	12	12	12
Storage Length (ft)	0		0	75		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor				0.96	1.00							
Frt					0.998						0.964	
Flt Protected				0.950				0.958				
Satd. Flow (prot)	0	0	0	1455	4151	0	0	1507	0	0	1542	0
Flt Permitted				0.950				0.785				
Satd. Flow (perm)	0	0	0	1403	4151	0	0	1235	0	0	1542	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					5						11	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		102			103			333			198	
Travel Time (s)		2.8			2.8			9.1			5.4	
Confl. Peds. (#/hr)				22		28						
Confl. Bikes (#/hr)						2						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	1%	5%	0%	2%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	251	1381	21	59	9	0	0	30	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	251	1402	0	0	68	0	0	41	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			9			9	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.30	1.24	1.24	1.24	1.24	1.07	1.07	1.24	1.24
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8				4
Permitted Phases				6			8					
Minimum Split (s)				28.0	28.0		24.0	24.0			24.0	
Total Split (s)				50.0	50.0		25.0	25.0			25.0	
Total Split (%)				66.7%	66.7%		33.3%	33.3%			33.3%	
Maximum Green (s)				45.8	45.8		20.8	20.8			20.8	
Yellow Time (s)				3.2	3.2		3.2	3.2			3.2	
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0	
Lost Time Adjust (s)				-1.2	-1.2		-1.2	-1.2			-1.2	
Total Lost Time (s)				3.0	3.0		3.0	3.0			3.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)				10.0	10.0		4.0	4.0				
Flash Dont Walk (s)				13.0	13.0		15.0	15.0				

San Rafael Multi-Family TIS - Existing Conditions
 8: Lindaro St & 3rd St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)				0	0		0	0				
Act Effect Green (s)				47.0	47.0			22.0			22.0	
Actuated g/C Ratio				0.63	0.63			0.29			0.29	
v/c Ratio				0.29	0.54			0.19			0.09	
Control Delay				2.5	2.8			14.1			16.0	
Queue Delay				0.0	0.0			0.0			0.0	
Total Delay				2.5	2.8			14.1			16.0	
LOS				A	A			B			B	
Approach Delay					2.8			14.1			16.0	
Approach LOS					A			B			B	
Queue Length 50th (ft)				13	26			19			10	
Queue Length 95th (ft)				m18	31			m28			32	
Internal Link Dist (ft)		22			23			253			118	
Turn Bay Length (ft)				75								
Base Capacity (vph)				879	2603			362			460	
Starvation Cap Reductn				0	0			0			0	
Spillback Cap Reductn				0	0			0			0	
Storage Cap Reductn				0	0			0			0	
Reduced v/c Ratio				0.29	0.54			0.19			0.09	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 63 (84%), Referenced to phase 6:WBTL, Start of Green
 Natural Cycle: 55
 Control Type: Pretimed
 Maximum v/c Ratio: 0.54
 Intersection Signal Delay: 3.5 Intersection LOS: A
 Intersection Capacity Utilization 47.8% ICU Level of Service A
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

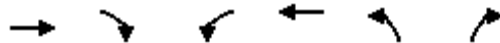
Splits and Phases: 8: Lindaro St & 3rd St



San Rafael Multi-Family TIS - Existing Conditions

9: Ritter St & 3rd St

AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑↑	↘	↗
Volume (vph)	0	0	0	1502	64	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)		0	0		0	25
Storage Lanes		0	0		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	0.91	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	4725	1660	1800
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	4725	1660	1800
Link Speed (mph)	25			25	25	
Link Distance (ft)	103			103	461	
Travel Time (s)	2.8			2.8	12.6	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	4%	3%	0%
Adj. Flow (vph)	0	0	0	1598	68	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1598	68	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			11	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	41.0%
	ICU Level of Service A
Analysis Period (min)	15

San Rafael Multi-Family TIS - Existing Conditions
 10: 3rd St & Cijos St

AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑			↗
Volume (vph)	0	0	1469	33	0	33
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	1.00
Ped Bike Factor						
Frt			0.997			0.865
Flt Protected						
Satd. Flow (prot)	0	0	4712	0	0	1469
Flt Permitted						
Satd. Flow (perm)	0	0	4712	0	0	1469
Link Speed (mph)		25	25		25	
Link Distance (ft)		103	309		128	
Travel Time (s)		2.8	8.4		3.5	
Confl. Peds. (#/hr)				28		
Confl. Bikes (#/hr)				1		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	4%	3%	0%	6%
Adj. Flow (vph)	0	0	1563	35	0	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	1598	0	0	35
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	40.8%
Analysis Period (min)	15
	ICU Level of Service A

San Rafael Multi-Family TIS - Existing Conditions

11: Lincoln Ave & 3rd St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					←←←			↑			↑	
Volume (vph)	0	0	0	170	1357	61	28	177	0	0	221	104
Ideal Flow (vphpl)	1800	1800	1800	1600	1600	1600	1600	1600	1800	1800	1600	1600
Lane Width (ft)	12	12	12	12	12	12	12	11	10	12	9	9
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					0.99			1.00			0.98	
Frt					0.994						0.957	
Flt Protected					0.995			0.993				
Satd. Flow (prot)	0	0	0	0	4141	0	0	1302	0	0	1181	0
Flt Permitted					0.995			0.927				
Satd. Flow (perm)	0	0	0	0	4122	0	0	1211	0	0	1181	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					13						30	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		309			264			223			359	
Travel Time (s)		8.4			7.2			6.1			9.8	
Confl. Peds. (#/hr)				49		37	51					51
Confl. Bikes (#/hr)						2						4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	4%	4%	7%	7%	4%	0%	0%	1%	2%
Parking (#/hr)							3	3			3	3
Adj. Flow (vph)	0	0	0	181	1444	65	30	188	0	0	235	111
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	1690	0	0	218	0	0	346	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.24	1.24	1.24	1.24	1.50	1.17	1.07	1.64	1.42
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8			4	
Permitted Phases				6			8					
Minimum Split (s)				20.0	20.0		20.0	20.0			20.0	
Total Split (s)				46.0	46.0		29.0	29.0			29.0	
Total Split (%)				61.3%	61.3%		38.7%	38.7%			38.7%	
Maximum Green (s)				41.5	41.5		24.5	24.5			24.5	
Yellow Time (s)				3.5	3.5		3.5	3.5			3.5	
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0	
Lost Time Adjust (s)					-1.5			-1.5			-1.5	
Total Lost Time (s)					3.0			3.0			3.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effect Green (s)					43.0			26.0			26.0	
Actuated g/C Ratio					0.57			0.35			0.35	
v/c Ratio					0.71			0.52			0.81	
Control Delay					4.2			25.3			39.2	

San Rafael Multi-Family TIS - Existing Conditions

11: Lincoln Ave & 3rd St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay					0.3			0.0			0.0	
Total Delay					4.5			25.3			39.2	
LOS					A			C			D	
Approach Delay					4.5			25.3			39.2	
Approach LOS					A			C			D	
Queue Length 50th (ft)					8			70			157	
Queue Length 95th (ft)					9			m109			#245	
Internal Link Dist (ft)		229			184			143			279	
Turn Bay Length (ft)												
Base Capacity (vph)					2368			419			429	
Starvation Cap Reductn					212			0			0	
Spillback Cap Reductn					0			0			0	
Storage Cap Reductn					0			0			0	
Reduced v/c Ratio					0.78			0.52			0.81	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 20 (27%), Referenced to phase 4:SBT and 8:NBTL, Start of Green
 Natural Cycle: 50
 Control Type: Pretimed
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 11.9
 Intersection LOS: B
 Intersection Capacity Utilization 82.5%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

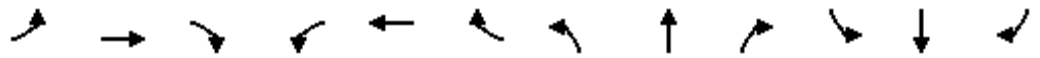
Splits and Phases: 11: Lincoln Ave & 3rd St



San Rafael Multi-Family TIS - Existing Conditions

12: Tamalpais Ave (West) & 3rd St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					←←←		←	↑			↑	
Volume (vph)	0	0	0	237	1547	35	33	67	0	0	31	15
Ideal Flow (vphpl)	1800	1800	1800	1600	1600	1600	1600	1600	1800	1800	1600	1600
Lane Width (ft)	12	12	12	12	12	12	11	12	12	12	12	12
Storage Length (ft)	0		0	0		0	70		0	0		0
Storage Lanes	0		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					0.98		0.98				0.99	
Frt					0.997						0.956	
Flt Protected					0.994		0.950					
Satd. Flow (prot)	0	0	0	0	4142	0	1161	1402	0	0	1337	0
Flt Permitted					0.994		0.725					
Satd. Flow (perm)	0	0	0	0	4072	0	866	1402	0	0	1337	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					8						16	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		264			130			321			251	
Travel Time (s)		7.2			3.5			8.8			6.8	
Confl. Peds. (#/hr)				76		25	19					19
Confl. Bikes (#/hr)						8						2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	7%	4%	3%	12%	1%	0%	0%	0%	0%
Parking (#/hr)							3	3			3	3
Adj. Flow (vph)	0	0	0	252	1646	37	35	71	0	0	33	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	1935	0	35	71	0	0	49	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.24	1.24	1.24	1.50	1.44	1.07	1.07	1.44	1.24
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8				4
Permitted Phases				6			8					
Minimum Split (s)				28.0	28.0		23.0	23.0			23.0	
Total Split (s)				52.0	52.0		23.0	23.0			23.0	
Total Split (%)				69.3%	69.3%		30.7%	30.7%			30.7%	
Maximum Green (s)				47.8	47.8		18.8	18.8			18.8	
Yellow Time (s)				3.2	3.2		3.2	3.2			3.2	
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0	
Lost Time Adjust (s)					-1.2		-1.2	-1.2			-1.2	
Total Lost Time (s)					3.0		3.0	3.0			3.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)				10.0	10.0		4.0	4.0			4.0	

San Rafael Multi-Family TIS - Existing Conditions

12: Tamalpais Ave (West) & 3rd St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)				12.0	12.0		14.0	14.0			14.0	
Pedestrian Calls (#/hr)				0	0		0	0			0	
Act Effct Green (s)					49.0		20.0	20.0			20.0	
Actuated g/C Ratio					0.65		0.27	0.27			0.27	
v/c Ratio					0.73		0.15	0.19			0.13	
Control Delay					5.5		27.7	27.4			20.2	
Queue Delay					0.2		0.0	0.0			0.0	
Total Delay					5.7		27.7	27.4			20.2	
LOS					A		C	C			C	
Approach Delay					5.7			27.5			20.2	
Approach LOS					A			C			C	
Queue Length 50th (ft)					75		16	32			9	
Queue Length 95th (ft)					85		m30	m53			m31	
Internal Link Dist (ft)		184			50			241			171	
Turn Bay Length (ft)							70					
Base Capacity (vph)					2663		230	373			368	
Starvation Cap Reductn					170		0	0			0	
Spillback Cap Reductn					126		0	0			0	
Storage Cap Reductn					0		0	0			0	
Reduced v/c Ratio					0.78		0.15	0.19			0.13	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 37 (49%), Referenced to phase 6:WBTL, Start of Green
 Natural Cycle: 60
 Control Type: Pretimed
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 7.2
 Intersection LOS: A
 Intersection Capacity Utilization 107.6%
 ICU Level of Service G
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: Tamalpais Ave (West) & 3rd St



San Rafael Multi-Family TIS - Existing Conditions
 13: 3rd St & Tamalpais Ave (East)

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↔↔↔		↗					
Volume (vph)	0	0	0	15	1801	0	8	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Flt												
Flt Protected							0.950					
Satd. Flow (prot)	0	1800	0	0	4692	0	855	0	0	0	0	0
Flt Permitted							0.950					
Satd. Flow (perm)	0	1800	0	0	4692	0	855	0	0	0	0	0
Link Speed (mph)		25			25			25				25
Link Distance (ft)		130			156			122				156
Travel Time (s)		3.5			4.3			3.3				4.3
Confl. Peds. (#/hr)				44		16						
Confl. Bikes (#/hr)						10						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	93%	4%	0%	100%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	16	1916	0	9	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	1932	0	9	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	47.1%
Analysis Period (min)	15
	ICU Level of Service A

San Rafael Multi-Family TIS - Existing Conditions

14: Hetherton St & 3rd St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↖↖↖						↗↗↗	↗
Volume (vph)	0	0	0	386	1422	0	0	0	0	0	715	387
Ideal Flow (vphpl)	1800	1800	1800	1700	1700	1800	1800	1800	1800	1800	1700	1700
Lane Width (ft)	12	12	12	14	12	12	12	12	12	12	11	11
Storage Length (ft)	0		0	70		0	0		0	0		220
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	0.91	1.00
Ped Bike Factor				0.96	1.00							0.92
Frt												0.850
Flt Protected				0.950	0.999							
Satd. Flow (prot)	0	0	0	1425	4173	0	0	0	0	0	4314	1330
Flt Permitted				0.950	0.999							
Satd. Flow (perm)	0	0	0	1362	4171	0	0	0	0	0	4314	1223
Right Turn on Red			Yes	No		Yes			Yes			Yes
Satd. Flow (RTOR)												23
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		156			379			311			352	
Travel Time (s)		4.3			10.3			8.5			9.6	
Confl. Peds. (#/hr)				51								65
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	4%	5%	0%	0%	0%	0%	0%	4%	5%
Adj. Flow (vph)	0	0	0	411	1513	0	0	0	0	0	761	412
Shared Lane Traffic (%)				4%								
Lane Group Flow (vph)	0	0	0	395	1529	0	0	0	0	0	761	412
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.06	1.15	1.07	1.07	1.07	1.07	1.07	1.20	1.20
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Perm	NA						NA	Perm
Protected Phases					8						6	
Permitted Phases				8								6
Minimum Split (s)				34.0	34.0						28.0	28.0
Total Split (s)				43.0	43.0						32.0	32.0
Total Split (%)				57.3%	57.3%						42.7%	42.7%
Maximum Green (s)				39.0	39.0						27.0	27.0
Yellow Time (s)				3.0	3.0						3.0	3.0
All-Red Time (s)				1.0	1.0						2.0	2.0
Lost Time Adjust (s)				-1.0	-1.0						-2.0	-2.0
Total Lost Time (s)				3.0	3.0						3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)				7.0	7.0						7.0	7.0
Flash Dont Walk (s)				19.0	19.0						14.0	14.0

San Rafael Multi-Family TIS - Existing Conditions

14: Hetherton St & 3rd St

AM Peak Hour

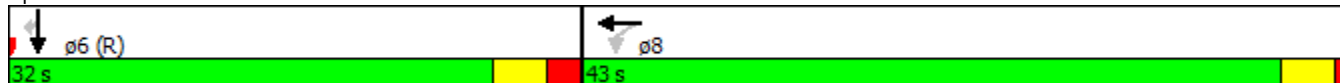


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)				0	0						0	0
Act Effect Green (s)				40.0	40.0						29.0	29.0
Actuated g/C Ratio				0.53	0.53						0.39	0.39
v/c Ratio				0.54	0.69						0.46	0.85
Control Delay				9.9	9.6						10.8	28.8
Queue Delay				0.3	0.2						0.0	0.0
Total Delay				10.2	9.8						10.8	28.8
LOS				B	A						B	C
Approach Delay					9.9						17.1	
Approach LOS					A						B	
Queue Length 50th (ft)				82	118						42	61
Queue Length 95th (ft)				m148	160						72	#172
Internal Link Dist (ft)		76				299		231			272	
Turn Bay Length (ft)				70								220
Base Capacity (vph)				726	2224						1668	487
Starvation Cap Reductn				62	116						0	0
Spillback Cap Reductn				0	124						42	0
Storage Cap Reductn				0	0						0	0
Reduced v/c Ratio				0.59	0.73						0.47	0.85

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 3 (4%), Referenced to phase 6:SBT, Start of Green
 Natural Cycle: 65
 Control Type: Pretimed
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 12.6 Intersection LOS: B
 Intersection Capacity Utilization 93.4% ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 14: Hetherton St & 3rd St



San Rafael Multi-Family TIS - Existing Conditions

15: Irwin St & 3rd St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑	↑	↑	↑↑↑				
Volume (vph)	0	0	0	0	944	133	900	1137	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	10	11	10	11	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00
Ped Bike Factor						0.97						
Frt						0.850						
Flt Protected							0.950	0.987				
Satd. Flow (prot)	0	0	0	0	4410	1395	1307	4220	0	0	0	0
Flt Permitted							0.950	0.987				
Satd. Flow (perm)	0	0	0	0	4410	1352	1307	4220	0	0	0	0
Right Turn on Red			Yes			Yes	Yes		Yes			Yes
Satd. Flow (RTOR)						61	25	25				
Link Speed (mph)		25			25			25				25
Link Distance (ft)		379			140			294				364
Travel Time (s)		10.3			3.8			8.0				9.9
Confl. Peds. (#/hr)							16					
Confl. Bikes (#/hr)							7					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	4%	6%	5%	5%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	0	1004	141	957	1210	0	0	0	0
Shared Lane Traffic (%)							45%					
Lane Group Flow (vph)	0	0	0	0	1004	141	526	1641	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			10				10
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.17	1.12	1.17	1.12	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15			20	25		20	15	9
Turn Type					NA	Perm	Split	NA				
Protected Phases					8		2	2				
Permitted Phases						8						
Minimum Split (s)					29.0	29.0	25.0	25.0				
Total Split (s)					30.0	30.0	45.0	45.0				
Total Split (%)					40.0%	40.0%	60.0%	60.0%				
Maximum Green (s)					25.5	25.5	40.5	40.5				
Yellow Time (s)					3.5	3.5	3.5	3.5				
All-Red Time (s)					1.0	1.0	1.0	1.0				
Lost Time Adjust (s)					-1.5	-1.5	-1.5	-1.5				
Total Lost Time (s)					3.0	3.0	3.0	3.0				
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)					7.0	7.0	7.0	7.0				
Flash Dont Walk (s)					17.0	17.0	13.0	13.0				
Pedestrian Calls (#/hr)					0	0	0	0				
Act Effct Green (s)					27.0	27.0	42.0	42.0				
Actuated g/C Ratio					0.36	0.36	0.56	0.56				

San Rafael Multi-Family TIS - Existing Conditions

15: Irwin St & 3rd St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio					0.63	0.27	0.71	0.69				
Control Delay					22.1	11.6	13.3	10.4				
Queue Delay					0.0	0.0	0.9	0.5				
Total Delay					22.1	11.6	14.3	10.9				
LOS					C	B	B	B				
Approach Delay					20.8			11.7				
Approach LOS					C			B				
Queue Length 50th (ft)					139	25	126	136				
Queue Length 95th (ft)					182	64	m227	196				
Internal Link Dist (ft)		299			60			214			284	
Turn Bay Length (ft)												
Base Capacity (vph)					1587	525	742	2374				
Starvation Cap Reductn					0	0	64	318				
Spillback Cap Reductn					0	0	0	65				
Storage Cap Reductn					0	0	0	0				
Reduced v/c Ratio					0.63	0.27	0.78	0.80				

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 73 (97%), Referenced to phase 2:NBTL, Start of Green
 Natural Cycle: 60
 Control Type: Pretimed
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 14.9 Intersection LOS: B
 Intersection Capacity Utilization 76.2% ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Irwin St & 3rd St



San Rafael Multi-Family TIS - Existing Conditions

16: Lindaro St & 2nd St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↑						↑	↑	↓	↑	
Volume (vph)	31	2074	43	0	0	0	0	33	168	55	214	0
Ideal Flow (vphpl)	1600	1600	1600	1800	1800	1800	1800	1600	1600	1600	1600	1800
Lane Width (ft)	12	11	11	12	12	12	12	11	10	9	9	12
Storage Length (ft)	0		0	0		0	0		275	70		0
Storage Lanes	0		0	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00							0.97	0.98		
Frt		0.997							0.850			
Flt Protected		0.999								0.950		
Satd. Flow (prot)	0	5181	0	0	0	0	0	1547	1186	1341	1426	0
Flt Permitted		0.999								0.734		
Satd. Flow (perm)	0	5180	0	0	0	0	0	1547	1153	1021	1426	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8							17			
Link Speed (mph)		25			25			25				25
Link Distance (ft)		495			513			314				333
Travel Time (s)		13.5			14.0			8.6				9.1
Confl. Peds. (#/hr)	13		44							17	17	
Confl. Bikes (#/hr)			3							1		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	2%	7%	0%	0%	0%	0%	0%	7%	2%	1%	0%
Adj. Flow (vph)	33	2206	46	0	0	0	0	35	179	59	228	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2285	0	0	0	0	0	35	179	59	228	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			9			9	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.24	1.30	1.30	1.07	1.07	1.07	1.07	1.30	1.35	1.42	1.42	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA						NA	Perm	Perm	NA	
Protected Phases		6						4			8	
Permitted Phases	6								4	8		
Minimum Split (s)	33.0	33.0						29.0	29.0	29.0	29.0	
Total Split (s)	43.0	43.0						32.0	32.0	32.0	32.0	
Total Split (%)	57.3%	57.3%						42.7%	42.7%	42.7%	42.7%	
Maximum Green (s)	38.8	38.8						27.8	27.8	27.8	27.8	
Yellow Time (s)	3.2	3.2						3.2	3.2	3.2	3.2	
All-Red Time (s)	1.0	1.0						1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.2						-1.2	-1.2	-1.2	-1.2	
Total Lost Time (s)		3.0						3.0	3.0	3.0	3.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	10.0	10.0						8.0	8.0	8.0	8.0	
Flash Dont Walk (s)	18.0	18.0						16.0	16.0	16.0	16.0	

San Rafael Multi-Family TIS - Existing Conditions

16: Lindaro St & 2nd St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)	0	0						0	0	0	0	
Act Effct Green (s)		40.0						29.0	29.0	29.0	29.0	
Actuated g/C Ratio		0.53						0.39	0.39	0.39	0.39	
v/c Ratio		0.83						0.06	0.39	0.15	0.41	
Control Delay		17.8						14.9	18.1	30.4	35.6	
Queue Delay		0.0						0.0	0.0	0.0	0.0	
Total Delay		17.8						14.9	18.1	30.4	35.6	
LOS		B						B	B	C	D	
Approach Delay		17.8						17.6			34.5	
Approach LOS		B						B			C	
Queue Length 50th (ft)		238						10	52	0	115	
Queue Length 95th (ft)		292						27	104	0	184	
Internal Link Dist (ft)		415			433			234			253	
Turn Bay Length (ft)									275	70		
Base Capacity (vph)		2766						598	456	394	551	
Starvation Cap Reductn		0						0	0	0	0	
Spillback Cap Reductn		0						0	0	0	0	
Storage Cap Reductn		0						0	0	0	0	
Reduced v/c Ratio		0.83						0.06	0.39	0.15	0.41	

Intersection Summary

Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	75
Offset:	0 (0%), Referenced to phase 6:EBTL, Start of Green
Natural Cycle:	65
Control Type:	Pretimed
Maximum v/c Ratio:	0.83
Intersection Signal Delay:	19.5
Intersection LOS:	B
Intersection Capacity Utilization	73.0%
ICU Level of Service	D
Analysis Period (min)	15

Splits and Phases: 16: Lindaro St & 2nd St



San Rafael Multi-Family TIS - Existing Conditions

17: Lincoln Ave & Ritter St

AM Peak Hour



Lane Group	WBL	WBT	WBR	NBL	NBT	NBR2	SBL2	SBL	SBT	SBR
Lane Configurations										
Volume (vph)	4	5	5	46	200	3	4	31	330	26
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor										
Frt		0.952			0.998				0.991	
Flt Protected		0.986			0.991				0.996	
Satd. Flow (prot)	0	1690	0	0	1699	0	0	0	1739	0
Flt Permitted		0.986			0.991				0.996	
Satd. Flow (perm)	0	1690	0	0	1699	0	0	0	1739	0
Link Speed (mph)		25			25				25	
Link Distance (ft)		112			107				223	
Travel Time (s)		3.1			2.9				6.1	
Confl. Peds. (#/hr)				12						12
Confl. Bikes (#/hr)										4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	4%	5%	0%	0%	6%	2%	0%
Adj. Flow (vph)	4	5	5	49	213	3	4	33	351	28
Shared Lane Traffic (%)										
Lane Group Flow (vph)	0	14	0	0	265	0	0	0	416	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Left	Right
Median Width(ft)		0			0				0	
Link Offset(ft)		0			0				0	
Crosswalk Width(ft)		16			16				16	
Two way Left Turn Lane										
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15	15		9
Sign Control		Stop			Free				Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	35.2%
ICU Level of Service	A
Analysis Period (min)	15

San Rafael Multi-Family TIS - Existing Conditions

18: Lincoln Ave & 2nd St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4↑↑↑	↑					↑	↑		4↑↑	
Volume (vph)	150	2086	49	0	0	0	0	99	42	98	236	0
Ideal Flow (vphpl)	1600	1600	1600	1800	1800	1800	1800	1600	1600	1600	1600	1800
Lane Width (ft)	12	10	10	12	12	12	12	12	12	9	9	9
Storage Length (ft)	0		150	0		0	0		130	0		0
Storage Lanes	0		1	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor		1.00	0.95						0.98			
Frt			0.850						0.850			
Flt Protected		0.997									0.986	
Satd. Flow (prot)	0	5021	1221	0	0	0	0	1481	1193	0	2499	0
Flt Permitted		0.997									0.839	
Satd. Flow (perm)	0	5012	1156	0	0	0	0	1481	1174	0	2127	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			52						17			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		513			244			398			107	
Travel Time (s)		14.0			6.7			10.9			2.9	
Confl. Peds. (#/hr)	20		51									
Confl. Bikes (#/hr)			2						6			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	4%	0%	0%	0%	0%	8%	14%	2%	2%	0%
Parking (#/hr)										2	2	
Adj. Flow (vph)	160	2219	52	0	0	0	0	105	45	104	251	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2379	52	0	0	0	0	105	45	0	355	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.24	1.35	1.35	1.07	1.07	1.07	1.07	1.24	1.24	1.42	1.52	1.22
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		6						4			8	
Permitted Phases	6		6						4	8		
Minimum Split (s)	33.0	33.0	33.0					13.0	13.0	31.0	31.0	
Total Split (s)	44.0	44.0	44.0					31.0	31.0	31.0	31.0	
Total Split (%)	58.7%	58.7%	58.7%					41.3%	41.3%	41.3%	41.3%	
Maximum Green (s)	39.8	39.8	39.8					26.8	26.8	26.8	26.8	
Yellow Time (s)	3.2	3.2	3.2					3.2	3.2	3.2	3.2	
All-Red Time (s)	1.0	1.0	1.0					1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.2	-1.2					-1.2	-1.2		-1.2	
Total Lost Time (s)		3.0	3.0					3.0	3.0		3.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	12.0	12.0	12.0							7.0	7.0	

San Rafael Multi-Family TIS - Existing Conditions

18: Lincoln Ave & 2nd St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	16.0	16.0	16.0							19.0	19.0	
Pedestrian Calls (#/hr)	0	0	0							0	0	
Act Effect Green (s)		41.0	41.0					28.0	28.0		28.0	
Actuated g/C Ratio		0.55	0.55					0.37	0.37		0.37	
v/c Ratio		0.87	0.08					0.19	0.10		0.45	
Control Delay		7.6	0.1					17.1	11.6		18.2	
Queue Delay		2.0	0.0					0.0	0.0		0.0	
Total Delay		9.5	0.1					17.1	11.6		18.2	
LOS		A	A					B	B		B	
Approach Delay		9.3						15.4			18.2	
Approach LOS		A						B			B	
Queue Length 50th (ft)		34	0					32	8		63	
Queue Length 95th (ft)		38	m0					66	28		m93	
Internal Link Dist (ft)		433			164			318			27	
Turn Bay Length (ft)			150						130			
Base Capacity (vph)		2739	655					552	448		794	
Starvation Cap Reductn		0	0					0	0		0	
Spillback Cap Reductn		222	0					0	0		0	
Storage Cap Reductn		0	0					0	0		0	
Reduced v/c Ratio		0.95	0.08					0.19	0.10		0.45	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 14 (19%), Referenced to phase 6:EBTL, Start of Green
 Natural Cycle: 65
 Control Type: Pretimed
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 10.7
 Intersection LOS: B
 Intersection Capacity Utilization 66.4%
 ICU Level of Service C
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: Lincoln Ave & 2nd St



San Rafael Multi-Family TIS - Existing Conditions
 19: Francisco Blvd W./Tamalpais Ave (West) & 2nd St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4↑↑↑↑	↑					↑	↑	↑	↑	
Volume (vph)	58	2082	70	0	0	0	0	46	202	99	172	0
Ideal Flow (vphpl)	1600	1600	1600	1800	1800	1800	1800	1600	1600	1600	1600	1800
Lane Width (ft)	12	11	10	12	12	12	12	10	13	10	12	12
Storage Length (ft)	0		140	0		0	0		0	70		0
Storage Lanes	0		1	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	0.98									
Frt			0.850						0.850			
Flt Protected		0.999								0.950		
Satd. Flow (prot)	0	5207	1232	0	0	0	0	1436	1313	1121	1375	0
Flt Permitted		0.999								0.725		
Satd. Flow (perm)	0	5194	1206	0	0	0	0	1436	1313	856	1375	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			74						22			
Link Speed (mph)		25			25			25				25
Link Distance (ft)		244			283			131				321
Travel Time (s)		6.7			7.7			3.6				8.8
Confl. Peds. (#/hr)	62											
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	5%	2%	3%	0%	0%	0%	0%	4%	7%	12%	3%	0%
Parking (#/hr)										3	3	
Adj. Flow (vph)	62	2215	74	0	0	0	0	49	215	105	183	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2277	74	0	0	0	0	49	215	105	183	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.24	1.30	1.35	1.07	1.07	1.07	1.07	1.35	1.19	1.57	1.44	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		2						4			8	
Permitted Phases	2		2						4	8		
Minimum Split (s)	31.0	31.0	31.0					15.0	15.0	32.0	32.0	
Total Split (s)	43.0	43.0	43.0					32.0	32.0	32.0	32.0	
Total Split (%)	57.3%	57.3%	57.3%					42.7%	42.7%	42.7%	42.7%	
Maximum Green (s)	38.5	38.5	38.5					27.5	27.5	27.5	27.5	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0					1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.5	-1.5					-1.5	-1.5	-1.5	-1.5	
Total Lost Time (s)		3.0	3.0					3.0	3.0	3.0	3.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	10.0	10.0	10.0							7.0	7.0	

San Rafael Multi-Family TIS - Existing Conditions
 19: Francisco Blvd W./Tamalpais Ave (West) & 2nd St

AM Peak Hour

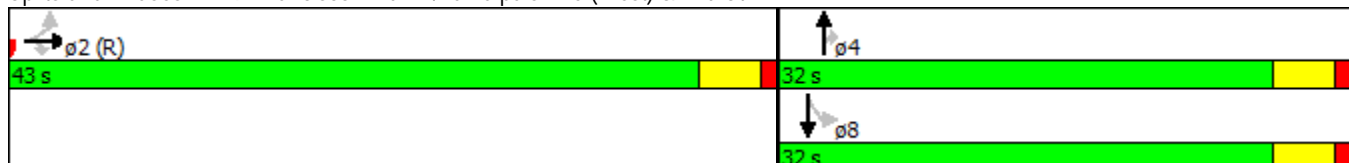


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	16.0	16.0	16.0							20.0	20.0	
Pedestrian Calls (#/hr)	0	0	0							0	0	
Act Effect Green (s)		40.0	40.0					29.0	29.0	29.0	29.0	
Actuated g/C Ratio		0.53	0.53					0.39	0.39	0.39	0.39	
v/c Ratio		0.82	0.11					0.09	0.41	0.32	0.34	
Control Delay		5.8	0.3					15.2	17.9	13.7	12.9	
Queue Delay		2.3	0.0					0.0	0.0	0.0	0.0	
Total Delay		8.2	0.3					15.2	17.9	13.7	12.9	
LOS		A	A					B	B	B	B	
Approach Delay		7.9						17.4			13.2	
Approach LOS		A						B			B	
Queue Length 50th (ft)		20	0					14	63	34	61	
Queue Length 95th (ft)		23	m0					35	120	m46	m81	
Internal Link Dist (ft)		164			203			51			241	
Turn Bay Length (ft)			140							70		
Base Capacity (vph)		2770	677					555	521	330	531	
Starvation Cap Reductn		353	0					0	0	0	0	
Spillback Cap Reductn		144	0					0	0	0	0	
Storage Cap Reductn		0	0					0	0	0	0	
Reduced v/c Ratio		0.94	0.11					0.09	0.41	0.32	0.34	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 24 (32%), Referenced to phase 2:EBTL, Start of Green
 Natural Cycle: 65
 Control Type: Pretimed
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 9.3
 Intersection LOS: A
 Intersection Capacity Utilization 107.6%
 ICU Level of Service G
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: Francisco Blvd W./Tamalpais Ave (West) & 2nd St



San Rafael Multi-Family TIS - Existing Conditions

20: US-101 SB Ramp/Hetheron St & 2nd St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↑	↗							↖	↖↑	
Volume (vph)	0	1158	1247	0	0	0	0	0	0	276	825	0
Ideal Flow (vphpl)	1800	1700	1700	1800	1800	1800	1800	1800	1800	1700	1700	1800
Lane Width (ft)	12	11	11	12	12	12	12	12	12	11	12	12
Lane Util. Factor	1.00	0.81	0.81	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00
Ped Bike Factor		1.00	0.99									
Frt		0.947	0.850									
Flt Protected										0.950		
Satd. Flow (prot)	0	4800	1109	0	0	0	0	0	0	1366	2975	0
Flt Permitted										0.950		
Satd. Flow (perm)	0	4800	1095	0	0	0	0	0	0	1366	2975	0
Right Turn on Red			Yes			Yes			Yes	No		Yes
Satd. Flow (RTOR)		52	52									
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		283			371			481			311	
Travel Time (s)		7.7			10.1			13.1			8.5	
Confl. Peds. (#/hr)						4						
Confl. Bikes (#/hr)			1									
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	6%	2%	0%	0%	0%	0%	0%	0%	4%	4%	0%
Adj. Flow (vph)	0	1232	1327	0	0	0	0	0	0	294	878	0
Shared Lane Traffic (%)			50%							0%		
Lane Group Flow (vph)	0	1896	663	0	0	0	0	0	0	294	878	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.20	1.20	1.07	1.07	1.07	1.07	1.07	1.07	1.20	1.15	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm							Split	NA	
Protected Phases		2								4	4	
Permitted Phases			2									
Minimum Split (s)		34.0	34.0							20.0	20.0	
Total Split (s)		43.0	43.0							32.0	32.0	
Total Split (%)		57.3%	57.3%							42.7%	42.7%	
Maximum Green (s)		38.5	38.5							27.5	27.5	
Yellow Time (s)		3.5	3.5							3.5	3.5	
All-Red Time (s)		1.0	1.0							1.0	1.0	
Lost Time Adjust (s)		-1.5	-1.5							-1.5	-1.5	
Total Lost Time (s)		3.0	3.0							3.0	3.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)		14.5	14.5									
Flash Dont Walk (s)		15.0	15.0									
Pedestrian Calls (#/hr)		0	0									
Act Effect Green (s)		40.0	40.0							29.0	29.0	
Actuated g/C Ratio		0.53	0.53							0.39	0.39	

San Rafael Multi-Family TIS - Existing Conditions

20: US-101 SB Ramp/Hetherton St & 2nd St

AM Peak Hour

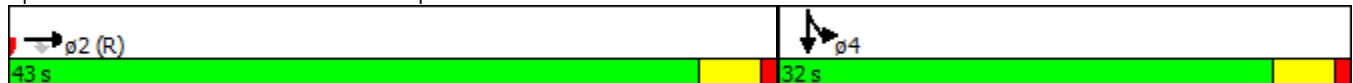


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.93dr	1.09							0.56	0.76	
Control Delay		7.0	71.4							15.9	17.5	
Queue Delay		1.1	4.5							0.2	0.0	
Total Delay		8.1	75.9							16.1	17.6	
LOS		A	E							B	B	
Approach Delay		25.7									17.2	
Approach LOS		C									B	
Queue Length 50th (ft)		75	~441							72	109	
Queue Length 95th (ft)		97	m#638							m109	136	
Internal Link Dist (ft)		203				291			401			231
Turn Bay Length (ft)												
Base Capacity (vph)		2584	608							528	1150	
Starvation Cap Reductn		413	57							23	3	
Spillback Cap Reductn		0	0							0	0	
Storage Cap Reductn		0	0							0	0	
Reduced v/c Ratio		0.87	1.20							0.58	0.77	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 36 (48%), Referenced to phase 2:EBT, Start of Green
 Natural Cycle: 55
 Control Type: Pretimed
 Maximum v/c Ratio: 1.09
 Intersection Signal Delay: 23.0
 Intersection LOS: C
 Intersection Capacity Utilization 87.2%
 ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.
 dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 20: US-101 SB Ramp/Hetherton St & 2nd St



San Rafael Multi-Family TIS - Existing Conditions

21: US 101 NB Ramp/Irwin St & 2nd St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	688	755	0	0	0	0	0	1359	449	0	0	0
Ideal Flow (vphpl)	1600	1600	1700	1700	1700	1700	1700	1600	1600	1700	1700	1700
Lane Width (ft)	13	12	12	12	12	12	12	12	10	12	12	12
Storage Length (ft)	0		0	0		0	0		85	0		0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.86	0.86	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00							0.98			
Fr t									0.850			
Flt Protected	0.950	0.985										
Satd. Flow (prot)	1274	3887	0	0	0	0	0	4200	1232	0	0	0
Flt Permitted	0.950	0.985										
Satd. Flow (perm)	1264	3878	0	0	0	0	0	4200	1210	0	0	0
Right Turn on Red	Yes		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	32	32							112			
Link Speed (mph)		25			25			25				25
Link Distance (ft)		371			618			541				294
Travel Time (s)		10.1			16.9			14.8				8.0
Confl. Peds. (#/hr)	13								10			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	6%	4%	0%	0%	0%	0%	0%	4%	3%	0%	0%	0%
Adj. Flow (vph)	732	803	0	0	0	0	0	1446	478	0	0	0
Shared Lane Traffic (%)	47%											
Lane Group Flow (vph)	388	1147	0	0	0	0	0	1446	478	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.19	1.24	1.15	1.15	1.15	1.15	1.15	1.24	1.35	1.15	1.15	1.15
Turning Speed (mph)	25		9	15			9	15		20	15	
Turn Type	Perm	NA						NA	Perm			
Protected Phases		4						2				
Permitted Phases	4								2			
Minimum Split (s)	24.0	24.0						24.0	24.0			
Total Split (s)	38.0	38.0						37.0	37.0			
Total Split (%)	50.7%	50.7%						49.3%	49.3%			
Maximum Green (s)	33.8	33.8						31.8	31.8			
Yellow Time (s)	3.2	3.2						3.2	3.2			
All-Red Time (s)	1.0	1.0						2.0	2.0			
Lost Time Adjust (s)	-1.2	-1.2						-2.2	-2.2			
Total Lost Time (s)	3.0	3.0						3.0	3.0			
Lead/Lag												
Lead-Lag Optimize?												
Act Effect Green (s)	35.0	35.0						34.0	34.0			
Actuated g/C Ratio	0.47	0.47						0.45	0.45			
v/c Ratio	0.64	0.63						0.76	0.78			

San Rafael Multi-Family TIS - Existing Conditions

21: US 101 NB Ramp/Irwin St & 2nd St

AM Peak Hour

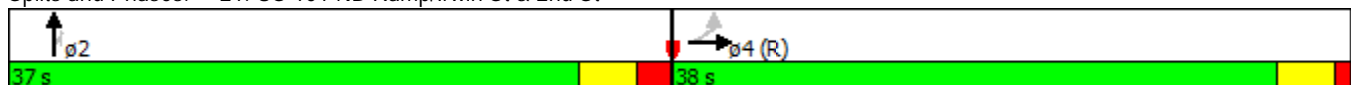


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	10.0	8.0						20.3	24.5			
Queue Delay	0.2	0.1						0.0	0.0			
Total Delay	10.3	8.1						20.3	24.5			
LOS	B	A						C	C			
Approach Delay		8.6						21.4				
Approach LOS		A						C				
Queue Length 50th (ft)	41	54						196	140			
Queue Length 95th (ft)	m58	75						252	#314			
Internal Link Dist (ft)		291			538			461			214	
Turn Bay Length (ft)									85			
Base Capacity (vph)	606	1826						1904	609			
Starvation Cap Reductn	22	88						0	0			
Spillback Cap Reductn	6	18						4	0			
Storage Cap Reductn	0	0						0	0			
Reduced v/c Ratio	0.66	0.66						0.76	0.78			

Intersection Summary

Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	75
Offset:	48 (64%), Referenced to phase 4:EBTL, Start of Green
Natural Cycle:	50
Control Type:	Pretimed
Maximum v/c Ratio:	0.78
Intersection Signal Delay:	15.7
Intersection LOS:	B
Intersection Capacity Utilization:	76.2%
ICU Level of Service:	D
Analysis Period (min):	15
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

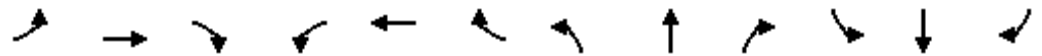
Splits and Phases: 21: US 101 NB Ramp/Irwin St & 2nd St



San Rafael Multi-Family TIS - Existing Conditions

22: Nye St & Mission Ave

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	9	519	8	23	782	12	1	2	10	18	3	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.998			0.998			0.894			0.943	
Flt Protected		0.999			0.999			0.996			0.976	
Satd. Flow (prot)	0	1855	0	0	1855	0	0	1657	0	0	1698	0
Flt Permitted		0.999			0.999			0.996			0.976	
Satd. Flow (perm)	0	1855	0	0	1855	0	0	1657	0	0	1698	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		352			483			340			237	
Travel Time (s)		9.6			13.2			9.3			6.5	
Confl. Peds. (#/hr)	8		3	3		8	4		6	6		4
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)	2	2	2	2	2	2	2	2	2			
Adj. Flow (vph)	10	552	9	24	832	13	1	2	11	19	3	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	571	0	0	869	0	0	14	0	0	38	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	69.7%
ICU Level of Service	C
Analysis Period (min)	15

San Rafael Multi-Family TIS - Existing Conditions

23: Lincoln Ave & Mission Ave

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	82	421	11	49	573	47	3	167	19	54	358	341
Ideal Flow (vphpl)	1600	1700	1600	1700	1700	1600	1600	1700	1700	1600	1700	1700
Lane Width (ft)	11	12	12	10	10	12	12	9	9	12	10	9
Storage Length (ft)	120		0	65		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00	1.00			0.99			1.00	0.94
Frt		0.996			0.989			0.987				0.850
Flt Protected	0.950			0.950				0.999			0.994	
Satd. Flow (prot)	1427	1643	0	1463	1519	0	0	1296	0	0	1531	1263
Flt Permitted	0.140			0.498				0.995			0.937	
Satd. Flow (perm)	210	1643	0	765	1519	0	0	1290	0	0	1439	1181
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			7			8				332
Link Speed (mph)		25			25			25				25
Link Distance (ft)		483			292			342				291
Travel Time (s)		13.2			8.0			9.3				7.9
Confl. Peds. (#/hr)	7		3	3		7	22		20	20		22
Confl. Bikes (#/hr)			2			3			7			8
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)							0	2	0			
Adj. Flow (vph)	87	448	12	52	610	50	3	178	20	57	381	363
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	460	0	52	660	0	0	201	0	0	438	363
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.30	1.15	1.24	1.26	1.26	1.24	1.24	1.51	1.31	1.24	1.26	1.31
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4			8		8

San Rafael Multi-Family TIS - Existing Conditions

23: Lincoln Ave & Mission Ave

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		6	6		4	4		8	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	10.0	29.0		26.0	26.0		27.0	27.0		27.0	27.0	27.0
Total Split (s)	10.0	45.0		35.0	35.0		30.0	30.0		30.0	30.0	30.0
Total Split (%)	13.3%	60.0%		46.7%	46.7%		40.0%	40.0%		40.0%	40.0%	40.0%
Maximum Green (s)	7.0	40.8		30.8	30.8		25.4	25.4		25.4	25.4	25.4
Yellow Time (s)	3.0	3.2		3.2	3.2		3.6	3.6		3.6	3.6	3.6
All-Red Time (s)	0.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	-1.2		-1.2	-1.2			-1.6			-1.6	-1.6
Total Lost Time (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lead/Lag	Lead			Lag								
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Recall Mode	None	Max		Max	Max		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		10.0		8.0	8.0		8.0	8.0		8.0	8.0	8.0
Flash Dont Walk (s)		14.0		13.0	13.0		14.0	14.0		14.0	14.0	14.0
Pedestrian Calls (#/hr)		3		7	7		20	20		21	21	21
Act Effect Green (s)	42.0	42.0		34.0	34.0			27.0			27.0	27.0
Actuated g/C Ratio	0.56	0.56		0.45	0.45			0.36			0.36	0.36
v/c Ratio	0.38	0.50		0.15	0.95			0.43			0.85	0.57
Control Delay	12.6	12.4		6.2	35.3			12.1			39.7	7.1
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	12.6	12.4		6.2	35.3			12.1			39.7	7.1
LOS	B	B		A	D			B			D	A
Approach Delay		12.4			33.2			12.1			24.9	
Approach LOS		B			C			B			C	
Queue Length 50th (ft)	17	119		6	-301			29			184	9
Queue Length 95th (ft)	37	193		m11	m#409			60			#345	75
Internal Link Dist (ft)		403			212			262			211	
Turn Bay Length (ft)	120			65								
Base Capacity (vph)	231	921		346	692			469			518	637
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.38	0.50		0.15	0.95			0.43			0.85	0.57

Intersection Summary

Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	75
Offset:	50 (67%), Referenced to phase 4:NBTL and 8:SBTL, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.95
Intersection Signal Delay:	23.3
Intersection LOS:	C
Intersection Capacity Utilization:	98.8%
ICU Level of Service:	F
Analysis Period (min):	15

~ Volume exceeds capacity, queue is theoretically infinite.

San Rafael Multi-Family TIS - Existing Conditions

23: Lincoln Ave & Mission Ave

AM Peak Hour

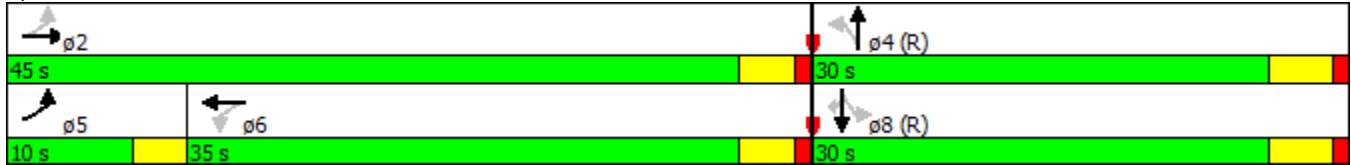
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 23: Lincoln Ave & Mission Ave



San Rafael Multi-Family TIS - Existing Conditions
 24: Tamalapais Ave (West) & Mission Ave

AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	↑↑	
Volume (vph)	445	7	52	581	3	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.998				0.932	
Flt Protected				0.996	0.976	
Satd. Flow (prot)	3314	0	0	1741	1590	0
Flt Permitted				0.996	0.976	
Satd. Flow (perm)	3314	0	0	1741	1590	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	292			71	139	
Travel Time (s)	8.0			1.9	3.8	
Confl. Peds. (#/hr)		8	8		17	
Confl. Bikes (#/hr)		3				
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	473	7	55	618	3	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	480	0	0	673	6	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	61.9%
Analysis Period (min)	15
	ICU Level of Service B

San Rafael Multi-Family TIS - Existing Conditions
 25: Tamalpais Avenue (East) & Mission Ave

AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	↘	
Volume (vph)	456	0	0	633	0	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	0.95	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected						
Satd. Flow (prot)	3320	0	0	1748	1512	0
Flt Permitted						
Satd. Flow (perm)	3320	0	0	1748	1512	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	71			191	329	
Travel Time (s)	1.9			5.2	9.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	485	0	0	673	0	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	485	0	0	673	14	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	45.2%
Analysis Period (min)	15
	ICU Level of Service A

San Rafael Multi-Family TIS - Existing Conditions
 26: Hetherton St/101 SB Off-Ramp & Mission Ave

AM Peak Hour

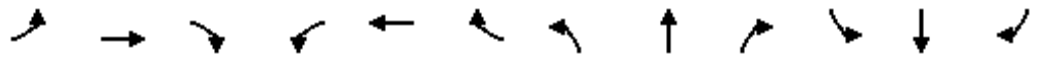


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↓			↑						↑↑	↑
Volume (vph)	0	455	79	60	130	0	0	0	0	161	881	481
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	10	12	12	16	12	12	12	12	12	12	12
Storage Length (ft)	0		0	0		0	0		0	0		360
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor		1.00			1.00						1.00	0.95
Frt		0.978										0.850
Flt Protected					0.984						0.992	
Satd. Flow (prot)	0	3020	0	0	1949	0	0	0	0	0	3294	1485
Flt Permitted					0.757						0.992	
Satd. Flow (perm)	0	3020	0	0	1497	0	0	0	0	0	3293	1406
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		34										
Link Speed (mph)		25			25			25			35	
Link Distance (ft)		191			376			325			418	
Travel Time (s)		5.2			10.3			8.9			8.1	
Confl. Peds. (#/hr)			9	9						2		11
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	484	84	64	138	0	0	0	0	171	937	512
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	568	0	0	202	0	0	0	0	0	1108	512
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.17	1.07	1.07	0.91	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA		Perm	NA					Split	NA	custom
Protected Phases		4			8					2	2	
Permitted Phases				8								5
Minimum Split (s)		31.0		31.0	31.0					30.0	30.0	30.0
Total Split (s)		37.0		37.0	37.0					38.0	38.0	31.0
Total Split (%)		49.3%		49.3%	49.3%					50.7%	50.7%	41.3%
Maximum Green (s)		32.8		32.8	32.8					33.4	33.4	26.4
Yellow Time (s)		3.2		3.2	3.2					3.6	3.6	3.6
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	1.0
Lost Time Adjust (s)		-1.2			-1.2						-1.6	-1.6
Total Lost Time (s)		3.0			3.0						3.0	3.0
Lead/Lag												Lag
Lead-Lag Optimize?												
Walk Time (s)		7.0		7.0	7.0							0.0
Flash Dont Walk (s)		12.0		15.0	15.0							12.0

Lane Group	ø7
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Minimum Split (s)	9.0
Total Split (s)	7.0
Total Split (%)	9%
Maximum Green (s)	5.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	
Walk Time (s)	7.0
Flash Dont Walk (s)	0.0

San Rafael Multi-Family TIS - Existing Conditions
 26: Hetherton St/101 SB Off-Ramp & Mission Ave

AM Peak Hour

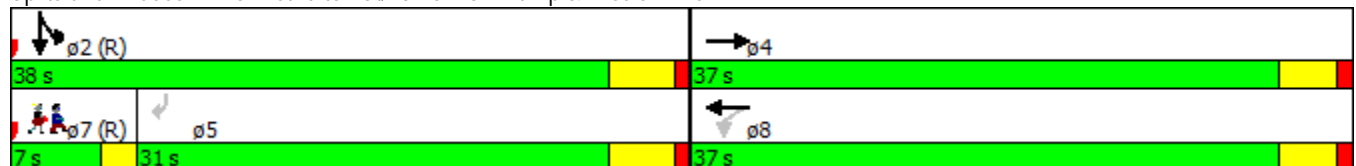


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)		0		0	0							0
Act Effct Green (s)		34.0			34.0						35.0	28.0
Actuated g/C Ratio		0.45			0.45						0.47	0.37
v/c Ratio		0.41			0.30						0.72	0.98
Control Delay		8.2			25.3						19.4	60.2
Queue Delay		0.0			0.0						0.2	0.0
Total Delay		8.2			25.3						19.7	60.2
LOS		A			C						B	E
Approach Delay		8.2			25.3						32.5	
Approach LOS		A			C						C	
Queue Length 50th (ft)		38			77						207	230
Queue Length 95th (ft)		m52			m112						280	#425
Internal Link Dist (ft)		111			296			245			338	
Turn Bay Length (ft)												360
Base Capacity (vph)		1387			678						1537	524
Starvation Cap Reductn		0			0						0	0
Spillback Cap Reductn		0			0						74	0
Storage Cap Reductn		0			0						0	0
Reduced v/c Ratio		0.41			0.30						0.76	0.98

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 58 (77%), Referenced to phase 2:SBTL and 7:Ped, Start of Green
 Natural Cycle: 70
 Control Type: Pretimed
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 26.1 Intersection LOS: C
 Intersection Capacity Utilization 67.4% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 26: Hetherton St/101 SB Off-Ramp & Mission Ave



Lane Group	ø7
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

San Rafael Multi-Family TIS - Existing Conditions
 27: Irwin St/101 NB On-Ramp & Mission Ave

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	418	218	0	0	141	268	63	1240	32	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	9	10	12	12	10	9	12	12	12	12	12	12
Storage Length (ft)	0		0	0		80	0		70	0		0
Storage Lanes	0		0	0		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor								1.00	0.95			
Fr _t						0.850			0.850			
Fl _t Protected	0.950							0.998				
Satd. Flow (prot)	1494	1631	0	0	1631	1337	0	3131	1322	0	0	0
Fl _t Permitted	0.604							0.998				
Satd. Flow (perm)	950	1631	0	0	1631	1337	0	3131	1260	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						79			79			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		376			519			313			673	
Travel Time (s)		10.3			14.2			8.5			18.4	
Confl. Peds. (#/hr)							2		16			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)								2	2			
Adj. Flow (vph)	445	232	0	0	150	285	67	1319	34	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	445	232	0	0	150	285	0	1386	34	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		9			9			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.22	1.17	1.07	1.07	1.17	1.22	1.07	1.15	1.24	1.07	1.07	1.07
Turning Speed (mph)	35		9	15		35	35		35	15		9
Turn Type	pm+pt	NA			NA	Prot	Split	NA	Perm			
Protected Phases	7	4			8	8	2	2				
Permitted Phases	4								2			
Minimum Split (s)	10.0	29.0			13.0	13.0	29.0	29.0	29.0			
Total Split (s)	15.0	38.0			23.0	23.0	37.0	37.0	37.0			
Total Split (%)	20.0%	50.7%			30.7%	30.7%	49.3%	49.3%	49.3%			
Maximum Green (s)	10.8	33.8			18.8	18.8	32.8	32.8	32.8			
Yellow Time (s)	3.2	3.2			3.2	3.2	3.2	3.2	3.2			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0	1.0	1.0			
Lost Time Adjust (s)	-1.2	-1.2			-1.2	-1.2		-1.2	-1.2			
Total Lost Time (s)	3.0	3.0			3.0	3.0		3.0	3.0			
Lead/Lag	Lag				Lead	Lead						
Lead-Lag Optimize?												
Walk Time (s)		7.0					7.0	7.0	7.0			
Flash Dont Walk (s)		15.0					15.0	15.0	15.0			

San Rafael Multi-Family TIS - Existing Conditions
 27: Irwin St/101 NB On-Ramp & Mission Ave

AM Peak Hour

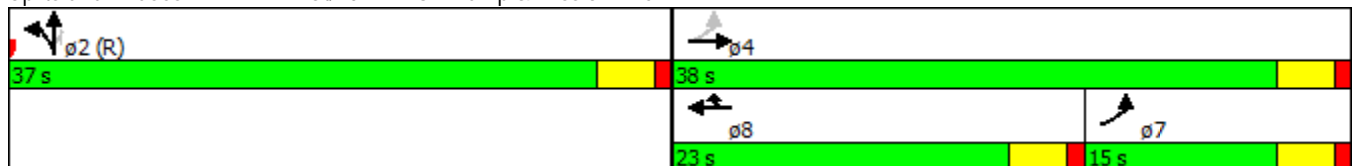


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)		0					0	0	0			
Act Effct Green (s)	35.0	35.0			20.0	20.0		34.0	34.0			
Actuated g/C Ratio	0.47	0.47			0.27	0.27		0.45	0.45			
v/c Ratio	0.84	0.30			0.35	0.69		0.98	0.06			
Control Delay	37.6	15.5			25.0	27.8		30.8	0.4			
Queue Delay	0.0	0.0			0.0	0.0		37.7	0.0			
Total Delay	37.6	15.5			25.0	27.8		68.5	0.4			
LOS	D	B			C	C		E	A			
Approach Delay		30.0			26.8			66.9				
Approach LOS		C			C			E				
Queue Length 50th (ft)	179	83			56	85		261	0			
Queue Length 95th (ft)	#345	m143			106	#189		m#446	m0			
Internal Link Dist (ft)		296			439			233			593	
Turn Bay Length (ft)						80			70			
Base Capacity (vph)	530	761			434	414		1419	614			
Starvation Cap Reductn	0	0			0	0		151	0			
Spillback Cap Reductn	0	0			0	0		0	0			
Storage Cap Reductn	0	0			0	0		0	0			
Reduced v/c Ratio	0.84	0.30			0.35	0.69		1.09	0.06			

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 15 (20%), Referenced to phase 2:NBTL, Start of Green
 Natural Cycle: 60
 Control Type: Pretimed
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 50.1 Intersection LOS: D
 Intersection Capacity Utilization 90.1% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 27: Irwin St/101 NB On-Ramp & Mission Ave



San Rafael Multi-Family TIS - Existing Conditions

28: 5th Ave & Lincoln Ave

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	309	15	6	214	19	7	178	18	15	330	22
Ideal Flow (vphpl)	1600	1700	1700	1600	1700	1700	1600	1700	1700	1600	1700	1700
Lane Width (ft)	10	13	12	10	12	12	12	10	9	12	11	9
Storage Length (ft)	97		0	45		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	1.00			0.99			0.99	
Frt		0.993			0.988			0.988			0.992	
Flt Protected	0.950			0.950				0.998			0.998	
Satd. Flow (prot)	1377	1691	0	1377	1625	0	0	1344	0	0	1398	0
Flt Permitted	0.526			0.421				0.989			0.987	
Satd. Flow (perm)	754	1691	0	605	1625	0	0	1331	0	0	1381	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			7			9			6	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		482			294			288			342	
Travel Time (s)		13.1			8.0			7.9			9.3	
Confl. Peds. (#/hr)	9		9	9		9	40		25	25		40
Confl. Bikes (#/hr)			2			4			6			7
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)							2	2	2	2	2	2
Adj. Flow (vph)	31	329	16	6	228	20	7	189	19	16	351	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	345	0	6	248	0	0	215	0	0	390	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.35	1.11	1.15	1.35	1.15	1.15	1.24	1.45	1.31	1.24	1.39	1.31
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	26.0	26.0		25.0	25.0		28.0	28.0		28.0	28.0	
Total Split (s)	34.0	34.0		34.0	34.0		41.0	41.0		41.0	41.0	
Total Split (%)	45.3%	45.3%		45.3%	45.3%		54.7%	54.7%		54.7%	54.7%	
Maximum Green (s)	29.4	29.4		29.4	29.4		36.4	36.4		36.4	36.4	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.6	3.6		3.6	3.6	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-1.6	-1.6		-1.6	-1.6			-1.6			-1.6	
Total Lost Time (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	

San Rafael Multi-Family TIS - Existing Conditions

28: 5th Ave & Lincoln Ave

AM Peak Hour

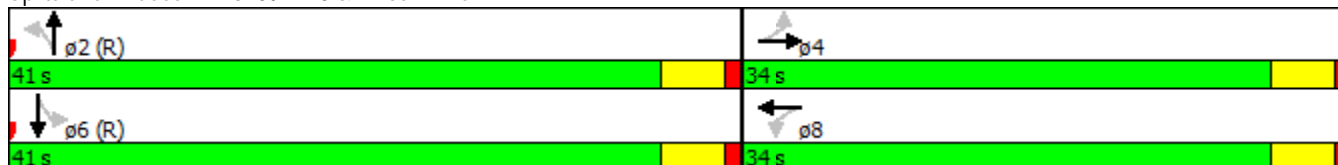


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	14.0	14.0		13.0	13.0		16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	31.0	31.0		31.0	31.0			38.0			38.0	
Actuated g/C Ratio	0.41	0.41		0.41	0.41			0.51			0.51	
v/c Ratio	0.10	0.49		0.02	0.37			0.32			0.56	
Control Delay	14.6	19.0		23.2	27.8			6.6			6.0	
Queue Delay	0.0	0.0		0.0	0.0			0.3			0.2	
Total Delay	14.6	19.0		23.2	27.8			6.9			6.2	
LOS	B	B		C	C			A			A	
Approach Delay		18.6			27.7			6.9			6.2	
Approach LOS		B			C			A			A	
Queue Length 50th (ft)	9	113		2	101			27			28	
Queue Length 95th (ft)	25	186		m10	165			41			m47	
Internal Link Dist (ft)		402			214			208			262	
Turn Bay Length (ft)	97			45								
Base Capacity (vph)	311	701		250	675			678			702	
Starvation Cap Reductn	0	0		0	0			146			45	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.10	0.49		0.02	0.37			0.40			0.59	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 46 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 55
 Control Type: Pretimed
 Maximum v/c Ratio: 0.56
 Intersection Signal Delay: 14.5 Intersection LOS: B
 Intersection Capacity Utilization 63.3% ICU Level of Service B
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 28: 5th Ave & Lincoln Ave



San Rafael Multi-Family TIS - Existing Conditions
 29: 5th Ave & Tamalpais Ave (West)

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	3	300	19	42	261	1	8	8	11	9	54	16
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Flt		0.992						0.946			0.973	
Flt Protected					0.993			0.985			0.994	
Satd. Flow (prot)	0	1734	0	0	1735	0	0	1628	0	0	1690	0
Flt Permitted					0.993			0.985			0.994	
Satd. Flow (perm)	0	1734	0	0	1735	0	0	1628	0	0	1690	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		294			71			91			198	
Travel Time (s)		8.0			1.9			2.5			5.4	
Confl. Peds. (#/hr)	4		14	14		4	14					14
Confl. Bikes (#/hr)			3			1			1			2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	3	319	20	45	278	1	9	9	12	10	57	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	342	0	0	324	0	0	30	0	0	84	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	53.4%
ICU Level of Service	A
Analysis Period (min)	15

San Rafael Multi-Family TIS - Existing Conditions
 30: 5th Ave & Tamalpais Avenue (East)

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				
Volume (vph)	7	313	0	0	280	1	24	2	26	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt								0.932				
Flt Protected		0.999						0.977				
Satd. Flow (prot)	0	1746	0	0	1748	0	0	1591	0	0	0	0
Flt Permitted		0.999						0.977				
Satd. Flow (perm)	0	1746	0	0	1748	0	0	1591	0	0	0	0
Link Speed (mph)		25			25			25				25
Link Distance (ft)		71			180			288				329
Travel Time (s)		1.9			4.9			7.9				9.0
Confl. Peds. (#/hr)	4					4			10			
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	7	333	0	0	298	1	26	2	28	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	340	0	0	299	0	0	56	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	36.4%
ICU Level of Service	A
Analysis Period (min)	15

San Rafael Multi-Family TIS - Existing Conditions

31: 5th Ave & Hetherton St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	160	162	28	178	0	0	0	0	39	973	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	12	12	16	12	12	12	12	12	12	12
Storage Length (ft)	0		0	0		0	0		0	0		180
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00
Ped Bike Factor		0.99			1.00							0.96
Frt		0.932										0.850
Flt Protected					0.993						0.998	
Satd. Flow (prot)	0	1829	0	0	1967	0	0	0	0	0	4587	1322
Flt Permitted					0.932						0.998	
Satd. Flow (perm)	0	1829	0	0	1845	0	0	0	0	0	4587	1266
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		52										
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		180			388			290			325	
Travel Time (s)		4.9			10.6			7.9			8.9	
Confl. Peds. (#/hr)			5	5								11
Confl. Bikes (#/hr)			2									2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)											2	2
Adj. Flow (vph)	0	170	172	30	189	0	0	0	0	41	1035	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	342	0	0	219	0	0	0	0	0	1076	49
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	0.91	1.07	1.07	0.91	1.07	1.07	1.07	1.07	1.07	1.12	1.24
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA		Perm	NA					Split	NA	custom
Protected Phases		4			8					2	2	
Permitted Phases				8								5
Minimum Split (s)		31.0		31.0	31.0					31.0	31.0	28.0
Total Split (s)		37.0		37.0	37.0					38.0	38.0	31.0
Total Split (%)		49.3%		49.3%	49.3%					50.7%	50.7%	41.3%
Maximum Green (s)		32.4		32.4	32.4					33.4	33.4	26.5
Yellow Time (s)		3.6		3.6	3.6					3.6	3.6	3.5
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	1.0
Lost Time Adjust (s)		-1.6			-1.6						-1.6	-1.5
Total Lost Time (s)		3.0			3.0						3.0	3.0
Lead/Lag												Lag
Lead-Lag Optimize?												
Walk Time (s)		7.0		7.0	7.0							7.0

San Rafael Multi-Family TIS - Existing Conditions
 31: 5th Ave & Hetherton St

AM Peak Hour

Lane Group	ø7
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Parking (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Minimum Split (s)	10.0
Total Split (s)	7.0
Total Split (%)	9%
Maximum Green (s)	4.0
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	
Walk Time (s)	7.0

San Rafael Multi-Family TIS - Existing Conditions

31: 5th Ave & Hetherton St

AM Peak Hour

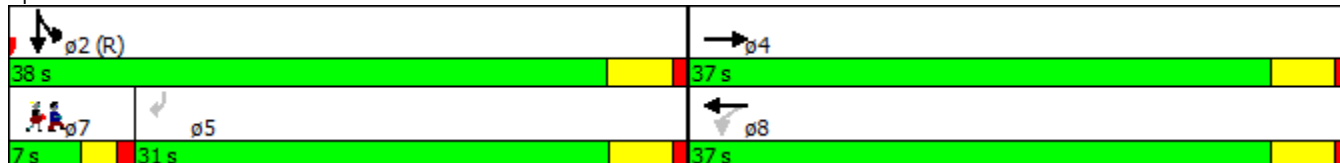


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		16.0		16.0	16.0							13.0
Pedestrian Calls (#/hr)		0		0	0							0
Act Effct Green (s)		34.0			34.0						35.0	28.0
Actuated g/C Ratio		0.45			0.45						0.47	0.37
v/c Ratio		0.40			0.26						0.50	0.10
Control Delay		4.6			16.8						5.1	6.4
Queue Delay		0.0			0.0						0.2	0.0
Total Delay		4.6			16.8						5.3	6.4
LOS		A			B						A	A
Approach Delay		4.6			16.8						5.4	
Approach LOS		A			B						A	
Queue Length 50th (ft)		10			66						30	5
Queue Length 95th (ft)		23			m94						36	m8
Internal Link Dist (ft)		100			308			210			245	
Turn Bay Length (ft)												180
Base Capacity (vph)		857			836						2140	472
Starvation Cap Reductn		0			0						349	0
Spillback Cap Reductn		0			0						0	0
Storage Cap Reductn		0			0						0	0
Reduced v/c Ratio		0.40			0.26						0.60	0.10

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 67 (89%), Referenced to phase 2:SBTL, Start of Green
 Natural Cycle: 70
 Control Type: Pretimed
 Maximum v/c Ratio: 0.50
 Intersection Signal Delay: 6.7
 Intersection Capacity Utilization 61.8%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service B
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 31: 5th Ave & Hetherton St



San Rafael Multi-Family TIS - Existing Conditions
31: 5th Ave & Hetherton St

AM Peak Hour

Lane Group	ø7
Flash Dont Walk (s)	0.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

San Rafael Multi-Family TIS - Existing Conditions

32: 5th Ave & Irwin St

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	159	64	0	0	98	56	109	1183	8	0	0	0
Ideal Flow (vphpl)	1600	1600	1800	1800	1600	1600	1600	1600	1600	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	11	12	12	12	12
Storage Length (ft)	75		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	0.99				0.99			1.00				
Fr _t					0.951			0.999				
Fl _t Protected	0.950							0.996				
Satd. Flow (prot)	1313	1383	0	0	1304	0	0	2682	0	0	0	0
Fl _t Permitted	0.601							0.996				
Satd. Flow (perm)	826	1383	0	0	1304	0	0	2682	0	0	0	0
Right Turn on Red			No			Yes			Yes			No
Satd. Flow (RTOR)					42			1				
Link Speed (mph)		25			25			25				25
Link Distance (ft)		388			537			291				313
Travel Time (s)		10.6			14.6			7.9				8.5
Confl. Peds. (#/hr)	8						8		3			
Confl. Bikes (#/hr)							3					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)	2	2			2	2	2	2	2			
Adj. Flow (vph)	169	68	0	0	104	60	116	1259	9	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	169	68	0	0	164	0	0	1384	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.43	1.43	1.07	1.07	1.43	1.24	1.24	1.39	1.24	1.07	1.07	1.07
Turning Speed (mph)	25		3	15		9	15		9	15		9
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Minimum Split (s)	27.0	27.0			27.0		28.0	28.0				
Total Split (s)	28.0	28.0			28.0		47.0	47.0				
Total Split (%)	37.3%	37.3%			37.3%		62.7%	62.7%				
Maximum Green (s)	23.4	23.4			23.4		42.4	42.4				
Yellow Time (s)	3.6	3.6			3.6		3.6	3.6				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)	-1.6	-1.6			-1.6		-1.6	-1.6				
Total Lost Time (s)	3.0	3.0			3.0		3.0	3.0				
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	7.0	7.0			7.0		7.0	7.0				

San Rafael Multi-Family TIS - Existing Conditions

32: 5th Ave & Irwin St

AM Peak Hour

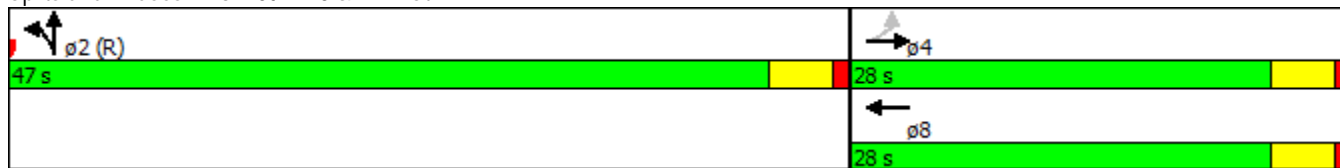


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	15.0	15.0			15.0		16.0	16.0				
Pedestrian Calls (#/hr)	0	0			0		0	0				
Act Effect Green (s)	25.0	25.0			25.0			44.0				
Actuated g/C Ratio	0.33	0.33			0.33			0.59				
v/c Ratio	0.61	0.15			0.35			0.88				
Control Delay	30.4	15.5			16.5			10.0				
Queue Delay	0.0	0.0			0.0			22.2				
Total Delay	30.4	15.5			16.5			32.1				
LOS	C	B			B			C				
Approach Delay		26.1			16.5			32.1				
Approach LOS		C			B			C				
Queue Length 50th (ft)	78	27			41			60				
Queue Length 95th (ft)	#150	m54			90			#86				
Internal Link Dist (ft)		308			457			211			233	
Turn Bay Length (ft)	75											
Base Capacity (vph)	275	461			462			1573				
Starvation Cap Reductn	0	0			0			4				
Spillback Cap Reductn	0	0			3			239				
Storage Cap Reductn	0	0			0			0				
Reduced v/c Ratio	0.61	0.15			0.36			1.04				

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 7 (9%), Referenced to phase 2:NBTL, Start of Green
 Natural Cycle: 65
 Control Type: Pretimed
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 29.9
 Intersection LOS: C
 Intersection Capacity Utilization 86.2%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 32: 5th Ave & Irwin St



Arterial Level of Service: EB 2nd St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Lindaro St	IV	25	20.6	17.8	38.4	0.09	8.8	E
Lincoln Ave	IV	25	21.4	7.6	29.0	0.10	12.1	D
Francisco Blvd W.	IV	25	12.2	5.8	18.0	0.05	9.2	D
US-101 SB Ramp	IV	25	14.2	7.0	21.2	0.05	9.1	D
Total	IV		68.4	38.2	106.6	0.29	9.8	D

Arterial Level of Service: WB 3rd St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Hetherton St	IV	25	19.0	9.6	28.6	0.07	9.0	D
Tamalpais Ave (West)	IV	25	14.4	5.5	19.9	0.05	9.8	D
Lincoln Ave	IV	25	13.2	4.2	17.4	0.05	10.3	D
Lindaro St	IV	25	21.5	2.8	24.3	0.10	14.5	C
Total	IV		68.1	22.1	90.2	0.27	10.9	D

Arterial Level of Service: SB Hetherton St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Mission Ave	IV	29	24.0	19.4	43.4	0.16	13.3	C
5th Ave	IV	25	16.3	5.1	21.4	0.06	10.4	D
4th St	IV	25	14.6	5.8	20.4	0.05	9.7	D
3rd St	IV	25	17.7	10.8	28.5	0.07	8.4	E
2nd St	IV	25	15.6	17.5	33.1	0.06	6.4	F
Total	IV		88.2	58.6	146.8	0.40	9.9	D

Arterial Level of Service: NB Irwin St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
2nd	IV	30	25.2	20.3	45.5	0.17	13.3	C
3rd	IV	25	14.8	10.4	25.2	0.06	8.0	E
4th St	IV	25	18.3	12.0	30.3	0.07	8.2	E
5th Ave	IV	25	14.6	10.0	24.6	0.06	8.1	E
Mission Ave	IV	25	15.7	30.8	46.5	0.06	4.6	F
Total	IV		88.6	83.5	172.1	0.41	8.5	E

Arterial Level of Service: NB Lindaro St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
2nd St	IV	25	15.8	14.9	30.7	0.06	7.0	F
3rd St	IV	25	16.7	14.1	30.8	0.06	7.4	E
Total	IV		32.5	29.0	61.5	0.12	7.2	E

Arterial Level of Service: SB Lindaro St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
3rd St	IV	25	9.9	16.0	25.9	0.04	5.2	F
2nd St	IV	25	16.7	35.6	52.3	0.06	4.3	F
Total	IV		26.6	51.6	78.2	0.10	4.6	F

Arterial Level of Service: EB Mission Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Lincoln Ave	IV	25	28.5	12.4	40.9	0.16	13.9	C
Hetheron St	IV	25	23.1	8.2	31.3	0.10	12.1	D
Irwin St	IV	25	18.9	15.5	34.4	0.07	7.5	E
Total	IV		70.5	36.1	106.6	0.33	11.3	D

Arterial Level of Service: WB Mission Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
101 NB On-Ramp	IV	25	21.6	25.0	46.6	0.10	7.6	E
Hetheron St	IV	25	18.9	25.3	44.2	0.07	5.8	F
Lincoln Ave	IV	25	23.1	35.3	58.4	0.10	6.5	F
Total	IV		63.6	85.6	149.2	0.27	6.6	F

San Rafael Multi-Family TIS - Existing Conditions
 1: Cijos St & 4th/4th St

PM Peak Hour

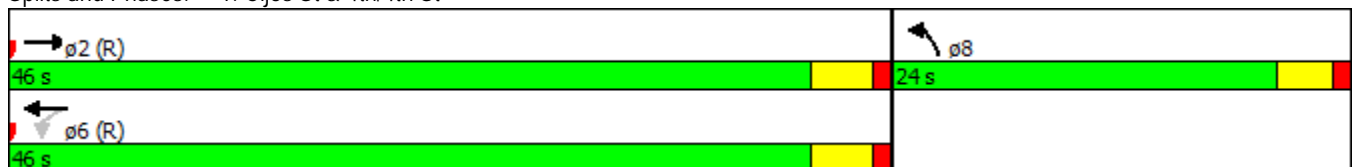


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↖	↗	↖	
Volume (vph)	166	6	95	224	22	62
Satd. Flow (prot)	1541	0	1406	1555	1313	0
Flt Permitted			0.641		0.987	
Satd. Flow (perm)	1541	0	830	1555	1282	0
Satd. Flow (RTOR)	5				66	
Lane Group Flow (vph)	183	0	101	238	89	0
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases			6			
Total Split (s)	46.0		46.0	46.0	24.0	
Total Lost Time (s)	3.0		3.0	3.0	3.0	
Act Effect Green (s)	43.0		43.0	43.0	21.0	
Actuated g/C Ratio	0.61		0.61	0.61	0.30	
v/c Ratio	0.19		0.20	0.25	0.20	
Control Delay	6.4		7.2	7.0	9.0	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	6.4		7.2	7.0	9.0	
LOS	A		A	A	A	
Approach Delay	6.4			7.0	9.0	
Approach LOS	A			A	A	

Intersection Summary

Cycle Length: 70
 Actuated Cycle Length: 70
 Offset: 52 (74%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.25
 Intersection Signal Delay: 7.1
 Intersection LOS: A
 Intersection Capacity Utilization 83.3%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 1: Cijos St & 4th/4th St



San Rafael Multi-Family TIS - Existing Conditions

2: Lincoln Ave & 4th St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Volume (vph)	33	164	31	89	234	58	27	336	58	34	270	58
Satd. Flow (prot)	1419	1441	0	1405	1579	0	0	2882	0	0	2753	0
Flt Permitted	0.504			0.599				0.915			0.888	
Satd. Flow (perm)	729	1441	0	836	1579	0	0	2631	0	0	2451	0
Satd. Flow (RTOR)		18			24			27			33	
Lane Group Flow (vph)	35	207	0	95	311	0	0	448	0	0	385	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	45.0	45.0		45.0	45.0		35.0	35.0		35.0	35.0	
Total Lost Time (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Act Effect Green (s)	42.0	42.0		42.0	42.0			32.0			32.0	
Actuated g/C Ratio	0.52	0.52		0.52	0.52			0.40			0.40	
v/c Ratio	0.09	0.27		0.22	0.37			0.42			0.39	
Control Delay	10.4	10.7		7.0	6.9			14.4			6.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	10.4	10.7		7.0	6.9			14.4			6.2	
LOS	B	B		A	A			B			A	
Approach Delay		10.7			7.0			14.4			6.2	
Approach LOS		B			A			B			A	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 62 (78%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.42

Intersection Signal Delay: 9.6

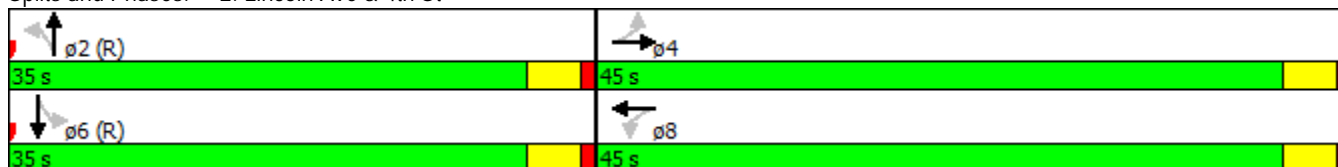
Intersection LOS: A

Intersection Capacity Utilization 70.9%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: Lincoln Ave & 4th St



San Rafael Multi-Family TIS - Existing Conditions
 3: Tamalpais Ave (West) South Leg & 4th St

PM Peak Hour

Intersection

Int Delay, s/veh 2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	233	20	4	385	0	128
Conflicting Peds, #/hr	0	88	0	0	0	77
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	0	33	3	0	2
Mvmt Flow	248	21	4	410	0	136

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	346
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.43
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.497
Pot Cap-1 Maneuver	-	-	1059
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1059
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	11.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	661	-	-	1059	-
HCM Lane V/C Ratio	0.206	-	-	0.004	-
HCM Control Delay (s)	11.9	-	-	8.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.8	-	-	0	-

San Rafael Multi-Family TIS - Existing Conditions
 4: 4th St & Tamalpais Ave (West) North Leg

PM Peak Hour

Intersection

Int Delay, s/veh 0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	362	345	18	1	44
Conflicting Peds, #/hr	0	0	0	59	0	78
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	2	3	0	0	5
Mvmt Flow	0	385	367	19	1	47

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	464	0	840
Stage 1	-	-	455
Stage 2	-	-	385
Critical Hdwy	4.1	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.2	-	3.5
Pot Cap-1 Maneuver	1108	-	338
Stage 1	-	-	643
Stage 2	-	-	692
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1108	-	295
Mov Cap-2 Maneuver	-	-	295
Stage 1	-	-	601
Stage 2	-	-	647

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1108	-	-	-	560
HCM Lane V/C Ratio	-	-	-	-	0.084
HCM Control Delay (s)	0	-	-	-	12
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

San Rafael Multi-Family TIS - Existing Conditions
 5: Tamalpais Ave (East) & 4th St

PM Peak Hour

Intersection

Int Delay, s/veh 0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	33	330	0	0	362	12	0	0	0	0	0	0
Conflicting Peds, #/hr	56	0	0	0	0	56	0	0	20	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	2	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	35	351	0	0	385	13	0	0	0	0	0	0

Major/Minor

	Major1		Major2		Minor1				
Conflicting Flow All	398	0	0	371	0	0	832	839	427
Stage 1	-	-	-	-	-	-	441	441	-
Stage 2	-	-	-	-	-	-	391	398	-
Critical Hdwy	4.1	-	-	4.1	-	-	6.4	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.4	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	1172	-	-	1199	-	-	342	304	632
Stage 1	-	-	-	-	-	-	653	580	-
Stage 2	-	-	-	-	-	-	688	606	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1117	-	-	1143	-	-	308	0	592
Mov Cap-2 Maneuver	-	-	-	-	-	-	308	0	-
Stage 1	-	-	-	-	-	-	617	0	-
Stage 2	-	-	-	-	-	-	656	0	-

Approach

	EB	WB	NB
HCM Control Delay, s	0.8	0	0
HCM LOS			A

Minor Lane/Major Mvmt

	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	-	1117	-	-	1143	-	-
HCM Lane V/C Ratio	-	0.031	-	-	-	-	-
HCM Control Delay (s)	0	8.3	0	-	0	-	-
HCM Lane LOS	A	A	A	-	A	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	-

San Rafael Multi-Family TIS - Existing Conditions

6: Hetherton St & 4th St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↑↑↑	↗
Volume (vph)	0	240	105	71	219	0	0	0	0	120	934	172
Satd. Flow (prot)	0	1824	1386	1826	1706	0	0	0	0	0	4579	1322
Flt Permitted				0.530							0.994	
Satd. Flow (perm)	0	1824	1294	986	1706	0	0	0	0	0	4569	1253
Satd. Flow (RTOR)			71									
Lane Group Flow (vph)	0	255	112	76	233	0	0	0	0	0	1122	183
Turn Type		NA	Perm	Perm	NA					Perm	NA	custom
Protected Phases		4			8						2	
Permitted Phases			4	8						2		5
Total Split (s)		39.0	39.0	39.0	39.0					41.0	41.0	34.0
Total Lost Time (s)		3.0	3.0	3.0	3.0						3.0	3.2
Act Effect Green (s)		36.0	36.0	36.0	36.0						38.0	30.8
Actuated g/C Ratio		0.45	0.45	0.45	0.45						0.48	0.38
v/c Ratio		0.31	0.18	0.17	0.30						0.52	0.38
Control Delay		14.7	6.0	12.7	14.1						7.3	11.4
Queue Delay		0.0	0.1	0.1	0.0						0.1	0.0
Total Delay		14.7	6.2	12.8	14.1						7.4	11.4
LOS		B	A	B	B						A	B
Approach Delay		12.1			13.8						7.9	
Approach LOS		B			B						A	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 68 (85%), Referenced to phase 2:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.52

Intersection Signal Delay: 9.6

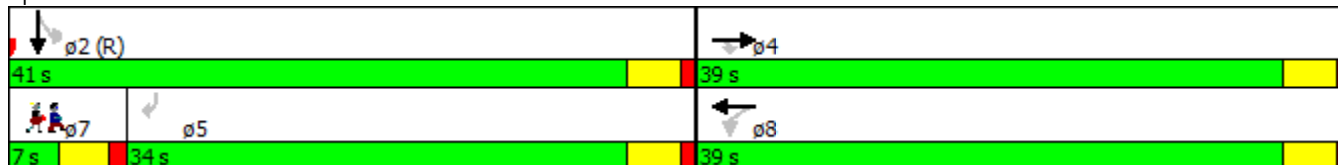
Intersection LOS: A

Intersection Capacity Utilization 65.7%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 6: Hetherton St & 4th St



Lane Group	ø7
Lane Configurations	
Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Total Split (s)	7.0
Total Lost Time (s)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

San Rafael Multi-Family TIS - Existing Conditions

7: Irwin St & 4th St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑			↗		↖	↑↑↑				
Volume (vph)	147	203	0	0	182	79	111	1211	153	0	0	0
Satd. Flow (prot)	1637	1765	0	0	1467	0	1480	4412	0	0	0	0
Flt Permitted	0.461						0.950					
Satd. Flow (perm)	788	1765	0	0	1467	0	1464	4412	0	0	0	0
Satd. Flow (RTOR)							31					
Lane Group Flow (vph)	156	216	0	0	278	0	118	1451	0	0	0	0
Turn Type	Perm		NA		NA		Perm		NA			
Protected Phases					4				8			
Permitted Phases	4								2			
Total Split (s)	32.0		32.0		32.0		48.0		48.0			
Total Lost Time (s)	3.0		3.0		3.0		3.0		3.0			
Act Effct Green (s)	29.0		29.0		29.0		45.0		45.0			
Actuated g/C Ratio	0.36		0.36		0.36		0.56		0.56			
v/c Ratio	0.55		0.34		0.50		0.14		0.58			
Control Delay	38.6		29.6		21.4		3.0		3.3			
Queue Delay	0.0		0.0		0.0		0.0		0.2			
Total Delay	38.6		29.6		21.4		3.0		3.5			
LOS	D		C		C		A		A			
Approach Delay					33.3				21.4			
Approach LOS					C				A			

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 36 (45%), Referenced to phase 2:NBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 10.7

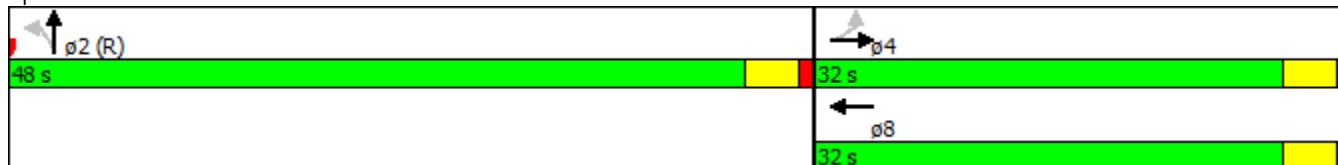
Intersection LOS: B

Intersection Capacity Utilization 65.7%

ICU Level of Service C

Analysis Period (min) 15

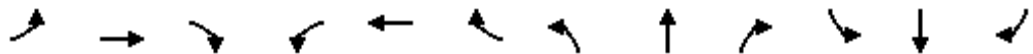
Splits and Phases: 7: Irwin St & 4th St



San Rafael Multi-Family TIS - Existing Conditions

8: Lindaro St & 3rd St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↕			↕			↗	
Volume (vph)	0	0	0	199	1681	35	98	18	0	0	39	8
Satd. Flow (prot)	0	0	0	1360	4303	0	0	1534	0	0	1524	0
Flt Permitted				0.950				0.751				
Satd. Flow (perm)	0	0	0	1290	4303	0	0	1202	0	0	1524	0
Satd. Flow (RTOR)					7						9	
Lane Group Flow (vph)	0	0	0	212	1825	0	0	123	0	0	50	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8			4	
Permitted Phases				6			8					
Total Split (s)				53.0	53.0		27.0	27.0			27.0	
Total Lost Time (s)				3.0	3.0			3.0			3.0	
Act Effct Green (s)				50.0	50.0			24.0			24.0	
Actuated g/C Ratio				0.62	0.62			0.30			0.30	
v/c Ratio				0.26	0.68			0.34			0.11	
Control Delay				3.3	4.1			27.6			18.2	
Queue Delay				0.0	0.1			0.0			0.0	
Total Delay				3.3	4.1			27.6			18.2	
LOS				A	A			C			B	
Approach Delay					4.1			27.6			18.2	
Approach LOS					A			C			B	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 5.7

Intersection LOS: A

Intersection Capacity Utilization 60.5%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 8: Lindaro St & 3rd St



San Rafael Multi-Family TIS - Existing Conditions
 9: Ritter St & 3rd St

PM Peak Hour

Intersection

Int Delay, s/veh 1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	0	0	0	1813	106	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	25
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	2	1	0
Mvmt Flow	0	0	0	1929	113	0

Major/Minor

	Major2	Minor1
Conflicting Flow All	0	0
Stage 1	-	-
Stage 2	-	-
Critical Hdwy	-	-
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	-	-
Pot Cap-1 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	-
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

Approach

	WB	NB
HCM Control Delay, s	0	20.1
HCM LOS		C

Minor Lane/Major Mvmt

	NBLn1	NBLn2	WBL	WBT
Capacity (veh/h)	350	-	-	-
HCM Lane V/C Ratio	0.322	-	-	-
HCM Control Delay (s)	20.1	0	0	-
HCM Lane LOS	C	A	A	-
HCM 95th %tile Q(veh)	1.4	-	-	-

San Rafael Multi-Family TIS - Existing Conditions
 10: 3rd St & Cijos St

PM Peak Hour

Intersection

Int Delay, s/veh 1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	0	1713	87	0	100
Conflicting Peds, #/hr	0	0	0	76	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	2	1	0	1
Mvmt Flow	0	0	1822	93	0	106

Major/Minor

	Major2	Minor2
Conflicting Flow All	-	0
Stage 1	-	-
Stage 2	-	-
Critical Hdwy	-	-
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	-	-
Pot Cap-1 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	-
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

Approach

	WB	SB
HCM Control Delay, s	0	35
HCM LOS		E

Minor Lane/Major Mvmt

	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	223
HCM Lane V/C Ratio	-	-	0.477
HCM Control Delay (s)	-	-	35
HCM Lane LOS	-	-	E
HCM 95th %tile Q(veh)	-	-	2.4

San Rafael Multi-Family TIS - Existing Conditions

11: Lincoln Ave & 3rd St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					←↑↑			↑↑			↑↑	
Volume (vph)	0	0	0	87	1617	94	39	328	0	0	244	147
Satd. Flow (prot)	0	0	0	0	4237	0	0	2898	0	0	2385	0
Flt Permitted					0.998			0.879				
Satd. Flow (perm)	0	0	0	0	4223	0	0	2545	0	0	2385	0
Satd. Flow (RTOR)					18						16	
Lane Group Flow (vph)	0	0	0	0	1913	0	0	390	0	0	416	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8			4	
Permitted Phases				6			8					
Total Split (s)				50.0	50.0		30.0	30.0			30.0	
Total Lost Time (s)					3.0			3.0			3.0	
Act Effct Green (s)					47.0			27.0			27.0	
Actuated g/C Ratio					0.59			0.34			0.34	
v/c Ratio					0.77			0.45			0.51	
Control Delay					5.3			20.4			33.6	
Queue Delay					1.0			0.0			0.0	
Total Delay					6.2			20.4			33.6	
LOS					A			C			C	
Approach Delay					6.2			20.4			33.6	
Approach LOS					A			C			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 40 (50%), Referenced to phase 4:SBT and 8:NBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 12.5

Intersection LOS: B

Intersection Capacity Utilization 80.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 11: Lincoln Ave & 3rd St



San Rafael Multi-Family TIS - Existing Conditions
 12: Tamalpais Avenue (West) & 3rd St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					←↑↑↑		↑	↑			↑	
Volume (vph)	0	0	0	266	1681	52	98	85	0	0	19	19
Satd. Flow (prot)	0	0	0	0	4189	0	1287	1402	0	0	1243	0
Flt Permitted					0.993		0.731					
Satd. Flow (perm)	0	0	0	0	4024	0	939	1402	0	0	1243	0
Satd. Flow (RTOR)					11						20	
Lane Group Flow (vph)	0	0	0	0	2126	0	104	90	0	0	40	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8			4	
Permitted Phases				6			8					
Total Split (s)				57.0	57.0		23.0	23.0			23.0	
Total Lost Time (s)					3.0		3.0	3.0			3.0	
Act Effct Green (s)					54.0		20.0	20.0			20.0	
Actuated g/C Ratio					0.68		0.25	0.25			0.25	
v/c Ratio					0.78		0.44	0.26			0.12	
Control Delay					6.8		20.8	15.2			13.7	
Queue Delay					0.2		0.0	0.0			0.0	
Total Delay					7.0		20.8	15.2			13.7	
LOS					A		C	B			B	
Approach Delay					7.0			18.2			13.7	
Approach LOS					A			B			B	

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 64 (80%), Referenced to phase 6:WBTL, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 8.0
 Intersection Capacity Utilization 128.7%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service H

Splits and Phases: 12: Tamalpais Avenue (West) & 3rd St



San Rafael Multi-Family TIS - Existing Conditions
 13: Tamalpais Ave (East) & 3rd St

PM Peak Hour

Intersection													
Int Delay, s/veh	0.2												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	9	1974	0	18	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	96	0	15	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	89	2	0	94	0	0	0	0	0
Mvmt Flow	0	0	0	10	2100	0	19	0	0	0	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	2100	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	5.3	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	3.1	-	-
Pot Cap-1 Maneuver	114	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	114	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0		23
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	219	114	-	-	-	-	-
HCM Lane V/C Ratio	0.087	-	-	-	-	-	-
HCM Control Delay (s)	23	0	-	-	-	-	-
HCM Lane LOS	C	A	-	-	-	-	-
HCM 95th %tile Q(veh)	0.3	0	-	-	-	-	-

San Rafael Multi-Family TIS - Existing Conditions

14: Hetherton St & 3rd St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↖↖↖						↗↗↗	↗
Volume (vph)	0	0	0	469	1511	0	0	0	0	0	657	453
Satd. Flow (prot)	0	0	0	1354	4250	0	0	0	0	0	4356	1197
Flt Permitted				0.950	0.998							
Satd. Flow (perm)	0	0	0	1258	4241	0	0	0	0	0	4356	1114
Satd. Flow (RTOR)												25
Lane Group Flow (vph)	0	0	0	449	1657	0	0	0	0	0	699	482
Turn Type				Perm	NA						NA	Perm
Protected Phases												6
Permitted Phases				8								6
Total Split (s)				49.0	49.0						31.0	31.0
Total Lost Time (s)				3.0	3.0						3.0	3.0
Act Effect Green (s)				46.0	46.0						28.0	28.0
Actuated g/C Ratio				0.58	0.58						0.35	0.35
v/c Ratio				0.62	0.68						0.46	1.19
Control Delay				9.5	8.2						25.4	134.8
Queue Delay				0.5	0.3						0.3	0.0
Total Delay				10.0	8.5						25.6	134.8
LOS				B	A						C	F
Approach Delay					8.8						70.2	
Approach LOS					A						E	

Intersection Summary

Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 31 (39%), Referenced to phase 6:SBT, Start of Green	
Control Type: Pretimed	
Maximum v/c Ratio: 1.19	
Intersection Signal Delay: 30.8	Intersection LOS: C
Intersection Capacity Utilization 78.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 14: Hetherton St & 3rd St



San Rafael Multi-Family TIS - Existing Conditions

15: Irwin St & 3rd St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑	↑	↑	↑↑↑				
Volume (vph)	0	0	0	0	1102	183	865	1290	0	0	0	0
Satd. Flow (prot)	0	0	0	0	3997	1289	1162	3862	0	0	0	0
Flt Permitted							0.950	0.992				
Satd. Flow (perm)	0	0	0	0	3997	1235	1162	3862	0	0	0	0
Satd. Flow (RTOR)						35	20	20				
Lane Group Flow (vph)	0	0	0	0	1172	195	653	1639	0	0	0	0
Turn Type					NA	Perm	Split	NA				
Protected Phases					8		2	2				
Permitted Phases						8						
Total Split (s)					34.0	34.0	46.0	46.0				
Total Lost Time (s)					3.0	3.0	3.0	3.0				
Act Effect Green (s)					31.0	31.0	43.0	43.0				
Actuated g/C Ratio					0.39	0.39	0.54	0.54				
v/c Ratio					0.76	0.39	1.03	0.79				
Control Delay					25.1	17.1	52.0	12.8				
Queue Delay					0.0	0.0	0.0	1.3				
Total Delay					25.1	17.1	52.0	14.1				
LOS					C	B	D	B				
Approach Delay					24.0			24.9				
Approach LOS					C			C				

Intersection Summary

Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 27 (34%), Referenced to phase 2:NBTL, Start of Green	
Control Type: Pretimed	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 24.5	Intersection LOS: C
Intersection Capacity Utilization 78.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 15: Irwin St & 3rd St



San Rafael Multi-Family TIS - Existing Conditions

16: Lindaro St & 2nd St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		←↑↑↑→						↑	↗	↘	↑	
Volume (vph)	47	2120	32	0	0	0	0	70	277	91	148	0
Satd. Flow (prot)	0	5199	0	0	0	0	0	1547	1244	1328	1309	0
Flt Permitted		0.999								0.709		
Satd. Flow (perm)	0	5196	0	0	0	0	0	1547	1210	979	1309	0
Satd. Flow (RTOR)		5							16			
Lane Group Flow (vph)	0	2339	0	0	0	0	0	74	295	97	157	0
Turn Type	Perm	NA						NA	Perm	Perm	NA	
Protected Phases		6						4			8	
Permitted Phases	6								4	8		
Total Split (s)	47.0	47.0						33.0	33.0	33.0	33.0	
Total Lost Time (s)		3.0						3.0	3.0	3.0	3.0	
Act Effct Green (s)		44.0						30.0	30.0	30.0	30.0	
Actuated g/C Ratio		0.55						0.38	0.38	0.38	0.38	
v/c Ratio		0.82						0.13	0.64	0.26	0.32	
Control Delay		17.7						17.3	26.9	15.3	15.1	
Queue Delay		0.0						0.0	0.0	0.0	0.0	
Total Delay		17.7						17.3	26.9	15.3	15.1	
LOS		B						B	C	B	B	
Approach Delay		17.7						24.9			15.2	
Approach LOS		B						C			B	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 49 (61%), Referenced to phase 6:EBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 18.4

Intersection LOS: B

Intersection Capacity Utilization 75.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 16: Lindaro St & 2nd St



San Rafael Multi-Family TIS - Existing Conditions
 17: Lincoln Ave & Ritter St

PM Peak Hour

Intersection

Int Delay, s/veh 0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	2	2	2	6	69	361	0	27	285	19
Conflicting Peds, #/hr	0	0	0	0	0	0	25	0	4	4	0	25
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	-	-	-	None	-	-	-	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	50	17	0	1	0	7	3	0
Mvmt Flow	0	0	2	2	2	6	73	384	0	29	303	20

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	531	560	217	29	0	0	384	0	0
Stage 1	531	531	-	-	-	-	-	-	-
Stage 2	0	29	-	-	-	-	-	-	-
Critical Hdwy	6.8	6.5	7.9	-	-	-	4.1	-	-
Critical Hdwy Stg 1	5.8	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.8	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	483	440	658	-	-	-	1186	-	-
Stage 1	560	529	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	473	0	644	-	-	-	1161	-	-
Mov Cap-2 Maneuver	473	0	-	-	-	-	-	-	-
Stage 1	560	0	-	-	-	-	-	-	-
Stage 2	-	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6		0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL2	SBL	SBT
Capacity (veh/h)	-	-	-	644	1161	-	-
HCM Lane V/C Ratio	-	-	-	0.003	-	-	-
HCM Control Delay (s)	-	-	-	10.6	0	-	-
HCM Lane LOS	-	-	-	B	A	-	-
HCM 95th %tile Q(veh)	-	-	-	0	0	-	-

San Rafael Multi-Family TIS - Existing Conditions
 17: Lincoln Ave & Ritter St

PM Peak Hour

Intersection

Int Delay, s/veh

Movement	NWL	NWR
Vol, veh/h	0	0
Conflicting Peds, #/hr	0	0
Sign Control	Stop	Stop
RT Channelized	-	-
Storage Length	-	-
Veh in Median Storage, #	0	-
Grade, %	0	-
Peak Hour Factor	94	94
Heavy Vehicles, %	0	0
Mvmt Flow	0	0

Major/Minor

Conflicting Flow All

Stage 1

Stage 2

Critical Hdwy

Critical Hdwy Stg 1

Critical Hdwy Stg 2

Follow-up Hdwy

Pot Cap-1 Maneuver

Stage 1

Stage 2

Platoon blocked, %

Mov Cap-1 Maneuver

Mov Cap-2 Maneuver

Stage 1

Stage 2

Approach

HCM Control Delay, s

HCM LOS

Minor Lane/Major Mvmt

San Rafael Multi-Family TIS - Existing Conditions

18: Lincoln Ave & 2nd St

PM Peak Hour

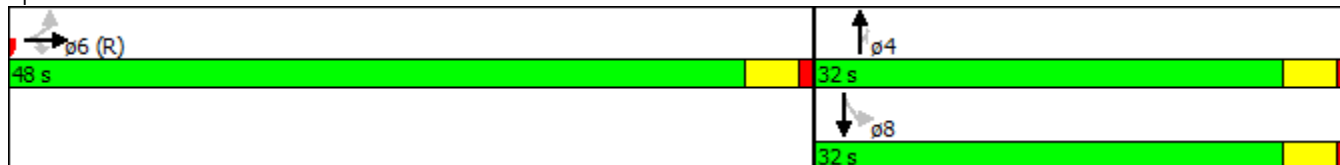


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4↑↑↑↑	↑					↑	↑		4↑↑	
Volume (vph)	230	2196	55	0	0	0	0	208	159	129	158	0
Satd. Flow (prot)	0	5016	1221	0	0	0	0	1600	1360	0	2609	0
Flt Permitted		0.995									0.706	
Satd. Flow (perm)	0	5006	1140	0	0	0	0	1600	1339	0	1884	0
Satd. Flow (RTOR)			57						16			
Lane Group Flow (vph)	0	2581	59	0	0	0	0	221	169	0	305	0
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		6						4			8	
Permitted Phases	6		6						4	8		
Total Split (s)	48.0	48.0	48.0					32.0	32.0	32.0	32.0	
Total Lost Time (s)		3.0	3.0					3.0	3.0		3.0	
Act Effct Green (s)		45.0	45.0					29.0	29.0		29.0	
Actuated g/C Ratio		0.56	0.56					0.36	0.36		0.36	
v/c Ratio		0.92	0.09					0.38	0.34		0.45	
Control Delay		11.5	0.2					21.3	19.1		17.6	
Queue Delay		2.4	0.0					0.0	0.0		0.0	
Total Delay		13.9	0.2					21.3	19.1		17.6	
LOS		B	A					C	B		B	
Approach Delay		13.6						20.4			17.6	
Approach LOS		B						C			B	

Intersection Summary

Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 62 (78%), Referenced to phase 6:EBTL, Start of Green	
Control Type: Pretimed	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 14.8	Intersection LOS: B
Intersection Capacity Utilization 74.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 18: Lincoln Ave & 2nd St



San Rafael Multi-Family TIS - Existing Conditions
 19: Francisco Blvd W./Tamalpais Avenue (West) & 2nd St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4TTL	T					T	T	T	T	
Volume (vph)	57	2315	130	0	0	0	0	136	377	62	222	0
Satd. Flow (prot)	0	5213	1232	0	0	0	0	1479	1378	996	1349	0
Flt Permitted		0.999								0.634		
Satd. Flow (perm)	0	5201	1204	0	0	0	0	1479	1359	665	1349	0
Satd. Flow (RTOR)			124						20			
Lane Group Flow (vph)	0	2524	138	0	0	0	0	145	401	66	236	0
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		2						4			8	
Permitted Phases	2		2						4	8		
Total Split (s)	47.0	47.0	47.0					33.0	33.0	33.0	33.0	
Total Lost Time (s)		3.0	3.0					3.0	3.0	3.0	3.0	
Act Effct Green (s)		44.0	44.0					30.0	30.0	30.0	30.0	
Actuated g/C Ratio		0.55	0.55					0.38	0.38	0.38	0.38	
v/c Ratio		0.88	0.19					0.26	0.77	0.27	0.47	
Control Delay		8.0	0.5					19.0	32.7	23.0	25.7	
Queue Delay		5.6	0.5					0.0	0.0	0.0	0.8	
Total Delay		13.6	1.1					19.0	32.7	23.0	26.5	
LOS		B	A					B	C	C	C	
Approach Delay		12.9						29.0			25.8	
Approach LOS		B						C			C	

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 66 (83%), Referenced to phase 2:EBTL, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 16.5
 Intersection LOS: B
 Intersection Capacity Utilization 128.7%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 19: Francisco Blvd W./Tamalpais Avenue (West) & 2nd St



San Rafael Multi-Family TIS - Existing Conditions

20: US-101 SB Ramp/Hetherton St & 2nd St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↑	↑							↑	↑↑	
Volume (vph)	0	1760	949	0	0	0	0	0	0	350	776	0
Satd. Flow (prot)	0	4717	1034	0	0	0	0	0	0	1298	2827	0
Flt Permitted										0.950		
Satd. Flow (perm)	0	4717	1020	0	0	0	0	0	0	1298	2827	0
Satd. Flow (RTOR)		69	69									
Lane Group Flow (vph)	0	2296	586	0	0	0	0	0	0	372	826	0
Turn Type		NA	Perm							Split	NA	
Protected Phases		2								4	4	
Permitted Phases			2									
Total Split (s)		45.0	45.0							35.0	35.0	
Total Lost Time (s)		3.0	3.0							3.0	3.0	
Act Effect Green (s)		42.0	42.0							32.0	32.0	
Actuated g/C Ratio		0.52	0.52							0.40	0.40	
v/c Ratio		0.92	1.03							0.72	0.73	
Control Delay		11.7	46.9							25.3	21.3	
Queue Delay		4.0	1.8							0.7	0.4	
Total Delay		15.7	48.7							26.0	21.7	
LOS		B	D							C	C	
Approach Delay		22.4									23.0	
Approach LOS		C									C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 72 (90%), Referenced to phase 2:EBT, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 22.6

Intersection LOS: C

Intersection Capacity Utilization 128.4%

ICU Level of Service H

Analysis Period (min) 15

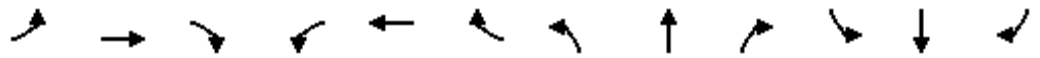
Splits and Phases: 20: US-101 SB Ramp/Hetherton St & 2nd St



San Rafael Multi-Family TIS - Existing Conditions

21: US-101 NB Ramp/Irwin St & 2nd St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↕↕↕						↕↕↕	↘			
Volume (vph)	856	1261	0	0	0	0	0	1318	542	0	0	0
Satd. Flow (prot)	1311	3999	0	0	0	0	0	4241	1257	0	0	0
Flt Permitted	0.950	0.990										
Satd. Flow (perm)	1286	3983	0	0	0	0	0	4241	1216	0	0	0
Satd. Flow (RTOR)	30	30							26			
Lane Group Flow (vph)	565	1687	0	0	0	0	0	1402	577	0	0	0
Turn Type	Perm	NA						NA	Perm			
Protected Phases		2						8				
Permitted Phases	2								8			
Total Split (s)	42.0	42.0						38.0	38.0			
Total Lost Time (s)	3.0	3.0						3.0	3.0			
Act Effct Green (s)	39.0	39.0						35.0	35.0			
Actuated g/C Ratio	0.49	0.49						0.44	0.44			
v/c Ratio	0.88	0.86						0.76	1.06			
Control Delay	19.2	12.1						22.2	78.6			
Queue Delay	2.9	1.4						0.0	0.0			
Total Delay	22.1	13.5						22.2	78.6			
LOS	C	B						C	E			
Approach Delay		15.6						38.6				
Approach LOS		B						D				

Intersection Summary

Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green	
Control Type: Pretimed	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 26.4	Intersection LOS: C
Intersection Capacity Utilization 101.5%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 21: US-101 NB Ramp/Irwin St & 2nd St



San Rafael Multi-Family TIS - Existing Conditions
 22: Nye St & Mission Ave

PM Peak Hour

Intersection												
Int Delay, s/veh	2											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	8	635	5	14	781	21	1	3	57	13	6	12
Conflicting Peds, #/hr	5	0	12	12	0	5	14	0	14	14	0	14
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	9	676	5	15	831	22	1	3	61	14	6	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	867	0	0	695	0	0	1604	1606	704	1627	1598	868
Stage 1	-	-	-	-	-	-	709	709	-	886	886	-
Stage 2	-	-	-	-	-	-	895	897	-	741	712	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	772	-	-	896	-	-	84	105	435	81	106	350
Stage 1	-	-	-	-	-	-	423	436	-	338	361	-
Stage 2	-	-	-	-	-	-	334	357	-	407	434	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	762	-	-	884	-	-	72	97	423	63	98	341
Mov Cap-2 Maneuver	-	-	-	-	-	-	72	97	-	63	98	-
Stage 1	-	-	-	-	-	-	409	421	-	328	345	-
Stage 2	-	-	-	-	-	-	301	342	-	335	419	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	18.1	56.3
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	340	762	-	-	884	-	-	102
HCM Lane V/C Ratio	0.191	0.011	-	-	0.017	-	-	0.323
HCM Control Delay (s)	18.1	9.8	0	-	9.1	0	-	56.3
HCM Lane LOS	C	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	1.3

San Rafael Multi-Family TIS - Existing Conditions

23: Lincoln Ave & Mission Ave

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Volume (vph)	205	393	11	34	546	53	12	344	44	0	314	279
Satd. Flow (prot)	1427	1643	0	1463	1517	0	0	2740	0	0	2608	0
Flt Permitted	0.156			0.512				0.932				
Satd. Flow (perm)	234	1643	0	785	1517	0	0	2557	0	0	2608	0
Satd. Flow (RTOR)		3			8			18			297	
Lane Group Flow (vph)	218	430	0	36	637	0	0	426	0	0	631	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA			NA	
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4					
Total Split (s)	12.0	51.0		39.0	39.0		29.0	29.0			29.0	
Total Lost Time (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Act Effect Green (s)	48.0	48.0		36.2	36.2			26.0			26.0	
Actuated g/C Ratio	0.60	0.60		0.45	0.45			0.32			0.32	
v/c Ratio	0.80	0.44		0.10	0.92			0.51			0.60	
Control Delay	34.9	10.3		8.3	33.7			31.5			14.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	34.9	10.3		8.3	33.7			31.5			14.3	
LOS	C	B		A	C			C			B	
Approach Delay		18.6			32.4			31.5			14.3	
Approach LOS		B			C			C			B	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 55 (69%), Referenced to phase 4:NBT and 8:SBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 23.7

Intersection LOS: C

Intersection Capacity Utilization 81.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 23: Lincoln Ave & Mission Ave



San Rafael Multi-Family TIS - Existing Conditions
 24: Tamalpais Ave (West) & Mission Ave

PM Peak Hour

Intersection

Int Delay, s/veh 0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	505	13	6	593	6	11
Conflicting Peds, #/hr	0	6	6	0	30	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	537	14	6	631	6	12

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	581
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.16
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.23
Pot Cap-1 Maneuver	-	-	982
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	977
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	16.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	338	-	-	977	-
HCM Lane V/C Ratio	0.054	-	-	0.007	-
HCM Control Delay (s)	16.3	-	-	8.7	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

San Rafael Multi-Family TIS - Existing Conditions
 25: Tamalpais Ave (East) & Mission Ave

PM Peak Hour

Intersection

Int Delay, s/veh 0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	521	0	0	593	6	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	554	0	0	631	6	12

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	1185
Stage 1	-	-	554
Stage 2	-	-	631
Critical Hdwy	-	4.16	6.645
Critical Hdwy Stg 1	-	-	5.845
Critical Hdwy Stg 2	-	-	5.445
Follow-up Hdwy	-	2.23	3.5285
Pot Cap-1 Maneuver	-	1005	194
Stage 1	-	-	538
Stage 2	-	-	527
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1005	194
Mov Cap-2 Maneuver	-	-	194
Stage 1	-	-	538
Stage 2	-	-	527

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	368	-	-	1005	-
HCM Lane V/C Ratio	0.049	-	-	-	-
HCM Control Delay (s)	15.3	-	-	0	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

San Rafael Multi-Family TIS - Existing Conditions
 26: Hetherton St/101 SB Off-Ramp & Mission Ave

PM Peak Hour

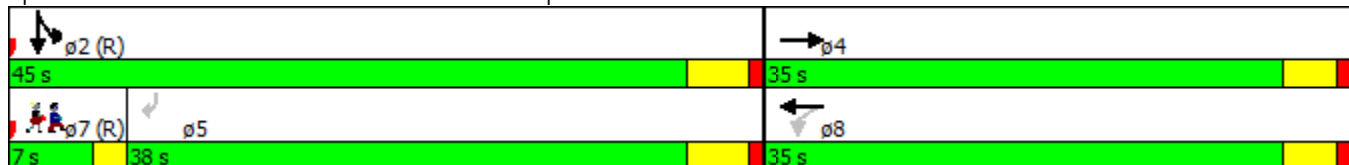


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↔						↑↑	↔
Volume (vph)	0	494	67	41	188	0	0	0	0	203	1043	535
Satd. Flow (prot)	0	3030	0	0	1963	0	0	0	0	0	3294	1485
Flt Permitted					0.847						0.992	
Satd. Flow (perm)	0	3030	0	0	1675	0	0	0	0	0	3294	1421
Satd. Flow (RTOR)		22										
Lane Group Flow (vph)	0	597	0	0	244	0	0	0	0	0	1326	569
Turn Type		NA		Perm	NA					Split	NA	custom
Protected Phases		4			8					2	2	
Permitted Phases				8								5
Total Split (s)		35.0		35.0	35.0					45.0	45.0	38.0
Total Lost Time (s)		3.0			3.0						3.0	3.0
Act Effct Green (s)		32.0			32.0						42.0	35.0
Actuated g/C Ratio		0.40			0.40						0.52	0.44
v/c Ratio		0.49			0.36						0.77	0.92
Control Delay		13.4			7.2						18.9	43.9
Queue Delay		0.0			0.0						0.0	0.0
Total Delay		13.4			7.2						18.9	43.9
LOS		B			A						B	D
Approach Delay		13.4			7.2						26.4	
Approach LOS		B			A						C	

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 51 (64%), Referenced to phase 2:SBTL and 7:Ped, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 21.8
 Intersection LOS: C
 Intersection Capacity Utilization 76.4%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 26: Hetherton St/101 SB Off-Ramp & Mission Ave



Lane Group	ø7
Lane Configurations	
Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Total Split (s)	7.0
Total Lost Time (s)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

San Rafael Multi-Family TIS - Existing Conditions
 27: Irwin St/101 NB On-Ramp & Mission Ave

PM Peak Hour

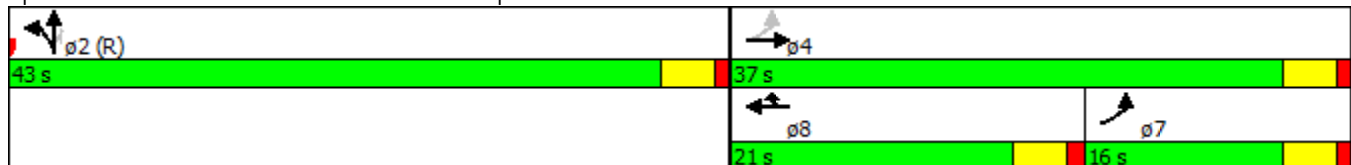
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	428	269	0	0	157	308	80	1598	35	0	0	0
Satd. Flow (prot)	1826	1631	0	0	1994	1634	0	4050	1816	0	0	0
Flt Permitted	0.548							0.998				
Satd. Flow (perm)	1053	1631	0	0	1994	1634	0	4048	1736	0	0	0
Satd. Flow (RTOR)						74			74			
Lane Group Flow (vph)	455	286	0	0	167	328	0	1785	37	0	0	0
Turn Type	pm+pt	NA			NA	Prot	Split	NA	Perm			
Protected Phases	7	4			8	8	2	2				
Permitted Phases	4								2			
Total Split (s)	16.0	37.0			21.0	21.0	43.0	43.0	43.0			
Total Lost Time (s)	3.0	3.0			3.0	3.0		3.0	3.0			
Act Effct Green (s)	34.0	34.0			18.0	18.0		40.0	40.0			
Actuated g/C Ratio	0.42	0.42			0.22	0.22		0.50	0.50			
v/c Ratio	0.79	0.41			0.37	0.77		0.88	0.04			
Control Delay	23.6	10.6			29.1	36.5		13.3	0.1			
Queue Delay	0.0	0.0			0.0	0.0		1.2	0.0			
Total Delay	23.6	10.6			29.1	36.5		14.5	0.1			
LOS	C	B			C	D		B	A			
Approach Delay		18.6			34.0			14.2				
Approach LOS		B			C			B				

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 53 (66%), Referenced to phase 2:NBT, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 18.5
 Intersection Capacity Utilization 87.1%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service E

Splits and Phases: 27: Irwin St/101 NB On-Ramp & Mission Ave



San Rafael Multi-Family TIS - Existing Conditions

28: 5th Ave & Lincoln Ave

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Volume (vph)	50	372	48	17	223	43	40	370	23	42	312	39
Satd. Flow (prot)	1377	1669	0	1377	1602	0	0	2876	0	0	2937	0
Flt Permitted	0.529			0.390				0.886			0.870	
Satd. Flow (perm)	757	1669	0	560	1602	0	0	2550	0	0	2560	0
Satd. Flow (RTOR)		12			18			8			17	
Lane Group Flow (vph)	53	447	0	18	283	0	0	461	0	0	418	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	45.0	45.0		45.0	45.0		35.0	35.0		35.0	35.0	
Total Lost Time (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Act Effect Green (s)	42.0	42.0		42.0	42.0			32.0			32.0	
Actuated g/C Ratio	0.52	0.52		0.52	0.52			0.40			0.40	
v/c Ratio	0.13	0.51		0.06	0.33			0.45			0.40	
Control Delay	10.9	14.5		6.4	7.1			8.4			11.1	
Queue Delay	0.0	0.0		0.0	0.0			0.1			0.0	
Total Delay	10.9	14.5		6.4	7.1			8.5			11.1	
LOS	B	B		A	A			A			B	
Approach Delay		14.1			7.0			8.5			11.1	
Approach LOS		B			A			A			B	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 57 (71%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.51

Intersection Signal Delay: 10.5

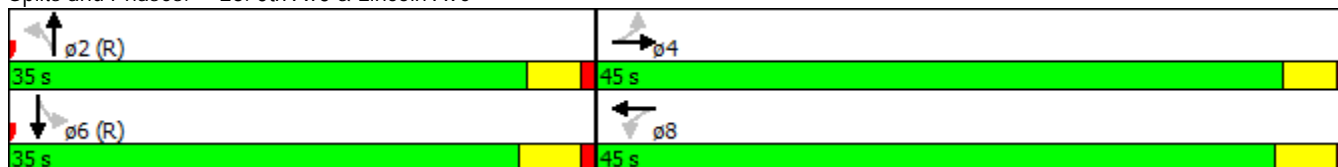
Intersection LOS: B

Intersection Capacity Utilization 93.7%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 28: 5th Ave & Lincoln Ave



San Rafael Multi-Family TIS - Existing Conditions
 29: 5th Ave & Tamalpais Ave (West)

PM Peak Hour

Intersection												
Int Delay, s/veh	2.5											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	346	15	14	206	0	22	16	29	9	20	11
Conflicting Peds, #/hr	4	0	18	18	0	4	23	0	0	0	0	23
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	1	368	16	15	219	0	23	17	31	10	21	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	242	0	0	407	0	0	689	673	417	697	681	260
Stage 1	-	-	-	-	-	-	401	401	-	272	272	-
Stage 2	-	-	-	-	-	-	288	272	-	425	409	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1319	-	-	1146	-	-	359	375	634	354	371	776
Stage 1	-	-	-	-	-	-	624	599	-	732	683	-
Stage 2	-	-	-	-	-	-	717	683	-	605	594	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1299	-	-	1129	-	-	322	355	613	309	351	750
Mov Cap-2 Maneuver	-	-	-	-	-	-	322	355	-	309	351	-
Stage 1	-	-	-	-	-	-	611	587	-	717	660	-
Stage 2	-	-	-	-	-	-	663	660	-	549	582	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.5	15.4	15.2
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	417	1299	-	-	1129	-	-	397
HCM Lane V/C Ratio	0.171	0.001	-	-	0.013	-	-	0.107
HCM Control Delay (s)	15.4	7.8	0	-	8.2	0	-	15.2
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.6	0	-	-	0	-	-	0.4

San Rafael Multi-Family TIS - Existing Conditions
 30: 5th Ave & Tamalpais Ave (East)

PM Peak Hour

Intersection													
Int Delay, s/veh	1.2												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	4	380	0	0	209	5	11	19	31	0	0	0
Conflicting Peds, #/hr	4	0	0	0	0	4	0	0	8	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	4	404	0	0	222	5	12	20	33	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	228	0	0	412	0	0	646	649	416
Stage 1	-	-	-	-	-	-	421	421	-
Stage 2	-	-	-	-	-	-	225	228	-
Critical Hdwy	4.13	-	-	4.13	-	-	6.43	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	5.43	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.43	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327
Pot Cap-1 Maneuver	1334	-	-	1142	-	-	435	387	634
Stage 1	-	-	-	-	-	-	660	587	-
Stage 2	-	-	-	-	-	-	810	714	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1330	-	-	1138	-	-	429	0	628
Mov Cap-2 Maneuver	-	-	-	-	-	-	429	0	-
Stage 1	-	-	-	-	-	-	653	0	-
Stage 2	-	-	-	-	-	-	807	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0.1	0	12.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	560	1330	-	-	1138	-	-
HCM Lane V/C Ratio	0.116	0.003	-	-	-	-	-
HCM Control Delay (s)	12.3	7.7	0	-	0	-	-
HCM Lane LOS	B	A	A	-	A	-	-
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-

San Rafael Multi-Family TIS - Existing Conditions

31: Hetherton St & 5th Ave

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↗			↖						↖↖↖	↗
Volume (vph)	0	288	171	56	185	0	0	0	0	32	983	80
Satd. Flow (prot)	0	1864	0	0	1957	0	0	0	0	0	4587	1322
Flt Permitted					0.761						0.998	
Satd. Flow (perm)	0	1864	0	0	1506	0	0	0	0	0	4587	1259
Satd. Flow (RTOR)		48										
Lane Group Flow (vph)	0	488	0	0	257	0	0	0	0	0	1080	85
Turn Type		NA		Perm	NA					Split	NA	custom
Protected Phases		4				8				2	2	
Permitted Phases				8								5
Total Split (s)		40.0		40.0	40.0					40.0	40.0	33.0
Total Lost Time (s)		3.0			3.0						3.0	3.5
Act Effct Green (s)		37.0			37.0						37.0	29.5
Actuated g/C Ratio		0.46			0.46						0.46	0.37
v/c Ratio		0.55			0.37						0.51	0.18
Control Delay		10.7			15.8						5.7	7.9
Queue Delay		0.0			0.0						0.3	0.0
Total Delay		10.7			15.8						6.0	7.9
LOS		B			B						A	A
Approach Delay		10.7			15.8						6.1	
Approach LOS		B			B						A	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 60 (75%), Referenced to phase 2:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 8.6

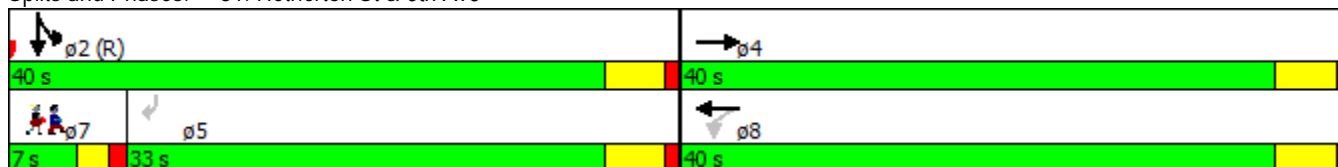
Intersection LOS: A

Intersection Capacity Utilization 71.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 31: Hetherton St & 5th Ave



Lane Group	ø7
Lane Configurations	
Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Total Split (s)	7.0
Total Lost Time (s)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

San Rafael Multi-Family TIS - Existing Conditions

32: 5th Ave & Irwin St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑			↗			↖↗↘				
Volume (vph)	213	100	0	0	114	113	84	1375	10	0	0	0
Satd. Flow (prot)	1284	1351	0	0	1238	0	0	4082	0	0	0	0
Flt Permitted	0.535							0.997				
Satd. Flow (perm)	712	1351	0	0	1238	0	0	4082	0	0	0	0
Satd. Flow (RTOR)					19			2				
Lane Group Flow (vph)	227	106	0	0	241	0	0	1563	0	0	0	0
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Total Split (s)	37.0	37.0			37.0		43.0	43.0				
Total Lost Time (s)	3.0	3.0			3.0			3.0				
Act Effct Green (s)	34.0	34.0			34.0			40.0				
Actuated g/C Ratio	0.42	0.42			0.42			0.50				
v/c Ratio	0.75	0.18			0.45			0.77				
Control Delay	38.2	19.5			18.3			12.0				
Queue Delay	0.0	0.0			0.0			0.8				
Total Delay	38.2	19.5			18.3			12.8				
LOS	D	B			B			B				
Approach Delay		32.3			18.3			12.8				
Approach LOS		C			B			B				

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 45 (56%), Referenced to phase 2:NBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 16.4

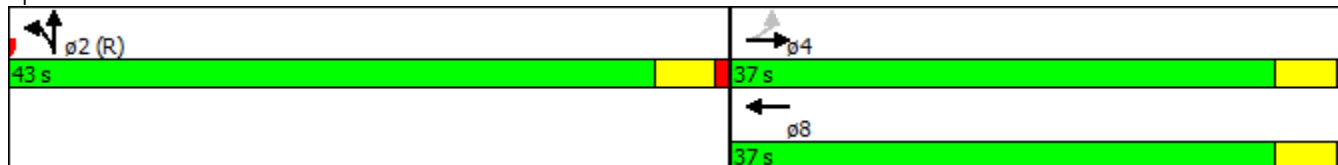
Intersection LOS: B

Intersection Capacity Utilization 77.2%

ICU Level of Service D

Analysis Period (min) 15

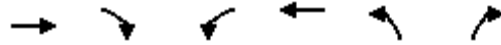
Splits and Phases: 32: 5th Ave & Irwin St



San Rafael Multi-Family TIS - Existing Conditions

1: Cijos St & 4th/4th St

PM Peak Hour

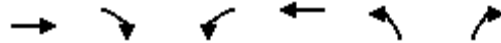


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	166	6	95	224	22	62
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	10	12	12	12
Storage Length (ft)		0	40		0	0
Storage Lanes		0	1		0	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.87		0.91	
Frt	0.996				0.900	
Flt Protected			0.950		0.987	
Satd. Flow (prot)	1541	0	1406	1555	1313	0
Flt Permitted			0.641		0.987	
Satd. Flow (perm)	1541	0	830	1555	1282	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	5				66	
Link Speed (mph)	25			25	25	
Link Distance (ft)	315			349	229	
Travel Time (s)	8.6			9.5	6.2	
Confl. Peds. (#/hr)		166	166		52	40
Confl. Bikes (#/hr)		14				
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	0%	1%	3%	5%	0%
Parking (#/hr)	2	2	2	2	2	2
Adj. Flow (vph)	177	6	101	238	23	66
Shared Lane Traffic (%)						
Lane Group Flow (vph)	183	0	101	238	89	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			10	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.24	1.07	1.35	1.24	1.24	1.07
Turning Speed (mph)		9	15		15	9
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases			6			
Minimum Split (s)	41.0		41.0	41.0	24.0	
Total Split (s)	46.0		46.0	46.0	24.0	
Total Split (%)	65.7%		65.7%	65.7%	34.3%	
Maximum Green (s)	41.8		41.8	41.8	20.0	
Yellow Time (s)	3.2		3.2	3.2	3.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	-1.2		-1.2	-1.2	-1.0	
Total Lost Time (s)	3.0		3.0	3.0	3.0	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	24.0				7.0	

San Rafael Multi-Family TIS - Existing Conditions

1: Cijos St & 4th/4th St

PM Peak Hour

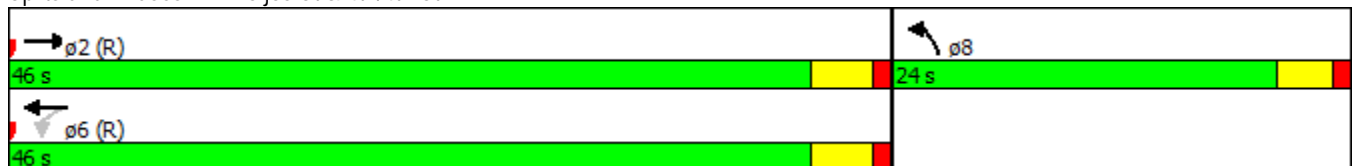


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Flash Dont Walk (s)	12.0				13.0	
Pedestrian Calls (#/hr)	0				0	
Act Effect Green (s)	43.0		43.0	43.0	21.0	
Actuated g/C Ratio	0.61		0.61	0.61	0.30	
v/c Ratio	0.19		0.20	0.25	0.20	
Control Delay	6.4		7.2	7.0	9.0	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	6.4		7.2	7.0	9.0	
LOS	A		A	A	A	
Approach Delay	6.4			7.0	9.0	
Approach LOS	A			A	A	
Queue Length 50th (ft)	29		17	41	7	
Queue Length 95th (ft)	55		38	73	37	
Internal Link Dist (ft)	235			269	149	
Turn Bay Length (ft)			40			
Base Capacity (vph)	948		509	955	440	
Starvation Cap Reductn	0		0	0	0	
Spillback Cap Reductn	0		0	0	0	
Storage Cap Reductn	0		0	0	0	
Reduced v/c Ratio	0.19		0.20	0.25	0.20	

Intersection Summary

Area Type: Other
 Cycle Length: 70
 Actuated Cycle Length: 70
 Offset: 52 (74%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
 Natural Cycle: 65
 Control Type: Pretimed
 Maximum v/c Ratio: 0.25
 Intersection Signal Delay: 7.1
 Intersection Capacity Utilization 83.3%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service E

Splits and Phases: 1: Cijos St & 4th/4th St



San Rafael Multi-Family TIS - Existing Conditions

2: Lincoln Ave & 4th St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	33	164	31	89	234	58	27	336	58	34	270	58
Ideal Flow (vphpl)	1600	1700	1700	1600	1700	1700	1600	1700	1700	1600	1700	1700
Lane Width (ft)	10	9	12	10	12	12	12	10	8	12	10	9
Storage Length (ft)	45		0	75		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.97	0.99		0.94	0.99			0.98			0.97	
Frt		0.976			0.970			0.979			0.976	
Flt Protected	0.950			0.950				0.997			0.995	
Satd. Flow (prot)	1419	1441	0	1405	1579	0	0	2882	0	0	2753	0
Flt Permitted	0.504			0.599				0.915			0.888	
Satd. Flow (perm)	729	1441	0	836	1579	0	0	2631	0	0	2451	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			24			27			33	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		349			241			355			292	
Travel Time (s)		9.5			6.6			9.7			8.0	
Confl. Peds. (#/hr)	90		134	134		90	116		36	36		116
Confl. Bikes (#/hr)			8			14			9			3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	3%	1%	3%	3%	0%	1%	2%	6%	4%	0%
Adj. Flow (vph)	35	174	33	95	249	62	29	357	62	36	287	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	35	207	0	95	311	0	0	448	0	0	385	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.35	1.31	1.15	1.35	1.15	1.15	1.24	1.26	1.38	1.24	1.26	1.31
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	45.0	45.0		45.0	45.0		35.0	35.0		35.0	35.0	
Total Split (%)	56.3%	56.3%		56.3%	56.3%		43.8%	43.8%		43.8%	43.8%	
Maximum Green (s)	40.8	40.8		40.8	40.8		30.8	30.8		30.8	30.8	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.2	3.2		3.2	3.2	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-1.2	-1.2		-1.2	-1.2		-1.2	-1.2		-1.2	-1.2	
Total Lost Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effect Green (s)	42.0	42.0		42.0	42.0		32.0	32.0		32.0	32.0	
Actuated g/C Ratio	0.52	0.52		0.52	0.52		0.40	0.40		0.40	0.40	

San Rafael Multi-Family TIS - Existing Conditions

2: Lincoln Ave & 4th St

PM Peak Hour

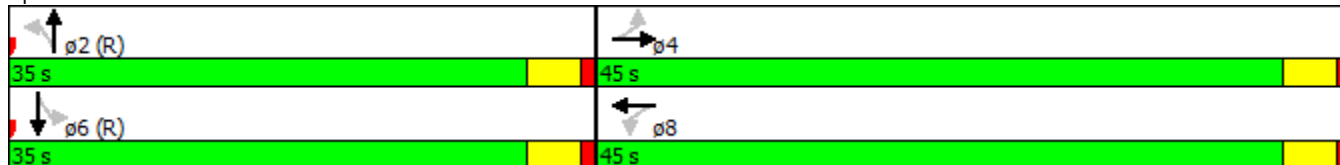


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.09	0.27		0.22	0.37			0.42				0.39
Control Delay	10.4	10.7		7.0	6.9			14.4				6.2
Queue Delay	0.0	0.0		0.0	0.0			0.0				0.0
Total Delay	10.4	10.7		7.0	6.9			14.4				6.2
LOS	B	B		A	A			B				A
Approach Delay		10.7			7.0			14.4				6.2
Approach LOS		B			A			B				A
Queue Length 50th (ft)	8	48		17	66			108				17
Queue Length 95th (ft)	23	89		29	78			m156				26
Internal Link Dist (ft)		269			161			275				212
Turn Bay Length (ft)	45			75								
Base Capacity (vph)	382	765		438	840			1068				1000
Starvation Cap Reductn	0	0		0	0			0				0
Spillback Cap Reductn	0	0		0	0			0				0
Storage Cap Reductn	0	0		0	0			0				0
Reduced v/c Ratio	0.09	0.27		0.22	0.37			0.42				0.39

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 62 (78%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 50
 Control Type: Pretimed
 Maximum v/c Ratio: 0.42
 Intersection Signal Delay: 9.6
 Intersection Capacity Utilization 70.9%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service C
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Lincoln Ave & 4th St



San Rafael Multi-Family TIS - Existing Conditions
 3: Tamalpais Ave (West) South Leg & 4th St

PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↻			↻		↻
Volume (vph)	233	20	4	385	0	128
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Flt	0.989					0.865
Flt Protected						
Satd. Flow (prot)	1732	0	0	1743	0	1526
Flt Permitted						
Satd. Flow (perm)	1732	0	0	1743	0	1526
Link Speed (mph)	25			25	25	
Link Distance (ft)	241			60	106	
Travel Time (s)	6.6			1.6	2.9	
Confl. Peds. (#/hr)		88				77
Confl. Bikes (#/hr)		10				
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	0%	33%	3%	0%	2%
Adj. Flow (vph)	248	21	4	410	0	136
Shared Lane Traffic (%)						
Lane Group Flow (vph)	269	0	0	414	0	136
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			10	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	44.0%
ICU Level of Service	A
Analysis Period (min)	15

San Rafael Multi-Family TIS - Existing Conditions
 4: 4th St & Tamalpais Ave (West) North Leg

PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↔			↗
Volume (vph)	0	362	345	18	1	44
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.993			0.865
Flt Protected					0.950	
Satd. Flow (prot)	0	1765	1738	0	0	1483
Flt Permitted					0.950	
Satd. Flow (perm)	0	1765	1738	0	0	1483
Link Speed (mph)		25	25		25	
Link Distance (ft)		60	60		194	
Travel Time (s)		1.6	1.6		5.3	
Confl. Peds. (#/hr)				59		78
Confl. Bikes (#/hr)				14		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	3%	0%	0%	5%
Adj. Flow (vph)	0	385	367	19	1	47
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	385	386	0	1	47
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min)	15

San Rafael Multi-Family TIS - Existing Conditions

5: Tamalpais Ave (East) & 4th St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				
Volume (vph)	33	330	0	0	362	12	0	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Fr _t	0.996											
Fl _t Protected	0.995											
Satd. Flow (prot)	0	1759	0	0	1742	0	0	1800	0	0	0	0
Fl _t Permitted	0.995											
Satd. Flow (perm)	0	1759	0	0	1742	0	0	1800	0	0	0	0
Link Speed (mph)	25											
Link Distance (ft)	60											
Travel Time (s)	1.6											
Confl. Peds. (#/hr)	56											
Confl. Bikes (#/hr)	14											
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	35	351	0	0	385	13	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	386	0	0	398	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12											
Link Offset(ft)	0											
Crosswalk Width(ft)	16											
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control	Free											

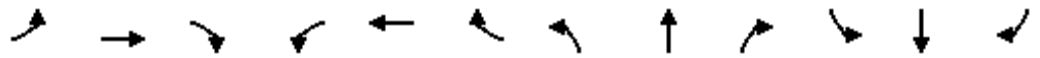
Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	59.5%
Analysis Period (min)	15
	ICU Level of Service B

San Rafael Multi-Family TIS - Existing Conditions

6: Hetherton St & 4th St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↑↑↑	↗
Volume (vph)	0	240	105	71	219	0	0	0	0	120	934	172
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	13	10	15	11	12	12	12	12	12	12	12
Storage Length (ft)	0		0	100		0	0		0	0		140
Storage Lanes	0		1	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00
Ped Bike Factor			0.93	0.97							1.00	0.95
Frt			0.850									0.850
Flt Protected				0.950							0.994	
Satd. Flow (prot)	0	1824	1386	1826	1706	0	0	0	0	0	4579	1322
Flt Permitted				0.530							0.994	
Satd. Flow (perm)	0	1824	1294	986	1706	0	0	0	0	0	4569	1253
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)			71									
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		167			379			352			290	
Travel Time (s)		4.6			10.3			9.6			7.9	
Confl. Peds. (#/hr)			51	51						11		19
Confl. Bikes (#/hr)			10									1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	3%	3%	2%	0%	0%	0%	0%	1%	3%	3%
Parking (#/hr)											2	2
Adj. Flow (vph)	0	255	112	76	233	0	0	0	0	128	994	183
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	255	112	76	233	0	0	0	0	0	1122	183
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		6			15			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.03	1.17	0.95	1.12	1.07	1.07	1.07	1.07	1.07	1.12	1.24
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm	Perm	NA					Perm	NA	custom
Protected Phases		4			8						2	
Permitted Phases			4	8						2		5
Minimum Split (s)		29.0	29.0	29.0	29.0					29.0	29.0	29.0
Total Split (s)		39.0	39.0	39.0	39.0					41.0	41.0	34.0
Total Split (%)		48.8%	48.8%	48.8%	48.8%					51.3%	51.3%	42.5%
Maximum Green (s)		34.8	34.8	34.8	34.8					36.8	36.8	29.8
Yellow Time (s)		3.2	3.2	3.2	3.2					3.2	3.2	3.2
All-Red Time (s)		1.0	1.0	1.0	1.0					1.0	1.0	1.0
Lost Time Adjust (s)		-1.2	-1.2	-1.2	-1.2						-1.2	-1.0
Total Lost Time (s)		3.0	3.0	3.0	3.0						3.0	3.2
Lead/Lag												Lag
Lead-Lag Optimize?												
Walk Time (s)		10.0	10.0	10.0	10.0					10.0	10.0	10.0

San Rafael Multi-Family TIS - Existing Conditions
 6: Hetherton St & 4th St

PM Peak Hour

Lane Group	ø7
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Parking (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Minimum Split (s)	7.0
Total Split (s)	7.0
Total Split (%)	9%
Maximum Green (s)	3.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	
Walk Time (s)	

San Rafael Multi-Family TIS - Existing Conditions

6: Hetherton St & 4th St

PM Peak Hour

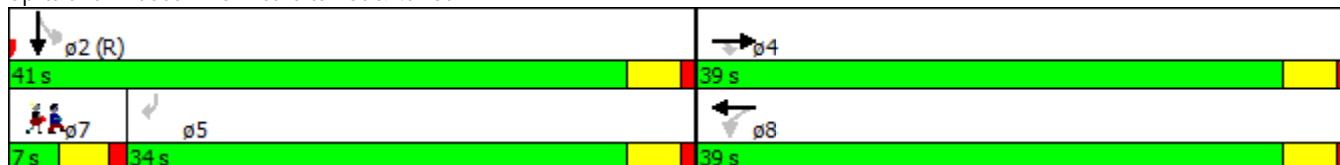


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		14.0	14.0	14.0	14.0					14.0	14.0	14.0
Pedestrian Calls (#/hr)		0	0	0	0					0	0	0
Act Effect Green (s)		36.0	36.0	36.0	36.0						38.0	30.8
Actuated g/C Ratio		0.45	0.45	0.45	0.45						0.48	0.38
v/c Ratio		0.31	0.18	0.17	0.30						0.52	0.38
Control Delay		14.7	6.0	12.7	14.1						7.3	11.4
Queue Delay		0.0	0.1	0.1	0.0						0.1	0.0
Total Delay		14.7	6.2	12.8	14.1						7.4	11.4
LOS		B	A	B	B						A	B
Approach Delay		12.1				13.8					7.9	
Approach LOS		B				B					A	
Queue Length 50th (ft)		68	9	27	86						42	46
Queue Length 95th (ft)		106	32	m57	149						51	86
Internal Link Dist (ft)		87				299		272			210	
Turn Bay Length (ft)				100								140
Base Capacity (vph)		820	621	443	767						2170	482
Starvation Cap Reductn		0	0	0	0						225	0
Spillback Cap Reductn		0	107	80	0						80	0
Storage Cap Reductn		0	0	0	0						0	0
Reduced v/c Ratio		0.31	0.22	0.21	0.30						0.58	0.38

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 68 (85%), Referenced to phase 2:SBTL, Start of Green
 Natural Cycle: 65
 Control Type: Pretimed
 Maximum v/c Ratio: 0.52
 Intersection Signal Delay: 9.6
 Intersection LOS: A
 Intersection Capacity Utilization 65.7%
 ICU Level of Service C
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Hetherton St & 4th St



San Rafael Multi-Family TIS - Existing Conditions
6: Hetherton St & 4th St



















PM Peak Hour

Lane Group	ø7
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

San Rafael Multi-Family TIS - Existing Conditions

7: Irwin St & 4th St

PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	147	203	0	0	182	79	111	1211	153	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	12	12	12	12	12	9	10	12	12	12	12
Storage Length (ft)	70		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	1.00	1.00
Ped Bike Factor	0.99				0.99		0.99	1.00				
Fr _t					0.959			0.983				
Fl _t Protected	0.950						0.950					
Satd. Flow (prot)	1637	1765	0	0	1467	0	1480	4412	0	0	0	0
Fl _t Permitted	0.461						0.950					
Satd. Flow (perm)	788	1765	0	0	1467	0	1464	4412	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					31			45				
Link Speed (mph)		25			25			25				25
Link Distance (ft)		379			571			377				279
Travel Time (s)		10.3			15.6			10.3				7.6
Confl. Peds. (#/hr)	15					15	12		6			
Confl. Bikes (#/hr)						12						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	2%	0%	0%	2%	0%	4%	2%	1%	0%	0%	0%
Parking (#/hr)					6	6						
Adj. Flow (vph)	156	216	0	0	194	84	118	1288	163	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	156	216	0	0	278	0	118	1451	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		15			15			9				9
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.12	1.07	1.07	1.07	1.28	1.07	1.22	1.17	1.07	1.07	1.07	1.07
Turning Speed (mph)	25		9	15		20	25		20	15		9
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Minimum Split (s)	19.0	19.0			19.0		21.0	21.0				
Total Split (s)	32.0	32.0			32.0		48.0	48.0				
Total Split (%)	40.0%	40.0%			40.0%		60.0%	60.0%				
Maximum Green (s)	27.8	27.8			27.8		43.8	43.8				
Yellow Time (s)	3.2	3.2			3.2		3.2	3.2				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)	-1.2	-1.2			-1.2		-1.2	-1.2				
Total Lost Time (s)	3.0	3.0			3.0		3.0	3.0				
Lead/Lag												
Lead-Lag Optimize?												
Act Effect Green (s)	29.0	29.0			29.0		45.0	45.0				

San Rafael Multi-Family TIS - Existing Conditions

7: Irwin St & 4th St

PM Peak Hour

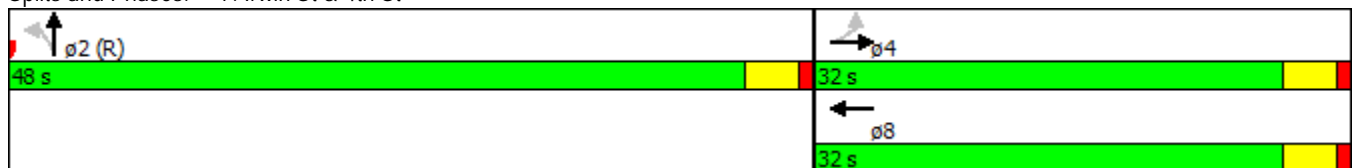


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.36	0.36			0.36		0.56	0.56				
v/c Ratio	0.55	0.34			0.50		0.14	0.58				
Control Delay	38.6	29.6			21.4		3.0	3.3				
Queue Delay	0.0	0.0			0.0		0.0	0.2				
Total Delay	38.6	29.6			21.4		3.0	3.5				
LOS	D	C			C		A	A				
Approach Delay		33.3			21.4			3.5				
Approach LOS		C			C			A				
Queue Length 50th (ft)	76	96			94		7	30				
Queue Length 95th (ft)	138	161			166		m10	36				
Internal Link Dist (ft)		299			491			297			199	
Turn Bay Length (ft)	70											
Base Capacity (vph)	285	639			551		823	2501				
Starvation Cap Reductn	0	0			0		0	339				
Spillback Cap Reductn	0	0			1		0	326				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.55	0.34			0.51		0.14	0.67				

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 36 (45%), Referenced to phase 2:NBTL, Start of Green
 Natural Cycle: 40
 Control Type: Pretimed
 Maximum v/c Ratio: 0.58
 Intersection Signal Delay: 10.7 Intersection LOS: B
 Intersection Capacity Utilization 65.7% ICU Level of Service C
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Irwin St & 4th St



San Rafael Multi-Family TIS - Existing Conditions

8: Lindaro St & 3rd St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷	↷		↶			↷	↶
Volume (vph)	0	0	0	199	1681	35	98	18	0	0	39	8
Ideal Flow (vphpl)	1800	1800	1800	1600	1600	1600	1600	1600	1800	1800	1600	1600
Lane Width (ft)	12	12	12	11	12	12	12	12	12	12	12	12
Storage Length (ft)	0		0	75		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor				0.95	1.00							
Fr _t					0.997							0.976
Fl _t Protected				0.950				0.959				
Satd. Flow (prot)	0	0	0	1360	4303	0	0	1534	0	0	1524	0
Fl _t Permitted				0.950				0.751				
Satd. Flow (perm)	0	0	0	1290	4303	0	0	1202	0	0	1524	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					7							9
Link Speed (mph)		25			25			25				25
Link Distance (ft)		102			103			333				198
Travel Time (s)		2.8			2.8			9.1				5.4
Confl. Peds. (#/hr)				30		51						
Confl. Bikes (#/hr)						8						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	8%	1%	0%	0%	0%	0%	0%	3%	0%
Adj. Flow (vph)	0	0	0	212	1788	37	104	19	0	0	41	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	212	1825	0	0	123	0	0	50	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			9				9
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.30	1.24	1.24	1.24	1.24	1.07	1.07	1.24	1.24
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Perm	NA		Perm	NA				NA
Protected Phases					6			8				4
Permitted Phases				6			8					
Minimum Split (s)				28.0	28.0		24.0	24.0				24.0
Total Split (s)				53.0	53.0		27.0	27.0				27.0
Total Split (%)				66.3%	66.3%		33.8%	33.8%				33.8%
Maximum Green (s)				48.8	48.8		22.8	22.8				22.8
Yellow Time (s)				3.2	3.2		3.2	3.2				3.2
All-Red Time (s)				1.0	1.0		1.0	1.0				1.0
Lost Time Adjust (s)				-1.2	-1.2			-1.2				-1.2
Total Lost Time (s)				3.0	3.0			3.0				3.0
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)				10.0	10.0		4.0	4.0				
Flash Dont Walk (s)				13.0	13.0		15.0	15.0				

San Rafael Multi-Family TIS - Existing Conditions

8: Lindaro St & 3rd St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)				0	0		0	0				
Act Effect Green (s)				50.0	50.0			24.0			24.0	
Actuated g/C Ratio				0.62	0.62			0.30			0.30	
v/c Ratio				0.26	0.68			0.34			0.11	
Control Delay				3.3	4.1			27.6			18.2	
Queue Delay				0.0	0.1			0.0			0.0	
Total Delay				3.3	4.1			27.6			18.2	
LOS				A	A			C			B	
Approach Delay					4.1			27.6			18.2	
Approach LOS					A			C			B	
Queue Length 50th (ft)				17	53			53			15	
Queue Length 95th (ft)				m22	59			m88			40	
Internal Link Dist (ft)		22			23			253			118	
Turn Bay Length (ft)				75								
Base Capacity (vph)				806	2692			360			463	
Starvation Cap Reductn				0	78			0			0	
Spillback Cap Reductn				0	0			0			0	
Storage Cap Reductn				0	0			0			0	
Reduced v/c Ratio				0.26	0.70			0.34			0.11	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green
 Natural Cycle: 55
 Control Type: Pretimed
 Maximum v/c Ratio: 0.68
 Intersection Signal Delay: 5.7 Intersection LOS: A
 Intersection Capacity Utilization 60.5% ICU Level of Service B
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

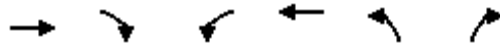
Splits and Phases: 8: Lindaro St & 3rd St



San Rafael Multi-Family TIS - Existing Conditions

9: Ritter St & 3rd St

PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑↑	↗	↘
Volume (vph)	0	0	0	1813	106	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)		0	0		0	25
Storage Lanes		0	0		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	0.91	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	4818	1693	1800
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	4818	1693	1800
Link Speed (mph)	25			25	25	
Link Distance (ft)	103			100	461	
Travel Time (s)	2.8			2.7	12.6	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	2%	1%	0%
Adj. Flow (vph)	0	0	0	1929	113	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1929	113	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			11	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	49.8%
ICU Level of Service	A
Analysis Period (min)	15

San Rafael Multi-Family TIS - Existing Conditions
 10: 3rd St & Cijos St

PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑			↗
Volume (vph)	0	0	1713	87	0	100
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	1.00
Ped Bike Factor						
Frt			0.993			0.865
Flt Protected						
Satd. Flow (prot)	0	0	4786	0	0	1542
Flt Permitted						
Satd. Flow (perm)	0	0	4786	0	0	1542
Link Speed (mph)		25	25		25	
Link Distance (ft)		100	311		132	
Travel Time (s)		2.7	8.5		3.6	
Confl. Peds. (#/hr)				76		
Confl. Bikes (#/hr)				9		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	2%	1%	0%	1%
Adj. Flow (vph)	0	0	1822	93	0	106
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	1915	0	0	106
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	50.4%
Analysis Period (min)	15
	ICU Level of Service A

San Rafael Multi-Family TIS - Existing Conditions

11: Lincoln Ave & 3rd St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔↔↔			↔↔			↔↔	
Volume (vph)	0	0	0	87	1617	94	39	328	0	0	244	147
Ideal Flow (vphpl)	1800	1800	1800	1600	1600	1600	1600	1600	1800	1800	1600	1600
Lane Width (ft)	12	12	12	12	12	12	12	11	10	12	9	9
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	0.95	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor					0.99			0.99			0.95	
Frt					0.992						0.944	
Flt Protected					0.998			0.995				
Satd. Flow (prot)	0	0	0	0	4237	0	0	2898	0	0	2385	0
Flt Permitted					0.998			0.879				
Satd. Flow (perm)	0	0	0	0	4223	0	0	2545	0	0	2385	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					18						16	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		311			264			223			355	
Travel Time (s)		8.5			7.2			6.1			9.7	
Confl. Peds. (#/hr)				132		52	126					126
Confl. Bikes (#/hr)						8						5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	2%	1%	0%	1%	0%	0%	4%	2%
Adj. Flow (vph)	0	0	0	93	1720	100	41	349	0	0	260	156
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	1913	0	0	390	0	0	416	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.24	1.24	1.24	1.24	1.30	1.17	1.07	1.42	1.42
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8			4	
Permitted Phases				6			8					
Minimum Split (s)				20.0	20.0		20.0	20.0			20.0	
Total Split (s)				50.0	50.0		30.0	30.0			30.0	
Total Split (%)				62.5%	62.5%		37.5%	37.5%			37.5%	
Maximum Green (s)				45.5	45.5		25.5	25.5			25.5	
Yellow Time (s)				3.5	3.5		3.5	3.5			3.5	
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0	
Lost Time Adjust (s)					-1.5			-1.5			-1.5	
Total Lost Time (s)					3.0			3.0			3.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effect Green (s)					47.0			27.0			27.0	
Actuated g/C Ratio					0.59			0.34			0.34	
v/c Ratio					0.77			0.45			0.51	
Control Delay					5.3			20.4			33.6	
Queue Delay					1.0			0.0			0.0	

San Rafael Multi-Family TIS - Existing Conditions

11: Lincoln Ave & 3rd St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay					6.2			20.4			33.6	
LOS					A			C			C	
Approach Delay					6.2			20.4			33.6	
Approach LOS					A			C			C	
Queue Length 50th (ft)					43			76			102	
Queue Length 95th (ft)					64			m94			145	
Internal Link Dist (ft)		231			184			143			275	
Turn Bay Length (ft)												
Base Capacity (vph)					2488			858			815	
Starvation Cap Reductn					301			0			0	
Spillback Cap Reductn					0			0			0	
Storage Cap Reductn					0			0			0	
Reduced v/c Ratio					0.87			0.45			0.51	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 40 (50%), Referenced to phase 4:SBT and 8:NBTL, Start of Green
 Natural Cycle: 50
 Control Type: Pretimed
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 12.5
 Intersection LOS: B
 Intersection Capacity Utilization 80.1%
 ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Lincoln Ave & 3rd St



San Rafael Multi-Family TIS - Existing Conditions
 12: Tamalpais Avenue (West) & 3rd St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					←↑↑↑		↑	↑			↑	
Volume (vph)	0	0	0	266	1681	52	98	85	0	0	19	19
Ideal Flow (vphpl)	1800	1800	1800	1600	1600	1600	1600	1600	1800	1800	1600	1600
Lane Width (ft)	12	12	12	12	12	12	11	12	12	12	12	12
Storage Length (ft)	0		0	0		0	70		0	0		0
Storage Lanes	0		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					0.96		0.95				0.97	
Frt					0.996						0.932	
Flt Protected					0.993		0.950					
Satd. Flow (prot)	0	0	0	0	4189	0	1287	1402	0	0	1243	0
Flt Permitted					0.993		0.731					
Satd. Flow (perm)	0	0	0	0	4024	0	939	1402	0	0	1243	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					11						20	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		264			130			321			251	
Travel Time (s)		7.2			3.5			8.8			6.8	
Confl. Peds. (#/hr)				163		26	41					41
Confl. Bikes (#/hr)						10						4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	9%	2%	2%	1%	1%	0%	0%	5%	0%
Parking (#/hr)							3	3			3	3
Adj. Flow (vph)	0	0	0	283	1788	55	104	90	0	0	20	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	2126	0	104	90	0	0	40	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.24	1.24	1.24	1.50	1.44	1.07	1.07	1.44	1.24
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8			4	
Permitted Phases				6			8					
Minimum Split (s)				28.0	28.0		23.0	23.0			23.0	
Total Split (s)				57.0	57.0		23.0	23.0			23.0	
Total Split (%)				71.3%	71.3%		28.8%	28.8%			28.8%	
Maximum Green (s)				52.8	52.8		18.8	18.8			18.8	
Yellow Time (s)				3.2	3.2		3.2	3.2			3.2	
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0	
Lost Time Adjust (s)					-1.2		-1.2	-1.2			-1.2	
Total Lost Time (s)					3.0		3.0	3.0			3.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)				10.0	10.0		4.0	4.0			4.0	

San Rafael Multi-Family TIS - Existing Conditions
 12: Tamalpais Avenue (West) & 3rd St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)				12.0	12.0		14.0	14.0			14.0	
Pedestrian Calls (#/hr)				0	0		0	0			0	
Act Effect Green (s)					54.0		20.0	20.0			20.0	
Actuated g/C Ratio					0.68		0.25	0.25			0.25	
v/c Ratio					0.78		0.44	0.26			0.12	
Control Delay					6.8		20.8	15.2			13.7	
Queue Delay					0.2		0.0	0.0			0.0	
Total Delay					7.0		20.8	15.2			13.7	
LOS					A		C	B			B	
Approach Delay					7.0			18.2			13.7	
Approach LOS					A			B			B	
Queue Length 50th (ft)					96		23	19			5	
Queue Length 95th (ft)					m102		m38	m33			m29	
Internal Link Dist (ft)		184			50			241			171	
Turn Bay Length (ft)							70					
Base Capacity (vph)					2719		234	350			325	
Starvation Cap Reductn					109		0	0			0	
Spillback Cap Reductn					10		0	0			0	
Storage Cap Reductn					0		0	0			0	
Reduced v/c Ratio					0.81		0.44	0.26			0.12	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 64 (80%), Referenced to phase 6:WBTL, Start of Green
 Natural Cycle: 60
 Control Type: Pretimed
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 8.0
 Intersection LOS: A
 Intersection Capacity Utilization 128.7%
 ICU Level of Service H
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: Tamalpais Avenue (West) & 3rd St



San Rafael Multi-Family TIS - Existing Conditions

13: Tamalpais Ave (East) & 3rd St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↔↔↔		↗					
Volume (vph)	0	0	0	9	1974	0	18	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Flt												
Flt Protected							0.950					
Satd. Flow (prot)	0	1800	0	0	4798	0	881	0	0	0	0	0
Flt Permitted							0.950					
Satd. Flow (perm)	0	1800	0	0	4798	0	881	0	0	0	0	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		130			156			122			351	
Travel Time (s)		3.5			4.3			3.3			9.6	
Confl. Peds. (#/hr)				96		15						
Confl. Bikes (#/hr)						13						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	89%	2%	0%	94%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	10	2100	0	19	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	2110	0	19	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

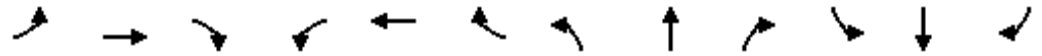
Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	50.5%
ICU Level of Service	A
Analysis Period (min)	15

San Rafael Multi-Family TIS - Existing Conditions

14: Hetherton St & 3rd St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↖↖↖						↗↗↗	↗
Volume (vph)	0	0	0	469	1511	0	0	0	0	0	657	453
Ideal Flow (vphpl)	1800	1800	1800	1600	1700	1800	1800	1800	1800	1800	1700	1500
Lane Width (ft)	12	12	12	14	12	12	12	12	12	12	11	11
Storage Length (ft)	0		0	70		0	0		0	0		220
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	0.91	1.00
Ped Bike Factor				0.93	1.00							0.93
Frt												0.850
Flt Protected				0.950	0.998							
Satd. Flow (prot)	0	0	0	1354	4250	0	0	0	0	0	4356	1197
Flt Permitted				0.950	0.998							
Satd. Flow (perm)	0	0	0	1258	4241	0	0	0	0	0	4356	1114
Right Turn on Red			Yes	No		Yes			Yes			Yes
Satd. Flow (RTOR)												25
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		156			379			311			352	
Travel Time (s)		4.3			10.3			8.5			9.6	
Confl. Peds. (#/hr)				77								49
Confl. Bikes (#/hr)												4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	3%	3%	0%	0%	0%	0%	0%	3%	3%
Adj. Flow (vph)	0	0	0	499	1607	0	0	0	0	0	699	482
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	0	0	0	449	1657	0	0	0	0	0	699	482
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.15	1.15	1.07	1.07	1.07	1.07	1.07	1.20	1.40
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Perm	NA						NA	Perm
Protected Phases					8						6	
Permitted Phases				8								6
Minimum Split (s)				34.0	34.0						28.0	28.0
Total Split (s)				49.0	49.0						31.0	31.0
Total Split (%)				61.3%	61.3%						38.8%	38.8%
Maximum Green (s)				45.0	45.0						26.0	26.0
Yellow Time (s)				3.0	3.0						3.0	3.0
All-Red Time (s)				1.0	1.0						2.0	2.0
Lost Time Adjust (s)				-1.0	-1.0						-2.0	-2.0
Total Lost Time (s)				3.0	3.0						3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)				7.0	7.0						7.0	7.0
Flash Dont Walk (s)				19.0	19.0						14.0	14.0

San Rafael Multi-Family TIS - Existing Conditions

14: Hetherton St & 3rd St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)				0	0						0	0
Act Effct Green (s)				46.0	46.0						28.0	28.0
Actuated g/C Ratio				0.58	0.58						0.35	0.35
v/c Ratio				0.62	0.68						0.46	1.19
Control Delay				9.5	8.2						25.4	134.8
Queue Delay				0.5	0.3						0.3	0.0
Total Delay				10.0	8.5						25.6	134.8
LOS				B	A						C	F
Approach Delay					8.8						70.2	
Approach LOS					A						E	
Queue Length 50th (ft)				96	123						127	~300
Queue Length 95th (ft)				m152	m168						162	#493
Internal Link Dist (ft)		76				299		231			272	
Turn Bay Length (ft)				70								220
Base Capacity (vph)				723	2438						1524	406
Starvation Cap Reductn				66	247						0	0
Spillback Cap Reductn				0	245						278	1
Storage Cap Reductn				0	0						0	0
Reduced v/c Ratio				0.68	0.76						0.56	1.19

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 31 (39%), Referenced to phase 6:SBT, Start of Green
 Natural Cycle: 65
 Control Type: Pretimed
 Maximum v/c Ratio: 1.19
 Intersection Signal Delay: 30.8 Intersection LOS: C
 Intersection Capacity Utilization 78.6% ICU Level of Service D
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

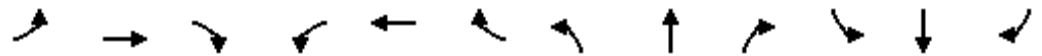
Splits and Phases: 14: Hetherton St & 3rd St



San Rafael Multi-Family TIS - Existing Conditions

15: Irwin St & 3rd St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑	↑	↑	↑↑↑				
Volume (vph)	0	0	0	0	1102	183	865	1290	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1600	1600	1600	1600	1600	1800	1800	1800
Lane Width (ft)	12	12	12	12	10	11	10	11	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00
Ped Bike Factor						0.96						
Frt						0.850						
Flt Protected							0.950	0.992				
Satd. Flow (prot)	0	0	0	0	3997	1289	1162	3862	0	0	0	0
Flt Permitted							0.950	0.992				
Satd. Flow (perm)	0	0	0	0	3997	1235	1162	3862	0	0	0	0
Right Turn on Red			Yes			Yes	Yes		Yes			Yes
Satd. Flow (RTOR)						35	20	20				
Link Speed (mph)		25			25			25				25
Link Distance (ft)		379			140			294				377
Travel Time (s)		10.3			3.8			8.0				10.3
Confl. Peds. (#/hr)							25					
Confl. Bikes (#/hr)							10					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	2%	2%	5%	2%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	0	1172	195	920	1372	0	0	0	0
Shared Lane Traffic (%)							29%					
Lane Group Flow (vph)	0	0	0	0	1172	195	653	1639	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			10				10
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.35	1.30	1.35	1.30	1.24	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		20	25		20	15		9
Turn Type					NA	Perm	Split	NA				
Protected Phases					8		2	2				
Permitted Phases						8						
Minimum Split (s)					29.0	29.0	25.0	25.0				
Total Split (s)					34.0	34.0	46.0	46.0				
Total Split (%)					42.5%	42.5%	57.5%	57.5%				
Maximum Green (s)					29.5	29.5	41.5	41.5				
Yellow Time (s)					3.5	3.5	3.5	3.5				
All-Red Time (s)					1.0	1.0	1.0	1.0				
Lost Time Adjust (s)					-1.5	-1.5	-1.5	-1.5				
Total Lost Time (s)					3.0	3.0	3.0	3.0				
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)					7.0	7.0	7.0	7.0				
Flash Dont Walk (s)					17.0	17.0	13.0	13.0				
Pedestrian Calls (#/hr)					0	0	0	0				
Act Effct Green (s)					31.0	31.0	43.0	43.0				
Actuated g/C Ratio					0.39	0.39	0.54	0.54				

San Rafael Multi-Family TIS - Existing Conditions

15: Irwin St & 3rd St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio					0.76	0.39	1.03	0.79				
Control Delay					25.1	17.1	52.0	12.8				
Queue Delay					0.0	0.0	0.0	1.3				
Total Delay					25.1	17.1	52.0	14.1				
LOS					C	B	D	B				
Approach Delay					24.0			24.9				
Approach LOS					C			C				
Queue Length 50th (ft)					181	55	-229	162				
Queue Length 95th (ft)					234	110	m#409	m237				
Internal Link Dist (ft)		299			60			214			297	
Turn Bay Length (ft)												
Base Capacity (vph)					1548	500	633	2085				
Starvation Cap Reductn					0	0	0	240				
Spillback Cap Reductn					0	0	0	0				
Storage Cap Reductn					0	0	0	0				
Reduced v/c Ratio					0.76	0.39	1.03	0.89				

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 27 (34%), Referenced to phase 2:NBTL, Start of Green
 Natural Cycle: 75
 Control Type: Pretimed
 Maximum v/c Ratio: 1.03
 Intersection Signal Delay: 24.5
 Intersection LOS: C
 Intersection Capacity Utilization 78.6%
 ICU Level of Service D
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Irwin St & 3rd St



San Rafael Multi-Family TIS - Existing Conditions

16: Lindaro St & 2nd St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↑						↑	↗	↘	↑	
Volume (vph)	47	2120	32	0	0	0	0	70	277	91	148	0
Ideal Flow (vphpl)	1600	1600	1600	1800	1800	1800	1800	1600	1600	1600	1600	1800
Lane Width (ft)	12	11	11	12	12	12	12	11	10	9	9	12
Storage Length (ft)	0		0	0		0	0		275	70		0
Storage Lanes	0		0	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00							0.97	0.99		
Frt		0.998							0.850			
Flt Protected		0.999								0.950		
Satd. Flow (prot)	0	5199	0	0	0	0	0	1547	1244	1328	1309	0
Flt Permitted		0.999								0.709		
Satd. Flow (perm)	0	5196	0	0	0	0	0	1547	1210	979	1309	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5							16			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		495			513			315			333	
Travel Time (s)		13.5			14.0			8.6			9.1	
Confl. Peds. (#/hr)	15		36						14	14		
Confl. Bikes (#/hr)			6						4			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	0%	0%	0%	0%	0%	0%	2%	3%	10%	0%
Adj. Flow (vph)	50	2255	34	0	0	0	0	74	295	97	157	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2339	0	0	0	0	0	74	295	97	157	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			9			9	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.24	1.30	1.30	1.07	1.07	1.07	1.07	1.30	1.35	1.42	1.42	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA						NA	Perm	Perm	NA	
Protected Phases		6						4			8	
Permitted Phases	6								4	8		
Minimum Split (s)	33.0	33.0						29.0	29.0	29.0	29.0	
Total Split (s)	47.0	47.0						33.0	33.0	33.0	33.0	
Total Split (%)	58.8%	58.8%						41.3%	41.3%	41.3%	41.3%	
Maximum Green (s)	42.8	42.8						28.8	28.8	28.8	28.8	
Yellow Time (s)	3.2	3.2						3.2	3.2	3.2	3.2	
All-Red Time (s)	1.0	1.0						1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.2						-1.2	-1.2	-1.2	-1.2	
Total Lost Time (s)		3.0						3.0	3.0	3.0	3.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	10.0	10.0						8.0	8.0	8.0	8.0	
Flash Dont Walk (s)	18.0	18.0						16.0	16.0	16.0	16.0	

San Rafael Multi-Family TIS - Existing Conditions

16: Lindaro St & 2nd St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)	0	0						0	0	0	0	
Act Effct Green (s)		44.0						30.0	30.0	30.0	30.0	
Actuated g/C Ratio		0.55						0.38	0.38	0.38	0.38	
v/c Ratio		0.82						0.13	0.64	0.26	0.32	
Control Delay		17.7						17.3	26.9	15.3	15.1	
Queue Delay		0.0						0.0	0.0	0.0	0.0	
Total Delay		17.7						17.3	26.9	15.3	15.1	
LOS		B						B	C	B	B	
Approach Delay		17.7						24.9			15.2	
Approach LOS		B						C			B	
Queue Length 50th (ft)		257						24	112	22	37	
Queue Length 95th (ft)		311						52	201	57	84	
Internal Link Dist (ft)		415			433			235			253	
Turn Bay Length (ft)									275	70		
Base Capacity (vph)		2860						580	463	367	490	
Starvation Cap Reductn		0						0	0	0	0	
Spillback Cap Reductn		0						0	0	0	0	
Storage Cap Reductn		0						0	0	0	0	
Reduced v/c Ratio		0.82						0.13	0.64	0.26	0.32	

Intersection Summary

Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	80
Offset:	49 (61%), Referenced to phase 6:EBTL, Start of Green
Natural Cycle:	65
Control Type:	Pretimed
Maximum v/c Ratio:	0.82
Intersection Signal Delay:	18.4
Intersection LOS:	B
Intersection Capacity Utilization:	75.8%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 16: Lindaro St & 2nd St



San Rafael Multi-Family TIS - Existing Conditions

17: Lincoln Ave & Ritter St

PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR2	SBL	SBT	SBR
Lane Configurations				↕			↕			↕	
Volume (vph)	0	2	2	2	6	69	361	7	27	285	19
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor											
Frt	0.850			0.919			0.998			0.991	
Flt Protected				0.990			0.992			0.996	
Satd. Flow (prot)	0	0	0	1362	0	0	3358	0	0	3272	0
Flt Permitted				0.990			0.992			0.996	
Satd. Flow (perm)	0	0	0	1362	0	0	3358	0	0	3272	0
Link Speed (mph)	25			25			25			25	
Link Distance (ft)	461			112			107			223	
Travel Time (s)	12.6			3.1			2.9			6.1	
Confl. Peds. (#/hr)						25			4		25
Confl. Bikes (#/hr)											6
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	50%	17%	0%	1%	0%	7%	3%	0%
Adj. Flow (vph)	0	2	2	2	6	73	384	7	29	303	20
Shared Lane Traffic (%)											
Lane Group Flow (vph)	2	0	0	10	0	0	464	0	0	352	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	0			0			0			0	
Link Offset(ft)	0			0			0			0	
Crosswalk Width(ft)	16			16			16			16	
Two way Left Turn Lane											
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)		9	15		9	15		9	15		9
Sign Control	Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min)	15

San Rafael Multi-Family TIS - Existing Conditions

18: Lincoln Ave & 2nd St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4↑↑↑	↑					↑	↑		4↑↑	
Volume (vph)	230	2196	55	0	0	0	0	208	159	129	158	0
Ideal Flow (vphpl)	1600	1600	1600	1800	1800	1800	1800	1600	1600	1600	1600	1800
Lane Width (ft)	12	10	10	12	12	12	12	12	12	9	9	9
Storage Length (ft)	0		150	0		0	0		130	0		0
Storage Lanes	0		1	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor		1.00	0.93						0.98			
Frt			0.850						0.850			
Flt Protected		0.995									0.978	
Satd. Flow (prot)	0	5016	1221	0	0	0	0	1600	1360	0	2609	0
Flt Permitted		0.995									0.706	
Satd. Flow (perm)	0	5006	1140	0	0	0	0	1600	1339	0	1884	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			57						16			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		513			244			398			107	
Travel Time (s)		14.0			6.7			10.9			2.9	
Confl. Peds. (#/hr)	25		63									
Confl. Bikes (#/hr)			4						6			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	2%	4%	0%	0%	0%	0%	0%	0%	2%	3%	0%
Adj. Flow (vph)	245	2336	59	0	0	0	0	221	169	137	168	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2581	59	0	0	0	0	221	169	0	305	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.24	1.35	1.35	1.07	1.07	1.07	1.07	1.24	1.24	1.42	1.42	1.22
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		6						4			8	
Permitted Phases	6		6						4	8		
Minimum Split (s)	33.0	33.0	33.0					13.0	13.0	31.0	31.0	
Total Split (s)	48.0	48.0	48.0					32.0	32.0	32.0	32.0	
Total Split (%)	60.0%	60.0%	60.0%					40.0%	40.0%	40.0%	40.0%	
Maximum Green (s)	43.8	43.8	43.8					27.8	27.8	27.8	27.8	
Yellow Time (s)	3.2	3.2	3.2					3.2	3.2	3.2	3.2	
All-Red Time (s)	1.0	1.0	1.0					1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.2	-1.2					-1.2	-1.2		-1.2	
Total Lost Time (s)		3.0	3.0					3.0	3.0		3.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	12.0	12.0	12.0							7.0	7.0	
Flash Dont Walk (s)	16.0	16.0	16.0							19.0	19.0	

San Rafael Multi-Family TIS - Existing Conditions

18: Lincoln Ave & 2nd St

PM Peak Hour

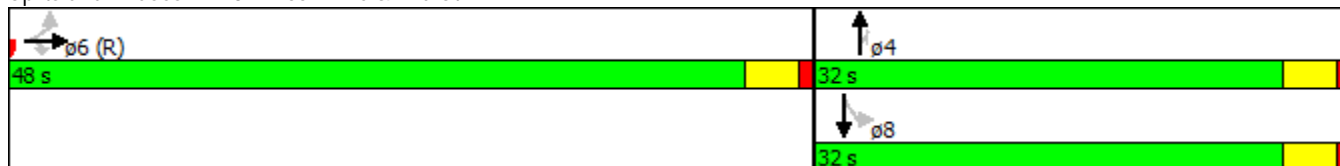


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)	0	0	0							0	0	
Act Effect Green (s)		45.0	45.0					29.0	29.0		29.0	
Actuated g/C Ratio		0.56	0.56					0.36	0.36		0.36	
v/c Ratio		0.92	0.09					0.38	0.34		0.45	
Control Delay		11.5	0.2					21.3	19.1		17.6	
Queue Delay		2.4	0.0					0.0	0.0		0.0	
Total Delay		13.9	0.2					21.3	19.1		17.6	
LOS		B	A					C	B		B	
Approach Delay		13.6						20.4			17.6	
Approach LOS		B						C			B	
Queue Length 50th (ft)		60	0					80	54		34	
Queue Length 95th (ft)		#68	m0					138	104		m72	
Internal Link Dist (ft)		433			164			318			27	
Turn Bay Length (ft)			150						130			
Base Capacity (vph)		2815	666					580	495		682	
Starvation Cap Reductn		0	0					0	0		0	
Spillback Cap Reductn		143	0					0	0		0	
Storage Cap Reductn		0	0					0	0		0	
Reduced v/c Ratio		0.97	0.09					0.38	0.34		0.45	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 62 (78%), Referenced to phase 6:EBTL, Start of Green
 Natural Cycle: 70
 Control Type: Pretimed
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 14.8
 Intersection LOS: B
 Intersection Capacity Utilization 74.6%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: Lincoln Ave & 2nd St



San Rafael Multi-Family TIS - Existing Conditions
 19: Francisco Blvd W./Tamalpais Avenue (West) & 2nd St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4↑↑↑↑	↑					↑	↑	↑	↑	
Volume (vph)	57	2315	130	0	0	0	0	136	377	62	222	0
Ideal Flow (vphpl)	1600	1600	1600	1800	1800	1800	1800	1600	1600	1600	1600	1800
Lane Width (ft)	12	11	10	12	12	12	12	10	13	10	12	12
Storage Length (ft)	0		140	0		0	0		0	70		0
Storage Lanes	0		1	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	0.98						0.99			
Frt			0.850						0.850			
Flt Protected		0.999								0.950		
Satd. Flow (prot)	0	5213	1232	0	0	0	0	1479	1378	996	1349	0
Flt Permitted		0.999								0.634		
Satd. Flow (perm)	0	5201	1204	0	0	0	0	1479	1359	665	1349	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			124						20			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		244			283			131			321	
Travel Time (s)		6.7			7.7			3.6			8.8	
Confl. Peds. (#/hr)	65											
Confl. Bikes (#/hr)			5						3			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	3%	0%	0%	0%	0%	1%	2%	26%	5%	0%
Parking (#/hr)										3	3	
Adj. Flow (vph)	61	2463	138	0	0	0	0	145	401	66	236	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2524	138	0	0	0	0	145	401	66	236	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.24	1.30	1.35	1.07	1.07	1.07	1.07	1.35	1.19	1.57	1.44	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		2						4			8	
Permitted Phases	2		2						4	8		
Minimum Split (s)	31.0	31.0	31.0					15.0	15.0	32.0	32.0	
Total Split (s)	47.0	47.0	47.0					33.0	33.0	33.0	33.0	
Total Split (%)	58.8%	58.8%	58.8%					41.3%	41.3%	41.3%	41.3%	
Maximum Green (s)	42.5	42.5	42.5					28.5	28.5	28.5	28.5	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0					1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.5	-1.5					-1.5	-1.5	-1.5	-1.5	
Total Lost Time (s)		3.0	3.0					3.0	3.0	3.0	3.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	10.0	10.0	10.0							7.0	7.0	

San Rafael Multi-Family TIS - Existing Conditions
 19: Francisco Blvd W./Tamalpais Avenue (West) & 2nd St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	16.0	16.0	16.0							20.0	20.0	
Pedestrian Calls (#/hr)	0	0	0							0	0	
Act Effect Green (s)		44.0	44.0					30.0	30.0	30.0	30.0	
Actuated g/C Ratio		0.55	0.55					0.38	0.38	0.38	0.38	
v/c Ratio		0.88	0.19					0.26	0.77	0.27	0.47	
Control Delay		8.0	0.5					19.0	32.7	23.0	25.7	
Queue Delay		5.6	0.5					0.0	0.0	0.0	0.8	
Total Delay		13.6	1.1					19.0	32.7	23.0	26.5	
LOS		B	A					B	C	C	C	
Approach Delay		12.9						29.0			25.8	
Approach LOS		B						C			C	
Queue Length 50th (ft)		61	0					49	164	30	122	
Queue Length 95th (ft)		m83	m0					92	#310	m40	m160	
Internal Link Dist (ft)		164			203			51			241	
Turn Bay Length (ft)			140							70		
Base Capacity (vph)		2860	718					554	522	249	505	
Starvation Cap Reductn		299	320					0	0	0	93	
Spillback Cap Reductn		112	0					0	0	0	0	
Storage Cap Reductn		0	0					0	0	0	0	
Reduced v/c Ratio		0.99	0.35					0.26	0.77	0.27	0.57	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 66 (83%), Referenced to phase 2:EBTL, Start of Green
 Natural Cycle: 70
 Control Type: Pretimed
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 16.5 Intersection LOS: B
 Intersection Capacity Utilization 128.7% ICU Level of Service H
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

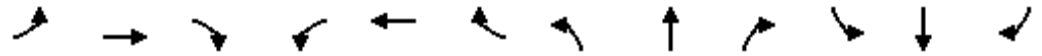
Splits and Phases: 19: Francisco Blvd W./Tamalpais Avenue (West) & 2nd St



San Rafael Multi-Family TIS - Existing Conditions

20: US-101 SB Ramp/Hetheron St & 2nd St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↑	↗							↖	↖↑	
Volume (vph)	0	1760	949	0	0	0	0	0	0	350	776	0
Ideal Flow (vphpl)	1800	1600	1600	1800	1800	1800	1800	1800	1800	1600	1600	1800
Lane Width (ft)	12	11	11	12	12	12	12	12	12	11	12	12
Lane Util. Factor	1.00	0.81	0.81	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00
Ped Bike Factor		1.00	0.99									
Frt		0.972	0.850									
Flt Protected										0.950		
Satd. Flow (prot)	0	4717	1034	0	0	0	0	0	0	1298	2827	0
Flt Permitted										0.950		
Satd. Flow (perm)	0	4717	1020	0	0	0	0	0	0	1298	2827	0
Right Turn on Red			Yes			Yes			Yes	No		Yes
Satd. Flow (RTOR)		69	69									
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		283			371			505			311	
Travel Time (s)		7.7			10.1			9.8			8.5	
Confl. Peds. (#/hr)						30						
Confl. Bikes (#/hr)			4									
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	3%	3%	0%	0%	0%	0%	0%	0%	3%	3%	0%
Adj. Flow (vph)	0	1872	1010	0	0	0	0	0	0	372	826	0
Shared Lane Traffic (%)			42%							0%		
Lane Group Flow (vph)	0	2296	586	0	0	0	0	0	0	372	826	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.30	1.30	1.07	1.07	1.07	1.07	1.07	1.07	1.30	1.24	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm							Split	NA	
Protected Phases		2								4	4	
Permitted Phases			2									
Minimum Split (s)		34.0	34.0							20.0	20.0	
Total Split (s)		45.0	45.0							35.0	35.0	
Total Split (%)		56.3%	56.3%							43.8%	43.8%	
Maximum Green (s)		40.5	40.5							30.5	30.5	
Yellow Time (s)		3.5	3.5							3.5	3.5	
All-Red Time (s)		1.0	1.0							1.0	1.0	
Lost Time Adjust (s)		-1.5	-1.5							-1.5	-1.5	
Total Lost Time (s)		3.0	3.0							3.0	3.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)		14.5	14.5									
Flash Dont Walk (s)		15.0	15.0									
Pedestrian Calls (#/hr)		0	0									
Act Effect Green (s)		42.0	42.0							32.0	32.0	
Actuated g/C Ratio		0.52	0.52							0.40	0.40	

San Rafael Multi-Family TIS - Existing Conditions

20: US-101 SB Ramp/Hetherton St & 2nd St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.92	1.03							0.72	0.73	
Control Delay		11.7	46.9							25.3	21.3	
Queue Delay		4.0	1.8							0.7	0.4	
Total Delay		15.7	48.7							26.0	21.7	
LOS		B	D							C	C	
Approach Delay		22.4									23.0	
Approach LOS		C									C	
Queue Length 50th (ft)		70	~67							224	248	
Queue Length 95th (ft)		#145	m#485							#327	312	
Internal Link Dist (ft)		203			291			425			231	
Turn Bay Length (ft)												
Base Capacity (vph)		2509	568							519	1130	
Starvation Cap Reductn		160	3							26	61	
Spillback Cap Reductn		63	0							0	0	
Storage Cap Reductn		0	0							0	0	
Reduced v/c Ratio		0.98	1.04							0.75	0.77	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 72 (90%), Referenced to phase 2:EBT, Start of Green
 Natural Cycle: 55
 Control Type: Pretimed
 Maximum v/c Ratio: 1.03
 Intersection Signal Delay: 22.6
 Intersection LOS: C
 Intersection Capacity Utilization 128.4%
 ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: US-101 SB Ramp/Hetherton St & 2nd St



San Rafael Multi-Family TIS - Existing Conditions

21: US-101 NB Ramp/Irwin St & 2nd St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↕↕↕						↕↕↕	↘			
Volume (vph)	856	1261	0	0	0	0	0	1318	542	0	0	0
Ideal Flow (vphpl)	1600	1600	1700	1700	1700	1700	1700	1600	1600	1700	1700	1700
Lane Width (ft)	13	12	12	12	12	12	12	12	10	12	12	12
Storage Length (ft)	0		0	0		0	0		85	0		0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.86	0.86	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor	0.98	1.00							0.97			
Fr t									0.850			
Flt Protected	0.950	0.990										
Satd. Flow (prot)	1311	3999	0	0	0	0	0	4241	1257	0	0	0
Flt Permitted	0.950	0.990										
Satd. Flow (perm)	1286	3983	0	0	0	0	0	4241	1216	0	0	0
Right Turn on Red	Yes		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	30	30							26			
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		371			618			541			294	
Travel Time (s)		10.1			16.9			10.5			8.0	
Confl. Peds. (#/hr)	31								28			
Confl. Bikes (#/hr)									4			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	2%	0%	0%	0%	0%	0%	3%	1%	0%	0%	0%
Adj. Flow (vph)	911	1341	0	0	0	0	0	1402	577	0	0	0
Shared Lane Traffic (%)	38%											
Lane Group Flow (vph)	565	1687	0	0	0	0	0	1402	577	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.19	1.24	1.15	1.15	1.15	1.15	1.15	1.24	1.35	1.15	1.15	1.15
Turning Speed (mph)	25		9	15		9	15		20	15		9
Turn Type	Perm	NA						NA	Perm			
Protected Phases		2						8				
Permitted Phases	2								8			
Minimum Split (s)	24.0	24.0						24.0	24.0			
Total Split (s)	42.0	42.0						38.0	38.0			
Total Split (%)	52.5%	52.5%						47.5%	47.5%			
Maximum Green (s)	37.8	37.8						32.8	32.8			
Yellow Time (s)	3.2	3.2						3.2	3.2			
All-Red Time (s)	1.0	1.0						2.0	2.0			
Lost Time Adjust (s)	-1.2	-1.2						-2.2	-2.2			
Total Lost Time (s)	3.0	3.0						3.0	3.0			
Lead/Lag												
Lead-Lag Optimize?												
Act Effect Green (s)	39.0	39.0						35.0	35.0			
Actuated g/C Ratio	0.49	0.49						0.44	0.44			

San Rafael Multi-Family TIS - Existing Conditions

21: US-101 NB Ramp/Irwin St & 2nd St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.88	0.86						0.76	1.06			
Control Delay	19.2	12.1						22.2	78.6			
Queue Delay	2.9	1.4						0.0	0.0			
Total Delay	22.1	13.5						22.2	78.6			
LOS	C	B						C	E			
Approach Delay		15.6						38.6				
Approach LOS		B						D				
Queue Length 50th (ft)	83	97						208	~314			
Queue Length 95th (ft)	m144	m165						264	#510			
Internal Link Dist (ft)		291			538			461			214	
Turn Bay Length (ft)									85			
Base Capacity (vph)	642	1957						1855	546			
Starvation Cap Reductn	28	123						0	0			
Spillback Cap Reductn	30	42						4	0			
Storage Cap Reductn	0	0						0	0			
Reduced v/c Ratio	0.92	0.92						0.76	1.06			

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green
 Natural Cycle: 70
 Control Type: Pretimed
 Maximum v/c Ratio: 1.06
 Intersection Signal Delay: 26.4
 Intersection Capacity Utilization 101.5%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service G

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

Splits and Phases: 21: US-101 NB Ramp/Irwin St & 2nd St



San Rafael Multi-Family TIS - Existing Conditions

22: Nye St & Mission Ave

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	8	635	5	14	781	21	1	3	57	13	6	12
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999			0.997			0.873			0.947	
Flt Protected		0.999			0.999			0.999			0.979	
Satd. Flow (prot)	0	1759	0	0	1756	0	0	1537	0	0	1620	0
Flt Permitted		0.999			0.999			0.999			0.979	
Satd. Flow (perm)	0	1759	0	0	1756	0	0	1537	0	0	1620	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		352			483			340			237	
Travel Time (s)		9.6			13.2			9.3			6.5	
Confl. Peds. (#/hr)	5		12	12		5	14		14	14		14
Confl. Bikes (#/hr)			2			15						1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)	2	2	2	2	2	2	2	2	2			
Adj. Flow (vph)	9	676	5	15	831	22	1	3	61	14	6	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	690	0	0	868	0	0	65	0	0	33	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.06	1.07	1.07	1.06	1.07	1.07	1.06	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	70.8%
ICU Level of Service	C
Analysis Period (min)	15

San Rafael Multi-Family TIS - Existing Conditions

23: Lincoln Ave & Mission Ave

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	205	393	11	34	546	53	12	344	44	0	314	279
Ideal Flow (vphpl)	1600	1700	1600	1700	1700	1600	1600	1700	1700	1600	1700	1700
Lane Width (ft)	11	12	12	10	10	12	12	9	9	12	10	9
Storage Length (ft)	120		0	65		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		1.00		1.00	1.00			0.99			0.96	
Frt		0.996			0.987			0.983			0.929	
Flt Protected	0.950			0.950				0.998				
Satd. Flow (prot)	1427	1643	0	1463	1517	0	0	2740	0	0	2608	0
Flt Permitted	0.156			0.512				0.932				
Satd. Flow (perm)	234	1643	0	785	1517	0	0	2557	0	0	2608	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			8			18			297	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		483			292			342			291	
Travel Time (s)		13.2			8.0			9.3			7.9	
Confl. Peds. (#/hr)	10		8	8		10	35		39			35
Confl. Bikes (#/hr)			3			1			5			4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	218	418	12	36	581	56	13	366	47	0	334	297
Shared Lane Traffic (%)												
Lane Group Flow (vph)	218	430	0	36	637	0	0	426	0	0	631	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.30	1.15	1.24	1.26	1.26	1.24	1.24	1.31	1.31	1.24	1.26	1.31
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1				1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50			50	
Trailing Detector (ft)	0	0		0	0		0	0			0	
Detector 1 Position(ft)	0	0		0	0		0	0			0	
Detector 1 Size(ft)	50	50		50	50		50	50			50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA			NA	
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4					
Detector Phase	5	2		6	6		4	4			8	

San Rafael Multi-Family TIS - Existing Conditions

23: Lincoln Ave & Mission Ave

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	7.0	10.0		10.0	10.0		10.0	10.0			10.0	
Minimum Split (s)	10.0	29.0		26.0	26.0		27.0	27.0			27.0	
Total Split (s)	12.0	51.0		39.0	39.0		29.0	29.0			29.0	
Total Split (%)	15.0%	63.8%		48.8%	48.8%		36.3%	36.3%			36.3%	
Maximum Green (s)	9.0	46.8		34.8	34.8		24.4	24.4			24.4	
Yellow Time (s)	3.0	3.2		3.2	3.2		3.6	3.6			3.6	
All-Red Time (s)	0.0	1.0		1.0	1.0		1.0	1.0			1.0	
Lost Time Adjust (s)	0.0	-1.2		-1.2	-1.2			-1.6			-1.6	
Total Lost Time (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lead/Lag	Lead			Lag		Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	5.0		5.0	5.0		5.0	5.0			5.0	
Recall Mode	None	Max		Max	Max		C-Max	C-Max			C-Max	
Walk Time (s)		10.0		8.0	8.0		8.0	8.0			8.0	
Flash Dont Walk (s)		14.0		13.0	13.0		14.0	14.0			14.0	
Pedestrian Calls (#/hr)		8		10	10		35	35			33	
Act Effct Green (s)	48.0	48.0		36.2	36.2			26.0			26.0	
Actuated g/C Ratio	0.60	0.60		0.45	0.45			0.32			0.32	
v/c Ratio	0.80	0.44		0.10	0.92			0.51			0.60	
Control Delay	34.9	10.3		8.3	33.7			31.5			14.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	34.9	10.3		8.3	33.7			31.5			14.3	
LOS	C	B		A	C			C			B	
Approach Delay		18.6			32.4			31.5			14.3	
Approach LOS		B			C			C			B	
Queue Length 50th (ft)	46	104		9	296			80			68	
Queue Length 95th (ft)	#156	167		m13	m#412			120			123	
Internal Link Dist (ft)		403			212			262			211	
Turn Bay Length (ft)	120			65								
Base Capacity (vph)	274	987		355	691			843			1048	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.80	0.44		0.10	0.92			0.51			0.60	

Intersection Summary

Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	80
Offset:	55 (69%), Referenced to phase 4:NBTL and 8:SBT, Start of Green
Natural Cycle:	80
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.92
Intersection Signal Delay:	23.7
Intersection LOS:	C
Intersection Capacity Utilization:	81.7%
ICU Level of Service:	D
Analysis Period (min):	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

San Rafael Multi-Family TIS - Existing Conditions
 23: Lincoln Ave & Mission Ave

PM Peak Hour

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

Splits and Phases: 23: Lincoln Ave & Mission Ave



San Rafael Multi-Family TIS - Existing Conditions
 24: Tamalpais Ave (West) & Mission Ave

PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	↑↑	
Volume (vph)	505	13	6	593	6	11
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.996				0.910	
Flt Protected					0.984	
Satd. Flow (prot)	3307	0	0	1748	1565	0
Flt Permitted					0.984	
Satd. Flow (perm)	3307	0	0	1748	1565	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	292			71	337	
Travel Time (s)	8.0			1.9	9.2	
Confl. Peds. (#/hr)		6	6		30	
Confl. Bikes (#/hr)		2				
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	537	14	6	631	6	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	551	0	0	637	18	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	48.0%
Analysis Period (min)	15
	ICU Level of Service A

San Rafael Multi-Family TIS - Existing Conditions
 25: Tamalpais Ave (East) & Mission Ave

PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	↘↙	
Volume (vph)	521	0	0	593	6	11
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	0.95	1.00	1.00	1.00	1.00	1.00
Frt					0.910	
Flt Protected					0.984	
Satd. Flow (prot)	3320	0	0	1748	1565	0
Flt Permitted					0.984	
Satd. Flow (perm)	3320	0	0	1748	1565	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	71			191	329	
Travel Time (s)	1.9			5.2	9.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	554	0	0	631	6	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	554	0	0	631	18	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	42.9% ICU Level of Service A
Analysis Period (min)	15

San Rafael Multi-Family TIS - Existing Conditions
 26: Hetherton St/101 SB Off-Ramp & Mission Ave

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑						↑↑	↑
Volume (vph)	0	494	67	41	188	0	0	0	0	203	1043	535
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	10	12	12	16	12	12	12	12	12	12	12
Storage Length (ft)	0		0	0		0	0		0	0		360
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor		1.00			1.00							0.96
Frt		0.982										0.850
Flt Protected					0.991						0.992	
Satd. Flow (prot)	0	3030	0	0	1963	0	0	0	0	0	3294	1485
Flt Permitted					0.847						0.992	
Satd. Flow (perm)	0	3030	0	0	1675	0	0	0	0	0	3294	1421
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		22										
Link Speed (mph)		25			25			25				35
Link Distance (ft)		191			376			325				407
Travel Time (s)		5.2			10.3			8.9				7.9
Confl. Peds. (#/hr)			19	19								1
Confl. Bikes (#/hr)			1									24
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	526	71	44	200	0	0	0	0	216	1110	569
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	597	0	0	244	0	0	0	0	0	1326	569
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.17	1.07	1.07	0.91	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA		Perm	NA					Split	NA	custom
Protected Phases		4			8					2	2	
Permitted Phases				8								5
Minimum Split (s)		31.0		31.0	31.0					30.0	30.0	30.0
Total Split (s)		35.0		35.0	35.0					45.0	45.0	38.0
Total Split (%)		43.8%		43.8%	43.8%					56.3%	56.3%	47.5%
Maximum Green (s)		30.8		30.8	30.8					40.4	40.4	33.4
Yellow Time (s)		3.2		3.2	3.2					3.6	3.6	3.6
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	1.0
Lost Time Adjust (s)		-1.2			-1.2						-1.6	-1.6
Total Lost Time (s)		3.0			3.0						3.0	3.0
Lead/Lag												Lag
Lead-Lag Optimize?												
Walk Time (s)		7.0		7.0	7.0							0.0
Flash Dont Walk (s)		12.0		15.0	15.0							12.0

Lane Group	ø7
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Minimum Split (s)	9.0
Total Split (s)	7.0
Total Split (%)	9%
Maximum Green (s)	5.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	
Walk Time (s)	7.0
Flash Dont Walk (s)	0.0

Lane Group	ø7
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

San Rafael Multi-Family TIS - Existing Conditions
 27: Irwin St/101 NB On-Ramp & Mission Ave

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	428	269	0	0	157	308	80	1598	35	0	0	0
Ideal Flow (vphpl)	2200	1800	1800	1800	2200	2200	1800	2200	2200	1800	1800	1800
Lane Width (ft)	9	10	12	12	10	9	12	12	12	12	12	12
Storage Length (ft)	0		0	0		80	0		0	0		0
Storage Lanes	0		0	0		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor								1.00	0.96			
Flt						0.850			0.850			
Flt Protected	0.950							0.998				
Satd. Flow (prot)	1826	1631	0	0	1994	1634	0	4050	1816	0	0	0
Flt Permitted	0.548							0.998				
Satd. Flow (perm)	1053	1631	0	0	1994	1634	0	4048	1736	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						74			74			
Link Speed (mph)		25			25			25				45
Link Distance (ft)		376			519			313				673
Travel Time (s)		10.3			14.2			8.5				10.2
Confl. Peds. (#/hr)							7		13			
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	455	286	0	0	167	328	85	1700	37	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	455	286	0	0	167	328	0	1785	37	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		9			9			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	*1.00	1.17	1.07	1.07	0.90	*1.00	1.07	*1.00	0.82	1.07	1.07	1.07
Turning Speed (mph)	35		9	15		35	35		35	15		9
Turn Type	pm+pt	NA			NA	Prot	Split	NA	Perm			
Protected Phases	7	4			8	8	2	2				
Permitted Phases	4								2			
Minimum Split (s)	10.0	29.0			13.0	13.0	29.0	29.0	29.0			
Total Split (s)	16.0	37.0			21.0	21.0	43.0	43.0	43.0			
Total Split (%)	20.0%	46.3%			26.3%	26.3%	53.8%	53.8%	53.8%			
Maximum Green (s)	11.8	32.8			16.8	16.8	38.8	38.8	38.8			
Yellow Time (s)	3.2	3.2			3.2	3.2	3.2	3.2	3.2			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0	1.0	1.0			
Lost Time Adjust (s)	-1.2	-1.2			-1.2	-1.2		-1.2	-1.2			
Total Lost Time (s)	3.0	3.0			3.0	3.0		3.0	3.0			
Lead/Lag	Lag				Lead	Lead						
Lead-Lag Optimize?												
Walk Time (s)		7.0					7.0	7.0	7.0			
Flash Dont Walk (s)		15.0					15.0	15.0	15.0			

San Rafael Multi-Family TIS - Existing Conditions
 27: Irwin St/101 NB On-Ramp & Mission Ave

PM Peak Hour

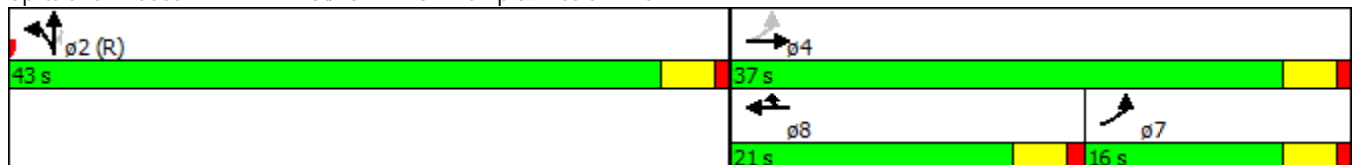


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)		0					0	0	0			
Act Effct Green (s)	34.0	34.0			18.0	18.0		40.0	40.0			
Actuated g/C Ratio	0.42	0.42			0.22	0.22		0.50	0.50			
v/c Ratio	0.79	0.41			0.37	0.77		0.88	0.04			
Control Delay	23.6	10.6			29.1	36.5		13.3	0.1			
Queue Delay	0.0	0.0			0.0	0.0		1.2	0.0			
Total Delay	23.6	10.6			29.1	36.5		14.5	0.1			
LOS	C	B			C	D		B	A			
Approach Delay		18.6			34.0			14.2				
Approach LOS		B			C			B				
Queue Length 50th (ft)	88	54			71	120		221	0			
Queue Length 95th (ft)	m#146	m77			126	#247		#268	m0			
Internal Link Dist (ft)		296			439			233			593	
Turn Bay Length (ft)						80						
Base Capacity (vph)	573	693			448	425		2025	905			
Starvation Cap Reductn	0	0			0	0		91	0			
Spillback Cap Reductn	0	0			0	0		0	0			
Storage Cap Reductn	0	0			0	0		0	0			
Reduced v/c Ratio	0.79	0.41			0.37	0.77		0.92	0.04			

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 53 (66%), Referenced to phase 2:NBTL, Start of Green
 Natural Cycle: 60
 Control Type: Pretimed
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 18.5 Intersection LOS: B
 Intersection Capacity Utilization 87.1% ICU Level of Service E
 Analysis Period (min) 15
 * User Entered Value
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 27: Irwin St/101 NB On-Ramp & Mission Ave



San Rafael Multi-Family TIS - Existing Conditions

28: 5th Ave & Lincoln Ave

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	372	48	17	223	43	40	370	23	42	312	39
Ideal Flow (vphpl)	1600	1700	1700	1600	1700	1700	1600	1700	1700	1600	1700	1700
Lane Width (ft)	10	13	12	10	12	12	12	10	9	12	11	9
Storage Length (ft)	97		0	45		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99	1.00		0.99	0.99			0.99			0.99	
Frt		0.983			0.976			0.992				0.985
Flt Protected	0.950			0.950				0.995				0.995
Satd. Flow (prot)	1377	1669	0	1377	1602	0	0	2876	0	0	2937	0
Flt Permitted	0.529			0.390				0.886			0.870	
Satd. Flow (perm)	757	1669	0	560	1602	0	0	2550	0	0	2560	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			18			8				17
Link Speed (mph)		25			25			25				25
Link Distance (ft)		482			293			292				342
Travel Time (s)		13.1			8.0			8.0				9.3
Confl. Peds. (#/hr)	18		22	22		18	51		33	33		51
Confl. Bikes (#/hr)			2			2			10			12
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	53	396	51	18	237	46	43	394	24	45	332	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	447	0	18	283	0	0	461	0	0	418	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.35	1.11	1.15	1.35	1.15	1.15	1.24	1.26	1.31	1.24	1.20	1.31
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2				6
Permitted Phases	4			8			2			6		
Minimum Split (s)	26.0	26.0		25.0	25.0		28.0	28.0		28.0	28.0	
Total Split (s)	45.0	45.0		45.0	45.0		35.0	35.0		35.0	35.0	
Total Split (%)	56.3%	56.3%		56.3%	56.3%		43.8%	43.8%		43.8%	43.8%	
Maximum Green (s)	40.8	40.8		40.4	40.4		30.8	30.8		30.4	30.4	
Yellow Time (s)	3.2	3.2		3.6	3.6		3.2	3.2		3.6	3.6	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-1.2	-1.2		-1.6	-1.6		-1.2	-1.2		-1.6	-1.6	
Total Lost Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		13.0	13.0		16.0	16.0		16.0	16.0	

San Rafael Multi-Family TIS - Existing Conditions

28: 5th Ave & Lincoln Ave

PM Peak Hour

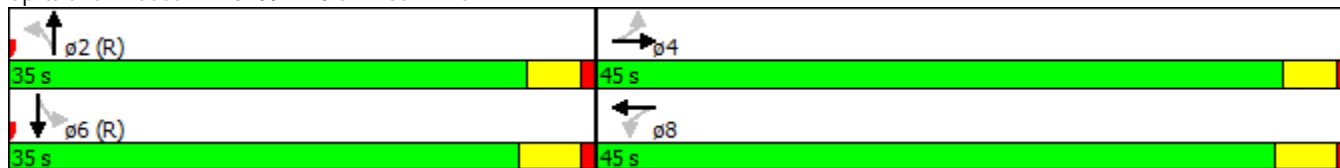


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	42.0	42.0		42.0	42.0			32.0			32.0	
Actuated g/C Ratio	0.52	0.52		0.52	0.52			0.40			0.40	
v/c Ratio	0.13	0.51		0.06	0.33			0.45			0.40	
Control Delay	10.9	14.5		6.4	7.1			8.4			11.1	
Queue Delay	0.0	0.0		0.0	0.0			0.1			0.0	
Total Delay	10.9	14.5		6.4	7.1			8.5			11.1	
LOS	B	B		A	A			A			B	
Approach Delay		14.1			7.0			8.5			11.1	
Approach LOS		B			A			A			B	
Queue Length 50th (ft)	13	131		3	48			32			44	
Queue Length 95th (ft)	32	210		m9	74			41			54	
Internal Link Dist (ft)		402			213			212			262	
Turn Bay Length (ft)	97			45								
Base Capacity (vph)	397	881		294	849			1024			1034	
Starvation Cap Reductn	0	0		0	0			92			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.13	0.51		0.06	0.33			0.49			0.40	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 57 (71%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 55
 Control Type: Pretimed
 Maximum v/c Ratio: 0.51
 Intersection Signal Delay: 10.5 Intersection LOS: B
 Intersection Capacity Utilization 93.7% ICU Level of Service F
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 28: 5th Ave & Lincoln Ave



San Rafael Multi-Family TIS - Existing Conditions
 29: 5th Ave & Tamalpais Ave (West)

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	1	346	15	14	206	0	22	16	29	9	20	11
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.994						0.941			0.962	
Flt Protected					0.997			0.984			0.989	
Satd. Flow (prot)	0	1737	0	0	1742	0	0	1618	0	0	1663	0
Flt Permitted					0.997			0.984			0.989	
Satd. Flow (perm)	0	1737	0	0	1742	0	0	1618	0	0	1663	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		293			72			91			337	
Travel Time (s)		8.0			2.0			2.5			9.2	
Confl. Peds. (#/hr)	4		18	18		4	23					23
Confl. Bikes (#/hr)			2			4						5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	1	368	16	15	219	0	23	17	31	10	21	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	385	0	0	234	0	0	71	0	0	43	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	38.1%
ICU Level of Service	A
Analysis Period (min)	15

San Rafael Multi-Family TIS - Existing Conditions
 30: 5th Ave & Tamalpais Ave (East)

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				
Volume (vph)	4	380	0	0	209	5	11	19	31	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Flt					0.997			0.931				
Flt Protected								0.991				
Satd. Flow (prot)	0	1748	0	0	1742	0	0	1612	0	0	0	0
Flt Permitted								0.991				
Satd. Flow (perm)	0	1748	0	0	1742	0	0	1612	0	0	0	0
Link Speed (mph)		25			25			25				25
Link Distance (ft)		72			180			288				329
Travel Time (s)		2.0			4.9			7.9				9.0
Confl. Peds. (#/hr)	4						4		8			
Confl. Bikes (#/hr)							4					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	4	404	0	0	222	5	12	20	33	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	408	0	0	227	0	0	65	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	37.4%
ICU Level of Service	A
Analysis Period (min)	15

San Rafael Multi-Family TIS - Existing Conditions

31: Hetherton St & 5th Ave

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	288	171	56	185	0	0	0	0	32	983	80
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	12	12	16	12	12	12	12	12	12	12
Storage Length (ft)	0		0	0		0	0		0	0		180
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00
Ped Bike Factor		0.99			1.00							0.95
Frt		0.950										0.850
Flt Protected					0.988						0.998	
Satd. Flow (prot)	0	1864	0	0	1957	0	0	0	0	0	4587	1322
Flt Permitted					0.761						0.998	
Satd. Flow (perm)	0	1864	0	0	1506	0	0	0	0	0	4587	1259
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		48										
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		180			388			290			325	
Travel Time (s)		4.9			10.6			7.9			8.9	
Confl. Peds. (#/hr)			8	8								13
Confl. Bikes (#/hr)			9									2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)											2	2
Adj. Flow (vph)	0	306	182	60	197	0	0	0	0	34	1046	85
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	488	0	0	257	0	0	0	0	0	1080	85
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	0.91	1.07	1.07	0.91	1.07	1.07	1.07	1.07	1.07	1.12	1.24
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA		Perm	NA					Split	NA	custom
Protected Phases		4			8					2	2	
Permitted Phases				8								5
Minimum Split (s)		31.0		31.0	31.0					31.0	31.0	28.0
Total Split (s)		40.0		40.0	40.0					40.0	40.0	33.0
Total Split (%)		50.0%		50.0%	50.0%					50.0%	50.0%	41.3%
Maximum Green (s)		35.4		35.4	35.4					35.5	35.5	28.5
Yellow Time (s)		3.6		3.6	3.6					3.5	3.5	3.5
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	1.0
Lost Time Adjust (s)		-1.6			-1.6						-1.5	-1.0
Total Lost Time (s)		3.0			3.0						3.0	3.5
Lead/Lag												Lag
Lead-Lag Optimize?												
Walk Time (s)		7.0		7.0	7.0							7.0

San Rafael Multi-Family TIS - Existing Conditions
 31: Hetherton St & 5th Ave

PM Peak Hour

Lane Group	ø7
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Parking (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Minimum Split (s)	10.0
Total Split (s)	7.0
Total Split (%)	9%
Maximum Green (s)	4.0
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	
Walk Time (s)	7.0

San Rafael Multi-Family TIS - Existing Conditions

31: Hetherton St & 5th Ave

PM Peak Hour

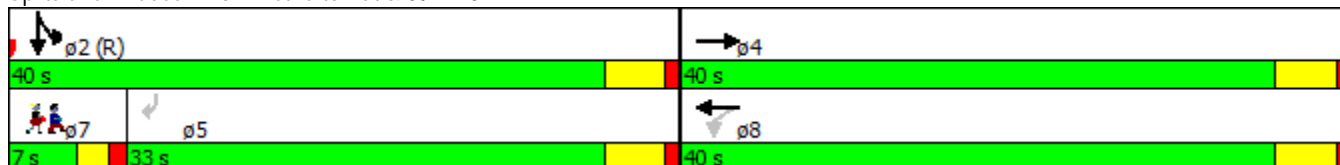


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		16.0		16.0	16.0							13.0
Pedestrian Calls (#/hr)		0		0	0							0
Act Effct Green (s)		37.0			37.0						37.0	29.5
Actuated g/C Ratio		0.46			0.46						0.46	0.37
v/c Ratio		0.55			0.37						0.51	0.18
Control Delay		10.7			15.8						5.7	7.9
Queue Delay		0.0			0.0						0.3	0.0
Total Delay		10.7			15.8						6.0	7.9
LOS		B			B						A	A
Approach Delay		10.7			15.8						6.1	
Approach LOS		B			B						A	
Queue Length 50th (ft)		79			76						32	10
Queue Length 95th (ft)		115			m124						41	m15
Internal Link Dist (ft)		100			308			210			245	
Turn Bay Length (ft)												180
Base Capacity (vph)		887			696						2121	464
Starvation Cap Reductn		0			0						421	0
Spillback Cap Reductn		0			0						0	0
Storage Cap Reductn		0			0						0	0
Reduced v/c Ratio		0.55			0.37						0.64	0.18

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 60 (75%), Referenced to phase 2:SBTL, Start of Green
 Natural Cycle: 70
 Control Type: Pretimed
 Maximum v/c Ratio: 0.55
 Intersection Signal Delay: 8.6
 Intersection LOS: A
 Intersection Capacity Utilization 71.6%
 ICU Level of Service C
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 31: Hetherton St & 5th Ave



San Rafael Multi-Family TIS - Existing Conditions
31: Hetherton St & 5th Ave

PM Peak Hour

Lane Group	ø7
Flash Dont Walk (s)	0.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

San Rafael Multi-Family TIS - Existing Conditions

32: 5th Ave & Irwin St

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	213	100	0	0	114	113	84	1375	10	0	0	0
Ideal Flow (vphpl)	1600	1600	1800	1800	1600	1600	1600	1600	1600	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	11	12	12	12	12
Storage Length (ft)	75		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00
Ped Bike Factor	0.98				0.98			1.00				
Fr _t					0.933			0.999				
Fl _t Protected	0.950							0.997				
Satd. Flow (prot)	1284	1351	0	0	1238	0	0	4082	0	0	0	0
Fl _t Permitted	0.535							0.997				
Satd. Flow (perm)	712	1351	0	0	1238	0	0	4082	0	0	0	0
Right Turn on Red			No			Yes			Yes			No
Satd. Flow (RTOR)					19			2				
Link Speed (mph)		25			25			25				25
Link Distance (ft)		388			537			279				313
Travel Time (s)		10.6			14.6			7.6				8.5
Confl. Peds. (#/hr)	22						22		9			
Confl. Bikes (#/hr)							3					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)	6	6			6	6						
Adj. Flow (vph)	227	106	0	0	121	120	89	1463	11	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	227	106	0	0	241	0	0	1563	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.47	1.47	1.07	1.07	1.47	1.24	1.24	1.30	1.24	1.07	1.07	1.07
Turning Speed (mph)	25		3	15		9	15		9	15		9
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Minimum Split (s)	27.0	27.0			27.0		28.0	28.0				
Total Split (s)	37.0	37.0			37.0		43.0	43.0				
Total Split (%)	46.3%	46.3%			46.3%		53.8%	53.8%				
Maximum Green (s)	32.4	32.4			32.4		38.4	38.4				
Yellow Time (s)	3.6	3.6			3.6		3.6	3.6				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)	-1.6	-1.6			-1.6		-1.6	-1.6				
Total Lost Time (s)	3.0	3.0			3.0		3.0	3.0				
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	7.0	7.0			7.0		7.0	7.0				

San Rafael Multi-Family TIS - Existing Conditions

32: 5th Ave & Irwin St

PM Peak Hour

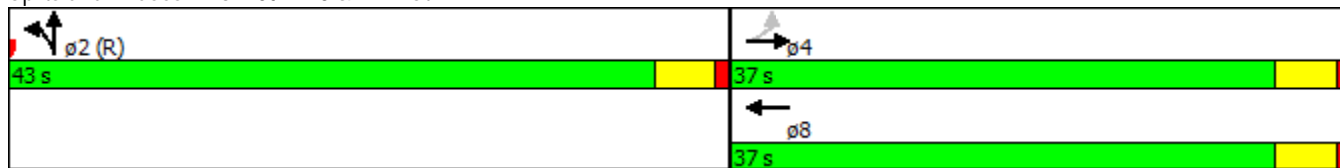


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	15.0	15.0			15.0		16.0	16.0				
Pedestrian Calls (#/hr)	0	0			0		0	0				
Act Effect Green (s)	34.0	34.0			34.0			40.0				
Actuated g/C Ratio	0.42	0.42			0.42			0.50				
v/c Ratio	0.75	0.18			0.45			0.77				
Control Delay	38.2	19.5			18.3			12.0				
Queue Delay	0.0	0.0			0.0			0.8				
Total Delay	38.2	19.5			18.3			12.8				
LOS	D	B			B			B				
Approach Delay		32.3			18.3			12.8				
Approach LOS		C			B			B				
Queue Length 50th (ft)	70	30			76			172				
Queue Length 95th (ft)	#202	m63			139			197				
Internal Link Dist (ft)		308			457			199			233	
Turn Bay Length (ft)	75											
Base Capacity (vph)	302	574			537			2042				
Starvation Cap Reductn	0	0			0			35				
Spillback Cap Reductn	0	0			0			210				
Storage Cap Reductn	0	0			0			0				
Reduced v/c Ratio	0.75	0.18			0.45			0.85				

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 45 (56%), Referenced to phase 2:NBTL, Start of Green
 Natural Cycle: 55
 Control Type: Pretimed
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 16.4
 Intersection LOS: B
 Intersection Capacity Utilization 77.2%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 32: 5th Ave & Irwin St



Arterial Level of Service: EB 2nd St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Lindaro St	IV	25	20.6	17.7	38.3	0.09	8.8	E
Lincoln Ave	IV	25	21.4	11.5	32.9	0.10	10.6	D
Francisco Blvd W.	IV	25	12.2	8.0	20.2	0.05	8.2	E
US-101 SB Ramp	IV	25	14.2	11.7	25.9	0.05	7.4	E
Total	IV		68.4	48.9	117.3	0.29	8.9	E

Arterial Level of Service: WB 3rd St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Hetherton St	IV	25	19.0	8.2	27.2	0.07	9.5	D
Tamalpais Avenue (We	IV	25	14.4	6.8	21.2	0.05	9.2	D
Lincoln Ave	IV	25	13.2	5.3	18.5	0.05	9.7	D
Lindaro St	IV	25	21.4	4.1	25.5	0.10	13.7	C
Total	IV		68.0	24.4	92.4	0.27	10.6	D

Arterial Level of Service: SB Hetherton St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Mission Ave	IV	35	22.2	18.9	41.1	0.16	13.9	C
5th Ave	IV	25	16.3	5.7	22.0	0.06	10.1	D
4th St	IV	25	14.6	7.3	21.9	0.05	9.0	D
3rd St	IV	25	17.7	25.4	43.1	0.07	5.6	F
2nd St	IV	25	15.6	21.3	36.9	0.06	5.7	F
Total	IV		86.4	78.6	165.0	0.40	8.7	E

Arterial Level of Service: NB Irwin St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
2nd	IV	38	19.3	22.2	41.5	0.17	14.6	C
	IV	25	14.8	12.8	27.6	0.06	7.3	E
4th St	IV	25	18.9	3.3	22.2	0.07	11.6	D
5th Ave	IV	25	14.0	12.0	26.0	0.05	7.3	E
Mission Ave	IV	25	15.7	13.3	29.0	0.06	7.4	E
Total	IV		82.7	63.6	146.3	0.41	10.0	D

Arterial Level of Service: NB Lindaro St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
2nd St	IV	25	15.8	17.3	33.1	0.06	6.5	F
3rd St	IV	25	16.7	27.6	44.3	0.06	5.1	F
Total	IV		32.5	44.9	77.4	0.12	5.7	F

Arterial Level of Service: SB Lindaro St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
3rd St	IV	25	9.9	18.2	28.1	0.04	4.8	F
2nd St	IV	25	16.7	15.1	31.8	0.06	7.1	E
Total	IV		26.6	33.3	59.9	0.10	6.0	F

Arterial Level of Service: EB Mission Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Lincoln Ave	IV	25	28.5	10.3	38.8	0.16	14.7	C
Hetheron St	IV	25	23.1	13.4	36.5	0.10	10.3	D
Irwin St	IV	25	18.9	10.6	29.5	0.07	8.7	E
Total	IV		70.5	34.3	104.8	0.33	11.5	D

Arterial Level of Service: WB Mission Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
101 NB On-Ramp	IV	25	21.6	29.1	50.7	0.10	7.0	F
Hetheron St	IV	25	18.9	7.2	26.1	0.07	9.8	D
Lincoln Ave	IV	25	23.1	33.7	56.8	0.10	6.7	F
Total	IV		63.6	70.0	133.6	0.27	7.4	E

APPENDIX B: SYNCHRO DATA – BASELINE CONDITIONS



San Rafael Multi-Family TIS: Baseline Conditions

1: Cijos St & 4th St

AM PEAK HOUR

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↘	↖	↗	↘
Traffic Volume (vph)	332	18	50	414	11	24
Future Volume (vph)	332	18	50	414	11	24
Satd. Flow (prot)	1492	0	1340	1511	1390	0
Flt Permitted			0.494		0.984	
Satd. Flow (perm)	1492	0	681	1511	1384	0
Satd. Flow (RTOR)	7				26	
Lane Group Flow (vph)	372	0	53	440	38	0
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases			6			
Total Split (s)	41.0		41.0	41.0	24.0	
Total Lost Time (s)	4.2		4.2	4.2	4.0	
Act Effect Green (s)	36.8		36.8	36.8	20.0	
Actuated g/C Ratio	0.57		0.57	0.57	0.31	
v/c Ratio	0.44		0.14	0.51	0.09	
Control Delay	10.0		7.8	11.3	9.5	
Queue Delay	0.0		0.0	1.0	0.0	
Total Delay	10.0		7.8	12.3	9.5	
LOS	B		A	B	A	
Approach Delay	10.0			11.8	9.5	
Approach LOS	B			B	A	

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 65

Offset: 52 (80%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.51

Intersection Signal Delay: 11.0

Intersection LOS: B

Intersection Capacity Utilization 67.4%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Cijos St & 4th St



San Rafael Multi-Family TIS: Baseline Conditions

2: Lincoln Ave & 4th St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	278	34	71	365	25	22	204	41	51	279	76
Future Volume (vph)	47	278	34	71	365	25	22	204	41	51	279	76
Satd. Flow (prot)	1351	1407	0	1391	1575	0	0	1307	0	0	1323	0
Flt Permitted	0.345			0.439				0.955			0.931	
Satd. Flow (perm)	480	1407	0	617	1575	0	0	1250	0	0	1237	0
Satd. Flow (RTOR)		9			5			18			22	
Lane Group Flow (vph)	50	332	0	76	415	0	0	284	0	0	432	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Total Split (s)	33.0	33.0		33.0	33.0		42.0	42.0		42.0	42.0	
Total Lost Time (s)	4.2	4.2		4.2	4.2			4.2			4.2	
Act Effect Green (s)	28.8	28.8		28.8	28.8			37.8			37.8	
Actuated g/C Ratio	0.38	0.38		0.38	0.38			0.50			0.50	
v/c Ratio	0.27	0.61		0.32	0.68			0.45			0.68	
Control Delay	20.9	23.8		30.7	37.4			12.4			16.2	
Queue Delay	0.0	0.5		0.0	0.7			0.1			0.4	
Total Delay	20.9	24.4		30.7	38.1			12.5			16.6	
LOS	C	C		C	D			B			B	
Approach Delay		23.9			36.9			12.5			16.6	
Approach LOS		C			D			B			B	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 43 (57%), Referenced to phase 4:SBTL and 8:NBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 23.9

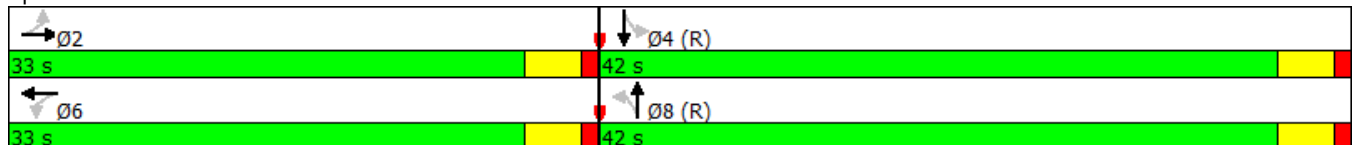
Intersection LOS: C

Intersection Capacity Utilization 83.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 2: Lincoln Ave & 4th St



San Rafael Multi-Family TIS: Baseline Conditions
 3: Tamalpais Avenue (West) South Leg & 4th St

AM PEAK HOUR

Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↑		↗
Traffic Vol, veh/h	312	59	0	463	0	91
Future Vol, veh/h	312	59	0	463	0	91
Conflicting Peds, #/hr	0	34	0	0	0	49
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	5	0	0	6	0	3
Mvmt Flow	332	63	0	493	0	97

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	-	-	-	446
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.327
Pot Cap-1 Maneuver	-	-	0	-	0	610
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	569
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	569	-	-	-
HCM Lane V/C Ratio	0.17	-	-	-
HCM Control Delay (s)	12.6	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.6	-	-	-

San Rafael Multi-Family TIS: Baseline Conditions
 5: 4th St & Tamalpais Avenue (East)

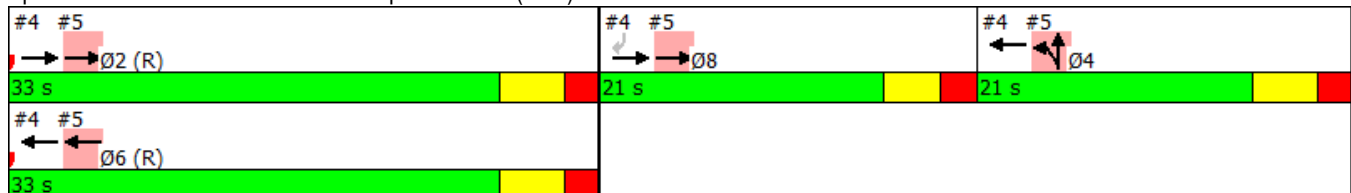
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	403	0	0	487	57	0	0	0	0	0	0
Future Volume (vph)	0	403	0	0	487	57	0	0	0	0	0	0
Satd. Flow (prot)	0	1714	0	0	1667	0	0	1800	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	1714	0	0	1667	0	0	1800	0	0	0	0
Satd. Flow (RTOR)					9							
Lane Group Flow (vph)	0	429	0	0	579	0	0	0	0	0	0	0
Turn Type		NA			NA							
Protected Phases		2	8		6		4	4				
Permitted Phases												
Total Split (s)					33.0		21.0	21.0				
Total Lost Time (s)					5.6			5.6				
Act Effect Green (s)		50.0			32.8							
Actuated g/C Ratio		0.67			0.44							
v/c Ratio		0.38			0.79							
Control Delay		1.2			29.1							
Queue Delay		0.0			3.6							
Total Delay		1.2			32.7							
LOS		A			C							
Approach Delay		1.2			32.7							
Approach LOS		A			C							

Intersection Summary

Cycle Length: 75	
Actuated Cycle Length: 75	
Offset: 38 (51%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 19.3	Intersection LOS: B
Intersection Capacity Utilization 50.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 5: 4th St & Tamalpais Avenue (East)



Lane Group	Ø2	Ø8
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Satd. Flow (RTOR)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	8
Permitted Phases		
Total Split (s)	33.0	21.0
Total Lost Time (s)		
Act Effect Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

San Rafael Multi-Family TIS: Baseline Conditions

6: Hetherton St & 4th St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↑↑↑	↗
Traffic Volume (vph)	0	274	130	176	312	0	0	0	0	110	962	234
Future Volume (vph)	0	274	130	176	312	0	0	0	0	110	962	234
Satd. Flow (prot)	0	1806	1298	1862	1626	0	0	0	0	0	4503	1348
Flt Permitted				0.512							0.995	
Satd. Flow (perm)	0	1806	1241	985	1626	0	0	0	0	0	4499	1275
Satd. Flow (RTOR)			76									
Lane Group Flow (vph)	0	291	138	187	332	0	0	0	0	0	1140	249
Turn Type		NA	Perm	Perm	NA					Perm	NA	custom
Protected Phases		4			8						2	
Permitted Phases			4	8						2		5
Total Split (s)		37.0	37.0	37.0	37.0					38.0	38.0	31.0
Total Lost Time (s)		4.2	4.2	4.2	4.2						4.2	4.2
Act Effect Green (s)		32.8	32.8	32.8	32.8						33.8	26.8
Actuated g/C Ratio		0.44	0.44	0.44	0.44						0.45	0.36
v/c Ratio		0.37	0.24	0.43	0.47						0.56	0.55
Control Delay		6.8	1.8	17.4	16.2						7.0	13.8
Queue Delay		1.4	1.1	0.0	0.0						0.2	75.9
Total Delay		8.1	2.9	17.4	16.2						7.2	89.7
LOS		A	A	B	B						A	F
Approach Delay		6.5			16.7						21.9	
Approach LOS		A			B						C	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 0 (0%), Referenced to phase 2:SBTL, Start of Green

Control Type: Pre-timed

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 17.9

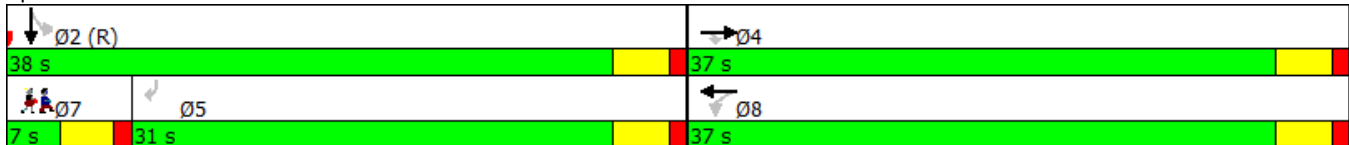
Intersection LOS: B

Intersection Capacity Utilization 79.9%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 6: Hetherton St & 4th St



Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Total Split (s)	7.0
Total Lost Time (s)	
Act Effect Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

San Rafael Multi-Family TIS: Baseline Conditions

7: Irwin St & 4th St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	226	0	0	338	58	155	1149	47	0	0	0
Future Volume (vph)	153	226	0	0	338	58	155	1149	47	0	0	0
Satd. Flow (prot)	1605	1782	0	0	1519	0	1399	2880	0	0	0	0
Flt Permitted	0.338						0.950					
Satd. Flow (perm)	569	1782	0	0	1519	0	1399	2880	0	0	0	0
Satd. Flow (RTOR)					13			8				
Lane Group Flow (vph)	163	240	0	0	422	0	165	1272	0	0	0	0
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Total Split (s)	33.0	33.0			33.0		42.0	42.0				
Total Lost Time (s)	4.2	4.2			4.2		4.2	4.2				
Act Effect Green (s)	28.8	28.8			28.8		37.8	37.8				
Actuated g/C Ratio	0.38	0.38			0.38		0.50	0.50				
v/c Ratio	0.75	0.35			0.71		0.23	0.87				
Control Delay	34.7	10.9			27.2		7.1	14.8				
Queue Delay	0.0	0.0			0.0		0.0	3.8				
Total Delay	34.7	10.9			27.2		7.1	18.6				
LOS	C	B			C		A	B				
Approach Delay		20.6			27.2			17.3				
Approach LOS		C			C			B				

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 4 (5%), Referenced to phase 2:NBT, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 19.7

Intersection LOS: B

Intersection Capacity Utilization 79.9%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 7: Irwin St & 4th St



San Rafael Multi-Family TIS: Baseline Conditions

8: Lindaro St & 3rd St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	478	1486	20	76	8	0	0	28	10
Future Volume (vph)	0	0	0	478	1486	20	76	8	0	0	28	10
Satd. Flow (prot)	0	0	0	1455	4151	0	0	1504	0	0	1542	0
Flt Permitted				0.950				0.746				
Satd. Flow (perm)	0	0	0	1403	4151	0	0	1172	0	0	1542	0
Satd. Flow (RTOR)					5						11	
Lane Group Flow (vph)	0	0	0	509	1602	0	0	90	0	0	41	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8			4	
Permitted Phases				6			8					
Total Split (s)				50.0	50.0		25.0	25.0			25.0	
Total Lost Time (s)				4.2	4.2			4.2			4.2	
Act Effect Green (s)				45.8	45.8			20.8			20.8	
Actuated g/C Ratio				0.61	0.61			0.28			0.28	
v/c Ratio				0.59	0.63			0.28			0.09	
Control Delay				5.0	3.9			15.1			16.8	
Queue Delay				0.5	0.0			0.0			0.2	
Total Delay				5.6	3.9			15.1			17.0	
LOS				A	A			B			B	
Approach Delay					4.3			15.1			17.0	
Approach LOS					A			B			B	

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 63 (84%), Referenced to phase 6:WBTL, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 4.9 Intersection LOS: A
 Intersection Capacity Utilization 53.8% ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 8: Lindaro St & 3rd St



San Rafael Multi-Family TIS: Baseline Conditions
 9: Ritter St & 3rd St

AM PEAK HOUR

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑↑	↑	↑
Traffic Vol, veh/h	0	0	0	1767	68	0
Future Vol, veh/h	0	0	0	1767	68	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	25
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	4	3	0
Mvmt Flow	0	0	0	1880	72	0

Major/Minor	Major2	Minor1
Conflicting Flow All	-	752
Stage 1	-	0
Stage 2	-	752
Critical Hdwy	-	5.76
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	6.06
Follow-up Hdwy	-	3.83
Pot Cap-1 Maneuver	0	410
Stage 1	0	-
Stage 2	0	385
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	410
Mov Cap-2 Maneuver	-	410
Stage 1	-	-
Stage 2	-	385

Approach	WB	NB
HCM Control Delay, s	0	15.7
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	NBLn2	WBT
Capacity (veh/h)	410	-	-
HCM Lane V/C Ratio	0.176	-	-
HCM Control Delay (s)	15.7	0	-
HCM Lane LOS	C	A	-
HCM 95th %tile Q(veh)	0.6	-	-

San Rafael Multi-Family TIS: Baseline Conditions
 10: 3rd St & Cijos St

AM PEAK HOUR

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑			↑
Traffic Vol, veh/h	0	0	1710	33	0	57
Future Vol, veh/h	0	0	1710	33	0	57
Conflicting Peds, #/hr	0	0	0	28	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	-	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	4	3	0	6
Mvmt Flow	0	0	1819	35	0	61

Major/Minor	Major2	Minor2
Conflicting Flow All	-	0
Stage 1	-	-
Stage 2	-	-
Critical Hdwy	-	-
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	-	-
Pot Cap-1 Maneuver	-	0
Stage 1	-	0
Stage 2	-	0
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	-
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

Approach	WB	SB
HCM Control Delay, s	0	28.8
HCM LOS		D

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	211
HCM Lane V/C Ratio	-	-	0.287
HCM Control Delay (s)	-	-	28.8
HCM Lane LOS	-	-	D
HCM 95th %tile Q(veh)	-	-	1.1

San Rafael Multi-Family TIS: Baseline Conditions
 11: Lincoln Ave & 3rd St

AM PEAK HOUR

	↖	→	↘	↙	←	↖	↙	↑	↘	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕↕↕			↕			↕	
Traffic Volume (vph)	0	0	0	308	1565	72	39	199	0	0	257	129
Future Volume (vph)	0	0	0	308	1565	72	39	199	0	0	257	129
Satd. Flow (prot)	0	0	0	0	4129	0	0	1300	0	0	1177	0
Flt Permitted					0.992			0.764				
Satd. Flow (perm)	0	0	0	0	4100	0	0	997	0	0	1177	0
Satd. Flow (RTOR)					12						15	
Lane Group Flow (vph)	0	0	0	0	2070	0	0	253	0	0	410	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8			4	
Permitted Phases				6			8					
Total Split (s)				46.0	46.0		29.0	29.0			29.0	
Total Lost Time (s)					4.5			4.5			4.5	
Act Effect Green (s)					41.5			24.5			24.5	
Actuated g/C Ratio					0.55			0.33			0.33	
v/c Ratio					0.91			0.78			1.04	
Control Delay					22.7			40.7			80.9	
Queue Delay					46.0			0.0			0.0	
Total Delay					68.7			40.7			80.9	
LOS					E			D			F	
Approach Delay					68.7			40.7			80.9	
Approach LOS					E			D			F	

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 20 (27%), Referenced to phase 4:SBT and 8:NBTL, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 1.04
 Intersection Signal Delay: 68.0
 Intersection Capacity Utilization 98.3%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service F

Splits and Phases: 11: Lincoln Ave & 3rd St



San Rafael Multi-Family TIS: Baseline Conditions

12: Tamalpais Ave (West) & 3rd St

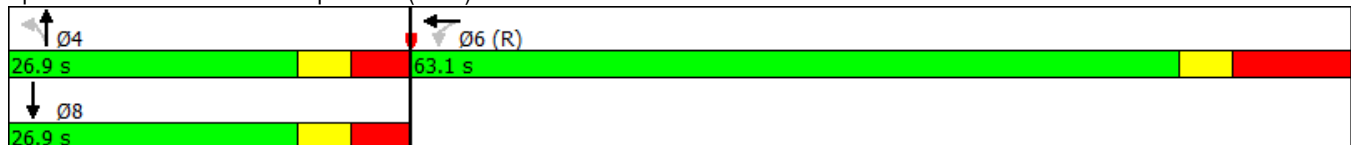
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	261	1887	35	43	62	0	0	46	21
Future Volume (vph)	0	0	0	261	1887	35	43	62	0	0	46	21
Satd. Flow (prot)	0	0	0	0	4147	0	1161	1402	0	0	1339	0
Flt Permitted					0.994		0.711					
Satd. Flow (perm)	0	0	0	0	4063	0	847	1402	0	0	1339	0
Satd. Flow (RTOR)					4						8	
Lane Group Flow (vph)	0	0	0	0	2322	0	46	66	0	0	71	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			4			8	
Permitted Phases				6			4					
Total Split (s)				63.1	63.1		26.9	26.9			26.9	
Total Lost Time (s)					11.6		7.6	7.6			7.6	
Act Effect Green (s)					51.5		19.3	19.3			19.3	
Actuated g/C Ratio					0.57		0.21	0.21			0.21	
v/c Ratio					1.00		0.25	0.22			0.24	
Control Delay					38.5		33.8	31.5			28.9	
Queue Delay					38.3		0.0	0.0			0.0	
Total Delay					76.7		33.8	31.5			28.9	
LOS					E		C	C			C	
Approach Delay					76.7			32.5			28.9	
Approach LOS					E			C			C	

Intersection Summary

Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 26 (29%), Referenced to phase 6:WBTL, Start of Green	
Control Type: Pretimed	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 73.4	Intersection LOS: E
Intersection Capacity Utilization 134.2%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 12: Tamalpais Ave (West) & 3rd St



San Rafael Multi-Family TIS: Baseline Conditions
 13: Tamalpais Ave (East) & 3rd St

AM PEAK HOUR

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑↑↑		↑					
Traffic Vol, veh/h	0	0	0	15	2163	0	8	0	0	0	0	0
Future Vol, veh/h	0	0	0	15	2163	0	8	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	44	0	16	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	93	4	0	100	0	0	0	0	0
Mvmt Flow	0	0	0	16	2301	0	9	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	-	0	-	45	0	0	997	-	-
Stage 1	-	-	-	-	-	-	45	-	-
Stage 2	-	-	-	-	-	-	952	-	-
Critical Hdwy	-	-	-	5.495	-	-	7.55	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.9	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.5	-	-
Follow-up Hdwy	-	-	-	-3.0835	-	-	4.6	-	-
Pot Cap-1 Maneuver	0	-	0	1111	-	-	171	0	0
Stage 1	0	-	0	-	-	-	739	0	0
Stage 2	0	-	0	-	-	-	186	0	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1111	-	-	165	0	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	165	0	-
Stage 1	-	-	-	-	-	-	712	0	-
Stage 2	-	-	-	-	-	-	186	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	28
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	WBL	WBT	WBR
Capacity (veh/h)	165	-	1111	-	-
HCM Lane V/C Ratio	0.052	-	0.014	-	-
HCM Control Delay (s)	28	-	8.3	0	-
HCM Lane LOS	D	-	A	A	-
HCM 95th %tile Q(veh)	0.2	-	0	-	-

San Rafael Multi-Family TIS: Baseline Conditions

14: Hetherton St & 3rd St

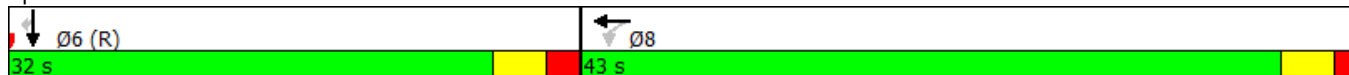
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	412	1661	0	0	0	0	0	758	510
Future Volume (vph)	0	0	0	412	1661	0	0	0	0	0	758	510
Satd. Flow (prot)	0	0	0	1425	4177	0	0	0	0	0	4314	1330
Flt Permitted				0.950								
Satd. Flow (perm)	0	0	0	1362	4177	0	0	0	0	0	4314	1223
Satd. Flow (RTOR)												15
Lane Group Flow (vph)	0	0	0	438	1767	0	0	0	0	0	806	543
Turn Type				Perm	NA						NA	Perm
Protected Phases					8						6	
Permitted Phases				8								6
Total Split (s)				43.0	43.0						32.0	32.0
Total Lost Time (s)				4.0	4.0						5.0	5.0
Act Effect Green (s)				39.0	39.0						27.0	27.0
Actuated g/C Ratio				0.52	0.52						0.36	0.36
v/c Ratio				0.62	0.81						0.52	1.21
Control Delay				11.4	11.9						13.3	131.1
Queue Delay				0.5	0.4						0.1	0.0
Total Delay				11.9	12.3						13.4	131.1
LOS				B	B						B	F
Approach Delay					12.2						60.8	
Approach LOS					B						E	

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 3 (4%), Referenced to phase 6:SBT, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 1.21
 Intersection Signal Delay: 30.7 Intersection LOS: C
 Intersection Capacity Utilization 109.1% ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 14: Hetherton St & 3rd St



San Rafael Multi-Family TIS: Baseline Conditions

15: Irwin St & 3rd St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑	↑	↑	↑↑↑				
Traffic Volume (vph)	0	0	0	0	1083	135	1028	1230	0	0	0	0
Future Volume (vph)	0	0	0	0	1083	135	1028	1230	0	0	0	0
Satd. Flow (prot)	0	0	0	0	4410	1395	1307	4216	0	0	0	0
Flt Permitted							0.950	0.986				
Satd. Flow (perm)	0	0	0	0	4410	1352	1307	4216	0	0	0	0
Satd. Flow (RTOR)						42	22	22				
Lane Group Flow (vph)	0	0	0	0	1152	144	580	1823	0	0	0	0
Turn Type					NA	Perm	Split	NA				
Protected Phases					8		2	2				
Permitted Phases						8						
Total Split (s)					30.0	30.0	45.0	45.0				
Total Lost Time (s)					4.5	4.5	4.5	4.5				
Act Effect Green (s)					25.5	25.5	40.5	40.5				
Actuated g/C Ratio					0.34	0.34	0.54	0.54				
v/c Ratio					0.77	0.30	0.81	0.80				
Control Delay					26.3	14.8	18.5	13.6				
Queue Delay					0.2	0.0	2.8	1.8				
Total Delay					26.4	14.8	21.3	15.4				
LOS					C	B	C	B				
Approach Delay					25.2			16.8				
Approach LOS					C			B				

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 73 (97%), Referenced to phase 2:NBTL, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 19.7 Intersection LOS: B
 Intersection Capacity Utilization 91.9% ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 15: Irwin St & 3rd St



San Rafael Multi-Family TIS: Baseline Conditions
 16: Lindaro St & 2nd St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	2251	43	0	0	0	0	55	186	57	447	0
Future Volume (vph)	33	2251	43	0	0	0	0	55	186	57	447	0
Satd. Flow (prot)	0	5182	0	0	0	0	0	1547	1186	1341	1426	0
Flt Permitted		0.999								0.719		
Satd. Flow (perm)	0	5181	0	0	0	0	0	1547	1153	1000	1426	0
Satd. Flow (RTOR)		7							17			
Lane Group Flow (vph)	0	2476	0	0	0	0	0	59	198	61	476	0
Turn Type	Perm	NA						NA	Perm	Perm	NA	
Protected Phases		6						4			8	
Permitted Phases	6								4	8		
Total Split (s)	43.0	43.0						32.0	32.0	32.0	32.0	
Total Lost Time (s)		4.2						4.2	4.2	4.2	4.2	
Act Effect Green (s)		38.8						27.8	27.8	27.8	27.8	
Actuated g/C Ratio		0.52						0.37	0.37	0.37	0.37	
v/c Ratio		0.92						0.10	0.45	0.16	0.90	
Control Delay		24.2						16.2	20.3	30.1	58.5	
Queue Delay		0.0						0.0	0.0	0.0	13.1	
Total Delay		24.2						16.2	20.3	30.1	71.6	
LOS		C						B	C	C	E	
Approach Delay		24.2						19.4			66.9	
Approach LOS		C						B			E	

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 0 (0%), Referenced to phase 6:EBTL, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 30.8
 Intersection Capacity Utilization 76.6%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service D

Splits and Phases: 16: Lindaro St & 2nd St



San Rafael Multi-Family TIS: Baseline Conditions
 17: Lincoln Ave & Ritter St

AM PEAK HOUR

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗					↖			↕	
Traffic Vol, veh/h	0	0	0	0	0	0	50	233	3	44	489	26
Future Vol, veh/h	0	0	0	0	0	0	50	233	3	44	489	26
Conflicting Peds, #/hr	0	0	0	0	0	0	12	0	0	0	0	12
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	4	5	0	6	2	0
Mvmt Flow	0	0	0	0	0	0	53	248	3	47	520	28

Major/Minor	Minor2		Major1			Major2			
Conflicting Flow All	-	-	546	560	0	0	251	0	0
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.2	4.14	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	2.236	-	-	2.254	-	-
Pot Cap-1 Maneuver	0	0	541	1001	-	-	1291	-	-
Stage 1	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	-	-	-	-	-	-
Platoon blocked, %					-	-	-	-	-
Mov Cap-1 Maneuver	-	0	536	1001	-	-	1291	-	-
Mov Cap-2 Maneuver	-	0	-	-	-	-	-	-	-
Stage 1	-	0	-	-	-	-	-	-	-
Stage 2	-	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	1.5	0.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1001	-	-	-	1291	-	-
HCM Lane V/C Ratio	0.053	-	-	-	0.036	-	-
HCM Control Delay (s)	8.8	0	-	0	7.9	0	-
HCM Lane LOS	A	A	-	A	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1	-	-

San Rafael Multi-Family TIS: Baseline Conditions

18: Lincoln Ave & 2nd St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	2278	49	0	0	0	0	126	43	125	368	0
Future Volume (vph)	160	2278	49	0	0	0	0	126	43	125	368	0
Satd. Flow (prot)	0	5021	1221	0	0	0	0	1481	1193	0	1240	0
Flt Permitted		0.997									0.876	
Satd. Flow (perm)	0	5012	1156	0	0	0	0	1481	1174	0	1101	0
Satd. Flow (RTOR)			49						17			
Lane Group Flow (vph)	0	2593	52	0	0	0	0	134	46	0	524	0
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		6						4			8	
Permitted Phases	6		6						4	8		
Total Split (s)	44.0	44.0	44.0					31.0	31.0	31.0	31.0	
Total Lost Time (s)		4.2	4.2					4.2	4.2		4.2	
Act Effect Green (s)		39.8	39.8					26.8	26.8		26.8	
Actuated g/C Ratio		0.53	0.53					0.36	0.36		0.36	
v/c Ratio		0.98	0.08					0.25	0.11		1.33	
Control Delay		14.4	0.1					18.7	12.3		180.0	
Queue Delay		42.0	0.0					0.0	0.0		0.0	
Total Delay		56.4	0.1					18.7	12.3		180.0	
LOS		E	A					B	B		F	
Approach Delay		55.3						17.1			180.0	
Approach LOS		E						B			F	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 14 (19%), Referenced to phase 6:EBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 1.33

Intersection Signal Delay: 72.8

Intersection LOS: E

Intersection Capacity Utilization 91.7%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 18: Lincoln Ave & 2nd St



San Rafael Multi-Family TIS: Baseline Conditions
 19: Francisco Blvd W./Tamalpais Ave (West) & 2nd St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	2231	116	0	0	0	0	55	232	102	205	0
Future Volume (vph)	55	2231	116	0	0	0	0	55	232	102	205	0
Satd. Flow (prot)	0	5207	1232	0	0	0	0	1436	1313	1121	1375	0
Flt Permitted		0.999								0.719		
Satd. Flow (perm)	0	5196	1206	0	0	0	0	1436	1313	848	1375	0
Satd. Flow (RTOR)			95						51			
Lane Group Flow (vph)	0	2432	123	0	0	0	0	59	247	109	218	0
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		2						4			8	
Permitted Phases	2		2						4	8		
Total Split (s)	38.0	38.0	38.0					37.0	37.0	37.0	37.0	
Total Lost Time (s)		6.5	6.5					6.5	6.5	6.5	6.5	
Act Effect Green (s)		40.9	40.9					21.1	21.1	21.1	21.1	
Actuated g/C Ratio		0.55	0.55					0.28	0.28	0.28	0.28	
v/c Ratio		0.86	0.18					0.15	0.61	0.46	0.56	
Control Delay		9.7	0.9					18.1	23.6	26.6	27.5	
Queue Delay		5.7	0.0					0.0	0.0	0.0	0.0	
Total Delay		15.4	0.9					18.1	23.6	26.6	27.5	
LOS		B	A					B	C	C	C	
Approach Delay		14.7						22.6			27.2	
Approach LOS		B						C			C	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 24 (32%), Referenced to phase 2:EBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 16.7

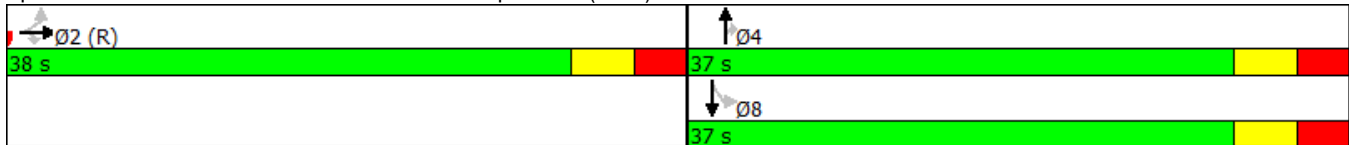
Intersection LOS: B

Intersection Capacity Utilization 134.2%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 19: Francisco Blvd W./Tamalpais Ave (West) & 2nd St



San Rafael Multi-Family TIS: Baseline Conditions

20: US-101 SB Ramp/Hetherton St & 2nd St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1307	1281	0	0	0	0	0	0	295	875	0
Future Volume (vph)	0	1307	1281	0	0	0	0	0	0	295	875	0
Satd. Flow (prot)	0	4817	1109	0	0	0	0	0	0	1366	2975	0
Flt Permitted										0.950		
Satd. Flow (perm)	0	4817	1095	0	0	0	0	0	0	1366	2975	0
Satd. Flow (RTOR)		35	35									
Lane Group Flow (vph)	0	2072	681	0	0	0	0	0	0	314	931	0
Turn Type		NA	Perm							Split	NA	
Protected Phases		2								4	4	
Permitted Phases			2									
Total Split (s)		43.0	43.0							32.0	32.0	
Total Lost Time (s)		4.5	4.5							4.5	4.5	
Act Effect Green (s)		38.5	38.5							27.5	27.5	
Actuated g/C Ratio		0.51	0.51							0.37	0.37	
v/c Ratio		1.00dr	1.18							0.63	0.85	
Control Delay		11.1	106.6							17.5	22.1	
Queue Delay		47.0	2.2							0.2	0.0	
Total Delay		58.1	108.8							17.7	22.1	
LOS		E	F							B	C	
Approach Delay		70.7									21.0	
Approach LOS		E									C	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 36 (48%), Referenced to phase 2:EBT, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 1.18

Intersection Signal Delay: 55.2

Intersection LOS: E

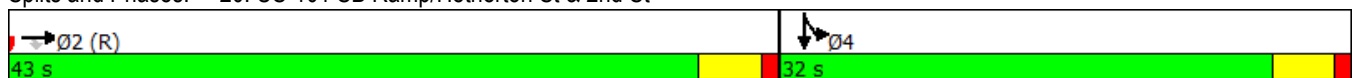
Intersection Capacity Utilization 91.0%

ICU Level of Service F

Analysis Period (min) 15

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

Splits and Phases: 20: US-101 SB Ramp/Hetherton St & 2nd St



San Rafael Multi-Family TIS: Baseline Conditions

21: US-101 NB Ramp/Irwin St & 2nd St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	751	856	0	0	0	0	0	1518	456	0	0	0
Future Volume (vph)	751	856	0	0	0	0	0	1518	456	0	0	0
Satd. Flow (prot)	1274	3892	0	0	0	0	0	4200	1232	0	0	0
Flt Permitted	0.950	0.986										
Satd. Flow (perm)	1263	3882	0	0	0	0	0	4200	1209	0	0	0
Satd. Flow (RTOR)	32	32							74			
Lane Group Flow (vph)	423	1287	0	0	0	0	0	1615	485	0	0	0
Turn Type	Perm	NA						NA	Perm			
Protected Phases		4						2				
Permitted Phases	4								2			
Total Split (s)	38.0	38.0						37.0	37.0			
Total Lost Time (s)	4.2	4.2						5.2	5.2			
Act Effect Green (s)	33.8	33.8						31.8	31.8			
Actuated g/C Ratio	0.45	0.45						0.42	0.42			
v/c Ratio	0.72	0.73						0.91	0.87			
Control Delay	12.1	9.2						29.4	36.2			
Queue Delay	0.6	0.1						0.1	0.0			
Total Delay	12.7	9.3						29.5	36.2			
LOS	B	A						C	D			
Approach Delay		10.2						31.0				
Approach LOS		B						C				

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 48 (64%), Referenced to phase 4:EBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 21.7

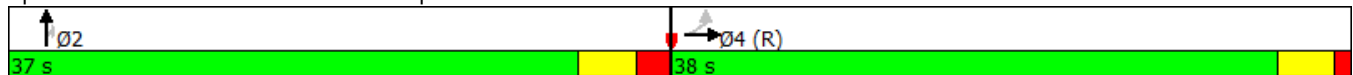
Intersection LOS: C

Intersection Capacity Utilization 83.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 21: US-101 NB Ramp/Irwin St & 2nd St



San Rafael Multi-Family TIS: Baseline Conditions
 22: Nye St & Mission Ave

AM PEAK HOUR

Intersection												
Int Delay, s/veh	20.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	28	567	9	30	829	13	1	29	14	20	55	47
Future Vol, veh/h	28	567	9	30	829	13	1	29	14	20	55	47
Conflicting Peds, #/hr	8	0	3	3	0	8	4	0	6	6	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	30	603	10	32	882	14	1	31	15	21	59	50

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	904	0	0	616	0	0	1682	1639	617	1657	1636	901
Stage 1	-	-	-	-	-	-	671	671	-	961	961	-
Stage 2	-	-	-	-	-	-	1011	968	-	696	675	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	748	-	-	959	-	-	74	100	488	78	100	335
Stage 1	-	-	-	-	-	-	444	453	-	307	333	-
Stage 2	-	-	-	-	-	-	288	331	-	430	452	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	745	-	-	953	-	-	26	87	483	49	87	331
Mov Cap-2 Maneuver	-	-	-	-	-	-	26	87	-	49	87	-
Stage 1	-	-	-	-	-	-	416	424	-	286	309	-
Stage 2	-	-	-	-	-	-	184	307	-	360	423	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.3			60			250.9		
HCM LOS							F			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	110	745	-	-	953	-	-	103
HCM Lane V/C Ratio	0.426	0.04	-	-	0.033	-	-	1.26
HCM Control Delay (s)	60	10	0	-	8.9	0	-	250.9
HCM Lane LOS	F	B	A	-	A	A	-	F
HCM 95th %tile Q(veh)	1.8	0.1	-	-	0.1	-	-	8.8

San Rafael Multi-Family TIS: Baseline Conditions

23: Lincoln Ave & Mission Ave

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	474	13	51	624	49	4	180	27	58	388	342
Future Volume (vph)	87	474	13	51	624	49	4	180	27	58	388	342
Satd. Flow (prot)	1427	1643	0	1463	1520	0	0	1288	0	0	1531	1263
Flt Permitted	0.112			0.461				0.992			0.935	
Satd. Flow (perm)	168	1643	0	709	1520	0	0	1279	0	0	1436	1180
Satd. Flow (RTOR)		3			6			11				302
Lane Group Flow (vph)	93	518	0	54	716	0	0	224	0	0	475	364
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4			8		8
Total Split (s)	10.0	45.0		35.0	35.0		30.0	30.0		30.0	30.0	30.0
Total Lost Time (s)	3.0	4.2		4.2	4.2			4.6			4.6	4.6
Act Effect Green (s)	42.0	40.8		32.8	32.8			25.4			25.4	25.4
Actuated g/C Ratio	0.56	0.54		0.44	0.44			0.34			0.34	0.34
v/c Ratio	0.44	0.58		0.17	1.07			0.51			0.98	0.61
Control Delay	15.1	14.6		25.5	84.6			14.8			63.1	9.3
Queue Delay	0.0	10.5		0.0	10.5			0.0			0.0	0.0
Total Delay	15.1	25.1		25.5	95.1			14.8			63.1	9.3
LOS	B	C		C	F			B			E	A
Approach Delay		23.6			90.2			14.8			39.8	
Approach LOS		C			F			B			D	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 50 (67%), Referenced to phase 4:NBTL and 8:SBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 49.3

Intersection LOS: D

Intersection Capacity Utilization 105.2%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 23: Lincoln Ave & Mission Ave



San Rafael Multi-Family TIS: Baseline Conditions
 24: Tamalpais Ave (West) & Mission Ave

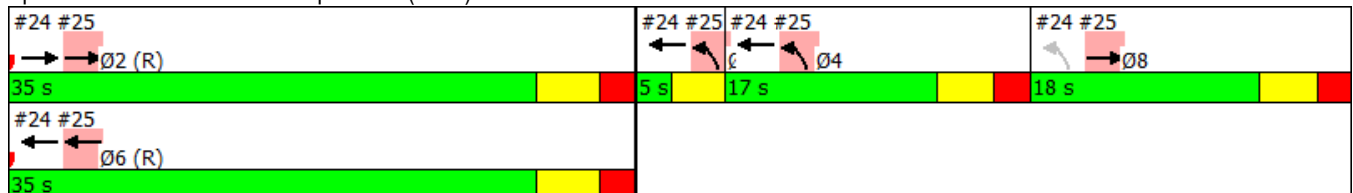
AM PEAK HOUR

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø3	Ø4	Ø6
Lane Configurations									
Traffic Volume (vph)	507	10	0	636	3	3			
Future Volume (vph)	507	10	0	636	3	3			
Satd. Flow (prot)	1741	0	0	1748	1590	0			
Flt Permitted					0.976				
Satd. Flow (perm)	1741	0	0	1748	1550	0			
Satd. Flow (RTOR)	2				3				
Lane Group Flow (vph)	550	0	0	677	6	0			
Turn Type	NA			NA	Perm				
Protected Phases	2			3 4 6			3	4	6
Permitted Phases					8				
Total Split (s)	35.0				18.0		5.0	17.0	35.0
Total Lost Time (s)	5.6				5.2				
Act Effect Green (s)	30.9			53.2	13.6				
Actuated g/C Ratio	0.41			0.71	0.18				
v/c Ratio	0.77			0.55	0.02				
Control Delay	22.7			2.3	24.3				
Queue Delay	3.5			10.0	0.0				
Total Delay	26.3			12.3	24.3				
LOS	C			B	C				
Approach Delay	26.3			12.3	24.3				
Approach LOS	C			B	C				

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 27 (36%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay: 18.6 Intersection LOS: B
 Intersection Capacity Utilization 48.0% ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 24: Tamalpais Ave (West) & Mission Ave



San Rafael Multi-Family TIS: Baseline Conditions
 25: Tamalpais Avenue (East) & Mission Ave

AM PEAK HOUR

	→	↘	↙	←	↖	↗				
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø2	Ø3	Ø4	Ø8
Lane Configurations	↑			↑	↘	↗				
Traffic Volume (vph)	518	0	0	636	0	15				
Future Volume (vph)	518	0	0	636	0	15				
Satd. Flow (prot)	1748	0	0	1748	1512	0				
Flt Permitted										
Satd. Flow (perm)	1748	0	0	1748	1512	0				
Satd. Flow (RTOR)					353					
Lane Group Flow (vph)	551	0	0	677	16	0				
Turn Type	NA			NA	Prot					
Protected Phases	2 8			6	3 4		2	3	4	8
Permitted Phases										
Total Split (s)				35.0			35.0	5.0	17.0	18.0
Total Lost Time (s)				5.6						
Act Effect Green (s)	49.7			30.9	16.7					
Actuated g/C Ratio	0.66			0.41	0.22					
v/c Ratio	0.48			0.94	0.03					
Control Delay	2.5			40.6	0.1					
Queue Delay	0.0			48.0	0.0					
Total Delay	2.5			88.5	0.1					
LOS	A			F	A					
Approach Delay	2.5			88.5	0.1					
Approach LOS	A			F	A					

Intersection Summary

Cycle Length: 75	
Actuated Cycle Length: 75	
Offset: 27 (36%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 49.3	Intersection LOS: D
Intersection Capacity Utilization 46.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 25: Tamalpais Avenue (East) & Mission Ave

<p>#24 #25 → Ø2 (R) 35 s</p>	<p>#24 #25 #24 #25 ↖ Ø3 ↗ Ø4 5 s 17 s</p>	<p>#24 #25 ↖ Ø8 18 s</p>
<p>#24 #25 ← Ø6 (R) 35 s</p>		

San Rafael Multi-Family TIS: Baseline Conditions
 26: Hetherton St/101 SB Off-Ramp & Mission Ave

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑						↑↑	↑
Traffic Volume (vph)	0	513	85	114	138	0	0	0	0	167	1103	476
Future Volume (vph)	0	513	85	114	138	0	0	0	0	167	1103	476
Satd. Flow (prot)	0	3024	0	0	1937	0	0	0	0	0	3297	1485
Flt Permitted					0.557						0.993	
Satd. Flow (perm)	0	3024	0	0	1101	0	0	0	0	0	3297	1406
Satd. Flow (RTOR)		29										
Lane Group Flow (vph)	0	636	0	0	268	0	0	0	0	0	1351	506
Turn Type		NA		Perm	NA					Split	NA	custom
Protected Phases		4			8					2	2	
Permitted Phases				8								5
Total Split (s)		37.0		37.0	37.0					38.0	38.0	31.0
Total Lost Time (s)		4.2			4.2						4.6	4.6
Act Effect Green (s)		32.8			32.8						33.4	26.4
Actuated g/C Ratio		0.44			0.44						0.45	0.35
v/c Ratio		0.48			0.56						0.92	1.02
Control Delay		9.4			32.6						31.6	74.1
Queue Delay		0.8			3.5						0.0	40.3
Total Delay		10.2			36.1						31.6	114.4
LOS		B			D						C	F
Approach Delay		10.2			36.1						54.2	
Approach LOS		B			D						D	

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 58 (77%), Referenced to phase 2:SBTL and 7:Ped, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 1.02
 Intersection Signal Delay: 42.3 Intersection LOS: D
 Intersection Capacity Utilization 80.4% ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 26: Hetherton St/101 SB Off-Ramp & Mission Ave

↓ Ø2 (R) 38 s	→ Ø4 37 s
↙ Ø7 (R) ↘ Ø5 7 s 31 s	← Ø8 37 s

Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Total Split (s)	7.0
Total Lost Time (s)	
Act Effect Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

San Rafael Multi-Family TIS: Baseline Conditions
 27: Irwin St/101 NB On-Ramp & Mission Ave

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	461	238	0	0	200	280	66	1340	35	0	0	0
Future Volume (vph)	461	238	0	0	200	280	66	1340	35	0	0	0
Satd. Flow (prot)	1494	1631	0	0	1631	1337	0	3131	1322	0	0	0
Flt Permitted	0.534							0.998				
Satd. Flow (perm)	840	1631	0	0	1631	1337	0	3131	1260	0	0	0
Satd. Flow (RTOR)							79		79			
Lane Group Flow (vph)	490	253	0	0	213	298	0	1496	37	0	0	0
Turn Type	pm+pt	NA			NA	Prot	Split	NA	Perm			
Protected Phases	7	4			8	8	2	2				
Permitted Phases	4								2			
Total Split (s)	15.0	38.0			23.0	23.0	37.0	37.0	37.0			
Total Lost Time (s)	4.2	4.2			4.2	4.2		4.2	4.2			
Act Effect Green (s)	33.8	33.8			18.8	18.8		32.8	32.8			
Actuated g/C Ratio	0.45	0.45			0.25	0.25		0.44	0.44			
v/c Ratio	1.04	0.34			0.52	0.76		1.09	0.06			
Control Delay	73.4	13.2			29.6	33.3		66.0	0.4			
Queue Delay	0.0	0.0			0.0	0.0		3.4	0.0			
Total Delay	73.4	13.2			29.6	33.3		69.4	0.4			
LOS	E	B			C	C		E	A			
Approach Delay		52.9			31.8			67.8				
Approach LOS		D			C			E				

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 15 (20%), Referenced to phase 2:NBT, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 1.09

Intersection Signal Delay: 57.2

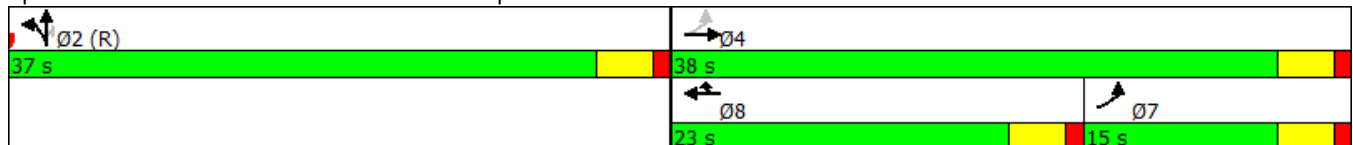
Intersection LOS: E

Intersection Capacity Utilization 96.9%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 27: Irwin St/101 NB On-Ramp & Mission Ave



San Rafael Multi-Family TIS: Baseline Conditions

28: Lincoln Ave & 5th Ave

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	352	19	32	268	19	8	195	44	19	359	24
Future Volume (vph)	37	352	19	32	268	19	8	195	44	19	359	24
Satd. Flow (prot)	1377	1689	0	1377	1630	0	0	1320	0	0	1398	0
Flt Permitted	0.483			0.382				0.986			0.981	
Satd. Flow (perm)	693	1689	0	550	1630	0	0	1303	0	0	1373	0
Satd. Flow (RTOR)		4			6			20			6	
Lane Group Flow (vph)	39	394	0	34	305	0	0	263	0	0	428	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	34.0	34.0		34.0	34.0		41.0	41.0		41.0	41.0	
Total Lost Time (s)	4.6	4.6		4.6	4.6			4.6			4.6	
Act Effect Green (s)	29.4	29.4		29.4	29.4			36.4			36.4	
Actuated g/C Ratio	0.39	0.39		0.39	0.39			0.49			0.49	
v/c Ratio	0.14	0.59		0.16	0.48			0.41			0.64	
Control Delay	16.5	22.4		29.4	29.7			8.0			8.1	
Queue Delay	0.0	1.0		0.0	0.8			0.4			0.3	
Total Delay	16.5	23.4		29.4	30.5			8.4			8.4	
LOS	B	C		C	C			A			A	
Approach Delay		22.8			30.4			8.4			8.4	
Approach LOS		C			C			A			A	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 46 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 17.7

Intersection LOS: B

Intersection Capacity Utilization 76.2%

ICU Level of Service D

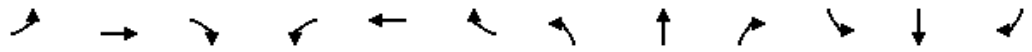
Analysis Period (min) 15

Splits and Phases: 28: Lincoln Ave & 5th Ave

	Ø2 (R)	41 s		Ø4	34 s
				Ø8	34 s
	Ø6 (R)	41 s			

San Rafael Multi-Family TIS: Baseline Conditions
 29: 5th Ave & Tamalpais Ave (West)

AM PEAK HOUR

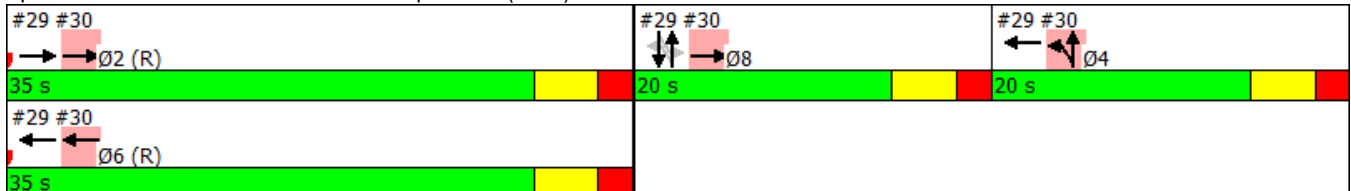


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱			↱			↕			↕	
Traffic Volume (vph)	0	376	19	0	338	77	9	8	12	10	54	18
Future Volume (vph)	0	376	19	0	338	77	9	8	12	10	54	18
Satd. Flow (prot)	0	1732	0	0	1694	0	0	1612	0	0	1665	0
Flt Permitted								0.904			0.951	
Satd. Flow (perm)	0	1732	0	0	1694	0	0	1465	0	0	1593	0
Satd. Flow (RTOR)		4			32			13			17	
Lane Group Flow (vph)	0	420	0	0	442	0	0	32	0	0	87	0
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		2			4	6		8			8	
Permitted Phases							8			8		
Total Split (s)		35.0					20.0	20.0		20.0	20.0	
Total Lost Time (s)		5.6						5.6			5.6	
Act Effect Green (s)		39.3			55.4			8.4			8.4	
Actuated g/C Ratio		0.52			0.74			0.11			0.11	
v/c Ratio		0.46			0.35			0.18			0.45	
Control Delay		10.1			0.8			15.2			31.5	
Queue Delay		1.6			0.0			0.3			1.0	
Total Delay		11.7			0.9			15.5			32.5	
LOS		B			A			B			C	
Approach Delay		11.7			0.9			15.5			32.5	
Approach LOS		B			A			B			C	

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 35 (47%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.46
 Intersection Signal Delay: 8.8 Intersection LOS: A
 Intersection Capacity Utilization 41.0% ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 29: 5th Ave & Tamalpais Ave (West)



Lane Group	Ø4	Ø6
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Satd. Flow (RTOR)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	4	6
Permitted Phases		
Total Split (s)	20.0	35.0
Total Lost Time (s)		
Act Effect Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

San Rafael Multi-Family TIS: Baseline Conditions
 30: Tamalpais Avenue (East) & 5th Ave

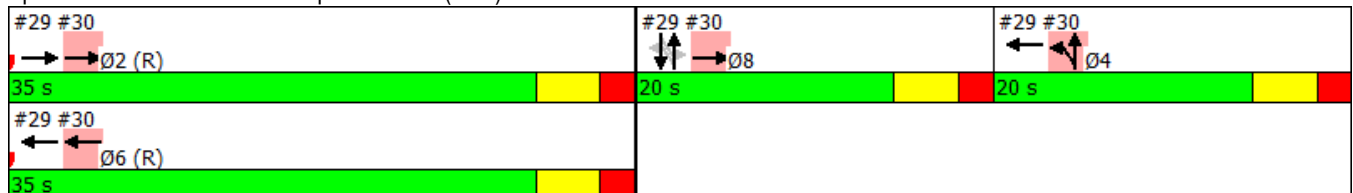
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↗			↖				
Traffic Volume (vph)	0	398	0	0	387	8	28	2	29	0	0	0
Future Volume (vph)	0	398	0	0	387	8	28	2	29	0	0	0
Satd. Flow (prot)	0	1748	0	0	1741	0	0	1559	0	0	0	0
Flt Permitted								0.977				
Satd. Flow (perm)	0	1748	0	0	1741	0	0	1559	0	0	0	0
Satd. Flow (RTOR)					2			31				
Lane Group Flow (vph)	0	423	0	0	421	0	0	63	0	0	0	0
Turn Type		NA			NA		Split	NA				
Protected Phases		2 8			6		4	4				
Permitted Phases												
Total Split (s)					35.0		20.0	20.0				
Total Lost Time (s)					5.6			5.6				
Act Effect Green (s)		53.3			39.3			10.5				
Actuated g/C Ratio		0.71			0.52			0.14				
v/c Ratio		0.34			0.46			0.26				
Control Delay		0.7			12.6			26.5				
Queue Delay		0.0			2.0			0.0				
Total Delay		0.8			14.5			26.5				
LOS		A			B			C				
Approach Delay		0.8			14.5			26.5				
Approach LOS		A			B			C				

Intersection Summary

Cycle Length: 75	
Actuated Cycle Length: 75	
Offset: 35 (47%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.46	
Intersection Signal Delay: 8.9	Intersection LOS: A
Intersection Capacity Utilization 37.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 30: Tamalpais Avenue (East) & 5th Ave



Lane Group	Ø2	Ø8
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Satd. Flow (RTOR)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	8
Permitted Phases		
Total Split (s)	35.0	20.0
Total Lost Time (s)		
Act Effect Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

San Rafael Multi-Family TIS: Baseline Conditions
 31: 5th Ave & Hetherton St

AM PEAK HOUR

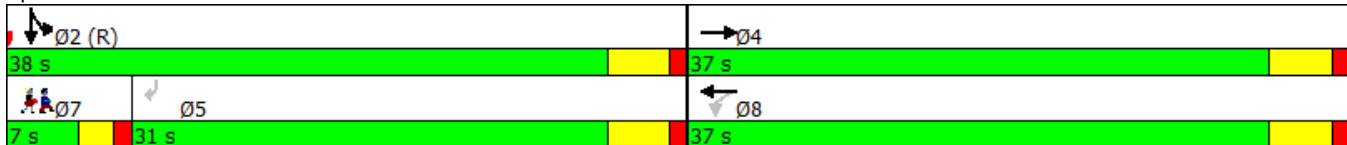
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↶			↷						↶↷↶	↷
Traffic Volume (vph)	0	215	195	70	179	0	0	0	0	39	1141	159
Future Volume (vph)	0	215	195	70	179	0	0	0	0	39	1141	159
Satd. Flow (prot)	0	1838	0	0	1953	0	0	0	0	0	4587	1322
Flt Permitted					0.726						0.998	
Satd. Flow (perm)	0	1838	0	0	1437	0	0	0	0	0	4587	1266
Satd. Flow (RTOR)		26										
Lane Group Flow (vph)	0	436	0	0	264	0	0	0	0	0	1255	169
Turn Type		NA		Perm	NA					Split	NA	custom
Protected Phases		4			8					2	2	
Permitted Phases				8								5
Total Split (s)		37.0		37.0	37.0					38.0	38.0	31.0
Total Lost Time (s)		4.6			4.6						4.5	4.5
Act Effect Green (s)		32.4			32.4						33.5	26.5
Actuated g/C Ratio		0.43			0.43						0.45	0.35
v/c Ratio		0.54			0.43						0.61	0.38
Control Delay		8.5			23.3						5.3	8.0
Queue Delay		2.1			0.2						0.4	1.1
Total Delay		10.5			23.5						5.7	9.2
LOS		B			C						A	A
Approach Delay		10.5			23.5						6.1	
Approach LOS		B			C						A	

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 67 (89%), Referenced to phase 2:SBTL, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 9.2
 Intersection Capacity Utilization 74.3%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service D

Splits and Phases: 31: 5th Ave & Hetherton St



Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Total Split (s)	7.0
Total Lost Time (s)	
Act Effect Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

San Rafael Multi-Family TIS: Baseline Conditions

32: 5th Ave & Irwin St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	202	77	0	0	138	56	112	1245	9	0	0	0
Future Volume (vph)	202	77	0	0	138	56	112	1245	9	0	0	0
Satd. Flow (prot)	1313	1383	0	0	1320	0	0	2682	0	0	0	0
Flt Permitted	0.572							0.996				
Satd. Flow (perm)	786	1383	0	0	1320	0	0	2682	0	0	0	0
Satd. Flow (RTOR)					28			1				
Lane Group Flow (vph)	215	82	0	0	207	0	0	1453	0	0	0	0
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Total Split (s)	28.0	28.0			28.0		47.0	47.0				
Total Lost Time (s)	4.6	4.6			4.6			4.6				
Act Effect Green (s)	23.4	23.4			23.4			42.4				
Actuated g/C Ratio	0.31	0.31			0.31			0.57				
v/c Ratio	0.88	0.19			0.48			0.96				
Control Delay	52.9	12.5			22.4			16.3				
Queue Delay	0.0	0.0			0.0			43.6				
Total Delay	52.9	12.5			22.4			59.9				
LOS	D	B			C			E				
Approach Delay		41.8			22.4			59.9				
Approach LOS		D			C			E				

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 7 (9%), Referenced to phase 2:NBT, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 53.1

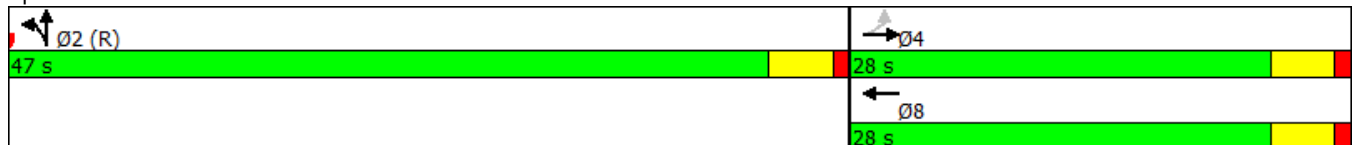
Intersection LOS: D

Intersection Capacity Utilization 89.9%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 32: 5th Ave & Irwin St



San Rafael Multi-Family TIS: Baseline Conditions

32: 5th Ave & Irwin St

AM Peak Hour

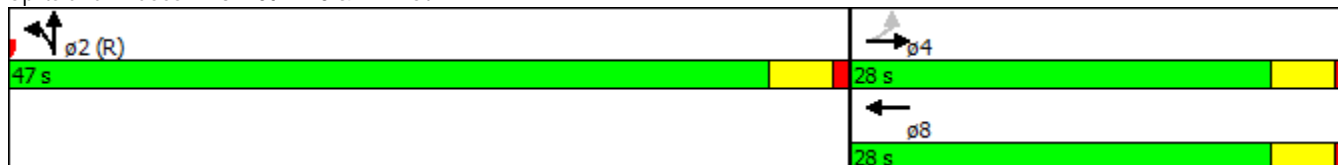


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	15.0	15.0			15.0		16.0	16.0				
Pedestrian Calls (#/hr)	0	0			0		0	0				
Act Effect Green (s)	25.0	25.0			25.0			44.0				
Actuated g/C Ratio	0.33	0.33			0.33			0.59				
v/c Ratio	0.87	0.18			0.45			0.92				
Control Delay	52.9	13.3			20.5			12.2				
Queue Delay	0.0	0.0			0.0			45.7				
Total Delay	52.9	13.3			20.6			57.9				
LOS	D	B			C			E				
Approach Delay		41.9			20.6			57.9				
Approach LOS		D			C			E				
Queue Length 50th (ft)	107	29			63			62				
Queue Length 95th (ft)	#186	m53			123			#461				
Internal Link Dist (ft)		308			457			211			233	
Turn Bay Length (ft)	75											
Base Capacity (vph)	247	461			459			1574				
Starvation Cap Reductn	0	0			0			4				
Spillback Cap Reductn	0	0			3			350				
Storage Cap Reductn	0	0			0			0				
Reduced v/c Ratio	0.87	0.18			0.45			1.19				

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 7 (9%), Referenced to phase 2:NBTL, Start of Green
 Natural Cycle: 80
 Control Type: Pretimed
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 51.5
 Intersection LOS: D
 Intersection Capacity Utilization 88.4%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 32: 5th Ave & Irwin St



San Rafael Multi-Family TIS: Baseline Conditions

1: Cijos St & 4th St

AM PEAK HOUR

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↖	↗	↘	
Traffic Volume (vph)	332	18	50	414	11	24
Future Volume (vph)	332	18	50	414	11	24
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	10	12	12	12
Storage Length (ft)		0	40		0	0
Storage Lanes		0	1		0	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.98		0.97	
Frt	0.993				0.908	
Flt Protected			0.950		0.984	
Satd. Flow (prot)	1492	0	1340	1511	1390	0
Flt Permitted			0.494		0.984	
Satd. Flow (perm)	1492	0	681	1511	1384	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	7				26	
Link Speed (mph)	25			25	25	
Link Distance (ft)	315			331	229	
Travel Time (s)	8.6			9.0	6.2	
Confl. Peds. (#/hr)		43	43		8	14
Confl. Bikes (#/hr)		7				
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	6%	11%	6%	6%	0%	0%
Parking (#/hr)	2	2	2	2	2	2
Adj. Flow (vph)	353	19	53	440	12	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	372	0	53	440	38	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			10	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.24	1.07	1.35	1.24	1.24	1.07
Turning Speed (mph)		9	15		15	9
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases			6			
Minimum Split (s)	41.0		41.0	41.0	24.0	
Total Split (s)	41.0		41.0	41.0	24.0	
Total Split (%)	63.1%		63.1%	63.1%	36.9%	
Maximum Green (s)	36.8		36.8	36.8	20.0	
Yellow Time (s)	3.2		3.2	3.2	3.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.2		4.2	4.2	4.0	
Lead/Lag						
Lead-Lag Optimize?						

San Rafael Multi-Family TIS: Baseline Conditions

1: Cijos St & 4th St

AM PEAK HOUR

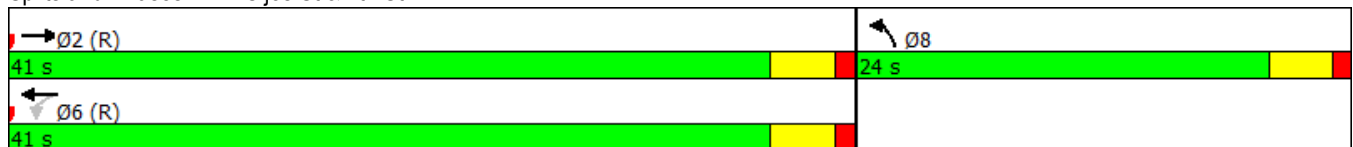


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Walk Time (s)	24.0				7.0	
Flash Dont Walk (s)	12.0				13.0	
Pedestrian Calls (#/hr)	0				0	
Act Effect Green (s)	36.8		36.8	36.8	20.0	
Actuated g/C Ratio	0.57		0.57	0.57	0.31	
v/c Ratio	0.44		0.14	0.51	0.09	
Control Delay	10.0		7.8	11.3	9.5	
Queue Delay	0.0		0.0	1.0	0.0	
Total Delay	10.0		7.8	12.3	9.5	
LOS	B		A	B	A	
Approach Delay	10.0			11.8	9.5	
Approach LOS	B			B	A	
Queue Length 50th (ft)	74		9	96	3	
Queue Length 95th (ft)	131		24	166	22	
Internal Link Dist (ft)	235			251	149	
Turn Bay Length (ft)			40			
Base Capacity (vph)	847		385	855	445	
Starvation Cap Reductn	0		0	200	0	
Spillback Cap Reductn	0		0	0	0	
Storage Cap Reductn	0		0	0	0	
Reduced v/c Ratio	0.44		0.14	0.67	0.09	

Intersection Summary

Area Type: Other
 Cycle Length: 65
 Actuated Cycle Length: 65
 Offset: 52 (80%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
 Natural Cycle: 65
 Control Type: Pretimed
 Maximum v/c Ratio: 0.51
 Intersection Signal Delay: 11.0
 Intersection Capacity Utilization 67.4%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C




















Splits and Phases: 1: Cijos St & 4th St



San Rafael Multi-Family TIS: Baseline Conditions

2: Lincoln Ave & 4th St

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	278	34	71	365	25	22	204	41	51	279	76
Future Volume (vph)	47	278	34	71	365	25	22	204	41	51	279	76
Ideal Flow (vphpl)	1600	1700	1700	1600	1700	1700	1600	1700	1700	1600	1700	1700
Lane Width (ft)	10	9	12	10	12	12	12	10	8	12	10	9
Storage Length (ft)	45		0	75		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.98	0.99		0.96	1.00			0.99			0.98	
Frt		0.984			0.990			0.979			0.975	
Flt Protected	0.950			0.950				0.996			0.994	
Satd. Flow (prot)	1351	1407	0	1391	1575	0	0	1307	0	0	1323	0
Flt Permitted	0.345			0.439				0.955			0.931	
Satd. Flow (perm)	480	1407	0	617	1575	0	0	1250	0	0	1237	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			5			18			22	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		331			259			359			288	
Travel Time (s)		9.0			7.1			9.8			7.9	
Confl. Peds. (#/hr)	35		54	54		35	71		20	20		71
Confl. Bikes (#/hr)			5			1			5			4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	5%	6%	5%	2%	6%	12%	10%	5%	0%	2%	1%	4%
Parking (#/hr)							2	2	2	2	2	2
Adj. Flow (vph)	50	296	36	76	388	27	23	217	44	54	297	81
Shared Lane Traffic (%)												
Lane Group Flow (vph)	50	332	0	76	415	0	0	284	0	0	432	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.35	1.31	1.15	1.35	1.15	1.15	1.24	1.45	1.38	1.24	1.45	1.31
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	33.0	33.0		33.0	33.0		42.0	42.0		42.0	42.0	
Total Split (%)	44.0%	44.0%		44.0%	44.0%		56.0%	56.0%		56.0%	56.0%	
Maximum Green (s)	28.8	28.8		28.8	28.8		37.8	37.8		37.8	37.8	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.2	3.2		3.2	3.2	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.2	4.2		4.2	4.2		4.2	4.2		4.2	4.2	
Lead/Lag												
Lead-Lag Optimize?												

San Rafael Multi-Family TIS: Baseline Conditions

2: Lincoln Ave & 4th St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	28.8	28.8		28.8	28.8			37.8			37.8	
Actuated g/C Ratio	0.38	0.38		0.38	0.38			0.50			0.50	
v/c Ratio	0.27	0.61		0.32	0.68			0.45			0.68	
Control Delay	20.9	23.8		30.7	37.4			12.4			16.2	
Queue Delay	0.0	0.5		0.0	0.7			0.1			0.4	
Total Delay	20.9	24.4		30.7	38.1			12.5			16.6	
LOS	C	C		C	D			B			B	
Approach Delay		23.9			36.9			12.5			16.6	
Approach LOS		C			D			B			B	
Queue Length 50th (ft)	16	118		38	213			114			86	
Queue Length 95th (ft)	44	203		67	280			m153			113	
Internal Link Dist (ft)		251			179			279			208	
Turn Bay Length (ft)	45			75								
Base Capacity (vph)	184	545		236	607			638			634	
Starvation Cap Reductn	0	43		0	42			0			6	
Spillback Cap Reductn	0	0		0	0			28			28	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.27	0.66		0.32	0.73			0.47			0.71	

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 43 (57%), Referenced to phase 4:SBTL and 8:NBTL, Start of Green

Natural Cycle: 50

Control Type: Pretimed

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 23.9

Intersection LOS: C

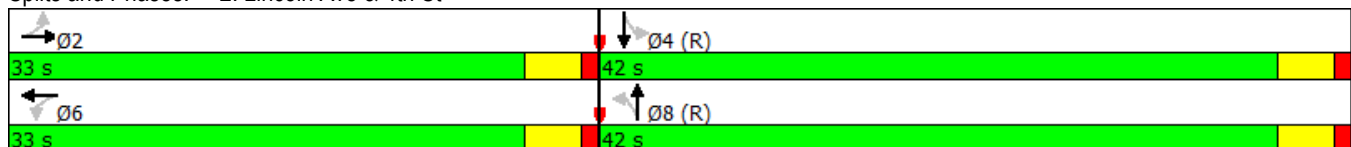
Intersection Capacity Utilization 83.5%

ICU Level of Service E

Analysis Period (min) 15

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

Splits and Phases: 2: Lincoln Ave & 4th St



San Rafael Multi-Family TIS: Baseline Conditions
 3: Tamalpais Avenue (West) South Leg & 4th St

AM PEAK HOUR

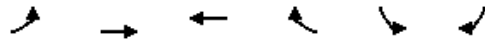
	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖		↗
Traffic Volume (vph)	312	59	0	463	0	91
Future Volume (vph)	312	59	0	463	0	91
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.978					0.865
Flt Protected						
Satd. Flow (prot)	1689	0	0	1698	0	1512
Flt Permitted						
Satd. Flow (perm)	1689	0	0	1698	0	1512
Link Speed (mph)	25			25	25	
Link Distance (ft)	259			60	106	
Travel Time (s)	7.1			1.6	2.9	
Confl. Peds. (#/hr)		34				49
Confl. Bikes (#/hr)		4				
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	5%	0%	0%	6%	0%	3%
Adj. Flow (vph)	332	63	0	493	0	97
Shared Lane Traffic (%)						
Lane Group Flow (vph)	395	0	0	493	0	97
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			10	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	43.8%
Analysis Period (min)	15
	ICU Level of Service A

San Rafael Multi-Family TIS: Baseline Conditions
 4: 4th St & Tamalpais Ave (West) North Leg

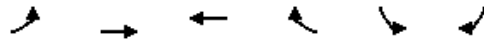
AM PEAK HOUR



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø2	Ø4	Ø6
Lane Configurations		↑	↔			↘			
Traffic Volume (vph)	0	403	438	49	0	25			
Future Volume (vph)	0	403	438	49	0	25			
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00			
Ped Bike Factor			0.99			0.86			
Frt			0.986			0.865			
Flt Protected									
Satd. Flow (prot)	0	1714	1665	0	0	1442			
Flt Permitted									
Satd. Flow (perm)	0	1714	1665	0	0	1245			
Right Turn on Red				Yes		Yes			
Satd. Flow (RTOR)			15			367			
Link Speed (mph)		25	25		25				
Link Distance (ft)		60	60		194				
Travel Time (s)		1.6	1.6		5.3				
Confl. Peds. (#/hr)				39		50			
Confl. Bikes (#/hr)				1					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94			
Heavy Vehicles (%)	0%	5%	6%	0%	0%	8%			
Adj. Flow (vph)	0	429	466	52	0	27			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	0	429	518	0	0	27			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Left	Left	Right	Left	Right			
Median Width(ft)		12	12		0				
Link Offset(ft)		0	0		0				
Crosswalk Width(ft)		16	16		16				
Two way Left Turn Lane									
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07			
Turning Speed (mph)	15			9	15	9			
Turn Type		NA	NA			Perm			
Protected Phases		2 8	4 6				2	4	6
Permitted Phases						8			
Detector Phase		2 8	4 6			8			
Switch Phase									
Minimum Initial (s)					5.0	9.0	9.0	8.0	
Minimum Split (s)					21.0	18.6	21.0	20.6	
Total Split (s)					21.0	33.0	21.0	33.0	
Total Split (%)					28.0%	44%	28%	44%	
Maximum Green (s)					15.8	27.4	15.4	27.4	
Yellow Time (s)					3.2	3.6	3.6	3.6	
All-Red Time (s)					2.0	2.0	2.0	2.0	
Lost Time Adjust (s)					0.0				
Total Lost Time (s)					5.2				
Lead/Lag									
Lead-Lag Optimize?									
Vehicle Extension (s)					3.0	3.0	3.0	3.0	
Recall Mode					None	C-Max	None	C-Max	

San Rafael Multi-Family TIS: Baseline Conditions
 4: 4th St & Tamalpais Ave (West) North Leg

AM PEAK HOUR

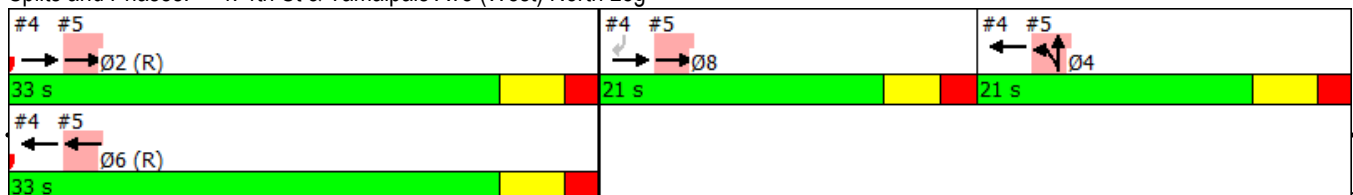


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø2	Ø4	Ø6
Walk Time (s)						4.0	7.0	4.0	7.0
Flash Dont Walk (s)						11.8	6.0	11.4	8.0
Pedestrian Calls (#/hr)						34	11	20	35
Act Effect Green (s)		50.0	52.2			12.0			
Actuated g/C Ratio		0.67	0.70			0.16			
v/c Ratio		0.38	0.45			0.05			
Control Delay		10.4	3.5			0.2			
Queue Delay		0.9	0.0			0.0			
Total Delay		11.3	3.6			0.2			
LOS		B	A			A			
Approach Delay		11.3	3.6		0.2				
Approach LOS		B	A		A				
90th %ile Green (s)						15.8	27.4	15.4	27.4
90th %ile Term Code						Max	Coord	Max	Coord
70th %ile Green (s)						15.8	27.4	15.4	27.4
70th %ile Term Code						Ped	Coord	Max	Coord
50th %ile Green (s)						11.3	31.2	16.1	31.2
50th %ile Term Code						Gap	Coord	Gap	Coord
30th %ile Green (s)						9.9	36.2	12.5	36.2
30th %ile Term Code						Gap	Coord	Gap	Coord
10th %ile Green (s)						7.4	41.7	9.5	41.7
10th %ile Term Code						Gap	Coord	Gap	Coord
Queue Length 50th (ft)		146	0			0			
Queue Length 95th (ft)		221	m20			m0			
Internal Link Dist (ft)		1	1		114				
Turn Bay Length (ft)									
Base Capacity (vph)		1229	1150			551			
Starvation Cap Reductn		512	0			0			
Spillback Cap Reductn		0	46			103			
Storage Cap Reductn		0	0			0			
Reduced v/c Ratio		0.60	0.47			0.06			

Intersection Summary

















Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 38 (51%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 6.9 Intersection LOS: A
 Intersection Capacity Utilization 48.5% ICU Level of Service A
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: 4th St & Tamalpais Ave (West) North Leg



San Rafael Multi-Family TIS: Baseline Conditions
 5: 4th St & Tamalpais Avenue (East)

AM PEAK HOUR

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	0	403	0	0	487	57	0	0	0	0	0	0	
Future Volume (vph)	0	403	0	0	487	57	0	0	0	0	0	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor	0.99												
Frt	0.986												
Flt Protected													
Satd. Flow (prot)	0	1714	0	0	1667	0	0	1800	0	0	0	0	
Flt Permitted													
Satd. Flow (perm)	0	1714	0	0	1667	0	0	1800	0	0	0	0	
Right Turn on Red			Yes			Yes			Yes				Yes
Satd. Flow (RTOR)	9												
Link Speed (mph)	25				25				25		25		
Link Distance (ft)	60				167				351		288		
Travel Time (s)	1.6				4.6				9.6		7.9		
Confl. Peds. (#/hr)	31							31			21		
Confl. Bikes (#/hr)	6												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Heavy Vehicles (%)	0%	5%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%	
Adj. Flow (vph)	0	429	0	0	518	61	0	0	0	0	0	0	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	429	0	0	579	0	0	0	0	0	0	0	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(ft)	12				0				0		0		
Link Offset(ft)	0				0				5		0		
Crosswalk Width(ft)	16				16				16		16		
Two way Left Turn Lane													
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	
Turning Speed (mph)	15	9		15	9		15	9		15	9		
Turn Type	NA				NA								
Protected Phases	2 8				6		4 4						
Permitted Phases													
Detector Phase	2 8				6		4 4						
Switch Phase													
Minimum Initial (s)					8.0		9.0		9.0				
Minimum Split (s)					20.6		21.0		21.0				
Total Split (s)					33.0		21.0		21.0				
Total Split (%)					44.0%		28.0%		28.0%				
Maximum Green (s)					27.4		15.4		15.4				
Yellow Time (s)					3.6		3.6		3.6				
All-Red Time (s)					2.0		2.0		2.0				
Lost Time Adjust (s)					0.0		0.0		0.0				
Total Lost Time (s)					5.6		5.6		5.6				
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)					3.0		3.0		3.0				
Recall Mode					C-Max		None		None				

San Rafael Multi-Family TIS: Baseline Conditions
 5: 4th St & Tamalpais Avenue (East)

AM PEAK HOUR

Lane Group	Ø2	Ø8
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	2	8
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	9.0	5.0
Minimum Split (s)	18.6	21.0
Total Split (s)	33.0	21.0
Total Split (%)	44%	28%
Maximum Green (s)	27.4	15.8
Yellow Time (s)	3.6	3.2
All-Red Time (s)	2.0	2.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	3.0
Recall Mode	C-Max	None

San Rafael Multi-Family TIS: Baseline Conditions
 5: 4th St & Tamalpais Avenue (East)

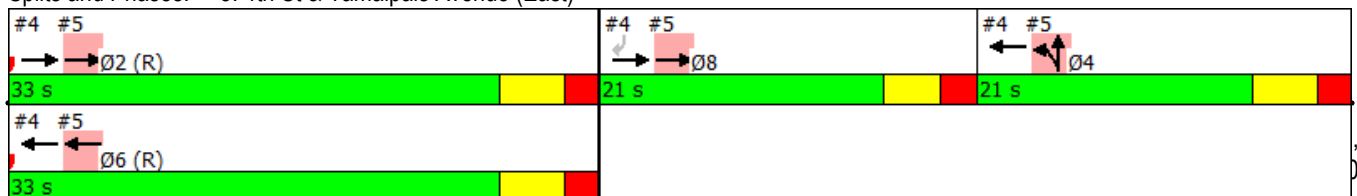
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)					7.0		4.0	4.0				
Flash Dont Walk (s)					8.0		11.4	11.4				
Pedestrian Calls (#/hr)					35		20	20				
Act Effct Green (s)		50.0			32.8							
Actuated g/C Ratio		0.67			0.44							
v/c Ratio		0.38			0.79							
Control Delay		1.2			29.1							
Queue Delay		0.0			3.6							
Total Delay		1.2			32.7							
LOS		A			C							
Approach Delay		1.2			32.7							
Approach LOS		A			C							
90th %ile Green (s)					27.4		15.4	15.4				
90th %ile Term Code					Coord		Max	Max				
70th %ile Green (s)					27.4		15.4	15.4				
70th %ile Term Code					Coord		Max	Max				
50th %ile Green (s)					31.2		16.1	16.1				
50th %ile Term Code					Coord		Gap	Gap				
30th %ile Green (s)					36.2		12.5	12.5				
30th %ile Term Code					Coord		Gap	Gap				
10th %ile Green (s)					41.7		9.5	9.5				
10th %ile Term Code					Coord		Gap	Gap				
Queue Length 50th (ft)		3			268							
Queue Length 95th (ft)		3			#456							
Internal Link Dist (ft)		1			87			271			208	
Turn Bay Length (ft)												
Base Capacity (vph)		1229			733							
Starvation Cap Reductn		0			86							
Spillback Cap Reductn		0			26							
Storage Cap Reductn		0			0							
Reduced v/c Ratio		0.35			0.89							

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 38 (51%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 19.3 Intersection LOS: B
 Intersection Capacity Utilization 50.5% ICU Level of Service A
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 5: 4th St & Tamalpais Avenue (East)



San Rafael Multi-Family TIS: Baseline Conditions
 5: 4th St & Tamalpais Avenue (East)

AM PEAK HOUR

Lane Group	Ø2	Ø8
Walk Time (s)	7.0	4.0
Flash Dont Walk (s)	6.0	11.8
Pedestrian Calls (#/hr)	11	34
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
90th %ile Green (s)	27.4	15.8
90th %ile Term Code	Coord	Max
70th %ile Green (s)	27.4	15.8
70th %ile Term Code	Coord	Ped
50th %ile Green (s)	31.2	11.3
50th %ile Term Code	Coord	Gap
30th %ile Green (s)	36.2	9.9
30th %ile Term Code	Coord	Gap
10th %ile Green (s)	41.7	7.4
10th %ile Term Code	Coord	Gap
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

San Rafael Multi-Family TIS: Baseline Conditions

6: Hetherton St & 4th St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	274	130	176	312	0	0	0	0	110	962	234
Future Volume (vph)	0	274	130	176	312	0	0	0	0	110	962	234
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	13	10	15	11	12	12	12	12	12	12	12
Storage Length (ft)	0		0	100		0	0		0	0		140
Storage Lanes	0		1	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00
Ped Bike Factor			0.96	0.98							1.00	0.95
Frt			0.850									0.850
Flt Protected				0.950							0.995	
Satd. Flow (prot)	0	1806	1298	1862	1626	0	0	0	0	0	4503	1348
Flt Permitted				0.512							0.995	
Satd. Flow (perm)	0	1806	1241	985	1626	0	0	0	0	0	4499	1275
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)			76									
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		167			385			352			290	
Travel Time (s)		4.6			10.5			9.6			7.9	
Confl. Peds. (#/hr)			32	32						6		21
Confl. Bikes (#/hr)			6									2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	3%	10%	1%	7%	0%	0%	0%	0%	1%	5%	1%
Parking (#/hr)											2	2
Adj. Flow (vph)	0	291	138	187	332	0	0	0	0	117	1023	249
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	291	138	187	332	0	0	0	0	0	1140	249
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		6			15			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.03	1.17	0.95	1.12	1.07	1.07	1.07	1.07	1.07	1.12	1.24
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm	Perm	NA					Perm	NA	custom
Protected Phases		4			8						2	
Permitted Phases			4	8						2		5
Minimum Split (s)		29.0	29.0	29.0	29.0					29.0	29.0	29.0
Total Split (s)		37.0	37.0	37.0	37.0					38.0	38.0	31.0
Total Split (%)		49.3%	49.3%	49.3%	49.3%					50.7%	50.7%	41.3%
Maximum Green (s)		32.8	32.8	32.8	32.8					33.8	33.8	26.8
Yellow Time (s)		3.2	3.2	3.2	3.2					3.2	3.2	3.2
All-Red Time (s)		1.0	1.0	1.0	1.0					1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Total Lost Time (s)		4.2	4.2	4.2	4.2					4.2	4.2	4.2
Lead/Lag												Lag
Lead-Lag Optimize?												

Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Parking (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Minimum Split (s)	7.0
Total Split (s)	7.0
Total Split (%)	9%
Maximum Green (s)	3.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	

San Rafael Multi-Family TIS: Baseline Conditions

6: Hetherton St & 4th St

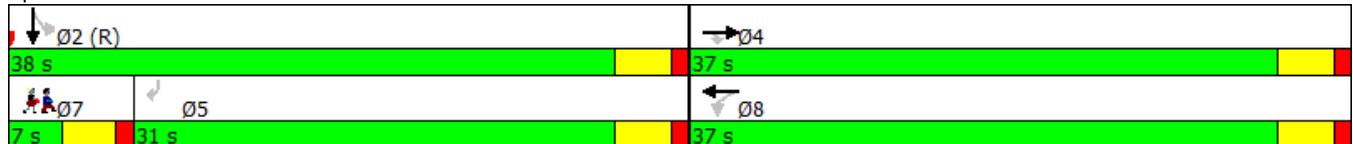
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		10.0	10.0	10.0	10.0					10.0	10.0	10.0
Flash Dont Walk (s)		14.0	14.0	14.0	14.0					14.0	14.0	14.0
Pedestrian Calls (#/hr)		0	0	0	0					0	0	0
Act Effect Green (s)		32.8	32.8	32.8	32.8						33.8	26.8
Actuated g/C Ratio		0.44	0.44	0.44	0.44						0.45	0.36
v/c Ratio		0.37	0.24	0.43	0.47						0.56	0.55
Control Delay		6.8	1.8	17.4	16.2						7.0	13.8
Queue Delay		1.4	1.1	0.0	0.0						0.2	75.9
Total Delay		8.1	2.9	17.4	16.2						7.2	89.7
LOS		A	A	B	B						A	F
Approach Delay		6.5			16.7						21.9	
Approach LOS		A			B						C	
Queue Length 50th (ft)		19	1	43	76						39	66
Queue Length 95th (ft)		37	8	m88	m151						48	128
Internal Link Dist (ft)		87			305			272			210	
Turn Bay Length (ft)				100								140
Base Capacity (vph)		789	585	430	711						2027	455
Starvation Cap Reductn		313	274	0	0						231	31
Spillback Cap Reductn		0	3	0	13						204	348
Storage Cap Reductn		0	0	0	0						0	0
Reduced v/c Ratio		0.61	0.44	0.43	0.48						0.63	2.33

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 0 (0%), Referenced to phase 2:SBTL, Start of Green
 Natural Cycle: 65
 Control Type: Pretimed
 Maximum v/c Ratio: 0.56
 Intersection Signal Delay: 17.9 Intersection LOS: B
 Intersection Capacity Utilization 79.9% ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Hetherton St & 4th St





















Lane Group	Ø7
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

San Rafael Multi-Family TIS: Baseline Conditions

7: Irwin St & 4th St

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	226	0	0	338	58	155	1149	47	0	0	0
Future Volume (vph)	153	226	0	0	338	58	155	1149	47	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	12	12	12	12	12	9	10	12	12	12	12
Storage Length (ft)	70		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00			1.00				
Frt					0.980			0.994				
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1605	1782	0	0	1519	0	1399	2880	0	0	0	0
Flt Permitted	0.338						0.950					
Satd. Flow (perm)	569	1782	0	0	1519	0	1399	2880	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					13			8				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		385			564			364			291	
Travel Time (s)		10.5			15.4			9.9			7.9	
Confl. Peds. (#/hr)	11						11		4			
Confl. Bikes (#/hr)							4		1			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	1%	0%	0%	3%	3%	10%	4%	4%	0%	0%	0%
Parking (#/hr)					2	2		2	2			
Adj. Flow (vph)	163	240	0	0	360	62	165	1222	50	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	163	240	0	0	422	0	165	1272	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		15			15			9			9	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.12	1.07	1.07	1.07	1.24	1.07	1.22	1.26	1.07	1.07	1.07	1.07
Turning Speed (mph)	25		9	15		20	25		20	15		9
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Minimum Split (s)	19.0	19.0			19.0		21.0	21.0				
Total Split (s)	33.0	33.0			33.0		42.0	42.0				
Total Split (%)	44.0%	44.0%			44.0%		56.0%	56.0%				
Maximum Green (s)	28.8	28.8			28.8		37.8	37.8				
Yellow Time (s)	3.2	3.2			3.2		3.2	3.2				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	4.2	4.2			4.2		4.2	4.2				
Lead/Lag												
Lead-Lag Optimize?												

San Rafael Multi-Family TIS: Baseline Conditions

7: Irwin St & 4th St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	28.8	28.8			28.8		37.8	37.8				
Actuated g/C Ratio	0.38	0.38			0.38		0.50	0.50				
v/c Ratio	0.75	0.35			0.71		0.23	0.87				
Control Delay	34.7	10.9			27.2		7.1	14.8				
Queue Delay	0.0	0.0			0.0		0.0	3.8				
Total Delay	34.7	10.9			27.2		7.1	18.6				
LOS	C	B			C		A	B				
Approach Delay		20.6			27.2			17.3				
Approach LOS		C			C			B				
Queue Length 50th (ft)	29	42			157		19	78				
Queue Length 95th (ft)	#160	67			263		m24	#134				
Internal Link Dist (ft)		305			484			284			211	
Turn Bay Length (ft)	70											
Base Capacity (vph)	218	684			591		705	1455				
Starvation Cap Reductn	0	0			0		0	25				
Spillback Cap Reductn	0	0			0		0	120				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.75	0.35			0.71		0.23	0.95				

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 4 (5%), Referenced to phase 2:NBT, Start of Green
 Natural Cycle: 60
 Control Type: Pretimed
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 19.7 Intersection LOS: B
 Intersection Capacity Utilization 79.9% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

















Splits and Phases: 7: Irwin St & 4th St



San Rafael Multi-Family TIS: Baseline Conditions

8: Lindaro St & 3rd St

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	478	1486	20	76	8	0	0	28	10
Future Volume (vph)	0	0	0	478	1486	20	76	8	0	0	28	10
Ideal Flow (vphpl)	1800	1800	1800	1600	1600	1600	1600	1600	1800	1800	1600	1600
Lane Width (ft)	12	12	12	11	12	12	12	12	12	12	12	12
Storage Length (ft)	0		0	75		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor				0.96	1.00							
Frt					0.998						0.964	
Flt Protected				0.950				0.957				
Satd. Flow (prot)	0	0	0	1455	4151	0	0	1504	0	0	1542	0
Flt Permitted				0.950				0.746				
Satd. Flow (perm)	0	0	0	1403	4151	0	0	1172	0	0	1542	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					5						11	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		102			103			333			198	
Travel Time (s)		2.8			2.8			9.1			5.4	
Confl. Peds. (#/hr)				22		28						
Confl. Bikes (#/hr)						2						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	1%	5%	0%	2%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	509	1581	21	81	9	0	0	30	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	509	1602	0	0	90	0	0	41	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			9			9	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.30	1.24	1.24	1.24	1.24	1.07	1.07	1.24	1.24
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8			4	
Permitted Phases				6			8					
Minimum Split (s)				28.0	28.0		24.0	24.0			24.0	
Total Split (s)				50.0	50.0		25.0	25.0			25.0	
Total Split (%)				66.7%	66.7%		33.3%	33.3%			33.3%	
Maximum Green (s)				45.8	45.8		20.8	20.8			20.8	
Yellow Time (s)				3.2	3.2		3.2	3.2			3.2	
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0	
Lost Time Adjust (s)				0.0	0.0			0.0			0.0	
Total Lost Time (s)				4.2	4.2			4.2			4.2	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)				10.0	10.0		4.0	4.0				

San Rafael Multi-Family TIS: Baseline Conditions

8: Lindaro St & 3rd St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)				13.0	13.0		15.0	15.0				
Pedestrian Calls (#/hr)				0	0		0	0				
Act Effect Green (s)				45.8	45.8			20.8			20.8	
Actuated g/C Ratio				0.61	0.61			0.28			0.28	
v/c Ratio				0.59	0.63			0.28			0.09	
Control Delay				5.0	3.9			15.1			16.8	
Queue Delay				0.5	0.0			0.0			0.2	
Total Delay				5.6	3.9			15.1			17.0	
LOS				A	A			B			B	
Approach Delay					4.3			15.1			17.0	
Approach LOS					A			B			B	
Queue Length 50th (ft)				36	41			21			10	
Queue Length 95th (ft)				m41	m45			m34			33	
Internal Link Dist (ft)		22			23			253			118	
Turn Bay Length (ft)				75								
Base Capacity (vph)				856	2536			325			435	
Starvation Cap Reductn				0	0			0			0	
Spillback Cap Reductn				98	0			0			143	
Storage Cap Reductn				0	0			0			0	
Reduced v/c Ratio				0.67	0.63			0.28			0.14	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 63 (84%), Referenced to phase 6:WBTL, Start of Green
 Natural Cycle: 60
 Control Type: Pretimed
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 4.9 Intersection LOS: A
 Intersection Capacity Utilization 53.8% ICU Level of Service A
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Lindaro St & 3rd St



San Rafael Multi-Family TIS: Baseline Conditions

9: Ritter St & 3rd St

AM PEAK HOUR

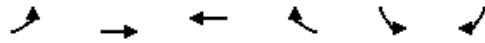
	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑↑	↘	↗
Traffic Volume (vph)	0	0	0	1767	68	0
Future Volume (vph)	0	0	0	1767	68	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)		0	0		0	25
Storage Lanes		0	0		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	0.91	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	4725	1660	1800
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	4725	1660	1800
Link Speed (mph)	25			25	25	
Link Distance (ft)	103			103	461	
Travel Time (s)	2.8			2.8	12.6	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	4%	3%	0%
Adj. Flow (vph)	0	0	0	1880	72	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1880	72	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			11	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	46.7%
Analysis Period (min)	15
	ICU Level of Service A

San Rafael Multi-Family TIS: Baseline Conditions
 10: 3rd St & Cijos St

AM PEAK HOUR



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑			↑
Traffic Volume (vph)	0	0	1710	33	0	57
Future Volume (vph)	0	0	1710	33	0	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	1.00
Ped Bike Factor						
Frt			0.997			0.865
Flt Protected						
Satd. Flow (prot)	0	0	4712	0	0	1469
Flt Permitted						
Satd. Flow (perm)	0	0	4712	0	0	1469
Link Speed (mph)		25	25		25	
Link Distance (ft)		103	309		128	
Travel Time (s)		2.8	8.4		3.5	
Confl. Peds. (#/hr)				28		
Confl. Bikes (#/hr)				1		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	4%	3%	0%	6%
Adj. Flow (vph)	0	0	1819	35	0	61
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	1854	0	0	61
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	


















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	46.1%
Analysis Period (min)	15
	ICU Level of Service A

San Rafael Multi-Family TIS: Baseline Conditions

11: Lincoln Ave & 3rd St



















AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					  							
Traffic Volume (vph)	0	0	0	308	1565	72	39	199	0	0	257	129
Future Volume (vph)	0	0	0	308	1565	72	39	199	0	0	257	129
Ideal Flow (vphpl)	1800	1800	1800	1600	1600	1600	1600	1600	1800	1800	1600	1600
Lane Width (ft)	12	12	12	12	12	12	12	11	10	12	9	9
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					0.99			1.00			0.98	
Frt					0.994						0.955	
Flt Protected					0.992			0.992				
Satd. Flow (prot)	0	0	0	0	4129	0	0	1300	0	0	1177	0
Flt Permitted					0.992			0.764				
Satd. Flow (perm)	0	0	0	0	4100	0	0	997	0	0	1177	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					12						15	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		309			264			223			359	
Travel Time (s)		8.4			7.2			6.1			9.8	
Confl. Peds. (#/hr)				49		37	51					51
Confl. Bikes (#/hr)						2						4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	4%	4%	7%	7%	4%	0%	0%	1%	2%
Parking (#/hr)							3	3			3	3
Adj. Flow (vph)	0	0	0	328	1665	77	41	212	0	0	273	137
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	2070	0	0	253	0	0	410	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.24	1.24	1.24	1.24	1.50	1.17	1.07	1.64	1.42
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8			4	
Permitted Phases				6			8					
Minimum Split (s)				20.0	20.0		20.0	20.0			20.0	
Total Split (s)				46.0	46.0		29.0	29.0			29.0	
Total Split (%)				61.3%	61.3%		38.7%	38.7%			38.7%	
Maximum Green (s)				41.5	41.5		24.5	24.5			24.5	
Yellow Time (s)				3.5	3.5		3.5	3.5			3.5	
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Act Effect Green (s)					41.5			24.5			24.5	
Actuated g/C Ratio					0.55			0.33			0.33	
v/c Ratio					0.91			0.78			1.04	

San Rafael Multi-Family TIS: Baseline Conditions

12: Tamalpais Ave (West) & 3rd St

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					  							
Traffic Volume (vph)	0	0	0	261	1887	35	43	62	0	0	46	21
Future Volume (vph)	0	0	0	261	1887	35	43	62	0	0	46	21
Ideal Flow (vphpl)	1800	1800	1800	1600	1600	1600	1600	1600	1800	1800	1600	1600
Lane Width (ft)	12	12	12	12	12	12	11	12	12	12	12	12
Storage Length (ft)	0		0	0		0	70		0	0		0
Storage Lanes	0		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					0.98		0.97				0.99	
Frt					0.998						0.958	
Flt Protected					0.994		0.950					
Satd. Flow (prot)	0	0	0	0	4147	0	1161	1402	0	0	1339	0
Flt Permitted					0.994		0.711					
Satd. Flow (perm)	0	0	0	0	4063	0	847	1402	0	0	1339	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					4						8	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		264			130			321			251	
Travel Time (s)		7.2			3.5			8.8			6.8	
Confl. Peds. (#/hr)				76		25	19					19
Confl. Bikes (#/hr)						8						2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	7%	4%	3%	12%	1%	0%	0%	0%	0%
Parking (#/hr)							3	3			3	3
Adj. Flow (vph)	0	0	0	278	2007	37	46	66	0	0	49	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	2322	0	46	66	0	0	71	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.24	1.24	1.24	1.50	1.44	1.07	1.07	1.44	1.24
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			4			8	
Permitted Phases				6			4					
Minimum Split (s)				31.6	31.6		26.6	26.6			25.6	
Total Split (s)				63.1	63.1		26.9	26.9			26.9	
Total Split (%)				70.1%	70.1%		29.9%	29.9%			29.9%	
Maximum Green (s)				51.5	51.5		19.3	19.3			19.3	
Yellow Time (s)				3.6	3.6		3.6	3.6			3.6	
All-Red Time (s)				8.0	8.0		4.0	4.0			4.0	
Lost Time Adjust (s)					0.0		0.0	0.0			0.0	
Total Lost Time (s)					11.6		7.6	7.6			7.6	
Lead/Lag												
Lead-Lag Optimize?												

San Rafael Multi-Family TIS: Baseline Conditions

12: Tamalpais Ave (West) & 3rd St

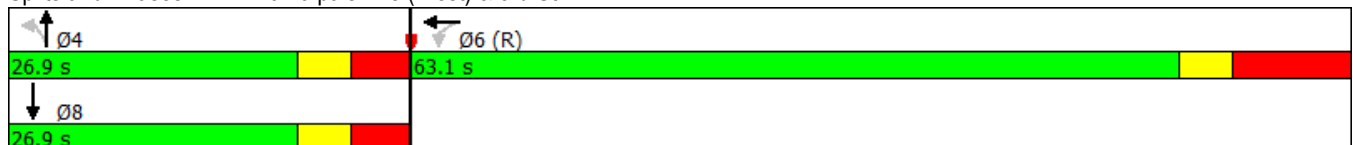
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)				10.0	10.0		7.0	7.0			7.0	
Flash Dont Walk (s)				10.0	10.0		12.0	12.0			11.0	
Pedestrian Calls (#/hr)				48	48		37	37			30	
Act Effct Green (s)					51.5		19.3	19.3			19.3	
Actuated g/C Ratio					0.57		0.21	0.21			0.21	
v/c Ratio					1.00		0.25	0.22			0.24	
Control Delay					38.5		33.8	31.5			28.9	
Queue Delay					38.3		0.0	0.0			0.0	
Total Delay					76.7		33.8	31.5			28.9	
LOS					E		C	C			C	
Approach Delay					76.7			32.5			28.9	
Approach LOS					E			C			C	
Queue Length 50th (ft)					447		22	31			30	
Queue Length 95th (ft)					#604		54	68			68	
Internal Link Dist (ft)		184			50			241			171	
Turn Bay Length (ft)							70					
Base Capacity (vph)					2326		181	300			293	
Starvation Cap Reductn					541		0	0			0	
Spillback Cap Reductn					0		0	0			0	
Storage Cap Reductn					0		0	0			0	
Reduced v/c Ratio					1.30		0.25	0.22			0.24	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 26 (29%), Referenced to phase 6:WBTL, Start of Green
 Natural Cycle: 90
 Control Type: Pretimed
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 73.4 Intersection LOS: E
 Intersection Capacity Utilization 134.2% ICU Level of Service H
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.













Splits and Phases: 12: Tamalpais Ave (West) & 3rd St



San Rafael Multi-Family TIS: Baseline Conditions

13: Tamalpais Ave (East) & 3rd St

AM PEAK HOUR

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑			↑↑↑		↘						
Traffic Volume (vph)	0	0	0	15	2163	0	8	0	0	0	0	0	
Future Volume (vph)	0	0	0	15	2163	0	8	0	0	0	0	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor													
Frt													
Flt Protected							0.950						
Satd. Flow (prot)	0	1800	0	0	4697	0	855	0	0	0	0	0	
Flt Permitted							0.950						
Satd. Flow (perm)	0	1800	0	0	4697	0	855	0	0	0	0	0	
Link Speed (mph)	25				25				25		25		
Link Distance (ft)	130				156				122		351		
Travel Time (s)	3.5				4.3				3.3		9.6		
Confl. Peds. (#/hr)				44						16			
Confl. Bikes (#/hr)										10			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Heavy Vehicles (%)	0%	0%	0%	93%	4%	0%	100%	0%	0%	0%	0%	0%	
Adj. Flow (vph)	0	0	0	16	2301	0	9	0	0	0	0	0	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	0	0	2317	0	9	0	0	0	0	0	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(ft)	0				0				12		12		
Link Offset(ft)	0				0				0		0		
Crosswalk Width(ft)	16				16				16		16		
Two way Left Turn Lane													
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	
Turning Speed (mph)	15		9	15		9	15		9	15		9	
Sign Control	Free			Free			Stop			Stop			





















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	54.4%
ICU Level of Service	A
Analysis Period (min)	15

San Rafael Multi-Family TIS: Baseline Conditions

14: Hetherton St & 3rd St

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					  						  	
Traffic Volume (vph)	0	0	0	412	1661	0	0	0	0	0	758	510
Future Volume (vph)	0	0	0	412	1661	0	0	0	0	0	758	510
Ideal Flow (vphpl)	1800	1800	1800	1700	1700	1800	1800	1800	1800	1800	1700	1700
Lane Width (ft)	12	12	12	14	12	12	12	12	12	12	11	11
Storage Length (ft)	0		0	70		0	0		0	0		220
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	0.91	1.00
Ped Bike Factor				0.96								0.92
Frt												0.850
Flt Protected				0.950								
Satd. Flow (prot)	0	0	0	1425	4177	0	0	0	0	0	4314	1330
Flt Permitted				0.950								
Satd. Flow (perm)	0	0	0	1362	4177	0	0	0	0	0	4314	1223
Right Turn on Red			Yes	No		Yes			Yes			Yes
Satd. Flow (RTOR)												15
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		156			379			311			352	
Travel Time (s)		4.3			10.3			8.5			9.6	
Confl. Peds. (#/hr)				51								65
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	4%	5%	0%	0%	0%	0%	0%	4%	5%
Adj. Flow (vph)	0	0	0	438	1767	0	0	0	0	0	806	543
Shared Lane Traffic (%)				0%								
Lane Group Flow (vph)	0	0	0	438	1767	0	0	0	0	0	806	543
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.06	1.15	1.07	1.07	1.07	1.07	1.07	1.20	1.20
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Perm	NA						NA	Perm
Protected Phases					8						6	
Permitted Phases				8								6
Minimum Split (s)				34.0	34.0						28.0	28.0
Total Split (s)				43.0	43.0						32.0	32.0
Total Split (%)				57.3%	57.3%						42.7%	42.7%
Maximum Green (s)				39.0	39.0						27.0	27.0
Yellow Time (s)				3.0	3.0						3.0	3.0
All-Red Time (s)				1.0	1.0						2.0	2.0
Lost Time Adjust (s)				0.0	0.0						0.0	0.0
Total Lost Time (s)				4.0	4.0						5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)				7.0	7.0						7.0	7.0

San Rafael Multi-Family TIS: Baseline Conditions

14: Hetherton St & 3rd St

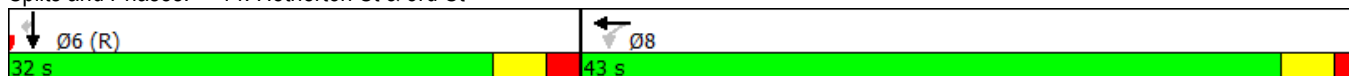
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)				19.0	19.0						14.0	14.0
Pedestrian Calls (#/hr)				0	0						0	0
Act Effct Green (s)				39.0	39.0						27.0	27.0
Actuated g/C Ratio				0.52	0.52						0.36	0.36
v/c Ratio				0.62	0.81						0.52	1.21
Control Delay				11.4	11.9						13.3	131.1
Queue Delay				0.5	0.4						0.1	0.0
Total Delay				11.9	12.3						13.4	131.1
LOS				B	B						B	F
Approach Delay					12.2						60.8	
Approach LOS					B						E	
Queue Length 50th (ft)				105	161						59	~307
Queue Length 95th (ft)				m177	231						82	#311
Internal Link Dist (ft)		76				299		231			272	
Turn Bay Length (ft)				70								220
Base Capacity (vph)				708	2172						1553	449
Starvation Cap Reductn				60	103						0	0
Spillback Cap Reductn				0	0						100	0
Storage Cap Reductn				0	0						0	0
Reduced v/c Ratio				0.68	0.85						0.55	1.21

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 3 (4%), Referenced to phase 6:SBT, Start of Green
 Natural Cycle: 65
 Control Type: Pretimed
 Maximum v/c Ratio: 1.21
 Intersection Signal Delay: 30.7 Intersection LOS: C
 Intersection Capacity Utilization 109.1% ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.













Splits and Phases: 14: Hetherton St & 3rd St



San Rafael Multi-Family TIS: Baseline Conditions

15: Irwin St & 3rd St













AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑	↑	↓	↑↑↑				
Traffic Volume (vph)	0	0	0	0	1083	135	1028	1230	0	0	0	0
Future Volume (vph)	0	0	0	0	1083	135	1028	1230	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	10	11	10	11	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00
Ped Bike Factor						0.97						
Frt						0.850						
Flt Protected							0.950	0.986				
Satd. Flow (prot)	0	0	0	0	4410	1395	1307	4216	0	0	0	0
Flt Permitted							0.950	0.986				
Satd. Flow (perm)	0	0	0	0	4410	1352	1307	4216	0	0	0	0
Right Turn on Red			Yes			Yes	Yes		Yes			Yes
Satd. Flow (RTOR)						42	22	22				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		379			140			294			364	
Travel Time (s)		10.3			3.8			8.0			9.9	
Confl. Peds. (#/hr)							16					
Confl. Bikes (#/hr)							7					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	4%	6%	5%	5%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	0	1152	144	1094	1309	0	0	0	0
Shared Lane Traffic (%)							47%					
Lane Group Flow (vph)	0	0	0	0	1152	144	580	1823	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.17	1.12	1.17	1.12	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		20	25		20	15		9
Turn Type					NA	Perm	Split	NA				
Protected Phases					8		2	2				
Permitted Phases						8						
Minimum Split (s)					29.0	29.0	25.0	25.0				
Total Split (s)					30.0	30.0	45.0	45.0				
Total Split (%)					40.0%	40.0%	60.0%	60.0%				
Maximum Green (s)					25.5	25.5	40.5	40.5				
Yellow Time (s)					3.5	3.5	3.5	3.5				
All-Red Time (s)					1.0	1.0	1.0	1.0				
Lost Time Adjust (s)					0.0	0.0	0.0	0.0				
Total Lost Time (s)					4.5	4.5	4.5	4.5				
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)					7.0	7.0	7.0	7.0				
Flash Dont Walk (s)					17.0	17.0	13.0	13.0				
Pedestrian Calls (#/hr)					0	0	0	0				
Act Effect Green (s)					25.5	25.5	40.5	40.5				

San Rafael Multi-Family TIS: Baseline Conditions

15: Irwin St & 3rd St

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio					0.34	0.34	0.54	0.54				
v/c Ratio					0.77	0.30	0.81	0.80				
Control Delay					26.3	14.8	18.5	13.6				
Queue Delay					0.2	0.0	2.8	1.8				
Total Delay					26.4	14.8	21.3	15.4				
LOS					C	B	C	B				
Approach Delay					25.2			16.8				
Approach LOS					C			B				
Queue Length 50th (ft)					172	33	181	193				
Queue Length 95th (ft)					223	76	m234	m229				
Internal Link Dist (ft)		299			60			214			284	
Turn Bay Length (ft)												
Base Capacity (vph)					1499	487	715	2286				
Starvation Cap Reductn					0	0	62	294				
Spillback Cap Reductn					35	0	0	54				
Storage Cap Reductn					0	0	0	0				
Reduced v/c Ratio					0.79	0.30	0.89	0.92				

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 73 (97%), Referenced to phase 2:NBTL, Start of Green
 Natural Cycle: 65
 Control Type: Pretimed
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 19.7 Intersection LOS: B
 Intersection Capacity Utilization 91.9% ICU Level of Service F
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.




















Splits and Phases: 15: Irwin St & 3rd St



San Rafael Multi-Family TIS: Baseline Conditions

16: Lindaro St & 2nd St

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  										
Traffic Volume (vph)	33	2251	43	0	0	0	0	55	186	57	447	0
Future Volume (vph)	33	2251	43	0	0	0	0	55	186	57	447	0
Ideal Flow (vphpl)	1600	1600	1600	1800	1800	1800	1800	1600	1600	1600	1600	1800
Lane Width (ft)	12	11	11	12	12	12	12	11	10	9	9	12
Storage Length (ft)	0		0	0		0	0		275	70		0
Storage Lanes	0		0	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00							0.97	0.99		
Frt		0.997							0.850			
Flt Protected		0.999								0.950		
Satd. Flow (prot)	0	5182	0	0	0	0	0	1547	1186	1341	1426	0
Flt Permitted		0.999								0.719		
Satd. Flow (perm)	0	5181	0	0	0	0	0	1547	1153	1000	1426	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7							17			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		495			513			314			333	
Travel Time (s)		13.5			14.0			8.6			9.1	
Confl. Peds. (#/hr)	13		44						17	17		
Confl. Bikes (#/hr)			3						1			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	2%	7%	0%	0%	0%	0%	0%	7%	2%	1%	0%
Adj. Flow (vph)	35	2395	46	0	0	0	0	59	198	61	476	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2476	0	0	0	0	0	59	198	61	476	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			9			9	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.24	1.30	1.30	1.07	1.07	1.07	1.07	1.30	1.35	1.42	1.42	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA						NA	Perm	Perm	NA	
Protected Phases		6						4			8	
Permitted Phases	6								4	8		
Minimum Split (s)	33.0	33.0						29.0	29.0	29.0	29.0	
Total Split (s)	43.0	43.0						32.0	32.0	32.0	32.0	
Total Split (%)	57.3%	57.3%						42.7%	42.7%	42.7%	42.7%	
Maximum Green (s)	38.8	38.8						27.8	27.8	27.8	27.8	
Yellow Time (s)	3.2	3.2						3.2	3.2	3.2	3.2	
All-Red Time (s)	1.0	1.0						1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0						0.0	0.0	0.0	0.0	
Total Lost Time (s)		4.2						4.2	4.2	4.2	4.2	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	10.0	10.0						8.0	8.0	8.0	8.0	

San Rafael Multi-Family TIS: Baseline Conditions

16: Lindaro St & 2nd St

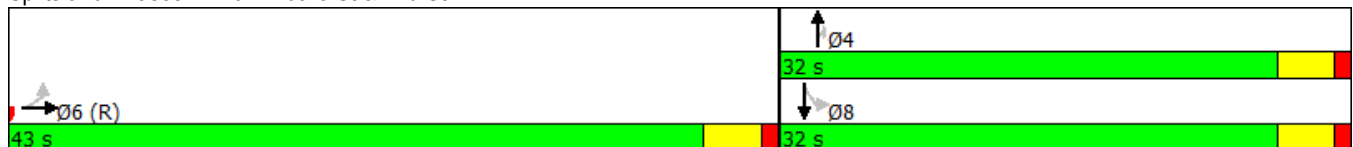
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	18.0	18.0						16.0	16.0	16.0	16.0	
Pedestrian Calls (#/hr)	0	0						0	0	0	0	
Act Effct Green (s)		38.8						27.8	27.8	27.8	27.8	
Actuated g/C Ratio		0.52						0.37	0.37	0.37	0.37	
v/c Ratio		0.92						0.10	0.45	0.16	0.90	
Control Delay		24.2						16.2	20.3	30.1	58.5	
Queue Delay		0.0						0.0	0.0	0.0	13.1	
Total Delay		24.2						16.2	20.3	30.1	71.6	
LOS		C						B	C	C	E	
Approach Delay		24.2						19.4			66.9	
Approach LOS		C						B			E	
Queue Length 50th (ft)		288						18	62	30	247	
Queue Length 95th (ft)		#371						41	120	m52	#405	
Internal Link Dist (ft)		415			433			234			253	
Turn Bay Length (ft)									275	70		
Base Capacity (vph)		2683						573	438	370	528	
Starvation Cap Reductn		0						0	0	0	49	
Spillback Cap Reductn		0						0	0	0	0	
Storage Cap Reductn		0						0	0	0	0	
Reduced v/c Ratio		0.92						0.10	0.45	0.16	0.99	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 0 (0%), Referenced to phase 6:EBTL, Start of Green
 Natural Cycle: 75
 Control Type: Pretimed
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 30.8 Intersection LOS: C
 Intersection Capacity Utilization 76.6% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.
















Splits and Phases: 16: Lindaro St & 2nd St



San Rafael Multi-Family TIS: Baseline Conditions

17: Lincoln Ave & Ritter St


















AM PEAK HOUR

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	0	0	0	0	0	0	50	233	3	44	489	26	
Future Volume (vph)	0	0	0	0	0	0	50	233	3	44	489	26	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor													
Frt								0.999					0.994
Flt Protected								0.991					0.996
Satd. Flow (prot)	0	0	1800	0	0	0	0	1701	0	0	1743	0	
Flt Permitted								0.991					0.996
Satd. Flow (perm)	0	0	1800	0	0	0	0	1701	0	0	1743	0	
Link Speed (mph)	25				25				25		25		
Link Distance (ft)	461				117				107		223		
Travel Time (s)	12.6				3.2				2.9		6.1		
Confl. Peds. (#/hr)							12						12
Confl. Bikes (#/hr)													4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	4%	5%	0%	6%	2%	0%	
Adj. Flow (vph)	0	0	0	0	0	0	53	248	3	47	520	28	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	0	0	0	0	0	304	0	0	595	0	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(ft)	0				0				0		0		
Link Offset(ft)	0				0				0		0		
Crosswalk Width(ft)	16				16				16		16		
Two way Left Turn Lane													
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	
Turning Speed (mph)	15		9	15		9	15		9	15		9	
Sign Control	Stop				Stop				Free		Free		
Intersection Summary													
Area Type:	Other												
Control Type:	Unsignalized												
Intersection Capacity Utilization	38.9%						ICU Level of Service A						
Analysis Period (min)	15												

San Rafael Multi-Family TIS: Baseline Conditions

18: Lincoln Ave & 2nd St

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	2278	49	0	0	0	0	126	43	125	368	0
Future Volume (vph)	160	2278	49	0	0	0	0	126	43	125	368	0
Ideal Flow (vphpl)	1600	1600	1600	1800	1800	1800	1800	1600	1600	1600	1600	1800
Lane Width (ft)	12	10	10	12	12	12	12	12	12	9	9	9
Storage Length (ft)	0		150	0		0	0		130	0		0
Storage Lanes	0		1	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	0.95						0.98			
Frt			0.850						0.850			
Flt Protected		0.997									0.987	
Satd. Flow (prot)	0	5021	1221	0	0	0	0	1481	1193	0	1240	0
Flt Permitted		0.997									0.876	
Satd. Flow (perm)	0	5012	1156	0	0	0	0	1481	1174	0	1101	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			49						17			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		513			244			398			107	
Travel Time (s)		14.0			6.7			10.9			2.9	
Confl. Peds. (#/hr)	20		51									
Confl. Bikes (#/hr)			2						6			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	4%	0%	0%	0%	0%	8%	14%	2%	2%	0%
Parking (#/hr)										2	2	
Adj. Flow (vph)	170	2423	52	0	0	0	0	134	46	133	391	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2593	52	0	0	0	0	134	46	0	524	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.24	1.35	1.35	1.07	1.07	1.07	1.07	1.24	1.24	1.42	1.63	1.22
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		6						4			8	
Permitted Phases	6		6						4	8		
Minimum Split (s)	33.0	33.0	33.0					13.0	13.0	31.0	31.0	
Total Split (s)	44.0	44.0	44.0					31.0	31.0	31.0	31.0	
Total Split (%)	58.7%	58.7%	58.7%					41.3%	41.3%	41.3%	41.3%	
Maximum Green (s)	39.8	39.8	39.8					26.8	26.8	26.8	26.8	
Yellow Time (s)	3.2	3.2	3.2					3.2	3.2	3.2	3.2	
All-Red Time (s)	1.0	1.0	1.0					1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0	0.0					0.0	0.0		0.0	
Total Lost Time (s)		4.2	4.2					4.2	4.2		4.2	
Lead/Lag												
Lead-Lag Optimize?												

San Rafael Multi-Family TIS: Baseline Conditions
 18: Lincoln Ave & 2nd St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	12.0	12.0	12.0							7.0	7.0	
Flash Dont Walk (s)	16.0	16.0	16.0							19.0	19.0	
Pedestrian Calls (#/hr)	0	0	0							0	0	
Act Effect Green (s)		39.8	39.8					26.8	26.8		26.8	
Actuated g/C Ratio		0.53	0.53					0.36	0.36		0.36	
v/c Ratio		0.98	0.08					0.25	0.11		1.33	
Control Delay		14.4	0.1					18.7	12.3		180.0	
Queue Delay		42.0	0.0					0.0	0.0		0.0	
Total Delay		56.4	0.1					18.7	12.3		180.0	
LOS		E	A					B	B		F	
Approach Delay		55.3						17.1			180.0	
Approach LOS		E						B			F	
Queue Length 50th (ft)		37	0					43	9		~325	
Queue Length 95th (ft)		m#421	m0					84	30		m#348	
Internal Link Dist (ft)		433			164			318			27	
Turn Bay Length (ft)			150						130			
Base Capacity (vph)		2659	636					529	430		393	
Starvation Cap Reductn		0	0					0	0		0	
Spillback Cap Reductn		315	0					0	0		0	
Storage Cap Reductn		0	0					0	0		0	
Reduced v/c Ratio		1.11	0.08					0.25	0.11		1.33	

Intersection Summary



















Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 14 (19%), Referenced to phase 6:EBTL, Start of Green
 Natural Cycle: 120
 Control Type: Pretimed
 Maximum v/c Ratio: 1.33
 Intersection Signal Delay: 72.8 Intersection LOS: E
 Intersection Capacity Utilization 91.7% ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: Lincoln Ave & 2nd St















San Rafael Multi-Family TIS: Baseline Conditions
 19: Francisco Blvd W./Tamalpais Ave (West) & 2nd St

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	2231	116	0	0	0	0	55	232	102	205	0
Future Volume (vph)	55	2231	116	0	0	0	0	55	232	102	205	0
Ideal Flow (vphpl)	1600	1600	1600	1800	1800	1800	1800	1600	1600	1600	1600	1800
Lane Width (ft)	12	11	10	12	12	12	12	10	13	10	12	12
Storage Length (ft)	0		140	0		0	0		0	70		0
Storage Lanes	0		1	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	0.98									
Frt			0.850						0.850			
Flt Protected		0.999								0.950		
Satd. Flow (prot)	0	5207	1232	0	0	0	0	1436	1313	1121	1375	0
Flt Permitted		0.999								0.719		
Satd. Flow (perm)	0	5196	1206	0	0	0	0	1436	1313	848	1375	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95						51			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		244			283			131			321	
Travel Time (s)		6.7			7.7			3.6			8.8	
Confl. Peds. (#/hr)	62											
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	5%	2%	3%	0%	0%	0%	0%	4%	7%	12%	3%	0%
Parking (#/hr)										3	3	
Adj. Flow (vph)	59	2373	123	0	0	0	0	59	247	109	218	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2432	123	0	0	0	0	59	247	109	218	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.24	1.30	1.35	1.07	1.07	1.07	1.07	1.35	1.19	1.57	1.44	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		2						4			8	
Permitted Phases	2		2						4	8		
Detector Phase	2	2	2					4	4	8	8	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0					8.0	8.0	8.0	8.0	
Minimum Split (s)	32.5	32.5	32.5					14.5	14.5	33.5	33.5	
Total Split (s)	38.0	38.0	38.0					37.0	37.0	37.0	37.0	
Total Split (%)	50.7%	50.7%	50.7%					49.3%	49.3%	49.3%	49.3%	
Maximum Green (s)	31.5	31.5	31.5					30.5	30.5	30.5	30.5	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.5	3.5	
All-Red Time (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lost Time Adjust (s)		0.0	0.0					0.0	0.0	0.0	0.0	

San Rafael Multi-Family TIS: Baseline Conditions
 19: Francisco Blvd W./Tamalpais Ave (West) & 2nd St

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)		6.5	6.5					6.5	6.5	6.5	6.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max					None	None	None	None	
Walk Time (s)	10.0	10.0	10.0							7.0	7.0	
Flash Dont Walk (s)	16.0	16.0	16.0							20.0	20.0	
Pedestrian Calls (#/hr)	48	48	48							45	45	
Act Effct Green (s)		40.9	40.9					21.1	21.1	21.1	21.1	
Actuated g/C Ratio		0.55	0.55					0.28	0.28	0.28	0.28	
v/c Ratio		0.86	0.18					0.15	0.61	0.46	0.56	
Control Delay		9.7	0.9					18.1	23.6	26.6	27.5	
Queue Delay		5.7	0.0					0.0	0.0	0.0	0.0	
Total Delay		15.4	0.9					18.1	23.6	26.6	27.5	
LOS		B	A					B	C	C	C	
Approach Delay		14.7						22.6			27.2	
Approach LOS		B						C			C	
90th %ile Green (s)	35.0	35.0	35.0					27.0	27.0	27.0	27.0	
90th %ile Term Code	Coord	Coord	Coord					Hold	Hold	Ped	Ped	
70th %ile Green (s)	35.0	35.0	35.0					27.0	27.0	27.0	27.0	
70th %ile Term Code	Coord	Coord	Coord					Hold	Hold	Ped	Ped	
50th %ile Green (s)	35.0	35.0	35.0					27.0	27.0	27.0	27.0	
50th %ile Term Code	Coord	Coord	Coord					Hold	Hold	Ped	Ped	
30th %ile Green (s)	47.7	47.7	47.7					14.3	14.3	14.3	14.3	
30th %ile Term Code	Coord	Coord	Coord					Hold	Hold	Gap	Gap	
10th %ile Green (s)	51.9	51.9	51.9					10.1	10.1	10.1	10.1	
10th %ile Term Code	Coord	Coord	Coord					Hold	Hold	Gap	Gap	
Queue Length 50th (ft)		~60	0					18	68	36	76	
Queue Length 95th (ft)		m#129	m0					42	134	79	136	
Internal Link Dist (ft)		164			203			51			241	
Turn Bay Length (ft)			140							70		
Base Capacity (vph)		2834	701					583	564	344	559	
Starvation Cap Reductn		198	0					0	0	0	0	
Spillback Cap Reductn		361	0					0	3	0	0	
Storage Cap Reductn		0	0					0	0	0	0	
Reduced v/c Ratio		0.98	0.18					0.10	0.44	0.32	0.39	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 24 (32%), Referenced to phase 2:EBTL, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 16.7
 Intersection Capacity Utilization 134.2%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service H

~ Volume exceeds capacity, queue is theoretically infinite.

San Rafael Multi-Family TIS: Baseline Conditions
 19: Francisco Blvd W./Tamalpais Ave (West) & 2nd St

AM PEAK HOUR

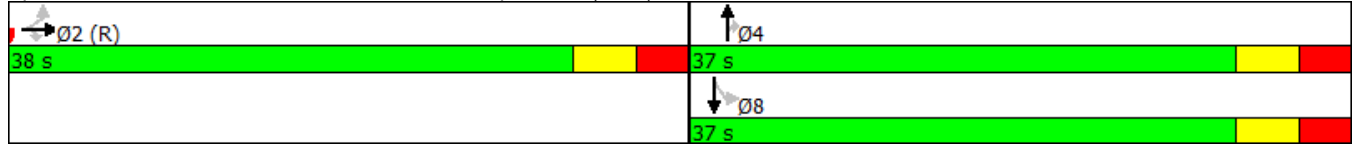
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

















Splits and Phases: 19: Francisco Blvd W./Tamalpais Ave (West) & 2nd St



San Rafael Multi-Family TIS: Baseline Conditions

20: US-101 SB Ramp/Hetherton St & 2nd St

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1307	1281	0	0	0	0	0	0	295	875	0
Future Volume (vph)	0	1307	1281	0	0	0	0	0	0	295	875	0
Ideal Flow (vphpl)	1800	1700	1700	1800	1800	1800	1800	1800	1800	1700	1700	1800
Lane Width (ft)	12	11	11	12	12	12	12	12	12	11	12	12
Lane Util. Factor	1.00	0.81	0.81	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00
Ped Bike Factor		1.00	0.99									
Frt		0.951	0.850									
Flt Protected										0.950		
Satd. Flow (prot)	0	4817	1109	0	0	0	0	0	0	1366	2975	0
Flt Permitted										0.950		
Satd. Flow (perm)	0	4817	1095	0	0	0	0	0	0	1366	2975	0
Right Turn on Red			Yes			Yes			Yes	No		Yes
Satd. Flow (RTOR)		35	35									
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		283			371			517			311	
Travel Time (s)		7.7			10.1			14.1			8.5	
Confl. Peds. (#/hr)						4						
Confl. Bikes (#/hr)			1									
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	6%	2%	0%	0%	0%	0%	0%	0%	4%	4%	0%
Adj. Flow (vph)	0	1390	1363	0	0	0	0	0	0	314	931	0
Shared Lane Traffic (%)			50%							0%		
Lane Group Flow (vph)	0	2072	681	0	0	0	0	0	0	314	931	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.20	1.20	1.07	1.07	1.07	1.07	1.07	1.07	1.20	1.15	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm							Split	NA	
Protected Phases		2								4	4	
Permitted Phases			2									
Minimum Split (s)		34.0	34.0							20.0	20.0	
Total Split (s)		43.0	43.0							32.0	32.0	
Total Split (%)		57.3%	57.3%							42.7%	42.7%	
Maximum Green (s)		38.5	38.5							27.5	27.5	
Yellow Time (s)		3.5	3.5							3.5	3.5	
All-Red Time (s)		1.0	1.0							1.0	1.0	
Lost Time Adjust (s)		0.0	0.0							0.0	0.0	
Total Lost Time (s)		4.5	4.5							4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)		14.5	14.5									
Flash Dont Walk (s)		15.0	15.0									
Pedestrian Calls (#/hr)		0	0									
Act Effect Green (s)		38.5	38.5							27.5	27.5	

San Rafael Multi-Family TIS: Baseline Conditions

20: US-101 SB Ramp/Hetherton St & 2nd St

AM PEAK HOUR

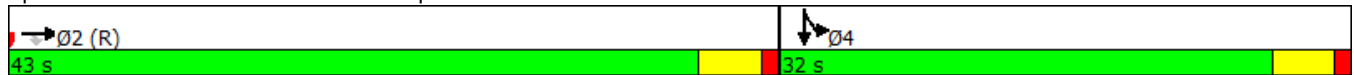


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.51	0.51							0.37	0.37	
v/c Ratio		1.00dr	1.18							0.63	0.85	
Control Delay		11.1	106.6							17.5	22.1	
Queue Delay		47.0	2.2							0.2	0.0	
Total Delay		58.1	108.8							17.7	22.1	
LOS		E	F							B	C	
Approach Delay		70.7									21.0	
Approach LOS		E									C	
Queue Length 50th (ft)		190	~474							76	115	
Queue Length 95th (ft)		360	m#645							117	#319	
Internal Link Dist (ft)		203			291			437			231	
Turn Bay Length (ft)												
Base Capacity (vph)		2489	579							500	1090	
Starvation Cap Reductn		677	136							11	0	
Spillback Cap Reductn		0	0							0	0	
Storage Cap Reductn		0	0							0	0	
Reduced v/c Ratio		1.14	1.54							0.64	0.85	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 36 (48%), Referenced to phase 2:EBT, Start of Green
 Natural Cycle: 80
 Control Type: Pretimed
 Maximum v/c Ratio: 1.18
 Intersection Signal Delay: 55.2 Intersection LOS: E
 Intersection Capacity Utilization 91.0% ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.
 dr Defacto Right Lane. Recode with 1 though lane as a right lane.





















Splits and Phases: 20: US-101 SB Ramp/Hetherton St & 2nd St



San Rafael Multi-Family TIS: Baseline Conditions

21: US-101 NB Ramp/Irwin St & 2nd St

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  						  				
Traffic Volume (vph)	751	856	0	0	0	0	0	1518	456	0	0	0
Future Volume (vph)	751	856	0	0	0	0	0	1518	456	0	0	0
Ideal Flow (vphpl)	1600	1600	1700	1700	1700	1700	1700	1600	1600	1700	1700	1700
Lane Width (ft)	13	12	12	12	12	12	12	12	10	12	12	12
Storage Length (ft)	0		0	0		0	0		85	0		0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.86	0.86	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00							0.98			
Frt									0.850			
Flt Protected	0.950	0.986										
Satd. Flow (prot)	1274	3892	0	0	0	0	0	4200	1232	0	0	0
Flt Permitted	0.950	0.986										
Satd. Flow (perm)	1263	3882	0	0	0	0	0	4200	1209	0	0	0
Right Turn on Red	Yes		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	32	32							74			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		371			618			541			294	
Travel Time (s)		10.1			16.9			14.8			8.0	
Confl. Peds. (#/hr)	13								10			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	6%	4%	0%	0%	0%	0%	0%	4%	3%	0%	0%	0%
Adj. Flow (vph)	799	911	0	0	0	0	0	1615	485	0	0	0
Shared Lane Traffic (%)	47%											
Lane Group Flow (vph)	423	1287	0	0	0	0	0	1615	485	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.19	1.24	1.15	1.15	1.15	1.15	1.15	1.24	1.35	1.15	1.15	1.15
Turning Speed (mph)	25		9	15			9	15	20	15		9
Turn Type	Perm	NA						NA	Perm			
Protected Phases		4						2				
Permitted Phases	4								2			
Minimum Split (s)	24.0	24.0						24.0	24.0			
Total Split (s)	38.0	38.0						37.0	37.0			
Total Split (%)	50.7%	50.7%						49.3%	49.3%			
Maximum Green (s)	33.8	33.8						31.8	31.8			
Yellow Time (s)	3.2	3.2						3.2	3.2			
All-Red Time (s)	1.0	1.0						2.0	2.0			
Lost Time Adjust (s)	0.0	0.0						0.0	0.0			
Total Lost Time (s)	4.2	4.2						5.2	5.2			
Lead/Lag												
Lead-Lag Optimize?												
Act Effect Green (s)	33.8	33.8						31.8	31.8			
Actuated g/C Ratio	0.45	0.45						0.42	0.42			

San Rafael Multi-Family TIS: Baseline Conditions

21: US-101 NB Ramp/Irwin St & 2nd St

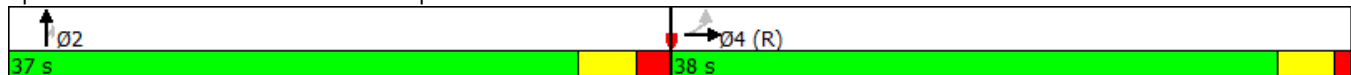
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.72	0.73						0.91	0.87			
Control Delay	12.1	9.2						29.4	36.2			
Queue Delay	0.6	0.1						0.1	0.0			
Total Delay	12.7	9.3						29.5	36.2			
LOS	B	A						C	D			
Approach Delay		10.2						31.0				
Approach LOS		B						C				
Queue Length 50th (ft)	38	70						248	172			
Queue Length 95th (ft)	m68	72						#352	#360			
Internal Link Dist (ft)		291			538			461			214	
Turn Bay Length (ft)									85			
Base Capacity (vph)	586	1767						1780	555			
Starvation Cap Reductn	15	61						0	0			
Spillback Cap Reductn	29	45						4	0			
Storage Cap Reductn	0	0						0	0			
Reduced v/c Ratio	0.76	0.75						0.91	0.87			

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 48 (64%), Referenced to phase 4:EBTL, Start of Green
 Natural Cycle: 55
 Control Type: Pretimed
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 21.7 Intersection LOS: C
 Intersection Capacity Utilization 83.5% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 21: US-101 NB Ramp/Irwin St & 2nd St



San Rafael Multi-Family TIS: Baseline Conditions

22: Nye St & Mission Ave

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	567	9	30	829	13	1	29	14	20	55	47
Future Volume (vph)	28	567	9	30	829	13	1	29	14	20	55	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.998			0.998			0.957			0.948	
Flt Protected		0.998			0.998			0.999			0.992	
Satd. Flow (prot)	0	1853	0	0	1853	0	0	1779	0	0	1735	0
Flt Permitted		0.998			0.998			0.999			0.992	
Satd. Flow (perm)	0	1853	0	0	1853	0	0	1779	0	0	1735	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		352			483			340			237	
Travel Time (s)		9.6			13.2			9.3			6.5	
Confl. Peds. (#/hr)	8		3	3		8	4		6	6		4
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)	2	2	2	2	2	2	2	2	2	2	2	2
Adj. Flow (vph)	30	603	10	32	882	14	1	31	15	21	59	50
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	643	0	0	928	0	0	47	0	0	130	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized




















Intersection Capacity Utilization 75.2% ICU Level of Service D

Analysis Period (min) 15

San Rafael Multi-Family TIS: Baseline Conditions

23: Lincoln Ave & Mission Ave













AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	474	13	51	624	49	4	180	27	58	388	342
Future Volume (vph)	87	474	13	51	624	49	4	180	27	58	388	342
Ideal Flow (vphpl)	1600	1700	1600	1700	1700	1600	1600	1700	1700	1600	1700	1700
Lane Width (ft)	11	12	12	10	10	12	12	9	9	12	10	9
Storage Length (ft)	120		0	65		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00	1.00			0.99			1.00	0.93
Frt		0.996			0.989			0.983				0.850
Flt Protected	0.950			0.950				0.999			0.994	
Satd. Flow (prot)	1427	1643	0	1463	1520	0	0	1288	0	0	1531	1263
Flt Permitted	0.112			0.461				0.992			0.935	
Satd. Flow (perm)	168	1643	0	709	1520	0	0	1279	0	0	1436	1180
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			6			11				302
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		483			292			342			291	
Travel Time (s)		13.2			8.0			9.3			7.9	
Confl. Peds. (#/hr)	7		3	3		7	22		20	20		22
Confl. Bikes (#/hr)			2			3			7			8
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)							0	2	0			
Adj. Flow (vph)	93	504	14	54	664	52	4	191	29	62	413	364
Shared Lane Traffic (%)												
Lane Group Flow (vph)	93	518	0	54	716	0	0	224	0	0	475	364
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.30	1.15	1.24	1.26	1.26	1.24	1.24	1.51	1.31	1.24	1.26	1.31
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4			8		8
Detector Phase	5	2		6	6		4	4		8	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	10.0	29.0		26.0	26.0		27.0	27.0		27.0	27.0	27.0
Total Split (s)	10.0	45.0		35.0	35.0		30.0	30.0		30.0	30.0	30.0
Total Split (%)	13.3%	60.0%		46.7%	46.7%		40.0%	40.0%		40.0%	40.0%	40.0%
Maximum Green (s)	7.0	40.8		30.8	30.8		25.4	25.4		25.4	25.4	25.4
Yellow Time (s)	3.0	3.2		3.2	3.2		3.6	3.6		3.6	3.6	3.6
All-Red Time (s)	0.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0

San Rafael Multi-Family TIS: Baseline Conditions

23: Lincoln Ave & Mission Ave

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	3.0	4.2		4.2	4.2			4.6			4.6	4.6
Lead/Lag	Lead			Lag		Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Recall Mode	None	Max		Max	Max		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		10.0		8.0	8.0		8.0	8.0		8.0	8.0	8.0
Flash Dont Walk (s)		14.0		13.0	13.0		14.0	14.0		14.0	14.0	14.0
Pedestrian Calls (#/hr)		3		7	7		20	20		21	21	21
Act Effct Green (s)	42.0	40.8		32.8	32.8			25.4			25.4	25.4
Actuated g/C Ratio	0.56	0.54		0.44	0.44			0.34			0.34	0.34
v/c Ratio	0.44	0.58		0.17	1.07			0.51			0.98	0.61
Control Delay	15.1	14.6		25.5	84.6			14.8			63.1	9.3
Queue Delay	0.0	10.5		0.0	10.5			0.0			0.0	0.0
Total Delay	15.1	25.1		25.5	95.1			14.8			63.1	9.3
LOS	B	C		C	F			B			E	A
Approach Delay		23.6			90.2			14.8			39.8	
Approach LOS		C			F			B			D	
90th %ile Green (s)	7.0	40.8		30.8	30.8		25.4	25.4		25.4	25.4	25.4
90th %ile Term Code	Max	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	Coord
70th %ile Green (s)	7.0	40.8		30.8	30.8		25.4	25.4		25.4	25.4	25.4
70th %ile Term Code	Max	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	Coord
50th %ile Green (s)	7.0	40.8		30.8	30.8		25.4	25.4		25.4	25.4	25.4
50th %ile Term Code	Max	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	Coord
30th %ile Green (s)	7.0	40.8		30.8	30.8		25.4	25.4		25.4	25.4	25.4
30th %ile Term Code	Max	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	Coord
10th %ile Green (s)	0.0	40.8		40.8	40.8		25.4	25.4		25.4	25.4	25.4
10th %ile Term Code	Skip	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	Coord
Queue Length 50th (ft)	19	147		19	~370			31			215	20
Queue Length 95th (ft)	44	237		m42	#583			79			#402	98
Internal Link Dist (ft)		403			212			262			211	
Turn Bay Length (ft)	120			65								
Base Capacity (vph)	211	895		310	667			440			486	599
Starvation Cap Reductn	0	0		0	20			0			0	0
Spillback Cap Reductn	0	346		0	0			2			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.44	0.94		0.17	1.11			0.51			0.98	0.61

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 50 (67%), Referenced to phase 4:NBTL and 8:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 49.3

Intersection LOS: D

Intersection Capacity Utilization 105.2%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

San Rafael Multi-Family TIS: Baseline Conditions

23: Lincoln Ave & Mission Ave

AM PEAK HOUR

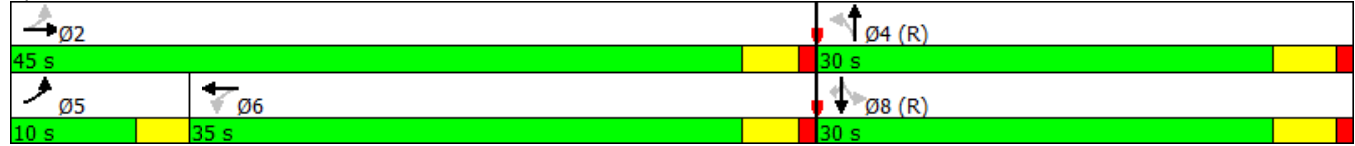
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.










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

Splits and Phases: 23: Lincoln Ave & Mission Ave



San Rafael Multi-Family TIS: Baseline Conditions
 24: Tamalpais Ave (West) & Mission Ave

AM PEAK HOUR

									
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø3	Ø4	Ø6
Lane Configurations									
Traffic Volume (vph)	507	10	0	636	3	3			
Future Volume (vph)	507	10	0	636	3	3			
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800			
Storage Length (ft)		0	0		0	0			
Storage Lanes		0	0		1	0			
Taper Length (ft)			25		25				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00			
Ped Bike Factor	1.00				0.98				
Frt	0.997				0.932				
Flt Protected					0.976				
Satd. Flow (prot)	1741	0	0	1748	1590	0			
Flt Permitted					0.976				
Satd. Flow (perm)	1741	0	0	1748	1550	0			
Right Turn on Red		Yes				Yes			
Satd. Flow (RTOR)	2				3				
Link Speed (mph)	25			25	25				
Link Distance (ft)	292			71	337				
Travel Time (s)	8.0			1.9	9.2				
Confl. Peds. (#/hr)		8	8		17				
Confl. Bikes (#/hr)		3							
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94			
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%			
Adj. Flow (vph)	539	11	0	677	3	3			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	550	0	0	677	6	0			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Right	Left	Left	Left	Right			
Median Width(ft)	10			10	12				
Link Offset(ft)	0			0	0				
Crosswalk Width(ft)	16			16	16				
Two way Left Turn Lane									
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07			
Turning Speed (mph)		9	15		15	9			
Turn Type	NA			NA	Perm				
Protected Phases	2			3 4 6			3	4	6
Permitted Phases					8				
Detector Phase	2			3 4 6	8				
Switch Phase									
Minimum Initial (s)	8.0				6.0		2.0	6.0	7.0
Minimum Split (s)	17.6				18.0		5.0	11.2	12.6
Total Split (s)	35.0				18.0		5.0	17.0	35.0
Total Split (%)	46.7%				24.0%		7%	23%	47%
Maximum Green (s)	29.4				12.8		2.0	11.8	29.4
Yellow Time (s)	3.6				3.2		3.0	3.2	3.6
All-Red Time (s)	2.0				2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0				0.0				
Total Lost Time (s)	5.6				5.2				
Lead/Lag							Lead	Lag	

San Rafael Multi-Family TIS: Baseline Conditions
 24: Tamalpais Ave (West) & Mission Ave

AM PEAK HOUR



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø3	Ø4	Ø6
Lead-Lag Optimize?									
Vehicle Extension (s)	3.0				3.0		0.2	3.0	3.0
Recall Mode	C-Min				None		None	None	C-Min
Walk Time (s)	5.0				5.0				
Flash Dont Walk (s)	7.0				7.8				
Pedestrian Calls (#/hr)	13				13				
Act Effct Green (s)	30.9			53.2	13.6				
Actuated g/C Ratio	0.41			0.71	0.18				
v/c Ratio	0.77			0.55	0.02				
Control Delay	22.7			2.3	24.3				
Queue Delay	3.5			10.0	0.0				
Total Delay	26.3			12.3	24.3				
LOS	C			B	C				
Approach Delay	26.3			12.3	24.3				
Approach LOS	C			B	C				
90th %ile Green (s)	29.4				12.8		2.0	11.8	29.4
90th %ile Term Code	Coord				Max		Max	Max	Coord
70th %ile Green (s)	29.4				13.8		2.0	10.8	29.4
70th %ile Term Code	Coord				Max		Max	Gap	Coord
50th %ile Green (s)	29.4				15.3		2.0	9.3	29.4
50th %ile Term Code	Coord				Max		Max	Gap	Coord
30th %ile Green (s)	31.0				15.1		2.0	7.9	31.0
30th %ile Term Code	Coord				Gap		Max	Gap	Coord
10th %ile Green (s)	35.4				11.1		2.0	7.5	35.4
10th %ile Term Code	Coord				Gap		Max	Gap	Coord
Queue Length 50th (ft)	245			1	2				
Queue Length 95th (ft)	m#386			m17	m6				
Internal Link Dist (ft)	212			1	257				
Turn Bay Length (ft)									
Base Capacity (vph)	718			1293	291				
Starvation Cap Reductn	96			0	0				
Spillback Cap Reductn	18			583	0				
Storage Cap Reductn	0			0	0				
Reduced v/c Ratio	0.88			0.95	0.02				

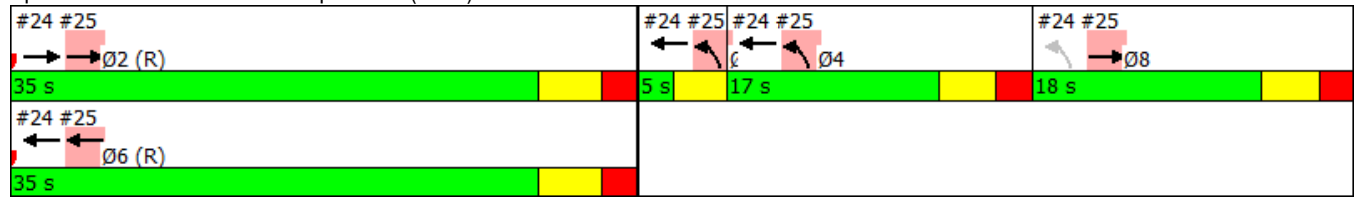
Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 27 (36%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay: 18.6
 Intersection Capacity Utilization 48.0%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

San Rafael Multi-Family TIS: Baseline Conditions
 24: Tamalpais Ave (West) & Mission Ave

AM PEAK HOUR

Splits and Phases: 24: Tamalpais Ave (West) & Mission Ave



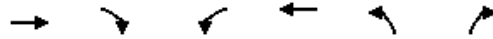
San Rafael Multi-Family TIS: Baseline Conditions
 25: Tamalpais Avenue (East) & Mission Ave

AM PEAK HOUR

	→	↘	↙	←	↖	↗				
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø2	Ø3	Ø4	Ø8
Lane Configurations	↑			↑	↘					
Traffic Volume (vph)	518	0	0	636	0	15				
Future Volume (vph)	518	0	0	636	0	15				
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00				
Frt					0.865					
Flt Protected										
Satd. Flow (prot)	1748	0	0	1748	1512	0				
Flt Permitted										
Satd. Flow (perm)	1748	0	0	1748	1512	0				
Right Turn on Red		Yes				Yes				
Satd. Flow (RTOR)					353					
Link Speed (mph)	25			25	25					
Link Distance (ft)	71			191	329					
Travel Time (s)	1.9			5.2	9.0					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%				
Adj. Flow (vph)	551	0	0	677	0	16				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	551	0	0	677	16	0				
Enter Blocked Intersection	No	No	No	No	No	No				
Lane Alignment	Left	Right	Left	Left	Left	Right				
Median Width(ft)	0			0	12					
Link Offset(ft)	0			0	0					
Crosswalk Width(ft)	16			16	16					
Two way Left Turn Lane										
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07				
Turning Speed (mph)		9	15		15	9				
Turn Type	NA			NA	Prot					
Protected Phases	2 8			6	3 4		2	3	4	8
Permitted Phases										
Detector Phase	2 8			6	3 4					
Switch Phase										
Minimum Initial (s)				7.0			8.0	2.0	6.0	6.0
Minimum Split (s)				12.6			17.6	5.0	11.2	18.0
Total Split (s)				35.0			35.0	5.0	17.0	18.0
Total Split (%)				46.7%			47%	7%	23%	24%
Maximum Green (s)				29.4			29.4	2.0	11.8	12.8
Yellow Time (s)				3.6			3.6	3.0	3.2	3.2
All-Red Time (s)				2.0			2.0	0.0	2.0	2.0
Lost Time Adjust (s)				0.0						
Total Lost Time (s)				5.6						
Lead/Lag								Lead	Lag	
Lead-Lag Optimize?										
Vehicle Extension (s)				3.0			3.0	0.2	3.0	3.0
Recall Mode				C-Min			C-Min	None	None	None
Walk Time (s)							5.0			5.0
Flash Dont Walk (s)							7.0			7.8
Pedestrian Calls (#/hr)							13			13

San Rafael Multi-Family TIS: Baseline Conditions
 25: Tamalpais Avenue (East) & Mission Ave

AM PEAK HOUR

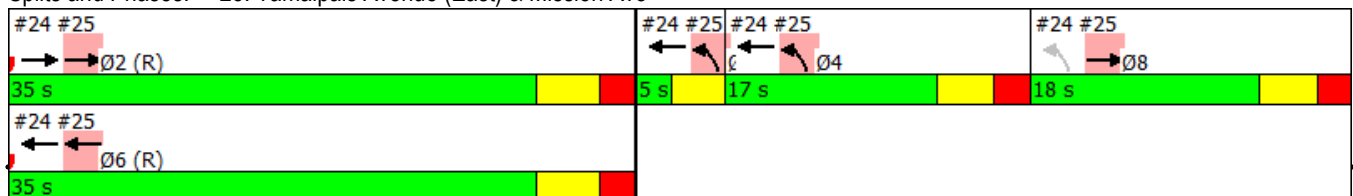


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø2	Ø3	Ø4	Ø8
Act Effct Green (s)	49.7			30.9	16.7					
Actuated g/C Ratio	0.66			0.41	0.22					
v/c Ratio	0.48			0.94	0.03					
Control Delay	2.5			40.6	0.1					
Queue Delay	0.0			48.0	0.0					
Total Delay	2.5			88.5	0.1					
LOS	A			F	A					
Approach Delay	2.5			88.5	0.1					
Approach LOS	A			F	A					
90th %ile Green (s)				29.4			29.4	2.0	11.8	12.8
90th %ile Term Code				Coord			Coord	Max	Max	Max
70th %ile Green (s)				29.4			29.4	2.0	10.8	13.8
70th %ile Term Code				Coord			Coord	Max	Gap	Max
50th %ile Green (s)				29.4			29.4	2.0	9.3	15.3
50th %ile Term Code				Coord			Coord	Max	Gap	Max
30th %ile Green (s)				31.0			31.0	2.0	7.9	15.1
30th %ile Term Code				Coord			Coord	Max	Gap	Gap
10th %ile Green (s)				35.4			35.4	2.0	7.5	11.1
10th %ile Term Code				Coord			Coord	Max	Gap	Gap
Queue Length 50th (ft)	2			348	0					
Queue Length 95th (ft)	m39			m#385	m0					
Internal Link Dist (ft)	1			111	249					
Turn Bay Length (ft)										
Base Capacity (vph)	1141			720	646					
Starvation Cap Reductn	0			323	0					
Spillback Cap Reductn	0			45	0					
Storage Cap Reductn	0			0	0					
Reduced v/c Ratio	0.48			1.71	0.02					

Intersection Summary

















Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 27 (36%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay: 49.3 Intersection LOS: D
 Intersection Capacity Utilization 46.7% ICU Level of Service A
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 25: Tamalpais Avenue (East) & Mission Ave



San Rafael Multi-Family TIS: Baseline Conditions
 26: Hetherton St/101 SB Off-Ramp & Mission Ave

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	513	85	114	138	0	0	0	0	167	1103	476
Future Volume (vph)	0	513	85	114	138	0	0	0	0	167	1103	476
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	10	12	12	16	12	12	12	12	12	12	12
Storage Length (ft)	0		0	0		0	0		0	0		360
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor		1.00			1.00						1.00	0.95
Frt		0.979										0.850
Flt Protected					0.978						0.993	
Satd. Flow (prot)	0	3024	0	0	1937	0	0	0	0	0	3297	1485
Flt Permitted					0.557						0.993	
Satd. Flow (perm)	0	3024	0	0	1101	0	0	0	0	0	3297	1406
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		29										
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		191			376			325			418	
Travel Time (s)		5.2			10.3			8.9			11.4	
Confl. Peds. (#/hr)			9	9						2		11
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	546	90	121	147	0	0	0	0	178	1173	506
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	636	0	0	268	0	0	0	0	0	1351	506
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.17	1.07	1.07	0.91	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA		Perm	NA					Split	NA	custom
Protected Phases		4			8					2	2	
Permitted Phases				8								5
Minimum Split (s)		31.0		31.0	31.0					30.0	30.0	30.0
Total Split (s)		37.0		37.0	37.0					38.0	38.0	31.0
Total Split (%)		49.3%		49.3%	49.3%					50.7%	50.7%	41.3%
Maximum Green (s)		32.8		32.8	32.8					33.4	33.4	26.4
Yellow Time (s)		3.2		3.2	3.2					3.6	3.6	3.6
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	1.0
Lost Time Adjust (s)		0.0			0.0						0.0	0.0
Total Lost Time (s)		4.2			4.2						4.6	4.6
Lead/Lag												Lag
Lead-Lag Optimize?												
Walk Time (s)		7.0		7.0	7.0							0.0

Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Minimum Split (s)	9.0
Total Split (s)	7.0
Total Split (%)	9%
Maximum Green (s)	5.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	
Walk Time (s)	7.0

San Rafael Multi-Family TIS: Baseline Conditions
 26: Hetherton St/101 SB Off-Ramp & Mission Ave

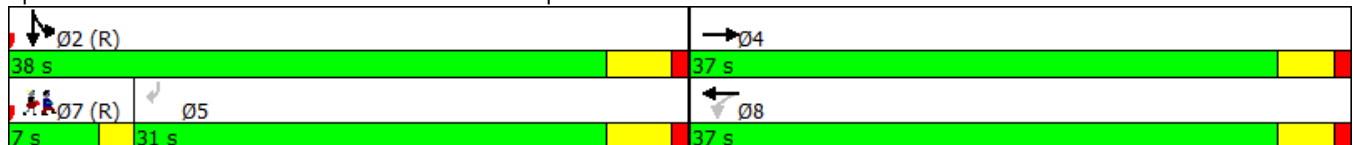
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		12.0		15.0	15.0							12.0
Pedestrian Calls (#/hr)		0		0	0							0
Act Effct Green (s)		32.8			32.8						33.4	26.4
Actuated g/C Ratio		0.44			0.44						0.45	0.35
v/c Ratio		0.48			0.56						0.92	1.02
Control Delay		9.4			32.6						31.6	74.1
Queue Delay		0.8			3.5						0.0	40.3
Total Delay		10.2			36.1						31.6	114.4
LOS		B			D						C	F
Approach Delay		10.2			36.1						54.2	
Approach LOS		B			D						D	
Queue Length 50th (ft)		34			115						297	~242
Queue Length 95th (ft)		91			m169						#446	#433
Internal Link Dist (ft)		111			296			245			338	
Turn Bay Length (ft)												360
Base Capacity (vph)		1338			481						1468	494
Starvation Cap Reductn		390			0						0	0
Spillback Cap Reductn		0			132						0	331
Storage Cap Reductn		0			0						0	0
Reduced v/c Ratio		0.67			0.77						0.92	3.10

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 58 (77%), Referenced to phase 2:SBTL and 7:Ped, Start of Green
 Natural Cycle: 75
 Control Type: Pretimed
 Maximum v/c Ratio: 1.02
 Intersection Signal Delay: 42.3 Intersection LOS: D
 Intersection Capacity Utilization 80.4% ICU Level of Service D
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 26: Hetherton St/101 SB Off-Ramp & Mission Ave



Lane Group	Ø7
Flash Dont Walk (s)	0.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

San Rafael Multi-Family TIS: Baseline Conditions
 27: Irwin St/101 NB On-Ramp & Mission Ave

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	461	238	0	0	200	280	66	1340	35	0	0	0
Future Volume (vph)	461	238	0	0	200	280	66	1340	35	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	9	10	12	12	10	9	12	12	12	12	12	12
Storage Length (ft)	0		0	0		80	0		70	0		0
Storage Lanes	0		0	0		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor								1.00	0.95			
Frt						0.850			0.850			
Flt Protected	0.950							0.998				
Satd. Flow (prot)	1494	1631	0	0	1631	1337	0	3131	1322	0	0	0
Flt Permitted	0.534							0.998				
Satd. Flow (perm)	840	1631	0	0	1631	1337	0	3131	1260	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						79			79			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		376			519			313			673	
Travel Time (s)		10.3			14.2			8.5			18.4	
Confl. Peds. (#/hr)							2		16			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)								2	2			
Adj. Flow (vph)	490	253	0	0	213	298	70	1426	37	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	490	253	0	0	213	298	0	1496	37	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		9			9			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.22	1.17	1.07	1.07	1.17	1.22	1.07	1.15	1.24	1.07	1.07	1.07
Turning Speed (mph)	35		9	15		35	35		35	15		9
Turn Type	pm+pt	NA			NA	Prot	Split	NA	Perm			
Protected Phases	7	4			8	8	2	2				
Permitted Phases	4								2			
Minimum Split (s)	10.0	29.0			13.0	13.0	29.0	29.0	29.0			
Total Split (s)	15.0	38.0			23.0	23.0	37.0	37.0	37.0			
Total Split (%)	20.0%	50.7%			30.7%	30.7%	49.3%	49.3%	49.3%			
Maximum Green (s)	10.8	33.8			18.8	18.8	32.8	32.8	32.8			
Yellow Time (s)	3.2	3.2			3.2	3.2	3.2	3.2	3.2			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0	1.0	1.0			
Lost Time Adjust (s)	0.0	0.0			0.0	0.0		0.0	0.0			
Total Lost Time (s)	4.2	4.2			4.2	4.2		4.2	4.2			
Lead/Lag	Lag				Lead	Lead						
Lead-Lag Optimize?												
Walk Time (s)		7.0					7.0	7.0	7.0			

San Rafael Multi-Family TIS: Baseline Conditions
 27: Irwin St/101 NB On-Ramp & Mission Ave

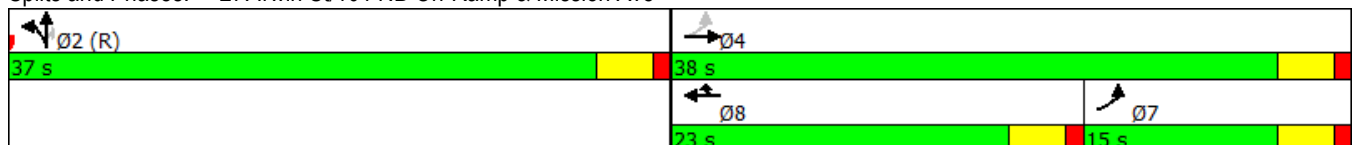
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		15.0					15.0	15.0	15.0			
Pedestrian Calls (#/hr)		0					0	0	0			
Act Effct Green (s)	33.8	33.8			18.8	18.8		32.8	32.8			
Actuated g/C Ratio	0.45	0.45			0.25	0.25		0.44	0.44			
v/c Ratio	1.04	0.34			0.52	0.76		1.09	0.06			
Control Delay	73.4	13.2			29.6	33.3		66.0	0.4			
Queue Delay	0.0	0.0			0.0	0.0		3.4	0.0			
Total Delay	73.4	13.2			29.6	33.3		69.4	0.4			
LOS	E	B			C	C		E	A			
Approach Delay		52.9			31.8			67.8				
Approach LOS		D			C			E				
Queue Length 50th (ft)	~170	67			85	94		~412	0			
Queue Length 95th (ft)	m#336	m139			150	#216		m#462	m0			
Internal Link Dist (ft)		296			439			233			593	
Turn Bay Length (ft)						80			70			
Base Capacity (vph)	472	735			408	394		1369	595			
Starvation Cap Reductn	0	0			0	0		136	0			
Spillback Cap Reductn	0	0			0	0		0	0			
Storage Cap Reductn	0	0			0	0		0	0			
Reduced v/c Ratio	1.04	0.34			0.52	0.76		1.21	0.06			

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 15 (20%), Referenced to phase 2:NBTL, Start of Green
 Natural Cycle: 80
 Control Type: Pretimed
 Maximum v/c Ratio: 1.09
 Intersection Signal Delay: 57.2 Intersection LOS: E
 Intersection Capacity Utilization 96.9% ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.




















Splits and Phases: 27: Irwin St/101 NB On-Ramp & Mission Ave



San Rafael Multi-Family TIS: Baseline Conditions

28: Lincoln Ave & 5th Ave













AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	352	19	32	268	19	8	195	44	19	359	24
Future Volume (vph)	37	352	19	32	268	19	8	195	44	19	359	24
Ideal Flow (vphpl)	1600	1700	1700	1600	1700	1700	1600	1700	1700	1600	1700	1700
Lane Width (ft)	10	13	12	10	12	12	12	10	9	12	11	9
Storage Length (ft)	97		0	45		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	1.00			0.99			0.99	
Frt		0.992			0.990			0.976			0.992	
Flt Protected	0.950			0.950				0.998			0.998	
Satd. Flow (prot)	1377	1689	0	1377	1630	0	0	1320	0	0	1398	0
Flt Permitted	0.483			0.382				0.986			0.981	
Satd. Flow (perm)	693	1689	0	550	1630	0	0	1303	0	0	1373	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			6			20			6	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		482			294			288			342	
Travel Time (s)		13.1			8.0			7.9			9.3	
Confl. Peds. (#/hr)	9		9	9		9	40		25	25		40
Confl. Bikes (#/hr)			2			4			6			7
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)							2	2	2	2	2	2
Adj. Flow (vph)	39	374	20	34	285	20	9	207	47	20	382	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	39	394	0	34	305	0	0	263	0	0	428	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.35	1.11	1.15	1.35	1.15	1.15	1.24	1.45	1.31	1.24	1.39	1.31
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	26.0	26.0		25.0	25.0		28.0	28.0		28.0	28.0	
Total Split (s)	34.0	34.0		34.0	34.0		41.0	41.0		41.0	41.0	
Total Split (%)	45.3%	45.3%		45.3%	45.3%		54.7%	54.7%		54.7%	54.7%	
Maximum Green (s)	29.4	29.4		29.4	29.4		36.4	36.4		36.4	36.4	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.6	3.6		3.6	3.6	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	4.6	4.6		4.6	4.6			4.6			4.6	
Lead/Lag												
Lead-Lag Optimize?												

San Rafael Multi-Family TIS: Baseline Conditions

28: Lincoln Ave & 5th Ave

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		13.0	13.0		16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	29.4	29.4		29.4	29.4			36.4			36.4	
Actuated g/C Ratio	0.39	0.39		0.39	0.39			0.49			0.49	
v/c Ratio	0.14	0.59		0.16	0.48			0.41			0.64	
Control Delay	16.5	22.4		29.4	29.7			8.0			8.1	
Queue Delay	0.0	1.0		0.0	0.8			0.4			0.3	
Total Delay	16.5	23.4		29.4	30.5			8.4			8.4	
LOS	B	C		C	C			A			A	
Approach Delay		22.8			30.4			8.4			8.4	
Approach LOS		C			C			A			A	
Queue Length 50th (ft)	11	140		10	88			37			35	
Queue Length 95th (ft)	32	228		43	223			m58			m44	
Internal Link Dist (ft)		402			214			208			262	
Turn Bay Length (ft)	97			45								
Base Capacity (vph)	271	664		215	642			642			669	
Starvation Cap Reductn	0	0		0	129			103			35	
Spillback Cap Reductn	0	98		0	0			1			14	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.14	0.70		0.16	0.59			0.49			0.68	

Intersection Summary

















Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	75
Offset:	46 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	55
Control Type:	Pretimed
Maximum v/c Ratio:	0.64
Intersection Signal Delay:	17.7
Intersection Capacity Utilization	76.2%
Analysis Period (min)	15
m	Volume for 95th percentile queue is metered by upstream signal.
Intersection LOS:	B
ICU Level of Service	D

Splits and Phases: 28: Lincoln Ave & 5th Ave



San Rafael Multi-Family TIS: Baseline Conditions
 29: 5th Ave & Tamalpais Ave (West)

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	376	19	0	338	77	9	8	12	10	54	18
Future Volume (vph)	0	376	19	0	338	77	9	8	12	10	54	18
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			0.98			0.99	
Frt		0.994			0.975			0.945			0.971	
Flt Protected								0.985			0.994	
Satd. Flow (prot)	0	1732	0	0	1694	0	0	1612	0	0	1665	0
Flt Permitted								0.904			0.951	
Satd. Flow (perm)	0	1732	0	0	1694	0	0	1465	0	0	1593	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			32			13			17	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		294			71			91			337	
Travel Time (s)		8.0			1.9			2.5			9.2	
Confl. Peds. (#/hr)	4		14	14		4	14					14
Confl. Bikes (#/hr)			3			1			1			2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	400	20	0	360	82	10	9	13	11	57	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	420	0	0	442	0	0	32	0	0	87	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		2			4 6			8			8	
Permitted Phases							8			8		
Detector Phase		2			4 6		8	8		8	8	
Switch Phase												
Minimum Initial (s)		7.0					5.0	5.0		5.0	5.0	
Minimum Split (s)		19.6					20.0	20.0		20.0	20.0	
Total Split (s)		35.0					20.0	20.0		20.0	20.0	
Total Split (%)		46.7%					26.7%	26.7%		26.7%	26.7%	
Maximum Green (s)		29.4					14.4	14.4		14.4	14.4	
Yellow Time (s)		3.6					3.6	3.6		3.6	3.6	
All-Red Time (s)		2.0					2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0						0.0			0.0	
Total Lost Time (s)		5.6						5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0					1.5	1.5		1.5	1.5	
Recall Mode		C-Max					None	None		None	None	

San Rafael Multi-Family TIS: Baseline Conditions
 29: 5th Ave & Tamalpais Ave (West)

AM PEAK HOUR

Lane Group	Ø4	Ø6
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	4	6
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	8.0
Minimum Split (s)	20.0	19.6
Total Split (s)	20.0	35.0
Total Split (%)	27%	47%
Maximum Green (s)	14.4	29.4
Yellow Time (s)	3.6	3.6
All-Red Time (s)	2.0	2.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	1.5	3.0
Recall Mode	None	C-Max

San Rafael Multi-Family TIS: Baseline Conditions
 29: 5th Ave & Tamalpais Ave (West)

AM PEAK HOUR

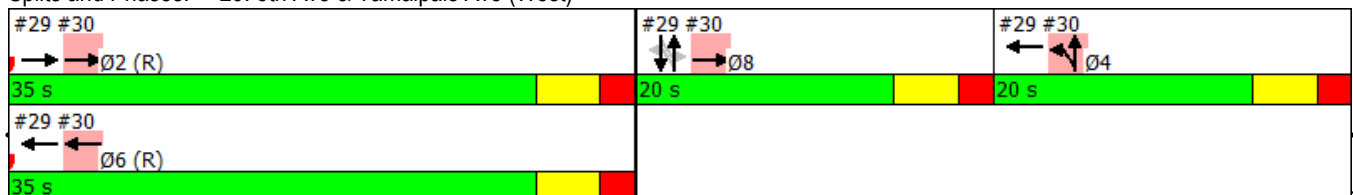


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		7.0					7.4	7.4		7.4	7.4	
Pedestrian Calls (#/hr)		13					13	13		13	13	
Act Effct Green (s)		39.3			55.4			8.4			8.4	
Actuated g/C Ratio		0.52			0.74			0.11			0.11	
v/c Ratio		0.46			0.35			0.18			0.45	
Control Delay		10.1			0.8			15.2			31.5	
Queue Delay		1.6			0.0			0.3			1.0	
Total Delay		11.7			0.9			15.5			32.5	
LOS		B			A			B			C	
Approach Delay		11.7			0.9			15.5			32.5	
Approach LOS		B			A			B			C	
90th %ile Green (s)		29.4					14.4	14.4		14.4	14.4	
90th %ile Term Code		Coord					Ped	Ped		Ped	Ped	
70th %ile Green (s)		34.9					9.7	9.7		9.7	9.7	
70th %ile Term Code		Coord					Gap	Gap		Gap	Gap	
50th %ile Green (s)		41.0					7.2	7.2		7.2	7.2	
50th %ile Term Code		Coord					Gap	Gap		Gap	Gap	
30th %ile Green (s)		44.4					5.6	5.6		5.6	5.6	
30th %ile Term Code		Coord					Gap	Gap		Gap	Gap	
10th %ile Green (s)		46.7					5.0	5.0		5.0	5.0	
10th %ile Term Code		Coord					Min	Min		Min	Min	
Queue Length 50th (ft)		19			1			10			32	
Queue Length 95th (ft)		287			0			m24			m65	
Internal Link Dist (ft)		214			1			11			257	
Turn Bay Length (ft)												
Base Capacity (vph)		908			1233			291			319	
Starvation Cap Reductn		312			0			0			0	
Spillback Cap Reductn		0			71			91			100	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.70			0.38			0.16			0.40	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 35 (47%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.46
 Intersection Signal Delay: 8.8 Intersection LOS: A
 Intersection Capacity Utilization 41.0% ICU Level of Service A
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 29: 5th Ave & Tamalpais Ave (West)



San Rafael Multi-Family TIS: Baseline Conditions
 29: 5th Ave & Tamalpais Ave (West)
















AM PEAK HOUR

Lane Group	Ø4	Ø6
Walk Time (s)	7.0	7.0
Flash Dont Walk (s)	7.4	7.0
Pedestrian Calls (#/hr)	13	13
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
90th %ile Green (s)	14.4	29.4
90th %ile Term Code	Max	Coord
70th %ile Green (s)	13.6	34.9
70th %ile Term Code	Gap	Coord
50th %ile Green (s)	10.0	41.0
50th %ile Term Code	Gap	Coord
30th %ile Green (s)	8.2	44.4
30th %ile Term Code	Gap	Coord
10th %ile Green (s)	6.5	46.7
10th %ile Term Code	Gap	Coord
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

San Rafael Multi-Family TIS: Baseline Conditions

30: Tamalpais Avenue (East) & 5th Ave

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	398	0	0	387	8	28	2	29	0	0	0
Future Volume (vph)	0	398	0	0	387	8	28	2	29	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					1.00			0.98				
Frt					0.997			0.934				
Flt Protected								0.977				
Satd. Flow (prot)	0	1748	0	0	1741	0	0	1559	0	0	0	0
Flt Permitted								0.977				
Satd. Flow (perm)	0	1748	0	0	1741	0	0	1559	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					2			31				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		71			180			288			329	
Travel Time (s)		1.9			4.9			7.9			9.0	
Confl. Peds. (#/hr)	4					4			10			
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	423	0	0	412	9	30	2	31	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	423	0	0	421	0	0	63	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA			NA		Split	NA				
Protected Phases		2 8			6		4	4				
Permitted Phases												
Detector Phase		2 8			6		4	4				
Switch Phase												
Minimum Initial (s)					8.0		5.0	5.0				
Minimum Split (s)					19.6		20.0	20.0				
Total Split (s)					35.0		20.0	20.0				
Total Split (%)					46.7%		26.7%	26.7%				
Maximum Green (s)					29.4		14.4	14.4				
Yellow Time (s)					3.6		3.6	3.6				
All-Red Time (s)					2.0		2.0	2.0				
Lost Time Adjust (s)					0.0			0.0				
Total Lost Time (s)					5.6			5.6				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)					3.0		1.5	1.5				
Recall Mode					C-Max		None	None				

San Rafael Multi-Family TIS: Baseline Conditions
 30: Tamalpais Avenue (East) & 5th Ave

AM PEAK HOUR

Lane Group	Ø2	Ø8
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	2	8
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	7.0	5.0
Minimum Split (s)	19.6	20.0
Total Split (s)	35.0	20.0
Total Split (%)	47%	27%
Maximum Green (s)	29.4	14.4
Yellow Time (s)	3.6	3.6
All-Red Time (s)	2.0	2.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	1.5
Recall Mode	C-Max	None

San Rafael Multi-Family TIS: Baseline Conditions

30: Tamalpais Avenue (East) & 5th Ave

AM PEAK HOUR

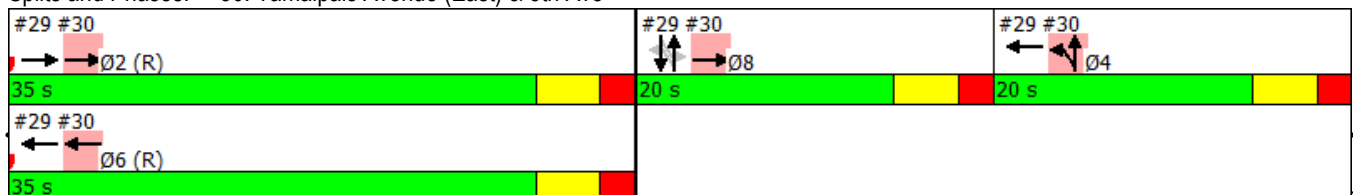


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)					7.0		7.0	7.0				
Flash Dont Walk (s)					7.0		7.4	7.4				
Pedestrian Calls (#/hr)					13		13	13				
Act Effct Green (s)		53.3			39.3			10.5				
Actuated g/C Ratio		0.71			0.52			0.14				
v/c Ratio		0.34			0.46			0.26				
Control Delay		0.7			12.6			26.5				
Queue Delay		0.0			2.0			0.0				
Total Delay		0.8			14.5			26.5				
LOS		A			B			C				
Approach Delay		0.8			14.5			26.5				
Approach LOS		A			B			C				
90th %ile Green (s)					29.4		14.4	14.4				
90th %ile Term Code					Coord		Max	Max				
70th %ile Green (s)					34.9		13.6	13.6				
70th %ile Term Code					Coord		Gap	Gap				
50th %ile Green (s)					41.0		10.0	10.0				
50th %ile Term Code					Coord		Gap	Gap				
30th %ile Green (s)					44.4		8.2	8.2				
30th %ile Term Code					Coord		Gap	Gap				
10th %ile Green (s)					46.7		6.5	6.5				
10th %ile Term Code					Coord		Gap	Gap				
Queue Length 50th (ft)		1			100			20				
Queue Length 95th (ft)		1			267			m31				
Internal Link Dist (ft)		1			100			208			249	
Turn Bay Length (ft)												
Base Capacity (vph)		1381			912			324				
Starvation Cap Reductn		0			335			0				
Spillback Cap Reductn		30			0			0				
Storage Cap Reductn		0			0			0				
Reduced v/c Ratio		0.31			0.73			0.19				

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 35 (47%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.46
 Intersection Signal Delay: 8.9 Intersection LOS: A
 Intersection Capacity Utilization 37.8% ICU Level of Service A
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: Tamalpais Avenue (East) & 5th Ave



San Rafael Multi-Family TIS: Baseline Conditions
 30: Tamalpais Avenue (East) & 5th Ave

AM PEAK HOUR

Lane Group	Ø2	Ø8
Walk Time (s)	7.0	7.0
Flash Dont Walk (s)	7.0	7.4
Pedestrian Calls (#/hr)	13	13
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
90th %ile Green (s)	29.4	14.4
90th %ile Term Code	Coord	Ped
70th %ile Green (s)	34.9	9.7
70th %ile Term Code	Coord	Gap
50th %ile Green (s)	41.0	7.2
50th %ile Term Code	Coord	Gap
30th %ile Green (s)	44.4	5.6
30th %ile Term Code	Coord	Gap
10th %ile Green (s)	46.7	5.0
10th %ile Term Code	Coord	Min
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

San Rafael Multi-Family TIS: Baseline Conditions

31: 5th Ave & Hetherton St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	215	195	70	179	0	0	0	0	39	1141	159
Future Volume (vph)	0	215	195	70	179	0	0	0	0	39	1141	159
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	12	12	16	12	12	12	12	12	12	12
Storage Length (ft)	0		0	0		0	0		0	0		180
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00
Ped Bike Factor		0.99			1.00							0.96
Frt		0.936										0.850
Flt Protected					0.986						0.998	
Satd. Flow (prot)	0	1838	0	0	1953	0	0	0	0	0	4587	1322
Flt Permitted					0.726						0.998	
Satd. Flow (perm)	0	1838	0	0	1437	0	0	0	0	0	4587	1266
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		26										
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		180			388			290			325	
Travel Time (s)		4.9			10.6			7.9			8.9	
Confl. Peds. (#/hr)			5	5								11
Confl. Bikes (#/hr)			2									2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)											2	2
Adj. Flow (vph)	0	229	207	74	190	0	0	0	0	41	1214	169
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	436	0	0	264	0	0	0	0	0	1255	169
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	0.91	1.07	1.07	0.91	1.07	1.07	1.07	1.07	1.07	1.12	1.24
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA		Perm	NA					Split	NA	custom
Protected Phases		4			8					2	2	
Permitted Phases				8								5
Minimum Split (s)		31.0		31.0	31.0					31.0	31.0	28.0
Total Split (s)		37.0		37.0	37.0					38.0	38.0	31.0
Total Split (%)		49.3%		49.3%	49.3%					50.7%	50.7%	41.3%
Maximum Green (s)		32.4		32.4	32.4					33.5	33.5	26.5
Yellow Time (s)		3.6		3.6	3.6					3.5	3.5	3.5
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	1.0
Lost Time Adjust (s)		0.0			0.0						0.0	0.0
Total Lost Time (s)		4.6			4.6						4.5	4.5
Lead/Lag												Lag
Lead-Lag Optimize?												

Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Parking (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Minimum Split (s)	10.0
Total Split (s)	7.0
Total Split (%)	9%
Maximum Green (s)	4.0
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	

San Rafael Multi-Family TIS: Baseline Conditions

31: 5th Ave & Hetherton St

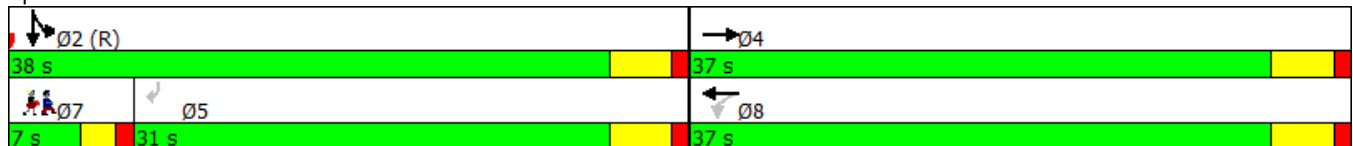
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0		7.0	7.0							7.0
Flash Dont Walk (s)		16.0		16.0	16.0							13.0
Pedestrian Calls (#/hr)		0		0	0							0
Act Effct Green (s)		32.4			32.4						33.5	26.5
Actuated g/C Ratio		0.43			0.43						0.45	0.35
v/c Ratio		0.54			0.43						0.61	0.38
Control Delay		8.5			23.3						5.3	8.0
Queue Delay		2.1			0.2						0.4	1.1
Total Delay		10.5			23.5						5.7	9.2
LOS		B			C						A	A
Approach Delay		10.5			23.5						6.1	
Approach LOS		B			C						A	
Queue Length 50th (ft)		11			96						38	24
Queue Length 95th (ft)		87			m135						m42	m29
Internal Link Dist (ft)		100			308			210			245	
Turn Bay Length (ft)												180
Base Capacity (vph)		808			620						2048	447
Starvation Cap Reductn		232			0						337	0
Spillback Cap Reductn		0			53						0	127
Storage Cap Reductn		0			0						0	0
Reduced v/c Ratio		0.76			0.47						0.73	0.53

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 67 (89%), Referenced to phase 2:SBTL, Start of Green
 Natural Cycle: 70
 Control Type: Pretimed
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 9.2 Intersection LOS: A
 Intersection Capacity Utilization 74.3% ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 31: 5th Ave & Hetherton St




















Lane Group	Ø7
Walk Time (s)	7.0
Flash Dont Walk (s)	0.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

San Rafael Multi-Family TIS: Baseline Conditions

32: 5th Ave & Irwin St

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	202	77	0	0	138	56	112	1245	9	0	0	0
Future Volume (vph)	202	77	0	0	138	56	112	1245	9	0	0	0
Ideal Flow (vphpl)	1600	1600	1800	1800	1600	1600	1600	1600	1600	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	11	12	12	12	12
Storage Length (ft)	75		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	0.99				0.99			1.00				
Frt					0.961			0.999				
Flt Protected	0.950							0.996				
Satd. Flow (prot)	1313	1383	0	0	1320	0	0	2682	0	0	0	0
Flt Permitted	0.572							0.996				
Satd. Flow (perm)	786	1383	0	0	1320	0	0	2682	0	0	0	0
Right Turn on Red			No			Yes			Yes			No
Satd. Flow (RTOR)					28			1				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		388			537			291			313	
Travel Time (s)		10.6			14.6			7.9			8.5	
Confl. Peds. (#/hr)	8						8		3			
Confl. Bikes (#/hr)							3					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)	2	2			2	2	2	2	2			
Adj. Flow (vph)	215	82	0	0	147	60	119	1324	10	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	215	82	0	0	207	0	0	1453	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.43	1.43	1.07	1.07	1.43	1.24	1.24	1.39	1.24	1.07	1.07	1.07
Turning Speed (mph)	25		3	15		9	15		9	15		9
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Minimum Split (s)	27.0	27.0			27.0		28.0	28.0				
Total Split (s)	28.0	28.0			28.0		47.0	47.0				
Total Split (%)	37.3%	37.3%			37.3%		62.7%	62.7%				
Maximum Green (s)	23.4	23.4			23.4		42.4	42.4				
Yellow Time (s)	3.6	3.6			3.6		3.6	3.6				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	4.6	4.6			4.6		4.6	4.6				
Lead/Lag												
Lead-Lag Optimize?												

San Rafael Multi-Family TIS: Baseline Conditions

32: 5th Ave & Irwin St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0			7.0		7.0	7.0				
Flash Dont Walk (s)	15.0	15.0			15.0		16.0	16.0				
Pedestrian Calls (#/hr)	0	0			0		0	0				
Act Effct Green (s)	23.4	23.4			23.4			42.4				
Actuated g/C Ratio	0.31	0.31			0.31			0.57				
v/c Ratio	0.88	0.19			0.48			0.96				
Control Delay	52.9	12.5			22.4			16.3				
Queue Delay	0.0	0.0			0.0			43.6				
Total Delay	52.9	12.5			22.4			59.9				
LOS	D	B			C			E				
Approach Delay		41.8			22.4			59.9				
Approach LOS		D			C			E				
Queue Length 50th (ft)	109	29			66			65				
Queue Length 95th (ft)	#228	m34			128			m#459				
Internal Link Dist (ft)		308			457			211			233	
Turn Bay Length (ft)	75											
Base Capacity (vph)	245	431			431			1516				
Starvation Cap Reductn	0	0			0			0				
Spillback Cap Reductn	0	0			3			383				
Storage Cap Reductn	0	0			0			0				
Reduced v/c Ratio	0.88	0.19			0.48			1.28				

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 7 (9%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 80

Control Type: Pretimed

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 53.1

Intersection LOS: D

Intersection Capacity Utilization 89.9%

ICU Level of Service E

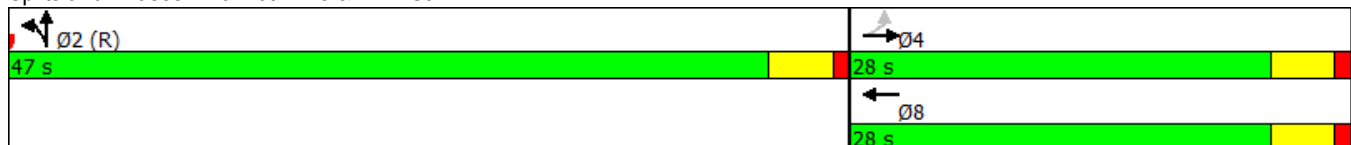
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 32: 5th Ave & Irwin St



Arterial Level of Service: EB 2nd St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Lindaro St	IV	25	20.6	24.2	44.8	0.09	7.5	E
Lincoln Ave	IV	25	21.4	14.4	35.8	0.10	9.8	D
Francisco Blvd W.	IV	25	12.2	9.7	21.9	0.05	7.6	E
US-101 SB Ramp	IV	25	14.2	11.1	25.3	0.05	7.6	E
Total	IV		68.4	59.4	127.8	0.29	8.2	E

Arterial Level of Service: WB 3rd St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Hetherton St	IV	25	19.0	11.9	30.9	0.07	8.4	E
Tamalpais Ave (West)	IV	25	14.4	38.5	52.9	0.05	3.7	F
Lincoln Ave	IV	25	13.2	22.7	35.9	0.05	5.0	F
Lindaro St	IV	25	21.5	3.9	25.4	0.10	13.8	C
Total	IV		68.1	77.0	145.1	0.27	6.8	F

Arterial Level of Service: SB Hetherton St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Mission Ave	IV	25	28.8	31.6	60.4	0.16	9.5	D
5th Ave	IV	25	16.3	5.3	21.6	0.06	10.3	D
4th St	IV	25	14.6	7.0	21.6	0.05	9.2	D
3rd St	IV	25	17.7	13.3	31.0	0.07	7.7	E
2nd St	IV	25	15.6	22.1	37.7	0.06	5.6	F
Total	IV		93.0	79.3	172.3	0.40	8.4	E

Arterial Level of Service: NB Irwin St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
2nd	IV	30	25.2	29.4	54.6	0.17	11.1	D
3rd	IV	25	14.8	13.6	28.4	0.06	7.1	E
4th St	IV	25	18.3	14.8	33.1	0.07	7.5	E
5th Ave	IV	25	14.6	16.3	30.9	0.06	6.4	F
Mission Ave	IV	25	15.7	66.0	81.7	0.06	2.6	F
Total	IV		88.6	140.1	228.7	0.41	6.4	F

Arterial Level of Service: NB Lindaro St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
2nd St	IV	25	15.8	16.2	32.0	0.06	6.7	F
3rd St	IV	25	16.7	15.1	31.8	0.06	7.1	E
Total	IV		32.5	31.3	63.8	0.12	6.9	F

Arterial Level of Service: SB Lindaro St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
3rd St	IV	25	9.9	16.8	26.7	0.04	5.1	F
2nd St	IV	25	16.7	58.5	75.2	0.06	3.0	F
Total	IV		26.6	75.3	101.9	0.10	3.6	F

Arterial Level of Service: EB Mission Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Lincoln Ave	IV	25	28.5	14.6	43.1	0.16	13.2	C
Tamalpais Ave (West)	IV	25	14.7	22.7	37.4	0.06	5.3	F
Tamalpais Avenue (Ea	IV	25	3.6	2.5	6.1	0.01	7.9	E
Hetheron St	IV	25	9.6	9.4	19.0	0.04	6.9	F
Irwin St	IV	25	18.9	13.2	32.1	0.07	8.0	E
Total	IV		75.3	62.4	137.7	0.33	8.7	E

Arterial Level of Service: WB Mission Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
101 NB On-Ramp	IV	25	21.6	29.6	51.2	0.10	6.9	F
Hetheron St	IV	25	18.9	32.6	51.5	0.07	5.0	F
Tamalpais Avenue (Ea	IV	25	9.6	40.6	50.2	0.04	2.6	F
Tamalpais Ave (West)	IV	25	3.6	2.3	5.9	0.01	8.2	E
Lincoln Ave	IV	25	14.7	84.6	99.3	0.06	2.0	F
Total	IV		68.4	189.7	258.1	0.27	3.8	F

San Rafael Multi-Family TIS - Baseline Conditions
1: Cijos St & 4th St

PM PEAK HOUR

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↔	↔	
Traffic Volume (vph)	237	15	97	290	23	62
Future Volume (vph)	237	15	97	290	23	62
Satd. Flow (prot)	1528	0	1406	1555	1315	0
Flt Permitted			0.584		0.987	
Satd. Flow (perm)	1528	0	769	1555	1283	0
Satd. Flow (RTOR)	8				66	
Lane Group Flow (vph)	268	0	103	309	90	0
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases			6			
Total Split (s)	46.0		46.0	46.0	24.0	
Total Lost Time (s)	4.2		4.2	4.2	4.0	
Act Effect Green (s)	41.8		41.8	41.8	20.0	
Actuated g/C Ratio	0.60		0.60	0.60	0.29	
v/c Ratio	0.29		0.22	0.33	0.21	
Control Delay	7.7		8.1	8.3	9.4	
Queue Delay	0.0		0.0	0.6	0.0	
Total Delay	7.7		8.1	8.9	9.4	
LOS	A		A	A	A	
Approach Delay	7.7			8.7	9.4	
Approach LOS	A			A	A	

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 52 (74%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.33

Intersection Signal Delay: 8.5

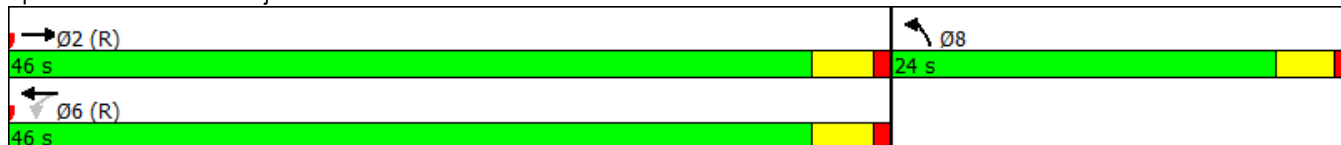
Intersection LOS: A

Intersection Capacity Utilization 83.7%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Cijos St & 4th St



San Rafael Multi-Family TIS - Baseline Conditions
 2: Lincoln Ave & 4th St

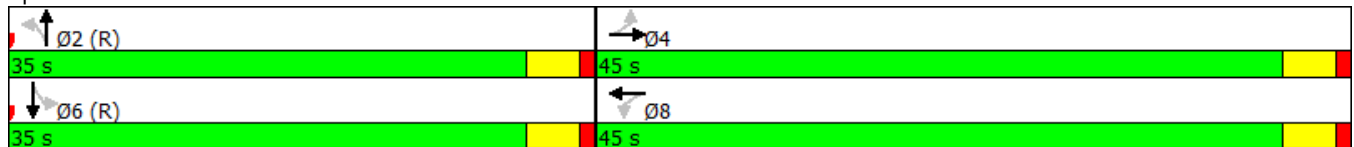
PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	185	64	90	293	64	27	356	54	32	284	67
Future Volume (vph)	50	185	64	90	293	64	27	356	54	32	284	67
Satd. Flow (prot)	1419	1405	0	1405	1586	0	0	2894	0	0	2743	0
Flt Permitted	0.454			0.558				0.913			0.891	
Satd. Flow (perm)	658	1405	0	781	1586	0	0	2637	0	0	2449	0
Satd. Flow (RTOR)		32			20			22			36	
Lane Group Flow (vph)	53	265	0	96	380	0	0	465	0	0	407	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	45.0	45.0		45.0	45.0		35.0	35.0		35.0	35.0	
Total Lost Time (s)	4.2	4.2		4.2	4.2			4.2			4.2	
Act Effect Green (s)	40.8	40.8		40.8	40.8			30.8			30.8	
Actuated g/C Ratio	0.51	0.51		0.51	0.51			0.38			0.38	
v/c Ratio	0.16	0.36		0.24	0.46			0.45			0.42	
Control Delay	12.0	12.0		10.7	10.0			14.3			6.1	
Queue Delay	0.0	0.6		0.0	0.5			0.0			0.0	
Total Delay	12.0	12.6		10.7	10.4			14.3			6.1	
LOS	B	B		B	B			B			A	
Approach Delay		12.5			10.5			14.3			6.1	
Approach LOS		B			B			B			A	

Intersection Summary

Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 62 (78%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Control Type: Pretimed	
Maximum v/c Ratio: 0.46	
Intersection Signal Delay: 10.8	Intersection LOS: B
Intersection Capacity Utilization 75.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Lincoln Ave & 4th St



San Rafael Multi-Family TIS - Baseline Conditions
 3: Tamalpais Ave (West) South Leg & 4th St

PM PEAK HOUR

Intersection						
Int Delay, s/veh	2.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↑		↗
Traffic Vol, veh/h	249	22	0	436	0	154
Future Vol, veh/h	249	22	0	436	0	154
Conflicting Peds, #/hr	0	88	0	0	0	77
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	0	33	3	0	2
Mvmt Flow	265	23	0	464	0	164

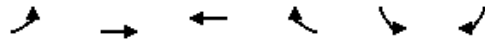
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	-	-	-	442
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	0	615
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	533
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	14.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	533	-	-	-
HCM Lane V/C Ratio	0.307	-	-	-
HCM Control Delay (s)	14.7	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	1.3	-	-	-

San Rafael Multi-Family TIS - Baseline Conditions
 4: 4th St & Tamalpais Ave (West) North Leg

PM PEAK HOUR

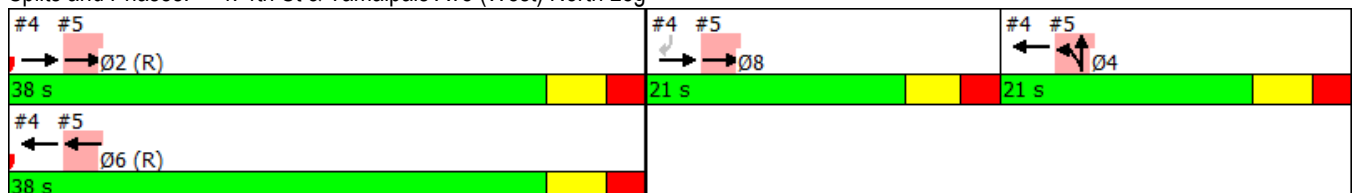


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø2	Ø4	Ø6
Lane Configurations		↑	↑			↑			
Traffic Volume (vph)	0	404	396	32	0	44			
Future Volume (vph)	0	404	396	32	0	44			
Satd. Flow (prot)	0	1765	1710	0	0	1483			
Flt Permitted									
Satd. Flow (perm)	0	1765	1710	0	0	1159			
Satd. Flow (RTOR)			11			381			
Lane Group Flow (vph)	0	430	455	0	0	47			
Turn Type		NA	NA			Perm			
Protected Phases		2 8	4 6				2	4	6
Permitted Phases						8			
Total Split (s)						21.0	38.0	21.0	38.0
Total Lost Time (s)						5.6			
Act Effect Green (s)		54.9	55.7			12.7			
Actuated g/C Ratio		0.69	0.70			0.16			
v/c Ratio		0.36	0.38			0.09			
Control Delay		6.0	1.2			0.6			
Queue Delay		0.6	0.0			0.0			
Total Delay		6.6	1.2			0.6			
LOS		A	A			A			
Approach Delay		6.6	1.2		0.6				
Approach LOS		A	A		A				

Intersection Summary

Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 28 (35%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 3.6	Intersection LOS: A
Intersection Capacity Utilization 46.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 4: 4th St & Tamalpais Ave (West) North Leg



San Rafael Multi-Family TIS - Baseline Conditions
 5: Tamalpais Avenue (East) & 4th St

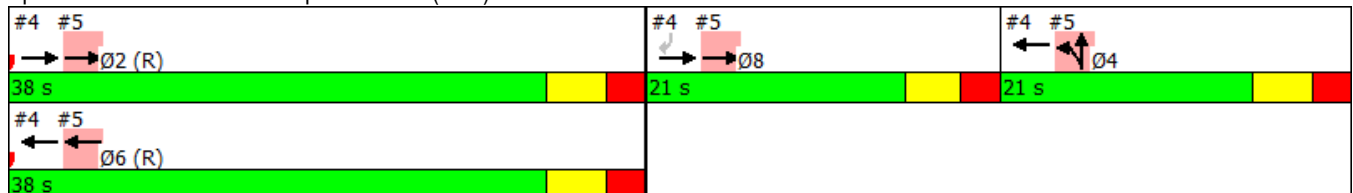
PM PEAK HOUR

	↖	→	↘	↙	←	↖	↘	↑	↖	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↖			↖↘				
Traffic Volume (vph)	0	405	0	0	427	36	0	6	0	0	0	0
Future Volume (vph)	0	405	0	0	427	36	0	6	0	0	0	0
Satd. Flow (prot)	0	1765	0	0	1710	0	0	1800	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	1765	0	0	1710	0	0	1800	0	0	0	0
Satd. Flow (RTOR)					6							
Lane Group Flow (vph)	0	431	0	0	492	0	0	6	0	0	0	0
Turn Type		NA			NA			NA				
Protected Phases		2 8			6		4	4				
Permitted Phases												
Total Split (s)					38.0		21.0	21.0				
Total Lost Time (s)					6.0			6.0				
Act Effect Green (s)		54.9			36.6			13.1				
Actuated g/C Ratio		0.69			0.46			0.16				
v/c Ratio		0.36			0.63			0.02				
Control Delay		1.5			18.2			25.7				
Queue Delay		0.0			2.7			0.0				
Total Delay		1.5			20.9			25.7				
LOS		A			C			C				
Approach Delay		1.5			20.9			25.7				
Approach LOS		A			C			C				

Intersection Summary

Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 28 (35%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 11.9	Intersection LOS: B
Intersection Capacity Utilization 46.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 5: Tamalpais Avenue (East) & 4th St



Lane Group	Ø2	Ø8
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Satd. Flow (RTOR)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	8
Permitted Phases		
Total Split (s)	38.0	21.0
Total Lost Time (s)		
Act Effect Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

San Rafael Multi-Family TIS - Baseline Conditions

6: Hetherton St & 4th St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	290	119	74	249	0	0	0	0	130	999	231
Future Volume (vph)	0	290	119	74	249	0	0	0	0	130	999	231
Satd. Flow (prot)	0	1824	1386	1826	1706	0	0	0	0	0	4579	1322
Flt Permitted				0.487							0.994	
Satd. Flow (perm)	0	1824	1294	908	1706	0	0	0	0	0	4569	1253
Satd. Flow (RTOR)			71									
Lane Group Flow (vph)	0	309	127	79	265	0	0	0	0	0	1201	246
Turn Type		NA	Perm	Perm	NA					Perm	NA	custom
Protected Phases		4			8						2	
Permitted Phases			4	8						2		5
Total Split (s)		39.0	39.0	39.0	39.0					41.0	41.0	34.0
Total Lost Time (s)		4.2	4.2	4.2	4.2						4.2	4.2
Act Effect Green (s)		34.8	34.8	34.8	34.8						36.8	29.8
Actuated g/C Ratio		0.44	0.44	0.44	0.44						0.46	0.37
v/c Ratio		0.39	0.21	0.20	0.36						0.57	0.53
Control Delay		10.5	3.7	14.3	15.7						7.8	14.2
Queue Delay		1.7	1.2	0.0	0.0						0.2	71.1
Total Delay		12.2	4.9	14.3	15.8						8.0	85.2
LOS		B	A	B	B						A	F
Approach Delay		10.0			15.4						21.1	
Approach LOS		B			B						C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 68 (85%), Referenced to phase 2:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 18.1

Intersection LOS: B

Intersection Capacity Utilization 68.0%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 6: Hetherton St & 4th St

Ø2 (R)	Ø4	Ø5	Ø8
41 s	39 s	34 s	39 s
7 s			

Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Total Split (s)	7.0
Total Lost Time (s)	
Act Effect Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

San Rafael Multi-Family TIS - Baseline Conditions
 7: Irwin St & 4th St

PM PEAK HOUR

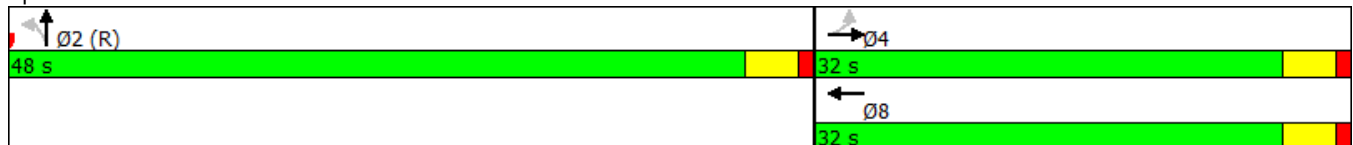
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	173	236	0	0	197	79	129	1262	153	0	0	0
Future Volume (vph)	173	236	0	0	197	79	129	1262	153	0	0	0
Satd. Flow (prot)	1637	1765	0	0	1470	0	1480	4417	0	0	0	0
Flt Permitted	0.455						0.950					
Satd. Flow (perm)	778	1765	0	0	1470	0	1464	4417	0	0	0	0
Satd. Flow (RTOR)					28			42				
Lane Group Flow (vph)	184	251	0	0	294	0	137	1506	0	0	0	0
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Total Split (s)	32.0	32.0			32.0		48.0	48.0				
Total Lost Time (s)	4.2	4.2			4.2		4.2	4.2				
Act Effect Green (s)	27.8	27.8			27.8		43.8	43.8				
Actuated g/C Ratio	0.35	0.35			0.35		0.55	0.55				
v/c Ratio	0.68	0.41			0.56		0.17	0.62				
Control Delay	45.5	30.7			23.8		3.0	3.4				
Queue Delay	0.0	0.0			0.0		0.0	0.4				
Total Delay	45.5	30.7			23.8		3.0	3.7				
LOS	D	C			C		A	A				
Approach Delay		37.0			23.8			3.7				
Approach LOS		D			C			A				

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 36 (45%), Referenced to phase 2:NBT, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.68
 Intersection Signal Delay: 12.3
 Intersection Capacity Utilization 68.0%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 7: Irwin St & 4th St



San Rafael Multi-Family TIS - Baseline Conditions

8: Lindaro St & 3rd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	255	1918	35	134	18	0	0	39	8
Future Volume (vph)	0	0	0	255	1918	35	134	18	0	0	39	8
Satd. Flow (prot)	0	0	0	1360	4304	0	0	1533	0	0	1524	0
Flt Permitted				0.950				0.715				
Satd. Flow (perm)	0	0	0	1290	4304	0	0	1144	0	0	1524	0
Satd. Flow (RTOR)					6						9	
Lane Group Flow (vph)	0	0	0	271	2077	0	0	162	0	0	50	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8			4	
Permitted Phases				6			8					
Total Split (s)				53.0	53.0		27.0	27.0			27.0	
Total Lost Time (s)				4.2	4.2		4.2	4.2			4.2	
Act Effect Green (s)				48.8	48.8		22.8	22.8			22.8	
Actuated g/C Ratio				0.61	0.61		0.28	0.28			0.28	
v/c Ratio				0.34	0.79		0.50	0.50			0.11	
Control Delay				3.7	5.1		32.7	32.7			19.1	
Queue Delay				0.0	0.1		0.0	0.0			0.0	
Total Delay				3.7	5.2		32.7	32.7			19.1	
LOS				A	A		C	C			B	
Approach Delay					5.1		32.7	32.7			19.1	
Approach LOS					A		C	C			B	

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 7.1 Intersection LOS: A
 Intersection Capacity Utilization 68.6% ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 8: Lindaro St & 3rd St



San Rafael Multi-Family TIS - Baseline Conditions
 9: Ritter St & 3rd St

PM PEAK HOUR

Intersection						
Int Delay, s/veh	1.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑↑	↖	↗
Traffic Vol, veh/h	0	0	0	2120	114	0
Future Vol, veh/h	0	0	0	2120	114	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	25
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	2	1	0
Mvmt Flow	0	0	0	2255	121	0

Major/Minor	Major2	Minor1
Conflicting Flow All	-	902
Stage 1	-	0
Stage 2	-	902
Critical Hdwy	-	5.72
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	6.02
Follow-up Hdwy	-	3.81
Pot Cap-1 Maneuver	0	350
Stage 1	0	-
Stage 2	0	325
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	350
Mov Cap-2 Maneuver	-	350
Stage 1	-	-
Stage 2	-	325

Approach	WB	NB
HCM Control Delay, s	0	20.6
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	NBLn2	WBT
Capacity (veh/h)	350	-	-
HCM Lane V/C Ratio	0.347	-	-
HCM Control Delay (s)	20.6	0	-
HCM Lane LOS	C	A	-
HCM 95th %tile Q(veh)	1.5	-	-

San Rafael Multi-Family TIS - Baseline Conditions
 10: 3rd St & Cijos St

PM PEAK HOUR

Intersection						
Int Delay, s/veh	4.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑			↑
Traffic Vol, veh/h	0	0	2009	88	0	111
Future Vol, veh/h	0	0	2009	88	0	111
Conflicting Peds, #/hr	0	0	0	76	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	-	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	2	1	0	1
Mvmt Flow	0	0	2137	94	0	118

Major/Minor	Major2	Minor2
Conflicting Flow All	-	0 - 1191
Stage 1	-	- -
Stage 2	-	- -
Critical Hdwy	-	- 7.12
Critical Hdwy Stg 1	-	- -
Critical Hdwy Stg 2	-	- -
Follow-up Hdwy	-	- 3.91
Pot Cap-1 Maneuver	-	- 0 156
Stage 1	-	- 0 -
Stage 2	-	- 0 -
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	- - 146
Mov Cap-2 Maneuver	-	- - -
Stage 1	-	- - -
Stage 2	-	- - -













Approach	WB	SB
HCM Control Delay, s	0	90.7
HCM LOS		F

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	146
HCM Lane V/C Ratio	-	-	0.809
HCM Control Delay (s)	-	-	90.7
HCM Lane LOS	-	-	F
HCM 95th %tile Q(veh)	-	-	5.1

San Rafael Multi-Family TIS - Baseline Conditions

11: Lincoln Ave & 3rd St

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔↔↔			↔↔			↔↔	
Traffic Volume (vph)	0	0	0	130	1803	95	60	372	0	0	289	149
Future Volume (vph)	0	0	0	130	1803	95	60	372	0	0	289	149
Satd. Flow (prot)	0	0	0	0	4239	0	0	2893	0	0	2401	0
Flt Permitted					0.997			0.819				
Satd. Flow (perm)	0	0	0	0	4220	0	0	2367	0	0	2401	0
Satd. Flow (RTOR)					15						8	
Lane Group Flow (vph)	0	0	0	0	2157	0	0	460	0	0	466	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8			4	
Permitted Phases				6			8					
Total Split (s)				50.0	50.0		30.0	30.0			30.0	
Total Lost Time (s)					4.5			4.5			4.5	
Act Effect Green (s)					45.5			25.5			25.5	
Actuated g/C Ratio					0.57			0.32			0.32	
v/c Ratio					0.90			0.61			0.61	
Control Delay					21.6			20.8			34.2	
Queue Delay					46.3			0.0			0.0	
Total Delay					67.9			20.8			34.2	
LOS					E			C			C	
Approach Delay					67.9			20.8			34.2	
Approach LOS					E			C			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 40 (50%), Referenced to phase 4:SBT and 8:NBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 55.8

Intersection LOS: E

Intersection Capacity Utilization 90.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 11: Lincoln Ave & 3rd St



San Rafael Multi-Family TIS - Baseline Conditions

12: Tamalpais Ave (West) & 3rd St

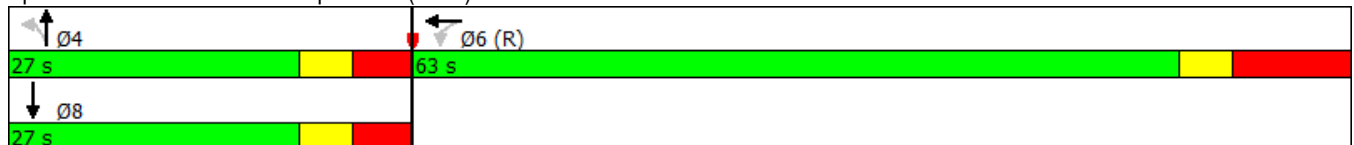
PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	305	1896	56	113	107	0	0	20	20
Future Volume (vph)	0	0	0	305	1896	56	113	107	0	0	20	20
Satd. Flow (prot)	0	0	0	0	4188	0	1287	1402	0	0	1239	0
Flt Permitted					0.993		0.730					
Satd. Flow (perm)	0	0	0	0	3980	0	932	1402	0	0	1239	0
Satd. Flow (RTOR)					7						7	
Lane Group Flow (vph)	0	0	0	0	2401	0	120	114	0	0	42	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			4			8	
Permitted Phases				6			4					
Total Split (s)				63.0	63.0		27.0	27.0			27.0	
Total Lost Time (s)					11.6		7.6	7.6			7.6	
Act Effect Green (s)					51.4		19.4	19.4			19.4	
Actuated g/C Ratio					0.57		0.22	0.22			0.22	
v/c Ratio					1.05		0.60	0.38			0.15	
Control Delay					56.1		46.0	34.5			26.7	
Queue Delay					19.4		0.0	0.0			0.0	
Total Delay					75.5		46.0	34.5			26.7	
LOS					E		D	C			C	
Approach Delay					75.5			40.4			26.7	
Approach LOS					E			D			C	

Intersection Summary

Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 26 (29%), Referenced to phase 6:WBTL, Start of Green	
Control Type: Pretimed	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 71.7	Intersection LOS: E
Intersection Capacity Utilization 155.7%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 12: Tamalpais Ave (West) & 3rd St



San Rafael Multi-Family TIS - Baseline Conditions
 13: Tamalpais Avenue (East) & 3rd St

PM PEAK HOUR

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑↑↑		↑					
Traffic Vol, veh/h	0	0	0	9	2229	6	18	0	0	0	0	0
Future Vol, veh/h	0	0	0	9	2229	6	18	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	96	0	15	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	89	2	0	94	0	0	0	0	0
Mvmt Flow	0	0	0	10	2371	6	19	0	0	0	0	0

Major/Minor	Major1		Major2		Minor1				
Conflicting Flow All	-	0	-	97	0	0	1065	-	-
Stage 1	-	-	-	-	-	-	97	-	-
Stage 2	-	-	-	-	-	-	968	-	-
Critical Hdwy	-	-	-	5.435	-	-	7.46	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.81	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.41	-	-
Follow-up Hdwy	-	-	-	3.0455	-	-	4.543	-	-
Pot Cap-1 Maneuver	0	-	0	1064	-	-	159	0	0
Stage 1	0	-	0	-	-	-	701	0	0
Stage 2	0	-	0	-	-	-	187	0	0
Platoon blocked, %		-		-		-			
Mov Cap-1 Maneuver	-	-	-	1064	-	-	146	0	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	146	0	-
Stage 1	-	-	-	-	-	-	645	0	-
Stage 2	-	-	-	-	-	-	187	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	33.3
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	WBL	WBT	WBR
Capacity (veh/h)	146	-	1064	-	-
HCM Lane V/C Ratio	0.131	-	0.009	-	-
HCM Control Delay (s)	33.3	-	8.4	0	-
HCM Lane LOS	D	-	A	A	-
HCM 95th %tile Q(veh)	0.4	-	0	-	-

San Rafael Multi-Family TIS - Baseline Conditions

14: Hetherton St & 3rd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	487	1713	0	0	0	0	0	681	512
Future Volume (vph)	0	0	0	487	1713	0	0	0	0	0	681	512
Satd. Flow (prot)	0	0	0	1354	4254	0	0	0	0	0	4356	1197
Flt Permitted				0.950	0.999							
Satd. Flow (perm)	0	0	0	1258	4251	0	0	0	0	0	4356	1114
Satd. Flow (RTOR)												14
Lane Group Flow (vph)	0	0	0	497	1843	0	0	0	0	0	724	545
Turn Type				Perm	NA						NA	Perm
Protected Phases					8						6	
Permitted Phases				8								6
Total Split (s)				49.0	49.0						31.0	31.0
Total Lost Time (s)				4.0	4.0						5.0	5.0
Act Effect Green (s)				45.0	45.0						26.0	26.0
Actuated g/C Ratio				0.56	0.56						0.32	0.32
v/c Ratio				0.70	0.77						0.51	1.47
Control Delay				10.9	9.7						25.6	250.4
Queue Delay				1.0	0.7						0.6	0.0
Total Delay				11.9	10.4						26.2	250.4
LOS				B	B						C	F
Approach Delay					10.7						122.5	
Approach LOS					B						F	

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 31 (39%), Referenced to phase 6:SBT, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 1.47
 Intersection Signal Delay: 50.0 Intersection LOS: D
 Intersection Capacity Utilization 125.0% ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 14: Hetherton St & 3rd St



San Rafael Multi-Family TIS - Baseline Conditions

15: Irwin St & 3rd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑	↑	↑	↑↑↑				
Traffic Volume (vph)	0	0	0	0	1272	185	915	1366	0	0	0	0
Future Volume (vph)	0	0	0	0	1272	185	915	1366	0	0	0	0
Satd. Flow (prot)	0	0	0	0	3997	1289	1162	3857	0	0	0	0
Flt Permitted							0.950	0.991				
Satd. Flow (perm)	0	0	0	0	3997	1234	1162	3857	0	0	0	0
Satd. Flow (RTOR)						24	20	20				
Lane Group Flow (vph)	0	0	0	0	1353	197	671	1755	0	0	0	0
Turn Type					NA	Perm	Split	NA				
Protected Phases					8		2	2				
Permitted Phases						8						
Total Split (s)					34.0	34.0	46.0	46.0				
Total Lost Time (s)					4.5	4.5	4.5	4.5				
Act Effect Green (s)					29.5	29.5	41.5	41.5				
Actuated g/C Ratio					0.37	0.37	0.52	0.52				
v/c Ratio					0.92	0.42	1.10	0.87				
Control Delay					35.7	19.8	73.1	16.5				
Queue Delay					0.1	0.0	0.7	5.7				
Total Delay					35.8	19.8	73.8	22.3				
LOS					D	B	E	C				
Approach Delay					33.8			36.5				
Approach LOS					C			D				

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 27 (34%), Referenced to phase 2:NBTL, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 1.10
 Intersection Signal Delay: 35.5 Intersection LOS: D
 Intersection Capacity Utilization 107.8% ICU Level of Service G
 Analysis Period (min) 15

Splits and Phases: 15: Irwin St & 3rd St



San Rafael Multi-Family TIS - Baseline Conditions

16: Lindaro St & 2nd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	2273	53	0	0	0	0	106	326	96	197	0
Future Volume (vph)	51	2273	53	0	0	0	0	106	326	96	197	0
Satd. Flow (prot)	0	5191	0	0	0	0	0	1547	1244	1328	1309	0
Flt Permitted		0.999								0.684		
Satd. Flow (perm)	0	5189	0	0	0	0	0	1547	1209	945	1309	0
Satd. Flow (RTOR)		8							16			
Lane Group Flow (vph)	0	2528	0	0	0	0	0	113	347	102	210	0
Turn Type	Perm	NA						NA	Perm	Perm	NA	
Protected Phases		6						4			8	
Permitted Phases	6								4	8		
Total Split (s)	47.0	47.0						33.0	33.0	33.0	33.0	
Total Lost Time (s)		4.2						4.2	4.2	4.2	4.2	
Act Effect Green (s)		42.8						28.8	28.8	28.8	28.8	
Actuated g/C Ratio		0.54						0.36	0.36	0.36	0.36	
v/c Ratio		0.91						0.20	0.78	0.30	0.45	
Control Delay		23.2						18.9	36.2	16.9	18.1	
Queue Delay		0.0						0.0	0.0	0.0	0.0	
Total Delay		23.2						18.9	36.2	16.9	18.1	
LOS		C						B	D	B	B	
Approach Delay		23.2						32.0			17.7	
Approach LOS		C						C			B	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 49 (61%), Referenced to phase 6:EBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 23.9

Intersection LOS: C

Intersection Capacity Utilization 83.3%

ICU Level of Service E

Analysis Period (min) 15















Splits and Phases: 16: Lindaro St & 2nd St

Ø6 (R) 47 s	Ø4 33 s
	Ø8 33 s

San Rafael Multi-Family TIS - Baseline Conditions

17: Lincoln Ave & Ritter St

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	77	426	8	34	365	20
Future Volume (vph)	0	0	0	0	0	0	77	426	8	34	365	20
Satd. Flow (prot)	0	0	0	0	0	0	0	3361	0	0	3278	0
Flt Permitted								0.993			0.996	
Satd. Flow (perm)	0	0	0	0	0	0	0	3361	0	0	3278	0
Lane Group Flow (vph)	0	0	0	0	0	0	0	544	0	0	445	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 34.7%

ICU Level of Service A

Analysis Period (min) 15

San Rafael Multi-Family TIS - Baseline Conditions
 18: Lincoln Ave & 2nd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	243	2359	89	0	0	0	0	269	161	156	211	0
Future Volume (vph)	243	2359	89	0	0	0	0	269	161	156	211	0
Satd. Flow (prot)	0	5016	1221	0	0	0	0	1600	1360	0	2611	0
Flt Permitted		0.995									0.655	
Satd. Flow (perm)	0	5006	1139	0	0	0	0	1600	1338	0	1747	0
Satd. Flow (RTOR)			82						16			
Lane Group Flow (vph)	0	2769	95	0	0	0	0	286	171	0	390	0
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		6						4			8	
Permitted Phases	6		6						4	8		
Total Split (s)	48.0	48.0	48.0					32.0	32.0	32.0	32.0	
Total Lost Time (s)		4.2	4.2					4.2	4.2		4.2	
Act Effect Green (s)		43.8	43.8					27.8	27.8		27.8	
Actuated g/C Ratio		0.55	0.55					0.35	0.35		0.35	
v/c Ratio		1.01	0.14					0.51	0.36		0.64	
Control Delay		24.0	0.2					24.8	20.2		25.0	
Queue Delay		35.3	0.0					0.0	0.0		0.0	
Total Delay		59.3	0.2					24.8	20.2		25.0	
LOS		E	A					C	C		C	
Approach Delay		57.3						23.1			25.0	
Approach LOS		E						C			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 62 (78%), Referenced to phase 6:EBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 49.7

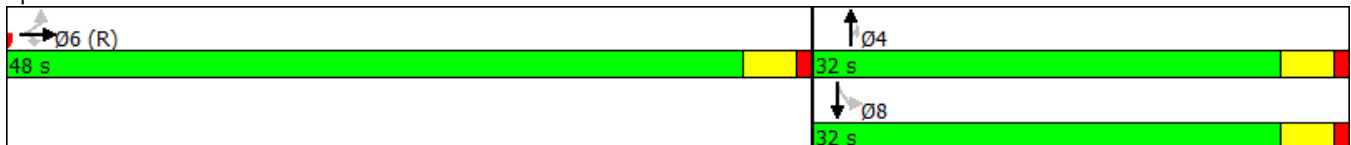
Intersection LOS: D

Intersection Capacity Utilization 84.6%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 18: Lincoln Ave & 2nd St



San Rafael Multi-Family TIS - Baseline Conditions
 19: Francisco Blvd W./Tamalpais Ave (West) & 2nd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	2471	132	0	0	0	0	153	439	64	259	0
Future Volume (vph)	76	2471	132	0	0	0	0	153	439	64	259	0
Satd. Flow (prot)	0	5214	1232	0	0	0	0	1479	1378	996	1349	0
Flt Permitted		0.999								0.654		
Satd. Flow (perm)	0	5198	1203	0	0	0	0	1479	1358	686	1349	0
Satd. Flow (RTOR)			107						48			
Lane Group Flow (vph)	0	2710	140	0	0	0	0	163	467	68	276	0
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		2						4			8	
Permitted Phases	2		2						4		8	
Total Split (s)	47.0	47.0	47.0					33.0	33.0	33.0	33.0	
Total Lost Time (s)		6.5	6.5					6.5	6.5	6.5	6.5	
Act Effect Green (s)		40.5	40.5					26.5	26.5	26.5	26.5	
Actuated g/C Ratio		0.51	0.51					0.33	0.33	0.33	0.33	
v/c Ratio		1.03	0.21					0.33	0.97	0.30	0.62	
Control Delay		30.7	1.4					22.5	60.8	24.4	29.7	
Queue Delay		28.8	0.6					0.0	0.0	0.0	0.6	
Total Delay		59.5	2.0					22.5	60.8	24.4	30.3	
LOS		E	A					C	E	C	C	
Approach Delay		56.6						50.9			29.2	
Approach LOS		E						D			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 66 (83%), Referenced to phase 2:EBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 53.2

Intersection LOS: D

Intersection Capacity Utilization 155.7%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 19: Francisco Blvd W./Tamalpais Ave (West) & 2nd St



San Rafael Multi-Family TIS - Baseline Conditions

20: US-101 SB Ramp/Hetherton St & 2nd St

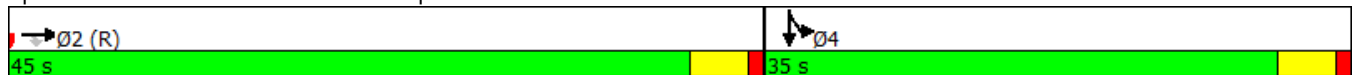
PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1950	979	0	0	0	0	0	0	357	810	0
Future Volume (vph)	0	1950	979	0	0	0	0	0	0	357	810	0
Satd. Flow (prot)	0	4733	1034	0	0	0	0	0	0	1298	2827	0
Flt Permitted										0.950		
Satd. Flow (perm)	0	4733	1020	0	0	0	0	0	0	1298	2827	0
Satd. Flow (RTOR)		53	53									
Lane Group Flow (vph)	0	2490	625	0	0	0	0	0	0	380	862	0
Turn Type		NA	Perm							Split	NA	
Protected Phases		2								4	4	
Permitted Phases			2									
Total Split (s)		45.0	45.0							35.0	35.0	
Total Lost Time (s)		4.5	4.5							4.5	4.5	
Act Effect Green (s)		40.5	40.5							30.5	30.5	
Actuated g/C Ratio		0.51	0.51							0.38	0.38	
v/c Ratio		1.03	1.15							0.77	0.80	
Control Delay		24.7	84.1							27.5	23.2	
Queue Delay		27.0	0.1							1.6	1.1	
Total Delay		51.8	84.2							29.2	24.3	
LOS		D	F							C	C	
Approach Delay		58.3									25.8	
Approach LOS		E									C	

Intersection Summary

Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 72 (90%), Referenced to phase 2:EBT, Start of Green	
Control Type: Pretimed	
Maximum v/c Ratio: 1.15	
Intersection Signal Delay: 49.0	Intersection LOS: D
Intersection Capacity Utilization 139.3%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 20: US-101 SB Ramp/Hetherton St & 2nd St



San Rafael Multi-Family TIS - Baseline Conditions

21: US-101 NB Ramp/Irwin St & 2nd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	918	1396	0	0	0	0	0	1383	563	0	0	0
Future Volume (vph)	918	1396	0	0	0	0	0	1383	563	0	0	0
Satd. Flow (prot)	1311	3999	0	0	0	0	0	4241	1257	0	0	0
Flt Permitted	0.950	0.990										
Satd. Flow (perm)	1286	3984	0	0	0	0	0	4241	1214	0	0	0
Satd. Flow (RTOR)	30	30							16			
Lane Group Flow (vph)	616	1846	0	0	0	0	0	1471	599	0	0	0
Turn Type	Perm	NA						NA	Perm			
Protected Phases		2						8				
Permitted Phases	2								8			
Total Split (s)	42.0	42.0						38.0	38.0			
Total Lost Time (s)	4.2	4.2						5.2	5.2			
Act Effect Green (s)	37.8	37.8						32.8	32.8			
Actuated g/C Ratio	0.47	0.47						0.41	0.41			
v/c Ratio	0.99	0.97						0.85	1.18			
Control Delay	29.6	17.9						27.2	125.5			
Queue Delay	30.5	12.5						0.1	0.0			
Total Delay	60.1	30.4						27.3	125.5			
LOS	E	C						C	F			
Approach Delay		37.8						55.7				
Approach LOS		D						E				

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 1.18

Intersection Signal Delay: 46.0

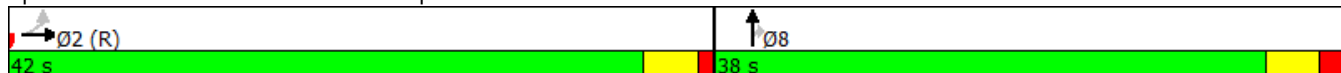
Intersection LOS: D

Intersection Capacity Utilization 112.0%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 21: US-101 NB Ramp/Irwin St & 2nd St



San Rafael Multi-Family TIS - Baseline Conditions
22: Nye St & Mission Ave

PM PEAK HOUR

Intersection												
Int Delay, s/veh	11.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	22	664	5	22	807	22	6	21	94	14	32	32
Future Vol, veh/h	22	664	5	22	807	22	6	21	94	14	32	32
Conflicting Peds, #/hr	5	0	12	12	0	5	14	0	14	14	0	14
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	23	706	5	23	859	23	6	22	100	15	34	34

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	887	0	0	724	0	0	1733	1702	735	1753	1693	889
Stage 1	-	-	-	-	-	-	768	768	-	922	922	-
Stage 2	-	-	-	-	-	-	965	934	-	831	771	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	759	-	-	874	-	-	69	91	418	66	92	341
Stage 1	-	-	-	-	-	-	393	409	-	323	348	-
Stage 2	-	-	-	-	-	-	305	343	-	362	408	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	747	-	-	860	-	-	38	80	406	35	81	334
Mov Cap-2 Maneuver	-	-	-	-	-	-	38	80	-	35	81	-
Stage 1	-	-	-	-	-	-	368	383	-	305	328	-
Stage 2	-	-	-	-	-	-	229	323	-	240	382	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.2			59.1			165.4		
HCM LOS							F			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	186	747	-	-	860	-	-	88
HCM Lane V/C Ratio	0.692	0.031	-	-	0.027	-	-	0.943
HCM Control Delay (s)	59.1	10	0	-	9.3	0	-	165.4
HCM Lane LOS	F	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	4.2	0.1	-	-	0.1	-	-	5.3

San Rafael Multi-Family TIS - Baseline Conditions

23: Lincoln Ave & Mission Ave

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	206	453	20	35	577	61	12	381	48	0	335	281
Future Volume (vph)	206	453	20	35	577	61	12	381	48	0	335	281
Satd. Flow (prot)	1427	1639	0	1463	1515	0	0	2746	0	0	2620	0
Flt Permitted	0.125			0.479				0.931				
Satd. Flow (perm)	188	1639	0	735	1515	0	0	2557	0	0	2620	0
Satd. Flow (RTOR)		5			8			17			273	
Lane Group Flow (vph)	219	503	0	37	679	0	0	469	0	0	655	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA			NA	
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4					
Total Split (s)	12.0	51.0		39.0	39.0		29.0	29.0			29.0	
Total Lost Time (s)	3.0	4.2		4.2	4.2			4.6			4.6	
Act Effect Green (s)	48.0	46.8		34.8	34.8			24.4			24.4	
Actuated g/C Ratio	0.60	0.58		0.44	0.44			0.30			0.30	
v/c Ratio	0.87	0.52		0.12	1.02			0.59			0.66	
Control Delay	48.2	12.3		10.9	54.1			37.1			17.4	
Queue Delay	0.0	0.8		0.0	0.0			0.0			0.0	
Total Delay	48.2	13.1		10.9	54.1			37.1			17.4	
LOS	D	B		B	D			D			B	
Approach Delay		23.8			51.8			37.1			17.4	
Approach LOS		C			D			D			B	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 55 (69%), Referenced to phase 4:NBTL and 8:SBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 32.4

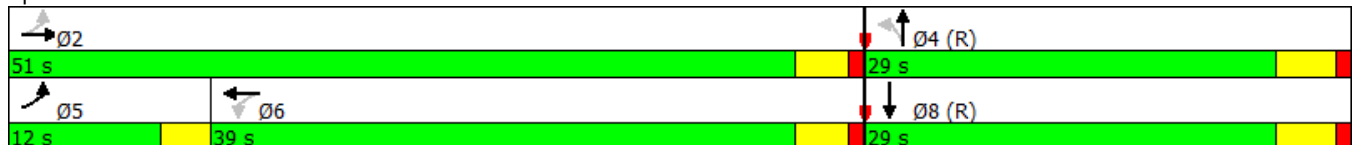
Intersection LOS: C

Intersection Capacity Utilization 86.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 23: Lincoln Ave & Mission Ave





Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø3	Ø4	Ø6
Lane Configurations	↕			↕	↙	↘			
Traffic Volume (vph)	568	14	0	633	6	11			
Future Volume (vph)	568	14	0	633	6	11			
Satd. Flow (prot)	1741	0	0	1748	1565	0			
Flt Permitted					0.984				
Satd. Flow (perm)	1741	0	0	1748	1514	0			
Satd. Flow (RTOR)	2				12				
Lane Group Flow (vph)	619	0	0	673	18	0			
Turn Type	NA			NA	Perm				
Protected Phases	2			3 4 6			3	4	6
Permitted Phases					8				
Total Split (s)	39.0				18.0		5.0	18.0	39.0
Total Lost Time (s)	6.0				5.6				
Act Effect Green (s)	33.5			57.0	14.4				
Actuated g/C Ratio	0.42			0.71	0.18				
v/c Ratio	0.85			0.54	0.06				
Control Delay	27.1			2.0	16.1				
Queue Delay	0.8			0.1	0.0				
Total Delay	27.9			2.1	16.1				
LOS	C			A	B				
Approach Delay	27.9			2.1	16.1				
Approach LOS	C			A	B				

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 14 (18%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 14.5

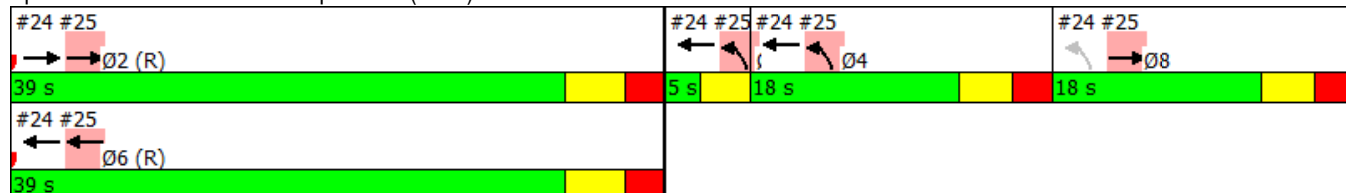
Intersection LOS: B

Intersection Capacity Utilization 48.2%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 24: Tamalpais Ave (West) & Mission Ave



San Rafael Multi-Family TIS - Baseline Conditions
 26: Hetherton St/101 SB Off-Ramp & Mission Ave

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	555	70	65	197	0	0	0	0	221	1133	560
Future Volume (vph)	0	555	70	65	197	0	0	0	0	221	1133	560
Satd. Flow (prot)	0	3034	0	0	1957	0	0	0	0	0	3294	1485
Flt Permitted					0.709						0.992	
Satd. Flow (perm)	0	3034	0	0	1402	0	0	0	0	0	3294	1419
Satd. Flow (RTOR)		20										
Lane Group Flow (vph)	0	664	0	0	279	0	0	0	0	0	1440	596
Turn Type		NA		Perm	NA					Split	NA	custom
Protected Phases		4			8					2	2	
Permitted Phases				8								5
Total Split (s)		35.0		35.0	35.0					45.0	45.0	38.0
Total Lost Time (s)		4.2			4.2						4.6	4.6
Act Effect Green (s)		30.8			30.8						40.4	33.4
Actuated g/C Ratio		0.38			0.38						0.50	0.42
v/c Ratio		0.56			0.52						0.87	1.01
Control Delay		8.6			8.9						24.6	64.6
Queue Delay		1.7			0.1						0.0	44.1
Total Delay		10.3			9.0						24.6	108.7
LOS		B			A						C	F
Approach Delay		10.3			9.0						49.2	
Approach LOS		B			A						D	

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 51 (64%), Referenced to phase 2:SBTL and 7:Ped, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 1.01
 Intersection Signal Delay: 36.8 Intersection LOS: D
 Intersection Capacity Utilization 84.2% ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 26: Hetherton St/101 SB Off-Ramp & Mission Ave



Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Total Split (s)	7.0
Total Lost Time (s)	
Act Effect Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

San Rafael Multi-Family TIS - Baseline Conditions
 27: Irwin St/101 NB On-Ramp & Mission Ave

PM PEAK HOUR

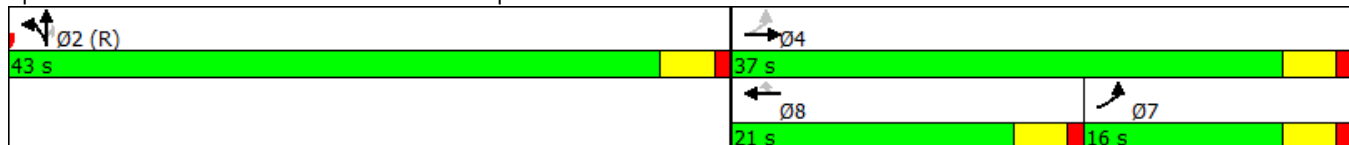
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	470	306	0	0	188	325	83	1678	39	0	0	0
Future Volume (vph)	470	306	0	0	188	325	83	1678	39	0	0	0
Satd. Flow (prot)	1826	1631	0	0	1994	1634	0	4050	1816	0	0	0
Flt Permitted	0.521							0.998				
Satd. Flow (perm)	1002	1631	0	0	1994	1634	0	4048	1736	0	0	0
Satd. Flow (RTOR)						74			74			
Lane Group Flow (vph)	500	326	0	0	200	346	0	1873	41	0	0	0
Turn Type	pm+pt	NA			NA	Perm	Split	NA	Perm			
Protected Phases	7	4			8		2	2				
Permitted Phases	4					8			2			
Total Split (s)	16.0	37.0			21.0	21.0	43.0	43.0	43.0			
Total Lost Time (s)	4.2	4.2			4.2	4.2		4.2	4.2			
Act Effect Green (s)	32.8	32.8			16.8	16.8		38.8	38.8			
Actuated g/C Ratio	0.41	0.41			0.21	0.21		0.48	0.48			
v/c Ratio	0.94	0.49			0.48	0.86		0.95	0.05			
Control Delay	43.2	15.3			32.2	46.9		17.8	0.1			
Queue Delay	0.0	0.2			0.0	0.0		6.9	0.0			
Total Delay	43.2	15.5			32.2	46.9		24.7	0.1			
LOS	D	B			C	D		C	A			
Approach Delay		32.3			41.5			24.2				
Approach LOS		C			D			C				

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 53 (66%), Referenced to phase 2:NBT, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 29.1
 Intersection Capacity Utilization 92.5%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service F

Splits and Phases: 27: Irwin St/101 NB On-Ramp & Mission Ave



San Rafael Multi-Family TIS - Baseline Conditions

28: Lincoln Ave & 5th Ave

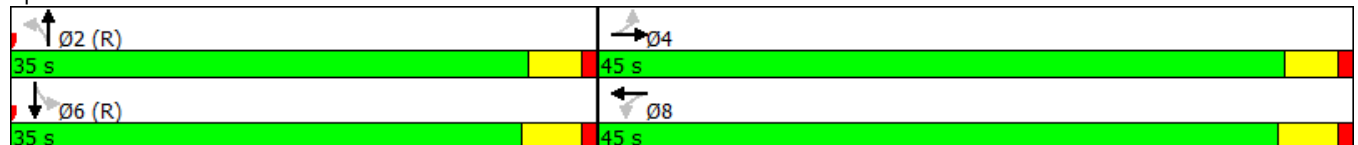
PM PEAK HOUR

	↖	→	↘	↙	←	↖	↙	↑	↘	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Volume (vph)	63	406	48	18	259	45	41	396	37	54	331	39
Future Volume (vph)	63	406	48	18	259	45	41	396	37	54	331	39
Satd. Flow (prot)	1377	1672	0	1377	1606	0	0	2861	0	0	2939	0
Flt Permitted	0.508			0.365				0.882			0.835	
Satd. Flow (perm)	727	1672	0	524	1606	0	0	2524	0	0	2461	0
Satd. Flow (RTOR)		11			16			13			15	
Lane Group Flow (vph)	67	483	0	19	324	0	0	504	0	0	450	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	45.0	45.0		45.0	45.0		35.0	35.0		35.0	35.0	
Total Lost Time (s)	4.2	4.2		4.6	4.6			4.2			4.6	
Act Effect Green (s)	40.8	40.8		40.4	40.4			30.8			30.4	
Actuated g/C Ratio	0.51	0.51		0.50	0.50			0.38			0.38	
v/c Ratio	0.18	0.56		0.07	0.40			0.51			0.48	
Control Delay	12.2	16.3		7.9	8.0			8.4			11.1	
Queue Delay	0.0	0.1		0.0	0.8			0.1			0.0	
Total Delay	12.2	16.5		7.9	8.8			8.5			11.1	
LOS	B	B		A	A			A			B	
Approach Delay		15.9			8.8			8.5			11.1	
Approach LOS		B			A			A			B	

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 57 (71%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.56
 Intersection Signal Delay: 11.4
 Intersection Capacity Utilization 97.0%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service F

Splits and Phases: 28: Lincoln Ave & 5th Ave



San Rafael Multi-Family TIS - Baseline Conditions
 29: 5th Ave & Tamalpais Ave (West)

PM PEAK HOUR

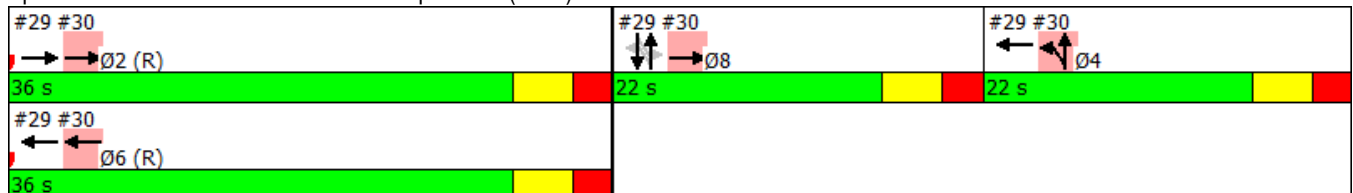


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	406	16	0	245	16	22	16	29	9	20	11
Future Volume (vph)	0	406	16	0	245	16	22	16	29	9	20	11
Satd. Flow (prot)	0	1734	0	0	1730	0	0	1618	0	0	1623	0
Flt Permitted								0.875			0.908	
Satd. Flow (perm)	0	1734	0	0	1730	0	0	1414	0	0	1490	0
Satd. Flow (RTOR)		3			8			31			12	
Lane Group Flow (vph)	0	449	0	0	278	0	0	71	0	0	43	0
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		2			4	6		8			8	
Permitted Phases							8			8		
Total Split (s)		36.0					22.0	22.0		22.0	22.0	
Total Lost Time (s)		6.0						6.0			6.0	
Act Effect Green (s)		44.9			59.6			8.4			8.4	
Actuated g/C Ratio		0.56			0.74			0.10			0.10	
v/c Ratio		0.46			0.22			0.41			0.26	
Control Delay		8.6			0.9			17.9			23.7	
Queue Delay		0.4			0.0			0.0			0.0	
Total Delay		9.0			0.9			17.9			23.7	
LOS		A			A			B			C	
Approach Delay		9.0			0.9			17.9			23.7	
Approach LOS		A			A			B			C	

Intersection Summary

Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 20 (25%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.46	
Intersection Signal Delay: 7.8	Intersection LOS: A
Intersection Capacity Utilization 42.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 29: 5th Ave & Tamalpais Ave (West)



Lane Group	Ø4	Ø6
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Satd. Flow (RTOR)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	4	6
Permitted Phases		
Total Split (s)	22.0	36.0
Total Lost Time (s)		
Act Effect Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

San Rafael Multi-Family TIS - Baseline Conditions
 30: 5th Ave & Tamalpais Ave (East)

PM PEAK HOUR

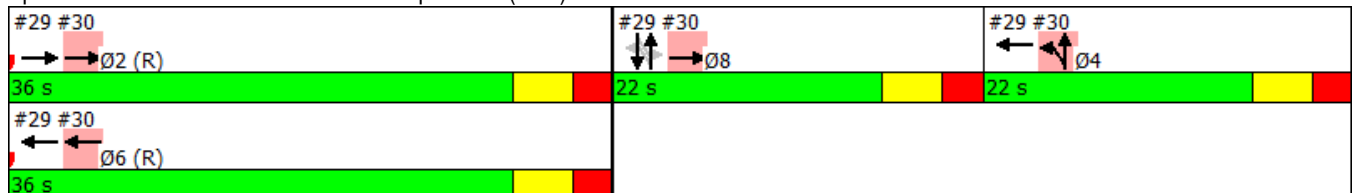
	↖	→	↘	↙	←	↖	↙	↑	↘	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑				
Traffic Volume (vph)	0	444	0	0	250	8	11	20	31	0	0	0
Future Volume (vph)	0	444	0	0	250	8	11	20	31	0	0	0
Satd. Flow (prot)	0	1748	0	0	1739	0	0	1582	0	0	0	0
Flt Permitted								0.991				
Satd. Flow (perm)	0	1748	0	0	1739	0	0	1582	0	0	0	0
Satd. Flow (RTOR)					2			33				
Lane Group Flow (vph)	0	472	0	0	275	0	0	66	0	0	0	0
Turn Type		NA			NA		Split	NA				
Protected Phases		2 8			6		4	4				
Permitted Phases												
Total Split (s)					36.0		22.0	22.0				
Total Lost Time (s)					6.0			6.0				
Act Effect Green (s)		59.2			44.9			8.8				
Actuated g/C Ratio		0.74			0.56			0.11				
v/c Ratio		0.37			0.28			0.33				
Control Delay		0.9			6.3			23.6				
Queue Delay		0.1			1.0			0.0				
Total Delay		0.9			7.2			23.6				
LOS		A			A			C				
Approach Delay		0.9			7.2			23.6				
Approach LOS		A			A			C				

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 20 (25%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.46
 Intersection Signal Delay: 4.9
 Intersection Capacity Utilization 41.0%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 30: 5th Ave & Tamalpais Ave (East)



Lane Group	Ø2	Ø8
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Satd. Flow (RTOR)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	8
Permitted Phases		
Total Split (s)	36.0	22.0
Total Lost Time (s)		
Act Effect Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

San Rafael Multi-Family TIS - Baseline Conditions

31: Hetherton St & 5th Ave

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	328	195	66	214	0	0	0	0	34	1082	95
Future Volume (vph)	0	328	195	66	214	0	0	0	0	34	1082	95
Satd. Flow (prot)	0	1864	0	0	1957	0	0	0	0	0	4587	1322
Flt Permitted					0.616						0.998	
Satd. Flow (perm)	0	1864	0	0	1219	0	0	0	0	0	4587	1259
Satd. Flow (RTOR)		30										
Lane Group Flow (vph)	0	556	0	0	298	0	0	0	0	0	1187	101
Turn Type		NA		Perm	NA					Split	NA	custom
Protected Phases		4			8					2	2	
Permitted Phases				8								5
Total Split (s)		40.0		40.0	40.0					40.0	40.0	33.0
Total Lost Time (s)		4.6			4.6						4.5	4.5
Act Effect Green (s)		35.4			35.4						35.5	28.5
Actuated g/C Ratio		0.44			0.44						0.44	0.36
v/c Ratio		0.66			0.55						0.58	0.23
Control Delay		10.5			19.7						6.6	8.6
Queue Delay		2.5			0.1						0.5	0.0
Total Delay		13.0			19.8						7.1	8.6
LOS		B			B						A	A
Approach Delay		13.0			19.8						7.2	
Approach LOS		B			B						A	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 60 (75%), Referenced to phase 2:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 10.5

Intersection LOS: B

Intersection Capacity Utilization 81.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 31: Hetherton St & 5th Ave

	Ø2 (R)		Ø4
40 s		40 s	
	Ø7		Ø8
7 s	33 s	40 s	

Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Total Split (s)	7.0
Total Lost Time (s)	
Act Effect Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

San Rafael Multi-Family TIS - Baseline Conditions

32: Irwin St & 5th Ave

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	234	121	0	0	146	113	90	1442	14	0	0	0
Future Volume (vph)	234	121	0	0	146	113	90	1442	14	0	0	0
Satd. Flow (prot)	1284	1351	0	0	1251	0	0	4082	0	0	0	0
Flt Permitted	0.518							0.997				
Satd. Flow (perm)	690	1351	0	0	1251	0	0	4082	0	0	0	0
Satd. Flow (RTOR)					13			2				
Lane Group Flow (vph)	249	129	0	0	275	0	0	1645	0	0	0	0
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Total Split (s)	37.0	37.0			37.0		43.0	43.0				
Total Lost Time (s)	4.6	4.6			4.6			4.6				
Act Effect Green (s)	32.4	32.4			32.4			38.4				
Actuated g/C Ratio	0.40	0.40			0.40			0.48				
v/c Ratio	0.89	0.24			0.54			0.84				
Control Delay	57.2	24.2			21.9			14.6				
Queue Delay	0.0	0.0			0.0			3.2				
Total Delay	57.2	24.2			21.9			17.8				
LOS	E	C			C			B				
Approach Delay		46.0			21.9			17.8				
Approach LOS		D			C			B				

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 45 (56%), Referenced to phase 2:NBT, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 22.9

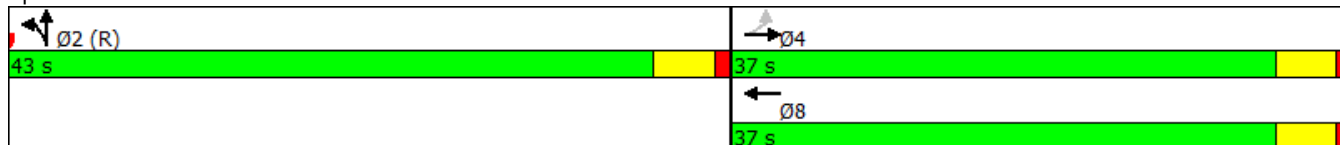
Intersection LOS: C

Intersection Capacity Utilization 80.9%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 32: Irwin St & 5th Ave



San Rafael Multi-Family TIS - Baseline Conditions

1: Cijos St & 4th St

PM PEAK HOUR

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↖	↗	↘	
Traffic Volume (vph)	237	15	97	290	23	62
Future Volume (vph)	237	15	97	290	23	62
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	10	12	12	12
Storage Length (ft)		0	40		0	0
Storage Lanes		0	1		0	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.89		0.91	
Frt	0.992				0.901	
Flt Protected			0.950		0.987	
Satd. Flow (prot)	1528	0	1406	1555	1315	0
Flt Permitted			0.584		0.987	
Satd. Flow (perm)	1528	0	769	1555	1283	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	8				66	
Link Speed (mph)	25			25	25	
Link Distance (ft)	315			349	229	
Travel Time (s)	8.6			9.5	6.2	
Confl. Peds. (#/hr)		166	166		52	40
Confl. Bikes (#/hr)		14				
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	0%	1%	3%	5%	0%
Parking (#/hr)	2	2	2	2	2	2
Adj. Flow (vph)	252	16	103	309	24	66
Shared Lane Traffic (%)						
Lane Group Flow (vph)	268	0	103	309	90	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			10	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.24	1.07	1.35	1.24	1.24	1.07
Turning Speed (mph)		9	15		15	9
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases			6			
Minimum Split (s)	41.0		41.0	41.0	24.0	
Total Split (s)	46.0		46.0	46.0	24.0	
Total Split (%)	65.7%		65.7%	65.7%	34.3%	
Maximum Green (s)	41.8		41.8	41.8	20.0	
Yellow Time (s)	3.2		3.2	3.2	3.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.2		4.2	4.2	4.0	
Lead/Lag						
Lead-Lag Optimize?						

San Rafael Multi-Family TIS - Baseline Conditions

1: Cijos St & 4th St

PM PEAK HOUR



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Walk Time (s)	24.0				7.0	
Flash Dont Walk (s)	12.0				13.0	
Pedestrian Calls (#/hr)	0				0	
Act Effect Green (s)	41.8		41.8	41.8	20.0	
Actuated g/C Ratio	0.60		0.60	0.60	0.29	
v/c Ratio	0.29		0.22	0.33	0.21	
Control Delay	7.7		8.1	8.3	9.4	
Queue Delay	0.0		0.0	0.6	0.0	
Total Delay	7.7		8.1	8.9	9.4	
LOS	A		A	A	A	
Approach Delay	7.7			8.7	9.4	
Approach LOS	A			A	A	
Queue Length 50th (ft)	49		18	59	8	
Queue Length 95th (ft)	86		42	102	39	
Internal Link Dist (ft)	235			269	149	
Turn Bay Length (ft)			40			
Base Capacity (vph)	915		459	928	422	
Starvation Cap Reductn	0		0	316	0	
Spillback Cap Reductn	0		0	0	0	
Storage Cap Reductn	0		0	0	0	
Reduced v/c Ratio	0.29		0.22	0.50	0.21	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 52 (74%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 65

Control Type: Pretimed

Maximum v/c Ratio: 0.33

Intersection Signal Delay: 8.5

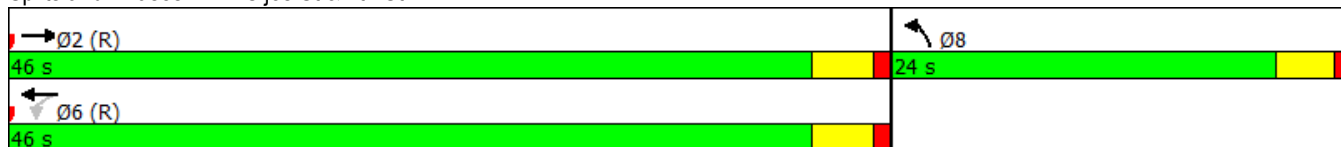
Intersection LOS: A

Intersection Capacity Utilization 83.7%

ICU Level of Service E

Analysis Period (min) 15




















Splits and Phases: 1: Cijos St & 4th St



San Rafael Multi-Family TIS - Baseline Conditions

2: Lincoln Ave & 4th St

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	185	64	90	293	64	27	356	54	32	284	67
Future Volume (vph)	50	185	64	90	293	64	27	356	54	32	284	67
Ideal Flow (vphpl)	1600	1700	1700	1600	1700	1700	1600	1700	1700	1600	1700	1700
Lane Width (ft)	10	9	12	10	12	12	12	10	8	12	10	9
Storage Length (ft)	45		0	75		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.97	0.98		0.95	0.99			0.99			0.97	
Frt		0.962			0.973			0.982			0.974	
Flt Protected	0.950			0.950				0.997			0.996	
Satd. Flow (prot)	1419	1405	0	1405	1586	0	0	2894	0	0	2743	0
Flt Permitted	0.454			0.558				0.913			0.891	
Satd. Flow (perm)	658	1405	0	781	1586	0	0	2637	0	0	2449	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32			20			22			36	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		349			241			355			292	
Travel Time (s)		9.5			6.6			9.7			8.0	
Confl. Peds. (#/hr)	90		134	134		90	116		36	36		116
Confl. Bikes (#/hr)			8			14			9			3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	3%	1%	3%	3%	0%	1%	2%	6%	4%	0%
Adj. Flow (vph)	53	197	68	96	312	68	29	379	57	34	302	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	265	0	96	380	0	0	465	0	0	407	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.35	1.31	1.15	1.35	1.15	1.15	1.24	1.26	1.38	1.24	1.26	1.31
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	45.0	45.0		45.0	45.0		35.0	35.0		35.0	35.0	
Total Split (%)	56.3%	56.3%		56.3%	56.3%		43.8%	43.8%		43.8%	43.8%	
Maximum Green (s)	40.8	40.8		40.8	40.8		30.8	30.8		30.8	30.8	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.2	3.2		3.2	3.2	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	4.2	4.2		4.2	4.2			4.2			4.2	
Lead/Lag												
Lead-Lag Optimize?												
Act Effect Green (s)	40.8	40.8		40.8	40.8			30.8			30.8	

San Rafael Multi-Family TIS - Baseline Conditions
 2: Lincoln Ave & 4th St

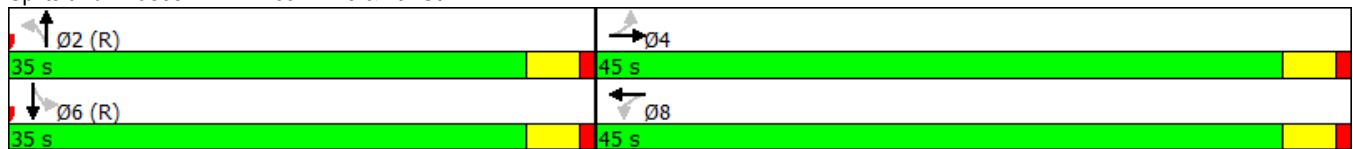
PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.51	0.51		0.51	0.51			0.38			0.38	
v/c Ratio	0.16	0.36		0.24	0.46			0.45			0.42	
Control Delay	12.0	12.0		10.7	10.0			14.3			6.1	
Queue Delay	0.0	0.6		0.0	0.5			0.0			0.0	
Total Delay	12.0	12.6		10.7	10.4			14.3			6.1	
LOS	B	B		B	B			B			A	
Approach Delay		12.5			10.5			14.3			6.1	
Approach LOS		B			B			B			A	
Queue Length 50th (ft)	13	65		9	31			118			17	
Queue Length 95th (ft)	34	117		41	113			m161			26	
Internal Link Dist (ft)		269			161			275			212	
Turn Bay Length (ft)	45			75								
Base Capacity (vph)	335	732		398	818			1028			965	
Starvation Cap Reductn	0	207		0	145			0			0	
Spillback Cap Reductn	0	4		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.16	0.50		0.24	0.56			0.45			0.42	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 62 (78%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 50
 Control Type: Pretimed
 Maximum v/c Ratio: 0.46
 Intersection Signal Delay: 10.8
 Intersection Capacity Utilization 75.8%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Lincoln Ave & 4th St



San Rafael Multi-Family TIS - Baseline Conditions
 3: Tamalpais Ave (West) South Leg & 4th St

PM PEAK HOUR

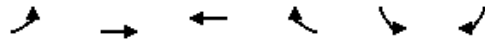
	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖		↗
Traffic Volume (vph)	249	22	0	436	0	154
Future Volume (vph)	249	22	0	436	0	154
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.989			0.865		
Flt Protected						
Satd. Flow (prot)	1732	0	0	1748	0	1526
Flt Permitted						
Satd. Flow (perm)	1732	0	0	1748	0	1526
Link Speed (mph)	25			25	25	
Link Distance (ft)	241			60	106	
Travel Time (s)	6.6			1.6	2.9	
Confl. Peds. (#/hr)	88			77		
Confl. Bikes (#/hr)	10					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	0%	33%	3%	0%	2%
Adj. Flow (vph)	265	23	0	464	0	164
Shared Lane Traffic (%)						
Lane Group Flow (vph)	288	0	0	464	0	164
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			10	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	9		15	15		9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	43.5%
Analysis Period (min)	15
	ICU Level of Service A

San Rafael Multi-Family TIS - Baseline Conditions
 4: 4th St & Tamalpais Ave (West) North Leg

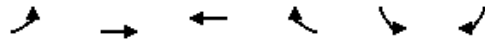
PM PEAK HOUR



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø2	Ø4	Ø6
Lane Configurations		↑	↶			↷			
Traffic Volume (vph)	0	404	396	32	0	44			
Future Volume (vph)	0	404	396	32	0	44			
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00			
Ped Bike Factor			0.99			0.78			
Frt			0.990			0.865			
Flt Protected									
Satd. Flow (prot)	0	1765	1710	0	0	1483			
Flt Permitted									
Satd. Flow (perm)	0	1765	1710	0	0	1159			
Right Turn on Red				Yes		Yes			
Satd. Flow (RTOR)			11			381			
Link Speed (mph)		25	25		25				
Link Distance (ft)		60	60		194				
Travel Time (s)		1.6	1.6		5.3				
Confl. Peds. (#/hr)				59		78			
Confl. Bikes (#/hr)				14					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94			
Heavy Vehicles (%)	0%	2%	3%	0%	0%	5%			
Adj. Flow (vph)	0	430	421	34	0	47			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	0	430	455	0	0	47			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Left	Left	Right	Left	Right			
Median Width(ft)		12	12		0				
Link Offset(ft)		0	0		0				
Crosswalk Width(ft)		16	16		16				
Two way Left Turn Lane									
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07			
Turning Speed (mph)	15			9	15	9			
Turn Type		NA	NA			Perm			
Protected Phases		2 8	4 6				2	4	6
Permitted Phases						8			
Detector Phase		2 8	4 6			8			
Switch Phase									
Minimum Initial (s)					5.0	9.0	9.0	8.0	
Minimum Split (s)					21.0	20.0	21.0	21.0	
Total Split (s)					21.0	38.0	21.0	38.0	
Total Split (%)					26.3%	48%	26%	48%	
Maximum Green (s)					15.4	32.0	15.0	32.0	
Yellow Time (s)					3.2	3.6	3.6	3.6	
All-Red Time (s)					2.4	2.4	2.4	2.4	
Lost Time Adjust (s)					0.0				
Total Lost Time (s)					5.6				
Lead/Lag									
Lead-Lag Optimize?									
Vehicle Extension (s)					3.0	3.0	3.0	3.0	
Recall Mode					None	C-Max	None	C-Max	

San Rafael Multi-Family TIS - Baseline Conditions
 4: 4th St & Tamalpais Ave (West) North Leg

PM PEAK HOUR

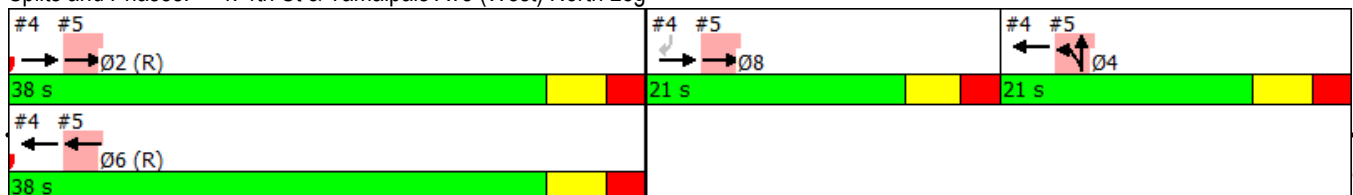


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø2	Ø4	Ø6
Walk Time (s)						4.0	7.0	4.0	7.0
Flash Dont Walk (s)						11.4	7.0	11.0	8.0
Pedestrian Calls (#/hr)						45	11	25	45
Act Effect Green (s)		54.9	55.7			12.7			
Actuated g/C Ratio		0.69	0.70			0.16			
v/c Ratio		0.36	0.38			0.09			
Control Delay		6.0	1.2			0.6			
Queue Delay		0.6	0.0			0.0			
Total Delay		6.6	1.2			0.6			
LOS		A	A			A			
Approach Delay		6.6	1.2		0.6				
Approach LOS		A	A		A				
90th %ile Green (s)						15.4	32.0	15.0	32.0
90th %ile Term Code						Max	Coord	Max	Coord
70th %ile Green (s)						15.4	32.0	15.0	32.0
70th %ile Term Code						Ped	Coord	Max	Coord
50th %ile Green (s)						15.4	32.0	15.0	32.0
50th %ile Term Code						Ped	Coord	Max	Coord
30th %ile Green (s)						10.0	41.0	11.4	41.0
30th %ile Term Code						Gap	Coord	Gap	Coord
10th %ile Green (s)						7.4	46.0	9.0	46.0
10th %ile Term Code						Gap	Coord	Min	Coord
Queue Length 50th (ft)		57	0			0			
Queue Length 95th (ft)		124	0			m0			
Internal Link Dist (ft)		1	1		114				
Turn Bay Length (ft)									
Base Capacity (vph)		1270	1183			530			
Starvation Cap Reductn		477	0			0			
Spillback Cap Reductn		0	0			0			
Storage Cap Reductn		0	0			0			
Reduced v/c Ratio		0.54	0.38			0.09			

Intersection Summary


















Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 28 (35%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 3.6 Intersection LOS: A
 Intersection Capacity Utilization 46.5% ICU Level of Service A
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: 4th St & Tamalpais Ave (West) North Leg



San Rafael Multi-Family TIS - Baseline Conditions
 5: Tamalpais Avenue (East) & 4th St

PM PEAK HOUR

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	0	405	0	0	427	36	0	6	0	0	0	0	
Future Volume (vph)	0	405	0	0	427	36	0	6	0	0	0	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor					0.99								
Frt					0.990								
Flt Protected													
Satd. Flow (prot)	0	1765	0	0	1710	0	0	1800	0	0	0	0	
Flt Permitted													
Satd. Flow (perm)	0	1765	0	0	1710	0	0	1800	0	0	0	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)					6								
Link Speed (mph)		25			25			25			25		
Link Distance (ft)		60			167			351			288		
Travel Time (s)		1.6			4.6			9.6			7.9		
Confl. Peds. (#/hr)	56					56			20				
Confl. Bikes (#/hr)						14							
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Heavy Vehicles (%)	0%	2%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	
Adj. Flow (vph)	0	431	0	0	454	38	0	6	0	0	0	0	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	431	0	0	492	0	0	6	0	0	0	0	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(ft)		12			0			0			0		
Link Offset(ft)		0			0			5			0		
Crosswalk Width(ft)		16			16			16			16		
Two way Left Turn Lane													
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	
Turning Speed (mph)	15		9	15		9	15		9	15		9	
Turn Type		NA			NA			NA					
Protected Phases		2 8			6		4	4					
Permitted Phases													
Detector Phase		2 8			6		4	4					
Switch Phase													
Minimum Initial (s)					8.0		9.0	9.0					
Minimum Split (s)					21.0		21.0	21.0					
Total Split (s)					38.0		21.0	21.0					
Total Split (%)					47.5%		26.3%	26.3%					
Maximum Green (s)					32.0		15.0	15.0					
Yellow Time (s)					3.6		3.6	3.6					
All-Red Time (s)					2.4		2.4	2.4					
Lost Time Adjust (s)					0.0			0.0					
Total Lost Time (s)					6.0			6.0					
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)					3.0		3.0	3.0					
Recall Mode					C-Max		None	None					

San Rafael Multi-Family TIS - Baseline Conditions
 5: Tamalpais Avenue (East) & 4th St

PM PEAK HOUR

Lane Group	Ø2	Ø8
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	2	8
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	9.0	5.0
Minimum Split (s)	20.0	21.0
Total Split (s)	38.0	21.0
Total Split (%)	48%	26%
Maximum Green (s)	32.0	15.4
Yellow Time (s)	3.6	3.2
All-Red Time (s)	2.4	2.4
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	3.0
Recall Mode	C-Max	None

San Rafael Multi-Family TIS - Baseline Conditions
 5: Tamalpais Avenue (East) & 4th St

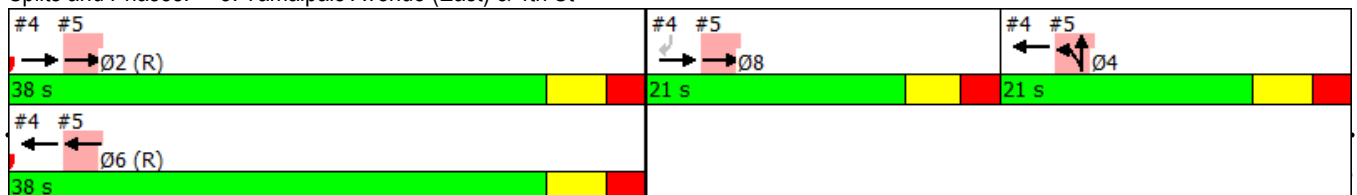
PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)					7.0		4.0	4.0				
Flash Dont Walk (s)					8.0		11.0	11.0				
Pedestrian Calls (#/hr)					45		25	25				
Act Effct Green (s)		54.9			36.6			13.1				
Actuated g/C Ratio		0.69			0.46			0.16				
v/c Ratio		0.36			0.63			0.02				
Control Delay		1.5			18.2			25.7				
Queue Delay		0.0			2.7			0.0				
Total Delay		1.5			20.9			25.7				
LOS		A			C			C				
Approach Delay		1.5			20.9			25.7				
Approach LOS		A			C			C				
90th %ile Green (s)					32.0		15.0	15.0				
90th %ile Term Code					Coord		Max	Max				
70th %ile Green (s)					32.0		15.0	15.0				
70th %ile Term Code					Coord		Max	Max				
50th %ile Green (s)					32.0		15.0	15.0				
50th %ile Term Code					Coord		Max	Max				
30th %ile Green (s)					41.0		11.4	11.4				
30th %ile Term Code					Coord		Gap	Gap				
10th %ile Green (s)					46.0		9.0	9.0				
10th %ile Term Code					Coord		Min	Min				
Queue Length 50th (ft)		7			247			2				
Queue Length 95th (ft)		8			345			m2				
Internal Link Dist (ft)		1			87			271			208	
Turn Bay Length (ft)												
Base Capacity (vph)		1270			785			337				
Starvation Cap Reductn		0			184			0				
Spillback Cap Reductn		0			0			0				
Storage Cap Reductn		0			0			0				
Reduced v/c Ratio		0.34			0.82			0.02				

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 28 (35%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 11.9 Intersection LOS: B
 Intersection Capacity Utilization 46.3% ICU Level of Service A
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Tamalpais Avenue (East) & 4th St



San Rafael Multi-Family TIS - Baseline Conditions
 5: Tamalpais Avenue (East) & 4th St





















PM PEAK HOUR

Lane Group	Ø2	Ø8
Walk Time (s)	7.0	4.0
Flash Dont Walk (s)	7.0	11.4
Pedestrian Calls (#/hr)	11	45
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
90th %ile Green (s)	32.0	15.4
90th %ile Term Code	Coord	Max
70th %ile Green (s)	32.0	15.4
70th %ile Term Code	Coord	Ped
50th %ile Green (s)	32.0	15.4
50th %ile Term Code	Coord	Ped
30th %ile Green (s)	41.0	10.0
30th %ile Term Code	Coord	Gap
10th %ile Green (s)	46.0	7.4
10th %ile Term Code	Coord	Gap
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

San Rafael Multi-Family TIS - Baseline Conditions

6: Hetherton St & 4th St

PM PEAK HOUR

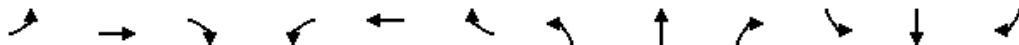
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											  	
Traffic Volume (vph)	0	290	119	74	249	0	0	0	0	130	999	231
Future Volume (vph)	0	290	119	74	249	0	0	0	0	130	999	231
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	13	10	15	11	12	12	12	12	12	12	12
Storage Length (ft)	0		0	100		0	0		0	0		140
Storage Lanes	0		1	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00
Ped Bike Factor			0.93	0.97							1.00	0.95
Frt			0.850									0.850
Flt Protected				0.950							0.994	
Satd. Flow (prot)	0	1824	1386	1826	1706	0	0	0	0	0	4579	1322
Flt Permitted				0.487							0.994	
Satd. Flow (perm)	0	1824	1294	908	1706	0	0	0	0	0	4569	1253
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)			71									
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		167			379			352			290	
Travel Time (s)		4.6			10.3			9.6			7.9	
Confl. Peds. (#/hr)			51	51						11		19
Confl. Bikes (#/hr)			10									1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	3%	3%	2%	0%	0%	0%	0%	1%	3%	3%
Parking (#/hr)											2	2
Adj. Flow (vph)	0	309	127	79	265	0	0	0	0	138	1063	246
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	309	127	79	265	0	0	0	0	0	1201	246
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		6			15			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.03	1.17	0.95	1.12	1.07	1.07	1.07	1.07	1.07	1.12	1.24
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm	Perm	NA					Perm	NA	custom
Protected Phases		4			8						2	
Permitted Phases			4	8						2		5
Minimum Split (s)		29.0	29.0	29.0	29.0					29.0	29.0	29.0
Total Split (s)		39.0	39.0	39.0	39.0					41.0	41.0	34.0
Total Split (%)		48.8%	48.8%	48.8%	48.8%					51.3%	51.3%	42.5%
Maximum Green (s)		34.8	34.8	34.8	34.8					36.8	36.8	29.8
Yellow Time (s)		3.2	3.2	3.2	3.2					3.2	3.2	3.2
All-Red Time (s)		1.0	1.0	1.0	1.0					1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Total Lost Time (s)		4.2	4.2	4.2	4.2					4.2	4.2	4.2
Lead/Lag												Lag
Lead-Lag Optimize?												

Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Parking (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Minimum Split (s)	7.0
Total Split (s)	7.0
Total Split (%)	9%
Maximum Green (s)	3.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	

San Rafael Multi-Family TIS - Baseline Conditions

6: Hetherton St & 4th St

PM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		10.0	10.0	10.0	10.0					10.0	10.0	10.0
Flash Dont Walk (s)		14.0	14.0	14.0	14.0					14.0	14.0	14.0
Pedestrian Calls (#/hr)		0	0	0	0					0	0	0
Act Effect Green (s)		34.8	34.8	34.8	34.8						36.8	29.8
Actuated g/C Ratio		0.44	0.44	0.44	0.44						0.46	0.37
v/c Ratio		0.39	0.21	0.20	0.36						0.57	0.53
Control Delay		10.5	3.7	14.3	15.7						7.8	14.2
Queue Delay		1.7	1.2	0.0	0.0						0.2	71.1
Total Delay		12.2	4.9	14.3	15.8						8.0	85.2
LOS		B	A	B	B						A	F
Approach Delay		10.0			15.4						21.1	
Approach LOS		B			B						C	
Queue Length 50th (ft)		48	5	30	104						47	70
Queue Length 95th (ft)		62	14	m56	172						56	m141
Internal Link Dist (ft)		87			299			272			210	
Turn Bay Length (ft)				100								140
Base Capacity (vph)		793	603	394	742						2101	466
Starvation Cap Reductn		318	312	0	0						255	51
Spillback Cap Reductn		0	0	0	14						0	331
Storage Cap Reductn		0	0	0	0						0	0
Reduced v/c Ratio		0.65	0.44	0.20	0.36						0.65	1.82

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 68 (85%), Referenced to phase 2:SBTL, Start of Green

Natural Cycle: 65

Control Type: Pretimed

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 18.1

Intersection LOS: B

Intersection Capacity Utilization 68.0%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 6: Hetherton St & 4th St




















Ø2 (R)	Ø4
41 s	39 s
Ø7	Ø8
7 s	39 s
Ø5	
34 s	

Lane Group	Ø7
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

San Rafael Multi-Family TIS - Baseline Conditions

7: Irwin St & 4th St

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  				
Traffic Volume (vph)	173	236	0	0	197	79	129	1262	153	0	0	0
Future Volume (vph)	173	236	0	0	197	79	129	1262	153	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	12	12	12	12	12	9	10	12	12	12	12
Storage Length (ft)	70		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	1.00	1.00
Ped Bike Factor	0.99				0.99		0.99	1.00				
Frt					0.961			0.984				
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1637	1765	0	0	1470	0	1480	4417	0	0	0	0
Flt Permitted	0.455						0.950					
Satd. Flow (perm)	778	1765	0	0	1470	0	1464	4417	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					28			42				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		379			571			377			279	
Travel Time (s)		10.3			15.6			10.3			7.6	
Confl. Peds. (#/hr)	15						15	12		6		
Confl. Bikes (#/hr)							12					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	2%	0%	0%	2%	0%	4%	2%	1%	0%	0%	0%
Parking (#/hr)					6	6						
Adj. Flow (vph)	184	251	0	0	210	84	137	1343	163	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	251	0	0	294	0	137	1506	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		15			15			9			9	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.12	1.07	1.07	1.07	1.28	1.07	1.22	1.17	1.07	1.07	1.07	1.07
Turning Speed (mph)	25		9	15		20	25		20	15		9
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Minimum Split (s)	19.0	19.0			19.0		21.0	21.0				
Total Split (s)	32.0	32.0			32.0		48.0	48.0				
Total Split (%)	40.0%	40.0%			40.0%		60.0%	60.0%				
Maximum Green (s)	27.8	27.8			27.8		43.8	43.8				
Yellow Time (s)	3.2	3.2			3.2		3.2	3.2				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	4.2	4.2			4.2		4.2	4.2				
Lead/Lag												
Lead-Lag Optimize?												

San Rafael Multi-Family TIS - Baseline Conditions

7: Irwin St & 4th St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	27.8	27.8			27.8		43.8	43.8				
Actuated g/C Ratio	0.35	0.35			0.35		0.55	0.55				
v/c Ratio	0.68	0.41			0.56		0.17	0.62				
Control Delay	45.5	30.7			23.8		3.0	3.4				
Queue Delay	0.0	0.0			0.0		0.0	0.4				
Total Delay	45.5	30.7			23.8		3.0	3.7				
LOS	D	C			C		A	A				
Approach Delay		37.0			23.8			3.7				
Approach LOS		D			C			A				
Queue Length 50th (ft)	93	116			105		8	30				
Queue Length 95th (ft)	#181	187			184		m11	m36				
Internal Link Dist (ft)		299			491			297			199	
Turn Bay Length (ft)	70											
Base Capacity (vph)	270	613			529		801	2437				
Starvation Cap Reductn	0	0			0		0	348				
Spillback Cap Reductn	0	0			1		0	391				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.68	0.41			0.56		0.17	0.74				

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 36 (45%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 45

Control Type: Pretimed

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 12.3

Intersection LOS: B

Intersection Capacity Utilization 68.0%

ICU Level of Service C

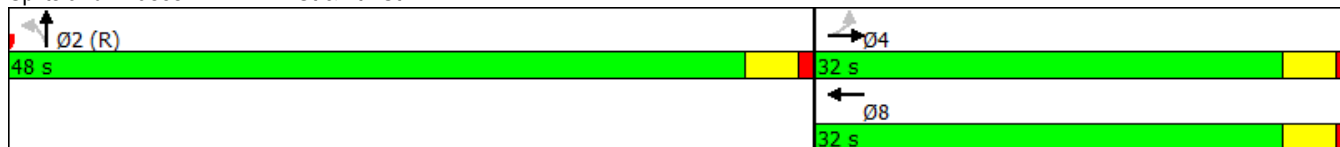
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

















Splits and Phases: 7: Irwin St & 4th St



San Rafael Multi-Family TIS - Baseline Conditions

8: Lindaro St & 3rd St

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	255	1918	35	134	18	0	0	39	8
Future Volume (vph)	0	0	0	255	1918	35	134	18	0	0	39	8
Ideal Flow (vphpl)	1800	1800	1800	1600	1600	1600	1600	1600	1800	1800	1600	1600
Lane Width (ft)	12	12	12	11	12	12	12	12	12	12	12	12
Storage Length (ft)	0		0	75		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor				0.95	1.00							
Frt					0.997						0.976	
Flt Protected				0.950				0.958				
Satd. Flow (prot)	0	0	0	1360	4304	0	0	1533	0	0	1524	0
Flt Permitted				0.950				0.715				
Satd. Flow (perm)	0	0	0	1290	4304	0	0	1144	0	0	1524	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					6						9	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		102			103			333			198	
Travel Time (s)		2.8			2.8			9.1			5.4	
Confl. Peds. (#/hr)				30		51						
Confl. Bikes (#/hr)						8						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	8%	1%	0%	0%	0%	0%	0%	3%	0%
Adj. Flow (vph)	0	0	0	271	2040	37	143	19	0	0	41	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	271	2077	0	0	162	0	0	50	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			9			9	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.30	1.24	1.24	1.24	1.24	1.07	1.07	1.24	1.24
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8			4	
Permitted Phases				6			8					
Minimum Split (s)				28.0	28.0		24.0	24.0			24.0	
Total Split (s)				53.0	53.0		27.0	27.0			27.0	
Total Split (%)				66.3%	66.3%		33.8%	33.8%			33.8%	
Maximum Green (s)				48.8	48.8		22.8	22.8			22.8	
Yellow Time (s)				3.2	3.2		3.2	3.2			3.2	
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0	
Lost Time Adjust (s)				0.0	0.0			0.0			0.0	
Total Lost Time (s)				4.2	4.2			4.2			4.2	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)				10.0	10.0		4.0	4.0				

San Rafael Multi-Family TIS - Baseline Conditions
 8: Lindaro St & 3rd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)				13.0	13.0		15.0	15.0				
Pedestrian Calls (#/hr)				0	0		0	0				
Act Effect Green (s)				48.8	48.8			22.8			22.8	
Actuated g/C Ratio				0.61	0.61			0.28			0.28	
v/c Ratio				0.34	0.79			0.50			0.11	
Control Delay				3.7	5.1			32.7			19.1	
Queue Delay				0.0	0.1			0.0			0.0	
Total Delay				3.7	5.2			32.7			19.1	
LOS				A	A			C			B	
Approach Delay					5.1			32.7			19.1	
Approach LOS					A			C			B	
Queue Length 50th (ft)				21	63			77			15	
Queue Length 95th (ft)				m27	m73			m121			41	
Internal Link Dist (ft)		22			23			253			118	
Turn Bay Length (ft)				75								
Base Capacity (vph)				786	2627			326			440	
Starvation Cap Reductn				0	65			0			0	
Spillback Cap Reductn				0	0			0			0	
Storage Cap Reductn				0	0			0			0	
Reduced v/c Ratio				0.34	0.81			0.50			0.11	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green
 Natural Cycle: 60
 Control Type: Pretimed
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 7.1 Intersection LOS: A
 Intersection Capacity Utilization 68.6% ICU Level of Service C
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Lindaro St & 3rd St



San Rafael Multi-Family TIS - Baseline Conditions

9: Ritter St & 3rd St

PM PEAK HOUR

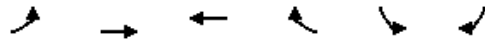
	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑↑	↘	↗
Traffic Volume (vph)	0	0	0	2120	114	0
Future Volume (vph)	0	0	0	2120	114	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)		0	0		0	25
Storage Lanes		0	0		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	0.91	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	4818	1693	1800
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	4818	1693	1800
Link Speed (mph)	25			25	25	
Link Distance (ft)	103			100	461	
Travel Time (s)	2.8			2.7	12.6	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	2%	1%	0%
Adj. Flow (vph)	0	0	0	2255	121	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2255	121	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			11	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	56.6%
Analysis Period (min)	15
	ICU Level of Service B

San Rafael Multi-Family TIS - Baseline Conditions
 10: 3rd St & Cijos St

PM PEAK HOUR



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑			↗
Traffic Volume (vph)	0	0	2009	88	0	111
Future Volume (vph)	0	0	2009	88	0	111
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	1.00
Ped Bike Factor						
Frt			0.994			0.865
Flt Protected						
Satd. Flow (prot)	0	0	4791	0	0	1542
Flt Permitted						
Satd. Flow (perm)	0	0	4791	0	0	1542
Link Speed (mph)		25	25		25	
Link Distance (ft)		100	311		132	
Travel Time (s)		2.7	8.5		3.6	
Confl. Peds. (#/hr)				76		
Confl. Bikes (#/hr)				9		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	2%	1%	0%	1%
Adj. Flow (vph)	0	0	2137	94	0	118
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	2231	0	0	118
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	





















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	57.2%
ICU Level of Service	B
Analysis Period (min)	15

San Rafael Multi-Family TIS - Baseline Conditions

11: Lincoln Ave & 3rd St

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					  			 			  	
Traffic Volume (vph)	0	0	0	130	1803	95	60	372	0	0	289	149
Future Volume (vph)	0	0	0	130	1803	95	60	372	0	0	289	149
Ideal Flow (vphpl)	1800	1800	1800	1600	1600	1600	1600	1600	1800	1800	1600	1600
Lane Width (ft)	12	12	12	12	12	12	12	11	10	12	9	9
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	0.95	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor					0.99			0.99			0.96	
Frt					0.993						0.949	
Flt Protected					0.997			0.993				
Satd. Flow (prot)	0	0	0	0	4239	0	0	2893	0	0	2401	0
Flt Permitted					0.997			0.819				
Satd. Flow (perm)	0	0	0	0	4220	0	0	2367	0	0	2401	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					15						8	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		311			264			223			355	
Travel Time (s)		8.5			7.2			6.1			9.7	
Confl. Peds. (#/hr)				132		52	126					126
Confl. Bikes (#/hr)						8						5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	2%	1%	0%	1%	0%	0%	4%	2%
Adj. Flow (vph)	0	0	0	138	1918	101	64	396	0	0	307	159
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	2157	0	0	460	0	0	466	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.24	1.24	1.24	1.24	1.30	1.17	1.07	1.42	1.42
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8			4	
Permitted Phases				6			8					
Minimum Split (s)				20.0	20.0		20.0	20.0			20.0	
Total Split (s)				50.0	50.0		30.0	30.0			30.0	
Total Split (%)				62.5%	62.5%		37.5%	37.5%			37.5%	
Maximum Green (s)				45.5	45.5		25.5	25.5			25.5	
Yellow Time (s)				3.5	3.5		3.5	3.5			3.5	
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Act Effect Green (s)					45.5			25.5			25.5	
Actuated g/C Ratio					0.57			0.32			0.32	
v/c Ratio					0.90			0.61			0.61	
Control Delay					21.6			20.8			34.2	

San Rafael Multi-Family TIS - Baseline Conditions

11: Lincoln Ave & 3rd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay					46.3			0.0			0.0	
Total Delay					67.9			20.8			34.2	
LOS					E			C			C	
Approach Delay					67.9			20.8			34.2	
Approach LOS					E			C			C	
Queue Length 50th (ft)					317			94			107	
Queue Length 95th (ft)					401			m106			164	
Internal Link Dist (ft)		231			184			143			275	
Turn Bay Length (ft)												
Base Capacity (vph)					2406			754			770	
Starvation Cap Reductn					666			0			0	
Spillback Cap Reductn					0			0			0	
Storage Cap Reductn					0			0			0	
Reduced v/c Ratio					1.24			0.61			0.61	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 40 (50%), Referenced to phase 4:SBT and 8:NBTL, Start of Green
 Natural Cycle: 55
 Control Type: Pretimed
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 55.8 Intersection LOS: E
 Intersection Capacity Utilization 90.1% ICU Level of Service E
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

















Splits and Phases: 11: Lincoln Ave & 3rd St



San Rafael Multi-Family TIS - Baseline Conditions

12: Tamalpais Ave (West) & 3rd St

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	305	1896	56	113	107	0	0	20	20
Future Volume (vph)	0	0	0	305	1896	56	113	107	0	0	20	20
Ideal Flow (vphpl)	1800	1800	1800	1600	1600	1600	1600	1600	1800	1800	1600	1600
Lane Width (ft)	12	12	12	12	12	12	11	12	12	12	12	12
Storage Length (ft)	0		0	0		0	70		0	0		0
Storage Lanes	0		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					0.95		0.94				0.96	
Frt					0.996						0.932	
Flt Protected					0.993		0.950					
Satd. Flow (prot)	0	0	0	0	4188	0	1287	1402	0	0	1239	0
Flt Permitted					0.993		0.730					
Satd. Flow (perm)	0	0	0	0	3980	0	932	1402	0	0	1239	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					7						7	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		264			130			321			251	
Travel Time (s)		7.2			3.5			8.8			6.8	
Confl. Peds. (#/hr)				163		26	41					41
Confl. Bikes (#/hr)						10						4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	9%	2%	2%	1%	1%	0%	0%	5%	0%
Parking (#/hr)							3	3			3	3
Adj. Flow (vph)	0	0	0	324	2017	60	120	114	0	0	21	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	2401	0	120	114	0	0	42	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.24	1.24	1.24	1.50	1.44	1.07	1.07	1.44	1.24
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			4			8	
Permitted Phases				6			4					
Minimum Split (s)				31.6	31.6		26.6	26.6			25.6	
Total Split (s)				63.0	63.0		27.0	27.0			27.0	
Total Split (%)				70.0%	70.0%		30.0%	30.0%			30.0%	
Maximum Green (s)				51.4	51.4		19.4	19.4			19.4	
Yellow Time (s)				3.6	3.6		3.6	3.6			3.6	
All-Red Time (s)				8.0	8.0		4.0	4.0			4.0	
Lost Time Adjust (s)					0.0		0.0	0.0			0.0	
Total Lost Time (s)					11.6		7.6	7.6			7.6	
Lead/Lag												
Lead-Lag Optimize?												

San Rafael Multi-Family TIS - Baseline Conditions

12: Tamalpais Ave (West) & 3rd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)				10.0	10.0		7.0	7.0			7.0	
Flash Dont Walk (s)				10.0	10.0		12.0	12.0			11.0	
Pedestrian Calls (#/hr)				45	45		40	40			20	
Act Effct Green (s)					51.4		19.4	19.4			19.4	
Actuated g/C Ratio					0.57		0.22	0.22			0.22	
v/c Ratio					1.05		0.60	0.38			0.15	
Control Delay					56.1		46.0	34.5			26.7	
Queue Delay					19.4		0.0	0.0			0.0	
Total Delay					75.5		46.0	34.5			26.7	
LOS					E		D	C			C	
Approach Delay					75.5			40.4			26.7	
Approach LOS					E			D			C	
Queue Length 50th (ft)					~553		62	56			16	
Queue Length 95th (ft)					#651		#132	107			44	
Internal Link Dist (ft)		184			50			241			171	
Turn Bay Length (ft)							70					
Base Capacity (vph)					2276		200	302			272	
Starvation Cap Reductn					477		0	0			0	
Spillback Cap Reductn					0		0	0			0	
Storage Cap Reductn					0		0	0			0	
Reduced v/c Ratio					1.33		0.60	0.38			0.15	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 26 (29%), Referenced to phase 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Pretimed

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 71.7 Intersection LOS: E

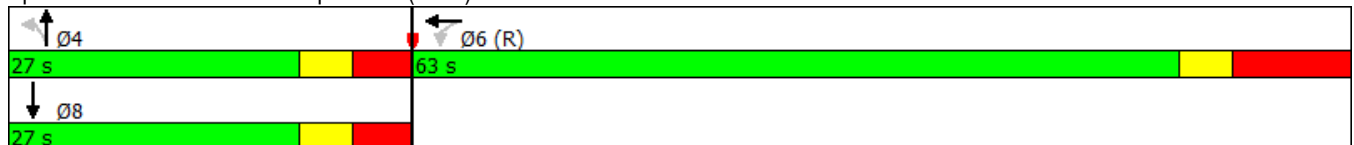
Intersection Capacity Utilization 155.7% ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.













Splits and Phases: 12: Tamalpais Ave (West) & 3rd St



San Rafael Multi-Family TIS - Baseline Conditions

13: Tamalpais Avenue (East) & 3rd St

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑↑↑		↘					
Traffic Volume (vph)	0	0	0	9	2229	6	18	0	0	0	0	0
Future Volume (vph)	0	0	0	9	2229	6	18	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt												
Flt Protected							0.950					
Satd. Flow (prot)	0	1800	0	0	4801	0	881	0	0	0	0	0
Flt Permitted							0.950					
Satd. Flow (perm)	0	1800	0	0	4801	0	881	0	0	0	0	0
Link Speed (mph)	25				25				25		25	
Link Distance (ft)	130				156				122		351	
Travel Time (s)	3.5				4.3				3.3		9.6	
Confl. Peds. (#/hr)				96						15		
Confl. Bikes (#/hr)										13		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	89%	2%	0%	94%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	10	2371	6	19	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	2387	0	19	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	0				0				12		12	
Link Offset(ft)	0				0				0		0	
Crosswalk Width(ft)	16				16				16		16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control	Free			Free			Stop			Stop		





















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	55.8%
ICU Level of Service	B
Analysis Period (min)	15

San Rafael Multi-Family TIS - Baseline Conditions

14: Hetherton St & 3rd St

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					  						  	
Traffic Volume (vph)	0	0	0	487	1713	0	0	0	0	0	681	512
Future Volume (vph)	0	0	0	487	1713	0	0	0	0	0	681	512
Ideal Flow (vphpl)	1800	1800	1800	1600	1700	1800	1800	1800	1800	1800	1700	1500
Lane Width (ft)	12	12	12	14	12	12	12	12	12	12	11	11
Storage Length (ft)	0		0	70		0	0		0	0		220
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	0.91	1.00
Ped Bike Factor				0.93	1.00							0.93
Frt												0.850
Flt Protected				0.950	0.999							
Satd. Flow (prot)	0	0	0	1354	4254	0	0	0	0	0	4356	1197
Flt Permitted				0.950	0.999							
Satd. Flow (perm)	0	0	0	1258	4251	0	0	0	0	0	4356	1114
Right Turn on Red			Yes	No		Yes			Yes			Yes
Satd. Flow (RTOR)												14
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		156			379			311			352	
Travel Time (s)		4.3			10.3			8.5			9.6	
Confl. Peds. (#/hr)				77								49
Confl. Bikes (#/hr)												4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	3%	3%	0%	0%	0%	0%	0%	3%	3%
Adj. Flow (vph)	0	0	0	518	1822	0	0	0	0	0	724	545
Shared Lane Traffic (%)				4%								
Lane Group Flow (vph)	0	0	0	497	1843	0	0	0	0	0	724	545
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.15	1.15	1.07	1.07	1.07	1.07	1.07	1.20	1.40
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Perm	NA						NA	Perm
Protected Phases					8						6	
Permitted Phases				8								6
Minimum Split (s)				34.0	34.0						28.0	28.0
Total Split (s)				49.0	49.0						31.0	31.0
Total Split (%)				61.3%	61.3%						38.8%	38.8%
Maximum Green (s)				45.0	45.0						26.0	26.0
Yellow Time (s)				3.0	3.0						3.0	3.0
All-Red Time (s)				1.0	1.0						2.0	2.0
Lost Time Adjust (s)				0.0	0.0						0.0	0.0
Total Lost Time (s)				4.0	4.0						5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)				7.0	7.0						7.0	7.0

San Rafael Multi-Family TIS - Baseline Conditions

14: Hetherton St & 3rd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)				19.0	19.0						14.0	14.0
Pedestrian Calls (#/hr)				0	0						0	0
Act Effct Green (s)				45.0	45.0						26.0	26.0
Actuated g/C Ratio				0.56	0.56						0.32	0.32
v/c Ratio				0.70	0.77						0.51	1.47
Control Delay				10.9	9.7						25.6	250.4
Queue Delay				1.0	0.7						0.6	0.0
Total Delay				11.9	10.4						26.2	250.4
LOS				B	B						C	F
Approach Delay					10.7						122.5	
Approach LOS					B						F	
Queue Length 50th (ft)				124	159						131	~393
Queue Length 95th (ft)				m152	m196						169	#585
Internal Link Dist (ft)		76				299		231			272	
Turn Bay Length (ft)				70								220
Base Capacity (vph)				707	2391						1415	371
Starvation Cap Reductn				62	235						0	0
Spillback Cap Reductn				0	0						339	0
Storage Cap Reductn				0	0						0	0
Reduced v/c Ratio				0.77	0.85						0.67	1.47

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 31 (39%), Referenced to phase 6:SBT, Start of Green
 Natural Cycle: 65
 Control Type: Pretimed
 Maximum v/c Ratio: 1.47
 Intersection Signal Delay: 50.0 Intersection LOS: D
 Intersection Capacity Utilization 125.0% ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.













Splits and Phases: 14: Hetherton St & 3rd St



San Rafael Multi-Family TIS - Baseline Conditions

15: Irwin St & 3rd St













PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑	↑	↓	↑↑↑				
Traffic Volume (vph)	0	0	0	0	1272	185	915	1366	0	0	0	0
Future Volume (vph)	0	0	0	0	1272	185	915	1366	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1600	1600	1600	1600	1600	1800	1800	1800
Lane Width (ft)	12	12	12	12	10	11	10	11	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00
Ped Bike Factor						0.96						
Frt						0.850						
Flt Protected							0.950	0.991				
Satd. Flow (prot)	0	0	0	0	3997	1289	1162	3857	0	0	0	0
Flt Permitted							0.950	0.991				
Satd. Flow (perm)	0	0	0	0	3997	1234	1162	3857	0	0	0	0
Right Turn on Red			Yes			Yes	Yes		Yes			Yes
Satd. Flow (RTOR)						24	20	20				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		379			140			294			377	
Travel Time (s)		10.3			3.8			8.0			10.3	
Confl. Peds. (#/hr)							25					
Confl. Bikes (#/hr)							10					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	2%	2%	5%	2%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	0	1353	197	973	1453	0	0	0	0
Shared Lane Traffic (%)							31%					
Lane Group Flow (vph)	0	0	0	0	1353	197	671	1755	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.35	1.30	1.35	1.30	1.24	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		20	25		20	15		9
Turn Type					NA	Perm	Split	NA				
Protected Phases					8		2	2				
Permitted Phases						8						
Minimum Split (s)					29.0	29.0	25.0	25.0				
Total Split (s)					34.0	34.0	46.0	46.0				
Total Split (%)					42.5%	42.5%	57.5%	57.5%				
Maximum Green (s)					29.5	29.5	41.5	41.5				
Yellow Time (s)					3.5	3.5	3.5	3.5				
All-Red Time (s)					1.0	1.0	1.0	1.0				
Lost Time Adjust (s)					0.0	0.0	0.0	0.0				
Total Lost Time (s)					4.5	4.5	4.5	4.5				
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)					7.0	7.0	7.0	7.0				
Flash Dont Walk (s)					17.0	17.0	13.0	13.0				
Pedestrian Calls (#/hr)					0	0	0	0				
Act Effect Green (s)					29.5	29.5	41.5	41.5				

San Rafael Multi-Family TIS - Baseline Conditions

15: Irwin St & 3rd St

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio					0.37	0.37	0.52	0.52				
v/c Ratio					0.92	0.42	1.10	0.87				
Control Delay					35.7	19.8	73.1	16.5				
Queue Delay					0.1	0.0	0.7	5.7				
Total Delay					35.8	19.8	73.8	22.3				
LOS					D	B	E	C				
Approach Delay					33.8			36.5				
Approach LOS					C			D				
Queue Length 50th (ft)					231	63	~427	205				
Queue Length 95th (ft)					#327	120	m#343	m268				
Internal Link Dist (ft)		299			60			214			297	
Turn Bay Length (ft)												
Base Capacity (vph)					1473	470	612	2010				
Starvation Cap Reductn					0	0	1	215				
Spillback Cap Reductn					3	0	0	0				
Storage Cap Reductn					0	0	0	0				
Reduced v/c Ratio					0.92	0.42	1.10	0.98				

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 27 (34%), Referenced to phase 2:NBT, Start of Green
 Natural Cycle: 70
 Control Type: Pretimed
 Maximum v/c Ratio: 1.10
 Intersection Signal Delay: 35.5 Intersection LOS: D
 Intersection Capacity Utilization 107.8% ICU Level of Service G
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.




















Splits and Phases: 15: Irwin St & 3rd St



San Rafael Multi-Family TIS - Baseline Conditions

16: Lindaro St & 2nd St

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  										
Traffic Volume (vph)	51	2273	53	0	0	0	0	106	326	96	197	0
Future Volume (vph)	51	2273	53	0	0	0	0	106	326	96	197	0
Ideal Flow (vphpl)	1600	1600	1600	1800	1800	1800	1800	1600	1600	1600	1600	1800
Lane Width (ft)	12	11	11	12	12	12	12	11	10	9	9	12
Storage Length (ft)	0		0	0		0	0		275	70		0
Storage Lanes	0		0	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00							0.97	0.99		
Frt		0.997							0.850			
Flt Protected		0.999								0.950		
Satd. Flow (prot)	0	5191	0	0	0	0	0	1547	1244	1328	1309	0
Flt Permitted		0.999								0.684		
Satd. Flow (perm)	0	5189	0	0	0	0	0	1547	1209	945	1309	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8							16			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		495			513			315			333	
Travel Time (s)		13.5			14.0			8.6			9.1	
Confl. Peds. (#/hr)	15		36						14	14		
Confl. Bikes (#/hr)			6						4			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	0%	0%	0%	0%	0%	0%	2%	3%	10%	0%
Adj. Flow (vph)	54	2418	56	0	0	0	0	113	347	102	210	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2528	0	0	0	0	0	113	347	102	210	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			9			9	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.24	1.30	1.30	1.07	1.07	1.07	1.07	1.30	1.35	1.42	1.42	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA						NA	Perm	Perm	NA	
Protected Phases		6						4			8	
Permitted Phases	6								4	8		
Minimum Split (s)	33.0	33.0						29.0	29.0	29.0	29.0	
Total Split (s)	47.0	47.0						33.0	33.0	33.0	33.0	
Total Split (%)	58.8%	58.8%						41.3%	41.3%	41.3%	41.3%	
Maximum Green (s)	42.8	42.8						28.8	28.8	28.8	28.8	
Yellow Time (s)	3.2	3.2						3.2	3.2	3.2	3.2	
All-Red Time (s)	1.0	1.0						1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0						0.0	0.0	0.0	0.0	
Total Lost Time (s)		4.2						4.2	4.2	4.2	4.2	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	10.0	10.0						8.0	8.0	8.0	8.0	

San Rafael Multi-Family TIS - Baseline Conditions
 16: Lindaro St & 2nd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	18.0	18.0						16.0	16.0	16.0	16.0	
Pedestrian Calls (#/hr)	0	0						0	0	0	0	
Act Effct Green (s)		42.8						28.8	28.8	28.8	28.8	
Actuated g/C Ratio		0.54						0.36	0.36	0.36	0.36	
v/c Ratio		0.91						0.20	0.78	0.30	0.45	
Control Delay		23.2						18.9	36.2	16.9	18.1	
Queue Delay		0.0						0.0	0.0	0.0	0.0	
Total Delay		23.2						18.9	36.2	16.9	18.1	
LOS		C						B	D	B	B	
Approach Delay		23.2						32.0			17.7	
Approach LOS		C						C			B	
Queue Length 50th (ft)		309						38	145	25	56	
Queue Length 95th (ft)		375						75	#287	63	120	
Internal Link Dist (ft)		415			433			235			253	
Turn Bay Length (ft)									275	70		
Base Capacity (vph)		2779						556	445	340	471	
Starvation Cap Reductn		0						0	0	0	0	
Spillback Cap Reductn		0						0	0	0	0	
Storage Cap Reductn		0						0	0	0	0	
Reduced v/c Ratio		0.91						0.20	0.78	0.30	0.45	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 49 (61%), Referenced to phase 6:EBTL, Start of Green
 Natural Cycle: 65
 Control Type: Pretimed
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 23.9 Intersection LOS: C
 Intersection Capacity Utilization 83.3% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.















Splits and Phases: 16: Lindaro St & 2nd St



San Rafael Multi-Family TIS - Baseline Conditions

17: Lincoln Ave & Ritter St


















PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	77	426	8	34	365	20
Future Volume (vph)	0	0	0	0	0	0	77	426	8	34	365	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt								0.998			0.993	
Flt Protected								0.993			0.996	
Satd. Flow (prot)	0	0	0	0	0	0	0	3361	0	0	3278	0
Flt Permitted								0.993			0.996	
Satd. Flow (perm)	0	0	0	0	0	0	0	3361	0	0	3278	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		461			117			107			223	
Travel Time (s)		12.6			3.2			2.9			6.1	
Confl. Peds. (#/hr)							25			4		25
Confl. Bikes (#/hr)												6
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	7%	3%	0%
Adj. Flow (vph)	0	0	0	0	0	0	82	453	9	36	388	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	544	0	0	445	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	34.7%						ICU Level of Service A					
Analysis Period (min)	15											

San Rafael Multi-Family TIS - Baseline Conditions

18: Lincoln Ave & 2nd St

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	243	2359	89	0	0	0	0	269	161	156	211	0
Future Volume (vph)	243	2359	89	0	0	0	0	269	161	156	211	0
Ideal Flow (vphpl)	1600	1600	1600	1800	1800	1800	1800	1600	1600	1600	1600	1800
Lane Width (ft)	12	10	10	12	12	12	12	12	12	9	9	9
Storage Length (ft)	0		150	0		0	0		130	0		0
Storage Lanes	0		1	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor		1.00	0.93						0.98			
Frt			0.850						0.850			
Flt Protected		0.995									0.979	
Satd. Flow (prot)	0	5016	1221	0	0	0	0	1600	1360	0	2611	0
Flt Permitted		0.995									0.655	
Satd. Flow (perm)	0	5006	1139	0	0	0	0	1600	1338	0	1747	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82						16			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		513			244			398			107	
Travel Time (s)		14.0			6.7			10.9			2.9	
Confl. Peds. (#/hr)	25		63									
Confl. Bikes (#/hr)			4						6			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	2%	4%	0%	0%	0%	0%	0%	0%	2%	3%	0%
Adj. Flow (vph)	259	2510	95	0	0	0	0	286	171	166	224	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2769	95	0	0	0	0	286	171	0	390	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.24	1.35	1.35	1.07	1.07	1.07	1.07	1.24	1.24	1.42	1.42	1.22
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		6						4			8	
Permitted Phases	6		6						4	8		
Minimum Split (s)	33.0	33.0	33.0					13.0	13.0	31.0	31.0	
Total Split (s)	48.0	48.0	48.0					32.0	32.0	32.0	32.0	
Total Split (%)	60.0%	60.0%	60.0%					40.0%	40.0%	40.0%	40.0%	
Maximum Green (s)	43.8	43.8	43.8					27.8	27.8	27.8	27.8	
Yellow Time (s)	3.2	3.2	3.2					3.2	3.2	3.2	3.2	
All-Red Time (s)	1.0	1.0	1.0					1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0	0.0					0.0	0.0		0.0	
Total Lost Time (s)		4.2	4.2					4.2	4.2		4.2	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	12.0	12.0	12.0							7.0	7.0	

San Rafael Multi-Family TIS - Baseline Conditions

18: Lincoln Ave & 2nd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	16.0	16.0	16.0							19.0	19.0	
Pedestrian Calls (#/hr)	0	0	0							0	0	
Act Effect Green (s)		43.8	43.8					27.8	27.8		27.8	
Actuated g/C Ratio		0.55	0.55					0.35	0.35		0.35	
v/c Ratio		1.01	0.14					0.51	0.36		0.64	
Control Delay		24.0	0.2					24.8	20.2		25.0	
Queue Delay		35.3	0.0					0.0	0.0		0.0	
Total Delay		59.3	0.2					24.8	20.2		25.0	
LOS		E	A					C	C		C	
Approach Delay		57.3						23.1			25.0	
Approach LOS		E						C			C	
Queue Length 50th (ft)		~177	0					112	56		64	
Queue Length 95th (ft)		#493	m0					186	108		m103	
Internal Link Dist (ft)		433				164		318			27	
Turn Bay Length (ft)			150						130			
Base Capacity (vph)		2740	660					556	475		607	
Starvation Cap Reductn		0	0					0	0		0	
Spillback Cap Reductn		427	0					0	1		0	
Storage Cap Reductn		0	0					0	0		0	
Reduced v/c Ratio		1.20	0.14					0.51	0.36		0.64	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 62 (78%), Referenced to phase 6:EBTL, Start of Green

Natural Cycle: 80

Control Type: Pretimed

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 49.7

Intersection LOS: D

Intersection Capacity Utilization 84.6%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.



















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

Splits and Phases: 18: Lincoln Ave & 2nd St

	Ø6 (R)	48 s		Ø4	32 s
				Ø8	32 s

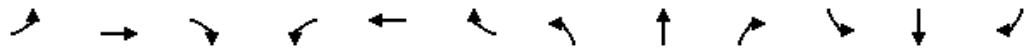
San Rafael Multi-Family TIS - Baseline Conditions
 19: Francisco Blvd W./Tamalpais Ave (West) & 2nd St

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	2471	132	0	0	0	0	153	439	64	259	0
Future Volume (vph)	76	2471	132	0	0	0	0	153	439	64	259	0
Ideal Flow (vphpl)	1600	1600	1600	1800	1800	1800	1800	1600	1600	1600	1600	1800
Lane Width (ft)	12	11	10	12	12	12	12	10	13	10	12	12
Storage Length (ft)	0		140	0		0	0		0	70		0
Storage Lanes	0		1	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	0.98						0.99			
Frt			0.850						0.850			
Flt Protected		0.999								0.950		
Satd. Flow (prot)	0	5214	1232	0	0	0	0	1479	1378	996	1349	0
Flt Permitted		0.999								0.654		
Satd. Flow (perm)	0	5198	1203	0	0	0	0	1479	1358	686	1349	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			107						48			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		244			283			131			321	
Travel Time (s)		6.7			7.7			3.6			8.8	
Confl. Peds. (#/hr)	65											
Confl. Bikes (#/hr)			5						3			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	3%	0%	0%	0%	0%	1%	2%	26%	5%	0%
Parking (#/hr)										3	3	
Adj. Flow (vph)	81	2629	140	0	0	0	0	163	467	68	276	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2710	140	0	0	0	0	163	467	68	276	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.24	1.30	1.35	1.07	1.07	1.07	1.07	1.35	1.19	1.57	1.44	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		2						4			8	
Permitted Phases	2		2						4	8		
Detector Phase	2	2	2					4	4	8	8	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0					8.0	8.0	8.0	8.0	
Minimum Split (s)	32.5	32.5	32.5					14.5	14.5	33.0	33.0	
Total Split (s)	47.0	47.0	47.0					33.0	33.0	33.0	33.0	
Total Split (%)	58.8%	58.8%	58.8%					41.3%	41.3%	41.3%	41.3%	
Maximum Green (s)	40.5	40.5	40.5					26.5	26.5	26.5	26.5	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.5	3.5	
All-Red Time (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lost Time Adjust (s)		0.0	0.0					0.0	0.0	0.0	0.0	

San Rafael Multi-Family TIS - Baseline Conditions
 19: Francisco Blvd W./Tamalpais Ave (West) & 2nd St

PM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)		6.5	6.5					6.5	6.5	6.5	6.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max					None	None	None	None	
Walk Time (s)	10.0	10.0	10.0							7.0	7.0	
Flash Dont Walk (s)	16.0	16.0	16.0							19.5	19.5	
Pedestrian Calls (#/hr)	31	31	31							37	37	
Act Effct Green (s)		40.5	40.5					26.5	26.5	26.5	26.5	
Actuated g/C Ratio		0.51	0.51					0.33	0.33	0.33	0.33	
v/c Ratio		1.03	0.21					0.33	0.97	0.30	0.62	
Control Delay		30.7	1.4					22.5	60.8	24.4	29.7	
Queue Delay		28.8	0.6					0.0	0.0	0.0	0.6	
Total Delay		59.5	2.0					22.5	60.8	24.4	30.3	
LOS		E	A					C	E	C	C	
Approach Delay		56.6						50.9			29.2	
Approach LOS		E						D			C	
90th %ile Green (s)	40.5	40.5	40.5					26.5	26.5	26.5	26.5	
90th %ile Term Code	Coord	Coord	Coord					Max	Max	Max	Max	
70th %ile Green (s)	40.5	40.5	40.5					26.5	26.5	26.5	26.5	
70th %ile Term Code	Coord	Coord	Coord					Max	Max	Ped	Ped	
50th %ile Green (s)	40.5	40.5	40.5					26.5	26.5	26.5	26.5	
50th %ile Term Code	Coord	Coord	Coord					Max	Max	Hold	Hold	
30th %ile Green (s)	40.5	40.5	40.5					26.5	26.5	26.5	26.5	
30th %ile Term Code	Coord	Coord	Coord					Max	Max	Hold	Hold	
10th %ile Green (s)	40.5	40.5	40.5					26.5	26.5	26.5	26.5	
10th %ile Term Code	Coord	Coord	Coord					Max	Max	Hold	Hold	
Queue Length 50th (ft)		~256	0					61	208	25	115	
Queue Length 95th (ft)		m#267	m0					111	#403	60	197	
Internal Link Dist (ft)		164			203			51			241	
Turn Bay Length (ft)			140							70		
Base Capacity (vph)		2631	661					489	481	227	446	
Starvation Cap Reductn		258	280					0	0	0	32	
Spillback Cap Reductn		53	0					0	0	0	0	
Storage Cap Reductn		0	0					0	0	0	0	
Reduced v/c Ratio		1.14	0.37					0.33	0.97	0.30	0.67	

Intersection Summary

Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	80
Offset:	66 (83%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.03
Intersection Signal Delay:	53.2
Intersection Capacity Utilization	155.7%
Analysis Period (min)	15
Intersection LOS:	D
ICU Level of Service	H

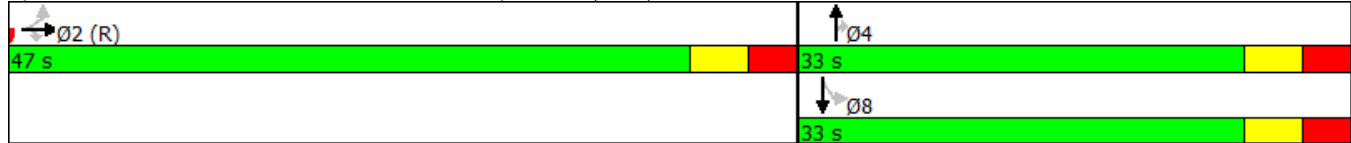
~ Volume exceeds capacity, queue is theoretically infinite.

San Rafael Multi-Family TIS - Baseline Conditions
 19: Francisco Blvd W./Tamalpais Ave (West) & 2nd St

PM PEAK HOUR

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

















Splits and Phases: 19: Francisco Blvd W./Tamalpais Ave (West) & 2nd St



San Rafael Multi-Family TIS - Baseline Conditions

20: US-101 SB Ramp/Hetherton St & 2nd St

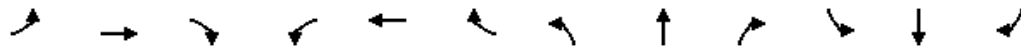
PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1950	979	0	0	0	0	0	0	357	810	0
Future Volume (vph)	0	1950	979	0	0	0	0	0	0	357	810	0
Ideal Flow (vphpl)	1800	1600	1600	1800	1800	1800	1800	1800	1800	1600	1600	1800
Lane Width (ft)	12	11	11	12	12	12	12	12	12	11	12	12
Lane Util. Factor	1.00	0.81	0.81	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00
Ped Bike Factor		1.00	0.99									
Frt		0.975	0.850									
Flt Protected										0.950		
Satd. Flow (prot)	0	4733	1034	0	0	0	0	0	0	1298	2827	0
Flt Permitted										0.950		
Satd. Flow (perm)	0	4733	1020	0	0	0	0	0	0	1298	2827	0
Right Turn on Red			Yes			Yes			Yes	No		Yes
Satd. Flow (RTOR)		53	53									
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		283			371			529			311	
Travel Time (s)		7.7			10.1			10.3			8.5	
Confl. Peds. (#/hr)								30				
Confl. Bikes (#/hr)			4									
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	3%	3%	0%	0%	0%	0%	0%	0%	3%	3%	0%
Adj. Flow (vph)	0	2074	1041	0	0	0	0	0	0	380	862	0
Shared Lane Traffic (%)			40%							0%		
Lane Group Flow (vph)	0	2490	625	0	0	0	0	0	0	380	862	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.30	1.30	1.07	1.07	1.07	1.07	1.07	1.07	1.30	1.24	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm							Split	NA	
Protected Phases		2								4	4	
Permitted Phases			2									
Minimum Split (s)		34.0	34.0							20.0	20.0	
Total Split (s)		45.0	45.0							35.0	35.0	
Total Split (%)		56.3%	56.3%							43.8%	43.8%	
Maximum Green (s)		40.5	40.5							30.5	30.5	
Yellow Time (s)		3.5	3.5							3.5	3.5	
All-Red Time (s)		1.0	1.0							1.0	1.0	
Lost Time Adjust (s)		0.0	0.0							0.0	0.0	
Total Lost Time (s)		4.5	4.5							4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)		14.5	14.5									
Flash Dont Walk (s)		15.0	15.0									
Pedestrian Calls (#/hr)		0	0									
Act Effect Green (s)		40.5	40.5							30.5	30.5	

San Rafael Multi-Family TIS - Baseline Conditions

20: US-101 SB Ramp/Hetherton St & 2nd St

PM PEAK HOUR

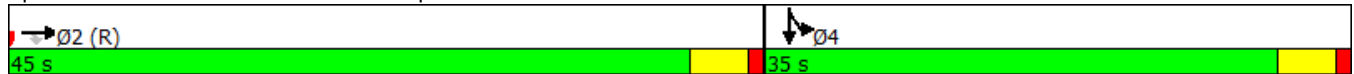


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.51	0.51							0.38	0.38	
v/c Ratio		1.03	1.15							0.77	0.80	
Control Delay		24.7	84.1							27.5	23.2	
Queue Delay		27.0	0.1							1.6	1.1	
Total Delay		51.8	84.2							29.2	24.3	
LOS		D	F							C	C	
Approach Delay		58.3									25.8	
Approach LOS		E									C	
Queue Length 50th (ft)		~91	~435							225	256	
Queue Length 95th (ft)		m#83	m#423							m#349	322	
Internal Link Dist (ft)		203			291			449			231	
Turn Bay Length (ft)												
Base Capacity (vph)		2422	542							494	1077	
Starvation Cap Reductn		148	7							33	71	
Spillback Cap Reductn		145	0							0	0	
Storage Cap Reductn		0	0							0	0	
Reduced v/c Ratio		1.09	1.17							0.82	0.86	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 72 (90%), Referenced to phase 2:EBT, Start of Green
 Natural Cycle: 90
 Control Type: Pretimed
 Maximum v/c Ratio: 1.15
 Intersection Signal Delay: 49.0 Intersection LOS: D
 Intersection Capacity Utilization 139.3% ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: US-101 SB Ramp/Hetherton St & 2nd St



San Rafael Multi-Family TIS - Baseline Conditions

21: US-101 NB Ramp/Irwin St & 2nd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	918	1396	0	0	0	0	0	1383	563	0	0	0
Future Volume (vph)	918	1396	0	0	0	0	0	1383	563	0	0	0
Ideal Flow (vphpl)	1600	1600	1700	1700	1700	1700	1700	1600	1600	1700	1700	1700
Lane Width (ft)	13	12	12	12	12	12	12	12	10	12	12	12
Storage Length (ft)	0		0	0		0	0		85	0		0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.86	0.86	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor	0.98	1.00							0.97			
Frt									0.850			
Flt Protected	0.950	0.990										
Satd. Flow (prot)	1311	3999	0	0	0	0	0	4241	1257	0	0	0
Flt Permitted	0.950	0.990										
Satd. Flow (perm)	1286	3984	0	0	0	0	0	4241	1214	0	0	0
Right Turn on Red	Yes		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	30	30							16			
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		371			618			541			294	
Travel Time (s)		10.1			16.9			10.5			8.0	
Confl. Peds. (#/hr)	31								28			
Confl. Bikes (#/hr)									4			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	2%	0%	0%	0%	0%	0%	3%	1%	0%	0%	0%
Adj. Flow (vph)	977	1485	0	0	0	0	0	1471	599	0	0	0
Shared Lane Traffic (%)	37%											
Lane Group Flow (vph)	616	1846	0	0	0	0	0	1471	599	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.19	1.24	1.15	1.15	1.15	1.15	1.15	1.24	1.35	1.15	1.15	1.15
Turning Speed (mph)	25		9	15			9	15	20	15		9
Turn Type	Perm	NA						NA	Perm			
Protected Phases		2						8				
Permitted Phases	2								8			
Minimum Split (s)	24.0	24.0						24.0	24.0			
Total Split (s)	42.0	42.0						38.0	38.0			
Total Split (%)	52.5%	52.5%						47.5%	47.5%			
Maximum Green (s)	37.8	37.8						32.8	32.8			
Yellow Time (s)	3.2	3.2						3.2	3.2			
All-Red Time (s)	1.0	1.0						2.0	2.0			
Lost Time Adjust (s)	0.0	0.0						0.0	0.0			
Total Lost Time (s)	4.2	4.2						5.2	5.2			
Lead/Lag												
Lead-Lag Optimize?												
Act Effect Green (s)	37.8	37.8						32.8	32.8			

San Rafael Multi-Family TIS - Baseline Conditions

21: US-101 NB Ramp/Irwin St & 2nd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.47	0.47						0.41	0.41			
v/c Ratio	0.99	0.97						0.85	1.18			
Control Delay	29.6	17.9						27.2	125.5			
Queue Delay	30.5	12.5						0.1	0.0			
Total Delay	60.1	30.4						27.3	125.5			
LOS	E	C						C	F			
Approach Delay		37.8						55.7				
Approach LOS		D						E				
Queue Length 50th (ft)	96	151						235	~362			
Queue Length 95th (ft)	m#103	m150						298	#560			
Internal Link Dist (ft)		291			538			461			214	
Turn Bay Length (ft)									85			
Base Capacity (vph)	623	1898						1738	507			
Starvation Cap Reductn	23	99						0	0			
Spillback Cap Reductn	55	75						15	0			
Storage Cap Reductn	0	0						0	0			
Reduced v/c Ratio	1.08	1.03						0.85	1.18			

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green
 Natural Cycle: 90
 Control Type: Pretimed
 Maximum v/c Ratio: 1.18
 Intersection Signal Delay: 46.0 Intersection LOS: D
 Intersection Capacity Utilization 112.0% ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

















Splits and Phases: 21: US-101 NB Ramp/Irwin St & 2nd St



San Rafael Multi-Family TIS - Baseline Conditions

22: Nye St & Mission Ave

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	664	5	22	807	22	6	21	94	14	32	32
Future Volume (vph)	22	664	5	22	807	22	6	21	94	14	32	32
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999			0.997			0.895			0.945	
Flt Protected		0.998			0.999			0.998			0.991	
Satd. Flow (prot)	0	1757	0	0	1756	0	0	1574	0	0	1637	0
Flt Permitted		0.998			0.999			0.998			0.991	
Satd. Flow (perm)	0	1757	0	0	1756	0	0	1574	0	0	1637	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		352			483			340			237	
Travel Time (s)		9.6			13.2			9.3			6.5	
Confl. Peds. (#/hr)	5		12	12		5	14		14	14		14
Confl. Bikes (#/hr)			2				15					1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)	2	2	2	2	2	2	2	2	2	2	2	2
Adj. Flow (vph)	23	706	5	23	859	23	6	22	100	15	34	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	734	0	0	905	0	0	128	0	0	83	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.06	1.07	1.07	1.06	1.07	1.07	1.06	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	




















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	74.1%
Analysis Period (min)	15
	ICU Level of Service D

San Rafael Multi-Family TIS - Baseline Conditions

23: Lincoln Ave & Mission Ave














PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	206	453	20	35	577	61	12	381	48	0	335	281
Future Volume (vph)	206	453	20	35	577	61	12	381	48	0	335	281
Ideal Flow (vphpl)	1600	1700	1600	1700	1700	1600	1600	1700	1700	1600	1700	1700
Lane Width (ft)	11	12	12	10	10	12	12	9	9	12	10	9
Storage Length (ft)	120		0	65		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		1.00		1.00	1.00			0.99			0.96	
Frt		0.994			0.986			0.984			0.932	
Flt Protected	0.950			0.950				0.999				
Satd. Flow (prot)	1427	1639	0	1463	1515	0	0	2746	0	0	2620	0
Flt Permitted	0.125			0.479				0.931				
Satd. Flow (perm)	188	1639	0	735	1515	0	0	2557	0	0	2620	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			8			17			273	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		483			292			342			291	
Travel Time (s)		13.2			8.0			9.3			7.9	
Confl. Peds. (#/hr)	10		8	8		10	35		39	39		35
Confl. Bikes (#/hr)			3			1			5			4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	219	482	21	37	614	65	13	405	51	0	356	299
Shared Lane Traffic (%)												
Lane Group Flow (vph)	219	503	0	37	679	0	0	469	0	0	655	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.30	1.15	1.24	1.26	1.26	1.24	1.24	1.31	1.31	1.24	1.26	1.31
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		Perm	NA			NA	
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4					
Detector Phase	5	2		6	6		4	4			8	
Switch Phase												
Minimum Initial (s)	7.0	10.0		10.0	10.0		10.0	10.0			10.0	
Minimum Split (s)	10.0	29.0		26.0	26.0		27.0	27.0			27.0	
Total Split (s)	12.0	51.0		39.0	39.0		29.0	29.0			29.0	
Total Split (%)	15.0%	63.8%		48.8%	48.8%		36.3%	36.3%			36.3%	
Maximum Green (s)	9.0	46.8		34.8	34.8		24.4	24.4			24.4	
Yellow Time (s)	3.0	3.2		3.2	3.2		3.6	3.6			3.6	
All-Red Time (s)	0.0	1.0		1.0	1.0		1.0	1.0			1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	3.0	4.2		4.2	4.2		4.6	4.6			4.6	

San Rafael Multi-Family TIS - Baseline Conditions

23: Lincoln Ave & Mission Ave

PM PEAK HOUR

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lead/Lag	Lead			Lag		Lag							
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0	5.0		5.0	5.0		5.0	5.0				5.0	
Recall Mode	None	Max		Max	Max		C-Max	C-Max				C-Max	
Walk Time (s)		10.0		8.0	8.0		8.0	8.0				8.0	
Flash Dont Walk (s)		14.0		13.0	13.0		14.0	14.0				14.0	
Pedestrian Calls (#/hr)		8		10	10		33	33				32	
Act Effect Green (s)	48.0	46.8		34.8	34.8			24.4				24.4	
Actuated g/C Ratio	0.60	0.58		0.44	0.44			0.30				0.30	
v/c Ratio	0.87	0.52		0.12	1.02			0.59				0.66	
Control Delay	48.2	12.3		10.9	54.1			37.1				17.4	
Queue Delay	0.0	0.8		0.0	0.0			0.0				0.0	
Total Delay	48.2	13.1		10.9	54.1			37.1				17.4	
LOS	D	B		B	D			D				B	
Approach Delay		23.8			51.8			37.1				17.4	
Approach LOS		C			D			D				B	
90th %ile Green (s)	9.0	46.8		34.8	34.8		24.4	24.4				24.4	
90th %ile Term Code	Max	MaxR		MaxR	MaxR		Coord	Coord				Coord	
70th %ile Green (s)	9.0	46.8		34.8	34.8		24.4	24.4				24.4	
70th %ile Term Code	Max	MaxR		MaxR	MaxR		Coord	Coord				Coord	
50th %ile Green (s)	9.0	46.8		34.8	34.8		24.4	24.4				24.4	
50th %ile Term Code	Max	MaxR		MaxR	MaxR		Coord	Coord				Coord	
30th %ile Green (s)	9.0	46.8		34.8	34.8		24.4	24.4				24.4	
30th %ile Term Code	Max	MaxR		MaxR	MaxR		Coord	Coord				Coord	
10th %ile Green (s)	9.0	46.8		34.8	34.8		24.4	24.4				24.4	
10th %ile Term Code	Max	MaxR		MaxR	MaxR		Coord	Coord				Coord	
Queue Length 50th (ft)	57	136		3	~100			100				84	
Queue Length 95th (ft)	#182	215		m14	#550			137				143	
Internal Link Dist (ft)		403			212			262				211	
Turn Bay Length (ft)	120			65									
Base Capacity (vph)	252	960		319	663			791				988	
Starvation Cap Reductn	0	0		0	0			0				0	
Spillback Cap Reductn	0	211		0	0			0				0	
Storage Cap Reductn	0	0		0	0			0				0	
Reduced v/c Ratio	0.87	0.67		0.12	1.02			0.59				0.66	

Intersection Summary

Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	80
Offset:	55 (69%), Referenced to phase 4:NBTL and 8:SBT, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.02
Intersection Signal Delay:	32.4
Intersection Capacity Utilization	86.0%
Analysis Period (min)	15
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	

San Rafael Multi-Family TIS - Baseline Conditions

23: Lincoln Ave & Mission Ave

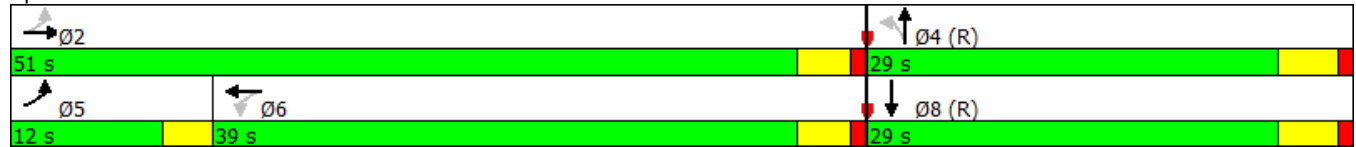
PM PEAK HOUR

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 23: Lincoln Ave & Mission Ave



San Rafael Multi-Family TIS - Baseline Conditions
 24: Tamalpais Ave (West) & Mission Ave

PM PEAK HOUR

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø3	Ø4	Ø6
Lane Configurations									
Traffic Volume (vph)	568	14	0	633	6	11			
Future Volume (vph)	568	14	0	633	6	11			
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800			
Storage Length (ft)		0	0		0	0			
Storage Lanes		0	0		1	0			
Taper Length (ft)			25		25				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00			
Ped Bike Factor	1.00				0.97				
Frt	0.997				0.910				
Flt Protected					0.984				
Satd. Flow (prot)	1741	0	0	1748	1565	0			
Flt Permitted					0.984				
Satd. Flow (perm)	1741	0	0	1748	1514	0			
Right Turn on Red		Yes				Yes			
Satd. Flow (RTOR)	2				12				
Link Speed (mph)	25			25	25				
Link Distance (ft)	292			71	337				
Travel Time (s)	8.0			1.9	9.2				
Confl. Peds. (#/hr)		6	6		30				
Confl. Bikes (#/hr)		2							
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94			
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%			
Adj. Flow (vph)	604	15	0	673	6	12			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	619	0	0	673	18	0			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Right	Left	Left	Left	Right			
Median Width(ft)	10			10	12				
Link Offset(ft)	0			0	0				
Crosswalk Width(ft)	16			16	16				
Two way Left Turn Lane									
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07			
Turning Speed (mph)		9	15		15	9			
Turn Type	NA			NA	Perm				
Protected Phases	2			3 4 6			3	4	6
Permitted Phases					8				
Detector Phase	2			3 4 6	8				
Switch Phase									
Minimum Initial (s)	8.0				6.0		2.0	6.0	7.0
Minimum Split (s)	18.0				18.0		5.0	11.6	13.0
Total Split (s)	39.0				18.0		5.0	18.0	39.0
Total Split (%)	48.8%				22.5%		6%	23%	49%
Maximum Green (s)	33.0				12.4		2.0	12.4	33.0
Yellow Time (s)	3.6				3.2		3.0	3.2	3.6
All-Red Time (s)	2.4				2.4		0.0	2.4	2.4
Lost Time Adjust (s)	0.0				0.0				
Total Lost Time (s)	6.0				5.6				
Lead/Lag							Lead	Lag	

San Rafael Multi-Family TIS - Baseline Conditions
 24: Tamalpais Ave (West) & Mission Ave

PM PEAK HOUR



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø3	Ø4	Ø6
Lead-Lag Optimize?									
Vehicle Extension (s)	3.0				3.0		0.2	3.0	3.0
Recall Mode	C-Min				None		None	None	C-Min
Walk Time (s)	5.0				5.0				
Flash Dont Walk (s)	7.0				7.4				
Pedestrian Calls (#/hr)	13				13				
Act Effct Green (s)	33.5			57.0	14.4				
Actuated g/C Ratio	0.42			0.71	0.18				
v/c Ratio	0.85			0.54	0.06				
Control Delay	27.1			2.0	16.1				
Queue Delay	0.8			0.1	0.0				
Total Delay	27.9			2.1	16.1				
LOS	C			A	B				
Approach Delay	27.9			2.1	16.1				
Approach LOS	C			A	B				
90th %ile Green (s)	33.0				12.4		2.0	12.4	33.0
90th %ile Term Code	Coord				Max		Max	Max	Coord
70th %ile Green (s)	33.0				14.0		2.0	10.8	33.0
70th %ile Term Code	Coord				Max		Max	Gap	Coord
50th %ile Green (s)	33.0				15.5		2.0	9.3	33.0
50th %ile Term Code	Coord				Max		Max	Gap	Coord
30th %ile Green (s)	33.0				16.9		2.0	7.9	33.0
30th %ile Term Code	Coord				Max		Max	Gap	Coord
10th %ile Green (s)	35.3				13.3		3.7	7.5	35.3
10th %ile Term Code	Coord				Gap		Gap	Gap	Coord
Queue Length 50th (ft)	281			2	2				
Queue Length 95th (ft)	#475			m8	25				
Internal Link Dist (ft)	212			1	257				
Turn Bay Length (ft)									
Base Capacity (vph)	729			1306	282				
Starvation Cap Reductn	18			0	0				
Spillback Cap Reductn	17			67	2				
Storage Cap Reductn	0			0	0				
Reduced v/c Ratio	0.87			0.54	0.06				

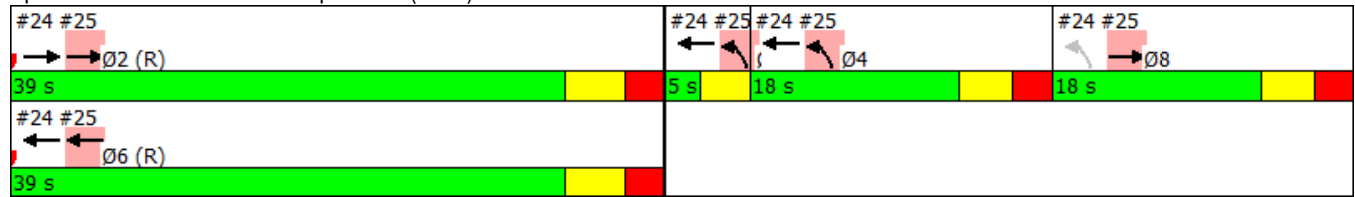
Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 14 (18%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 14.5 Intersection LOS: B
 Intersection Capacity Utilization 48.2% ICU Level of Service A
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

San Rafael Multi-Family TIS - Baseline Conditions
 24: Tamalpais Ave (West) & Mission Ave

PM PEAK HOUR

Splits and Phases: 24: Tamalpais Ave (West) & Mission Ave



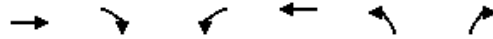
San Rafael Multi-Family TIS - Baseline Conditions
 25: Tamalpais Ave (East) & Mission Ave

PM PEAK HOUR

	→	↘	↙	←	↖	↗				
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø2	Ø3	Ø4	Ø8
Lane Configurations	↑			↑	↘	↗				
Traffic Volume (vph)	584	0	0	627	6	12				
Future Volume (vph)	584	0	0	627	6	12				
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00				
Frt					0.908					
Flt Protected					0.984					
Satd. Flow (prot)	1748	0	0	1748	1561	0				
Flt Permitted					0.984					
Satd. Flow (perm)	1748	0	0	1748	1561	0				
Right Turn on Red		Yes				Yes				
Satd. Flow (RTOR)					13					
Link Speed (mph)	25			25	25					
Link Distance (ft)	71			191	329					
Travel Time (s)	1.9			5.2	9.0					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%				
Adj. Flow (vph)	621	0	0	667	6	13				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	621	0	0	667	19	0				
Enter Blocked Intersection	No	No	No	No	No	No				
Lane Alignment	Left	Right	Left	Left	Left	Right				
Median Width(ft)	0			0	12					
Link Offset(ft)	0			0	0					
Crosswalk Width(ft)	16			16	16					
Two way Left Turn Lane										
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07				
Turning Speed (mph)		9	15		15	9				
Turn Type	NA			NA	Prot					
Protected Phases	2 8			6	3 4		2	3	4	8
Permitted Phases										
Detector Phase	2 8			6	3 4					
Switch Phase										
Minimum Initial (s)				7.0			8.0	2.0	6.0	6.0
Minimum Split (s)				13.0			18.0	5.0	11.6	18.0
Total Split (s)				39.0			39.0	5.0	18.0	18.0
Total Split (%)				48.8%			49%	6%	23%	23%
Maximum Green (s)				33.0			33.0	2.0	12.4	12.4
Yellow Time (s)				3.6			3.6	3.0	3.2	3.2
All-Red Time (s)				2.4			2.4	0.0	2.4	2.4
Lost Time Adjust (s)				0.0						
Total Lost Time (s)				6.0						
Lead/Lag								Lead	Lag	
Lead-Lag Optimize?										
Vehicle Extension (s)				3.0			3.0	0.2	3.0	3.0
Recall Mode				C-Min			C-Min	None	None	None
Walk Time (s)							5.0			5.0
Flash Dont Walk (s)							7.0			7.4
Pedestrian Calls (#/hr)							13			13

San Rafael Multi-Family TIS - Baseline Conditions
 25: Tamalpais Ave (East) & Mission Ave

PM PEAK HOUR

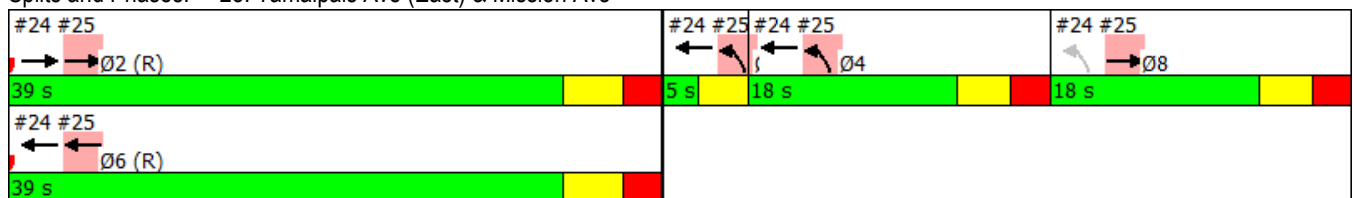


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø2	Ø3	Ø4	Ø8
Act Effect Green (s)	53.5			33.5	17.5					
Actuated g/C Ratio	0.67			0.42	0.22					
v/c Ratio	0.53			0.91	0.05					
Control Delay	3.4			32.6	25.1					
Queue Delay	0.0			49.1	0.0					
Total Delay	3.4			81.6	25.1					
LOS	A			F	C					
Approach Delay	3.4			81.6	25.1					
Approach LOS	A			F	C					
90th %ile Green (s)				33.0			33.0	2.0	12.4	12.4
90th %ile Term Code				Coord			Coord	Max	Max	Max
70th %ile Green (s)				33.0			33.0	2.0	10.8	14.0
70th %ile Term Code				Coord			Coord	Max	Gap	Max
50th %ile Green (s)				33.0			33.0	2.0	9.3	15.5
50th %ile Term Code				Coord			Coord	Max	Gap	Max
30th %ile Green (s)				33.0			33.0	2.0	7.9	16.9
30th %ile Term Code				Coord			Coord	Max	Gap	Max
10th %ile Green (s)				35.3			35.3	3.7	7.5	13.3
10th %ile Term Code				Coord			Coord	Gap	Gap	Gap
Queue Length 50th (ft)	10			324	3					
Queue Length 95th (ft)	m24			m354	25					
Internal Link Dist (ft)	1			111	249					
Turn Bay Length (ft)										
Base Capacity (vph)	1168			731	406					
Starvation Cap Reductn	0			281	0					
Spillback Cap Reductn	13			34	0					
Storage Cap Reductn	0			0	0					
Reduced v/c Ratio	0.54			1.48	0.05					

Intersection Summary

















Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 14 (18%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 43.7 Intersection LOS: D
 Intersection Capacity Utilization 46.5% ICU Level of Service A
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 25: Tamalpais Ave (East) & Mission Ave



San Rafael Multi-Family TIS - Baseline Conditions
 26: Hetherton St/101 SB Off-Ramp & Mission Ave

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	555	70	65	197	0	0	0	0	221	1133	560
Future Volume (vph)	0	555	70	65	197	0	0	0	0	221	1133	560
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	10	12	12	16	12	12	12	12	12	12	12
Storage Length (ft)	0		0	0		0	0		0	0		360
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor		1.00			1.00							0.96
Frt		0.983										0.850
Flt Protected					0.988						0.992	
Satd. Flow (prot)	0	3034	0	0	1957	0	0	0	0	0	3294	1485
Flt Permitted					0.709						0.992	
Satd. Flow (perm)	0	3034	0	0	1402	0	0	0	0	0	3294	1419
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		20										
Link Speed (mph)		25			25			25			35	
Link Distance (ft)		191			376			325			407	
Travel Time (s)		5.2			10.3			8.9			7.9	
Confl. Peds. (#/hr)			19	19								1
Confl. Bikes (#/hr)			1									24
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	590	74	69	210	0	0	0	0	235	1205	596
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	664	0	0	279	0	0	0	0	0	1440	596
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.17	1.07	1.07	0.91	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA		Perm	NA					Split	NA	custom
Protected Phases		4			8					2	2	
Permitted Phases				8								5
Minimum Split (s)		31.0		31.0	31.0					30.0	30.0	30.0
Total Split (s)		35.0		35.0	35.0					45.0	45.0	38.0
Total Split (%)		43.8%		43.8%	43.8%					56.3%	56.3%	47.5%
Maximum Green (s)		30.8		30.8	30.8					40.4	40.4	33.4
Yellow Time (s)		3.2		3.2	3.2					3.6	3.6	3.6
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	1.0
Lost Time Adjust (s)		0.0			0.0						0.0	0.0
Total Lost Time (s)		4.2			4.2						4.6	4.6
Lead/Lag												Lag
Lead-Lag Optimize?												
Walk Time (s)		7.0		7.0	7.0							0.0

Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Minimum Split (s)	9.0
Total Split (s)	7.0
Total Split (%)	9%
Maximum Green (s)	5.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	
Walk Time (s)	7.0

San Rafael Multi-Family TIS - Baseline Conditions
 26: Hetherton St/101 SB Off-Ramp & Mission Ave

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		12.0		15.0	15.0							12.0
Pedestrian Calls (#/hr)		0		0	0							0
Act Effct Green (s)		30.8			30.8						40.4	33.4
Actuated g/C Ratio		0.38			0.38						0.50	0.42
v/c Ratio		0.56			0.52						0.87	1.01
Control Delay		8.6			8.9						24.6	64.6
Queue Delay		1.7			0.1						0.0	44.1
Total Delay		10.3			9.0						24.6	108.7
LOS		B			A						C	F
Approach Delay		10.3			9.0						49.2	
Approach LOS		B			A						D	
Queue Length 50th (ft)		24			39						314	~293
Queue Length 95th (ft)		84			m54						#423	#510
Internal Link Dist (ft)		111			296			245			327	
Turn Bay Length (ft)												360
Base Capacity (vph)		1180			539						1663	592
Starvation Cap Reductn		335			0						0	0
Spillback Cap Reductn		15			17						0	399
Storage Cap Reductn		0			0						0	0
Reduced v/c Ratio		0.79			0.53						0.87	3.09

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 51 (64%), Referenced to phase 2:SBTL and 7:Ped, Start of Green
 Natural Cycle: 80
 Control Type: Pretimed
 Maximum v/c Ratio: 1.01
 Intersection Signal Delay: 36.8 Intersection LOS: D
 Intersection Capacity Utilization 84.2% ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 26: Hetherton St/101 SB Off-Ramp & Mission Ave

Ø2 (R)	Ø4
45 s	35 s
Ø7 (R)	Ø8
7 s	35 s
Ø5	
38 s	

Lane Group	Ø7
Flash Dont Walk (s)	0.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

San Rafael Multi-Family TIS - Baseline Conditions

27: Irwin St/101 NB On-Ramp & Mission Ave

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	470	306	0	0	188	325	83	1678	39	0	0	0
Future Volume (vph)	470	306	0	0	188	325	83	1678	39	0	0	0
Ideal Flow (vphpl)	2200	1800	1800	1800	2200	2200	1800	2200	2200	1800	1800	1800
Lane Width (ft)	9	10	12	12	10	9	12	12	12	12	12	12
Storage Length (ft)	0		0	0		80	0		0	0		0
Storage Lanes	0		0	0		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor								1.00	0.96			
Frt						0.850			0.850			
Flt Protected	0.950							0.998				
Satd. Flow (prot)	1826	1631	0	0	1994	1634	0	4050	1816	0	0	0
Flt Permitted	0.521							0.998				
Satd. Flow (perm)	1002	1631	0	0	1994	1634	0	4048	1736	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						74			74			
Link Speed (mph)		25			25			25			45	
Link Distance (ft)		376			519			313			673	
Travel Time (s)		10.3			14.2			8.5			10.2	
Confl. Peds. (#/hr)							7		13			
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	500	326	0	0	200	346	88	1785	41	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	500	326	0	0	200	346	0	1873	41	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		9			9			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	*1.00	1.17	1.07	1.07	0.90	*1.00	1.07	*1.00	0.82	1.07	1.07	1.07
Turning Speed (mph)	35		9	15		35	35		35	15		9
Turn Type	pm+pt	NA			NA	Perm	Split	NA	Perm			
Protected Phases	7	4			8		2	2				
Permitted Phases	4					8			2			
Minimum Split (s)	10.0	29.0			13.0	13.0	29.0	29.0	29.0			
Total Split (s)	16.0	37.0			21.0	21.0	43.0	43.0	43.0			
Total Split (%)	20.0%	46.3%			26.3%	26.3%	53.8%	53.8%	53.8%			
Maximum Green (s)	11.8	32.8			16.8	16.8	38.8	38.8	38.8			
Yellow Time (s)	3.2	3.2			3.2	3.2	3.2	3.2	3.2			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0	1.0	1.0			
Lost Time Adjust (s)	0.0	0.0			0.0	0.0		0.0	0.0			
Total Lost Time (s)	4.2	4.2			4.2	4.2		4.2	4.2			
Lead/Lag	Lag				Lead	Lead						
Lead-Lag Optimize?												
Walk Time (s)		7.0					7.0	7.0	7.0			

San Rafael Multi-Family TIS - Baseline Conditions
 27: Irwin St/101 NB On-Ramp & Mission Ave

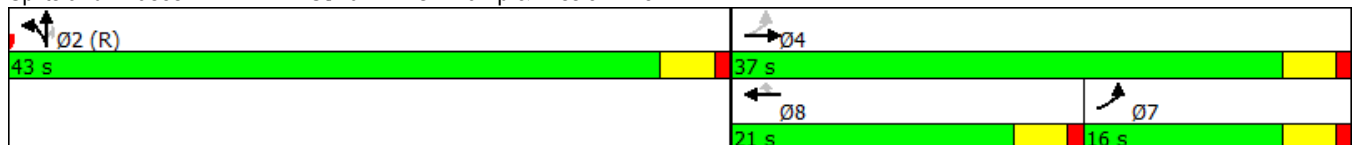
PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		15.0					15.0	15.0	15.0			
Pedestrian Calls (#/hr)		0					0	0	0			
Act Effct Green (s)	32.8	32.8			16.8	16.8		38.8	38.8			
Actuated g/C Ratio	0.41	0.41			0.21	0.21		0.48	0.48			
v/c Ratio	0.94	0.49			0.48	0.86		0.95	0.05			
Control Delay	43.2	15.3			32.2	46.9		17.8	0.1			
Queue Delay	0.0	0.2			0.0	0.0		6.9	0.0			
Total Delay	43.2	15.5			32.2	46.9		24.7	0.1			
LOS	D	B			C	D		C	A			
Approach Delay		32.3			41.5			24.2				
Approach LOS		C			D			C				
Queue Length 50th (ft)	136	86			88	133		257	0			
Queue Length 95th (ft)	m#327	m106			151	#282		m#611	m0			
Internal Link Dist (ft)		296			439			233			593	
Turn Bay Length (ft)						80						
Base Capacity (vph)	532	668			418	401		1964	880			
Starvation Cap Reductn	0	56			0	0		92	0			
Spillback Cap Reductn	0	0			0	0		0	0			
Storage Cap Reductn	0	0			0	0		0	0			
Reduced v/c Ratio	0.94	0.53			0.48	0.86		1.00	0.05			

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 53 (66%), Referenced to phase 2:NBT, Start of Green
 Natural Cycle: 65
 Control Type: Pretimed
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 29.1 Intersection LOS: C
 Intersection Capacity Utilization 92.5% ICU Level of Service F
 Analysis Period (min) 15
 * User Entered Value
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.




















Splits and Phases: 27: Irwin St/101 NB On-Ramp & Mission Ave



San Rafael Multi-Family TIS - Baseline Conditions

28: Lincoln Ave & 5th Ave

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	406	48	18	259	45	41	396	37	54	331	39
Future Volume (vph)	63	406	48	18	259	45	41	396	37	54	331	39
Ideal Flow (vphpl)	1600	1700	1700	1600	1700	1700	1600	1700	1700	1600	1700	1700
Lane Width (ft)	10	13	12	10	12	12	12	10	9	12	11	9
Storage Length (ft)	97		0	45		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99	1.00		0.99	0.99			0.99			0.99	
Frt		0.984			0.978			0.988			0.986	
Flt Protected	0.950			0.950				0.996			0.994	
Satd. Flow (prot)	1377	1672	0	1377	1606	0	0	2861	0	0	2939	0
Flt Permitted	0.508			0.365				0.882			0.835	
Satd. Flow (perm)	727	1672	0	524	1606	0	0	2524	0	0	2461	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			16			13			15	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		482			293			292			342	
Travel Time (s)		13.1			8.0			8.0			9.3	
Confl. Peds. (#/hr)	18		22	22		18	51		33	33		51
Confl. Bikes (#/hr)			2			2			10			12
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	67	432	51	19	276	48	44	421	39	57	352	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	483	0	19	324	0	0	504	0	0	450	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.35	1.11	1.15	1.35	1.15	1.15	1.24	1.26	1.31	1.24	1.20	1.31
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	26.0	26.0		25.0	25.0		28.0	28.0		28.0	28.0	
Total Split (s)	45.0	45.0		45.0	45.0		35.0	35.0		35.0	35.0	
Total Split (%)	56.3%	56.3%		56.3%	56.3%		43.8%	43.8%		43.8%	43.8%	
Maximum Green (s)	40.8	40.8		40.4	40.4		30.8	30.8		30.4	30.4	
Yellow Time (s)	3.2	3.2		3.6	3.6		3.2	3.2		3.6	3.6	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	4.2	4.2		4.6	4.6			4.2			4.6	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	

San Rafael Multi-Family TIS - Baseline Conditions

28: Lincoln Ave & 5th Ave

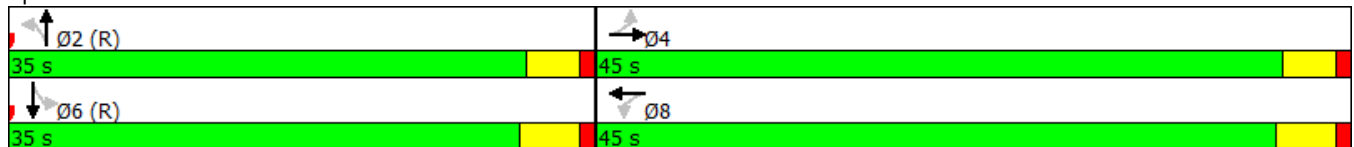
PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	14.0	14.0		13.0	13.0		16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	40.8	40.8		40.4	40.4			30.8			30.4	
Actuated g/C Ratio	0.51	0.51		0.50	0.50			0.38			0.38	
v/c Ratio	0.18	0.56		0.07	0.40			0.51			0.48	
Control Delay	12.2	16.3		7.9	8.0			8.4			11.1	
Queue Delay	0.0	0.1		0.0	0.8			0.1			0.0	
Total Delay	12.2	16.5		7.9	8.8			8.5			11.1	
LOS	B	B		A	A			A			B	
Approach Delay		15.9			8.8			8.5			11.1	
Approach LOS		B			A			A			B	
Queue Length 50th (ft)	17	152		2	32			32			46	
Queue Length 95th (ft)	40	242		10	80			49			57	
Internal Link Dist (ft)		402			213			212			262	
Turn Bay Length (ft)	97			45								
Base Capacity (vph)	370	858		264	818			979			944	
Starvation Cap Reductn	0	0		0	246			57			0	
Spillback Cap Reductn	0	40		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.18	0.59		0.07	0.57			0.55			0.48	

Intersection Summary


















Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 57 (71%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 55
 Control Type: Pretimed
 Maximum v/c Ratio: 0.56
 Intersection Signal Delay: 11.4 Intersection LOS: B
 Intersection Capacity Utilization 97.0% ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 28: Lincoln Ave & 5th Ave



San Rafael Multi-Family TIS - Baseline Conditions
 29: 5th Ave & Tamalpais Ave (West)

PM PEAK HOUR

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	0	406	16	0	245	16	22	16	29	9	20	11	
Future Volume (vph)	0	406	16	0	245	16	22	16	29	9	20	11	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor		1.00			1.00			0.98			0.98		
Frt		0.995			0.992			0.941			0.962		
Flt Protected								0.984			0.989		
Satd. Flow (prot)	0	1734	0	0	1730	0	0	1618	0	0	1623	0	
Flt Permitted								0.875			0.908		
Satd. Flow (perm)	0	1734	0	0	1730	0	0	1414	0	0	1490	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		3			8			31			12		
Link Speed (mph)		25			25			25			25		
Link Distance (ft)		293			72			91			337		
Travel Time (s)		8.0			2.0			2.5			9.2		
Confl. Peds. (#/hr)	4		18	18		4	23					23	
Confl. Bikes (#/hr)			2			4						5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	
Adj. Flow (vph)	0	432	17	0	261	17	23	17	31	10	21	12	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	449	0	0	278	0	0	71	0	0	43	0	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(ft)		10			10			0			0		
Link Offset(ft)		0			0			0			0		
Crosswalk Width(ft)		16			16			16			16		
Two way Left Turn Lane													
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	
Turning Speed (mph)	15		9	15		9	15		9	15		9	
Turn Type		NA			NA		Perm	NA		Perm	NA		
Protected Phases		2			4 6			8			8		
Permitted Phases							8			8			
Detector Phase		2			4 6		8	8		8	8		
Switch Phase													
Minimum Initial (s)		7.0					5.0	5.0		5.0	5.0		
Minimum Split (s)		20.0					22.0	22.0		22.0	22.0		
Total Split (s)		36.0					22.0	22.0		22.0	22.0		
Total Split (%)		45.0%					27.5%	27.5%		27.5%	27.5%		
Maximum Green (s)		30.0					16.0	16.0		16.0	16.0		
Yellow Time (s)		3.6					3.6	3.6		3.6	3.6		
All-Red Time (s)		2.4					2.4	2.4		2.4	2.4		
Lost Time Adjust (s)		0.0						0.0			0.0		
Total Lost Time (s)		6.0						6.0			6.0		
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)		3.0					1.5	1.5		1.5	1.5		
Recall Mode		C-Max					None	None		None	None		

San Rafael Multi-Family TIS - Baseline Conditions
 29: 5th Ave & Tamalpais Ave (West)

PM PEAK HOUR

Lane Group	Ø4	Ø6
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	4	6
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	8.0
Minimum Split (s)	22.0	20.0
Total Split (s)	22.0	36.0
Total Split (%)	28%	45%
Maximum Green (s)	16.0	30.0
Yellow Time (s)	3.6	3.6
All-Red Time (s)	2.4	2.4
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	1.5	3.0
Recall Mode	None	C-Max

San Rafael Multi-Family TIS - Baseline Conditions
 29: 5th Ave & Tamalpais Ave (West)

PM PEAK HOUR

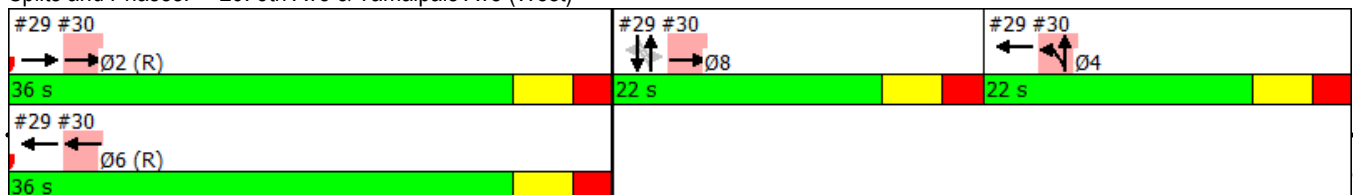


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		7.0					9.0	9.0		9.0	9.0	
Pedestrian Calls (#/hr)		13					13	13		13	13	
Act Effct Green (s)		44.9			59.6			8.4			8.4	
Actuated g/C Ratio		0.56			0.74			0.10			0.10	
v/c Ratio		0.46			0.22			0.41			0.26	
Control Delay		8.6			0.9			17.9			23.7	
Queue Delay		0.4			0.0			0.0			0.0	
Total Delay		9.0			0.9			17.9			23.7	
LOS		A			A			B			C	
Approach Delay		9.0			0.9			17.9			23.7	
Approach LOS		A			A			B			C	
90th %ile Green (s)		30.0					16.0	16.0		16.0	16.0	
90th %ile Term Code		Coord					Ped	Ped		Ped	Ped	
70th %ile Green (s)		44.3					8.8	8.8		8.8	8.8	
70th %ile Term Code		Coord					Gap	Gap		Gap	Gap	
50th %ile Green (s)		48.5					6.2	6.2		6.2	6.2	
50th %ile Term Code		Coord					Gap	Gap		Gap	Gap	
30th %ile Green (s)		49.9					5.7	5.7		5.7	5.7	
30th %ile Term Code		Coord					Gap	Gap		Gap	Gap	
10th %ile Green (s)		51.6					5.1	5.1		5.1	5.1	
10th %ile Term Code		Coord					Gap	Gap		Gap	Gap	
Queue Length 50th (ft)		56			2			16			16	
Queue Length 95th (ft)		176			0			43			m34	
Internal Link Dist (ft)		213			1			11			257	
Turn Bay Length (ft)												
Base Capacity (vph)		973			1291			307			307	
Starvation Cap Reductn		167			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.56			0.22			0.23			0.14	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 20 (25%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.46
 Intersection Signal Delay: 7.8 Intersection LOS: A
 Intersection Capacity Utilization 42.7% ICU Level of Service A
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 29: 5th Ave & Tamalpais Ave (West)



















San Rafael Multi-Family TIS - Baseline Conditions
 29: 5th Ave & Tamalpais Ave (West)

PM PEAK HOUR

Lane Group	Ø4	Ø6
Walk Time (s)	7.0	7.0
Flash Dont Walk (s)	9.0	7.0
Pedestrian Calls (#/hr)	13	13
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
90th %ile Green (s)	16.0	30.0
90th %ile Term Code	Ped	Coord
70th %ile Green (s)	8.9	44.3
70th %ile Term Code	Gap	Coord
50th %ile Green (s)	7.3	48.5
50th %ile Term Code	Gap	Coord
30th %ile Green (s)	6.4	49.9
30th %ile Term Code	Gap	Coord
10th %ile Green (s)	5.3	51.6
10th %ile Term Code	Gap	Coord
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

San Rafael Multi-Family TIS - Baseline Conditions
 30: 5th Ave & Tamalpais Ave (East)

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	444	0	0	250	8	11	20	31	0	0	0
Future Volume (vph)	0	444	0	0	250	8	11	20	31	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					1.00			0.98				
Frt					0.996			0.932				
Flt Protected								0.991				
Satd. Flow (prot)	0	1748	0	0	1739	0	0	1582	0	0	0	0
Flt Permitted								0.991				
Satd. Flow (perm)	0	1748	0	0	1739	0	0	1582	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					2			33				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		72			180			288			329	
Travel Time (s)		2.0			4.9			7.9			9.0	
Confl. Peds. (#/hr)	4					4			8			
Confl. Bikes (#/hr)						4						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	472	0	0	266	9	12	21	33	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	472	0	0	275	0	0	66	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA			NA		Split	NA				
Protected Phases		2 8			6		4	4				
Permitted Phases												
Detector Phase		2 8			6		4	4				
Switch Phase												
Minimum Initial (s)					8.0		5.0	5.0				
Minimum Split (s)					20.0		22.0	22.0				
Total Split (s)					36.0		22.0	22.0				
Total Split (%)					45.0%		27.5%	27.5%				
Maximum Green (s)					30.0		16.0	16.0				
Yellow Time (s)					3.6		3.6	3.6				
All-Red Time (s)					2.4		2.4	2.4				
Lost Time Adjust (s)					0.0			0.0				
Total Lost Time (s)					6.0			6.0				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)					3.0		1.5	1.5				
Recall Mode					C-Max		None	None				

San Rafael Multi-Family TIS - Baseline Conditions
 30: 5th Ave & Tamalpais Ave (East)

PM PEAK HOUR

Lane Group	Ø2	Ø8
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	2	8
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	7.0	5.0
Minimum Split (s)	20.0	22.0
Total Split (s)	36.0	22.0
Total Split (%)	45%	28%
Maximum Green (s)	30.0	16.0
Yellow Time (s)	3.6	3.6
All-Red Time (s)	2.4	2.4
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	1.5
Recall Mode	C-Max	None

San Rafael Multi-Family TIS - Baseline Conditions
 30: 5th Ave & Tamalpais Ave (East)

PM PEAK HOUR

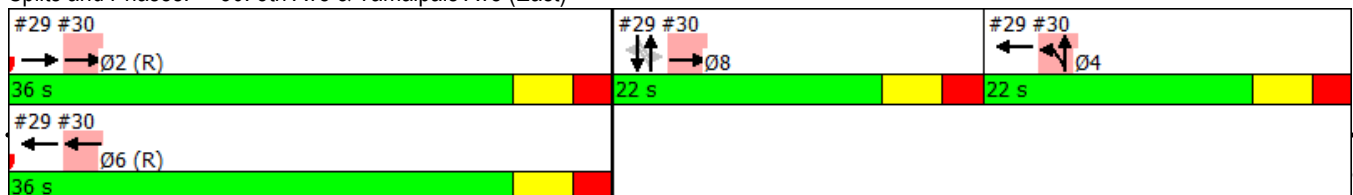


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)					7.0		7.0	7.0				
Flash Dont Walk (s)					7.0		9.0	9.0				
Pedestrian Calls (#/hr)					13		13	13				
Act Effct Green (s)		59.2			44.9			8.8				
Actuated g/C Ratio		0.74			0.56			0.11				
v/c Ratio		0.37			0.28			0.33				
Control Delay		0.9			6.3			23.6				
Queue Delay		0.1			1.0			0.0				
Total Delay		0.9			7.2			23.6				
LOS		A			A			C				
Approach Delay		0.9			7.2			23.6				
Approach LOS		A			A			C				
90th %ile Green (s)					30.0		16.0	16.0				
90th %ile Term Code					Coord		Ped	Ped				
70th %ile Green (s)					44.3		8.9	8.9				
70th %ile Term Code					Coord		Gap	Gap				
50th %ile Green (s)					48.5		7.3	7.3				
50th %ile Term Code					Coord		Gap	Gap				
30th %ile Green (s)					49.9		6.4	6.4				
30th %ile Term Code					Coord		Gap	Gap				
10th %ile Green (s)					51.6		5.3	5.3				
10th %ile Term Code					Coord		Gap	Gap				
Queue Length 50th (ft)		2			29			16				
Queue Length 95th (ft)		2			92			m48				
Internal Link Dist (ft)		1			100			208			249	
Turn Bay Length (ft)												
Base Capacity (vph)		1461			976			342				
Starvation Cap Reductn		0			463			0				
Spillback Cap Reductn		189			0			3				
Storage Cap Reductn		0			0			0				
Reduced v/c Ratio		0.37			0.54			0.19				

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 20 (25%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.46
 Intersection Signal Delay: 4.9 Intersection LOS: A
 Intersection Capacity Utilization 41.0% ICU Level of Service A
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: 5th Ave & Tamalpais Ave (East)



San Rafael Multi-Family TIS - Baseline Conditions
 30: 5th Ave & Tamalpais Ave (East)



















PM PEAK HOUR

Lane Group	Ø2	Ø8
Walk Time (s)	7.0	7.0
Flash Dont Walk (s)	7.0	9.0
Pedestrian Calls (#/hr)	13	13
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
90th %ile Green (s)	30.0	16.0
90th %ile Term Code	Coord	Ped
70th %ile Green (s)	44.3	8.8
70th %ile Term Code	Coord	Gap
50th %ile Green (s)	48.5	6.2
50th %ile Term Code	Coord	Gap
30th %ile Green (s)	49.9	5.7
30th %ile Term Code	Coord	Gap
10th %ile Green (s)	51.6	5.1
10th %ile Term Code	Coord	Gap
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

San Rafael Multi-Family TIS - Baseline Conditions

31: Hetherton St & 5th Ave

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											  	
Traffic Volume (vph)	0	328	195	66	214	0	0	0	0	34	1082	95
Future Volume (vph)	0	328	195	66	214	0	0	0	0	34	1082	95
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	12	12	16	12	12	12	12	12	12	12
Storage Length (ft)	0		0	0		0	0		0	0		180
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00
Ped Bike Factor		0.99			1.00							0.95
Frt		0.950										0.850
Flt Protected					0.988						0.998	
Satd. Flow (prot)	0	1864	0	0	1957	0	0	0	0	0	4587	1322
Flt Permitted					0.616						0.998	
Satd. Flow (perm)	0	1864	0	0	1219	0	0	0	0	0	4587	1259
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		30										
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		180			388			290			325	
Travel Time (s)		4.9			10.6			7.9			8.9	
Confl. Peds. (#/hr)			8	8								13
Confl. Bikes (#/hr)			9									2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)											2	2
Adj. Flow (vph)	0	349	207	70	228	0	0	0	0	36	1151	101
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	556	0	0	298	0	0	0	0	0	1187	101
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	0.91	1.07	1.07	0.91	1.07	1.07	1.07	1.07	1.07	1.12	1.24
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA		Perm	NA					Split	NA	custom
Protected Phases		4			8					2	2	
Permitted Phases				8								5
Minimum Split (s)		31.0		31.0	31.0					31.0	31.0	28.0
Total Split (s)		40.0		40.0	40.0					40.0	40.0	33.0
Total Split (%)		50.0%		50.0%	50.0%					50.0%	50.0%	41.3%
Maximum Green (s)		35.4		35.4	35.4					35.5	35.5	28.5
Yellow Time (s)		3.6		3.6	3.6					3.5	3.5	3.5
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	1.0
Lost Time Adjust (s)		0.0			0.0						0.0	0.0
Total Lost Time (s)		4.6			4.6						4.5	4.5
Lead/Lag												Lag
Lead-Lag Optimize?												

Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Parking (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Minimum Split (s)	10.0
Total Split (s)	7.0
Total Split (%)	9%
Maximum Green (s)	4.0
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	

San Rafael Multi-Family TIS - Baseline Conditions

31: Hetherton St & 5th Ave

PM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0		7.0	7.0							7.0
Flash Dont Walk (s)		16.0		16.0	16.0							13.0
Pedestrian Calls (#/hr)		0		0	0							0
Act Effct Green (s)		35.4			35.4						35.5	28.5
Actuated g/C Ratio		0.44			0.44						0.44	0.36
v/c Ratio		0.66			0.55						0.58	0.23
Control Delay		10.5			19.7						6.6	8.6
Queue Delay		2.5			0.1						0.5	0.0
Total Delay		13.0			19.8						7.1	8.6
LOS		B			B						A	A
Approach Delay		13.0			19.8						7.2	
Approach LOS		B			B						A	
Queue Length 50th (ft)		115			120						38	13
Queue Length 95th (ft)		65			m172						m58	m20
Internal Link Dist (ft)		100			308			210			245	
Turn Bay Length (ft)												180
Base Capacity (vph)		841			539						2035	448
Starvation Cap Reductn		171			0						382	0
Spillback Cap Reductn		0			11						0	0
Storage Cap Reductn		0			0						0	0
Reduced v/c Ratio		0.83			0.56						0.72	0.23

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 60 (75%), Referenced to phase 2:SBTL, Start of Green
 Natural Cycle: 70
 Control Type: Pretimed
 Maximum v/c Ratio: 0.66
 Intersection Signal Delay: 10.5 Intersection LOS: B
 Intersection Capacity Utilization 81.0% ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 31: Hetherton St & 5th Ave


















Ø2 (R)	Ø4
40 s	40 s
Ø7	Ø8
7 s	40 s
33 s	

Lane Group	Ø7
Walk Time (s)	7.0
Flash Dont Walk (s)	0.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
<hr/> Intersection Summary	

San Rafael Multi-Family TIS - Baseline Conditions

32: Irwin St & 5th Ave

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	234	121	0	0	146	113	90	1442	14	0	0	0
Future Volume (vph)	234	121	0	0	146	113	90	1442	14	0	0	0
Ideal Flow (vphpl)	1600	1600	1800	1800	1600	1600	1600	1600	1600	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	11	12	12	12	12
Storage Length (ft)	75		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00
Ped Bike Factor	0.99				0.98			1.00				
Frt					0.941			0.999				
Flt Protected	0.950							0.997				
Satd. Flow (prot)	1284	1351	0	0	1251	0	0	4082	0	0	0	0
Flt Permitted	0.518							0.997				
Satd. Flow (perm)	690	1351	0	0	1251	0	0	4082	0	0	0	0
Right Turn on Red			No			Yes			Yes			No
Satd. Flow (RTOR)					13			2				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		388			537			279			313	
Travel Time (s)		10.6			14.6			7.6			8.5	
Confl. Peds. (#/hr)	22						22		9			
Confl. Bikes (#/hr)							3					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)	6	6			6	6						
Adj. Flow (vph)	249	129	0	0	155	120	96	1534	15	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	249	129	0	0	275	0	0	1645	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.47	1.47	1.07	1.07	1.47	1.24	1.24	1.30	1.24	1.07	1.07	1.07
Turning Speed (mph)	25		3	15		9	15		9	15		9
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Minimum Split (s)	27.0	27.0			27.0		28.0	28.0				
Total Split (s)	37.0	37.0			37.0		43.0	43.0				
Total Split (%)	46.3%	46.3%			46.3%		53.8%	53.8%				
Maximum Green (s)	32.4	32.4			32.4		38.4	38.4				
Yellow Time (s)	3.6	3.6			3.6		3.6	3.6				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)	0.0	0.0			0.0			0.0				
Total Lost Time (s)	4.6	4.6			4.6			4.6				
Lead/Lag												
Lead-Lag Optimize?												

San Rafael Multi-Family TIS - Baseline Conditions
 32: Irwin St & 5th Ave

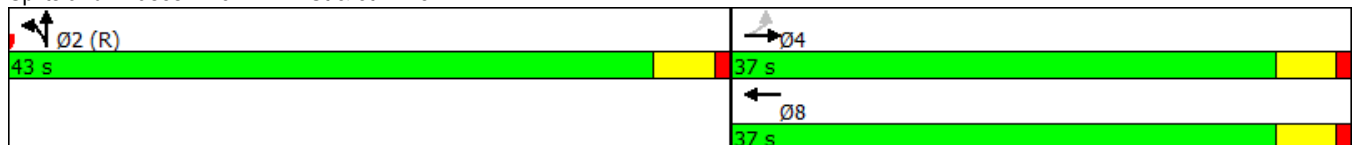
PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0			7.0		7.0	7.0				
Flash Dont Walk (s)	15.0	15.0			15.0		16.0	16.0				
Pedestrian Calls (#/hr)	0	0			0		0	0				
Act Effct Green (s)	32.4	32.4			32.4			38.4				
Actuated g/C Ratio	0.40	0.40			0.40			0.48				
v/c Ratio	0.89	0.24			0.54			0.84				
Control Delay	57.2	24.2			21.9			14.6				
Queue Delay	0.0	0.0			0.0			3.2				
Total Delay	57.2	24.2			21.9			17.8				
LOS	E	C			C			B				
Approach Delay		46.0			21.9			17.8				
Approach LOS		D			C			B				
Queue Length 50th (ft)	90	41			96			189				
Queue Length 95th (ft)	m#245	m78			171			238				
Internal Link Dist (ft)		308			457			199			233	
Turn Bay Length (ft)	75											
Base Capacity (vph)	279	547			514			1960				
Starvation Cap Reductn	0	0			0			27				
Spillback Cap Reductn	0	0			0			223				
Storage Cap Reductn	0	0			0			0				
Reduced v/c Ratio	0.89	0.24			0.54			0.95				

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 45 (56%), Referenced to phase 2:NBT, Start of Green
 Natural Cycle: 60
 Control Type: Pretimed
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 22.9 Intersection LOS: C
 Intersection Capacity Utilization 80.9% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 32: Irwin St & 5th Ave



Arterial Level of Service: EB 2nd St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Lindaro St	IV	25	20.6	23.2	43.8	0.09	7.7	E
Lincoln Ave	IV	25	21.4	24.0	45.4	0.10	7.7	E
Francisco Blvd W.	IV	25	12.2	30.7	42.9	0.05	3.9	F
US-101 SB Ramp	IV	25	14.2	24.7	38.9	0.05	5.0	F
Total	IV		68.4	102.6	171.0	0.29	6.1	F

Arterial Level of Service: WB 3rd St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Hetherton St	IV	25	19.0	9.7	28.7	0.07	9.0	D
Tamalpais Ave (West)	IV	25	14.4	56.1	70.5	0.05	2.8	F
Lincoln Ave	IV	25	13.2	21.6	34.8	0.05	5.2	F
Lindaro St	IV	25	21.4	5.1	26.5	0.10	13.2	C
Total	IV		68.0	92.5	160.5	0.27	6.1	F

Arterial Level of Service: SB Hetherton St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Mission Ave	IV	35	22.2	24.6	46.8	0.16	12.2	D
5th Ave	IV	25	16.3	6.6	22.9	0.06	9.7	D
4th St	IV	25	14.6	7.8	22.4	0.05	8.8	E
3rd St	IV	25	17.7	25.6	43.3	0.07	5.5	F
2nd St	IV	25	15.6	23.2	38.8	0.06	5.5	F
Total	IV		86.4	87.8	174.2	0.40	8.3	E

Arterial Level of Service: NB Irwin St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
2nd	IV	38	19.3	27.2	46.5	0.17	13.0	C
3rd	IV	25	14.8	16.5	31.3	0.06	6.4	F
4th St	IV	25	18.9	3.4	22.3	0.07	11.5	D
5th Ave	IV	25	14.0	14.6	28.6	0.05	6.7	F
Mission Ave	IV	25	15.7	17.8	33.5	0.06	6.4	F
Total	IV		82.7	79.5	162.2	0.41	9.0	D

Arterial Level of Service: NB Lindaro St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
2nd St	IV	25	15.8	18.9	34.7	0.06	6.2	F
3rd St	IV	25	16.7	32.7	49.4	0.06	4.6	F
Total	IV		32.5	51.6	84.1	0.12	5.3	F

Arterial Level of Service: SB Lindaro St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
3rd St	IV	25	9.9	19.1	29.0	0.04	4.7	F
2nd St	IV	25	16.7	18.1	34.8	0.06	6.5	F
Total	IV		26.6	37.2	63.8	0.10	5.7	F

Arterial Level of Service: EB Mission Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Lincoln Ave	IV	25	28.5	12.3	40.8	0.16	14.0	C
Tamalpais Ave (West)	IV	25	14.7	27.1	41.8	0.06	4.8	F
Tamalpais Ave (East)	IV	25	3.6	3.4	7.0	0.01	6.9	F
Hetheron St	IV	25	9.6	8.6	18.2	0.04	7.2	E
Irwin St	IV	25	18.9	15.3	34.2	0.07	7.5	E
Total	IV		75.3	66.7	142.0	0.33	8.5	E

Arterial Level of Service: WB Mission Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
101 NB On-Ramp	IV	25	21.6	32.2	53.8	0.10	6.6	F
Hetheron St	IV	25	18.9	8.9	27.8	0.07	9.2	D
Tamalpais Ave (East)	IV	25	9.6	32.6	42.2	0.04	3.1	F
Tamalpais Ave (West)	IV	25	3.6	2.0	5.6	0.01	8.6	E
Lincoln Ave	IV	25	14.7	54.1	68.8	0.06	2.9	F
Total	IV		68.4	129.8	198.2	0.27	5.0	F

**APPENDIX C: SYNCHRO DATA – BASELINE WITH PROJECT
CONDITIONS**



San Rafael Multi-Family TIS: Baseline With Project Conditions

1: Cijos St & 4th St

AM PEAK HOUR

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	331	18	50	414	11	24
Future Volume (vph)	331	18	50	414	11	24
Satd. Flow (prot)	1492	0	1340	1511	1390	0
Flt Permitted			0.495		0.984	
Satd. Flow (perm)	1492	0	683	1511	1384	0
Satd. Flow (RTOR)	7				26	
Lane Group Flow (vph)	371	0	53	440	38	0
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases			6			
Total Split (s)	41.0		41.0	41.0	24.0	
Total Lost Time (s)	4.2		4.2	4.2	4.0	
Act Effect Green (s)	36.8		36.8	36.8	20.0	
Actuated g/C Ratio	0.57		0.57	0.57	0.31	
v/c Ratio	0.44		0.14	0.51	0.09	
Control Delay	10.0		7.8	11.3	9.5	
Queue Delay	0.0		0.0	1.0	0.0	
Total Delay	10.0		7.8	12.3	9.5	
LOS	A		A	B	A	
Approach Delay	10.0			11.8	9.5	
Approach LOS	A			B	A	

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 65

Offset: 52 (80%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.51

Intersection Signal Delay: 11.0

Intersection LOS: B

Intersection Capacity Utilization 67.4%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Cijos St & 4th St

 41 s	 24 s
 41 s	

San Rafael Multi-Family TIS: Baseline With Project Conditions

2: Lincoln Ave & 4th St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	277	34	71	365	25	22	209	49	51	280	76
Future Volume (vph)	47	277	34	71	365	25	22	209	49	51	280	76
Satd. Flow (prot)	1351	1407	0	1391	1575	0	0	1304	0	0	1323	0
Flt Permitted	0.345			0.440				0.957			0.930	
Satd. Flow (perm)	480	1407	0	619	1575	0	0	1249	0	0	1236	0
Satd. Flow (RTOR)		10			5			21			22	
Lane Group Flow (vph)	50	331	0	76	415	0	0	297	0	0	433	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Total Split (s)	33.0	33.0		33.0	33.0		42.0	42.0		42.0	42.0	
Total Lost Time (s)	4.2	4.2		4.2	4.2			4.2			4.2	
Act Effect Green (s)	28.8	28.8		28.8	28.8			37.8			37.8	
Actuated g/C Ratio	0.38	0.38		0.38	0.38			0.50			0.50	
v/c Ratio	0.27	0.61		0.32	0.68			0.46			0.68	
Control Delay	20.9	23.7		30.7	37.3			12.3			16.3	
Queue Delay	0.0	0.5		0.0	0.7			0.1			0.4	
Total Delay	20.9	24.2		30.7	38.0			12.4			16.7	
LOS	C	C		C	D			B			B	
Approach Delay		23.8			36.9			12.4			16.7	
Approach LOS		C			D			B			B	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 43 (57%), Referenced to phase 4:SBTL and 8:NBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 23.8

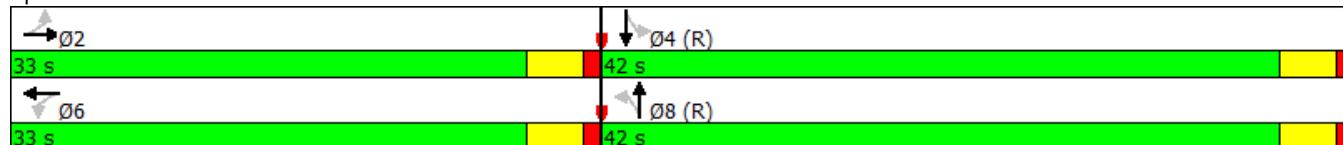
Intersection LOS: C

Intersection Capacity Utilization 84.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 2: Lincoln Ave & 4th St



San Rafael Multi-Family TIS: Baseline With Project Conditions
 3: Tamalpais Avenue (West) South Leg & 4th St

AM PEAK HOUR

Intersection						
Int Delay, s/veh	1.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↑		↗
Traffic Vol, veh/h	320	59	0	463	0	94
Future Vol, veh/h	320	59	0	463	0	94
Conflicting Peds, #/hr	0	34	0	0	0	49
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	5	0	0	6	0	3
Mvmt Flow	340	63	0	493	0	100

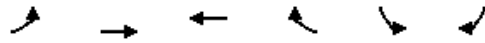
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	-	-	-	455
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.327
Pot Cap-1 Maneuver	-	-	0	-	0	603
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	562
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	562	-	-	-
HCM Lane V/C Ratio	0.178	-	-	-
HCM Control Delay (s)	12.8	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.6	-	-	-

San Rafael Multi-Family TIS: Baseline With Project Conditions
 4: 4th St & Tamalpais Ave (West) North Leg

AM PEAK HOUR

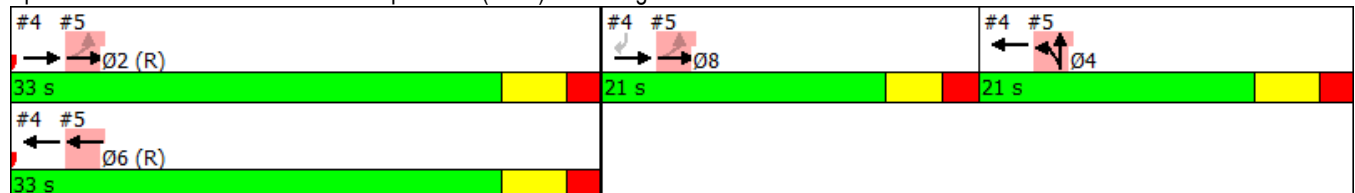


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø2	Ø4	Ø6
Lane Configurations		↑	↑			↑			
Traffic Volume (vph)	0	414	438	49	0	25			
Future Volume (vph)	0	414	438	49	0	25			
Satd. Flow (prot)	0	1714	1665	0	0	1442			
Flt Permitted									
Satd. Flow (perm)	0	1714	1665	0	0	1245			
Satd. Flow (RTOR)			15			367			
Lane Group Flow (vph)	0	440	518	0	0	27			
Turn Type		NA	NA			Perm			
Protected Phases		2 8	4 6				2	4	6
Permitted Phases						8			
Total Split (s)						21.0	33.0	21.0	33.0
Total Lost Time (s)						5.2			
Act Effct Green (s)		50.0	52.1			12.1			
Actuated g/C Ratio		0.67	0.69			0.16			
v/c Ratio		0.39	0.45			0.05			
Control Delay		10.4	3.5			0.2			
Queue Delay		0.9	0.0			0.0			
Total Delay		11.3	3.6			0.2			
LOS		B	A			A			
Approach Delay		11.3	3.6		0.2				
Approach LOS		B	A		A				

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 38 (51%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 6.9
 Intersection LOS: A
 Intersection Capacity Utilization 48.5%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 4: 4th St & Tamalpais Ave (West) North Leg



San Rafael Multi-Family TIS: Baseline With Project Conditions
 5: 4th St & Tamalpais Avenue (East)

AM PEAK HOUR

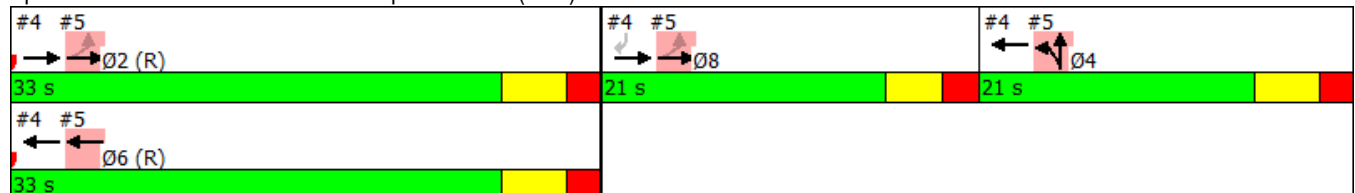
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	413	0	0	487	57	0	0	0	0	0	0
Future Volume (vph)	1	413	0	0	487	57	0	0	0	0	0	0
Satd. Flow (prot)	0	1714	0	0	1667	0	0	1800	0	0	0	0
Flt Permitted		0.999										
Satd. Flow (perm)	0	1713	0	0	1667	0	0	1800	0	0	0	0
Satd. Flow (RTOR)					9							
Lane Group Flow (vph)	0	440	0	0	579	0	0	0	0	0	0	0
Turn Type	Perm	NA			NA							
Protected Phases		2 8			6		4	4				
Permitted Phases	2 8											
Total Split (s)					33.0		21.0	21.0				
Total Lost Time (s)					5.6			5.6				
Act Effect Green (s)		50.0			32.7							
Actuated g/C Ratio		0.67			0.44							
v/c Ratio		0.39			0.79							
Control Delay		1.2			29.3							
Queue Delay		0.0			3.4							
Total Delay		1.2			32.6							
LOS		A			C							
Approach Delay		1.2			32.6							
Approach LOS		A			C							

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 38 (51%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 19.1
 Intersection Capacity Utilization 50.5%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 5: 4th St & Tamalpais Avenue (East)



San Rafael Multi-Family TIS: Baseline With Project Conditions
 5: 4th St & Tamalpais Avenue (East)

AM PEAK HOUR

Lane Group	Ø2	Ø8
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Satd. Flow (RTOR)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	8
Permitted Phases		
Total Split (s)	33.0	21.0
Total Lost Time (s)		
Act Effect Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

San Rafael Multi-Family TIS: Baseline With Project Conditions
6: Hetherton St & 4th St

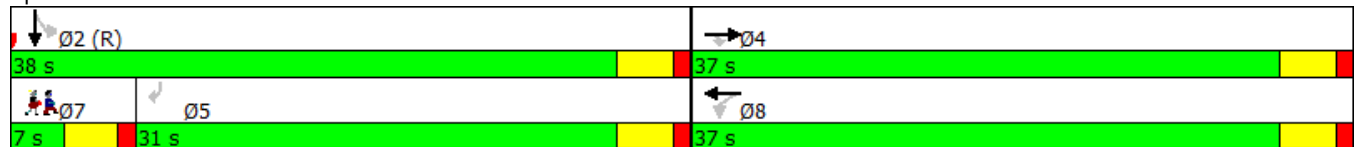
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕↕↕	↗
Traffic Volume (vph)	0	284	130	176	312	0	0	0	0	110	964	234
Future Volume (vph)	0	284	130	176	312	0	0	0	0	110	964	234
Satd. Flow (prot)	0	1806	1298	1862	1626	0	0	0	0	0	4503	1348
Flt Permitted				0.500							0.995	
Satd. Flow (perm)	0	1806	1241	963	1626	0	0	0	0	0	4499	1275
Satd. Flow (RTOR)			76									
Lane Group Flow (vph)	0	302	138	187	332	0	0	0	0	0	1143	249
Turn Type		NA	Perm	Perm	NA					Perm	NA	custom
Protected Phases		4			8						2	
Permitted Phases			4		8					2		5
Total Split (s)		37.0	37.0	37.0	37.0					38.0	38.0	31.0
Total Lost Time (s)		4.2	4.2	4.2	4.2						4.2	4.2
Act Effect Green (s)		32.8	32.8	32.8	32.8						33.8	26.8
Actuated g/C Ratio		0.44	0.44	0.44	0.44						0.45	0.36
v/c Ratio		0.38	0.24	0.44	0.47						0.56	0.55
Control Delay		7.1	2.0	17.6	16.2						7.0	13.8
Queue Delay		1.4	1.1	0.0	0.0						0.2	75.9
Total Delay		8.4	3.1	17.6	16.2						7.2	89.7
LOS		A	A	B	B						A	F
Approach Delay		6.7			16.7						21.9	
Approach LOS		A			B						C	

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 0 (0%), Referenced to phase 2:SBTL, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.56
 Intersection Signal Delay: 17.9 Intersection LOS: B
 Intersection Capacity Utilization 80.1% ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 6: Hetherton St & 4th St



Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Total Split (s)	7.0
Total Lost Time (s)	
Act Effect Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

San Rafael Multi-Family TIS: Baseline With Project Conditions

7: Irwin St & 4th St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	227	0	0	338	58	155	1155	47	0	0	0
Future Volume (vph)	162	227	0	0	338	58	155	1155	47	0	0	0
Satd. Flow (prot)	1605	1782	0	0	1519	0	1399	2880	0	0	0	0
Flt Permitted	0.338						0.950					
Satd. Flow (perm)	569	1782	0	0	1519	0	1399	2880	0	0	0	0
Satd. Flow (RTOR)					13			8				
Lane Group Flow (vph)	172	241	0	0	422	0	165	1279	0	0	0	0
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Total Split (s)	33.0	33.0			33.0		42.0	42.0				
Total Lost Time (s)	4.2	4.2			4.2		4.2	4.2				
Act Effect Green (s)	28.8	28.8			28.8		37.8	37.8				
Actuated g/C Ratio	0.38	0.38			0.38		0.50	0.50				
v/c Ratio	0.79	0.35			0.71		0.23	0.88				
Control Delay	39.1	10.9			27.2		7.1	15.0				
Queue Delay	0.0	0.0			0.0		0.0	5.1				
Total Delay	39.1	10.9			27.2		7.1	20.1				
LOS	D	B			C		A	C				
Approach Delay		22.7			27.2			18.7				
Approach LOS		C			C			B				

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 4 (5%), Referenced to phase 2:NBT, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 21.0

Intersection LOS: C

Intersection Capacity Utilization 80.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 7: Irwin St & 4th St



San Rafael Multi-Family TIS: Baseline With Project Conditions

8: Lindaro St & 3rd St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	478	1487	20	76	8	0	0	28	10
Future Volume (vph)	0	0	0	478	1487	20	76	8	0	0	28	10
Satd. Flow (prot)	0	0	0	1455	4151	0	0	1504	0	0	1542	0
Flt Permitted				0.950				0.746				
Satd. Flow (perm)	0	0	0	1403	4151	0	0	1172	0	0	1542	0
Satd. Flow (RTOR)					5						11	
Lane Group Flow (vph)	0	0	0	509	1603	0	0	90	0	0	41	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8			4	
Permitted Phases				6			8					
Total Split (s)				50.0	50.0		25.0	25.0			25.0	
Total Lost Time (s)				4.2	4.2			4.2			4.2	
Act Effect Green (s)				45.8	45.8			20.8			20.8	
Actuated g/C Ratio				0.61	0.61			0.28			0.28	
v/c Ratio				0.59	0.63			0.28			0.09	
Control Delay				5.0	3.9			15.1			16.8	
Queue Delay				0.5	0.0			0.0			0.2	
Total Delay				5.5	3.9			15.1			17.0	
LOS				A	A			B			B	
Approach Delay					4.3			15.1			17.0	
Approach LOS					A			B			B	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 63 (84%), Referenced to phase 6:WBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 4.9

Intersection LOS: A

Intersection Capacity Utilization 53.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 8: Lindaro St & 3rd St



San Rafael Multi-Family TIS: Baseline With Project Conditions
 9: Ritter St & 3rd St

AM PEAK HOUR

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑↑↑	↖	↗
Traffic Vol, veh/h	0	0	0	1768	68	0
Future Vol, veh/h	0	0	0	1768	68	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	25
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	4	3	0
Mvmt Flow	0	0	0	1881	72	0

Major/Minor	Major2	Minor1
Conflicting Flow All	-	752
Stage 1	-	0
Stage 2	-	752
Critical Hdwy	-	5.76
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	6.06
Follow-up Hdwy	-	3.83
Pot Cap-1 Maneuver	0	410
Stage 1	0	-
Stage 2	0	385
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	410
Mov Cap-2 Maneuver	-	410
Stage 1	-	-
Stage 2	-	385

Approach	WB	NB
HCM Control Delay, s	0	15.7
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	NBLn2	WBT
Capacity (veh/h)	410	-	-
HCM Lane V/C Ratio	0.176	-	-
HCM Control Delay (s)	15.7	0	-
HCM Lane LOS	C	A	-
HCM 95th %tile Q(veh)	0.6	-	-

San Rafael Multi-Family TIS: Baseline With Project Conditions
 10: 3rd St & Cijos St

AM PEAK HOUR

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑			↑
Traffic Vol, veh/h	0	0	1711	33	0	57
Future Vol, veh/h	0	0	1711	33	0	57
Conflicting Peds, #/hr	0	0	0	28	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	-	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	4	3	0	6
Mvmt Flow	0	0	1820	35	0	61

Major/Minor	Major2	Minor2
Conflicting Flow All	-	0
Stage 1	-	-
Stage 2	-	-
Critical Hdwy	-	-
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	-	-
Pot Cap-1 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	-
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

Approach	WB	SB
HCM Control Delay, s	0	28.8
HCM LOS		D

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	211
HCM Lane V/C Ratio	-	-	0.287
HCM Control Delay (s)	-	-	28.8
HCM Lane LOS	-	-	D
HCM 95th %tile Q(veh)	-	-	1.1

San Rafael Multi-Family TIS: Baseline With Project Conditions

11: Lincoln Ave & 3rd St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	309	1565	72	40	211	0	0	258	129
Future Volume (vph)	0	0	0	309	1565	72	40	211	0	0	258	129
Satd. Flow (prot)	0	0	0	0	4129	0	0	1300	0	0	1177	0
Flt Permitted					0.992			0.752				
Satd. Flow (perm)	0	0	0	0	4100	0	0	982	0	0	1177	0
Satd. Flow (RTOR)					12						15	
Lane Group Flow (vph)	0	0	0	0	2071	0	0	267	0	0	411	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8			4	
Permitted Phases				6			8					
Total Split (s)				46.0	46.0		29.0	29.0			29.0	
Total Lost Time (s)					4.5			4.5			4.5	
Act Effect Green (s)					41.5			24.5			24.5	
Actuated g/C Ratio					0.55			0.33			0.33	
v/c Ratio					0.91			0.83			1.04	
Control Delay					22.8			46.3			81.6	
Queue Delay					46.0			0.0			0.0	
Total Delay					68.8			46.3			81.6	
LOS					E			D			F	
Approach Delay					68.8			46.3			81.6	
Approach LOS					E			D			F	

Intersection Summary

Cycle Length: 75	
Actuated Cycle Length: 75	
Offset: 20 (27%), Referenced to phase 4:SBT and 8:NBTL, Start of Green	
Control Type: Pretimed	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 68.5	Intersection LOS: E
Intersection Capacity Utilization 99.2%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 11: Lincoln Ave & 3rd St



San Rafael Multi-Family TIS: Baseline With Project Conditions

12: Tamalpais Ave (West) & 3rd St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	259	1884	35	43	65	0	0	46	21
Future Volume (vph)	0	0	0	259	1884	35	43	65	0	0	46	21
Satd. Flow (prot)	0	0	0	0	4148	0	1161	1402	0	0	1339	0
Flt Permitted					0.994		0.711					
Satd. Flow (perm)	0	0	0	0	4063	0	847	1402	0	0	1339	0
Satd. Flow (RTOR)					4						8	
Lane Group Flow (vph)	0	0	0	0	2317	0	46	69	0	0	71	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			4			8	
Permitted Phases				6			4					
Total Split (s)				63.1	63.1		26.9	26.9			26.9	
Total Lost Time (s)					11.6		7.6	7.6			7.6	
Act Effect Green (s)					51.5		19.3	19.3			19.3	
Actuated g/C Ratio					0.57		0.21	0.21			0.21	
v/c Ratio					1.00		0.25	0.23			0.24	
Control Delay					37.9		33.8	31.7			28.9	
Queue Delay					38.7		0.0	0.0			0.0	
Total Delay					76.7		33.8	31.7			28.9	
LOS					E		C	C			C	
Approach Delay					76.7			32.5			28.9	
Approach LOS					E			C			C	

Intersection Summary

Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 26 (29%), Referenced to phase 6:WBTL, Start of Green	
Control Type: Pretimed	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 73.3	Intersection LOS: E
Intersection Capacity Utilization 134.1%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 12: Tamalpais Ave (West) & 3rd St



San Rafael Multi-Family TIS: Baseline With Project Conditions
 13: Tamalpais Ave (East) & 3rd St

AM PEAK HOUR

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑↑↑		↑					
Traffic Vol, veh/h	0	0	0	15	2158	0	8	0	0	0	0	0
Future Vol, veh/h	0	0	0	15	2158	0	8	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	44	0	16	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	93	4	0	100	0	0	0	0	0
Mvmt Flow	0	0	0	16	2296	0	9	0	0	0	0	0

Major/Minor	Major1		Major2		Minor1				
Conflicting Flow All	-	0	-	45	0	0	995	-	-
Stage 1	-	-	-	-	-	-	45	-	-
Stage 2	-	-	-	-	-	-	950	-	-
Critical Hdwy	-	-	-	5.495	-	-	7.55	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.9	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.5	-	-
Follow-up Hdwy	-	-	-	-3.0835	-	-	4.6	-	-
Pot Cap-1 Maneuver	0	-	0	1111	-	-	172	0	0
Stage 1	0	-	0	-	-	-	739	0	0
Stage 2	0	-	0	-	-	-	187	0	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1111	-	-	166	0	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	166	0	-
Stage 1	-	-	-	-	-	-	712	0	-
Stage 2	-	-	-	-	-	-	187	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	27.9
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	WBL	WBT	WBR
Capacity (veh/h)	166	-	1111	-	-
HCM Lane V/C Ratio	0.051	-	0.014	-	-
HCM Control Delay (s)	27.9	-	8.3	0	-
HCM Lane LOS	D	-	A	A	-
HCM 95th %tile Q(veh)	0.2	-	0	-	-

San Rafael Multi-Family TIS: Baseline With Project Conditions

14: Hetherton St & 3rd St

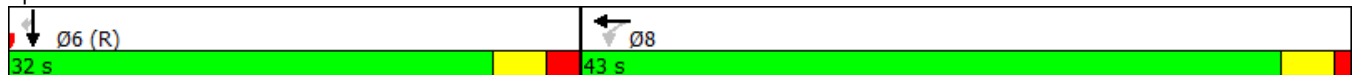
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	412	1654	0	0	0	0	0	758	512
Future Volume (vph)	0	0	0	412	1654	0	0	0	0	0	758	512
Satd. Flow (prot)	0	0	0	1425	4177	0	0	0	0	0	4314	1330
Flt Permitted				0.950								
Satd. Flow (perm)	0	0	0	1362	4177	0	0	0	0	0	4314	1223
Satd. Flow (RTOR)												15
Lane Group Flow (vph)	0	0	0	438	1760	0	0	0	0	0	806	545
Turn Type				Perm	NA						NA	Perm
Protected Phases					8						6	
Permitted Phases				8								6
Total Split (s)				43.0	43.0						32.0	32.0
Total Lost Time (s)				4.0	4.0						5.0	5.0
Act Effect Green (s)				39.0	39.0						27.0	27.0
Actuated g/C Ratio				0.52	0.52						0.36	0.36
v/c Ratio				0.62	0.81						0.52	1.21
Control Delay				11.4	11.8						13.3	132.9
Queue Delay				0.5	0.4						0.1	0.0
Total Delay				11.9	12.2						13.4	132.9
LOS				B	B						B	F
Approach Delay					12.2						61.6	
Approach LOS					B						E	

Intersection Summary

Cycle Length: 75	
Actuated Cycle Length: 75	
Offset: 3 (4%), Referenced to phase 6:SBT, Start of Green	
Control Type: Pretimed	
Maximum v/c Ratio: 1.21	
Intersection Signal Delay: 31.0	Intersection LOS: C
Intersection Capacity Utilization 109.2%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 14: Hetherton St & 3rd St



San Rafael Multi-Family TIS: Baseline With Project Conditions

15: Irwin St & 3rd St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑	↑	↘	↑↑↑				
Traffic Volume (vph)	0	0	0	0	1079	135	1025	1236	0	0	0	0
Future Volume (vph)	0	0	0	0	1079	135	1025	1236	0	0	0	0
Satd. Flow (prot)	0	0	0	0	4410	1395	1307	4216	0	0	0	0
Flt Permitted							0.950	0.986				
Satd. Flow (perm)	0	0	0	0	4410	1352	1307	4216	0	0	0	0
Satd. Flow (RTOR)						41	22	22				
Lane Group Flow (vph)	0	0	0	0	1148	144	578	1827	0	0	0	0
Turn Type					NA	Perm	Split	NA				
Protected Phases					8		2	2				
Permitted Phases						8						
Total Split (s)					30.0	30.0	45.0	45.0				
Total Lost Time (s)					4.5	4.5	4.5	4.5				
Act Effect Green (s)					25.5	25.5	40.5	40.5				
Actuated g/C Ratio					0.34	0.34	0.54	0.54				
v/c Ratio					0.77	0.30	0.81	0.80				
Control Delay					26.2	14.9	18.4	13.6				
Queue Delay					0.1	0.0	2.7	1.9				
Total Delay					26.3	14.9	21.1	15.5				
LOS					C	B	C	B				
Approach Delay					25.1			16.8				
Approach LOS					C			B				

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 73 (97%), Referenced to phase 2:NBTL, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 19.7 Intersection LOS: B
 Intersection Capacity Utilization 92.0% ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 15: Irwin St & 3rd St



San Rafael Multi-Family TIS: Baseline With Project Conditions

16: Lindaro St & 2nd St

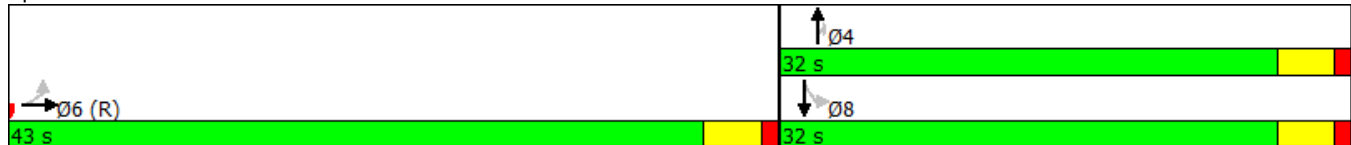
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	2252	43	0	0	0	0	55	186	57	447	0
Future Volume (vph)	33	2252	43	0	0	0	0	55	186	57	447	0
Satd. Flow (prot)	0	5182	0	0	0	0	0	1547	1186	1341	1426	0
Flt Permitted		0.999								0.719		
Satd. Flow (perm)	0	5181	0	0	0	0	0	1547	1153	1000	1426	0
Satd. Flow (RTOR)		7							17			
Lane Group Flow (vph)	0	2477	0	0	0	0	0	59	198	61	476	0
Turn Type	Perm	NA						NA	Perm	Perm	NA	
Protected Phases		6						4			8	
Permitted Phases	6								4	8		
Total Split (s)	43.0	43.0						32.0	32.0	32.0	32.0	
Total Lost Time (s)		4.2						4.2	4.2	4.2	4.2	
Act Effect Green (s)		38.8						27.8	27.8	27.8	27.8	
Actuated g/C Ratio		0.52						0.37	0.37	0.37	0.37	
v/c Ratio		0.92						0.10	0.45	0.16	0.90	
Control Delay		24.2						16.2	20.3	30.1	58.5	
Queue Delay		0.0						0.0	0.0	0.0	13.1	
Total Delay		24.2						16.2	20.3	30.1	71.7	
LOS		C						B	C	C	E	
Approach Delay		24.2						19.4			66.9	
Approach LOS		C						B			E	

Intersection Summary

Cycle Length: 75	
Actuated Cycle Length: 75	
Offset: 0 (0%), Referenced to phase 6:EBTL, Start of Green	
Control Type: Pretimed	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 30.8	Intersection LOS: C
Intersection Capacity Utilization 76.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 16: Lindaro St & 2nd St



San Rafael Multi-Family TIS: Baseline With Project Conditions
 17: Lincoln Ave & Ritter St

AM PEAK HOUR

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗					↖			↕	
Traffic Vol, veh/h	0	0	0	0	0	0	50	235	3	45	499	26
Future Vol, veh/h	0	0	0	0	0	0	50	235	3	45	499	26
Conflicting Peds, #/hr	0	0	0	0	0	0	12	0	0	0	0	12
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	4	5	0	6	2	0
Mvmt Flow	0	0	0	0	0	0	53	250	3	48	531	28

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	-	-	557	571	0	0	253	0	0
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.2	4.14	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	2.236	-	-	2.254	-	-
Pot Cap-1 Maneuver	0	0	534	992	-	-	1289	-	-
Stage 1	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	0	529	992	-	-	1289	-	-
Mov Cap-2 Maneuver	-	0	-	-	-	-	-	-	-
Stage 1	-	0	-	-	-	-	-	-	-
Stage 2	-	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	1.5	0.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	992	-	-	-	1289	-	-
HCM Lane V/C Ratio	0.054	-	-	-	0.037	-	-
HCM Control Delay (s)	8.8	0	-	0	7.9	0	-
HCM Lane LOS	A	A	-	A	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1	-	-

San Rafael Multi-Family TIS: Baseline With Project Conditions

18: Lincoln Ave & 2nd St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	161	2278	49	0	0	0	0	127	43	129	374	0
Future Volume (vph)	161	2278	49	0	0	0	0	127	43	129	374	0
Satd. Flow (prot)	0	5021	1221	0	0	0	0	1481	1193	0	1240	0
Flt Permitted		0.997									0.874	
Satd. Flow (perm)	0	5012	1156	0	0	0	0	1481	1174	0	1098	0
Satd. Flow (RTOR)			49						17			
Lane Group Flow (vph)	0	2594	52	0	0	0	0	135	46	0	535	0
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		6						4			8	
Permitted Phases	6		6						4	8		
Total Split (s)	44.0	44.0	44.0					31.0	31.0	31.0	31.0	
Total Lost Time (s)		4.2	4.2					4.2	4.2		4.2	
Act Effect Green (s)		39.8	39.8					26.8	26.8		26.8	
Actuated g/C Ratio		0.53	0.53					0.36	0.36		0.36	
v/c Ratio		0.98	0.08					0.26	0.11		1.36	
Control Delay		14.5	0.1					18.7	12.3		193.8	
Queue Delay		42.0	0.0					0.0	0.0		0.0	
Total Delay		56.4	0.1					18.7	12.3		193.8	
LOS		E	A					B	B		F	
Approach Delay		55.3						17.1			193.8	
Approach LOS		E						B			F	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 14 (19%), Referenced to phase 6:EBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 1.36

Intersection Signal Delay: 75.3

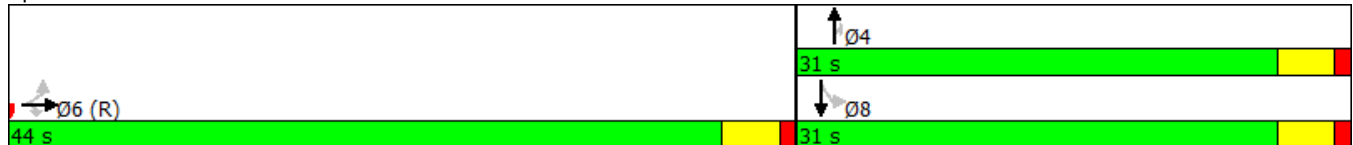
Intersection LOS: E

Intersection Capacity Utilization 92.4%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 18: Lincoln Ave & 2nd St



San Rafael Multi-Family TIS: Baseline With Project Conditions

19: Francisco Blvd W./Tamalpais Ave (West) & 2nd St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	2236	116	0	0	0	0	56	232	111	207	0
Future Volume (vph)	55	2236	116	0	0	0	0	56	232	111	207	0
Satd. Flow (prot)	0	5207	1232	0	0	0	0	1436	1313	1121	1375	0
Flt Permitted		0.999								0.718		
Satd. Flow (perm)	0	5196	1206	0	0	0	0	1436	1313	847	1375	0
Satd. Flow (RTOR)			95						51			
Lane Group Flow (vph)	0	2438	123	0	0	0	0	60	247	118	220	0
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		2						4			8	
Permitted Phases	2		2						4	8		
Total Split (s)	38.0	38.0	38.0					37.0	37.0	37.0	37.0	
Total Lost Time (s)		6.5	6.5					6.5	6.5	6.5	6.5	
Act Effect Green (s)		40.9	40.9					21.1	21.1	21.1	21.1	
Actuated g/C Ratio		0.55	0.55					0.28	0.28	0.28	0.28	
v/c Ratio		0.86	0.18					0.15	0.61	0.50	0.57	
Control Delay		9.9	0.9					18.2	23.5	27.9	27.5	
Queue Delay		7.2	0.0					0.0	0.0	0.0	0.0	
Total Delay		17.0	0.9					18.2	23.6	27.9	27.5	
LOS		B	A					B	C	C	C	
Approach Delay		16.2						22.5			27.7	
Approach LOS		B						C			C	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 24 (32%), Referenced to phase 2:EBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 18.0

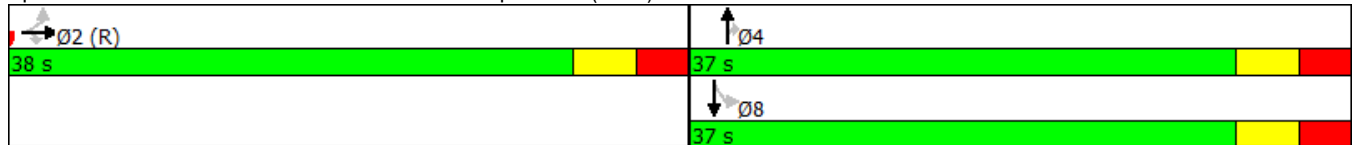
Intersection LOS: B

Intersection Capacity Utilization 134.1%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 19: Francisco Blvd W./Tamalpais Ave (West) & 2nd St



San Rafael Multi-Family TIS: Baseline With Project Conditions
 20: US-101 SB Ramp/Hetherton St & 2nd St

AM PEAK HOUR

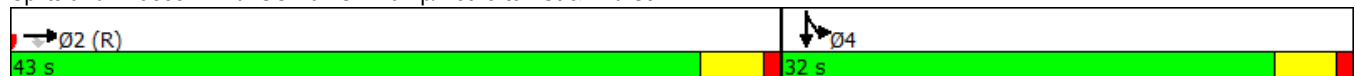


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗							↖	↑↑	
Traffic Volume (vph)	0	1315	1287	0	0	0	0	0	0	295	875	0
Future Volume (vph)	0	1315	1287	0	0	0	0	0	0	295	875	0
Satd. Flow (prot)	0	4817	1109	0	0	0	0	0	0	1366	2975	0
Flt Permitted										0.950		
Satd. Flow (perm)	0	4817	1095	0	0	0	0	0	0	1366	2975	0
Satd. Flow (RTOR)		35	35									
Lane Group Flow (vph)	0	2084	684	0	0	0	0	0	0	314	931	0
Turn Type		NA	Perm							Split	NA	
Protected Phases		2								4	4	
Permitted Phases			2									
Total Split (s)		43.0	43.0							32.0	32.0	
Total Lost Time (s)		4.5	4.5							4.5	4.5	
Act Effct Green (s)		38.5	38.5							27.5	27.5	
Actuated g/C Ratio		0.51	0.51							0.37	0.37	
v/c Ratio		1.00dr	1.18							0.63	0.85	
Control Delay		11.4	108.8							17.5	22.1	
Queue Delay		47.0	2.2							0.2	0.0	
Total Delay		58.3	111.0							17.7	22.1	
LOS		E	F							B	C	
Approach Delay		71.3									21.0	
Approach LOS		E									C	

Intersection Summary

Cycle Length: 75	
Actuated Cycle Length: 75	
Offset: 36 (48%), Referenced to phase 2:EBT, Start of Green	
Control Type: Pretimed	
Maximum v/c Ratio: 1.18	
Intersection Signal Delay: 55.7	Intersection LOS: E
Intersection Capacity Utilization 91.3%	ICU Level of Service F
Analysis Period (min) 15	
dr Defacto Right Lane. Recode with 1 though lane as a right lane.	

Splits and Phases: 20: US-101 SB Ramp/Hetherton St & 2nd St



San Rafael Multi-Family TIS: Baseline With Project Conditions

21: US-101 NB Ramp/Irwin St & 2nd St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	757	858	0	0	0	0	0	1515	456	0	0	0
Future Volume (vph)	757	858	0	0	0	0	0	1515	456	0	0	0
Satd. Flow (prot)	1274	3892	0	0	0	0	0	4200	1232	0	0	0
Flt Permitted	0.950	0.986										
Satd. Flow (perm)	1263	3882	0	0	0	0	0	4200	1209	0	0	0
Satd. Flow (RTOR)	32	32							73			
Lane Group Flow (vph)	427	1291	0	0	0	0	0	1612	485	0	0	0
Turn Type	Perm	NA						NA	Perm			
Protected Phases		4						2				
Permitted Phases	4								2			
Total Split (s)	38.0	38.0						37.0	37.0			
Total Lost Time (s)	4.2	4.2						5.2	5.2			
Act Effect Green (s)	33.8	33.8						31.8	31.8			
Actuated g/C Ratio	0.45	0.45						0.42	0.42			
v/c Ratio	0.73	0.73						0.91	0.88			
Control Delay	12.4	9.2						29.2	36.5			
Queue Delay	0.7	0.2						0.1	0.0			
Total Delay	13.1	9.4						29.3	36.5			
LOS	B	A						C	D			
Approach Delay		10.3						31.0				
Approach LOS		B						C				

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 48 (64%), Referenced to phase 4:EBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 21.7

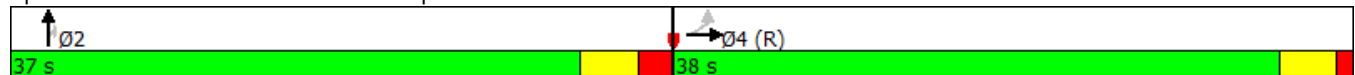
Intersection LOS: C

Intersection Capacity Utilization 83.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 21: US-101 NB Ramp/Irwin St & 2nd St



San Rafael Multi-Family TIS: Baseline With Project Conditions
 22: Nye St & Mission Ave

AM PEAK HOUR

Intersection												
Int Delay, s/veh	20.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	28	567	9	30	830	13	1	29	14	20	55	47
Future Vol, veh/h	28	567	9	30	830	13	1	29	14	20	55	47
Conflicting Peds, #/hr	8	0	3	3	0	8	4	0	6	6	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	30	603	10	32	883	14	1	31	15	21	59	50

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	905	0	0	616	0	0	1683	1640	617	1658	1637	902
Stage 1	-	-	-	-	-	-	671	671	-	962	962	-
Stage 2	-	-	-	-	-	-	1012	969	-	696	675	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	747	-	-	959	-	-	74	100	488	77	100	335
Stage 1	-	-	-	-	-	-	444	453	-	306	333	-
Stage 2	-	-	-	-	-	-	287	331	-	430	452	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	744	-	-	953	-	-	26	87	483	49	87	331
Mov Cap-2 Maneuver	-	-	-	-	-	-	26	87	-	49	87	-
Stage 1	-	-	-	-	-	-	416	424	-	285	309	-
Stage 2	-	-	-	-	-	-	183	307	-	360	423	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.3			60			250.9		
HCM LOS							F			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	110	744	-	-	953	-	-	103
HCM Lane V/C Ratio	0.426	0.04	-	-	0.033	-	-	1.26
HCM Control Delay (s)	60	10	0	-	8.9	0	-	250.9
HCM Lane LOS	F	B	A	-	A	A	-	F
HCM 95th %tile Q(veh)	1.8	0.1	-	-	0.1	-	-	8.8

San Rafael Multi-Family TIS: Baseline With Project Conditions

23: Lincoln Ave & Mission Ave

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	474	13	51	624	49	5	182	28	58	388	342
Future Volume (vph)	87	474	13	51	624	49	5	182	28	58	388	342
Satd. Flow (prot)	1427	1643	0	1463	1520	0	0	1287	0	0	1531	1263
Flt Permitted	0.112			0.461				0.990			0.934	
Satd. Flow (perm)	168	1643	0	709	1520	0	0	1275	0	0	1435	1180
Satd. Flow (RTOR)		3			6			11				302
Lane Group Flow (vph)	93	518	0	54	716	0	0	229	0	0	475	364
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4			8		8
Total Split (s)	10.0	45.0		35.0	35.0		30.0	30.0		30.0	30.0	30.0
Total Lost Time (s)	3.0	4.2		4.2	4.2			4.6			4.6	4.6
Act Effect Green (s)	42.0	40.8		32.8	32.8			25.4			25.4	25.4
Actuated g/C Ratio	0.56	0.54		0.44	0.44			0.34			0.34	0.34
v/c Ratio	0.44	0.58		0.17	1.07			0.52			0.98	0.61
Control Delay	15.1	14.6		25.5	84.6			15.4			63.7	9.3
Queue Delay	0.0	10.5		0.0	10.5			0.0			0.0	0.0
Total Delay	15.1	25.1		25.5	95.1			15.4			63.7	9.3
LOS	B	C		C	F			B			E	A
Approach Delay		23.6			90.2			15.4			40.1	
Approach LOS		C			F			B			D	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 50 (67%), Referenced to phase 4:NBTL and 8:SBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 49.4

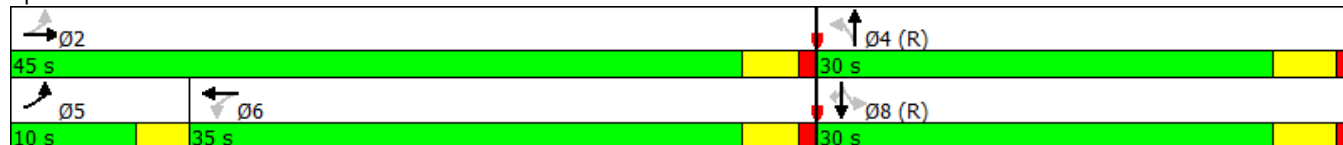
Intersection LOS: D

Intersection Capacity Utilization 105.2%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 23: Lincoln Ave & Mission Ave



San Rafael Multi-Family TIS: Baseline With Project Conditions

24: Tamalpais Ave (West) & Mission Ave

AM PEAK HOUR



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø3	Ø4	Ø6
Lane Configurations	↗			↖	↖	↗			
Traffic Volume (vph)	508	10	0	636	3	3			
Future Volume (vph)	508	10	0	636	3	3			
Satd. Flow (prot)	1741	0	0	1748	1590	0			
Flt Permitted					0.976				
Satd. Flow (perm)	1741	0	0	1748	1550	0			
Satd. Flow (RTOR)	2				3				
Lane Group Flow (vph)	551	0	0	677	6	0			
Turn Type	NA			NA	Perm				
Protected Phases	2			3 4 6			3	4	6
Permitted Phases					8				
Total Split (s)	35.0				18.0		5.0	17.0	35.0
Total Lost Time (s)	5.6				5.2				
Act Effect Green (s)	30.9			53.2	13.6				
Actuated g/C Ratio	0.41			0.71	0.18				
v/c Ratio	0.77			0.55	0.02				
Control Delay	22.8			2.3	24.3				
Queue Delay	3.6			10.0	0.0				
Total Delay	26.4			12.3	24.3				
LOS	C			B	C				
Approach Delay	26.4			12.3	24.3				
Approach LOS	C			B	C				

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 27 (36%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 18.7

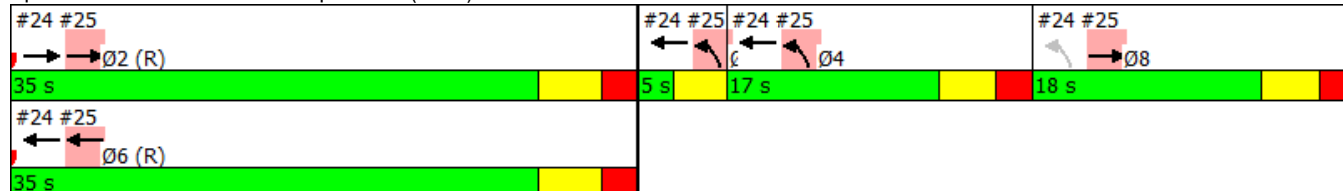
Intersection LOS: B

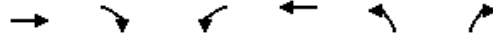
Intersection Capacity Utilization 48.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 24: Tamalpais Ave (West) & Mission Ave





Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø2	Ø3	Ø4	Ø8
Lane Configurations	↑			↑	↕					
Traffic Volume (vph)	519	0	0	636	0	15				
Future Volume (vph)	519	0	0	636	0	15				
Satd. Flow (prot)	1748	0	0	1748	1512	0				
Flt Permitted										
Satd. Flow (perm)	1748	0	0	1748	1512	0				
Satd. Flow (RTOR)					352					
Lane Group Flow (vph)	552	0	0	677	16	0				
Turn Type	NA			NA	Prot					
Protected Phases	2 8			6	3 4		2	3	4	8
Permitted Phases										
Total Split (s)				35.0			35.0	5.0	17.0	18.0
Total Lost Time (s)				5.6						
Act Effct Green (s)	49.7			30.9	16.7					
Actuated g/C Ratio	0.66			0.41	0.22					
v/c Ratio	0.48			0.94	0.03					
Control Delay	2.5			40.6	0.1					
Queue Delay	0.0			48.0	0.0					
Total Delay	2.5			88.5	0.1					
LOS	A			F	A					
Approach Delay	2.5			88.5	0.1					
Approach LOS	A			F	A					

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 27 (36%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 49.3

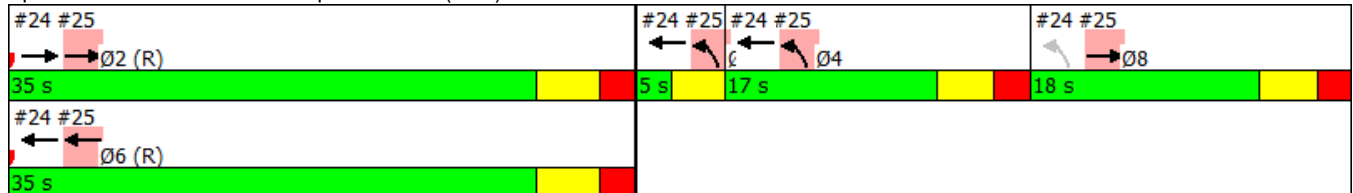
Intersection LOS: D

Intersection Capacity Utilization 46.7%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 25: Tamalpais Avenue (East) & Mission Ave



San Rafael Multi-Family TIS: Baseline With Project Conditions

26: Hetherton St/101 SB Off-Ramp & Mission Ave

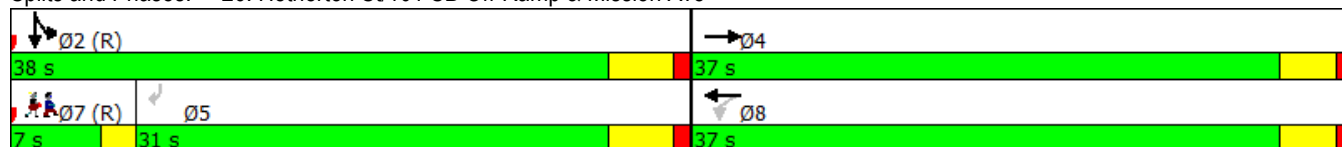
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	514	85	114	138	0	0	0	0	167	1105	476
Future Volume (vph)	0	514	85	114	138	0	0	0	0	167	1105	476
Satd. Flow (prot)	0	3024	0	0	1937	0	0	0	0	0	3297	1485
Flt Permitted					0.556						0.993	
Satd. Flow (perm)	0	3024	0	0	1099	0	0	0	0	0	3297	1406
Satd. Flow (RTOR)		29										
Lane Group Flow (vph)	0	637	0	0	268	0	0	0	0	0	1354	506
Turn Type		NA		Perm	NA					Split	NA	custom
Protected Phases		4			8					2	2	
Permitted Phases				8								5
Total Split (s)		37.0		37.0	37.0					38.0	38.0	31.0
Total Lost Time (s)		4.2			4.2						4.6	4.6
Act Effect Green (s)		32.8			32.8						33.4	26.4
Actuated g/C Ratio		0.44			0.44						0.45	0.35
v/c Ratio		0.48			0.56						0.92	1.02
Control Delay		9.4			32.6						31.9	74.1
Queue Delay		0.8			3.5						0.0	40.3
Total Delay		10.2			36.1						31.9	114.4
LOS		B			D						C	F
Approach Delay		10.2			36.1						54.3	
Approach LOS		B			D						D	

Intersection Summary

Cycle Length: 75	
Actuated Cycle Length: 75	
Offset: 58 (77%), Referenced to phase 2:SBTL and 7:Ped, Start of Green	
Control Type: Pretimed	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 42.4	Intersection LOS: D
Intersection Capacity Utilization 80.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 26: Hetherton St/101 SB Off-Ramp & Mission Ave



Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Total Split (s)	7.0
Total Lost Time (s)	
Act Effect Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

San Rafael Multi-Family TIS: Baseline With Project Conditions

27: Irwin St/101 NB On-Ramp & Mission Ave

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	461	239	0	0	200	280	66	1354	37	0	0	0
Future Volume (vph)	461	239	0	0	200	280	66	1354	37	0	0	0
Satd. Flow (prot)	1494	1631	0	0	1631	1337	0	3131	1322	0	0	0
Flt Permitted	0.534							0.998				
Satd. Flow (perm)	840	1631	0	0	1631	1337	0	3131	1260	0	0	0
Satd. Flow (RTOR)						79			79			
Lane Group Flow (vph)	490	254	0	0	213	298	0	1510	39	0	0	0
Turn Type	pm+pt	NA			NA	Prot	Split	NA	Perm			
Protected Phases	7	4			8	8	2	2				
Permitted Phases	4								2			
Total Split (s)	15.0	38.0			23.0	23.0	37.0	37.0	37.0			
Total Lost Time (s)	4.2	4.2			4.2	4.2		4.2	4.2			
Act Effect Green (s)	33.8	33.8			18.8	18.8		32.8	32.8			
Actuated g/C Ratio	0.45	0.45			0.25	0.25		0.44	0.44			
v/c Ratio	1.04	0.35			0.52	0.76		1.10	0.07			
Control Delay	73.4	13.2			29.6	33.3		70.1	0.5			
Queue Delay	0.0	0.0			0.0	0.0		0.4	0.0			
Total Delay	73.4	13.2			29.6	33.3		70.5	0.5			
LOS	E	B			C	C		E	A			
Approach Delay		52.8			31.8			68.7				
Approach LOS		D			C			E				

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 15 (20%), Referenced to phase 2:NBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 57.8

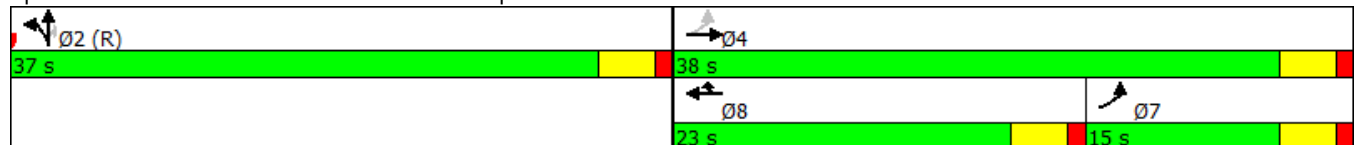
Intersection LOS: E

Intersection Capacity Utilization 97.3%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 27: Irwin St/101 NB On-Ramp & Mission Ave



San Rafael Multi-Family TIS: Baseline With Project Conditions

28: Lincoln Ave & 5th Ave

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	352	19	32	268	19	8	199	45	19	359	24
Future Volume (vph)	37	352	19	32	268	19	8	199	45	19	359	24
Satd. Flow (prot)	1377	1689	0	1377	1630	0	0	1320	0	0	1398	0
Flt Permitted	0.483			0.382				0.986			0.981	
Satd. Flow (perm)	693	1689	0	550	1630	0	0	1303	0	0	1373	0
Satd. Flow (RTOR)		4			6			20			6	
Lane Group Flow (vph)	39	394	0	34	305	0	0	269	0	0	428	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	34.0	34.0		34.0	34.0		41.0	41.0		41.0	41.0	
Total Lost Time (s)	4.6	4.6		4.6	4.6			4.6			4.6	
Act Effect Green (s)	29.4	29.4		29.4	29.4			36.4			36.4	
Actuated g/C Ratio	0.39	0.39		0.39	0.39			0.49			0.49	
v/c Ratio	0.14	0.59		0.16	0.48			0.42			0.64	
Control Delay	16.5	22.4		29.4	29.7			8.0			8.1	
Queue Delay	0.0	1.0		0.0	0.8			0.4			0.3	
Total Delay	16.5	23.4		29.4	30.5			8.3			8.5	
LOS	B	C		C	C			A			A	
Approach Delay		22.8			30.4			8.3			8.5	
Approach LOS		C			C			A			A	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 46 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 17.7

Intersection LOS: B

Intersection Capacity Utilization 76.3%

ICU Level of Service D

















Analysis Period (min) 15

Splits and Phases: 28: Lincoln Ave & 5th Ave



San Rafael Multi-Family TIS: Baseline With Project Conditions
 29: 5th Ave & Tamalpais Ave (West)

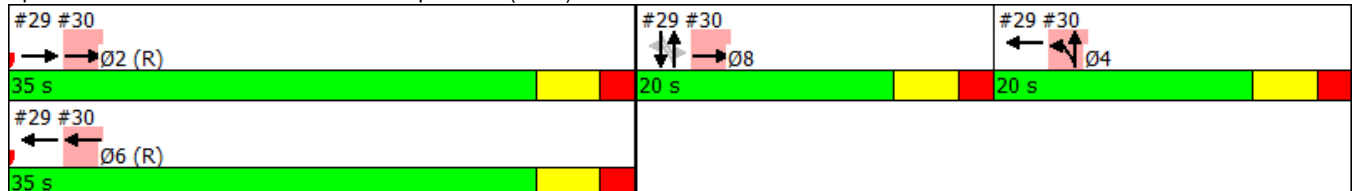
AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	377	19	0	338	77	9	8	12	10	54	18
Future Volume (vph)	0	377	19	0	338	77	9	8	12	10	54	18
Satd. Flow (prot)	0	1732	0	0	1694	0	0	1612	0	0	1665	0
Flt Permitted								0.904			0.951	
Satd. Flow (perm)	0	1732	0	0	1694	0	0	1465	0	0	1593	0
Satd. Flow (RTOR)		4			32			13			17	
Lane Group Flow (vph)	0	421	0	0	442	0	0	32	0	0	87	0
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		2			4	6		8			8	
Permitted Phases							8			8		
Total Split (s)		35.0					20.0	20.0		20.0	20.0	
Total Lost Time (s)		5.6						5.6			5.6	
Act Effect Green (s)		39.3			55.4			8.4			8.4	
Actuated g/C Ratio		0.52			0.74			0.11			0.11	
v/c Ratio		0.46			0.35			0.18			0.45	
Control Delay		10.1			0.8			15.1			31.5	
Queue Delay		1.6			0.0			0.3			1.0	
Total Delay		11.8			0.9			15.4			32.5	
LOS		B			A			B			C	
Approach Delay		11.8			0.9			15.4			32.5	
Approach LOS		B			A			B			C	

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 35 (47%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.46
 Intersection Signal Delay: 8.8
 Intersection LOS: A
 Intersection Capacity Utilization 41.0%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 29: 5th Ave & Tamalpais Ave (West)



San Rafael Multi-Family TIS: Baseline With Project Conditions
 29: 5th Ave & Tamalpais Ave (West)

AM PEAK HOUR

Lane Group	Ø4	Ø6
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Satd. Flow (RTOR)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	4	6
Permitted Phases		
Total Split (s)	20.0	35.0
Total Lost Time (s)		
Act Effect Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

San Rafael Multi-Family TIS: Baseline With Project Conditions
30: Tamalpais Avenue (East) & 5th Ave

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↗			↕				
Traffic Volume (vph)	0	399	0	0	387	8	28	2	30	0	0	0
Future Volume (vph)	0	399	0	0	387	8	28	2	30	0	0	0
Satd. Flow (prot)	0	1748	0	0	1741	0	0	1555	0	0	0	0
Flt Permitted								0.977				
Satd. Flow (perm)	0	1748	0	0	1741	0	0	1555	0	0	0	0
Satd. Flow (RTOR)					2			32				
Lane Group Flow (vph)	0	424	0	0	421	0	0	64	0	0	0	0
Turn Type		NA			NA		Split	NA				
Protected Phases		2 8			6		4	4				
Permitted Phases												
Total Split (s)					35.0		20.0	20.0				
Total Lost Time (s)					5.6			5.6				
Act Effect Green (s)		53.3			39.3			10.5				
Actuated g/C Ratio		0.71			0.52			0.14				
v/c Ratio		0.34			0.46			0.26				
Control Delay		0.8			12.5			26.4				
Queue Delay		0.0			2.0			0.0				
Total Delay		0.8			14.5			26.4				
LOS		A			B			C				
Approach Delay		0.8			14.5			26.4				
Approach LOS		A			B			C				

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 35 (47%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.46

Intersection Signal Delay: 8.9

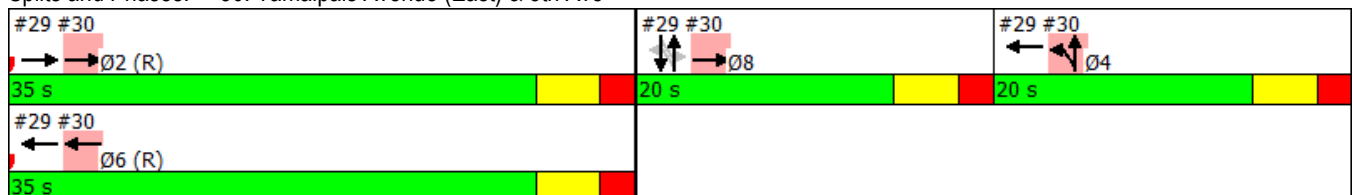
Intersection LOS: A

Intersection Capacity Utilization 37.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 30: Tamalpais Avenue (East) & 5th Ave



Lane Group	Ø2	Ø8
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Satd. Flow (RTOR)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	8
Permitted Phases		
Total Split (s)	35.0	20.0
Total Lost Time (s)		
Act Effect Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

San Rafael Multi-Family TIS: Baseline With Project Conditions

31: 5th Ave & Hetherton St

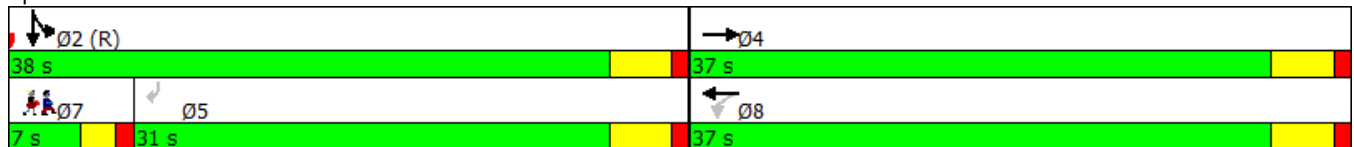
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	217	195	70	179	0	0	0	0	39	1143	159
Future Volume (vph)	0	217	195	70	179	0	0	0	0	39	1143	159
Satd. Flow (prot)	0	1838	0	0	1953	0	0	0	0	0	4587	1322
Flt Permitted					0.724						0.998	
Satd. Flow (perm)	0	1838	0	0	1433	0	0	0	0	0	4587	1266
Satd. Flow (RTOR)		25										
Lane Group Flow (vph)	0	438	0	0	264	0	0	0	0	0	1257	169
Turn Type		NA		Perm	NA					Split	NA	custom
Protected Phases		4			8					2	2	
Permitted Phases				8								5
Total Split (s)		37.0		37.0	37.0					38.0	38.0	31.0
Total Lost Time (s)		4.6			4.6						4.5	4.5
Act Effect Green (s)		32.4			32.4						33.5	26.5
Actuated g/C Ratio		0.43			0.43						0.45	0.35
v/c Ratio		0.54			0.43						0.61	0.38
Control Delay		8.6			23.3						5.3	8.0
Queue Delay		2.1			0.2						0.4	1.1
Total Delay		10.7			23.5						5.7	9.1
LOS		B			C						A	A
Approach Delay		10.7			23.5						6.1	
Approach LOS		B			C						A	

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 67 (89%), Referenced to phase 2:SBTL, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 9.2
 Intersection Capacity Utilization 74.5%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service D

Splits and Phases: 31: 5th Ave & Hetherton St



Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Total Split (s)	7.0
Total Lost Time (s)	
Act Effect Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

San Rafael Multi-Family TIS: Baseline With Project Conditions

32: 5th Ave & Irwin St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	78	0	0	138	56	112	1260	9	0	0	0
Future Volume (vph)	203	78	0	0	138	56	112	1260	9	0	0	0
Satd. Flow (prot)	1313	1383	0	0	1320	0	0	2682	0	0	0	0
Flt Permitted	0.572							0.996				
Satd. Flow (perm)	786	1383	0	0	1320	0	0	2682	0	0	0	0
Satd. Flow (RTOR)					28			1				
Lane Group Flow (vph)	216	83	0	0	207	0	0	1469	0	0	0	0
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Total Split (s)	28.0	28.0			28.0		47.0	47.0				
Total Lost Time (s)	4.6	4.6			4.6			4.6				
Act Effect Green (s)	23.4	23.4			23.4			42.4				
Actuated g/C Ratio	0.31	0.31			0.31			0.57				
v/c Ratio	0.88	0.19			0.48			0.97				
Control Delay	53.6	12.4			22.4			17.8				
Queue Delay	0.0	0.0			0.0			42.5				
Total Delay	53.6	12.4			22.4			60.3				
LOS	D	B			C			E				
Approach Delay		42.1			22.4			60.3				
Approach LOS		D			C			E				

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 7 (9%), Referenced to phase 2:NBT, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 53.6

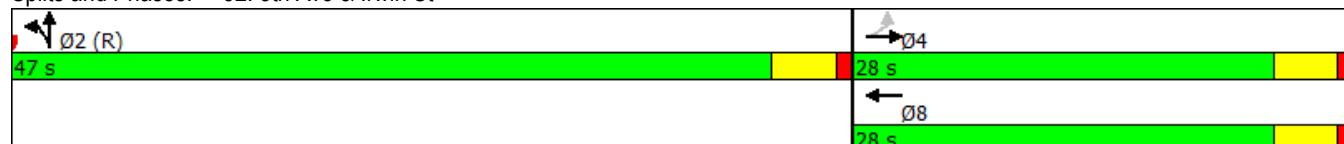
Intersection LOS: D

Intersection Capacity Utilization 90.4%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 32: 5th Ave & Irwin St



San Rafael Multi-Family TIS: Baseline With Project Conditions

1: Cijos St & 4th St

AM PEAK HOUR

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↘	↖	↗	
Traffic Volume (vph)	331	18	50	414	11	24
Future Volume (vph)	331	18	50	414	11	24
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	10	12	12	12
Storage Length (ft)		0	40		0	0
Storage Lanes		0	1		0	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.98		0.97	
Frt	0.993				0.908	
Flt Protected			0.950		0.984	
Satd. Flow (prot)	1492	0	1340	1511	1390	0
Flt Permitted			0.495		0.984	
Satd. Flow (perm)	1492	0	683	1511	1384	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	7				26	
Link Speed (mph)	25			25	25	
Link Distance (ft)	315			331	229	
Travel Time (s)	8.6			9.0	6.2	
Confl. Peds. (#/hr)		43	43		8	14
Confl. Bikes (#/hr)		7				
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	6%	11%	6%	6%	0%	0%
Parking (#/hr)	2	2	2	2	2	2
Adj. Flow (vph)	352	19	53	440	12	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	371	0	53	440	38	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			10	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.24	1.07	1.35	1.24	1.24	1.07
Turning Speed (mph)		9	15		15	9
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases			6			
Minimum Split (s)	41.0		41.0	41.0	24.0	
Total Split (s)	41.0		41.0	41.0	24.0	
Total Split (%)	63.1%		63.1%	63.1%	36.9%	
Maximum Green (s)	36.8		36.8	36.8	20.0	
Yellow Time (s)	3.2		3.2	3.2	3.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.2		4.2	4.2	4.0	
Lead/Lag						
Lead-Lag Optimize?						

San Rafael Multi-Family TIS: Baseline With Project Conditions

1: Cijos St & 4th St

AM PEAK HOUR

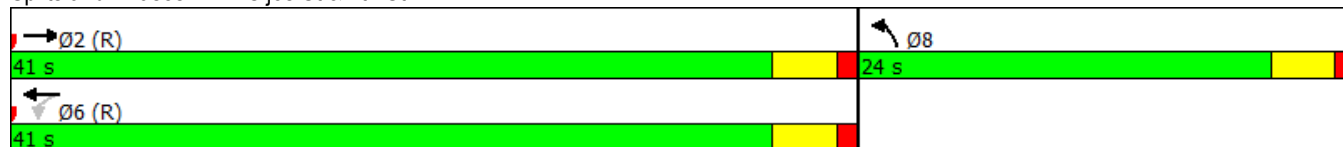


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Walk Time (s)	24.0				7.0	
Flash Dont Walk (s)	12.0				13.0	
Pedestrian Calls (#/hr)	0				0	
Act Effect Green (s)	36.8		36.8	36.8	20.0	
Actuated g/C Ratio	0.57		0.57	0.57	0.31	
v/c Ratio	0.44		0.14	0.51	0.09	
Control Delay	10.0		7.8	11.3	9.5	
Queue Delay	0.0		0.0	1.0	0.0	
Total Delay	10.0		7.8	12.3	9.5	
LOS	A		A	B	A	
Approach Delay	10.0			11.8	9.5	
Approach LOS	A			B	A	
Queue Length 50th (ft)	75		9	96	3	
Queue Length 95th (ft)	131		24	166	22	
Internal Link Dist (ft)	235			251	149	
Turn Bay Length (ft)			40			
Base Capacity (vph)	847		386	855	445	
Starvation Cap Reductn	0		0	200	0	
Spillback Cap Reductn	0		0	0	0	
Storage Cap Reductn	0		0	0	0	
Reduced v/c Ratio	0.44		0.14	0.67	0.09	

Intersection Summary

Area Type: Other
 Cycle Length: 65
 Actuated Cycle Length: 65
 Offset: 52 (80%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
 Natural Cycle: 65
 Control Type: Pretimed
 Maximum v/c Ratio: 0.51
 Intersection Signal Delay: 11.0
 Intersection Capacity Utilization 67.4%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C




















Splits and Phases: 1: Cijos St & 4th St



San Rafael Multi-Family TIS: Baseline With Project Conditions

2: Lincoln Ave & 4th St

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	277	34	71	365	25	22	209	49	51	280	76
Future Volume (vph)	47	277	34	71	365	25	22	209	49	51	280	76
Ideal Flow (vphpl)	1600	1700	1700	1600	1700	1700	1600	1700	1700	1600	1700	1700
Lane Width (ft)	10	9	12	10	12	12	12	10	8	12	10	9
Storage Length (ft)	45		0	75		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.98	0.99		0.96	1.00			0.99			0.98	
Frt		0.984			0.990			0.976			0.975	
Flt Protected	0.950			0.950				0.996			0.994	
Satd. Flow (prot)	1351	1407	0	1391	1575	0	0	1304	0	0	1323	0
Flt Permitted	0.345			0.440				0.957			0.930	
Satd. Flow (perm)	480	1407	0	619	1575	0	0	1249	0	0	1236	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			5			21			22	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		331			259			359			288	
Travel Time (s)		9.0			7.1			9.8			7.9	
Confl. Peds. (#/hr)	35		54	54		35	71		20	20		71
Confl. Bikes (#/hr)			5			1			5			4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	5%	6%	5%	2%	6%	12%	10%	5%	0%	2%	1%	4%
Parking (#/hr)							2	2	2	2	2	2
Adj. Flow (vph)	50	295	36	76	388	27	23	222	52	54	298	81
Shared Lane Traffic (%)												
Lane Group Flow (vph)	50	331	0	76	415	0	0	297	0	0	433	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.35	1.31	1.15	1.35	1.15	1.15	1.24	1.45	1.38	1.24	1.45	1.31
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	33.0	33.0		33.0	33.0		42.0	42.0		42.0	42.0	
Total Split (%)	44.0%	44.0%		44.0%	44.0%		56.0%	56.0%		56.0%	56.0%	
Maximum Green (s)	28.8	28.8		28.8	28.8		37.8	37.8		37.8	37.8	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.2	3.2		3.2	3.2	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	4.2	4.2		4.2	4.2			4.2			4.2	
Lead/Lag												
Lead-Lag Optimize?												

San Rafael Multi-Family TIS: Baseline With Project Conditions

2: Lincoln Ave & 4th St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	28.8	28.8		28.8	28.8			37.8			37.8	
Actuated g/C Ratio	0.38	0.38		0.38	0.38			0.50			0.50	
v/c Ratio	0.27	0.61		0.32	0.68			0.46			0.68	
Control Delay	20.9	23.7		30.7	37.3			12.3			16.3	
Queue Delay	0.0	0.5		0.0	0.7			0.1			0.4	
Total Delay	20.9	24.2		30.7	38.0			12.4			16.7	
LOS	C	C		C	D			B			B	
Approach Delay		23.8			36.9			12.4			16.7	
Approach LOS		C			D			B			B	
Queue Length 50th (ft)	16	117		38	214			121			87	
Queue Length 95th (ft)	44	201		67	280			m152			113	
Internal Link Dist (ft)		251			179			279			208	
Turn Bay Length (ft)	45			75								
Base Capacity (vph)	184	546		237	607			639			633	
Starvation Cap Reductn	0	43		0	42			0			4	
Spillback Cap Reductn	0	0		0	0			29			28	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.27	0.66		0.32	0.73			0.49			0.72	

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 43 (57%), Referenced to phase 4:SBTL and 8:NBTL, Start of Green

Natural Cycle: 50

Control Type: Pretimed

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 23.8

Intersection LOS: C

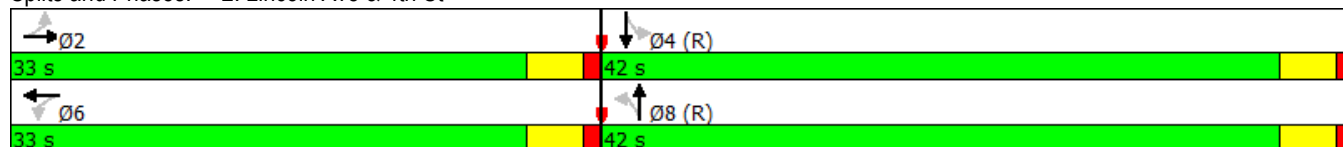
Intersection Capacity Utilization 84.1%

ICU Level of Service E

Analysis Period (min) 15

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

Splits and Phases: 2: Lincoln Ave & 4th St



San Rafael Multi-Family TIS: Baseline With Project Conditions
 3: Tamalpais Avenue (West) South Leg & 4th St

AM PEAK HOUR

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖		↗
Traffic Volume (vph)	320	59	0	463	0	94
Future Volume (vph)	320	59	0	463	0	94
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.979					0.865
Flt Protected						
Satd. Flow (prot)	1691	0	0	1698	0	1512
Flt Permitted						
Satd. Flow (perm)	1691	0	0	1698	0	1512
Link Speed (mph)	25			25	25	
Link Distance (ft)	259			60	106	
Travel Time (s)	7.1			1.6	2.9	
Confl. Peds. (#/hr)		34				49
Confl. Bikes (#/hr)		4				
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	5%	0%	0%	6%	0%	3%
Adj. Flow (vph)	340	63	0	493	0	100
Shared Lane Traffic (%)						
Lane Group Flow (vph)	403	0	0	493	0	100
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			10	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	43.8%
Analysis Period (min)	15
	ICU Level of Service A

San Rafael Multi-Family TIS: Baseline With Project Conditions
 4: 4th St & Tamalpais Ave (West) North Leg

AM PEAK HOUR



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø2	Ø4	Ø6
Lane Configurations		↑	↑			↑			
Traffic Volume (vph)	0	414	438	49	0	25			
Future Volume (vph)	0	414	438	49	0	25			
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00			
Ped Bike Factor			0.99			0.86			
Frt			0.986			0.865			
Flt Protected									
Satd. Flow (prot)	0	1714	1665	0	0	1442			
Flt Permitted									
Satd. Flow (perm)	0	1714	1665	0	0	1245			
Right Turn on Red				Yes		Yes			
Satd. Flow (RTOR)			15			367			
Link Speed (mph)		25	25		25				
Link Distance (ft)		60	60		194				
Travel Time (s)		1.6	1.6		5.3				
Confl. Peds. (#/hr)				39		50			
Confl. Bikes (#/hr)				1					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94			
Heavy Vehicles (%)	0%	5%	6%	0%	0%	8%			
Adj. Flow (vph)	0	440	466	52	0	27			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	0	440	518	0	0	27			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Left	Left	Right	Left	Right			
Median Width(ft)		12	12		0				
Link Offset(ft)		0	0		0				
Crosswalk Width(ft)		16	16		16				
Two way Left Turn Lane									
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07			
Turning Speed (mph)	15			9	15	9			
Turn Type		NA	NA			Perm			
Protected Phases		2 8	4 6				2	4	6
Permitted Phases						8			
Detector Phase		2 8	4 6			8			
Switch Phase									
Minimum Initial (s)					5.0	9.0	9.0	8.0	
Minimum Split (s)					21.0	18.6	21.0	20.6	
Total Split (s)					21.0	33.0	21.0	33.0	
Total Split (%)					28.0%	44%	28%	44%	
Maximum Green (s)					15.8	27.4	15.4	27.4	
Yellow Time (s)					3.2	3.6	3.6	3.6	
All-Red Time (s)					2.0	2.0	2.0	2.0	
Lost Time Adjust (s)					0.0				
Total Lost Time (s)					5.2				
Lead/Lag									
Lead-Lag Optimize?									
Vehicle Extension (s)					3.0	3.0	3.0	3.0	
Recall Mode					None	C-Max	None	C-Max	

San Rafael Multi-Family TIS: Baseline With Project Conditions
 4: 4th St & Tamalpais Ave (West) North Leg

AM PEAK HOUR

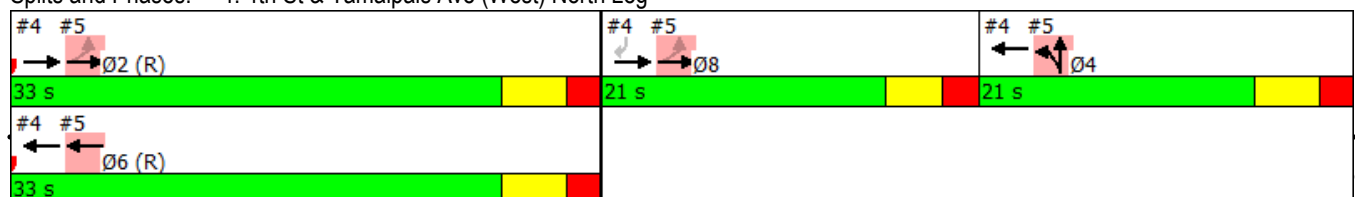


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø2	Ø4	Ø6
Walk Time (s)						4.0	7.0	4.0	7.0
Flash Dont Walk (s)						11.8	6.0	11.4	8.0
Pedestrian Calls (#/hr)						34	11	20	35
Act Effect Green (s)		50.0	52.1			12.1			
Actuated g/C Ratio		0.67	0.69			0.16			
v/c Ratio		0.39	0.45			0.05			
Control Delay		10.4	3.5			0.2			
Queue Delay		0.9	0.0			0.0			
Total Delay		11.3	3.6			0.2			
LOS		B	A			A			
Approach Delay		11.3	3.6		0.2				
Approach LOS		B	A		A				
90th %ile Green (s)						15.8	27.4	15.4	27.4
90th %ile Term Code						Max	Coord	Max	Coord
70th %ile Green (s)						15.8	27.4	15.4	27.4
70th %ile Term Code						Ped	Coord	Max	Coord
50th %ile Green (s)						11.4	31.0	16.2	31.0
50th %ile Term Code						Gap	Coord	Gap	Coord
30th %ile Green (s)						10.0	36.0	12.6	36.0
30th %ile Term Code						Gap	Coord	Gap	Coord
10th %ile Green (s)						7.4	41.7	9.5	41.7
10th %ile Term Code						Gap	Coord	Gap	Coord
Queue Length 50th (ft)		148	0			0			
Queue Length 95th (ft)		221	m19			m0			
Internal Link Dist (ft)		1	1		114				
Turn Bay Length (ft)									
Base Capacity (vph)		1227	1149			551			
Starvation Cap Reductn		498	0			0			
Spillback Cap Reductn		0	46			103			
Storage Cap Reductn		0	0			0			
Reduced v/c Ratio		0.60	0.47			0.06			

Intersection Summary
















Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 38 (51%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 6.9 Intersection LOS: A
 Intersection Capacity Utilization 48.5% ICU Level of Service A
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: 4th St & Tamalpais Ave (West) North Leg



San Rafael Multi-Family TIS: Baseline With Project Conditions
 5: 4th St & Tamalpais Avenue (East)

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	413	0	0	487	57	0	0	0	0	0	0
Future Volume (vph)	1	413	0	0	487	57	0	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99											
Frt	0.986											
Flt Protected												
Satd. Flow (prot)	0	1714	0	0	1667	0	0	1800	0	0	0	0
Flt Permitted	0.999											
Satd. Flow (perm)	0	1713	0	0	1667	0	0	1800	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	9											
Link Speed (mph)	25				25				25		25	
Link Distance (ft)	60				167				351		288	
Travel Time (s)	1.6				4.6				9.6		7.9	
Confl. Peds. (#/hr)	31							31			21	
Confl. Bikes (#/hr)	6											
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	5%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	1	439	0	0	518	61	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	440	0	0	579	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12				0				0		0	
Link Offset(ft)	0				0				5		0	
Crosswalk Width(ft)	16				16				16		16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15	9		15	9		15	9		15	9	
Turn Type	Perm	NA		NA								
Protected Phases	2 8				6		4		4			
Permitted Phases	2 8											
Detector Phase	2 8	2 8			6		4		4			
Switch Phase												
Minimum Initial (s)					8.0		9.0		9.0			
Minimum Split (s)					20.6		21.0		21.0			
Total Split (s)					33.0		21.0		21.0			
Total Split (%)					44.0%		28.0%		28.0%			
Maximum Green (s)					27.4		15.4		15.4			
Yellow Time (s)					3.6		3.6		3.6			
All-Red Time (s)					2.0		2.0		2.0			
Lost Time Adjust (s)					0.0		0.0		0.0			
Total Lost Time (s)					5.6		5.6		5.6			
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)					3.0		3.0		3.0			
Recall Mode					C-Max		None		None			

San Rafael Multi-Family TIS: Baseline With Project Conditions
 5: 4th St & Tamalpais Avenue (East)

AM PEAK HOUR

Lane Group	Ø2	Ø8
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	2	8
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	9.0	5.0
Minimum Split (s)	18.6	21.0
Total Split (s)	33.0	21.0
Total Split (%)	44%	28%
Maximum Green (s)	27.4	15.8
Yellow Time (s)	3.6	3.2
All-Red Time (s)	2.0	2.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	3.0
Recall Mode	C-Max	None

San Rafael Multi-Family TIS: Baseline With Project Conditions
 5: 4th St & Tamalpais Avenue (East)

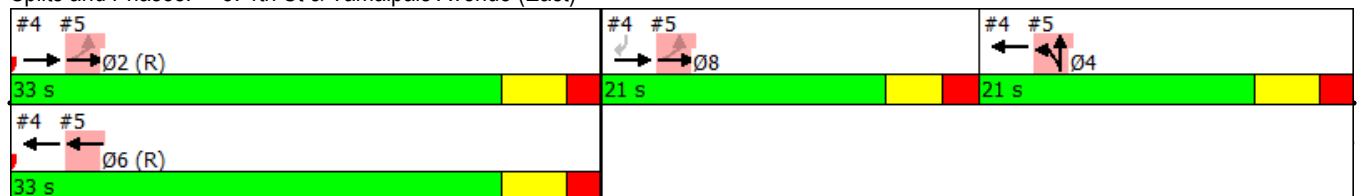
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)					7.0		4.0	4.0				
Flash Dont Walk (s)					8.0		11.4	11.4				
Pedestrian Calls (#/hr)					35		20	20				
Act Effct Green (s)		50.0			32.7							
Actuated g/C Ratio		0.67			0.44							
v/c Ratio		0.39			0.79							
Control Delay		1.2			29.3							
Queue Delay		0.0			3.4							
Total Delay		1.2			32.6							
LOS		A			C							
Approach Delay		1.2			32.6							
Approach LOS		A			C							
90th %ile Green (s)					27.4		15.4	15.4				
90th %ile Term Code					Coord		Max	Max				
70th %ile Green (s)					27.4		15.4	15.4				
70th %ile Term Code					Coord		Max	Max				
50th %ile Green (s)					31.0		16.2	16.2				
50th %ile Term Code					Coord		Gap	Gap				
30th %ile Green (s)					36.0		12.6	12.6				
30th %ile Term Code					Coord		Gap	Gap				
10th %ile Green (s)					41.7		9.5	9.5				
10th %ile Term Code					Coord		Gap	Gap				
Queue Length 50th (ft)		3			268							
Queue Length 95th (ft)		3			#456							
Internal Link Dist (ft)		1			87			271			208	
Turn Bay Length (ft)												
Base Capacity (vph)		1226			731							
Starvation Cap Reductn		0			82							
Spillback Cap Reductn		0			26							
Storage Cap Reductn		0			0							
Reduced v/c Ratio		0.36			0.89							

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 38 (51%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 19.1 Intersection LOS: B
 Intersection Capacity Utilization 50.5% ICU Level of Service A
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 5: 4th St & Tamalpais Avenue (East)



San Rafael Multi-Family TIS: Baseline With Project Conditions
 5: 4th St & Tamalpais Avenue (East)

AM PEAK HOUR

Lane Group	Ø2	Ø8
Walk Time (s)	7.0	4.0
Flash Dont Walk (s)	6.0	11.8
Pedestrian Calls (#/hr)	11	34
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
90th %ile Green (s)	27.4	15.8
90th %ile Term Code	Coord	Max
70th %ile Green (s)	27.4	15.8
70th %ile Term Code	Coord	Ped
50th %ile Green (s)	31.0	11.4
50th %ile Term Code	Coord	Gap
30th %ile Green (s)	36.0	10.0
30th %ile Term Code	Coord	Gap
10th %ile Green (s)	41.7	7.4
10th %ile Term Code	Coord	Gap
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

San Rafael Multi-Family TIS: Baseline With Project Conditions

6: Hetherton St & 4th St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	284	130	176	312	0	0	0	0	110	964	234
Future Volume (vph)	0	284	130	176	312	0	0	0	0	110	964	234
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	13	10	15	11	12	12	12	12	12	12	12
Storage Length (ft)	0		0	100		0	0		0	0		140
Storage Lanes	0		1	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00
Ped Bike Factor			0.96	0.98							1.00	0.95
Frt			0.850									0.850
Flt Protected				0.950							0.995	
Satd. Flow (prot)	0	1806	1298	1862	1626	0	0	0	0	0	4503	1348
Flt Permitted				0.500							0.995	
Satd. Flow (perm)	0	1806	1241	963	1626	0	0	0	0	0	4499	1275
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)			76									
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		167			385			352			290	
Travel Time (s)		4.6			10.5			9.6			7.9	
Confl. Peds. (#/hr)			32	32						6		21
Confl. Bikes (#/hr)			6									2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	3%	10%	1%	7%	0%	0%	0%	0%	1%	5%	1%
Parking (#/hr)											2	2
Adj. Flow (vph)	0	302	138	187	332	0	0	0	0	117	1026	249
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	302	138	187	332	0	0	0	0	0	1143	249
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		6			15			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.03	1.17	0.95	1.12	1.07	1.07	1.07	1.07	1.07	1.12	1.24
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm	Perm	NA					Perm	NA	custom
Protected Phases		4			8						2	
Permitted Phases			4	8						2		5
Minimum Split (s)		29.0	29.0	29.0	29.0					29.0	29.0	29.0
Total Split (s)		37.0	37.0	37.0	37.0					38.0	38.0	31.0
Total Split (%)		49.3%	49.3%	49.3%	49.3%					50.7%	50.7%	41.3%
Maximum Green (s)		32.8	32.8	32.8	32.8					33.8	33.8	26.8
Yellow Time (s)		3.2	3.2	3.2	3.2					3.2	3.2	3.2
All-Red Time (s)		1.0	1.0	1.0	1.0					1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Total Lost Time (s)		4.2	4.2	4.2	4.2					4.2	4.2	4.2
Lead/Lag												Lag
Lead-Lag Optimize?												

San Rafael Multi-Family TIS: Baseline With Project Conditions
 6: Hetherton St & 4th St

AM PEAK HOUR

Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Parking (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Minimum Split (s)	7.0
Total Split (s)	7.0
Total Split (%)	9%
Maximum Green (s)	3.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	

San Rafael Multi-Family TIS: Baseline With Project Conditions

6: Hetherton St & 4th St

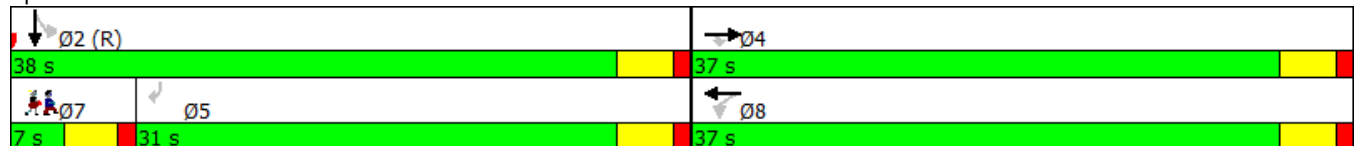
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		10.0	10.0	10.0	10.0					10.0	10.0	10.0
Flash Dont Walk (s)		14.0	14.0	14.0	14.0					14.0	14.0	14.0
Pedestrian Calls (#/hr)		0	0	0	0					0	0	0
Act Effect Green (s)		32.8	32.8	32.8	32.8						33.8	26.8
Actuated g/C Ratio		0.44	0.44	0.44	0.44						0.45	0.36
v/c Ratio		0.38	0.24	0.44	0.47						0.56	0.55
Control Delay		7.1	2.0	17.6	16.2						7.0	13.8
Queue Delay		1.4	1.1	0.0	0.0						0.2	75.9
Total Delay		8.4	3.1	17.6	16.2						7.2	89.7
LOS		A	A	B	B						A	F
Approach Delay		6.7			16.7						21.9	
Approach LOS		A			B						C	
Queue Length 50th (ft)		21	1	43	76						40	66
Queue Length 95th (ft)		40	9	m88	m151						48	128
Internal Link Dist (ft)		87			305			272			210	
Turn Bay Length (ft)				100								140
Base Capacity (vph)		789	585	421	711						2027	455
Starvation Cap Reductn		301	274	0	0						230	31
Spillback Cap Reductn		0	3	0	13						208	348
Storage Cap Reductn		0	0	0	0						0	0
Reduced v/c Ratio		0.62	0.44	0.44	0.48						0.64	2.33

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 0 (0%), Referenced to phase 2:SBTL, Start of Green
 Natural Cycle: 65
 Control Type: Pretimed
 Maximum v/c Ratio: 0.56
 Intersection Signal Delay: 17.9 Intersection LOS: B
 Intersection Capacity Utilization 80.1% ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Hetherton St & 4th St





















Lane Group	Ø7
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

San Rafael Multi-Family TIS: Baseline With Project Conditions

7: Irwin St & 4th St

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	227	0	0	338	58	155	1155	47	0	0	0
Future Volume (vph)	162	227	0	0	338	58	155	1155	47	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	12	12	12	12	12	9	10	12	12	12	12
Storage Length (ft)	70		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00			1.00				
Frt					0.980			0.994				
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1605	1782	0	0	1519	0	1399	2880	0	0	0	0
Flt Permitted	0.338						0.950					
Satd. Flow (perm)	569	1782	0	0	1519	0	1399	2880	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					13			8				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		385			564			364			291	
Travel Time (s)		10.5			15.4			9.9			7.9	
Confl. Peds. (#/hr)	11						11		4			
Confl. Bikes (#/hr)							4		1			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	1%	0%	0%	3%	3%	10%	4%	4%	0%	0%	0%
Parking (#/hr)					2	2		2	2			
Adj. Flow (vph)	172	241	0	0	360	62	165	1229	50	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	172	241	0	0	422	0	165	1279	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		15			15			9			9	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.12	1.07	1.07	1.07	1.24	1.07	1.22	1.26	1.07	1.07	1.07	1.07
Turning Speed (mph)	25		9	15		20	25		20	15		9
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Minimum Split (s)	19.0	19.0			19.0		21.0	21.0				
Total Split (s)	33.0	33.0			33.0		42.0	42.0				
Total Split (%)	44.0%	44.0%			44.0%		56.0%	56.0%				
Maximum Green (s)	28.8	28.8			28.8		37.8	37.8				
Yellow Time (s)	3.2	3.2			3.2		3.2	3.2				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	4.2	4.2			4.2		4.2	4.2				
Lead/Lag												
Lead-Lag Optimize?												

San Rafael Multi-Family TIS: Baseline With Project Conditions

7: Irwin St & 4th St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Act Effect Green (s)	28.8	28.8			28.8		37.8	37.8					
Actuated g/C Ratio	0.38	0.38			0.38		0.50	0.50					
v/c Ratio	0.79	0.35			0.71		0.23	0.88					
Control Delay	39.1	10.9			27.2		7.1	15.0					
Queue Delay	0.0	0.0			0.0		0.0	5.1					
Total Delay	39.1	10.9			27.2		7.1	20.1					
LOS	D	B			C		A	C					
Approach Delay		22.7			27.2			18.7					
Approach LOS		C			C			B					
Queue Length 50th (ft)	30	42			157		19	79					
Queue Length 95th (ft)	#172	68			263		m24	#164					
Internal Link Dist (ft)		305			484			284			211		
Turn Bay Length (ft)	70												
Base Capacity (vph)	218	684			591		705	1455					
Starvation Cap Reductn	0	0			0		0	23					
Spillback Cap Reductn	0	0			0		0	131					
Storage Cap Reductn	0	0			0		0	0					
Reduced v/c Ratio	0.79	0.35			0.71		0.23	0.97					

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 4 (5%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 60

Control Type: Pretimed

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 21.0

Intersection LOS: C

Intersection Capacity Utilization 80.1%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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


















Splits and Phases: 7: Irwin St & 4th St



San Rafael Multi-Family TIS: Baseline With Project Conditions

8: Lindaro St & 3rd St

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	478	1487	20	76	8	0	0	28	10
Future Volume (vph)	0	0	0	478	1487	20	76	8	0	0	28	10
Ideal Flow (vphpl)	1800	1800	1800	1600	1600	1600	1600	1600	1800	1800	1600	1600
Lane Width (ft)	12	12	12	11	12	12	12	12	12	12	12	12
Storage Length (ft)	0		0	75		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor				0.96	1.00							
Frt					0.998						0.964	
Flt Protected				0.950				0.957				
Satd. Flow (prot)	0	0	0	1455	4151	0	0	1504	0	0	1542	0
Flt Permitted				0.950				0.746				
Satd. Flow (perm)	0	0	0	1403	4151	0	0	1172	0	0	1542	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					5						11	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		102			103			333			198	
Travel Time (s)		2.8			2.8			9.1			5.4	
Confl. Peds. (#/hr)				22		28						
Confl. Bikes (#/hr)						2						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	1%	5%	0%	2%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	509	1582	21	81	9	0	0	30	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	509	1603	0	0	90	0	0	41	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			9			9	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.30	1.24	1.24	1.24	1.24	1.07	1.07	1.24	1.24
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8			4	
Permitted Phases				6			8					
Minimum Split (s)				28.0	28.0		24.0	24.0			24.0	
Total Split (s)				50.0	50.0		25.0	25.0			25.0	
Total Split (%)				66.7%	66.7%		33.3%	33.3%			33.3%	
Maximum Green (s)				45.8	45.8		20.8	20.8			20.8	
Yellow Time (s)				3.2	3.2		3.2	3.2			3.2	
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0	
Lost Time Adjust (s)				0.0	0.0			0.0			0.0	
Total Lost Time (s)				4.2	4.2			4.2			4.2	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)				10.0	10.0		4.0	4.0				

San Rafael Multi-Family TIS: Baseline With Project Conditions

8: Lindaro St & 3rd St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)				13.0	13.0		15.0	15.0				
Pedestrian Calls (#/hr)				0	0		0	0				
Act Effect Green (s)				45.8	45.8			20.8			20.8	
Actuated g/C Ratio				0.61	0.61			0.28			0.28	
v/c Ratio				0.59	0.63			0.28			0.09	
Control Delay				5.0	3.9			15.1			16.8	
Queue Delay				0.5	0.0			0.0			0.2	
Total Delay				5.5	3.9			15.1			17.0	
LOS				A	A			B			B	
Approach Delay					4.3			15.1			17.0	
Approach LOS					A			B			B	
Queue Length 50th (ft)				36	41			21			10	
Queue Length 95th (ft)				m40	m45			m34			33	
Internal Link Dist (ft)		22			23			253			118	
Turn Bay Length (ft)				75								
Base Capacity (vph)				856	2536			325			435	
Starvation Cap Reductn				0	0			0			0	
Spillback Cap Reductn				98	0			0			143	
Storage Cap Reductn				0	0			0			0	
Reduced v/c Ratio				0.67	0.63			0.28			0.14	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 63 (84%), Referenced to phase 6:WBTL, Start of Green
 Natural Cycle: 60
 Control Type: Pretimed
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 4.9 Intersection LOS: A
 Intersection Capacity Utilization 53.8% ICU Level of Service A
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Lindaro St & 3rd St



San Rafael Multi-Family TIS: Baseline With Project Conditions

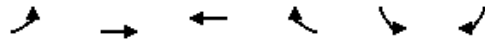
9: Ritter St & 3rd St

AM PEAK HOUR

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑↑	↘	↗
Traffic Volume (vph)	0	0	0	1768	68	0
Future Volume (vph)	0	0	0	1768	68	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)		0	0		0	25
Storage Lanes		0	0		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	0.91	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	4725	1660	1800
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	4725	1660	1800
Link Speed (mph)	25			25	25	
Link Distance (ft)	103			103	461	
Travel Time (s)	2.8			2.8	12.6	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	4%	3%	0%
Adj. Flow (vph)	0	0	0	1881	72	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1881	72	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			11	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	46.7%			ICU Level of Service A		
Analysis Period (min)	15					

San Rafael Multi-Family TIS: Baseline With Project Conditions
 10: 3rd St & Cijos St

AM PEAK HOUR



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑			↘
Traffic Volume (vph)	0	0	1711	33	0	57
Future Volume (vph)	0	0	1711	33	0	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	1.00
Ped Bike Factor						
Frt			0.997			0.865
Flt Protected						
Satd. Flow (prot)	0	0	4712	0	0	1469
Flt Permitted						
Satd. Flow (perm)	0	0	4712	0	0	1469
Link Speed (mph)		25	25		25	
Link Distance (ft)		103	309		128	
Travel Time (s)		2.8	8.4		3.5	
Confl. Peds. (#/hr)				28		
Confl. Bikes (#/hr)				1		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	4%	3%	0%	6%
Adj. Flow (vph)	0	0	1820	35	0	61
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	1855	0	0	61
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	


















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	46.1%
Analysis Period (min)	15
	ICU Level of Service A

San Rafael Multi-Family TIS: Baseline With Project Conditions

11: Lincoln Ave & 3rd St

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					  							
Traffic Volume (vph)	0	0	0	309	1565	72	40	211	0	0	258	129
Future Volume (vph)	0	0	0	309	1565	72	40	211	0	0	258	129
Ideal Flow (vphpl)	1800	1800	1800	1600	1600	1600	1600	1600	1800	1800	1600	1600
Lane Width (ft)	12	12	12	12	12	12	12	11	10	12	9	9
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					0.99			1.00			0.98	
Frt					0.994						0.955	
Flt Protected					0.992			0.992				
Satd. Flow (prot)	0	0	0	0	4129	0	0	1300	0	0	1177	0
Flt Permitted					0.992			0.752				
Satd. Flow (perm)	0	0	0	0	4100	0	0	982	0	0	1177	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					12						15	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		309			264			223			359	
Travel Time (s)		8.4			7.2			6.1			9.8	
Confl. Peds. (#/hr)				49		37	51					51
Confl. Bikes (#/hr)						2						4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	4%	4%	7%	7%	4%	0%	0%	1%	2%
Parking (#/hr)							3	3			3	3
Adj. Flow (vph)	0	0	0	329	1665	77	43	224	0	0	274	137
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	2071	0	0	267	0	0	411	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.24	1.24	1.24	1.24	1.50	1.17	1.07	1.64	1.42
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8			4	
Permitted Phases				6			8					
Minimum Split (s)				20.0	20.0		20.0	20.0			20.0	
Total Split (s)				46.0	46.0		29.0	29.0			29.0	
Total Split (%)				61.3%	61.3%		38.7%	38.7%			38.7%	
Maximum Green (s)				41.5	41.5		24.5	24.5			24.5	
Yellow Time (s)				3.5	3.5		3.5	3.5			3.5	
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Act Effect Green (s)					41.5			24.5			24.5	
Actuated g/C Ratio					0.55			0.33			0.33	
v/c Ratio					0.91			0.83			1.04	

San Rafael Multi-Family TIS: Baseline With Project Conditions

11: Lincoln Ave & 3rd St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay					22.8			46.3			81.6	
Queue Delay					46.0			0.0			0.0	
Total Delay					68.8			46.3			81.6	
LOS					E			D			F	
Approach Delay					68.8			46.3			81.6	
Approach LOS					E			D			F	
Queue Length 50th (ft)					291			111			~217	
Queue Length 95th (ft)					#401			m#176			#387	
Internal Link Dist (ft)		229			184			143			279	
Turn Bay Length (ft)												
Base Capacity (vph)					2274			320			394	
Starvation Cap Reductn					583			0			0	
Spillback Cap Reductn					0			0			0	
Storage Cap Reductn					0			0			0	
Reduced v/c Ratio					1.22			0.83			1.04	

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 20 (27%), Referenced to phase 4:SBT and 8:NBTL, Start of Green

Natural Cycle: 65

Control Type: Pretimed

Maximum v/c Ratio: 1.04

Intersection Signal Delay: 68.5 Intersection LOS: E

Intersection Capacity Utilization 99.2% ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 11: Lincoln Ave & 3rd St



San Rafael Multi-Family TIS: Baseline With Project Conditions

12: Tamalpais Ave (West) & 3rd St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	259	1884	35	43	65	0	0	46	21
Future Volume (vph)	0	0	0	259	1884	35	43	65	0	0	46	21
Ideal Flow (vphpl)	1800	1800	1800	1600	1600	1600	1600	1600	1800	1800	1600	1600
Lane Width (ft)	12	12	12	12	12	12	11	12	12	12	12	12
Storage Length (ft)	0		0	0		0	70		0	0		0
Storage Lanes	0		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					0.98		0.97				0.99	
Frt					0.998						0.958	
Flt Protected					0.994		0.950					
Satd. Flow (prot)	0	0	0	0	4148	0	1161	1402	0	0	1339	0
Flt Permitted					0.994		0.711					
Satd. Flow (perm)	0	0	0	0	4063	0	847	1402	0	0	1339	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					4						8	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		264			130			321			251	
Travel Time (s)		7.2			3.5			8.8			6.8	
Confl. Peds. (#/hr)				76		25	19					19
Confl. Bikes (#/hr)						8						2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	7%	4%	3%	12%	1%	0%	0%	0%	0%
Parking (#/hr)							3	3			3	3
Adj. Flow (vph)	0	0	0	276	2004	37	46	69	0	0	49	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	2317	0	46	69	0	0	71	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.24	1.24	1.24	1.50	1.44	1.07	1.07	1.44	1.24
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			4			8	
Permitted Phases				6			4					
Minimum Split (s)				31.6	31.6		26.6	26.6			25.6	
Total Split (s)				63.1	63.1		26.9	26.9			26.9	
Total Split (%)				70.1%	70.1%		29.9%	29.9%			29.9%	
Maximum Green (s)				51.5	51.5		19.3	19.3			19.3	
Yellow Time (s)				3.6	3.6		3.6	3.6			3.6	
All-Red Time (s)				8.0	8.0		4.0	4.0			4.0	
Lost Time Adjust (s)					0.0		0.0	0.0			0.0	
Total Lost Time (s)					11.6		7.6	7.6			7.6	
Lead/Lag												
Lead-Lag Optimize?												

San Rafael Multi-Family TIS: Baseline With Project Conditions

12: Tamalpais Ave (West) & 3rd St

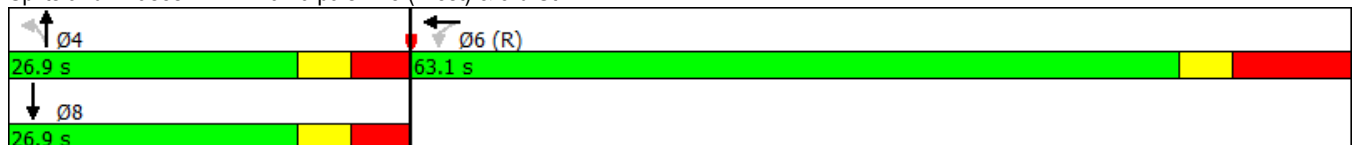
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)				10.0	10.0		7.0	7.0			7.0	
Flash Dont Walk (s)				10.0	10.0		12.0	12.0			11.0	
Pedestrian Calls (#/hr)				48	48		37	37			30	
Act Effct Green (s)					51.5		19.3	19.3			19.3	
Actuated g/C Ratio					0.57		0.21	0.21			0.21	
v/c Ratio					1.00		0.25	0.23			0.24	
Control Delay					37.9		33.8	31.7			28.9	
Queue Delay					38.7		0.0	0.0			0.0	
Total Delay					76.7		33.8	31.7			28.9	
LOS					E		C	C			C	
Approach Delay					76.7			32.5			28.9	
Approach LOS					E			C			C	
Queue Length 50th (ft)					445		22	33			30	
Queue Length 95th (ft)					#602		54	70			68	
Internal Link Dist (ft)		184			50			241			171	
Turn Bay Length (ft)							70					
Base Capacity (vph)					2326		181	300			293	
Starvation Cap Reductn					542		0	0			0	
Spillback Cap Reductn					0		0	0			0	
Storage Cap Reductn					0		0	0			0	
Reduced v/c Ratio					1.30		0.25	0.23			0.24	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 26 (29%), Referenced to phase 6:WBTL, Start of Green
 Natural Cycle: 90
 Control Type: Pretimed
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 73.3 Intersection LOS: E
 Intersection Capacity Utilization 134.1% ICU Level of Service H
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.













Splits and Phases: 12: Tamalpais Ave (West) & 3rd St



San Rafael Multi-Family TIS: Baseline With Project Conditions

13: Tamalpais Ave (East) & 3rd St

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑↑↑		↘					
Traffic Volume (vph)	0	0	0	15	2158	0	8	0	0	0	0	0
Future Volume (vph)	0	0	0	15	2158	0	8	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt												
Flt Protected							0.950					
Satd. Flow (prot)	0	1800	0	0	4697	0	855	0	0	0	0	0
Flt Permitted							0.950					
Satd. Flow (perm)	0	1800	0	0	4697	0	855	0	0	0	0	0
Link Speed (mph)	25				25				25		25	
Link Distance (ft)	130				156				122		351	
Travel Time (s)	3.5				4.3				3.3		9.6	
Confl. Peds. (#/hr)				44						16		
Confl. Bikes (#/hr)										10		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	93%	4%	0%	100%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	16	2296	0	9	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	2312	0	9	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	0				0				12		12	
Link Offset(ft)	0				0				0		0	
Crosswalk Width(ft)	16				16				16		16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control	Free			Free			Stop			Stop		

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	54.3%
ICU Level of Service	A
Analysis Period (min)	15

San Rafael Multi-Family TIS: Baseline With Project Conditions

14: Hetherton St & 3rd St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	412	1654	0	0	0	0	0	758	512
Future Volume (vph)	0	0	0	412	1654	0	0	0	0	0	758	512
Ideal Flow (vphpl)	1800	1800	1800	1700	1700	1800	1800	1800	1800	1800	1700	1700
Lane Width (ft)	12	12	12	14	12	12	12	12	12	12	11	11
Storage Length (ft)	0		0	70		0	0		0	0		220
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	0.91	1.00
Ped Bike Factor				0.96								0.92
Frt												0.850
Flt Protected				0.950								
Satd. Flow (prot)	0	0	0	1425	4177	0	0	0	0	0	4314	1330
Flt Permitted				0.950								
Satd. Flow (perm)	0	0	0	1362	4177	0	0	0	0	0	4314	1223
Right Turn on Red			Yes	No		Yes			Yes			Yes
Satd. Flow (RTOR)												15
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		156			379			311			352	
Travel Time (s)		4.3			10.3			8.5			9.6	
Confl. Peds. (#/hr)				51								65
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	4%	5%	0%	0%	0%	0%	0%	4%	5%
Adj. Flow (vph)	0	0	0	438	1760	0	0	0	0	0	806	545
Shared Lane Traffic (%)				0%								
Lane Group Flow (vph)	0	0	0	438	1760	0	0	0	0	0	806	545
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.06	1.15	1.07	1.07	1.07	1.07	1.07	1.20	1.20
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Perm	NA						NA	Perm
Protected Phases					8						6	
Permitted Phases				8								6
Minimum Split (s)				34.0	34.0						28.0	28.0
Total Split (s)				43.0	43.0						32.0	32.0
Total Split (%)				57.3%	57.3%						42.7%	42.7%
Maximum Green (s)				39.0	39.0						27.0	27.0
Yellow Time (s)				3.0	3.0						3.0	3.0
All-Red Time (s)				1.0	1.0						2.0	2.0
Lost Time Adjust (s)				0.0	0.0						0.0	0.0
Total Lost Time (s)				4.0	4.0						5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)				7.0	7.0						7.0	7.0

San Rafael Multi-Family TIS: Baseline With Project Conditions

14: Hetherton St & 3rd St

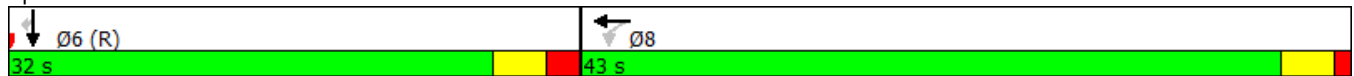
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)				19.0	19.0						14.0	14.0
Pedestrian Calls (#/hr)				0	0						0	0
Act Effct Green (s)				39.0	39.0						27.0	27.0
Actuated g/C Ratio				0.52	0.52						0.36	0.36
v/c Ratio				0.62	0.81						0.52	1.21
Control Delay				11.4	11.8						13.3	132.9
Queue Delay				0.5	0.4						0.1	0.0
Total Delay				11.9	12.2						13.4	132.9
LOS				B	B						B	F
Approach Delay					12.2						61.6	
Approach LOS					B						E	
Queue Length 50th (ft)				106	161						59	~310
Queue Length 95th (ft)				m176	230						82	#312
Internal Link Dist (ft)		76				299		231			272	
Turn Bay Length (ft)				70								220
Base Capacity (vph)				708	2172						1553	449
Starvation Cap Reductn				60	103						0	0
Spillback Cap Reductn				0	0						100	0
Storage Cap Reductn				0	0						0	0
Reduced v/c Ratio				0.68	0.85						0.55	1.21

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 3 (4%), Referenced to phase 6:SBT, Start of Green
 Natural Cycle: 65
 Control Type: Pretimed
 Maximum v/c Ratio: 1.21
 Intersection Signal Delay: 31.0 Intersection LOS: C
 Intersection Capacity Utilization 109.2% ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.













Splits and Phases: 14: Hetherton St & 3rd St



San Rafael Multi-Family TIS: Baseline With Project Conditions

15: Irwin St & 3rd St













AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑	↑	↓	↑↑↑				
Traffic Volume (vph)	0	0	0	0	1079	135	1025	1236	0	0	0	0
Future Volume (vph)	0	0	0	0	1079	135	1025	1236	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	10	11	10	11	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00
Ped Bike Factor						0.97						
Frt						0.850						
Flt Protected							0.950	0.986				
Satd. Flow (prot)	0	0	0	0	4410	1395	1307	4216	0	0	0	0
Flt Permitted							0.950	0.986				
Satd. Flow (perm)	0	0	0	0	4410	1352	1307	4216	0	0	0	0
Right Turn on Red			Yes			Yes	Yes		Yes			Yes
Satd. Flow (RTOR)						41	22	22				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		379			140			294			364	
Travel Time (s)		10.3			3.8			8.0			9.9	
Confl. Peds. (#/hr)							16					
Confl. Bikes (#/hr)							7					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	4%	6%	5%	5%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	0	1148	144	1090	1315	0	0	0	0
Shared Lane Traffic (%)							47%					
Lane Group Flow (vph)	0	0	0	0	1148	144	578	1827	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.17	1.12	1.17	1.12	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		20	25		20	15		9
Turn Type					NA	Perm	Split	NA				
Protected Phases					8		2	2				
Permitted Phases						8						
Minimum Split (s)					29.0	29.0	25.0	25.0				
Total Split (s)					30.0	30.0	45.0	45.0				
Total Split (%)					40.0%	40.0%	60.0%	60.0%				
Maximum Green (s)					25.5	25.5	40.5	40.5				
Yellow Time (s)					3.5	3.5	3.5	3.5				
All-Red Time (s)					1.0	1.0	1.0	1.0				
Lost Time Adjust (s)					0.0	0.0	0.0	0.0				
Total Lost Time (s)					4.5	4.5	4.5	4.5				
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)					7.0	7.0	7.0	7.0				
Flash Dont Walk (s)					17.0	17.0	13.0	13.0				
Pedestrian Calls (#/hr)					0	0	0	0				
Act Effect Green (s)					25.5	25.5	40.5	40.5				

San Rafael Multi-Family TIS: Baseline With Project Conditions

15: Irwin St & 3rd St

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio					0.34	0.34	0.54	0.54				
v/c Ratio					0.77	0.30	0.81	0.80				
Control Delay					26.2	14.9	18.4	13.6				
Queue Delay					0.1	0.0	2.7	1.9				
Total Delay					26.3	14.9	21.1	15.5				
LOS					C	B	C	B				
Approach Delay					25.1			16.8				
Approach LOS					C			B				
Queue Length 50th (ft)					171	34	180	194				
Queue Length 95th (ft)					222	77	m234	m231				
Internal Link Dist (ft)		299			60			214			284	
Turn Bay Length (ft)												
Base Capacity (vph)					1499	486	715	2286				
Starvation Cap Reductn					0	0	63	294				
Spillback Cap Reductn					33	0	0	56				
Storage Cap Reductn					0	0	0	0				
Reduced v/c Ratio					0.78	0.30	0.89	0.92				

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 73 (97%), Referenced to phase 2:NBTL, Start of Green
 Natural Cycle: 65
 Control Type: Pretimed
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 19.7 Intersection LOS: B
 Intersection Capacity Utilization 92.0% ICU Level of Service F
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.


















Splits and Phases: 15: Irwin St & 3rd St



San Rafael Multi-Family TIS: Baseline With Project Conditions

16: Lindaro St & 2nd St

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	2252	43	0	0	0	0	55	186	57	447	0
Future Volume (vph)	33	2252	43	0	0	0	0	55	186	57	447	0
Ideal Flow (vphpl)	1600	1600	1600	1800	1800	1800	1800	1600	1600	1600	1600	1800
Lane Width (ft)	12	11	11	12	12	12	12	11	10	9	9	12
Storage Length (ft)	0		0	0		0	0		275	70		0
Storage Lanes	0		0	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00							0.97	0.99		
Frt		0.997							0.850			
Flt Protected		0.999								0.950		
Satd. Flow (prot)	0	5182	0	0	0	0	0	1547	1186	1341	1426	0
Flt Permitted		0.999								0.719		
Satd. Flow (perm)	0	5181	0	0	0	0	0	1547	1153	1000	1426	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7							17			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		495			513			314			333	
Travel Time (s)		13.5			14.0			8.6			9.1	
Confl. Peds. (#/hr)	13		44						17	17		
Confl. Bikes (#/hr)			3						1			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	2%	7%	0%	0%	0%	0%	0%	7%	2%	1%	0%
Adj. Flow (vph)	35	2396	46	0	0	0	0	59	198	61	476	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2477	0	0	0	0	0	59	198	61	476	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			9			9	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.24	1.30	1.30	1.07	1.07	1.07	1.07	1.30	1.35	1.42	1.42	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA						NA	Perm	Perm	NA	
Protected Phases		6						4			8	
Permitted Phases	6								4	8		
Minimum Split (s)	33.0	33.0						29.0	29.0	29.0	29.0	
Total Split (s)	43.0	43.0						32.0	32.0	32.0	32.0	
Total Split (%)	57.3%	57.3%						42.7%	42.7%	42.7%	42.7%	
Maximum Green (s)	38.8	38.8						27.8	27.8	27.8	27.8	
Yellow Time (s)	3.2	3.2						3.2	3.2	3.2	3.2	
All-Red Time (s)	1.0	1.0						1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0						0.0	0.0	0.0	0.0	
Total Lost Time (s)		4.2						4.2	4.2	4.2	4.2	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	10.0	10.0						8.0	8.0	8.0	8.0	

San Rafael Multi-Family TIS: Baseline With Project Conditions

16: Lindaro St & 2nd St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	18.0	18.0						16.0	16.0	16.0	16.0	
Pedestrian Calls (#/hr)	0	0						0	0	0	0	
Act Effct Green (s)		38.8						27.8	27.8	27.8	27.8	
Actuated g/C Ratio		0.52						0.37	0.37	0.37	0.37	
v/c Ratio		0.92						0.10	0.45	0.16	0.90	
Control Delay		24.2						16.2	20.3	30.1	58.5	
Queue Delay		0.0						0.0	0.0	0.0	13.1	
Total Delay		24.2						16.2	20.3	30.1	71.7	
LOS		C						B	C	C	E	
Approach Delay		24.2						19.4			66.9	
Approach LOS		C						B			E	
Queue Length 50th (ft)		288						18	62	30	247	
Queue Length 95th (ft)		#372						41	120	m52	#405	
Internal Link Dist (ft)		415			433			234			253	
Turn Bay Length (ft)									275	70		
Base Capacity (vph)		2683						573	438	370	528	
Starvation Cap Reductn		0						0	0	0	49	
Spillback Cap Reductn		0						0	0	0	0	
Storage Cap Reductn		0						0	0	0	0	
Reduced v/c Ratio		0.92						0.10	0.45	0.16	0.99	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 0 (0%), Referenced to phase 6:EBTL, Start of Green
 Natural Cycle: 75
 Control Type: Pretimed
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 30.8 Intersection LOS: C
 Intersection Capacity Utilization 76.6% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.
















Splits and Phases: 16: Lindaro St & 2nd St



San Rafael Multi-Family TIS: Baseline With Project Conditions

17: Lincoln Ave & Ritter St

AM PEAK HOUR

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	0	0	0	0	0	0	50	235	3	45	499	26	
Future Volume (vph)	0	0	0	0	0	0	50	235	3	45	499	26	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor													
Frt								0.999				0.994	
Flt Protected								0.991				0.996	
Satd. Flow (prot)	0	0	1800	0	0	0	0	1701	0	0	1743	0	
Flt Permitted								0.991				0.996	
Satd. Flow (perm)	0	0	1800	0	0	0	0	1701	0	0	1743	0	
Link Speed (mph)	25				25				25		25		
Link Distance (ft)	461				117				107		223		
Travel Time (s)	12.6				3.2				2.9		6.1		
Confl. Peds. (#/hr)							12						12
Confl. Bikes (#/hr)													4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	4%	5%	0%	6%	2%	0%	
Adj. Flow (vph)	0	0	0	0	0	0	53	250	3	48	531	28	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	0	0	0	0	0	306	0	0	607	0	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(ft)	0				0				0		0		
Link Offset(ft)	0				0				0		0		
Crosswalk Width(ft)	16				16				16		16		
Two way Left Turn Lane													
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	
Turning Speed (mph)	15		9	15		9	15		9	15		9	
Sign Control	Stop				Stop				Free		Free		


















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	39.6%
ICU Level of Service	A
Analysis Period (min)	15

San Rafael Multi-Family TIS: Baseline With Project Conditions

18: Lincoln Ave & 2nd St

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	161	2278	49	0	0	0	0	127	43	129	374	0
Future Volume (vph)	161	2278	49	0	0	0	0	127	43	129	374	0
Ideal Flow (vphpl)	1600	1600	1600	1800	1800	1800	1800	1600	1600	1600	1600	1800
Lane Width (ft)	12	10	10	12	12	12	12	12	12	9	9	9
Storage Length (ft)	0		150	0		0	0		130	0		0
Storage Lanes	0		1	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	0.95						0.98			
Frt			0.850						0.850			
Flt Protected		0.997									0.987	
Satd. Flow (prot)	0	5021	1221	0	0	0	0	1481	1193	0	1240	0
Flt Permitted		0.997									0.874	
Satd. Flow (perm)	0	5012	1156	0	0	0	0	1481	1174	0	1098	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			49						17			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		513			244			398			107	
Travel Time (s)		14.0			6.7			10.9			2.9	
Confl. Peds. (#/hr)	20		51									
Confl. Bikes (#/hr)			2						6			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	4%	0%	0%	0%	0%	8%	14%	2%	2%	0%
Parking (#/hr)										2	2	
Adj. Flow (vph)	171	2423	52	0	0	0	0	135	46	137	398	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2594	52	0	0	0	0	135	46	0	535	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.24	1.35	1.35	1.07	1.07	1.07	1.07	1.24	1.24	1.42	1.63	1.22
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		6						4			8	
Permitted Phases	6		6						4	8		
Minimum Split (s)	33.0	33.0	33.0					13.0	13.0	31.0	31.0	
Total Split (s)	44.0	44.0	44.0					31.0	31.0	31.0	31.0	
Total Split (%)	58.7%	58.7%	58.7%					41.3%	41.3%	41.3%	41.3%	
Maximum Green (s)	39.8	39.8	39.8					26.8	26.8	26.8	26.8	
Yellow Time (s)	3.2	3.2	3.2					3.2	3.2	3.2	3.2	
All-Red Time (s)	1.0	1.0	1.0					1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0	0.0					0.0	0.0		0.0	
Total Lost Time (s)		4.2	4.2					4.2	4.2		4.2	
Lead/Lag												
Lead-Lag Optimize?												

San Rafael Multi-Family TIS: Baseline With Project Conditions

18: Lincoln Ave & 2nd St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	12.0	12.0	12.0							7.0	7.0	
Flash Dont Walk (s)	16.0	16.0	16.0							19.0	19.0	
Pedestrian Calls (#/hr)	0	0	0							0	0	
Act Effect Green (s)		39.8	39.8					26.8	26.8		26.8	
Actuated g/C Ratio		0.53	0.53					0.36	0.36		0.36	
v/c Ratio		0.98	0.08					0.26	0.11		1.36	
Control Delay		14.5	0.1					18.7	12.3		193.8	
Queue Delay		42.0	0.0					0.0	0.0		0.0	
Total Delay		56.4	0.1					18.7	12.3		193.8	
LOS		E	A					B	B		F	
Approach Delay		55.3						17.1			193.8	
Approach LOS		E						B			F	
Queue Length 50th (ft)		37	0					44	9		~337	
Queue Length 95th (ft)		m#421	m0					84	30		m#360	
Internal Link Dist (ft)		433			164			318			27	
Turn Bay Length (ft)			150						130			
Base Capacity (vph)		2659	636					529	430		392	
Starvation Cap Reductn		0	0					0	0		0	
Spillback Cap Reductn		315	0					0	0		0	
Storage Cap Reductn		0	0					0	0		0	
Reduced v/c Ratio		1.11	0.08					0.26	0.11		1.36	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 14 (19%), Referenced to phase 6:EBTL, Start of Green
 Natural Cycle: 110
 Control Type: Pretimed
 Maximum v/c Ratio: 1.36
 Intersection Signal Delay: 75.3 Intersection LOS: E
 Intersection Capacity Utilization 92.4% ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: Lincoln Ave & 2nd St



San Rafael Multi-Family TIS: Baseline With Project Conditions

19: Francisco Blvd W./Tamalpais Ave (West) & 2nd St













AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	2236	116	0	0	0	0	56	232	111	207	0
Future Volume (vph)	55	2236	116	0	0	0	0	56	232	111	207	0
Ideal Flow (vphpl)	1600	1600	1600	1800	1800	1800	1800	1600	1600	1600	1600	1800
Lane Width (ft)	12	11	10	12	12	12	12	10	13	10	12	12
Storage Length (ft)	0		140	0		0	0		0	70		0
Storage Lanes	0		1	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	0.98									
Frt			0.850						0.850			
Flt Protected		0.999								0.950		
Satd. Flow (prot)	0	5207	1232	0	0	0	0	1436	1313	1121	1375	0
Flt Permitted		0.999								0.718		
Satd. Flow (perm)	0	5196	1206	0	0	0	0	1436	1313	847	1375	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95						51			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		244			283			131			321	
Travel Time (s)		6.7			7.7			3.6			8.8	
Confl. Peds. (#/hr)	62											
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	5%	2%	3%	0%	0%	0%	0%	4%	7%	12%	3%	0%
Parking (#/hr)										3	3	
Adj. Flow (vph)	59	2379	123	0	0	0	0	60	247	118	220	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2438	123	0	0	0	0	60	247	118	220	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.24	1.30	1.35	1.07	1.07	1.07	1.07	1.35	1.19	1.57	1.44	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		2						4			8	
Permitted Phases	2		2						4	8		
Detector Phase	2	2	2					4	4	8	8	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0					8.0	8.0	8.0	8.0	
Minimum Split (s)	32.5	32.5	32.5					14.5	14.5	33.5	33.5	
Total Split (s)	38.0	38.0	38.0					37.0	37.0	37.0	37.0	
Total Split (%)	50.7%	50.7%	50.7%					49.3%	49.3%	49.3%	49.3%	
Maximum Green (s)	31.5	31.5	31.5					30.5	30.5	30.5	30.5	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.5	3.5	
All-Red Time (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lost Time Adjust (s)		0.0	0.0					0.0	0.0	0.0	0.0	

San Rafael Multi-Family TIS: Baseline With Project Conditions

19: Francisco Blvd W./Tamalpais Ave (West) & 2nd St

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)		6.5	6.5					6.5	6.5	6.5	6.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max					None	None	None	None	
Walk Time (s)	10.0	10.0	10.0							7.0	7.0	
Flash Dont Walk (s)	16.0	16.0	16.0							20.0	20.0	
Pedestrian Calls (#/hr)	48	48	48							45	45	
Act Effct Green (s)		40.9	40.9					21.1	21.1	21.1	21.1	
Actuated g/C Ratio		0.55	0.55					0.28	0.28	0.28	0.28	
v/c Ratio		0.86	0.18					0.15	0.61	0.50	0.57	
Control Delay		9.9	0.9					18.2	23.5	27.9	27.5	
Queue Delay		7.2	0.0					0.0	0.0	0.0	0.0	
Total Delay		17.0	0.9					18.2	23.6	27.9	27.5	
LOS		B	A					B	C	C	C	
Approach Delay		16.2						22.5			27.7	
Approach LOS		B						C			C	
90th %ile Green (s)	35.0	35.0	35.0					27.0	27.0	27.0	27.0	
90th %ile Term Code	Coord	Coord	Coord					Hold	Hold	Ped	Ped	
70th %ile Green (s)	35.0	35.0	35.0					27.0	27.0	27.0	27.0	
70th %ile Term Code	Coord	Coord	Coord					Hold	Hold	Ped	Ped	
50th %ile Green (s)	35.0	35.0	35.0					27.0	27.0	27.0	27.0	
50th %ile Term Code	Coord	Coord	Coord					Hold	Hold	Ped	Ped	
30th %ile Green (s)	47.5	47.5	47.5					14.5	14.5	14.5	14.5	
30th %ile Term Code	Coord	Coord	Coord					Hold	Hold	Gap	Gap	
10th %ile Green (s)	51.8	51.8	51.8					10.2	10.2	10.2	10.2	
10th %ile Term Code	Coord	Coord	Coord					Hold	Hold	Gap	Gap	
Queue Length 50th (ft)		~62	0					18	68	40	76	
Queue Length 95th (ft)		m#133	m0					43	134	86	137	
Internal Link Dist (ft)		164			203			51			241	
Turn Bay Length (ft)			140							70		
Base Capacity (vph)		2830	700					583	564	344	559	
Starvation Cap Reductn		197	0					0	0	0	0	
Spillback Cap Reductn		373	0					0	3	0	0	
Storage Cap Reductn		0	0					0	0	0	0	
Reduced v/c Ratio		0.99	0.18					0.10	0.44	0.34	0.39	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 24 (32%), Referenced to phase 2:EBTL, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 18.0
 Intersection Capacity Utilization 134.1%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service H

~ Volume exceeds capacity, queue is theoretically infinite.

San Rafael Multi-Family TIS: Baseline With Project Conditions
 19: Francisco Blvd W./Tamalpais Ave (West) & 2nd St

AM PEAK HOUR

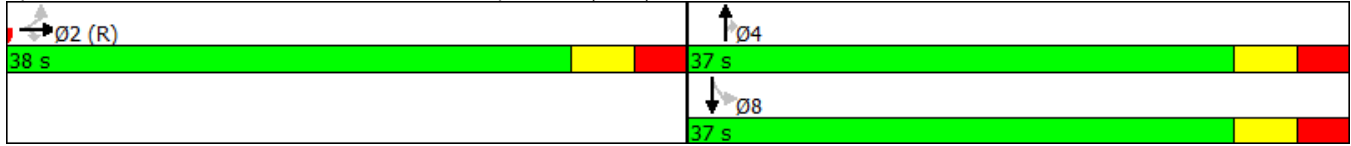
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

















Splits and Phases: 19: Francisco Blvd W./Tamalpais Ave (West) & 2nd St



San Rafael Multi-Family TIS: Baseline With Project Conditions

20: US-101 SB Ramp/Hetherton St & 2nd St

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1315	1287	0	0	0	0	0	0	295	875	0
Future Volume (vph)	0	1315	1287	0	0	0	0	0	0	295	875	0
Ideal Flow (vphpl)	1800	1700	1700	1800	1800	1800	1800	1800	1800	1700	1700	1800
Lane Width (ft)	12	11	11	12	12	12	12	12	12	11	12	12
Lane Util. Factor	1.00	0.81	0.81	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00
Ped Bike Factor		1.00	0.99									
Frt		0.951	0.850									
Flt Protected										0.950		
Satd. Flow (prot)	0	4817	1109	0	0	0	0	0	0	1366	2975	0
Flt Permitted										0.950		
Satd. Flow (perm)	0	4817	1095	0	0	0	0	0	0	1366	2975	0
Right Turn on Red			Yes			Yes			Yes	No		Yes
Satd. Flow (RTOR)		35	35									
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		283			371			517			311	
Travel Time (s)		7.7			10.1			14.1			8.5	
Confl. Peds. (#/hr)						4						
Confl. Bikes (#/hr)			1									
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	6%	2%	0%	0%	0%	0%	0%	0%	4%	4%	0%
Adj. Flow (vph)	0	1399	1369	0	0	0	0	0	0	314	931	0
Shared Lane Traffic (%)			50%							0%		
Lane Group Flow (vph)	0	2084	684	0	0	0	0	0	0	314	931	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.20	1.20	1.07	1.07	1.07	1.07	1.07	1.07	1.20	1.15	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm							Split	NA	
Protected Phases		2								4	4	
Permitted Phases			2									
Minimum Split (s)		34.0	34.0							20.0	20.0	
Total Split (s)		43.0	43.0							32.0	32.0	
Total Split (%)		57.3%	57.3%							42.7%	42.7%	
Maximum Green (s)		38.5	38.5							27.5	27.5	
Yellow Time (s)		3.5	3.5							3.5	3.5	
All-Red Time (s)		1.0	1.0							1.0	1.0	
Lost Time Adjust (s)		0.0	0.0							0.0	0.0	
Total Lost Time (s)		4.5	4.5							4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)		14.5	14.5									
Flash Dont Walk (s)		15.0	15.0									
Pedestrian Calls (#/hr)		0	0									
Act Effect Green (s)		38.5	38.5							27.5	27.5	

San Rafael Multi-Family TIS: Baseline With Project Conditions

20: US-101 SB Ramp/Hetherton St & 2nd St

AM PEAK HOUR

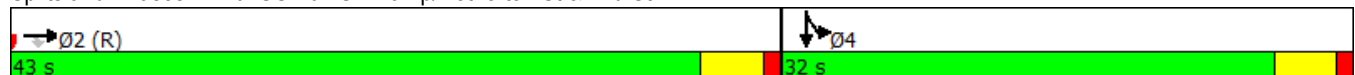


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.51	0.51							0.37	0.37	
v/c Ratio		1.00dr	1.18							0.63	0.85	
Control Delay		11.4	108.8							17.5	22.1	
Queue Delay		47.0	2.2							0.2	0.0	
Total Delay		58.3	111.0							17.7	22.1	
LOS		E	F							B	C	
Approach Delay		71.3									21.0	
Approach LOS		E									C	
Queue Length 50th (ft)		199	~477							76	115	
Queue Length 95th (ft)		362	m#648							117	#319	
Internal Link Dist (ft)		203			291			437			231	
Turn Bay Length (ft)												
Base Capacity (vph)		2489	579							500	1090	
Starvation Cap Reductn		675	136							11	0	
Spillback Cap Reductn		0	0							0	0	
Storage Cap Reductn		0	0							0	0	
Reduced v/c Ratio		1.15	1.54							0.64	0.85	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 36 (48%), Referenced to phase 2:EBT, Start of Green
 Natural Cycle: 80
 Control Type: Pretimed
 Maximum v/c Ratio: 1.18
 Intersection Signal Delay: 55.7 Intersection LOS: E
 Intersection Capacity Utilization 91.3% ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.
 dr Defacto Right Lane. Recode with 1 though lane as a right lane.





















Splits and Phases: 20: US-101 SB Ramp/Hetherton St & 2nd St



San Rafael Multi-Family TIS: Baseline With Project Conditions

21: US-101 NB Ramp/Irwin St & 2nd St

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  						  				
Traffic Volume (vph)	757	858	0	0	0	0	0	1515	456	0	0	0
Future Volume (vph)	757	858	0	0	0	0	0	1515	456	0	0	0
Ideal Flow (vphpl)	1600	1600	1700	1700	1700	1700	1700	1600	1600	1700	1700	1700
Lane Width (ft)	13	12	12	12	12	12	12	12	10	12	12	12
Storage Length (ft)	0		0	0		0	0		85	0		0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.86	0.86	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00							0.98			
Frt									0.850			
Flt Protected	0.950	0.986										
Satd. Flow (prot)	1274	3892	0	0	0	0	0	4200	1232	0	0	0
Flt Permitted	0.950	0.986										
Satd. Flow (perm)	1263	3882	0	0	0	0	0	4200	1209	0	0	0
Right Turn on Red	Yes		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	32	32							73			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		371			618			541			294	
Travel Time (s)		10.1			16.9			14.8			8.0	
Confl. Peds. (#/hr)	13								10			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	6%	4%	0%	0%	0%	0%	0%	4%	3%	0%	0%	0%
Adj. Flow (vph)	805	913	0	0	0	0	0	1612	485	0	0	0
Shared Lane Traffic (%)	47%											
Lane Group Flow (vph)	427	1291	0	0	0	0	0	1612	485	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.19	1.24	1.15	1.15	1.15	1.15	1.15	1.24	1.35	1.15	1.15	1.15
Turning Speed (mph)	25		9	15			9	15	20	15		9
Turn Type	Perm	NA						NA	Perm			
Protected Phases		4						2				
Permitted Phases	4								2			
Minimum Split (s)	24.0	24.0						24.0	24.0			
Total Split (s)	38.0	38.0						37.0	37.0			
Total Split (%)	50.7%	50.7%						49.3%	49.3%			
Maximum Green (s)	33.8	33.8						31.8	31.8			
Yellow Time (s)	3.2	3.2						3.2	3.2			
All-Red Time (s)	1.0	1.0						2.0	2.0			
Lost Time Adjust (s)	0.0	0.0						0.0	0.0			
Total Lost Time (s)	4.2	4.2						5.2	5.2			
Lead/Lag												
Lead-Lag Optimize?												
Act Effect Green (s)	33.8	33.8						31.8	31.8			
Actuated g/C Ratio	0.45	0.45						0.42	0.42			

San Rafael Multi-Family TIS: Baseline With Project Conditions

21: US-101 NB Ramp/Irwin St & 2nd St

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.73	0.73						0.91	0.88			
Control Delay	12.4	9.2						29.2	36.5			
Queue Delay	0.7	0.2						0.1	0.0			
Total Delay	13.1	9.4						29.3	36.5			
LOS	B	A						C	D			
Approach Delay		10.3						31.0				
Approach LOS		B						C				
Queue Length 50th (ft)	39	70						247	173			
Queue Length 95th (ft)	m69	73						#351	#361			
Internal Link Dist (ft)		291			538			461			214	
Turn Bay Length (ft)									85			
Base Capacity (vph)	586	1767						1780	554			
Starvation Cap Reductn	15	61						0	0			
Spillback Cap Reductn	31	45						4	0			
Storage Cap Reductn	0	0						0	0			
Reduced v/c Ratio	0.77	0.76						0.91	0.88			

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 48 (64%), Referenced to phase 4:EBTL, Start of Green

Natural Cycle: 60

Control Type: Pretimed

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 21.7

Intersection LOS: C

Intersection Capacity Utilization 83.5%

ICU Level of Service E

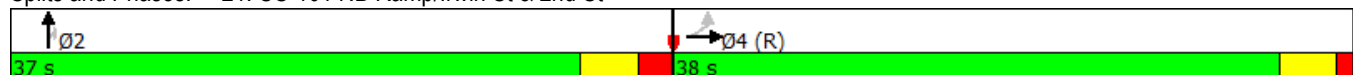
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

















Splits and Phases: 21: US-101 NB Ramp/Irwin St & 2nd St



San Rafael Multi-Family TIS: Baseline With Project Conditions

22: Nye St & Mission Ave

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	567	9	30	830	13	1	29	14	20	55	47
Future Volume (vph)	28	567	9	30	830	13	1	29	14	20	55	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.998			0.998			0.957			0.948	
Flt Protected		0.998			0.998			0.999			0.992	
Satd. Flow (prot)	0	1853	0	0	1853	0	0	1779	0	0	1735	0
Flt Permitted		0.998			0.998			0.999			0.992	
Satd. Flow (perm)	0	1853	0	0	1853	0	0	1779	0	0	1735	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		352			483			340			237	
Travel Time (s)		9.6			13.2			9.3			6.5	
Confl. Peds. (#/hr)	8		3	3		8	4		6	6		4
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)	2	2	2	2	2	2	2	2	2	2	2	2
Adj. Flow (vph)	30	603	10	32	883	14	1	31	15	21	59	50
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	643	0	0	929	0	0	47	0	0	130	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	




















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	75.3%
ICU Level of Service	D
Analysis Period (min)	15

San Rafael Multi-Family TIS: Baseline With Project Conditions

23: Lincoln Ave & Mission Ave

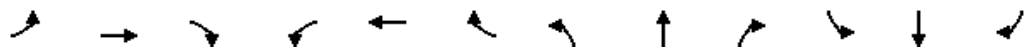
AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	474	13	51	624	49	5	182	28	58	388	342
Future Volume (vph)	87	474	13	51	624	49	5	182	28	58	388	342
Ideal Flow (vphpl)	1600	1700	1600	1700	1700	1600	1600	1700	1700	1600	1700	1700
Lane Width (ft)	11	12	12	10	10	12	12	9	9	12	10	9
Storage Length (ft)	120		0	65		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00	1.00			0.99			1.00	0.93
Frt		0.996			0.989			0.982				0.850
Flt Protected	0.950			0.950				0.999			0.994	
Satd. Flow (prot)	1427	1643	0	1463	1520	0	0	1287	0	0	1531	1263
Flt Permitted	0.112			0.461				0.990			0.934	
Satd. Flow (perm)	168	1643	0	709	1520	0	0	1275	0	0	1435	1180
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			6			11				302
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		483			292			342			291	
Travel Time (s)		13.2			8.0			9.3			7.9	
Confl. Peds. (#/hr)	7		3	3		7	22		20	20		22
Confl. Bikes (#/hr)			2			3			7			8
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)							0	2	0			
Adj. Flow (vph)	93	504	14	54	664	52	5	194	30	62	413	364
Shared Lane Traffic (%)												
Lane Group Flow (vph)	93	518	0	54	716	0	0	229	0	0	475	364
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.30	1.15	1.24	1.26	1.26	1.24	1.24	1.51	1.31	1.24	1.26	1.31
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4			8		8
Detector Phase	5	2		6	6		4	4		8	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	10.0	29.0		26.0	26.0		27.0	27.0		27.0	27.0	27.0
Total Split (s)	10.0	45.0		35.0	35.0		30.0	30.0		30.0	30.0	30.0
Total Split (%)	13.3%	60.0%		46.7%	46.7%		40.0%	40.0%		40.0%	40.0%	40.0%
Maximum Green (s)	7.0	40.8		30.8	30.8		25.4	25.4		25.4	25.4	25.4
Yellow Time (s)	3.0	3.2		3.2	3.2		3.6	3.6		3.6	3.6	3.6
All-Red Time (s)	0.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0

San Rafael Multi-Family TIS: Baseline With Project Conditions

23: Lincoln Ave & Mission Ave

AM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	3.0	4.2		4.2	4.2			4.6			4.6	4.6
Lead/Lag	Lead			Lag		Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Recall Mode	None	Max		Max	Max		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		10.0		8.0	8.0		8.0	8.0		8.0	8.0	8.0
Flash Dont Walk (s)		14.0		13.0	13.0		14.0	14.0		14.0	14.0	14.0
Pedestrian Calls (#/hr)		3		7	7		20	20		21	21	21
Act Effct Green (s)	42.0	40.8		32.8	32.8			25.4			25.4	25.4
Actuated g/C Ratio	0.56	0.54		0.44	0.44			0.34			0.34	0.34
v/c Ratio	0.44	0.58		0.17	1.07			0.52			0.98	0.61
Control Delay	15.1	14.6		25.5	84.6			15.4			63.7	9.3
Queue Delay	0.0	10.5		0.0	10.5			0.0			0.0	0.0
Total Delay	15.1	25.1		25.5	95.1			15.4			63.7	9.3
LOS	B	C		C	F			B			E	A
Approach Delay		23.6			90.2			15.4			40.1	
Approach LOS		C			F			B			D	
90th %ile Green (s)	7.0	40.8		30.8	30.8		25.4	25.4		25.4	25.4	25.4
90th %ile Term Code	Max	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	Coord
70th %ile Green (s)	7.0	40.8		30.8	30.8		25.4	25.4		25.4	25.4	25.4
70th %ile Term Code	Max	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	Coord
50th %ile Green (s)	7.0	40.8		30.8	30.8		25.4	25.4		25.4	25.4	25.4
50th %ile Term Code	Max	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	Coord
30th %ile Green (s)	7.0	40.8		30.8	30.8		25.4	25.4		25.4	25.4	25.4
30th %ile Term Code	Max	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	Coord
10th %ile Green (s)	0.0	40.8		40.8	40.8		25.4	25.4		25.4	25.4	25.4
10th %ile Term Code	Skip	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	Coord
Queue Length 50th (ft)	19	147		19	~370			31			215	20
Queue Length 95th (ft)	44	237		m42	#583			82			#403	98
Internal Link Dist (ft)		403			212			262			211	
Turn Bay Length (ft)	120			65								
Base Capacity (vph)	211	895		310	667			439			485	599
Starvation Cap Reductn	0	0		0	20			0			0	0
Spillback Cap Reductn	0	346		0	0			2			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.44	0.94		0.17	1.11			0.52			0.98	0.61

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 50 (67%), Referenced to phase 4:NBTL and 8:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 49.4

Intersection LOS: D

Intersection Capacity Utilization 105.2%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

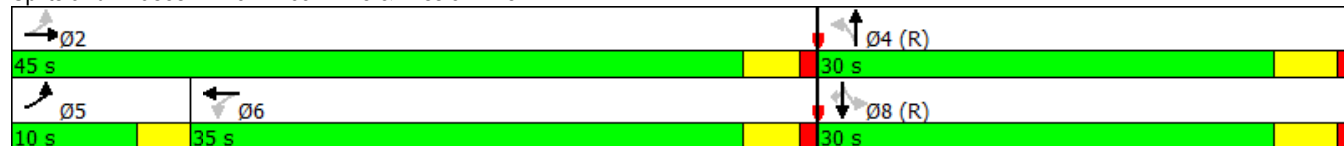
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 23: Lincoln Ave & Mission Ave



San Rafael Multi-Family TIS: Baseline With Project Conditions

24: Tamalpais Ave (West) & Mission Ave

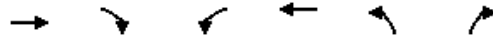
AM PEAK HOUR

	→	↘	↙	←	↖	↗			
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø3	Ø4	Ø6
Lane Configurations	↗			↖	↗	↘			
Traffic Volume (vph)	508	10	0	636	3	3			
Future Volume (vph)	508	10	0	636	3	3			
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800			
Storage Length (ft)		0	0		0	0			
Storage Lanes		0	0		1	0			
Taper Length (ft)			25		25				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00			
Ped Bike Factor	1.00				0.98				
Frt	0.997				0.932				
Flt Protected					0.976				
Satd. Flow (prot)	1741	0	0	1748	1590	0			
Flt Permitted					0.976				
Satd. Flow (perm)	1741	0	0	1748	1550	0			
Right Turn on Red		Yes				Yes			
Satd. Flow (RTOR)	2				3				
Link Speed (mph)	25			25	25				
Link Distance (ft)	292			71	337				
Travel Time (s)	8.0			1.9	9.2				
Confl. Peds. (#/hr)		8	8		17				
Confl. Bikes (#/hr)		3							
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94			
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%			
Adj. Flow (vph)	540	11	0	677	3	3			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	551	0	0	677	6	0			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Right	Left	Left	Left	Right			
Median Width(ft)	10			10	12				
Link Offset(ft)	0			0	0				
Crosswalk Width(ft)	16			16	16				
Two way Left Turn Lane									
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07			
Turning Speed (mph)		9	15		15	9			
Turn Type	NA			NA	Perm				
Protected Phases	2			3 4 6			3	4	6
Permitted Phases					8				
Detector Phase	2			3 4 6	8				
Switch Phase									
Minimum Initial (s)	8.0				6.0		2.0	6.0	7.0
Minimum Split (s)	17.6				18.0		5.0	11.2	12.6
Total Split (s)	35.0				18.0		5.0	17.0	35.0
Total Split (%)	46.7%				24.0%		7%	23%	47%
Maximum Green (s)	29.4				12.8		2.0	11.8	29.4
Yellow Time (s)	3.6				3.2		3.0	3.2	3.6
All-Red Time (s)	2.0				2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0				0.0				
Total Lost Time (s)	5.6				5.2				
Lead/Lag							Lead	Lag	

San Rafael Multi-Family TIS: Baseline With Project Conditions

24: Tamalpais Ave (West) & Mission Ave

AM PEAK HOUR



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø3	Ø4	Ø6
Lead-Lag Optimize?									
Vehicle Extension (s)	3.0				3.0		0.2	3.0	3.0
Recall Mode	C-Min				None		None	None	C-Min
Walk Time (s)	5.0				5.0				
Flash Dont Walk (s)	7.0				7.8				
Pedestrian Calls (#/hr)	13				13				
Act Effct Green (s)	30.9			53.2	13.6				
Actuated g/C Ratio	0.41			0.71	0.18				
v/c Ratio	0.77			0.55	0.02				
Control Delay	22.8			2.3	24.3				
Queue Delay	3.6			10.0	0.0				
Total Delay	26.4			12.3	24.3				
LOS	C			B	C				
Approach Delay	26.4			12.3	24.3				
Approach LOS	C			B	C				
90th %ile Green (s)	29.4				12.8		2.0	11.8	29.4
90th %ile Term Code	Coord				Max		Max	Max	Coord
70th %ile Green (s)	29.4				13.8		2.0	10.8	29.4
70th %ile Term Code	Coord				Max		Max	Gap	Coord
50th %ile Green (s)	29.4				15.3		2.0	9.3	29.4
50th %ile Term Code	Coord				Max		Max	Gap	Coord
30th %ile Green (s)	31.0				15.1		2.0	7.9	31.0
30th %ile Term Code	Coord				Gap		Max	Gap	Coord
10th %ile Green (s)	35.4				11.1		2.0	7.5	35.4
10th %ile Term Code	Coord				Gap		Max	Gap	Coord
Queue Length 50th (ft)	246			1	2				
Queue Length 95th (ft)	m#387			m16	m6				
Internal Link Dist (ft)	212			1	257				
Turn Bay Length (ft)									
Base Capacity (vph)	718			1293	291				
Starvation Cap Reductn	96			0	0				
Spillback Cap Reductn	18			583	0				
Storage Cap Reductn	0			0	0				
Reduced v/c Ratio	0.89			0.95	0.02				

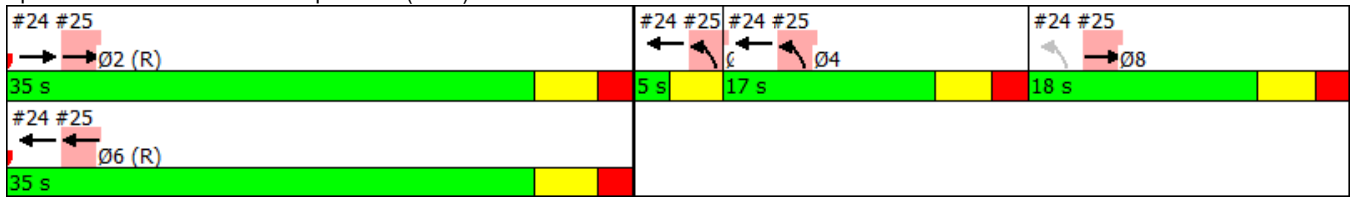
Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 27 (36%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay: 18.7
 Intersection Capacity Utilization 48.0%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

San Rafael Multi-Family TIS: Baseline With Project Conditions
 24: Tamalpais Ave (West) & Mission Ave

AM PEAK HOUR

Splits and Phases: 24: Tamalpais Ave (West) & Mission Ave



San Rafael Multi-Family TIS: Baseline With Project Conditions
 25: Tamalpais Avenue (East) & Mission Ave

AM PEAK HOUR

	→	↘	↙	←	↖	↗				
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø2	Ø3	Ø4	Ø8
Lane Configurations	↑			↑	↘					
Traffic Volume (vph)	519	0	0	636	0	15				
Future Volume (vph)	519	0	0	636	0	15				
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00				
Frt					0.865					
Flt Protected										
Satd. Flow (prot)	1748	0	0	1748	1512	0				
Flt Permitted										
Satd. Flow (perm)	1748	0	0	1748	1512	0				
Right Turn on Red		Yes				Yes				
Satd. Flow (RTOR)					352					
Link Speed (mph)	25			25	25					
Link Distance (ft)	71			191	329					
Travel Time (s)	1.9			5.2	9.0					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%				
Adj. Flow (vph)	552	0	0	677	0	16				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	552	0	0	677	16	0				
Enter Blocked Intersection	No	No	No	No	No	No				
Lane Alignment	Left	Right	Left	Left	Left	Right				
Median Width(ft)	0			0	12					
Link Offset(ft)	0			0	0					
Crosswalk Width(ft)	16			16	16					
Two way Left Turn Lane										
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07				
Turning Speed (mph)		9	15		15	9				
Turn Type	NA			NA	Prot					
Protected Phases	2 8			6	3 4		2	3	4	8
Permitted Phases										
Detector Phase	2 8			6	3 4					
Switch Phase										
Minimum Initial (s)				7.0			8.0	2.0	6.0	6.0
Minimum Split (s)				12.6			17.6	5.0	11.2	18.0
Total Split (s)				35.0			35.0	5.0	17.0	18.0
Total Split (%)				46.7%			47%	7%	23%	24%
Maximum Green (s)				29.4			29.4	2.0	11.8	12.8
Yellow Time (s)				3.6			3.6	3.0	3.2	3.2
All-Red Time (s)				2.0			2.0	0.0	2.0	2.0
Lost Time Adjust (s)				0.0						
Total Lost Time (s)				5.6						
Lead/Lag								Lead	Lag	
Lead-Lag Optimize?										
Vehicle Extension (s)				3.0			3.0	0.2	3.0	3.0
Recall Mode				C-Min			C-Min	None	None	None
Walk Time (s)							5.0			5.0
Flash Dont Walk (s)							7.0			7.8
Pedestrian Calls (#/hr)							13			13

San Rafael Multi-Family TIS: Baseline With Project Conditions

25: Tamalpais Avenue (East) & Mission Ave

AM PEAK HOUR

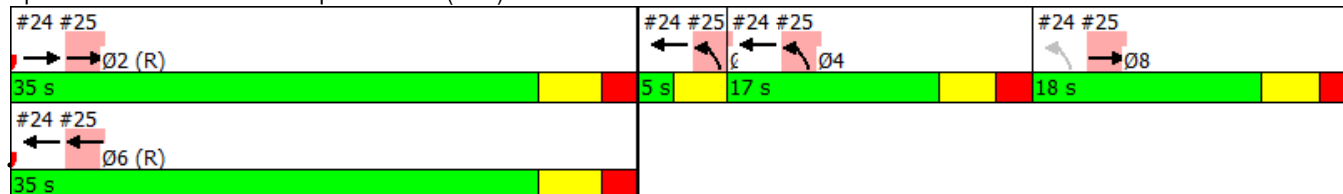


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø2	Ø3	Ø4	Ø8
Act Effect Green (s)	49.7			30.9	16.7					
Actuated g/C Ratio	0.66			0.41	0.22					
v/c Ratio	0.48			0.94	0.03					
Control Delay	2.5			40.6	0.1					
Queue Delay	0.0			48.0	0.0					
Total Delay	2.5			88.5	0.1					
LOS	A			F	A					
Approach Delay	2.5			88.5	0.1					
Approach LOS	A			F	A					
90th %ile Green (s)				29.4			29.4	2.0	11.8	12.8
90th %ile Term Code				Coord			Coord	Max	Max	Max
70th %ile Green (s)				29.4			29.4	2.0	10.8	13.8
70th %ile Term Code				Coord			Coord	Max	Gap	Max
50th %ile Green (s)				29.4			29.4	2.0	9.3	15.3
50th %ile Term Code				Coord			Coord	Max	Gap	Max
30th %ile Green (s)				31.0			31.0	2.0	7.9	15.1
30th %ile Term Code				Coord			Coord	Max	Gap	Gap
10th %ile Green (s)				35.4			35.4	2.0	7.5	11.1
10th %ile Term Code				Coord			Coord	Max	Gap	Gap
Queue Length 50th (ft)	2			348	0					
Queue Length 95th (ft)	m39			m#385	m0					
Internal Link Dist (ft)	1			111	249					
Turn Bay Length (ft)										
Base Capacity (vph)	1141			720	645					
Starvation Cap Reductn	0			323	0					
Spillback Cap Reductn	0			44	0					
Storage Cap Reductn	0			0	0					
Reduced v/c Ratio	0.48			1.71	0.02					

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 27 (36%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay: 49.3 Intersection LOS: D
 Intersection Capacity Utilization 46.7% ICU Level of Service A
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

















Splits and Phases: 25: Tamalpais Avenue (East) & Mission Ave



San Rafael Multi-Family TIS: Baseline With Project Conditions

26: Hetherton St/101 SB Off-Ramp & Mission Ave

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	514	85	114	138	0	0	0	0	167	1105	476
Future Volume (vph)	0	514	85	114	138	0	0	0	0	167	1105	476
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	10	12	12	16	12	12	12	12	12	12	12
Storage Length (ft)	0		0	0		0	0		0	0		360
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor		1.00			1.00						1.00	0.95
Frt		0.979										0.850
Flt Protected					0.978						0.993	
Satd. Flow (prot)	0	3024	0	0	1937	0	0	0	0	0	3297	1485
Flt Permitted					0.556						0.993	
Satd. Flow (perm)	0	3024	0	0	1099	0	0	0	0	0	3297	1406
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		29										
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		191			376			325			418	
Travel Time (s)		5.2			10.3			8.9			11.4	
Confl. Peds. (#/hr)			9	9						2		11
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	547	90	121	147	0	0	0	0	178	1176	506
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	637	0	0	268	0	0	0	0	0	1354	506
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.17	1.07	1.07	0.91	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA		Perm	NA					Split	NA	custom
Protected Phases		4			8					2	2	
Permitted Phases				8								5
Minimum Split (s)		31.0		31.0	31.0					30.0	30.0	30.0
Total Split (s)		37.0		37.0	37.0					38.0	38.0	31.0
Total Split (%)		49.3%		49.3%	49.3%					50.7%	50.7%	41.3%
Maximum Green (s)		32.8		32.8	32.8					33.4	33.4	26.4
Yellow Time (s)		3.2		3.2	3.2					3.6	3.6	3.6
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	1.0
Lost Time Adjust (s)		0.0			0.0						0.0	0.0
Total Lost Time (s)		4.2			4.2						4.6	4.6
Lead/Lag												Lag
Lead-Lag Optimize?												
Walk Time (s)		7.0		7.0	7.0							0.0

Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Minimum Split (s)	9.0
Total Split (s)	7.0
Total Split (%)	9%
Maximum Green (s)	5.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	
Walk Time (s)	7.0

San Rafael Multi-Family TIS: Baseline With Project Conditions

26: Hetherton St/101 SB Off-Ramp & Mission Ave

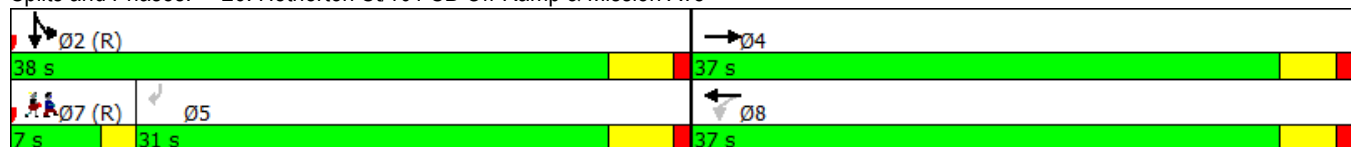
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		12.0		15.0	15.0							12.0
Pedestrian Calls (#/hr)		0		0	0							0
Act Effct Green (s)		32.8			32.8						33.4	26.4
Actuated g/C Ratio		0.44			0.44						0.45	0.35
v/c Ratio		0.48			0.56						0.92	1.02
Control Delay		9.4			32.6						31.9	74.1
Queue Delay		0.8			3.5						0.0	40.3
Total Delay		10.2			36.1						31.9	114.4
LOS		B			D						C	F
Approach Delay		10.2			36.1						54.3	
Approach LOS		B			D						D	
Queue Length 50th (ft)		34			115						298	~242
Queue Length 95th (ft)		92			m168						#447	#433
Internal Link Dist (ft)		111			296			245			338	
Turn Bay Length (ft)												360
Base Capacity (vph)		1338			480						1468	494
Starvation Cap Reductn		389			0						0	0
Spillback Cap Reductn		0			131						0	331
Storage Cap Reductn		0			0						0	0
Reduced v/c Ratio		0.67			0.77						0.92	3.10

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 58 (77%), Referenced to phase 2:SBTL and 7:Ped, Start of Green
 Natural Cycle: 75
 Control Type: Pretimed
 Maximum v/c Ratio: 1.02
 Intersection Signal Delay: 42.4 Intersection LOS: D
 Intersection Capacity Utilization 80.5% ICU Level of Service D
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 26: Hetherton St/101 SB Off-Ramp & Mission Ave



Lane Group	Ø7
Flash Dont Walk (s)	0.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

San Rafael Multi-Family TIS: Baseline With Project Conditions

27: Irwin St/101 NB On-Ramp & Mission Ave

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	461	239	0	0	200	280	66	1354	37	0	0	0
Future Volume (vph)	461	239	0	0	200	280	66	1354	37	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	9	10	12	12	10	9	12	12	12	12	12	12
Storage Length (ft)	0		0	0		80	0		70	0		0
Storage Lanes	0		0	0		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor								1.00	0.95			
Frt						0.850			0.850			
Flt Protected	0.950							0.998				
Satd. Flow (prot)	1494	1631	0	0	1631	1337	0	3131	1322	0	0	0
Flt Permitted	0.534							0.998				
Satd. Flow (perm)	840	1631	0	0	1631	1337	0	3131	1260	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						79			79			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		376			519			313			673	
Travel Time (s)		10.3			14.2			8.5			18.4	
Confl. Peds. (#/hr)							2		16			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)								2	2			
Adj. Flow (vph)	490	254	0	0	213	298	70	1440	39	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	490	254	0	0	213	298	0	1510	39	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		9			9			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.22	1.17	1.07	1.07	1.17	1.22	1.07	1.15	1.24	1.07	1.07	1.07
Turning Speed (mph)	35		9	15		35	35		35	15		9
Turn Type	pm+pt	NA			NA	Prot	Split	NA	Perm			
Protected Phases	7	4			8	8	2	2				
Permitted Phases	4								2			
Minimum Split (s)	10.0	29.0			13.0	13.0	29.0	29.0	29.0			
Total Split (s)	15.0	38.0			23.0	23.0	37.0	37.0	37.0			
Total Split (%)	20.0%	50.7%			30.7%	30.7%	49.3%	49.3%	49.3%			
Maximum Green (s)	10.8	33.8			18.8	18.8	32.8	32.8	32.8			
Yellow Time (s)	3.2	3.2			3.2	3.2	3.2	3.2	3.2			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0	1.0	1.0			
Lost Time Adjust (s)	0.0	0.0			0.0	0.0		0.0	0.0			
Total Lost Time (s)	4.2	4.2			4.2	4.2		4.2	4.2			
Lead/Lag	Lag				Lead	Lead						
Lead-Lag Optimize?												
Walk Time (s)		7.0					7.0	7.0	7.0			

San Rafael Multi-Family TIS: Baseline With Project Conditions

27: Irwin St/101 NB On-Ramp & Mission Ave

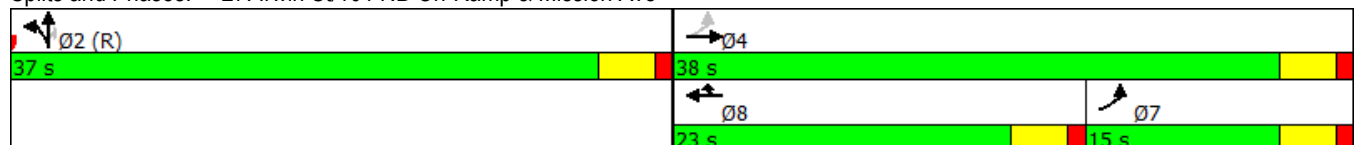
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		15.0					15.0	15.0	15.0			
Pedestrian Calls (#/hr)		0					0	0	0			
Act Effct Green (s)	33.8	33.8			18.8	18.8		32.8	32.8			
Actuated g/C Ratio	0.45	0.45			0.25	0.25		0.44	0.44			
v/c Ratio	1.04	0.35			0.52	0.76		1.10	0.07			
Control Delay	73.4	13.2			29.6	33.3		70.1	0.5			
Queue Delay	0.0	0.0			0.0	0.0		0.4	0.0			
Total Delay	73.4	13.2			29.6	33.3		70.5	0.5			
LOS	E	B			C	C		E	A			
Approach Delay		52.8			31.8			68.7				
Approach LOS		D			C			E				
Queue Length 50th (ft)	~169	66			85	94		~420	0			
Queue Length 95th (ft)	m#335	m140			150	#216		m#461	m0			
Internal Link Dist (ft)		296			439			233			593	
Turn Bay Length (ft)						80			70			
Base Capacity (vph)	472	735			408	394		1369	595			
Starvation Cap Reductn	0	0			0	0		136	0			
Spillback Cap Reductn	0	0			0	0		0	0			
Storage Cap Reductn	0	0			0	0		0	0			
Reduced v/c Ratio	1.04	0.35			0.52	0.76		1.22	0.07			

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 15 (20%), Referenced to phase 2:NBTL, Start of Green
 Natural Cycle: 80
 Control Type: Pretimed
 Maximum v/c Ratio: 1.10
 Intersection Signal Delay: 57.8 Intersection LOS: E
 Intersection Capacity Utilization 97.3% ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 27: Irwin St/101 NB On-Ramp & Mission Ave



San Rafael Multi-Family TIS: Baseline With Project Conditions

28: Lincoln Ave & 5th Ave

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	352	19	32	268	19	8	199	45	19	359	24
Future Volume (vph)	37	352	19	32	268	19	8	199	45	19	359	24
Ideal Flow (vphpl)	1600	1700	1700	1600	1700	1700	1600	1700	1700	1600	1700	1700
Lane Width (ft)	10	13	12	10	12	12	12	10	9	12	11	9
Storage Length (ft)	97		0	45		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	1.00			0.99			0.99	
Frt		0.992			0.990			0.976			0.992	
Flt Protected	0.950			0.950				0.998			0.998	
Satd. Flow (prot)	1377	1689	0	1377	1630	0	0	1320	0	0	1398	0
Flt Permitted	0.483			0.382				0.986			0.981	
Satd. Flow (perm)	693	1689	0	550	1630	0	0	1303	0	0	1373	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			6			20			6	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		482			294			288			342	
Travel Time (s)		13.1			8.0			7.9			9.3	
Confl. Peds. (#/hr)	9		9	9		9	40		25	25		40
Confl. Bikes (#/hr)			2			4			6			7
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)							2	2	2	2	2	2
Adj. Flow (vph)	39	374	20	34	285	20	9	212	48	20	382	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	39	394	0	34	305	0	0	269	0	0	428	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.35	1.11	1.15	1.35	1.15	1.15	1.24	1.45	1.31	1.24	1.39	1.31
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	26.0	26.0		25.0	25.0		28.0	28.0		28.0	28.0	
Total Split (s)	34.0	34.0		34.0	34.0		41.0	41.0		41.0	41.0	
Total Split (%)	45.3%	45.3%		45.3%	45.3%		54.7%	54.7%		54.7%	54.7%	
Maximum Green (s)	29.4	29.4		29.4	29.4		36.4	36.4		36.4	36.4	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.6	3.6		3.6	3.6	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	4.6	4.6		4.6	4.6			4.6			4.6	
Lead/Lag												
Lead-Lag Optimize?												

San Rafael Multi-Family TIS: Baseline With Project Conditions

28: Lincoln Ave & 5th Ave

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		13.0	13.0		16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	29.4	29.4		29.4	29.4			36.4			36.4	
Actuated g/C Ratio	0.39	0.39		0.39	0.39			0.49			0.49	
v/c Ratio	0.14	0.59		0.16	0.48			0.42			0.64	
Control Delay	16.5	22.4		29.4	29.7			8.0			8.1	
Queue Delay	0.0	1.0		0.0	0.8			0.4			0.3	
Total Delay	16.5	23.4		29.4	30.5			8.3			8.5	
LOS	B	C		C	C			A			A	
Approach Delay		22.8			30.4			8.3			8.5	
Approach LOS		C			C			A			A	
Queue Length 50th (ft)	11	140		10	88			38			35	
Queue Length 95th (ft)	32	228		43	223			m59			m44	
Internal Link Dist (ft)		402			214			208			262	
Turn Bay Length (ft)	97			45								
Base Capacity (vph)	271	664		215	642			642			669	
Starvation Cap Reductn	0	0		0	129			99			35	
Spillback Cap Reductn	0	98		0	0			1			14	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.14	0.70		0.16	0.59			0.50			0.68	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 46 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 55
 Control Type: Pretimed
 Maximum v/c Ratio: 0.64
 Intersection Signal Delay: 17.7 Intersection LOS: B
 Intersection Capacity Utilization 76.3% ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 28: Lincoln Ave & 5th Ave



San Rafael Multi-Family TIS: Baseline With Project Conditions

29: 5th Ave & Tamalpais Ave (West)

AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	377	19	0	338	77	9	8	12	10	54	18
Future Volume (vph)	0	377	19	0	338	77	9	8	12	10	54	18
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			0.98			0.99	
Frt		0.994			0.975			0.945			0.971	
Flt Protected								0.985			0.994	
Satd. Flow (prot)	0	1732	0	0	1694	0	0	1612	0	0	1665	0
Flt Permitted								0.904			0.951	
Satd. Flow (perm)	0	1732	0	0	1694	0	0	1465	0	0	1593	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			32			13			17	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		294			71			91			337	
Travel Time (s)		8.0			1.9			2.5			9.2	
Confl. Peds. (#/hr)	4		14	14		4	14					14
Confl. Bikes (#/hr)			3			1			1			2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	401	20	0	360	82	10	9	13	11	57	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	421	0	0	442	0	0	32	0	0	87	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		2			4 6			8			8	
Permitted Phases							8			8		
Detector Phase		2			4 6		8	8		8	8	
Switch Phase												
Minimum Initial (s)		7.0					5.0	5.0		5.0	5.0	
Minimum Split (s)		19.6					20.0	20.0		20.0	20.0	
Total Split (s)		35.0					20.0	20.0		20.0	20.0	
Total Split (%)		46.7%					26.7%	26.7%		26.7%	26.7%	
Maximum Green (s)		29.4					14.4	14.4		14.4	14.4	
Yellow Time (s)		3.6					3.6	3.6		3.6	3.6	
All-Red Time (s)		2.0					2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0						0.0			0.0	
Total Lost Time (s)		5.6						5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0					1.5	1.5		1.5	1.5	
Recall Mode		C-Max					None	None		None	None	

San Rafael Multi-Family TIS: Baseline With Project Conditions
 29: 5th Ave & Tamalpais Ave (West)

AM PEAK HOUR

Lane Group	Ø4	Ø6
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	4	6
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	8.0
Minimum Split (s)	20.0	19.6
Total Split (s)	20.0	35.0
Total Split (%)	27%	47%
Maximum Green (s)	14.4	29.4
Yellow Time (s)	3.6	3.6
All-Red Time (s)	2.0	2.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	1.5	3.0
Recall Mode	None	C-Max

San Rafael Multi-Family TIS: Baseline With Project Conditions
 29: 5th Ave & Tamalpais Ave (West)

AM PEAK HOUR

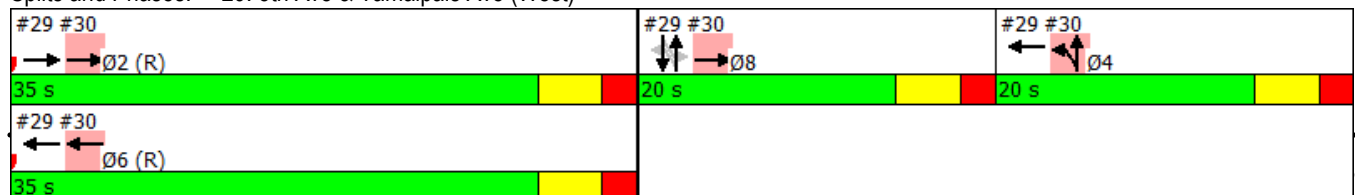


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		7.0					7.4	7.4		7.4	7.4	
Pedestrian Calls (#/hr)		13					13	13		13	13	
Act Effct Green (s)		39.3			55.4			8.4			8.4	
Actuated g/C Ratio		0.52			0.74			0.11			0.11	
v/c Ratio		0.46			0.35			0.18			0.45	
Control Delay		10.1			0.8			15.1			31.5	
Queue Delay		1.6			0.0			0.3			1.0	
Total Delay		11.8			0.9			15.4			32.5	
LOS		B			A			B			C	
Approach Delay		11.8			0.9			15.4			32.5	
Approach LOS		B			A			B			C	
90th %ile Green (s)		29.4					14.4	14.4		14.4	14.4	
90th %ile Term Code		Coord					Ped	Ped		Ped	Ped	
70th %ile Green (s)		34.9					9.7	9.7		9.7	9.7	
70th %ile Term Code		Coord					Gap	Gap		Gap	Gap	
50th %ile Green (s)		41.0					7.2	7.2		7.2	7.2	
50th %ile Term Code		Coord					Gap	Gap		Gap	Gap	
30th %ile Green (s)		44.4					5.6	5.6		5.6	5.6	
30th %ile Term Code		Coord					Gap	Gap		Gap	Gap	
10th %ile Green (s)		46.7					5.0	5.0		5.0	5.0	
10th %ile Term Code		Coord					Min	Min		Min	Min	
Queue Length 50th (ft)		19			1			10			32	
Queue Length 95th (ft)		287			0			m24			m65	
Internal Link Dist (ft)		214			1			11			257	
Turn Bay Length (ft)												
Base Capacity (vph)		908			1233			291			319	
Starvation Cap Reductn		312			0			0			0	
Spillback Cap Reductn		0			71			91			100	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.71			0.38			0.16			0.40	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 35 (47%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.46
 Intersection Signal Delay: 8.8 Intersection LOS: A
 Intersection Capacity Utilization 41.0% ICU Level of Service A
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 29: 5th Ave & Tamalpais Ave (West)



San Rafael Multi-Family TIS: Baseline With Project Conditions
 29: 5th Ave & Tamalpais Ave (West)


















AM PEAK HOUR

Lane Group	Ø4	Ø6
Walk Time (s)	7.0	7.0
Flash Dont Walk (s)	7.4	7.0
Pedestrian Calls (#/hr)	13	13
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
90th %ile Green (s)	14.4	29.4
90th %ile Term Code	Max	Coord
70th %ile Green (s)	13.6	34.9
70th %ile Term Code	Gap	Coord
50th %ile Green (s)	10.0	41.0
50th %ile Term Code	Gap	Coord
30th %ile Green (s)	8.2	44.4
30th %ile Term Code	Gap	Coord
10th %ile Green (s)	6.5	46.7
10th %ile Term Code	Gap	Coord
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

San Rafael Multi-Family TIS: Baseline With Project Conditions

30: Tamalpais Avenue (East) & 5th Ave

AM PEAK HOUR

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	0	399	0	0	387	8	28	2	30	0	0	0	
Future Volume (vph)	0	399	0	0	387	8	28	2	30	0	0	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor					1.00			0.98					
Frt					0.997			0.932					
Flt Protected								0.977					
Satd. Flow (prot)	0	1748	0	0	1741	0	0	1555	0	0	0	0	
Flt Permitted								0.977					
Satd. Flow (perm)	0	1748	0	0	1741	0	0	1555	0	0	0	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)					2			32					
Link Speed (mph)		25			25			25			25		
Link Distance (ft)		71			180			288			329		
Travel Time (s)		1.9			4.9			7.9			9.0		
Confl. Peds. (#/hr)	4					4			10				
Confl. Bikes (#/hr)						1							
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	
Adj. Flow (vph)	0	424	0	0	412	9	30	2	32	0	0	0	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	424	0	0	421	0	0	64	0	0	0	0	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(ft)		0			0			0			0		
Link Offset(ft)		0			0			0			0		
Crosswalk Width(ft)		16			16			16			16		
Two way Left Turn Lane													
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	
Turning Speed (mph)	15		9	15		9	15		9	15		9	
Turn Type		NA			NA		Split	NA					
Protected Phases		2 8			6		4	4					
Permitted Phases													
Detector Phase		2 8			6		4	4					
Switch Phase													
Minimum Initial (s)					8.0		5.0	5.0					
Minimum Split (s)					19.6		20.0	20.0					
Total Split (s)					35.0		20.0	20.0					
Total Split (%)					46.7%		26.7%	26.7%					
Maximum Green (s)					29.4		14.4	14.4					
Yellow Time (s)					3.6		3.6	3.6					
All-Red Time (s)					2.0		2.0	2.0					
Lost Time Adjust (s)					0.0			0.0					
Total Lost Time (s)					5.6			5.6					
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)					3.0		1.5	1.5					
Recall Mode					C-Max		None	None					

San Rafael Multi-Family TIS: Baseline With Project Conditions
 30: Tamalpais Avenue (East) & 5th Ave

AM PEAK HOUR

Lane Group	Ø2	Ø8
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	2	8
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	7.0	5.0
Minimum Split (s)	19.6	20.0
Total Split (s)	35.0	20.0
Total Split (%)	47%	27%
Maximum Green (s)	29.4	14.4
Yellow Time (s)	3.6	3.6
All-Red Time (s)	2.0	2.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	1.5
Recall Mode	C-Max	None

San Rafael Multi-Family TIS: Baseline With Project Conditions

30: Tamalpais Avenue (East) & 5th Ave

AM PEAK HOUR

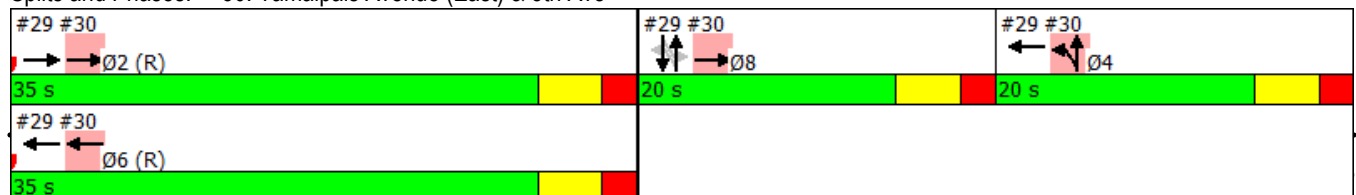


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)					7.0		7.0	7.0				
Flash Dont Walk (s)					7.0		7.4	7.4				
Pedestrian Calls (#/hr)					13		13	13				
Act Effct Green (s)		53.3			39.3			10.5				
Actuated g/C Ratio		0.71			0.52			0.14				
v/c Ratio		0.34			0.46			0.26				
Control Delay		0.8			12.5			26.4				
Queue Delay		0.0			2.0			0.0				
Total Delay		0.8			14.5			26.4				
LOS		A			B			C				
Approach Delay		0.8			14.5			26.4				
Approach LOS		A			B			C				
90th %ile Green (s)					29.4		14.4	14.4				
90th %ile Term Code					Coord		Max	Max				
70th %ile Green (s)					34.9		13.6	13.6				
70th %ile Term Code					Coord		Gap	Gap				
50th %ile Green (s)					41.0		10.0	10.0				
50th %ile Term Code					Coord		Gap	Gap				
30th %ile Green (s)					44.4		8.2	8.2				
30th %ile Term Code					Coord		Gap	Gap				
10th %ile Green (s)					46.7		6.5	6.5				
10th %ile Term Code					Coord		Gap	Gap				
Queue Length 50th (ft)		1			99			20				
Queue Length 95th (ft)		1			266			m32				
Internal Link Dist (ft)		1			100			208			249	
Turn Bay Length (ft)												
Base Capacity (vph)		1381			912			324				
Starvation Cap Reductn		0			336			0				
Spillback Cap Reductn		32			0			0				
Storage Cap Reductn		0			0			0				
Reduced v/c Ratio		0.31			0.73			0.20				

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 35 (47%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.46
 Intersection Signal Delay: 8.9 Intersection LOS: A
 Intersection Capacity Utilization 37.9% ICU Level of Service A
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: Tamalpais Avenue (East) & 5th Ave



San Rafael Multi-Family TIS: Baseline With Project Conditions
 30: Tamalpais Avenue (East) & 5th Ave



















AM PEAK HOUR

Lane Group	Ø2	Ø8
Walk Time (s)	7.0	7.0
Flash Dont Walk (s)	7.0	7.4
Pedestrian Calls (#/hr)	13	13
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
90th %ile Green (s)	29.4	14.4
90th %ile Term Code	Coord	Ped
70th %ile Green (s)	34.9	9.7
70th %ile Term Code	Coord	Gap
50th %ile Green (s)	41.0	7.2
50th %ile Term Code	Coord	Gap
30th %ile Green (s)	44.4	5.6
30th %ile Term Code	Coord	Gap
10th %ile Green (s)	46.7	5.0
10th %ile Term Code	Coord	Min
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

San Rafael Multi-Family TIS: Baseline With Project Conditions

31: 5th Ave & Hetherton St

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											  	
Traffic Volume (vph)	0	217	195	70	179	0	0	0	0	39	1143	159
Future Volume (vph)	0	217	195	70	179	0	0	0	0	39	1143	159
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	12	12	16	12	12	12	12	12	12	12
Storage Length (ft)	0		0	0		0	0		0	0		180
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00
Ped Bike Factor		0.99			1.00							0.96
Frt		0.936										0.850
Flt Protected					0.986						0.998	
Satd. Flow (prot)	0	1838	0	0	1953	0	0	0	0	0	4587	1322
Flt Permitted					0.724						0.998	
Satd. Flow (perm)	0	1838	0	0	1433	0	0	0	0	0	4587	1266
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		25						25			25	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		180			388			290			325	
Travel Time (s)		4.9			10.6			7.9			8.9	
Confl. Peds. (#/hr)			5	5								11
Confl. Bikes (#/hr)			2									2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)											2	2
Adj. Flow (vph)	0	231	207	74	190	0	0	0	0	41	1216	169
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	438	0	0	264	0	0	0	0	0	1257	169
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	0.91	1.07	1.07	0.91	1.07	1.07	1.07	1.07	1.07	1.12	1.24
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA		Perm	NA					Split	NA	custom
Protected Phases		4			8					2	2	
Permitted Phases				8								5
Minimum Split (s)		31.0		31.0	31.0					31.0	31.0	28.0
Total Split (s)		37.0		37.0	37.0					38.0	38.0	31.0
Total Split (%)		49.3%		49.3%	49.3%					50.7%	50.7%	41.3%
Maximum Green (s)		32.4		32.4	32.4					33.5	33.5	26.5
Yellow Time (s)		3.6		3.6	3.6					3.5	3.5	3.5
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	1.0
Lost Time Adjust (s)		0.0			0.0						0.0	0.0
Total Lost Time (s)		4.6			4.6						4.5	4.5
Lead/Lag												Lag
Lead-Lag Optimize?												

Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Parking (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Minimum Split (s)	10.0
Total Split (s)	7.0
Total Split (%)	9%
Maximum Green (s)	4.0
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	

San Rafael Multi-Family TIS: Baseline With Project Conditions

31: 5th Ave & Hetherton St

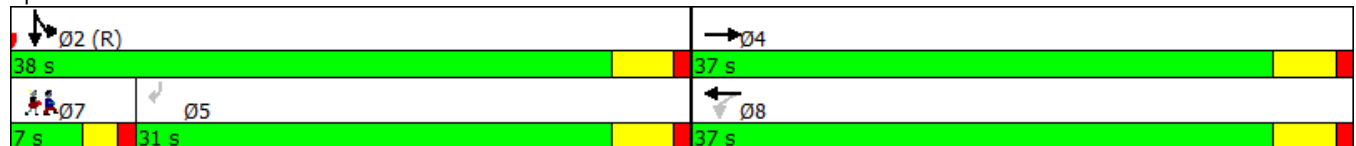
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0		7.0	7.0							7.0
Flash Dont Walk (s)		16.0		16.0	16.0							13.0
Pedestrian Calls (#/hr)		0		0	0							0
Act Effect Green (s)		32.4			32.4						33.5	26.5
Actuated g/C Ratio		0.43			0.43						0.45	0.35
v/c Ratio		0.54			0.43						0.61	0.38
Control Delay		8.6			23.3						5.3	8.0
Queue Delay		2.1			0.2						0.4	1.1
Total Delay		10.7			23.5						5.7	9.1
LOS		B			C						A	A
Approach Delay		10.7			23.5						6.1	
Approach LOS		B			C						A	
Queue Length 50th (ft)		11			96						38	24
Queue Length 95th (ft)		88			m135						m42	m28
Internal Link Dist (ft)		100			308			210			245	
Turn Bay Length (ft)												180
Base Capacity (vph)		808			619						2048	447
Starvation Cap Reductn		232			0						337	0
Spillback Cap Reductn		0			53						0	125
Storage Cap Reductn		0			0						0	0
Reduced v/c Ratio		0.76			0.47						0.73	0.52

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 67 (89%), Referenced to phase 2:SBTL, Start of Green
 Natural Cycle: 70
 Control Type: Pretimed
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 9.2 Intersection LOS: A
 Intersection Capacity Utilization 74.5% ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 31: 5th Ave & Hetherton St




















Lane Group	Ø7
Walk Time (s)	7.0
Flash Dont Walk (s)	0.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

San Rafael Multi-Family TIS: Baseline With Project Conditions

32: 5th Ave & Irwin St

AM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	78	0	0	138	56	112	1260	9	0	0	0
Future Volume (vph)	203	78	0	0	138	56	112	1260	9	0	0	0
Ideal Flow (vphpl)	1600	1600	1800	1800	1600	1600	1600	1600	1600	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	11	12	12	12	12
Storage Length (ft)	75		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	0.99				0.99			1.00				
Frt					0.961			0.999				
Flt Protected	0.950							0.996				
Satd. Flow (prot)	1313	1383	0	0	1320	0	0	2682	0	0	0	0
Flt Permitted	0.572							0.996				
Satd. Flow (perm)	786	1383	0	0	1320	0	0	2682	0	0	0	0
Right Turn on Red			No			Yes			Yes			No
Satd. Flow (RTOR)					28			1				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		388			537			291			313	
Travel Time (s)		10.6			14.6			7.9			8.5	
Confl. Peds. (#/hr)	8						8		3			
Confl. Bikes (#/hr)							3					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)	2	2			2	2	2	2	2			
Adj. Flow (vph)	216	83	0	0	147	60	119	1340	10	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	216	83	0	0	207	0	0	1469	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.43	1.43	1.07	1.07	1.43	1.24	1.24	1.39	1.24	1.07	1.07	1.07
Turning Speed (mph)	25		3	15		9	15		9	15		9
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Minimum Split (s)	27.0	27.0			27.0		28.0	28.0				
Total Split (s)	28.0	28.0			28.0		47.0	47.0				
Total Split (%)	37.3%	37.3%			37.3%		62.7%	62.7%				
Maximum Green (s)	23.4	23.4			23.4		42.4	42.4				
Yellow Time (s)	3.6	3.6			3.6		3.6	3.6				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	4.6	4.6			4.6		4.6	4.6				
Lead/Lag												
Lead-Lag Optimize?												

San Rafael Multi-Family TIS: Baseline With Project Conditions

32: 5th Ave & Irwin St

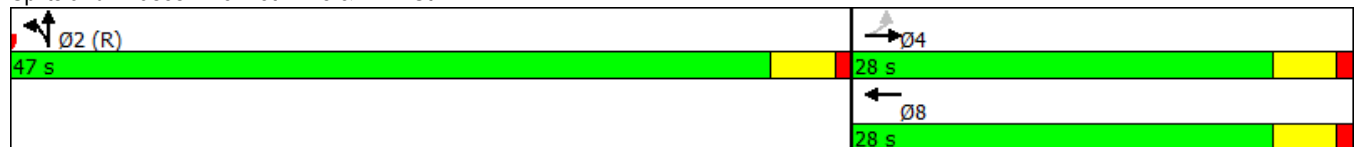
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0			7.0		7.0	7.0				
Flash Dont Walk (s)	15.0	15.0			15.0		16.0	16.0				
Pedestrian Calls (#/hr)	0	0			0		0	0				
Act Effct Green (s)	23.4	23.4			23.4			42.4				
Actuated g/C Ratio	0.31	0.31			0.31			0.57				
v/c Ratio	0.88	0.19			0.48			0.97				
Control Delay	53.6	12.4			22.4			17.8				
Queue Delay	0.0	0.0			0.0			42.5				
Total Delay	53.6	12.4			22.4			60.3				
LOS	D	B			C			E				
Approach Delay		42.1			22.4			60.3				
Approach LOS		D			C			E				
Queue Length 50th (ft)	110	29			66			67				
Queue Length 95th (ft)	#231	m34			128			m#464				
Internal Link Dist (ft)		308			457			211			233	
Turn Bay Length (ft)	75											
Base Capacity (vph)	245	431			431			1516				
Starvation Cap Reductn	0	0			0			0				
Spillback Cap Reductn	0	0			3			397				
Storage Cap Reductn	0	0			0			0				
Reduced v/c Ratio	0.88	0.19			0.48			1.31				

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 7 (9%), Referenced to phase 2:NBT, Start of Green
 Natural Cycle: 80
 Control Type: Pretimed
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 53.6 Intersection LOS: D
 Intersection Capacity Utilization 90.4% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 32: 5th Ave & Irwin St



Arterial Level of Service: EB 2nd St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Lindaro St	IV	25	20.6	24.2	44.8	0.09	7.5	E
Lincoln Ave	IV	25	21.4	14.5	35.9	0.10	9.7	D
Francisco Blvd W.	IV	25	12.2	9.9	22.1	0.05	7.5	E
US-101 SB Ramp	IV	25	14.2	11.4	25.6	0.05	7.5	E
Total	IV		68.4	60.0	128.4	0.29	8.2	E

Arterial Level of Service: WB 3rd St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Hetherton St	IV	25	19.0	11.8	30.8	0.07	8.4	E
Tamalpais Ave (West)	IV	25	14.4	37.9	52.3	0.05	3.7	F
Lincoln Ave	IV	25	13.2	22.8	36.0	0.05	5.0	F
Lindaro St	IV	25	21.5	3.9	25.4	0.10	13.8	C
Total	IV		68.1	76.4	144.5	0.27	6.8	F

Arterial Level of Service: SB Hetherton St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Mission Ave	IV	25	28.8	31.9	60.7	0.16	9.5	D
5th Ave	IV	25	16.3	5.3	21.6	0.06	10.3	D
4th St	IV	25	14.6	7.0	21.6	0.05	9.2	D
3rd St	IV	25	17.7	13.3	31.0	0.07	7.7	E
2nd St	IV	25	15.6	22.1	37.7	0.06	5.6	F
Total	IV		93.0	79.6	172.6	0.40	8.4	E

Arterial Level of Service: NB Irwin St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
2nd	IV	30	25.2	29.2	54.4	0.17	11.1	D
3rd	IV	25	14.8	13.6	28.4	0.06	7.1	E
4th St	IV	25	18.3	15.0	33.3	0.07	7.5	E
5th Ave	IV	25	14.6	17.8	32.4	0.06	6.1	F
Mission Ave	IV	25	15.7	70.1	85.8	0.06	2.5	F
Total	IV		88.6	145.7	234.3	0.41	6.3	F

Arterial Level of Service: NB Lindaro St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
2nd St	IV	25	15.8	16.2	32.0	0.06	6.7	F
3rd St	IV	25	16.7	15.1	31.8	0.06	7.1	E
Total	IV		32.5	31.3	63.8	0.12	6.9	F

Arterial Level of Service: SB Lindaro St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
3rd St	IV	25	9.9	16.8	26.7	0.04	5.1	F
2nd St	IV	25	16.7	58.5	75.2	0.06	3.0	F
Total	IV		26.6	75.3	101.9	0.10	3.6	F

Arterial Level of Service: EB Mission Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Lincoln Ave	IV	25	28.5	14.6	43.1	0.16	13.2	C
Tamalpais Ave (West)	IV	25	14.7	22.8	37.5	0.06	5.3	F
Tamalpais Avenue (Ea	IV	25	3.6	2.5	6.1	0.01	7.9	E
Hetheron St	IV	25	9.6	9.4	19.0	0.04	6.9	F
Irwin St	IV	25	18.9	13.2	32.1	0.07	8.0	E
Total	IV		75.3	62.5	137.8	0.33	8.7	E

Arterial Level of Service: WB Mission Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
101 NB On-Ramp	IV	25	21.6	29.6	51.2	0.10	6.9	F
Hetheron St	IV	25	18.9	32.6	51.5	0.07	5.0	F
Tamalpais Avenue (Ea	IV	25	9.6	40.6	50.2	0.04	2.6	F
Tamalpais Ave (West)	IV	25	3.6	2.3	5.9	0.01	8.2	E
Lincoln Ave	IV	25	14.7	84.6	99.3	0.06	2.0	F
Total	IV		68.4	189.7	258.1	0.27	3.8	F

San Rafael Multi-Family TIS - Baseline With Project Conditions

1: Cijos St & 4th St

PM PEAK HOUR

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↖		↘	↖	↘	
Traffic Volume (vph)	238	15	97	290	23	62
Future Volume (vph)	238	15	97	290	23	62
Satd. Flow (prot)	1529	0	1406	1555	1315	0
Flt Permitted			0.583		0.987	
Satd. Flow (perm)	1529	0	768	1555	1283	0
Satd. Flow (RTOR)	8				66	
Lane Group Flow (vph)	269	0	103	309	90	0
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases			6			
Total Split (s)	46.0		46.0	46.0	24.0	
Total Lost Time (s)	4.2		4.2	4.2	4.0	
Act Effect Green (s)	41.8		41.8	41.8	20.0	
Actuated g/C Ratio	0.60		0.60	0.60	0.29	
v/c Ratio	0.29		0.22	0.33	0.21	
Control Delay	7.7		8.1	8.3	9.4	
Queue Delay	0.0		0.0	0.6	0.0	
Total Delay	7.7		8.1	8.9	9.4	
LOS	A		A	A	A	
Approach Delay	7.7			8.7	9.4	
Approach LOS	A			A	A	

Intersection Summary



















Cycle Length: 70
 Actuated Cycle Length: 70
 Offset: 52 (74%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.33
 Intersection Signal Delay: 8.5
 Intersection Capacity Utilization 83.7%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service E

Splits and Phases: 1: Cijos St & 4th St



San Rafael Multi-Family TIS - Baseline With Project Conditions
2: Lincoln Ave & 4th St

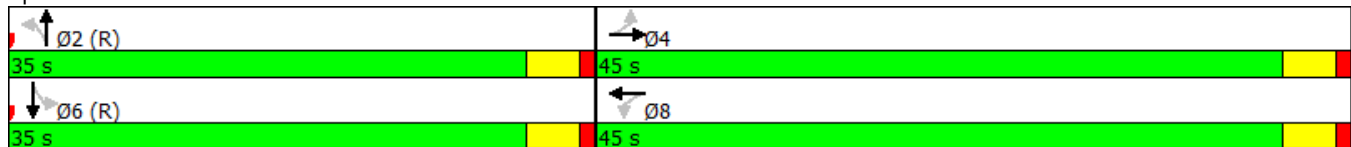
PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	185	65	91	293	64	27	358	59	32	286	67
Future Volume (vph)	50	185	65	91	293	64	27	358	59	32	286	67
Satd. Flow (prot)	1419	1403	0	1405	1586	0	0	2886	0	0	2743	0
Flt Permitted	0.454			0.557				0.914			0.891	
Satd. Flow (perm)	658	1403	0	780	1586	0	0	2632	0	0	2449	0
Satd. Flow (RTOR)		32			20			25			36	
Lane Group Flow (vph)	53	266	0	97	380	0	0	473	0	0	409	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	45.0	45.0		45.0	45.0		35.0	35.0		35.0	35.0	
Total Lost Time (s)	4.2	4.2		4.2	4.2			4.2			4.2	
Act Effect Green (s)	40.8	40.8		40.8	40.8			30.8			30.8	
Actuated g/C Ratio	0.51	0.51		0.51	0.51			0.38			0.38	
v/c Ratio	0.16	0.36		0.24	0.46			0.46			0.42	
Control Delay	12.0	12.0		10.9	10.1			14.0			6.1	
Queue Delay	0.0	0.6		0.0	0.5			0.0			0.0	
Total Delay	12.0	12.6		10.9	10.6			14.0			6.1	
LOS	B	B		B	B			B			A	
Approach Delay		12.5			10.6			14.0			6.1	
Approach LOS		B			B			B			A	

Intersection Summary

Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 62 (78%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Control Type: Pre timed	
Maximum v/c Ratio: 0.46	
Intersection Signal Delay: 10.8	Intersection LOS: B
Intersection Capacity Utilization 76.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Lincoln Ave & 4th St



San Rafael Multi-Family TIS - Baseline With Project Conditions
 3: Tamalpais Ave (West) South Leg & 4th St

PM PEAK HOUR

Intersection						
Int Delay, s/veh	2.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↑		↗
Traffic Vol, veh/h	254	22	0	437	0	156
Future Vol, veh/h	254	22	0	437	0	156
Conflicting Peds, #/hr	0	88	0	0	0	77
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	0	33	3	0	2
Mvmt Flow	270	23	0	465	0	166

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	-	-	447
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	0	-	0	612
Stage 1	-	0	-	0	-
Stage 2	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	531
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	14.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	531	-	-	-
HCM Lane V/C Ratio	0.313	-	-	-
HCM Control Delay (s)	14.8	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	1.3	-	-	-

San Rafael Multi-Family TIS - Baseline With Project Conditions
 4: 4th St & Tamalpais Ave (West) North Leg

PM PEAK HOUR

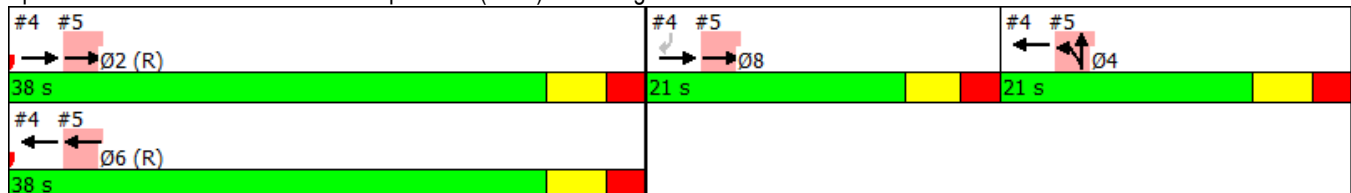


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø2	Ø4	Ø6
Lane Configurations		↑	↑			↑			
Traffic Volume (vph)	0	411	396	32	0	45			
Future Volume (vph)	0	411	396	32	0	45			
Satd. Flow (prot)	0	1765	1710	0	0	1483			
Flt Permitted									
Satd. Flow (perm)	0	1765	1710	0	0	1159			
Satd. Flow (RTOR)			11			381			
Lane Group Flow (vph)	0	437	455	0	0	48			
Turn Type		NA	NA			Perm			
Protected Phases		2 8	4 6				2	4	6
Permitted Phases						8			
Total Split (s)						21.0	38.0	21.0	38.0
Total Lost Time (s)						5.6			
Act Effect Green (s)		54.9	55.7			12.7			
Actuated g/C Ratio		0.69	0.70			0.16			
v/c Ratio		0.36	0.38			0.10			
Control Delay		6.1	1.2			0.6			
Queue Delay		0.6	0.0			0.0			
Total Delay		6.7	1.2			0.6			
LOS		A	A			A			
Approach Delay		6.7	1.2		0.6				
Approach LOS		A	A		A				

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 28 (35%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 3.7
 Intersection LOS: A
 Intersection Capacity Utilization 46.5%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 4: 4th St & Tamalpais Ave (West) North Leg



San Rafael Multi-Family TIS - Baseline With Project Conditions

5: Tamalpais Avenue (East) & 4th St

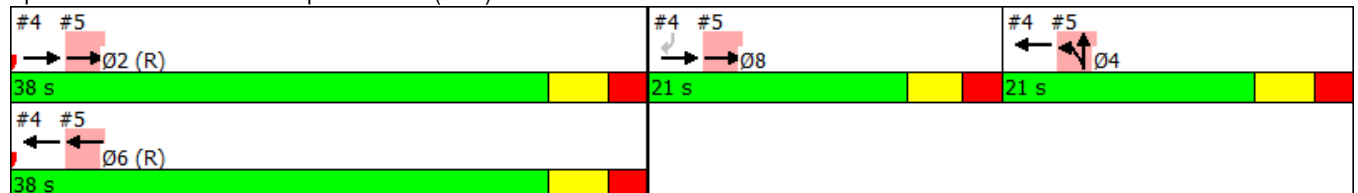
PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	412	0	0	427	36	0	6	0	0	0	0
Future Volume (vph)	0	412	0	0	427	36	0	6	0	0	0	0
Satd. Flow (prot)	0	1765	0	0	1710	0	0	1800	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	1765	0	0	1710	0	0	1800	0	0	0	0
Satd. Flow (RTOR)					6							
Lane Group Flow (vph)	0	438	0	0	492	0	0	6	0	0	0	0
Turn Type		NA			NA			NA				
Protected Phases		2 8			6		4	4				
Permitted Phases												
Total Split (s)					38.0		21.0	21.0				
Total Lost Time (s)					6.0			6.0				
Act Effect Green (s)		54.9			36.6			13.1				
Actuated g/C Ratio		0.69			0.46			0.16				
v/c Ratio		0.36			0.63			0.02				
Control Delay		1.5			18.2			25.7				
Queue Delay		0.0			2.7			0.0				
Total Delay		1.5			20.9			25.7				
LOS		A			C			C				
Approach Delay		1.5			20.9			25.7				
Approach LOS		A			C			C				

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 28 (35%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 11.9
 Intersection LOS: B
 Intersection Capacity Utilization 46.3%
 ICU Level of Service A
 Analysis Period (min) 15





















Splits and Phases: 5: Tamalpais Avenue (East) & 4th St



Lane Group	Ø2	Ø8
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Satd. Flow (RTOR)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	8
Permitted Phases		
Total Split (s)	38.0	21.0
Total Lost Time (s)		
Act Effect Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

San Rafael Multi-Family TIS - Baseline With Project Conditions
 6: Hetherton St & 4th St

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											  	
Traffic Volume (vph)	0	297	119	74	249	0	0	0	0	130	1013	231
Future Volume (vph)	0	297	119	74	249	0	0	0	0	130	1013	231
Satd. Flow (prot)	0	1824	1386	1826	1706	0	0	0	0	0	4578	1322
Flt Permitted				0.480							0.994	
Satd. Flow (perm)	0	1824	1294	896	1706	0	0	0	0	0	4569	1253
Satd. Flow (RTOR)			71									
Lane Group Flow (vph)	0	316	127	79	265	0	0	0	0	0	1216	246
Turn Type		NA	Perm	Perm	NA					Perm	NA	custom
Protected Phases		4			8						2	
Permitted Phases			4	8						2		5
Total Split (s)		39.0	39.0	39.0	39.0					41.0	41.0	34.0
Total Lost Time (s)		4.2	4.2	4.2	4.2						4.2	4.2
Act Effect Green (s)		34.8	34.8	34.8	34.8						36.8	29.8
Actuated g/C Ratio		0.44	0.44	0.44	0.44						0.46	0.37
v/c Ratio		0.40	0.21	0.20	0.36						0.58	0.53
Control Delay		10.7	3.7	14.4	15.7						7.8	14.0
Queue Delay		1.6	1.2	0.0	0.0						0.2	71.1
Total Delay		12.3	4.9	14.4	15.8						8.0	85.1
LOS		B	A	B	B						A	F
Approach Delay		10.2			15.4						21.0	
Approach LOS		B			B						C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 68 (85%), Referenced to phase 2:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 18.0

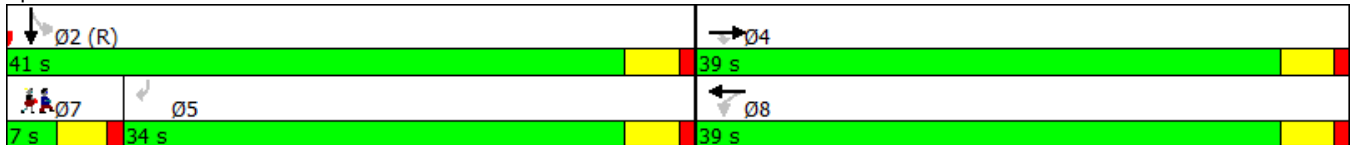
Intersection LOS: B

Intersection Capacity Utilization 68.1%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 6: Hetherton St & 4th St



Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Total Split (s)	7.0
Total Lost Time (s)	
Act Effect Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

San Rafael Multi-Family TIS - Baseline With Project Conditions

7: Irwin St & 4th St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	236	0	0	197	79	129	1264	153	0	0	0
Future Volume (vph)	180	236	0	0	197	79	129	1264	153	0	0	0
Satd. Flow (prot)	1637	1765	0	0	1470	0	1480	4417	0	0	0	0
Flt Permitted	0.455						0.950					
Satd. Flow (perm)	778	1765	0	0	1470	0	1464	4417	0	0	0	0
Satd. Flow (RTOR)					28			42				
Lane Group Flow (vph)	191	251	0	0	294	0	137	1508	0	0	0	0
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Total Split (s)	32.0	32.0			32.0		48.0	48.0				
Total Lost Time (s)	4.2	4.2			4.2		4.2	4.2				
Act Effect Green (s)	27.8	27.8			27.8		43.8	43.8				
Actuated g/C Ratio	0.35	0.35			0.35		0.55	0.55				
v/c Ratio	0.71	0.41			0.56		0.17	0.62				
Control Delay	47.3	30.9			23.8		3.0	3.4				
Queue Delay	0.0	0.0			0.0		0.0	0.4				
Total Delay	47.3	30.9			23.8		3.0	3.8				
LOS	D	C			C		A	A				
Approach Delay		38.0			23.8			3.7				
Approach LOS		D			C			A				

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 36 (45%), Referenced to phase 2:NBT, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 12.6

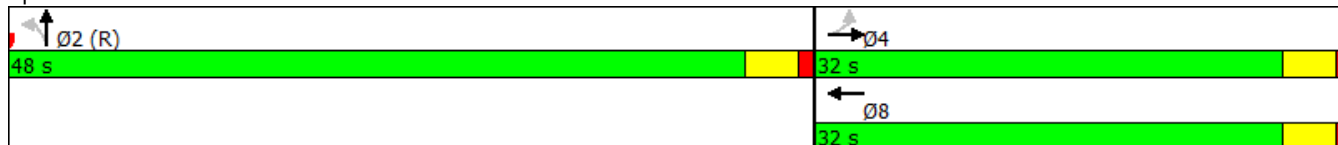
Intersection LOS: B

Intersection Capacity Utilization 68.1%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 7: Irwin St & 4th St



San Rafael Multi-Family TIS - Baseline With Project Conditions

8: Lindaro St & 3rd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	254	1910	35	134	18	0	0	39	8
Future Volume (vph)	0	0	0	254	1910	35	134	18	0	0	39	8
Satd. Flow (prot)	0	0	0	1360	4304	0	0	1533	0	0	1524	0
Flt Permitted				0.950				0.715				
Satd. Flow (perm)	0	0	0	1290	4304	0	0	1144	0	0	1524	0
Satd. Flow (RTOR)					6						9	
Lane Group Flow (vph)	0	0	0	270	2069	0	0	162	0	0	50	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8			4	
Permitted Phases				6			8					
Total Split (s)				53.0	53.0		27.0	27.0			27.0	
Total Lost Time (s)				4.2	4.2			4.2			4.2	
Act Effect Green (s)				48.8	48.8			22.8			22.8	
Actuated g/C Ratio				0.61	0.61			0.28			0.28	
v/c Ratio				0.34	0.79			0.50			0.11	
Control Delay				3.7	5.1			32.7			19.1	
Queue Delay				0.0	0.1			0.0			0.0	
Total Delay				3.7	5.2			32.7			19.1	
LOS				A	A			C			B	
Approach Delay					5.0			32.7			19.1	
Approach LOS					A			C			B	

Intersection Summary

Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green	
Control Type: Pretimed	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 7.1	Intersection LOS: A
Intersection Capacity Utilization 68.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 8: Lindaro St & 3rd St



San Rafael Multi-Family TIS - Baseline With Project Conditions
 9: Ritter St & 3rd St

PM PEAK HOUR

Intersection						
Int Delay, s/veh	1.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑↑	↖	↗
Traffic Vol, veh/h	0	0	0	2111	114	0
Future Vol, veh/h	0	0	0	2111	114	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	25
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	2	1	0
Mvmt Flow	0	0	0	2246	121	0

Major/Minor	Major2	Minor1
Conflicting Flow All	-	898
Stage 1	-	0
Stage 2	-	898
Critical Hdwy	-	5.72
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	6.02
Follow-up Hdwy	-	3.81
Pot Cap-1 Maneuver	0	351
Stage 1	0	-
Stage 2	0	326
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	351
Mov Cap-2 Maneuver	-	351
Stage 1	-	-
Stage 2	-	326

Approach	WB	NB
HCM Control Delay, s	0	20.6
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	NBLn2	WBT
Capacity (veh/h)	351	-	-
HCM Lane V/C Ratio	0.346	-	-
HCM Control Delay (s)	20.6	0	-
HCM Lane LOS	C	A	-
HCM 95th %tile Q(veh)	1.5	-	-

San Rafael Multi-Family TIS - Baseline With Project Conditions
 10: 3rd St & Cijos St

PM PEAK HOUR

Intersection						
Int Delay, s/veh	4.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑			↑
Traffic Vol, veh/h	0	0	2000	88	0	111
Future Vol, veh/h	0	0	2000	88	0	111
Conflicting Peds, #/hr	0	0	0	76	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	-	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	2	1	0	1
Mvmt Flow	0	0	2128	94	0	118

Major/Minor	Major2	Minor2
Conflicting Flow All	-	0 - 1187
Stage 1	-	-
Stage 2	-	-
Critical Hdwy	-	- 7.12
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	-	- 3.91
Pot Cap-1 Maneuver	-	0 157
Stage 1	-	0 -
Stage 2	-	0 -
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	- 147
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

Approach	WB	SB
HCM Control Delay, s	0	89.2
HCM LOS		F

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	147
HCM Lane V/C Ratio	-	-	0.803
HCM Control Delay (s)	-	-	89.2
HCM Lane LOS	-	-	F
HCM 95th %tile Q(veh)	-	-	5.1

San Rafael Multi-Family TIS - Baseline With Project Conditions

11: Lincoln Ave & 3rd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	132	1793	94	61	380	0	0	293	149
Future Volume (vph)	0	0	0	132	1793	94	61	380	0	0	293	149
Satd. Flow (prot)	0	0	0	0	4239	0	0	2893	0	0	2402	0
Flt Permitted					0.997			0.814				
Satd. Flow (perm)	0	0	0	0	4219	0	0	2353	0	0	2402	0
Satd. Flow (RTOR)					15						8	
Lane Group Flow (vph)	0	0	0	0	2147	0	0	469	0	0	471	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8			4	
Permitted Phases				6			8					
Total Split (s)				50.0	50.0		30.0	30.0			30.0	
Total Lost Time (s)					4.5			4.5			4.5	
Act Effect Green (s)					45.5			25.5			25.5	
Actuated g/C Ratio					0.57			0.32			0.32	
v/c Ratio					0.89			0.63			0.61	
Control Delay					21.3			20.9			34.4	
Queue Delay					46.4			0.0			0.0	
Total Delay					67.7			20.9			34.4	
LOS					E			C			C	
Approach Delay					67.7			20.9			34.4	
Approach LOS					E			C			C	

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 40 (50%), Referenced to phase 4:SBT and 8:NBTL, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 55.5
 Intersection Capacity Utilization 90.3%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service E

Splits and Phases: 11: Lincoln Ave & 3rd St



San Rafael Multi-Family TIS - Baseline With Project Conditions

12: Tamalpais Ave (West) & 3rd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	322	1892	56	112	109	0	0	20	20
Future Volume (vph)	0	0	0	322	1892	56	112	109	0	0	20	20
Satd. Flow (prot)	0	0	0	0	4186	0	1287	1402	0	0	1239	0
Flt Permitted					0.993		0.730					
Satd. Flow (perm)	0	0	0	0	3968	0	932	1402	0	0	1239	0
Satd. Flow (RTOR)					7						7	
Lane Group Flow (vph)	0	0	0	0	2416	0	119	116	0	0	42	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			4			8	
Permitted Phases				6			4					
Total Split (s)				63.0	63.0		27.0	27.0			27.0	
Total Lost Time (s)					11.6		7.6	7.6			7.6	
Act Effect Green (s)					51.4		19.4	19.4			19.4	
Actuated g/C Ratio					0.57		0.22	0.22			0.22	
v/c Ratio					1.06		0.59	0.38			0.15	
Control Delay					59.7		45.7	34.6			26.7	
Queue Delay					15.4		0.0	0.0			0.0	
Total Delay					75.2		45.7	34.6			26.7	
LOS					E		D	C			C	
Approach Delay					75.2			40.2			26.7	
Approach LOS					E			D			C	

Intersection Summary

Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 26 (29%), Referenced to phase 6:WBTL, Start of Green	
Control Type: Pretimed	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 71.4	Intersection LOS: E
Intersection Capacity Utilization 156.1%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 12: Tamalpais Ave (West) & 3rd St



San Rafael Multi-Family TIS - Baseline With Project Conditions
 13: Tamalpais Avenue (East) & 3rd St

PM PEAK HOUR

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑↑↑		↑					
Traffic Vol, veh/h	0	0	0	9	2242	6	18	0	0	0	0	0
Future Vol, veh/h	0	0	0	9	2242	6	18	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	96	0	15	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	89	2	0	94	0	0	0	0	0
Mvmt Flow	0	0	0	10	2385	6	19	0	0	0	0	0

Major/Minor	Major1		Major2		Minor1				
Conflicting Flow All	-	0	-	97	0	0	1070	-	-
Stage 1	-	-	-	-	-	-	97	-	-
Stage 2	-	-	-	-	-	-	973	-	-
Critical Hdwy	-	-	-	5.435	-	-	7.46	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.81	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.41	-	-
Follow-up Hdwy	-	-	-	3.0455	-	-	4.543	-	-
Pot Cap-1 Maneuver	0	-	0	1064	-	-	157	0	0
Stage 1	0	-	0	-	-	-	701	0	0
Stage 2	0	-	0	-	-	-	186	0	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1064	-	-	144	0	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	144	0	-
Stage 1	-	-	-	-	-	-	645	0	-
Stage 2	-	-	-	-	-	-	186	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	33.8
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	WBL	WBT	WBR
Capacity (veh/h)	144	-	1064	-	-
HCM Lane V/C Ratio	0.133	-	0.009	-	-
HCM Control Delay (s)	33.8	-	8.4	0	-
HCM Lane LOS	D	-	A	A	-
HCM 95th %tile Q(veh)	0.4	-	0	-	-

San Rafael Multi-Family TIS - Baseline With Project Conditions

14: Hetherton St & 3rd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	487	1712	0	0	0	0	0	681	526
Future Volume (vph)	0	0	0	487	1712	0	0	0	0	0	681	526
Satd. Flow (prot)	0	0	0	1354	4254	0	0	0	0	0	4356	1197
Flt Permitted				0.950	0.999							
Satd. Flow (perm)	0	0	0	1258	4251	0	0	0	0	0	4356	1114
Satd. Flow (RTOR)												14
Lane Group Flow (vph)	0	0	0	497	1842	0	0	0	0	0	724	560
Turn Type				Perm	NA						NA	Perm
Protected Phases					8						6	
Permitted Phases				8								6
Total Split (s)				49.0	49.0						31.0	31.0
Total Lost Time (s)				4.0	4.0						5.0	5.0
Act Effect Green (s)				45.0	45.0						26.0	26.0
Actuated g/C Ratio				0.56	0.56						0.32	0.32
v/c Ratio				0.70	0.77						0.51	1.51
Control Delay				10.9	9.7						25.6	267.5
Queue Delay				1.0	0.7						0.6	0.0
Total Delay				11.9	10.4						26.2	267.5
LOS				B	B						C	F
Approach Delay					10.7						131.4	
Approach LOS					B						F	

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 31 (39%), Referenced to phase 6:SBT, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 1.51
 Intersection Signal Delay: 53.5 Intersection LOS: D
 Intersection Capacity Utilization 126.1% ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 14: Hetherton St & 3rd St



San Rafael Multi-Family TIS - Baseline With Project Conditions

15: Irwin St & 3rd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑	↑	↘	↑↑↑				
Traffic Volume (vph)	0	0	0	0	1268	185	918	1368	0	0	0	0
Future Volume (vph)	0	0	0	0	1268	185	918	1368	0	0	0	0
Satd. Flow (prot)	0	0	0	0	3997	1289	1162	3857	0	0	0	0
Flt Permitted							0.950	0.991				
Satd. Flow (perm)	0	0	0	0	3997	1234	1162	3857	0	0	0	0
Satd. Flow (RTOR)						24	20	20				
Lane Group Flow (vph)	0	0	0	0	1349	197	674	1758	0	0	0	0
Turn Type					NA	Perm	Split	NA				
Protected Phases					8		2	2				
Permitted Phases						8						
Total Split (s)					34.0	34.0	46.0	46.0				
Total Lost Time (s)					4.5	4.5	4.5	4.5				
Act Effect Green (s)					29.5	29.5	41.5	41.5				
Actuated g/C Ratio					0.37	0.37	0.52	0.52				
v/c Ratio					0.92	0.42	1.10	0.87				
Control Delay					35.4	19.8	74.9	16.6				
Queue Delay					0.1	0.0	0.0	6.0				
Total Delay					35.5	19.8	74.9	22.5				
LOS					D	B	E	C				
Approach Delay					33.5			37.1				
Approach LOS					C			D				

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 27 (34%), Referenced to phase 2:NBTL, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 1.10
 Intersection Signal Delay: 35.7 Intersection LOS: D
 Intersection Capacity Utilization 108.9% ICU Level of Service G
 Analysis Period (min) 15

Splits and Phases: 15: Irwin St & 3rd St



San Rafael Multi-Family TIS - Baseline With Project Conditions

16: Lindaro St & 2nd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	2275	53	0	0	0	0	106	326	96	196	0
Future Volume (vph)	51	2275	53	0	0	0	0	106	326	96	196	0
Satd. Flow (prot)	0	5191	0	0	0	0	0	1547	1244	1328	1309	0
Flt Permitted		0.999								0.684		
Satd. Flow (perm)	0	5189	0	0	0	0	0	1547	1209	945	1309	0
Satd. Flow (RTOR)		8							16			
Lane Group Flow (vph)	0	2530	0	0	0	0	0	113	347	102	209	0
Turn Type	Perm	NA						NA	Perm	Perm	NA	
Protected Phases		6						4			8	
Permitted Phases	6								4	8		
Total Split (s)	47.0	47.0						33.0	33.0	33.0	33.0	
Total Lost Time (s)		4.2						4.2	4.2	4.2	4.2	
Act Effect Green (s)		42.8						28.8	28.8	28.8	28.8	
Actuated g/C Ratio		0.54						0.36	0.36	0.36	0.36	
v/c Ratio		0.91						0.20	0.78	0.30	0.44	
Control Delay		23.2						18.9	36.2	16.9	18.0	
Queue Delay		0.0						0.0	0.0	0.0	0.0	
Total Delay		23.2						18.9	36.2	16.9	18.0	
LOS		C						B	D	B	B	
Approach Delay		23.2						32.0			17.6	
Approach LOS		C						C			B	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 49 (61%), Referenced to phase 6:EBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 23.9

Intersection LOS: C

Intersection Capacity Utilization 83.4%

ICU Level of Service E

Analysis Period (min) 15















Splits and Phases: 16: Lindaro St & 2nd St



San Rafael Multi-Family TIS - Baseline With Project Conditions

17: Lincoln Ave & Ritter St

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	77	437	8	35	370	20
Future Volume (vph)	0	0	0	0	0	0	77	437	8	35	370	20
Satd. Flow (prot)	0	0	0	0	0	0	0	3361	0	0	3278	0
Flt Permitted								0.993			0.996	
Satd. Flow (perm)	0	0	0	0	0	0	0	3361	0	0	3278	0
Lane Group Flow (vph)	0	0	0	0	0	0	0	556	0	0	452	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized

Intersection Capacity Utilization 35.1%

ICU Level of Service A

Analysis Period (min) 15

San Rafael Multi-Family TIS - Baseline With Project Conditions

18: Lincoln Ave & 2nd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	246	2358	89	0	0	0	0	276	161	158	214	0
Future Volume (vph)	246	2358	89	0	0	0	0	276	161	158	214	0
Satd. Flow (prot)	0	5016	1221	0	0	0	0	1600	1360	0	2611	0
Flt Permitted		0.995									0.650	
Satd. Flow (perm)	0	5006	1139	0	0	0	0	1600	1338	0	1734	0
Satd. Flow (RTOR)			82						16			
Lane Group Flow (vph)	0	2771	95	0	0	0	0	294	171	0	396	0
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		6						4			8	
Permitted Phases	6		6						4	8		
Total Split (s)	48.0	48.0	48.0					32.0	32.0	32.0	32.0	
Total Lost Time (s)		4.2	4.2					4.2	4.2		4.2	
Act Effect Green (s)		43.8	43.8					27.8	27.8		27.8	
Actuated g/C Ratio		0.55	0.55					0.35	0.35		0.35	
v/c Ratio		1.01	0.14					0.53	0.36		0.66	
Control Delay		24.2	0.2					25.1	20.2		25.4	
Queue Delay		35.1	0.0					0.0	0.0		0.0	
Total Delay		59.3	0.2					25.1	20.2		25.4	
LOS		E	A					C	C		C	
Approach Delay		57.3						23.3			25.4	
Approach LOS		E						C			C	

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 62 (78%), Referenced to phase 6:EBTL, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 1.01
 Intersection Signal Delay: 49.7
 Intersection Capacity Utilization 85.2%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service E

Splits and Phases: 18: Lincoln Ave & 2nd St



San Rafael Multi-Family TIS - Baseline With Project Conditions

19: Francisco Blvd W./Tamalpais Ave (West) & 2nd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	2474	132	0	0	0	0	154	439	65	253	0
Future Volume (vph)	75	2474	132	0	0	0	0	154	439	65	253	0
Satd. Flow (prot)	0	5214	1232	0	0	0	0	1479	1378	996	1349	0
Flt Permitted		0.999								0.653		
Satd. Flow (perm)	0	5199	1203	0	0	0	0	1479	1358	685	1349	0
Satd. Flow (RTOR)			107						48			
Lane Group Flow (vph)	0	2712	140	0	0	0	0	164	467	69	269	0
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		2						4			8	
Permitted Phases	2		2						4	8		
Total Split (s)	47.0	47.0	47.0					33.0	33.0	33.0	33.0	
Total Lost Time (s)		6.5	6.5					6.5	6.5	6.5	6.5	
Act Effect Green (s)		40.5	40.5					26.5	26.5	26.5	26.5	
Actuated g/C Ratio		0.51	0.51					0.33	0.33	0.33	0.33	
v/c Ratio		1.03	0.21					0.34	0.97	0.31	0.60	
Control Delay		31.0	1.4					22.5	60.8	24.6	29.2	
Queue Delay		28.5	0.6					0.0	0.0	0.0	0.6	
Total Delay		59.5	2.0					22.5	60.8	24.6	29.7	
LOS		E	A					C	E	C	C	
Approach Delay		56.7						50.8			28.7	
Approach LOS		E						D			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 66 (83%), Referenced to phase 2:EBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 53.2

Intersection LOS: D

Intersection Capacity Utilization 156.1%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 19: Francisco Blvd W./Tamalpais Ave (West) & 2nd St

	Ø2 (R)	47 s		Ø4	33 s
				Ø8	33 s

San Rafael Multi-Family TIS - Baseline With Project Conditions

20: US-101 SB Ramp/Hetherton St & 2nd St

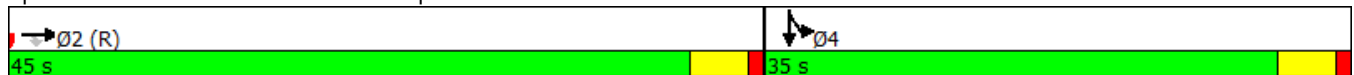
PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1951	982	0	0	0	0	0	0	357	810	0
Future Volume (vph)	0	1951	982	0	0	0	0	0	0	357	810	0
Satd. Flow (prot)	0	4733	1034	0	0	0	0	0	0	1298	2827	0
Flt Permitted										0.950		
Satd. Flow (perm)	0	4733	1020	0	0	0	0	0	0	1298	2827	0
Satd. Flow (RTOR)		53	53									
Lane Group Flow (vph)	0	2494	627	0	0	0	0	0	0	380	862	0
Turn Type		NA	Perm							Split	NA	
Protected Phases		2								4	4	
Permitted Phases			2									
Total Split (s)		45.0	45.0							35.0	35.0	
Total Lost Time (s)		4.5	4.5							4.5	4.5	
Act Effect Green (s)		40.5	40.5							30.5	30.5	
Actuated g/C Ratio		0.51	0.51							0.38	0.38	
v/c Ratio		1.03	1.16							0.77	0.80	
Control Delay		25.4	85.8							27.5	23.1	
Queue Delay		27.0	0.1							1.6	1.1	
Total Delay		52.4	85.9							29.2	24.2	
LOS		D	F							C	C	
Approach Delay		59.1									25.7	
Approach LOS		E									C	

Intersection Summary

Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 72 (90%), Referenced to phase 2:EBT, Start of Green	
Control Type: Pretimed	
Maximum v/c Ratio: 1.16	
Intersection Signal Delay: 49.6	Intersection LOS: D
Intersection Capacity Utilization 140.6%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 20: US-101 SB Ramp/Hetherton St & 2nd St



San Rafael Multi-Family TIS - Baseline With Project Conditions

21: US-101 NB Ramp/Irwin St & 2nd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	920	1395	0	0	0	0	0	1386	563	0	0	0
Future Volume (vph)	920	1395	0	0	0	0	0	1386	563	0	0	0
Satd. Flow (prot)	1311	3999	0	0	0	0	0	4241	1257	0	0	0
Flt Permitted	0.950	0.990										
Satd. Flow (perm)	1286	3983	0	0	0	0	0	4241	1214	0	0	0
Satd. Flow (RTOR)	30	30							16			
Lane Group Flow (vph)	617	1846	0	0	0	0	0	1474	599	0	0	0
Turn Type	Perm	NA						NA	Perm			
Protected Phases		2						8				
Permitted Phases	2								8			
Total Split (s)	42.0	42.0						38.0	38.0			
Total Lost Time (s)	4.2	4.2						5.2	5.2			
Act Effect Green (s)	37.8	37.8						32.8	32.8			
Actuated g/C Ratio	0.47	0.47						0.41	0.41			
v/c Ratio	0.99	0.97						0.85	1.18			
Control Delay	29.8	17.9						27.3	125.5			
Queue Delay	30.8	12.8						0.1	0.0			
Total Delay	60.6	30.7						27.4	125.5			
LOS	E	C						C	F			
Approach Delay		38.2						55.7				
Approach LOS		D						E				

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 1.18

Intersection Signal Delay: 46.2

Intersection LOS: D

Intersection Capacity Utilization 111.9%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 21: US-101 NB Ramp/Irwin St & 2nd St



San Rafael Multi-Family TIS - Baseline With Project Conditions
 22: Nye St & Mission Ave

PM PEAK HOUR

Intersection												
Int Delay, s/veh	11.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	22	664	5	22	807	22	6	21	94	14	32	32
Future Vol, veh/h	22	664	5	22	807	22	6	21	94	14	32	32
Conflicting Peds, #/hr	5	0	12	12	0	5	14	0	14	14	0	14
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	23	706	5	23	859	23	6	22	100	15	34	34

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	887	0	0	724	0	0	1733	1702	735	1753	1693	889
Stage 1	-	-	-	-	-	-	768	768	-	922	922	-
Stage 2	-	-	-	-	-	-	965	934	-	831	771	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	759	-	-	874	-	-	69	91	418	66	92	341
Stage 1	-	-	-	-	-	-	393	409	-	323	348	-
Stage 2	-	-	-	-	-	-	305	343	-	362	408	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	747	-	-	860	-	-	38	80	406	35	81	334
Mov Cap-2 Maneuver	-	-	-	-	-	-	38	80	-	35	81	-
Stage 1	-	-	-	-	-	-	368	383	-	305	328	-
Stage 2	-	-	-	-	-	-	229	323	-	240	382	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.2			59.1			165.4		
HCM LOS							F			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	186	747	-	-	860	-	-	88
HCM Lane V/C Ratio	0.692	0.031	-	-	0.027	-	-	0.943
HCM Control Delay (s)	59.1	10	0	-	9.3	0	-	165.4
HCM Lane LOS	F	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	4.2	0.1	-	-	0.1	-	-	5.3

San Rafael Multi-Family TIS - Baseline With Project Conditions

23: Lincoln Ave & Mission Ave

PM PEAK HOUR

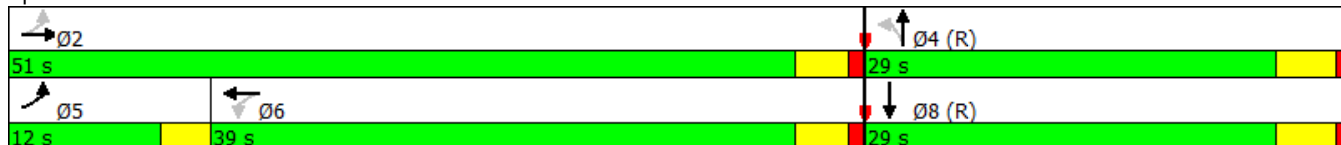


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Volume (vph)	206	453	20	36	577	61	12	382	48	0	336	281
Future Volume (vph)	206	453	20	36	577	61	12	382	48	0	336	281
Satd. Flow (prot)	1427	1639	0	1463	1515	0	0	2746	0	0	2620	0
Flt Permitted	0.125			0.479				0.931				
Satd. Flow (perm)	188	1639	0	735	1515	0	0	2557	0	0	2620	0
Satd. Flow (RTOR)		5			8			17			273	
Lane Group Flow (vph)	219	503	0	38	679	0	0	470	0	0	656	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA			NA	
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4					
Total Split (s)	12.0	51.0		39.0	39.0		29.0	29.0			29.0	
Total Lost Time (s)	3.0	4.2		4.2	4.2			4.6			4.6	
Act Effect Green (s)	48.0	46.8		34.8	34.8			24.4			24.4	
Actuated g/C Ratio	0.60	0.58		0.44	0.44			0.30			0.30	
v/c Ratio	0.87	0.52		0.12	1.02			0.59			0.66	
Control Delay	48.2	12.3		11.0	54.1			37.0			17.5	
Queue Delay	0.0	0.8		0.0	0.0			0.0			0.0	
Total Delay	48.2	13.1		11.0	54.1			37.0			17.5	
LOS	D	B		B	D			D			B	
Approach Delay		23.8			51.8			37.0			17.5	
Approach LOS		C			D			D			B	

Intersection Summary

- Cycle Length: 80
- Actuated Cycle Length: 80
- Offset: 55 (69%), Referenced to phase 4:NBTL and 8:SBT, Start of Green
- Control Type: Actuated-Coordinated
- Maximum v/c Ratio: 1.02
- Intersection Signal Delay: 32.4
- Intersection LOS: C
- Intersection Capacity Utilization 86.1%
- ICU Level of Service E
- Analysis Period (min) 15

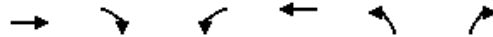
Splits and Phases: 23: Lincoln Ave & Mission Ave



San Rafael Multi-Family TIS - Baseline With Project Conditions

24: Tamalpais Ave (West) & Mission Ave

PM PEAK HOUR



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø3	Ø4	Ø6
Lane Configurations	↗			↖	↖	↗			
Traffic Volume (vph)	568	14	0	634	6	11			
Future Volume (vph)	568	14	0	634	6	11			
Satd. Flow (prot)	1741	0	0	1748	1565	0			
Flt Permitted					0.984				
Satd. Flow (perm)	1741	0	0	1748	1514	0			
Satd. Flow (RTOR)	2				12				
Lane Group Flow (vph)	619	0	0	674	18	0			
Turn Type	NA			NA	Perm				
Protected Phases	2			3 4 6			3	4	6
Permitted Phases					8				
Total Split (s)	39.0				18.0		5.0	18.0	39.0
Total Lost Time (s)	6.0				5.6				
Act Effect Green (s)	33.5			57.2	14.2				
Actuated g/C Ratio	0.42			0.72	0.18				
v/c Ratio	0.85			0.54	0.06				
Control Delay	27.1			2.0	16.1				
Queue Delay	0.8			0.1	0.0				
Total Delay	27.9			2.1	16.1				
LOS	C			A	B				
Approach Delay	27.9			2.1	16.1				
Approach LOS	C			A	B				

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 14 (18%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 14.5

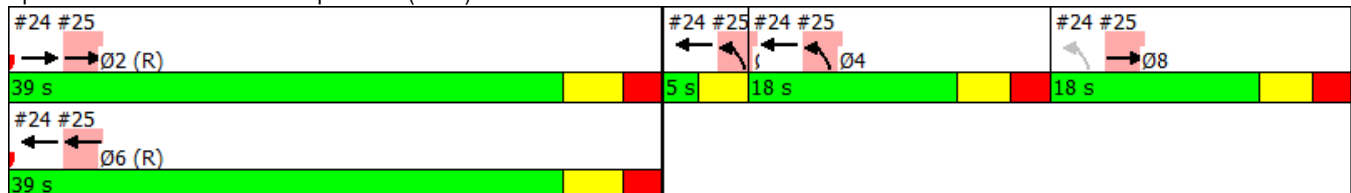
Intersection LOS: B

Intersection Capacity Utilization 48.2%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 24: Tamalpais Ave (West) & Mission Ave



San Rafael Multi-Family TIS - Baseline With Project Conditions
 25: Tamalpais Ave (East) & Mission Ave

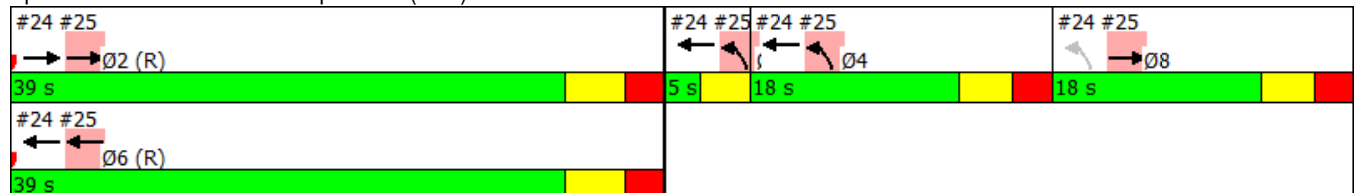
PM PEAK HOUR

	→	↘	↙	←	↖	↗				
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø2	Ø3	Ø4	Ø8
Lane Configurations	↑			↑	↘					
Traffic Volume (vph)	584	0	0	628	6	12				
Future Volume (vph)	584	0	0	628	6	12				
Satd. Flow (prot)	1748	0	0	1748	1561	0				
Flt Permitted					0.984					
Satd. Flow (perm)	1748	0	0	1748	1561	0				
Satd. Flow (RTOR)					13					
Lane Group Flow (vph)	621	0	0	668	19	0				
Turn Type	NA			NA	Prot					
Protected Phases	2 8			6	3 4		2	3	4	8
Permitted Phases										
Total Split (s)				39.0			39.0	5.0	18.0	18.0
Total Lost Time (s)				6.0						
Act Effect Green (s)	53.3			33.5	17.7					
Actuated g/C Ratio	0.67			0.42	0.22					
v/c Ratio	0.53			0.91	0.05					
Control Delay	3.4			32.7	25.1					
Queue Delay	0.0			49.0	0.0					
Total Delay	3.5			81.7	25.1					
LOS	A			F	C					
Approach Delay	3.5			81.7	25.1					
Approach LOS	A			F	C					

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 14 (18%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 43.7 Intersection LOS: D
 Intersection Capacity Utilization 46.6% ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 25: Tamalpais Ave (East) & Mission Ave



San Rafael Multi-Family TIS - Baseline With Project Conditions

26: Hetherton St/101 SB Off-Ramp & Mission Ave

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	555	70	66	198	0	0	0	0	221	1146	560
Future Volume (vph)	0	555	70	66	198	0	0	0	0	221	1146	560
Satd. Flow (prot)	0	3034	0	0	1957	0	0	0	0	0	3294	1485
Flt Permitted					0.704						0.992	
Satd. Flow (perm)	0	3034	0	0	1392	0	0	0	0	0	3294	1419
Satd. Flow (RTOR)		20										
Lane Group Flow (vph)	0	664	0	0	281	0	0	0	0	0	1454	596
Turn Type		NA		Perm	NA					Split	NA	custom
Protected Phases		4			8					2	2	
Permitted Phases				8								5
Total Split (s)		35.0		35.0	35.0					45.0	45.0	38.0
Total Lost Time (s)		4.2			4.2						4.6	4.6
Act Effect Green (s)		30.8			30.8						40.4	33.4
Actuated g/C Ratio		0.38			0.38						0.50	0.42
v/c Ratio		0.56			0.53						0.87	1.01
Control Delay		8.6			9.0						25.1	64.6
Queue Delay		1.7			0.1						0.0	44.2
Total Delay		10.3			9.1						25.1	108.8
LOS		B			A						C	F
Approach Delay		10.3			9.1						49.5	
Approach LOS		B			A						D	

Intersection Summary

Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 51 (64%), Referenced to phase 2:SBTL and 7:Ped, Start of Green	
Control Type: Pretimed	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 37.0	Intersection LOS: D
Intersection Capacity Utilization 84.7%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 26: Hetherton St/101 SB Off-Ramp & Mission Ave



Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Total Split (s)	7.0
Total Lost Time (s)	
Act Effect Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

San Rafael Multi-Family TIS - Baseline With Project Conditions

27: Irwin St/101 NB On-Ramp & Mission Ave

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	470	306	0	0	190	325	83	1687	40	0	0	0
Future Volume (vph)	470	306	0	0	190	325	83	1687	40	0	0	0
Satd. Flow (prot)	1826	1631	0	0	1994	1634	0	4050	1816	0	0	0
Flt Permitted	0.517							0.998				
Satd. Flow (perm)	994	1631	0	0	1994	1634	0	4048	1736	0	0	0
Satd. Flow (RTOR)						74		74				
Lane Group Flow (vph)	500	326	0	0	202	346	0	1883	43	0	0	0
Turn Type	pm+pt	NA			NA	Perm	Split	NA	Perm			
Protected Phases	7	4			8		2	2				
Permitted Phases	4					8			2			
Total Split (s)	16.0	37.0			21.0	21.0	43.0	43.0	43.0			
Total Lost Time (s)	4.2	4.2			4.2	4.2		4.2	4.2			
Act Effect Green (s)	32.8	32.8			16.8	16.8		38.8	38.8			
Actuated g/C Ratio	0.41	0.41			0.21	0.21		0.48	0.48			
v/c Ratio	0.94	0.49			0.48	0.86		0.96	0.05			
Control Delay	43.9	15.2			32.3	46.9		18.4	0.1			
Queue Delay	0.0	0.2			0.0	0.0		7.8	0.0			
Total Delay	43.9	15.5			32.3	46.9		26.2	0.1			
LOS	D	B			C	D		C	A			
Approach Delay		32.7			41.5			25.6				
Approach LOS		C			D			C				

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 53 (66%), Referenced to phase 2:NBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 30.0

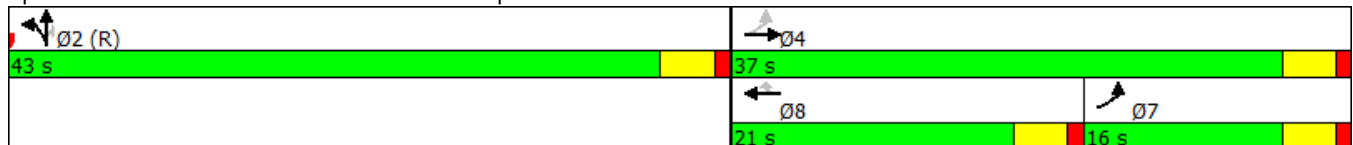
Intersection LOS: C

Intersection Capacity Utilization 92.7%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 27: Irwin St/101 NB On-Ramp & Mission Ave



San Rafael Multi-Family TIS - Baseline With Project Conditions

28: Lincoln Ave & 5th Ave

PM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	406	48	18	259	45	41	397	38	54	333	39
Future Volume (vph)	63	406	48	18	259	45	41	397	38	54	333	39
Satd. Flow (prot)	1377	1672	0	1377	1606	0	0	2861	0	0	2939	0
Flt Permitted	0.508			0.365				0.882			0.835	
Satd. Flow (perm)	727	1672	0	524	1606	0	0	2524	0	0	2461	0
Satd. Flow (RTOR)		11			16			13			15	
Lane Group Flow (vph)	67	483	0	19	324	0	0	506	0	0	452	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	45.0	45.0		45.0	45.0		35.0	35.0		35.0	35.0	
Total Lost Time (s)	4.2	4.2		4.6	4.6			4.2			4.6	
Act Effect Green (s)	40.8	40.8		40.4	40.4			30.8			30.4	
Actuated g/C Ratio	0.51	0.51		0.50	0.50			0.38			0.38	
v/c Ratio	0.18	0.56		0.07	0.40			0.52			0.48	
Control Delay	12.2	16.3		7.9	8.0			8.5			11.1	
Queue Delay	0.0	0.1		0.0	0.8			0.1			0.0	
Total Delay	12.2	16.5		7.9	8.8			8.6			11.1	
LOS	B	B		A	A			A			B	
Approach Delay		16.0			8.8			8.6			11.1	
Approach LOS		B			A			A			B	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 57 (71%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 11.4

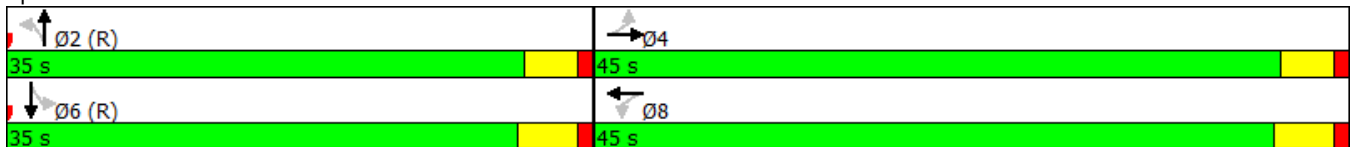
Intersection LOS: B

Intersection Capacity Utilization 97.0%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 28: Lincoln Ave & 5th Ave



San Rafael Multi-Family TIS - Baseline With Project Conditions
29: 5th Ave & Tamalpais Ave (West)

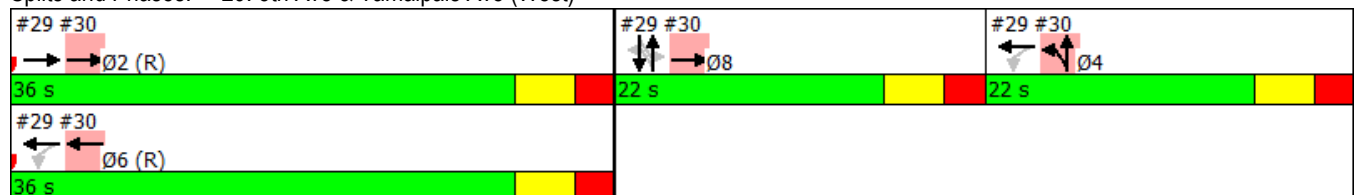
PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	407	16	1	245	16	22	16	29	9	20	11
Future Volume (vph)	0	407	16	1	245	16	22	16	29	9	20	11
Satd. Flow (prot)	0	1734	0	0	1730	0	0	1618	0	0	1623	0
Flt Permitted					0.999			0.875			0.908	
Satd. Flow (perm)	0	1734	0	0	1728	0	0	1414	0	0	1490	0
Satd. Flow (RTOR)		3			8			31			12	
Lane Group Flow (vph)	0	450	0	0	279	0	0	71	0	0	43	0
Turn Type		NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			4 6			8			8	
Permitted Phases				4 6			8			8		
Total Split (s)		36.0					22.0	22.0		22.0	22.0	
Total Lost Time (s)		6.0						6.0			6.0	
Act Effect Green (s)		44.8			59.6			8.4			8.4	
Actuated g/C Ratio		0.56			0.74			0.10			0.10	
v/c Ratio		0.46			0.22			0.41			0.26	
Control Delay		8.7			0.9			17.9			23.7	
Queue Delay		0.4			0.0			0.0			0.0	
Total Delay		9.0			0.9			17.9			23.7	
LOS		A			A			B			C	
Approach Delay		9.0			0.9			17.9			23.7	
Approach LOS		A			A			B			C	

Intersection Summary

Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 20 (25%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.46	
Intersection Signal Delay: 7.8	Intersection LOS: A
Intersection Capacity Utilization 42.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 29: 5th Ave & Tamalpais Ave (West)



Lane Group	Ø4	Ø6
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Satd. Flow (RTOR)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	4	6
Permitted Phases		
Total Split (s)	22.0	36.0
Total Lost Time (s)		
Act Effect Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

San Rafael Multi-Family TIS - Baseline With Project Conditions

30: 5th Ave & Tamalpais Ave (East)

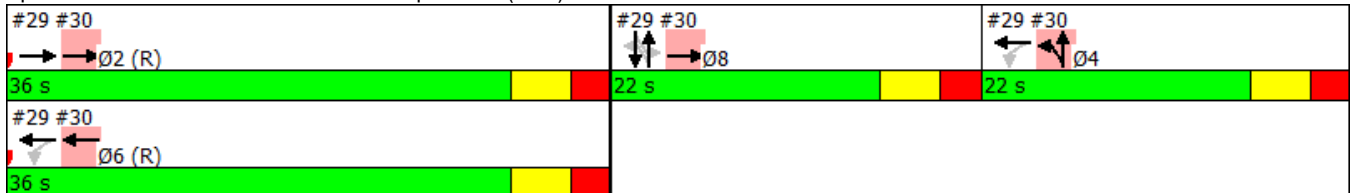
PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑				
Traffic Volume (vph)	0	445	0	0	251	8	11	20	31	0	0	0
Future Volume (vph)	0	445	0	0	251	8	11	20	31	0	0	0
Satd. Flow (prot)	0	1748	0	0	1739	0	0	1582	0	0	0	0
Flt Permitted								0.991				
Satd. Flow (perm)	0	1748	0	0	1739	0	0	1582	0	0	0	0
Satd. Flow (RTOR)					2			33				
Lane Group Flow (vph)	0	473	0	0	276	0	0	66	0	0	0	0
Turn Type		NA			NA		Split	NA				
Protected Phases		2 8			6		4	4				
Permitted Phases												
Total Split (s)					36.0		22.0	22.0				
Total Lost Time (s)					6.0			6.0				
Act Effect Green (s)		59.2			44.8			8.8				
Actuated g/C Ratio		0.74			0.56			0.11				
v/c Ratio		0.37			0.28			0.33				
Control Delay		0.9			6.3			23.6				
Queue Delay		0.1			1.0			0.0				
Total Delay		0.9			7.3			23.6				
LOS		A			A			C				
Approach Delay		0.9			7.3			23.6				
Approach LOS		A			A			C				

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 20 (25%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.46
 Intersection Signal Delay: 4.9 Intersection LOS: A
 Intersection Capacity Utilization 41.0% ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 30: 5th Ave & Tamalpais Ave (East)



Lane Group	Ø2	Ø8
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Satd. Flow (RTOR)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	8
Permitted Phases		
Total Split (s)	36.0	22.0
Total Lost Time (s)		
Act Effect Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

San Rafael Multi-Family TIS - Baseline With Project Conditions

31: Hetherton St & 5th Ave

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	329	195	66	215	0	0	0	0	34	1096	95
Future Volume (vph)	0	329	195	66	215	0	0	0	0	34	1096	95
Satd. Flow (prot)	0	1864	0	0	1957	0	0	0	0	0	4591	1322
Flt Permitted					0.615						0.999	
Satd. Flow (perm)	0	1864	0	0	1217	0	0	0	0	0	4591	1259
Satd. Flow (RTOR)		29										
Lane Group Flow (vph)	0	557	0	0	299	0	0	0	0	0	1202	101
Turn Type		NA		Perm	NA					Split	NA	custom
Protected Phases		4			8					2	2	
Permitted Phases				8								5
Total Split (s)		40.0		40.0	40.0					40.0	40.0	33.0
Total Lost Time (s)		4.6			4.6						4.5	4.5
Act Effect Green (s)		35.4			35.4						35.5	28.5
Actuated g/C Ratio		0.44			0.44						0.44	0.36
v/c Ratio		0.66			0.56						0.59	0.23
Control Delay		10.6			19.7						6.7	8.7
Queue Delay		2.5			0.1						0.5	0.0
Total Delay		13.1			19.8						7.2	8.7
LOS		B			B						A	A
Approach Delay		13.1			19.8						7.3	
Approach LOS		B			B						A	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 60 (75%), Referenced to phase 2:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 10.5

Intersection LOS: B

Intersection Capacity Utilization 81.4%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 31: Hetherton St & 5th Ave

Ø2 (R)		Ø4	
40 s		40 s	
Ø7	Ø5	Ø8	
7 s	33 s	40 s	

Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Total Split (s)	7.0
Total Lost Time (s)	
Act Effect Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

San Rafael Multi-Family TIS - Baseline With Project Conditions

32: Irwin St & 5th Ave

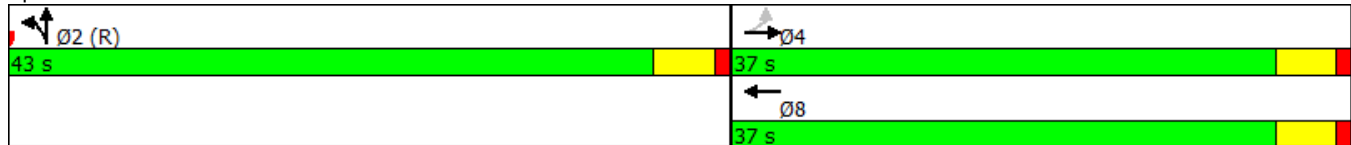
PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	121	0	0	147	113	90	1451	14	0	0	0
Future Volume (vph)	235	121	0	0	147	113	90	1451	14	0	0	0
Satd. Flow (prot)	1284	1351	0	0	1251	0	0	4082	0	0	0	0
Flt Permitted	0.517							0.997				
Satd. Flow (perm)	688	1351	0	0	1251	0	0	4082	0	0	0	0
Satd. Flow (RTOR)						13		2				
Lane Group Flow (vph)	250	129	0	0	276	0	0	1655	0	0	0	0
Turn Type	Perm	NA					NA	Split	NA			
Protected Phases					4		8		2		2	
Permitted Phases	4											
Total Split (s)	37.0		37.0		37.0		43.0		43.0			
Total Lost Time (s)	4.6		4.6		4.6		4.6		4.6			
Act Effect Green (s)	32.4		32.4		32.4		38.4		38.4			
Actuated g/C Ratio	0.40		0.40		0.40		0.48		0.48			
v/c Ratio	0.90		0.24		0.54		0.84		0.84			
Control Delay	58.3		24.1		21.9		14.9		14.9			
Queue Delay	0.0		0.0		0.0		3.7		3.7			
Total Delay	58.3		24.1		21.9		18.6		18.6			
LOS	E		C		C		B		B			
Approach Delay					46.6		21.9		18.6			
Approach LOS					D		C		B			

Intersection Summary

Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 45 (56%), Referenced to phase 2:NBT, Start of Green	
Control Type: Pre-timed	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 23.6	Intersection LOS: C
Intersection Capacity Utilization 81.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 32: Irwin St & 5th Ave



San Rafael Multi-Family TIS - Baseline With Project Conditions

1: Cijos St & 4th St

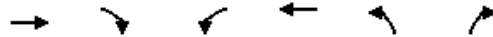
PM PEAK HOUR

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↖	↗	↘	
Traffic Volume (vph)	238	15	97	290	23	62
Future Volume (vph)	238	15	97	290	23	62
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	10	12	12	12
Storage Length (ft)		0	40		0	0
Storage Lanes		0	1		0	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.89		0.91	
Frt	0.992				0.901	
Flt Protected			0.950		0.987	
Satd. Flow (prot)	1529	0	1406	1555	1315	0
Flt Permitted			0.583		0.987	
Satd. Flow (perm)	1529	0	768	1555	1283	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	8				66	
Link Speed (mph)	25			25	25	
Link Distance (ft)	315			349	229	
Travel Time (s)	8.6			9.5	6.2	
Confl. Peds. (#/hr)		166	166		52	40
Confl. Bikes (#/hr)		14				
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	0%	1%	3%	5%	0%
Parking (#/hr)	2	2	2	2	2	2
Adj. Flow (vph)	253	16	103	309	24	66
Shared Lane Traffic (%)						
Lane Group Flow (vph)	269	0	103	309	90	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			10	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.24	1.07	1.35	1.24	1.24	1.07
Turning Speed (mph)		9	15		15	9
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases			6			
Minimum Split (s)	41.0		41.0	41.0	24.0	
Total Split (s)	46.0		46.0	46.0	24.0	
Total Split (%)	65.7%		65.7%	65.7%	34.3%	
Maximum Green (s)	41.8		41.8	41.8	20.0	
Yellow Time (s)	3.2		3.2	3.2	3.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.2		4.2	4.2	4.0	
Lead/Lag						
Lead-Lag Optimize?						

San Rafael Multi-Family TIS - Baseline With Project Conditions

1: Cijos St & 4th St

PM PEAK HOUR

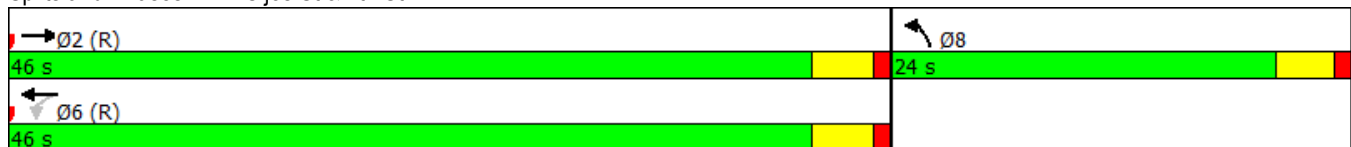


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Walk Time (s)	24.0				7.0	
Flash Dont Walk (s)	12.0				13.0	
Pedestrian Calls (#/hr)	0				0	
Act Effect Green (s)	41.8		41.8	41.8	20.0	
Actuated g/C Ratio	0.60		0.60	0.60	0.29	
v/c Ratio	0.29		0.22	0.33	0.21	
Control Delay	7.7		8.1	8.3	9.4	
Queue Delay	0.0		0.0	0.6	0.0	
Total Delay	7.7		8.1	8.9	9.4	
LOS	A		A	A	A	
Approach Delay	7.7			8.7	9.4	
Approach LOS	A			A	A	
Queue Length 50th (ft)	49		18	59	8	
Queue Length 95th (ft)	86		42	102	39	
Internal Link Dist (ft)	235			269	149	
Turn Bay Length (ft)			40			
Base Capacity (vph)	916		458	928	422	
Starvation Cap Reductn	0		0	316	0	
Spillback Cap Reductn	0		0	0	0	
Storage Cap Reductn	0		0	0	0	
Reduced v/c Ratio	0.29		0.22	0.50	0.21	

Intersection Summary

Area Type: Other
 Cycle Length: 70
 Actuated Cycle Length: 70
 Offset: 52 (74%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
 Natural Cycle: 65
 Control Type: Pretimed
 Maximum v/c Ratio: 0.33
 Intersection Signal Delay: 8.5
 Intersection Capacity Utilization 83.7%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service E




















Splits and Phases: 1: Cijos St & 4th St



San Rafael Multi-Family TIS - Baseline With Project Conditions

2: Lincoln Ave & 4th St

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	185	65	91	293	64	27	358	59	32	286	67
Future Volume (vph)	50	185	65	91	293	64	27	358	59	32	286	67
Ideal Flow (vphpl)	1600	1700	1700	1600	1700	1700	1600	1700	1700	1600	1700	1700
Lane Width (ft)	10	9	12	10	12	12	12	10	8	12	10	9
Storage Length (ft)	45		0	75		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.97	0.98		0.95	0.99			0.99			0.97	
Frt		0.961			0.973			0.980			0.974	
Flt Protected	0.950			0.950				0.997			0.996	
Satd. Flow (prot)	1419	1403	0	1405	1586	0	0	2886	0	0	2743	0
Flt Permitted	0.454			0.557				0.914			0.891	
Satd. Flow (perm)	658	1403	0	780	1586	0	0	2632	0	0	2449	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32			20			25			36	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		349			241			355			292	
Travel Time (s)		9.5			6.6			9.7			8.0	
Confl. Peds. (#/hr)	90		134	134		90	116		36	36		116
Confl. Bikes (#/hr)			8			14			9			3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	3%	1%	3%	3%	0%	1%	2%	6%	4%	0%
Adj. Flow (vph)	53	197	69	97	312	68	29	381	63	34	304	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	266	0	97	380	0	0	473	0	0	409	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.35	1.31	1.15	1.35	1.15	1.15	1.24	1.26	1.38	1.24	1.26	1.31
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	45.0	45.0		45.0	45.0		35.0	35.0		35.0	35.0	
Total Split (%)	56.3%	56.3%		56.3%	56.3%		43.8%	43.8%		43.8%	43.8%	
Maximum Green (s)	40.8	40.8		40.8	40.8		30.8	30.8		30.8	30.8	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.2	3.2		3.2	3.2	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	4.2	4.2		4.2	4.2			4.2			4.2	
Lead/Lag												
Lead-Lag Optimize?												
Act Effect Green (s)	40.8	40.8		40.8	40.8			30.8			30.8	

San Rafael Multi-Family TIS - Baseline With Project Conditions
 2: Lincoln Ave & 4th St

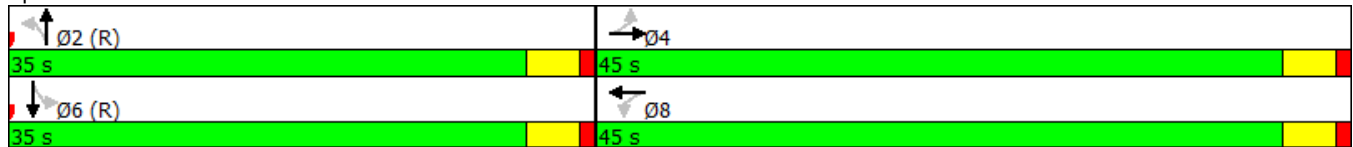
PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.51	0.51		0.51	0.51			0.38			0.38	
v/c Ratio	0.16	0.36		0.24	0.46			0.46			0.42	
Control Delay	12.0	12.0		10.9	10.1			14.0			6.1	
Queue Delay	0.0	0.6		0.0	0.5			0.0			0.0	
Total Delay	12.0	12.6		10.9	10.6			14.0			6.1	
LOS	B	B		B	B			B			A	
Approach Delay		12.5			10.6			14.0			6.1	
Approach LOS		B			B			B			A	
Queue Length 50th (ft)	13	65		10	34			120			17	
Queue Length 95th (ft)	34	117		41	113			m164			25	
Internal Link Dist (ft)		269			161			275			212	
Turn Bay Length (ft)	45			75								
Base Capacity (vph)	335	731		397	818			1028			965	
Starvation Cap Reductn	0	206		0	145			0			0	
Spillback Cap Reductn	0	8		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.16	0.51		0.24	0.56			0.46			0.42	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 62 (78%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 50
 Control Type: Pretimed
 Maximum v/c Ratio: 0.46
 Intersection Signal Delay: 10.8
 Intersection Capacity Utilization 76.1%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Lincoln Ave & 4th St



San Rafael Multi-Family TIS - Baseline With Project Conditions
 3: Tamalpais Ave (West) South Leg & 4th St

PM PEAK HOUR

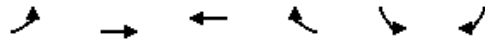
	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖		↗
Traffic Volume (vph)	254	22	0	437	0	156
Future Volume (vph)	254	22	0	437	0	156
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.989			0.865		
Flt Protected						
Satd. Flow (prot)	1732	0	0	1748	0	1526
Flt Permitted						
Satd. Flow (perm)	1732	0	0	1748	0	1526
Link Speed (mph)	25			25	25	
Link Distance (ft)	241			60	106	
Travel Time (s)	6.6			1.6	2.9	
Confl. Peds. (#/hr)	88			77		
Confl. Bikes (#/hr)	10					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	0%	33%	3%	0%	2%
Adj. Flow (vph)	270	23	0	465	0	166
Shared Lane Traffic (%)						
Lane Group Flow (vph)	293	0	0	465	0	166
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			10	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	9		15	15		9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	43.5%
Analysis Period (min)	15
	ICU Level of Service A

San Rafael Multi-Family TIS - Baseline With Project Conditions
 4: 4th St & Tamalpais Ave (West) North Leg

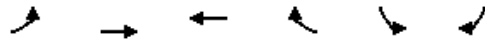
PM PEAK HOUR



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø2	Ø4	Ø6
Lane Configurations		↑	↶			↷			
Traffic Volume (vph)	0	411	396	32	0	45			
Future Volume (vph)	0	411	396	32	0	45			
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00			
Ped Bike Factor			0.99			0.78			
Frt			0.990			0.865			
Flt Protected									
Satd. Flow (prot)	0	1765	1710	0	0	1483			
Flt Permitted									
Satd. Flow (perm)	0	1765	1710	0	0	1159			
Right Turn on Red				Yes		Yes			
Satd. Flow (RTOR)			11			381			
Link Speed (mph)		25	25		25				
Link Distance (ft)		60	60		194				
Travel Time (s)		1.6	1.6		5.3				
Confl. Peds. (#/hr)				59		78			
Confl. Bikes (#/hr)				14					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94			
Heavy Vehicles (%)	0%	2%	3%	0%	0%	5%			
Adj. Flow (vph)	0	437	421	34	0	48			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	0	437	455	0	0	48			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Left	Left	Right	Left	Right			
Median Width(ft)		12	12		0				
Link Offset(ft)		0	0		0				
Crosswalk Width(ft)		16	16		16				
Two way Left Turn Lane									
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07			
Turning Speed (mph)	15			9	15	9			
Turn Type		NA	NA			Perm			
Protected Phases		2 8	4 6				2	4	6
Permitted Phases						8			
Detector Phase		2 8	4 6			8			
Switch Phase									
Minimum Initial (s)					5.0	9.0	9.0	8.0	
Minimum Split (s)					21.0	20.0	21.0	21.0	
Total Split (s)					21.0	38.0	21.0	38.0	
Total Split (%)					26.3%	48%	26%	48%	
Maximum Green (s)					15.4	32.0	15.0	32.0	
Yellow Time (s)					3.2	3.6	3.6	3.6	
All-Red Time (s)					2.4	2.4	2.4	2.4	
Lost Time Adjust (s)					0.0				
Total Lost Time (s)					5.6				
Lead/Lag									
Lead-Lag Optimize?									
Vehicle Extension (s)					3.0	3.0	3.0	3.0	
Recall Mode					None	C-Max	None	C-Max	

San Rafael Multi-Family TIS - Baseline With Project Conditions
 4: 4th St & Tamalpais Ave (West) North Leg

PM PEAK HOUR

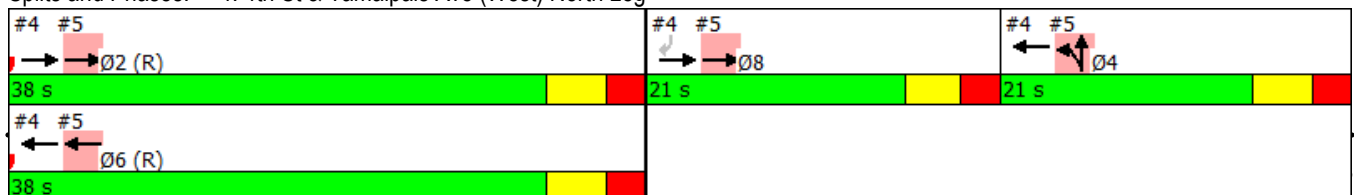


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø2	Ø4	Ø6
Walk Time (s)						4.0	7.0	4.0	7.0
Flash Dont Walk (s)						11.4	7.0	11.0	8.0
Pedestrian Calls (#/hr)						45	11	25	45
Act Effect Green (s)		54.9	55.7			12.7			
Actuated g/C Ratio		0.69	0.70			0.16			
v/c Ratio		0.36	0.38			0.10			
Control Delay		6.1	1.2			0.6			
Queue Delay		0.6	0.0			0.0			
Total Delay		6.7	1.2			0.6			
LOS		A	A			A			
Approach Delay		6.7	1.2		0.6				
Approach LOS		A	A		A				
90th %ile Green (s)						15.4	32.0	15.0	32.0
90th %ile Term Code						Max	Coord	Max	Coord
70th %ile Green (s)						15.4	32.0	15.0	32.0
70th %ile Term Code						Ped	Coord	Max	Coord
50th %ile Green (s)						15.4	32.0	15.0	32.0
50th %ile Term Code						Ped	Coord	Max	Coord
30th %ile Green (s)						10.0	41.0	11.4	41.0
30th %ile Term Code						Gap	Coord	Gap	Coord
10th %ile Green (s)						7.5	45.9	9.0	45.9
10th %ile Term Code						Gap	Coord	Min	Coord
Queue Length 50th (ft)		59	0			0			
Queue Length 95th (ft)		129	0			m0			
Internal Link Dist (ft)		1	1		114				
Turn Bay Length (ft)									
Base Capacity (vph)		1270	1182			530			
Starvation Cap Reductn		473	0			0			
Spillback Cap Reductn		0	0			0			
Storage Cap Reductn		0	0			0			
Reduced v/c Ratio		0.55	0.38			0.09			

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 28 (35%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 3.7 Intersection LOS: A
 Intersection Capacity Utilization 46.5% ICU Level of Service A
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: 4th St & Tamalpais Ave (West) North Leg



San Rafael Multi-Family TIS - Baseline With Project Conditions

5: Tamalpais Avenue (East) & 4th St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	412	0	0	427	36	0	6	0	0	0	0
Future Volume (vph)	0	412	0	0	427	36	0	6	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					0.99							
Frt					0.990							
Flt Protected												
Satd. Flow (prot)	0	1765	0	0	1710	0	0	1800	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	1765	0	0	1710	0	0	1800	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					6							
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		60			167			351			288	
Travel Time (s)		1.6			4.6			9.6			7.9	
Confl. Peds. (#/hr)	56					56			20			
Confl. Bikes (#/hr)						14						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	438	0	0	454	38	0	6	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	438	0	0	492	0	0	6	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			0			0			0	
Link Offset(ft)		0			0			5			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA			NA			NA				
Protected Phases		2 8			6		4	4				
Permitted Phases												
Detector Phase		2 8			6		4	4				
Switch Phase												
Minimum Initial (s)					8.0		9.0	9.0				
Minimum Split (s)					21.0		21.0	21.0				
Total Split (s)					38.0		21.0	21.0				
Total Split (%)					47.5%		26.3%	26.3%				
Maximum Green (s)					32.0		15.0	15.0				
Yellow Time (s)					3.6		3.6	3.6				
All-Red Time (s)					2.4		2.4	2.4				
Lost Time Adjust (s)					0.0			0.0				
Total Lost Time (s)					6.0			6.0				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)					3.0		3.0	3.0				
Recall Mode					C-Max		None	None				

San Rafael Multi-Family TIS - Baseline With Project Conditions
 5: Tamalpais Avenue (East) & 4th St

PM PEAK HOUR

Lane Group	Ø2	Ø8
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	2	8
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	9.0	5.0
Minimum Split (s)	20.0	21.0
Total Split (s)	38.0	21.0
Total Split (%)	48%	26%
Maximum Green (s)	32.0	15.4
Yellow Time (s)	3.6	3.2
All-Red Time (s)	2.4	2.4
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	3.0
Recall Mode	C-Max	None

San Rafael Multi-Family TIS - Baseline With Project Conditions
 5: Tamalpais Avenue (East) & 4th St

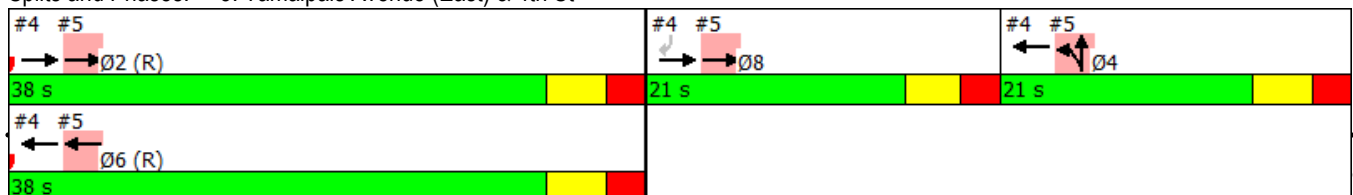
PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)					7.0		4.0	4.0				
Flash Dont Walk (s)					8.0		11.0	11.0				
Pedestrian Calls (#/hr)					45		25	25				
Act Effct Green (s)		54.9			36.6			13.1				
Actuated g/C Ratio		0.69			0.46			0.16				
v/c Ratio		0.36			0.63			0.02				
Control Delay		1.5			18.2			25.7				
Queue Delay		0.0			2.7			0.0				
Total Delay		1.5			20.9			25.7				
LOS		A			C			C				
Approach Delay		1.5			20.9			25.7				
Approach LOS		A			C			C				
90th %ile Green (s)					32.0		15.0	15.0				
90th %ile Term Code					Coord		Max	Max				
70th %ile Green (s)					32.0		15.0	15.0				
70th %ile Term Code					Coord		Max	Max				
50th %ile Green (s)					32.0		15.0	15.0				
50th %ile Term Code					Coord		Max	Max				
30th %ile Green (s)					41.0		11.4	11.4				
30th %ile Term Code					Coord		Gap	Gap				
10th %ile Green (s)					45.9		9.0	9.0				
10th %ile Term Code					Coord		Min	Min				
Queue Length 50th (ft)		7			247			2				
Queue Length 95th (ft)		8			345			m2				
Internal Link Dist (ft)		1			87			271			208	
Turn Bay Length (ft)												
Base Capacity (vph)		1270			785			337				
Starvation Cap Reductn		0			184			0				
Spillback Cap Reductn		1			0			0				
Storage Cap Reductn		0			0			0				
Reduced v/c Ratio		0.35			0.82			0.02				

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 28 (35%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 11.9 Intersection LOS: B
 Intersection Capacity Utilization 46.3% ICU Level of Service A
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Tamalpais Avenue (East) & 4th St



San Rafael Multi-Family TIS - Baseline With Project Conditions
 5: Tamalpais Avenue (East) & 4th St





















PM PEAK HOUR

Lane Group	Ø2	Ø8
Walk Time (s)	7.0	4.0
Flash Dont Walk (s)	7.0	11.4
Pedestrian Calls (#/hr)	11	45
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
90th %ile Green (s)	32.0	15.4
90th %ile Term Code	Coord	Max
70th %ile Green (s)	32.0	15.4
70th %ile Term Code	Coord	Ped
50th %ile Green (s)	32.0	15.4
50th %ile Term Code	Coord	Ped
30th %ile Green (s)	41.0	10.0
30th %ile Term Code	Coord	Gap
10th %ile Green (s)	45.9	7.5
10th %ile Term Code	Coord	Gap
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

San Rafael Multi-Family TIS - Baseline With Project Conditions

6: Hetherton St & 4th St

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											  	
Traffic Volume (vph)	0	297	119	74	249	0	0	0	0	130	1013	231
Future Volume (vph)	0	297	119	74	249	0	0	0	0	130	1013	231
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	13	10	15	11	12	12	12	12	12	12	12
Storage Length (ft)	0		0	100		0	0		0	0		140
Storage Lanes	0		1	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00
Ped Bike Factor			0.93	0.97							1.00	0.95
Frt			0.850									0.850
Flt Protected				0.950							0.994	
Satd. Flow (prot)	0	1824	1386	1826	1706	0	0	0	0	0	4578	1322
Flt Permitted				0.480							0.994	
Satd. Flow (perm)	0	1824	1294	896	1706	0	0	0	0	0	4569	1253
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)			71									
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		167			379			352			290	
Travel Time (s)		4.6			10.3			9.6			7.9	
Confl. Peds. (#/hr)			51	51						11		19
Confl. Bikes (#/hr)			10									1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	3%	3%	2%	0%	0%	0%	0%	1%	3%	3%
Parking (#/hr)											2	2
Adj. Flow (vph)	0	316	127	79	265	0	0	0	0	138	1078	246
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	316	127	79	265	0	0	0	0	0	1216	246
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		6			15			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.03	1.17	0.95	1.12	1.07	1.07	1.07	1.07	1.07	1.12	1.24
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm	Perm	NA					Perm	NA	custom
Protected Phases		4			8						2	
Permitted Phases			4	8						2		5
Minimum Split (s)		29.0	29.0	29.0	29.0					29.0	29.0	29.0
Total Split (s)		39.0	39.0	39.0	39.0					41.0	41.0	34.0
Total Split (%)		48.8%	48.8%	48.8%	48.8%					51.3%	51.3%	42.5%
Maximum Green (s)		34.8	34.8	34.8	34.8					36.8	36.8	29.8
Yellow Time (s)		3.2	3.2	3.2	3.2					3.2	3.2	3.2
All-Red Time (s)		1.0	1.0	1.0	1.0					1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Total Lost Time (s)		4.2	4.2	4.2	4.2					4.2	4.2	4.2
Lead/Lag												Lag
Lead-Lag Optimize?												

Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Parking (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Minimum Split (s)	7.0
Total Split (s)	7.0
Total Split (%)	9%
Maximum Green (s)	3.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	

San Rafael Multi-Family TIS - Baseline With Project Conditions

6: Hetherton St & 4th St

PM PEAK HOUR

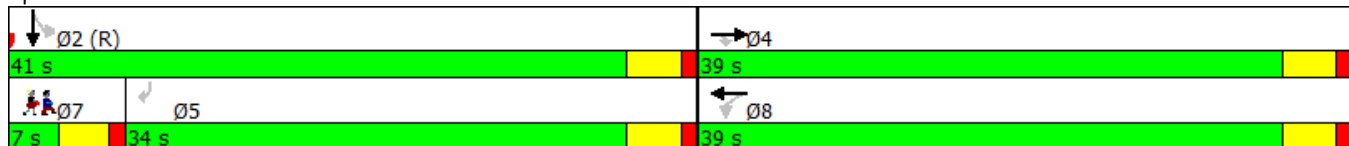


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		10.0	10.0	10.0	10.0					10.0	10.0	10.0
Flash Dont Walk (s)		14.0	14.0	14.0	14.0					14.0	14.0	14.0
Pedestrian Calls (#/hr)		0	0	0	0					0	0	0
Act Effect Green (s)		34.8	34.8	34.8	34.8						36.8	29.8
Actuated g/C Ratio		0.44	0.44	0.44	0.44						0.46	0.37
v/c Ratio		0.40	0.21	0.20	0.36						0.58	0.53
Control Delay		10.7	3.7	14.4	15.7						7.8	14.0
Queue Delay		1.6	1.2	0.0	0.0						0.2	71.1
Total Delay		12.3	4.9	14.4	15.8						8.0	85.1
LOS		B	A	B	B						A	F
Approach Delay		10.2			15.4						21.0	
Approach LOS		B			B						C	
Queue Length 50th (ft)		50	5	30	104						47	70
Queue Length 95th (ft)		64	14	m56	172						56	m141
Internal Link Dist (ft)		87			299			272			210	
Turn Bay Length (ft)				100								140
Base Capacity (vph)		793	603	389	742						2101	466
Starvation Cap Reductn		310	312	0	0						253	51
Spillback Cap Reductn		0	0	0	14						0	331
Storage Cap Reductn		0	0	0	0						0	0
Reduced v/c Ratio		0.65	0.44	0.20	0.36						0.66	1.82

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 68 (85%), Referenced to phase 2:SBTL, Start of Green
 Natural Cycle: 65
 Control Type: Pretimed
 Maximum v/c Ratio: 0.58
 Intersection Signal Delay: 18.0 Intersection LOS: B
 Intersection Capacity Utilization 68.1% ICU Level of Service C
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Hetherton St & 4th St





















Lane Group	Ø7
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

San Rafael Multi-Family TIS - Baseline With Project Conditions

7: Irwin St & 4th St

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	236	0	0	197	79	129	1264	153	0	0	0
Future Volume (vph)	180	236	0	0	197	79	129	1264	153	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	12	12	12	12	12	9	10	12	12	12	12
Storage Length (ft)	70		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	1.00	1.00
Ped Bike Factor	0.99				0.99		0.99	1.00				
Frt					0.961			0.984				
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1637	1765	0	0	1470	0	1480	4417	0	0	0	0
Flt Permitted	0.455						0.950					
Satd. Flow (perm)	778	1765	0	0	1470	0	1464	4417	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					28			42				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		379			571			377			279	
Travel Time (s)		10.3			15.6			10.3			7.6	
Confl. Peds. (#/hr)	15						15	12		6		
Confl. Bikes (#/hr)							12					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	2%	0%	0%	2%	0%	4%	2%	1%	0%	0%	0%
Parking (#/hr)					6	6						
Adj. Flow (vph)	191	251	0	0	210	84	137	1345	163	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	191	251	0	0	294	0	137	1508	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		15			15			9			9	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.12	1.07	1.07	1.07	1.28	1.07	1.22	1.17	1.07	1.07	1.07	1.07
Turning Speed (mph)	25		9	15		20	25		20	15		9
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Minimum Split (s)	19.0	19.0			19.0		21.0	21.0				
Total Split (s)	32.0	32.0			32.0		48.0	48.0				
Total Split (%)	40.0%	40.0%			40.0%		60.0%	60.0%				
Maximum Green (s)	27.8	27.8			27.8		43.8	43.8				
Yellow Time (s)	3.2	3.2			3.2		3.2	3.2				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	4.2	4.2			4.2		4.2	4.2				
Lead/Lag												
Lead-Lag Optimize?												

San Rafael Multi-Family TIS - Baseline With Project Conditions

7: Irwin St & 4th St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	27.8	27.8			27.8		43.8	43.8				
Actuated g/C Ratio	0.35	0.35			0.35		0.55	0.55				
v/c Ratio	0.71	0.41			0.56		0.17	0.62				
Control Delay	47.3	30.9			23.8		3.0	3.4				
Queue Delay	0.0	0.0			0.0		0.0	0.4				
Total Delay	47.3	30.9			23.8		3.0	3.8				
LOS	D	C			C		A	A				
Approach Delay		38.0			23.8			3.7				
Approach LOS		D			C			A				
Queue Length 50th (ft)	96	116			105		8	30				
Queue Length 95th (ft)	#191	187			184		m11	m36				
Internal Link Dist (ft)		299			491			297			199	
Turn Bay Length (ft)	70											
Base Capacity (vph)	270	613			529		801	2437				
Starvation Cap Reductn	0	0			0		0	349				
Spillback Cap Reductn	0	0			2		0	408				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.71	0.41			0.56		0.17	0.74				

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 36 (45%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 45

Control Type: Pretimed

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 12.6

Intersection LOS: B

Intersection Capacity Utilization 68.1%

ICU Level of Service C

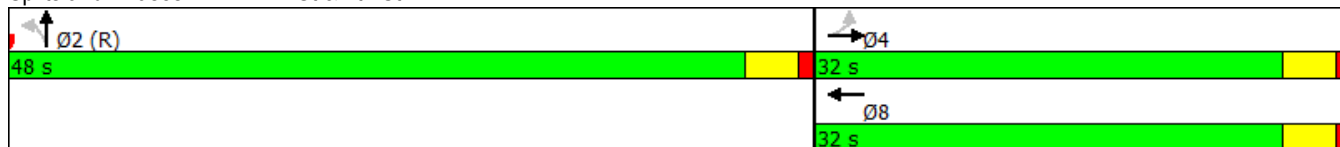
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

















Splits and Phases: 7: Irwin St & 4th St



San Rafael Multi-Family TIS - Baseline With Project Conditions

8: Lindaro St & 3rd St

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	254	1910	35	134	18	0	0	39	8
Future Volume (vph)	0	0	0	254	1910	35	134	18	0	0	39	8
Ideal Flow (vphpl)	1800	1800	1800	1600	1600	1600	1600	1600	1800	1800	1600	1600
Lane Width (ft)	12	12	12	11	12	12	12	12	12	12	12	12
Storage Length (ft)	0		0	75		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor				0.95	1.00							
Frt					0.997						0.976	
Flt Protected				0.950				0.958				
Satd. Flow (prot)	0	0	0	1360	4304	0	0	1533	0	0	1524	0
Flt Permitted				0.950				0.715				
Satd. Flow (perm)	0	0	0	1290	4304	0	0	1144	0	0	1524	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					6						9	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		102			103			333			198	
Travel Time (s)		2.8			2.8			9.1			5.4	
Confl. Peds. (#/hr)				30		51						
Confl. Bikes (#/hr)						8						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	8%	1%	0%	0%	0%	0%	0%	3%	0%
Adj. Flow (vph)	0	0	0	270	2032	37	143	19	0	0	41	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	270	2069	0	0	162	0	0	50	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			9			9	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.30	1.24	1.24	1.24	1.24	1.07	1.07	1.24	1.24
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8				4
Permitted Phases				6			8					
Minimum Split (s)				28.0	28.0		24.0	24.0			24.0	
Total Split (s)				53.0	53.0		27.0	27.0			27.0	
Total Split (%)				66.3%	66.3%		33.8%	33.8%			33.8%	
Maximum Green (s)				48.8	48.8		22.8	22.8			22.8	
Yellow Time (s)				3.2	3.2		3.2	3.2			3.2	
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0	
Lost Time Adjust (s)				0.0	0.0			0.0			0.0	
Total Lost Time (s)				4.2	4.2			4.2			4.2	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)				10.0	10.0		4.0	4.0				

San Rafael Multi-Family TIS - Baseline With Project Conditions
 8: Lindaro St & 3rd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)				13.0	13.0		15.0	15.0				
Pedestrian Calls (#/hr)				0	0		0	0				
Act Effect Green (s)				48.8	48.8			22.8			22.8	
Actuated g/C Ratio				0.61	0.61			0.28			0.28	
v/c Ratio				0.34	0.79			0.50			0.11	
Control Delay				3.7	5.1			32.7			19.1	
Queue Delay				0.0	0.1			0.0			0.0	
Total Delay				3.7	5.2			32.7			19.1	
LOS				A	A			C			B	
Approach Delay					5.0			32.7			19.1	
Approach LOS					A			C			B	
Queue Length 50th (ft)				21	63			77			15	
Queue Length 95th (ft)				m27	73			m121			41	
Internal Link Dist (ft)		22				23			253			118
Turn Bay Length (ft)				75								
Base Capacity (vph)				786	2627			326			440	
Starvation Cap Reductn				0	65			0			0	
Spillback Cap Reductn				0	0			0			0	
Storage Cap Reductn				0	0			0			0	
Reduced v/c Ratio				0.34	0.81			0.50			0.11	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green
 Natural Cycle: 60
 Control Type: Pretimed
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 7.1 Intersection LOS: A
 Intersection Capacity Utilization 68.4% ICU Level of Service C
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.







Splits and Phases: 8: Lindaro St & 3rd St



San Rafael Multi-Family TIS - Baseline With Project Conditions

9: Ritter St & 3rd St

PM PEAK HOUR

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑↑	↓	↑
Traffic Volume (vph)	0	0	0	2111	114	0
Future Volume (vph)	0	0	0	2111	114	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)		0	0		0	25
Storage Lanes		0	0		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	0.91	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	4818	1693	1800
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	4818	1693	1800
Link Speed (mph)	25			25	25	
Link Distance (ft)	103			100	461	
Travel Time (s)	2.8			2.7	12.6	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	2%	1%	0%
Adj. Flow (vph)	0	0	0	2246	121	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2246	121	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			11	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	56.4%
Analysis Period (min)	15
	ICU Level of Service B

San Rafael Multi-Family TIS - Baseline With Project Conditions

10: 3rd St & Cijos St

PM PEAK HOUR



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑			↗
Traffic Volume (vph)	0	0	2000	88	0	111
Future Volume (vph)	0	0	2000	88	0	111
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	1.00
Ped Bike Factor						
Frt			0.994			0.865
Flt Protected						
Satd. Flow (prot)	0	0	4791	0	0	1542
Flt Permitted						
Satd. Flow (perm)	0	0	4791	0	0	1542
Link Speed (mph)		25	25		25	
Link Distance (ft)		100	311		132	
Travel Time (s)		2.7	8.5		3.6	
Confl. Peds. (#/hr)				76		
Confl. Bikes (#/hr)				9		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	2%	1%	0%	1%
Adj. Flow (vph)	0	0	2128	94	0	118
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	2222	0	0	118
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	




















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	57.0%
Analysis Period (min)	15
	ICU Level of Service B

San Rafael Multi-Family TIS - Baseline With Project Conditions

11: Lincoln Ave & 3rd St

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					  			 			 	
Traffic Volume (vph)	0	0	0	132	1793	94	61	380	0	0	293	149
Future Volume (vph)	0	0	0	132	1793	94	61	380	0	0	293	149
Ideal Flow (vphpl)	1800	1800	1800	1600	1600	1600	1600	1600	1800	1800	1600	1600
Lane Width (ft)	12	12	12	12	12	12	12	11	10	12	9	9
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	0.95	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor					0.99			0.99			0.96	
Frt					0.993						0.949	
Flt Protected					0.997			0.993				
Satd. Flow (prot)	0	0	0	0	4239	0	0	2893	0	0	2402	0
Flt Permitted					0.997			0.814				
Satd. Flow (perm)	0	0	0	0	4219	0	0	2353	0	0	2402	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					15						8	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		311			264			223			355	
Travel Time (s)		8.5			7.2			6.1			9.7	
Confl. Peds. (#/hr)				132		52	126					126
Confl. Bikes (#/hr)						8						5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	2%	1%	0%	1%	0%	0%	4%	2%
Adj. Flow (vph)	0	0	0	140	1907	100	65	404	0	0	312	159
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	2147	0	0	469	0	0	471	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.24	1.24	1.24	1.24	1.30	1.17	1.07	1.42	1.42
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8			4	
Permitted Phases				6			8					
Minimum Split (s)				20.0	20.0		20.0	20.0			20.0	
Total Split (s)				50.0	50.0		30.0	30.0			30.0	
Total Split (%)				62.5%	62.5%		37.5%	37.5%			37.5%	
Maximum Green (s)				45.5	45.5		25.5	25.5			25.5	
Yellow Time (s)				3.5	3.5		3.5	3.5			3.5	
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Act Effect Green (s)					45.5			25.5			25.5	
Actuated g/C Ratio					0.57			0.32			0.32	
v/c Ratio					0.89			0.63			0.61	
Control Delay					21.3			20.9			34.4	

San Rafael Multi-Family TIS - Baseline With Project Conditions

11: Lincoln Ave & 3rd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay					46.4			0.0			0.0	
Total Delay					67.7			20.9			34.4	
LOS					E			C			C	
Approach Delay					67.7			20.9			34.4	
Approach LOS					E			C			C	
Queue Length 50th (ft)					313			97			108	
Queue Length 95th (ft)					397			m107			165	
Internal Link Dist (ft)		231			184			143			275	
Turn Bay Length (ft)												
Base Capacity (vph)					2406			750			771	
Starvation Cap Reductn					669			0			0	
Spillback Cap Reductn					0			0			0	
Storage Cap Reductn					0			0			0	
Reduced v/c Ratio					1.24			0.63			0.61	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 40 (50%), Referenced to phase 4:SBT and 8:NBTL, Start of Green
 Natural Cycle: 55
 Control Type: Pretimed
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 55.5 Intersection LOS: E
 Intersection Capacity Utilization 90.3% ICU Level of Service E
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

















Splits and Phases: 11: Lincoln Ave & 3rd St



San Rafael Multi-Family TIS - Baseline With Project Conditions

12: Tamalpais Ave (West) & 3rd St

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	322	1892	56	112	109	0	0	20	20
Future Volume (vph)	0	0	0	322	1892	56	112	109	0	0	20	20
Ideal Flow (vphpl)	1800	1800	1800	1600	1600	1600	1600	1600	1800	1800	1600	1600
Lane Width (ft)	12	12	12	12	12	12	11	12	12	12	12	12
Storage Length (ft)	0		0	0		0	70		0	0		0
Storage Lanes	0		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					0.95		0.94				0.96	
Frt					0.996						0.932	
Flt Protected					0.993		0.950					
Satd. Flow (prot)	0	0	0	0	4186	0	1287	1402	0	0	1239	0
Flt Permitted					0.993		0.730					
Satd. Flow (perm)	0	0	0	0	3968	0	932	1402	0	0	1239	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					7						7	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		264			130			321			251	
Travel Time (s)		7.2			3.5			8.8			6.8	
Confl. Peds. (#/hr)				163		26	41					41
Confl. Bikes (#/hr)						10						4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	9%	2%	2%	1%	1%	0%	0%	5%	0%
Parking (#/hr)							3	3			3	3
Adj. Flow (vph)	0	0	0	343	2013	60	119	116	0	0	21	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	2416	0	119	116	0	0	42	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.24	1.24	1.24	1.50	1.44	1.07	1.07	1.44	1.24
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			4			8	
Permitted Phases				6			4					
Minimum Split (s)				31.6	31.6		26.6	26.6			25.6	
Total Split (s)				63.0	63.0		27.0	27.0			27.0	
Total Split (%)				70.0%	70.0%		30.0%	30.0%			30.0%	
Maximum Green (s)				51.4	51.4		19.4	19.4			19.4	
Yellow Time (s)				3.6	3.6		3.6	3.6			3.6	
All-Red Time (s)				8.0	8.0		4.0	4.0			4.0	
Lost Time Adjust (s)					0.0		0.0	0.0			0.0	
Total Lost Time (s)					11.6		7.6	7.6			7.6	
Lead/Lag												
Lead-Lag Optimize?												

San Rafael Multi-Family TIS - Baseline With Project Conditions

12: Tamalpais Ave (West) & 3rd St

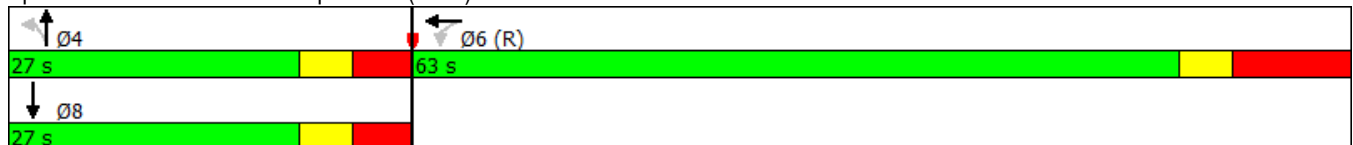
PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)				10.0	10.0		7.0	7.0			7.0	
Flash Dont Walk (s)				10.0	10.0		12.0	12.0			11.0	
Pedestrian Calls (#/hr)				45	45		40	40			20	
Act Effct Green (s)					51.4		19.4	19.4			19.4	
Actuated g/C Ratio					0.57		0.22	0.22			0.22	
v/c Ratio					1.06		0.59	0.38			0.15	
Control Delay					59.7		45.7	34.6			26.7	
Queue Delay					15.4		0.0	0.0			0.0	
Total Delay					75.2		45.7	34.6			26.7	
LOS					E		D	C			C	
Approach Delay					75.2			40.2			26.7	
Approach LOS					E			D			C	
Queue Length 50th (ft)					~561		61	57			16	
Queue Length 95th (ft)					#659		#130	108			44	
Internal Link Dist (ft)		184			50			241			171	
Turn Bay Length (ft)							70					
Base Capacity (vph)					2269		200	302			272	
Starvation Cap Reductn					467		0	0			0	
Spillback Cap Reductn					0		0	0			0	
Storage Cap Reductn					0		0	0			0	
Reduced v/c Ratio					1.34		0.59	0.38			0.15	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 26 (29%), Referenced to phase 6:WBTL, Start of Green
 Natural Cycle: 100
 Control Type: Pretimed
 Maximum v/c Ratio: 1.06
 Intersection Signal Delay: 71.4 Intersection LOS: E
 Intersection Capacity Utilization 156.1% ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.













Splits and Phases: 12: Tamalpais Ave (West) & 3rd St



San Rafael Multi-Family TIS - Baseline With Project Conditions

13: Tamalpais Avenue (East) & 3rd St

PM PEAK HOUR

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑			↑↑↑		↘						
Traffic Volume (vph)	0	0	0	9	2242	6	18	0	0	0	0	0	
Future Volume (vph)	0	0	0	9	2242	6	18	0	0	0	0	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor													
Frt													
Flt Protected							0.950						
Satd. Flow (prot)	0	1800	0	0	4801	0	881	0	0	0	0	0	
Flt Permitted							0.950						
Satd. Flow (perm)	0	1800	0	0	4801	0	881	0	0	0	0	0	
Link Speed (mph)	25				25				25		25		
Link Distance (ft)	130				156				122		351		
Travel Time (s)	3.5				4.3				3.3		9.6		
Confl. Peds. (#/hr)				96						15			
Confl. Bikes (#/hr)										13			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Heavy Vehicles (%)	0%	0%	0%	89%	2%	0%	94%	0%	0%	0%	0%	0%	
Adj. Flow (vph)	0	0	0	10	2385	6	19	0	0	0	0	0	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	0	0	2401	0	19	0	0	0	0	0	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(ft)	0				0				12		12		
Link Offset(ft)	0				0				0		0		
Crosswalk Width(ft)	16				16				16		16		
Two way Left Turn Lane													
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	
Turning Speed (mph)	15		9	15		9	15		9	15		9	
Sign Control	Free			Free			Stop			Stop			





















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	56.1%
ICU Level of Service	B
Analysis Period (min)	15

San Rafael Multi-Family TIS - Baseline With Project Conditions

14: Hetherton St & 3rd St

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					  						  	
Traffic Volume (vph)	0	0	0	487	1712	0	0	0	0	0	681	526
Future Volume (vph)	0	0	0	487	1712	0	0	0	0	0	681	526
Ideal Flow (vphpl)	1800	1800	1800	1600	1700	1800	1800	1800	1800	1800	1700	1500
Lane Width (ft)	12	12	12	14	12	12	12	12	12	12	11	11
Storage Length (ft)	0		0	70		0	0		0	0		220
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	0.91	1.00
Ped Bike Factor				0.93	1.00							0.93
Frt												0.850
Flt Protected				0.950	0.999							
Satd. Flow (prot)	0	0	0	1354	4254	0	0	0	0	0	4356	1197
Flt Permitted				0.950	0.999							
Satd. Flow (perm)	0	0	0	1258	4251	0	0	0	0	0	4356	1114
Right Turn on Red			Yes	No		Yes			Yes			Yes
Satd. Flow (RTOR)												14
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		156			379			311			352	
Travel Time (s)		4.3			10.3			8.5			9.6	
Confl. Peds. (#/hr)				77								49
Confl. Bikes (#/hr)												4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	3%	3%	0%	0%	0%	0%	0%	3%	3%
Adj. Flow (vph)	0	0	0	518	1821	0	0	0	0	0	724	560
Shared Lane Traffic (%)				4%								
Lane Group Flow (vph)	0	0	0	497	1842	0	0	0	0	0	724	560
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.15	1.15	1.07	1.07	1.07	1.07	1.07	1.20	1.40
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Perm	NA						NA	Perm
Protected Phases					8						6	
Permitted Phases				8								6
Minimum Split (s)				34.0	34.0						28.0	28.0
Total Split (s)				49.0	49.0						31.0	31.0
Total Split (%)				61.3%	61.3%						38.8%	38.8%
Maximum Green (s)				45.0	45.0						26.0	26.0
Yellow Time (s)				3.0	3.0						3.0	3.0
All-Red Time (s)				1.0	1.0						2.0	2.0
Lost Time Adjust (s)				0.0	0.0						0.0	0.0
Total Lost Time (s)				4.0	4.0						5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)				7.0	7.0						7.0	7.0

San Rafael Multi-Family TIS - Baseline With Project Conditions

14: Hetherton St & 3rd St

PM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)				19.0	19.0						14.0	14.0
Pedestrian Calls (#/hr)				0	0						0	0
Act Effct Green (s)				45.0	45.0						26.0	26.0
Actuated g/C Ratio				0.56	0.56						0.32	0.32
v/c Ratio				0.70	0.77						0.51	1.51
Control Delay				10.9	9.7						25.6	267.5
Queue Delay				1.0	0.7						0.6	0.0
Total Delay				11.9	10.4						26.2	267.5
LOS				B	B						C	F
Approach Delay					10.7						131.4	
Approach LOS					B						F	
Queue Length 50th (ft)				123	159						132	~409
Queue Length 95th (ft)				m153	m197						169	#602
Internal Link Dist (ft)		76				299		231			272	
Turn Bay Length (ft)				70								220
Base Capacity (vph)				707	2391						1415	371
Starvation Cap Reductn				62	236						0	0
Spillback Cap Reductn				0	0						339	0
Storage Cap Reductn				0	0						0	0
Reduced v/c Ratio				0.77	0.85						0.67	1.51

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 31 (39%), Referenced to phase 6:SBT, Start of Green
 Natural Cycle: 65
 Control Type: Pretimed
 Maximum v/c Ratio: 1.51
 Intersection Signal Delay: 53.5 Intersection LOS: D
 Intersection Capacity Utilization 126.1% ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.













Splits and Phases: 14: Hetherton St & 3rd St



San Rafael Multi-Family TIS - Baseline With Project Conditions

15: Irwin St & 3rd St

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑	↑	↓	↑↑↑				
Traffic Volume (vph)	0	0	0	0	1268	185	918	1368	0	0	0	0
Future Volume (vph)	0	0	0	0	1268	185	918	1368	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1600	1600	1600	1600	1600	1800	1800	1800
Lane Width (ft)	12	12	12	12	10	11	10	11	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00
Ped Bike Factor						0.96						
Frt						0.850						
Flt Protected							0.950	0.991				
Satd. Flow (prot)	0	0	0	0	3997	1289	1162	3857	0	0	0	0
Flt Permitted							0.950	0.991				
Satd. Flow (perm)	0	0	0	0	3997	1234	1162	3857	0	0	0	0
Right Turn on Red			Yes			Yes	Yes		Yes			Yes
Satd. Flow (RTOR)						24	20	20				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		379			140			294			377	
Travel Time (s)		10.3			3.8			8.0			10.3	
Confl. Peds. (#/hr)							25					
Confl. Bikes (#/hr)							10					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	2%	2%	5%	2%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	0	1349	197	977	1455	0	0	0	0
Shared Lane Traffic (%)							31%					
Lane Group Flow (vph)	0	0	0	0	1349	197	674	1758	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.35	1.30	1.35	1.30	1.24	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		20	25		20	15		9
Turn Type					NA	Perm	Split	NA				
Protected Phases					8		2	2				
Permitted Phases						8						
Minimum Split (s)					29.0	29.0	25.0	25.0				
Total Split (s)					34.0	34.0	46.0	46.0				
Total Split (%)					42.5%	42.5%	57.5%	57.5%				
Maximum Green (s)					29.5	29.5	41.5	41.5				
Yellow Time (s)					3.5	3.5	3.5	3.5				
All-Red Time (s)					1.0	1.0	1.0	1.0				
Lost Time Adjust (s)					0.0	0.0	0.0	0.0				
Total Lost Time (s)					4.5	4.5	4.5	4.5				
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)					7.0	7.0	7.0	7.0				
Flash Dont Walk (s)					17.0	17.0	13.0	13.0				
Pedestrian Calls (#/hr)					0	0	0	0				
Act Effect Green (s)					29.5	29.5	41.5	41.5				

San Rafael Multi-Family TIS - Baseline With Project Conditions

15: Irwin St & 3rd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio					0.37	0.37	0.52	0.52				
v/c Ratio					0.92	0.42	1.10	0.87				
Control Delay					35.4	19.8	74.9	16.6				
Queue Delay					0.1	0.0	0.0	6.0				
Total Delay					35.5	19.8	74.9	22.5				
LOS					D	B	E	C				
Approach Delay					33.5			37.1				
Approach LOS					C			D				
Queue Length 50th (ft)					230	63	~432	206				
Queue Length 95th (ft)					#325	120	m#345	m268				
Internal Link Dist (ft)		299			60			214			297	
Turn Bay Length (ft)												
Base Capacity (vph)					1473	470	612	2010				
Starvation Cap Reductn					0	0	1	215				
Spillback Cap Reductn					4	0	0	0				
Storage Cap Reductn					0	0	0	0				
Reduced v/c Ratio					0.92	0.42	1.10	0.98				

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 27 (34%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 70

Control Type: Pretimed

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 35.7 Intersection LOS: D

Intersection Capacity Utilization 108.9% ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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




















Splits and Phases: 15: Irwin St & 3rd St



San Rafael Multi-Family TIS - Baseline With Project Conditions

16: Lindaro St & 2nd St

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  										
Traffic Volume (vph)	51	2275	53	0	0	0	0	106	326	96	196	0
Future Volume (vph)	51	2275	53	0	0	0	0	106	326	96	196	0
Ideal Flow (vphpl)	1600	1600	1600	1800	1800	1800	1800	1600	1600	1600	1600	1800
Lane Width (ft)	12	11	11	12	12	12	12	11	10	9	9	12
Storage Length (ft)	0		0	0		0	0		275	70		0
Storage Lanes	0		0	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00							0.97	0.99		
Frt		0.997							0.850			
Flt Protected		0.999								0.950		
Satd. Flow (prot)	0	5191	0	0	0	0	0	1547	1244	1328	1309	0
Flt Permitted		0.999								0.684		
Satd. Flow (perm)	0	5189	0	0	0	0	0	1547	1209	945	1309	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8							16			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		495			513			315			333	
Travel Time (s)		13.5			14.0			8.6			9.1	
Confl. Peds. (#/hr)	15		36						14	14		
Confl. Bikes (#/hr)			6						4			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	0%	0%	0%	0%	0%	0%	2%	3%	10%	0%
Adj. Flow (vph)	54	2420	56	0	0	0	0	113	347	102	209	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2530	0	0	0	0	0	113	347	102	209	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			9			9	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.24	1.30	1.30	1.07	1.07	1.07	1.07	1.30	1.35	1.42	1.42	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA						NA	Perm	Perm	NA	
Protected Phases		6						4			8	
Permitted Phases	6								4	8		
Minimum Split (s)	33.0	33.0						29.0	29.0	29.0	29.0	
Total Split (s)	47.0	47.0						33.0	33.0	33.0	33.0	
Total Split (%)	58.8%	58.8%						41.3%	41.3%	41.3%	41.3%	
Maximum Green (s)	42.8	42.8						28.8	28.8	28.8	28.8	
Yellow Time (s)	3.2	3.2						3.2	3.2	3.2	3.2	
All-Red Time (s)	1.0	1.0						1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0						0.0	0.0	0.0	0.0	
Total Lost Time (s)		4.2						4.2	4.2	4.2	4.2	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	10.0	10.0						8.0	8.0	8.0	8.0	

San Rafael Multi-Family TIS - Baseline With Project Conditions

16: Lindaro St & 2nd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	18.0	18.0						16.0	16.0	16.0	16.0	
Pedestrian Calls (#/hr)	0	0						0	0	0	0	
Act Effct Green (s)		42.8						28.8	28.8	28.8	28.8	
Actuated g/C Ratio		0.54						0.36	0.36	0.36	0.36	
v/c Ratio		0.91						0.20	0.78	0.30	0.44	
Control Delay		23.2						18.9	36.2	16.9	18.0	
Queue Delay		0.0						0.0	0.0	0.0	0.0	
Total Delay		23.2						18.9	36.2	16.9	18.0	
LOS		C						B	D	B	B	
Approach Delay		23.2						32.0			17.6	
Approach LOS		C						C			B	
Queue Length 50th (ft)		309						38	145	25	55	
Queue Length 95th (ft)		375						75	#287	63	120	
Internal Link Dist (ft)		415			433			235			253	
Turn Bay Length (ft)									275	70		
Base Capacity (vph)		2779						556	445	340	471	
Starvation Cap Reductn		0						0	0	0	0	
Spillback Cap Reductn		0						0	0	0	0	
Storage Cap Reductn		0						0	0	0	0	
Reduced v/c Ratio		0.91						0.20	0.78	0.30	0.44	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 49 (61%), Referenced to phase 6:EBTL, Start of Green
 Natural Cycle: 65
 Control Type: Pretimed
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 23.9 Intersection LOS: C
 Intersection Capacity Utilization 83.4% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.













Splits and Phases: 16: Lindaro St & 2nd St



San Rafael Multi-Family TIS - Baseline With Project Conditions

17: Lincoln Ave & Ritter St

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								↕↕			↕↕	
Traffic Volume (vph)	0	0	0	0	0	0	77	437	8	35	370	20
Future Volume (vph)	0	0	0	0	0	0	77	437	8	35	370	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt								0.998			0.993	
Flt Protected								0.993			0.996	
Satd. Flow (prot)	0	0	0	0	0	0	0	3361	0	0	3278	0
Flt Permitted								0.993			0.996	
Satd. Flow (perm)	0	0	0	0	0	0	0	3361	0	0	3278	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		461			117			107			223	
Travel Time (s)		12.6			3.2			2.9			6.1	
Confl. Peds. (#/hr)							25			4		25
Confl. Bikes (#/hr)												6
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	7%	3%	0%
Adj. Flow (vph)	0	0	0	0	0	0	82	465	9	37	394	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	556	0	0	452	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	


















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	35.1%
ICU Level of Service	A
Analysis Period (min)	15

San Rafael Multi-Family TIS - Baseline With Project Conditions

18: Lincoln Ave & 2nd St

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	246	2358	89	0	0	0	0	276	161	158	214	0
Future Volume (vph)	246	2358	89	0	0	0	0	276	161	158	214	0
Ideal Flow (vphpl)	1600	1600	1600	1800	1800	1800	1800	1600	1600	1600	1600	1800
Lane Width (ft)	12	10	10	12	12	12	12	12	12	9	9	9
Storage Length (ft)	0		150	0		0	0		130	0		0
Storage Lanes	0		1	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor		1.00	0.93						0.98			
Frt			0.850						0.850			
Flt Protected		0.995									0.979	
Satd. Flow (prot)	0	5016	1221	0	0	0	0	1600	1360	0	2611	0
Flt Permitted		0.995									0.650	
Satd. Flow (perm)	0	5006	1139	0	0	0	0	1600	1338	0	1734	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82						16			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		513			244			398			107	
Travel Time (s)		14.0			6.7			10.9			2.9	
Confl. Peds. (#/hr)	25		63									
Confl. Bikes (#/hr)			4						6			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	2%	4%	0%	0%	0%	0%	0%	0%	2%	3%	0%
Adj. Flow (vph)	262	2509	95	0	0	0	0	294	171	168	228	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2771	95	0	0	0	0	294	171	0	396	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.24	1.35	1.35	1.07	1.07	1.07	1.07	1.24	1.24	1.42	1.42	1.22
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		6						4			8	
Permitted Phases	6		6						4	8		
Minimum Split (s)	33.0	33.0	33.0					13.0	13.0	31.0	31.0	
Total Split (s)	48.0	48.0	48.0					32.0	32.0	32.0	32.0	
Total Split (%)	60.0%	60.0%	60.0%					40.0%	40.0%	40.0%	40.0%	
Maximum Green (s)	43.8	43.8	43.8					27.8	27.8	27.8	27.8	
Yellow Time (s)	3.2	3.2	3.2					3.2	3.2	3.2	3.2	
All-Red Time (s)	1.0	1.0	1.0					1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0	0.0					0.0	0.0		0.0	
Total Lost Time (s)		4.2	4.2					4.2	4.2		4.2	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	12.0	12.0	12.0							7.0	7.0	

San Rafael Multi-Family TIS - Baseline With Project Conditions

18: Lincoln Ave & 2nd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	16.0	16.0	16.0							19.0	19.0	
Pedestrian Calls (#/hr)	0	0	0							0	0	
Act Effect Green (s)		43.8	43.8					27.8	27.8		27.8	
Actuated g/C Ratio		0.55	0.55					0.35	0.35		0.35	
v/c Ratio		1.01	0.14					0.53	0.36		0.66	
Control Delay		24.2	0.2					25.1	20.2		25.4	
Queue Delay		35.1	0.0					0.0	0.0		0.0	
Total Delay		59.3	0.2					25.1	20.2		25.4	
LOS		E	A					C	C		C	
Approach Delay		57.3						23.3			25.4	
Approach LOS		E						C			C	
Queue Length 50th (ft)		~191	0					116	56		66	
Queue Length 95th (ft)		#494	m0					192	108		m106	
Internal Link Dist (ft)		433				164		318			27	
Turn Bay Length (ft)			150						130			
Base Capacity (vph)		2740	660					556	475		602	
Starvation Cap Reductn		0	0					0	0		0	
Spillback Cap Reductn		433	0					0	1		0	
Storage Cap Reductn		0	0					0	0		0	
Reduced v/c Ratio		1.20	0.14					0.53	0.36		0.66	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 62 (78%), Referenced to phase 6:EBTL, Start of Green
 Natural Cycle: 80
 Control Type: Pretimed
 Maximum v/c Ratio: 1.01
 Intersection Signal Delay: 49.7 Intersection LOS: D
 Intersection Capacity Utilization 85.2% ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: Lincoln Ave & 2nd St

	Ø6 (R)	48 s		Ø4	32 s
				Ø8	32 s

San Rafael Multi-Family TIS - Baseline With Project Conditions

19: Francisco Blvd W./Tamalpais Ave (West) & 2nd St













PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	2474	132	0	0	0	0	154	439	65	253	0
Future Volume (vph)	75	2474	132	0	0	0	0	154	439	65	253	0
Ideal Flow (vphpl)	1600	1600	1600	1800	1800	1800	1800	1600	1600	1600	1600	1800
Lane Width (ft)	12	11	10	12	12	12	12	10	13	10	12	12
Storage Length (ft)	0		140	0		0	0		0	70		0
Storage Lanes	0		1	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	0.98						0.99			
Frt			0.850						0.850			
Flt Protected		0.999								0.950		
Satd. Flow (prot)	0	5214	1232	0	0	0	0	1479	1378	996	1349	0
Flt Permitted		0.999								0.653		
Satd. Flow (perm)	0	5199	1203	0	0	0	0	1479	1358	685	1349	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			107						48			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		244			283			131			321	
Travel Time (s)		6.7			7.7			3.6			8.8	
Confl. Peds. (#/hr)	65											
Confl. Bikes (#/hr)			5						3			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	3%	0%	0%	0%	0%	1%	2%	26%	5%	0%
Parking (#/hr)										3	3	
Adj. Flow (vph)	80	2632	140	0	0	0	0	164	467	69	269	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2712	140	0	0	0	0	164	467	69	269	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.24	1.30	1.35	1.07	1.07	1.07	1.07	1.35	1.19	1.57	1.44	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		2						4			8	
Permitted Phases	2		2						4	8		
Detector Phase	2	2	2					4	4	8	8	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0					8.0	8.0	8.0	8.0	
Minimum Split (s)	32.5	32.5	32.5					14.5	14.5	33.0	33.0	
Total Split (s)	47.0	47.0	47.0					33.0	33.0	33.0	33.0	
Total Split (%)	58.8%	58.8%	58.8%					41.3%	41.3%	41.3%	41.3%	
Maximum Green (s)	40.5	40.5	40.5					26.5	26.5	26.5	26.5	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.5	3.5	
All-Red Time (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lost Time Adjust (s)		0.0	0.0					0.0	0.0	0.0	0.0	

San Rafael Multi-Family TIS - Baseline With Project Conditions

19: Francisco Blvd W./Tamalpais Ave (West) & 2nd St

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)		6.5	6.5					6.5	6.5	6.5	6.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max					None	None	None	None	
Walk Time (s)	10.0	10.0	10.0							7.0	7.0	
Flash Dont Walk (s)	16.0	16.0	16.0							19.5	19.5	
Pedestrian Calls (#/hr)	31	31	31							37	37	
Act Effct Green (s)		40.5	40.5					26.5	26.5	26.5	26.5	
Actuated g/C Ratio		0.51	0.51					0.33	0.33	0.33	0.33	
v/c Ratio		1.03	0.21					0.34	0.97	0.31	0.60	
Control Delay		31.0	1.4					22.5	60.8	24.6	29.2	
Queue Delay		28.5	0.6					0.0	0.0	0.0	0.6	
Total Delay		59.5	2.0					22.5	60.8	24.6	29.7	
LOS		E	A					C	E	C	C	
Approach Delay		56.7						50.8			28.7	
Approach LOS		E						D			C	
90th %ile Green (s)	40.5	40.5	40.5					26.5	26.5	26.5	26.5	
90th %ile Term Code	Coord	Coord	Coord					Max	Max	Max	Max	
70th %ile Green (s)	40.5	40.5	40.5					26.5	26.5	26.5	26.5	
70th %ile Term Code	Coord	Coord	Coord					Max	Max	Ped	Ped	
50th %ile Green (s)	40.5	40.5	40.5					26.5	26.5	26.5	26.5	
50th %ile Term Code	Coord	Coord	Coord					Max	Max	Hold	Hold	
30th %ile Green (s)	40.5	40.5	40.5					26.5	26.5	26.5	26.5	
30th %ile Term Code	Coord	Coord	Coord					Max	Max	Hold	Hold	
10th %ile Green (s)	40.5	40.5	40.5					26.5	26.5	26.5	26.5	
10th %ile Term Code	Coord	Coord	Coord					Max	Max	Hold	Hold	
Queue Length 50th (ft)		~259	0					61	208	25	111	
Queue Length 95th (ft)		m#266	m0					111	#403	61	191	
Internal Link Dist (ft)		164			203			51			241	
Turn Bay Length (ft)			140							70		
Base Capacity (vph)		2631	661					489	481	226	446	
Starvation Cap Reductn		261	280					0	0	0	32	
Spillback Cap Reductn		55	0					0	0	0	0	
Storage Cap Reductn		0	0					0	0	0	0	
Reduced v/c Ratio		1.14	0.37					0.34	0.97	0.31	0.65	

Intersection Summary

Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	80
Offset:	66 (83%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.03
Intersection Signal Delay:	53.2
Intersection Capacity Utilization	156.1%
Analysis Period (min)	15
Intersection LOS:	D
ICU Level of Service	H

~ Volume exceeds capacity, queue is theoretically infinite.

San Rafael Multi-Family TIS - Baseline With Project Conditions
 19: Francisco Blvd W./Tamalpais Ave (West) & 2nd St

PM PEAK HOUR

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

















Splits and Phases: 19: Francisco Blvd W./Tamalpais Ave (West) & 2nd St



San Rafael Multi-Family TIS - Baseline With Project Conditions

20: US-101 SB Ramp/Hetherton St & 2nd St

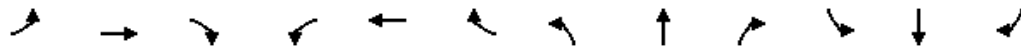
PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1951	982	0	0	0	0	0	0	357	810	0
Future Volume (vph)	0	1951	982	0	0	0	0	0	0	357	810	0
Ideal Flow (vphpl)	1800	1600	1600	1800	1800	1800	1800	1800	1800	1600	1600	1800
Lane Width (ft)	12	11	11	12	12	12	12	12	12	11	12	12
Lane Util. Factor	1.00	0.81	0.81	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00
Ped Bike Factor		1.00	0.99									
Frt		0.975	0.850									
Flt Protected										0.950		
Satd. Flow (prot)	0	4733	1034	0	0	0	0	0	0	1298	2827	0
Flt Permitted										0.950		
Satd. Flow (perm)	0	4733	1020	0	0	0	0	0	0	1298	2827	0
Right Turn on Red			Yes			Yes			Yes	No		Yes
Satd. Flow (RTOR)		53	53									
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		283			371			529			311	
Travel Time (s)		7.7			10.1			10.3			8.5	
Confl. Peds. (#/hr)							30					
Confl. Bikes (#/hr)			4									
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	3%	3%	0%	0%	0%	0%	0%	0%	3%	3%	0%
Adj. Flow (vph)	0	2076	1045	0	0	0	0	0	0	380	862	0
Shared Lane Traffic (%)			40%							0%		
Lane Group Flow (vph)	0	2494	627	0	0	0	0	0	0	380	862	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.30	1.30	1.07	1.07	1.07	1.07	1.07	1.07	1.30	1.24	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm							Split	NA	
Protected Phases		2								4	4	
Permitted Phases			2									
Minimum Split (s)		34.0	34.0							20.0	20.0	
Total Split (s)		45.0	45.0							35.0	35.0	
Total Split (%)		56.3%	56.3%							43.8%	43.8%	
Maximum Green (s)		40.5	40.5							30.5	30.5	
Yellow Time (s)		3.5	3.5							3.5	3.5	
All-Red Time (s)		1.0	1.0							1.0	1.0	
Lost Time Adjust (s)		0.0	0.0							0.0	0.0	
Total Lost Time (s)		4.5	4.5							4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)		14.5	14.5									
Flash Dont Walk (s)		15.0	15.0									
Pedestrian Calls (#/hr)		0	0									
Act Effect Green (s)		40.5	40.5							30.5	30.5	

San Rafael Multi-Family TIS - Baseline With Project Conditions

20: US-101 SB Ramp/Hetherton St & 2nd St

PM PEAK HOUR

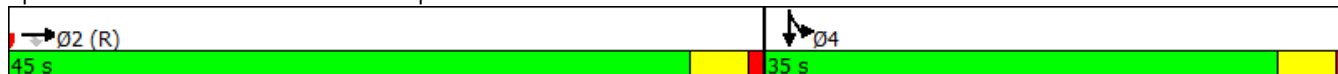


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.51	0.51							0.38	0.38	
v/c Ratio		1.03	1.16							0.77	0.80	
Control Delay		25.4	85.8							27.5	23.1	
Queue Delay		27.0	0.1							1.6	1.1	
Total Delay		52.4	85.9							29.2	24.2	
LOS		D	F							C	C	
Approach Delay		59.1									25.7	
Approach LOS		E									C	
Queue Length 50th (ft)		~92	~438							225	256	
Queue Length 95th (ft)		m#83	m#425							m#349	322	
Internal Link Dist (ft)		203			291			449			231	
Turn Bay Length (ft)												
Base Capacity (vph)		2422	542							494	1077	
Starvation Cap Reductn		147	7							33	71	
Spillback Cap Reductn		144	0							0	0	
Storage Cap Reductn		0	0							0	0	
Reduced v/c Ratio		1.10	1.17							0.82	0.86	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 72 (90%), Referenced to phase 2:EBT, Start of Green
 Natural Cycle: 90
 Control Type: Pretimed
 Maximum v/c Ratio: 1.16
 Intersection Signal Delay: 49.6 Intersection LOS: D
 Intersection Capacity Utilization 140.6% ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.





















Splits and Phases: 20: US-101 SB Ramp/Hetherton St & 2nd St



San Rafael Multi-Family TIS - Baseline With Project Conditions

21: US-101 NB Ramp/Irwin St & 2nd St

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  						  				
Traffic Volume (vph)	920	1395	0	0	0	0	0	1386	563	0	0	0
Future Volume (vph)	920	1395	0	0	0	0	0	1386	563	0	0	0
Ideal Flow (vphpl)	1600	1600	1700	1700	1700	1700	1700	1600	1600	1700	1700	1700
Lane Width (ft)	13	12	12	12	12	12	12	12	10	12	12	12
Storage Length (ft)	0		0	0		0	0		85	0		0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.86	0.86	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor	0.98	1.00							0.97			
Frt									0.850			
Flt Protected	0.950	0.990										
Satd. Flow (prot)	1311	3999	0	0	0	0	0	4241	1257	0	0	0
Flt Permitted	0.950	0.990										
Satd. Flow (perm)	1286	3983	0	0	0	0	0	4241	1214	0	0	0
Right Turn on Red	Yes		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	30	30							16			
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		371			618			541			294	
Travel Time (s)		10.1			16.9			10.5			8.0	
Confl. Peds. (#/hr)	31								28			
Confl. Bikes (#/hr)									4			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	2%	0%	0%	0%	0%	0%	3%	1%	0%	0%	0%
Adj. Flow (vph)	979	1484	0	0	0	0	0	1474	599	0	0	0
Shared Lane Traffic (%)	37%											
Lane Group Flow (vph)	617	1846	0	0	0	0	0	1474	599	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.19	1.24	1.15	1.15	1.15	1.15	1.15	1.24	1.35	1.15	1.15	1.15
Turning Speed (mph)	25		9	15			9	15	20	15		9
Turn Type	Perm	NA						NA	Perm			
Protected Phases		2						8				
Permitted Phases	2								8			
Minimum Split (s)	24.0	24.0						24.0	24.0			
Total Split (s)	42.0	42.0						38.0	38.0			
Total Split (%)	52.5%	52.5%						47.5%	47.5%			
Maximum Green (s)	37.8	37.8						32.8	32.8			
Yellow Time (s)	3.2	3.2						3.2	3.2			
All-Red Time (s)	1.0	1.0						2.0	2.0			
Lost Time Adjust (s)	0.0	0.0						0.0	0.0			
Total Lost Time (s)	4.2	4.2						5.2	5.2			
Lead/Lag												
Lead-Lag Optimize?												
Act Effect Green (s)	37.8	37.8						32.8	32.8			

San Rafael Multi-Family TIS - Baseline With Project Conditions

21: US-101 NB Ramp/Irwin St & 2nd St

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.47	0.47						0.41	0.41			
v/c Ratio	0.99	0.97						0.85	1.18			
Control Delay	29.8	17.9						27.3	125.5			
Queue Delay	30.8	12.8						0.1	0.0			
Total Delay	60.6	30.7						27.4	125.5			
LOS	E	C						C	F			
Approach Delay		38.2						55.7				
Approach LOS		D						E				
Queue Length 50th (ft)	96	151						236	~362			
Queue Length 95th (ft)	m#103	m148						300	#560			
Internal Link Dist (ft)		291			538			461			214	
Turn Bay Length (ft)									85			
Base Capacity (vph)	623	1897						1738	507			
Starvation Cap Reductn	23	100						0	0			
Spillback Cap Reductn	55	76						15	0			
Storage Cap Reductn	0	0						0	0			
Reduced v/c Ratio	1.09	1.03						0.86	1.18			

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green
 Natural Cycle: 90
 Control Type: Pretimed
 Maximum v/c Ratio: 1.18
 Intersection Signal Delay: 46.2 Intersection LOS: D
 Intersection Capacity Utilization 111.9% ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 21: US-101 NB Ramp/Irwin St & 2nd St



San Rafael Multi-Family TIS - Baseline With Project Conditions

22: Nye St & Mission Ave

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	664	5	22	807	22	6	21	94	14	32	32
Future Volume (vph)	22	664	5	22	807	22	6	21	94	14	32	32
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999			0.997			0.895			0.945	
Flt Protected		0.998			0.999			0.998			0.991	
Satd. Flow (prot)	0	1757	0	0	1756	0	0	1574	0	0	1637	0
Flt Permitted		0.998			0.999			0.998			0.991	
Satd. Flow (perm)	0	1757	0	0	1756	0	0	1574	0	0	1637	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		352			483			340			237	
Travel Time (s)		9.6			13.2			9.3			6.5	
Confl. Peds. (#/hr)	5		12	12		5	14		14	14		14
Confl. Bikes (#/hr)			2				15					1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)	2	2	2	2	2	2	2	2	2	2	2	2
Adj. Flow (vph)	23	706	5	23	859	23	6	22	100	15	34	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	734	0	0	905	0	0	128	0	0	83	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.06	1.07	1.07	1.06	1.07	1.07	1.06	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	




















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	74.1%
Analysis Period (min)	15
	ICU Level of Service D

San Rafael Multi-Family TIS - Baseline With Project Conditions

23: Lincoln Ave & Mission Ave

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	206	453	20	36	577	61	12	382	48	0	336	281
Future Volume (vph)	206	453	20	36	577	61	12	382	48	0	336	281
Ideal Flow (vphpl)	1600	1700	1600	1700	1700	1600	1600	1700	1700	1600	1700	1700
Lane Width (ft)	11	12	12	10	10	12	12	9	9	12	10	9
Storage Length (ft)	120		0	65		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		1.00		1.00	1.00			0.99			0.96	
Frt		0.994			0.986			0.984			0.932	
Flt Protected	0.950			0.950				0.999				
Satd. Flow (prot)	1427	1639	0	1463	1515	0	0	2746	0	0	2620	0
Flt Permitted	0.125			0.479				0.931				
Satd. Flow (perm)	188	1639	0	735	1515	0	0	2557	0	0	2620	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			8			17			273	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		483			292			342			291	
Travel Time (s)		13.2			8.0			9.3			7.9	
Confl. Peds. (#/hr)	10		8	8		10	35		39	39		35
Confl. Bikes (#/hr)			3			1			5			4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	219	482	21	38	614	65	13	406	51	0	357	299
Shared Lane Traffic (%)												
Lane Group Flow (vph)	219	503	0	38	679	0	0	470	0	0	656	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.30	1.15	1.24	1.26	1.26	1.24	1.24	1.31	1.31	1.24	1.26	1.31
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		Perm	NA			NA	
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4					
Detector Phase	5	2		6	6		4	4			8	
Switch Phase												
Minimum Initial (s)	7.0	10.0		10.0	10.0		10.0	10.0			10.0	
Minimum Split (s)	10.0	29.0		26.0	26.0		27.0	27.0			27.0	
Total Split (s)	12.0	51.0		39.0	39.0		29.0	29.0			29.0	
Total Split (%)	15.0%	63.8%		48.8%	48.8%		36.3%	36.3%			36.3%	
Maximum Green (s)	9.0	46.8		34.8	34.8		24.4	24.4			24.4	
Yellow Time (s)	3.0	3.2		3.2	3.2		3.6	3.6			3.6	
All-Red Time (s)	0.0	1.0		1.0	1.0		1.0	1.0			1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	3.0	4.2		4.2	4.2		4.6	4.6			4.6	

San Rafael Multi-Family TIS - Baseline With Project Conditions

23: Lincoln Ave & Mission Ave

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag	Lead			Lag		Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	5.0		5.0	5.0		5.0	5.0				5.0
Recall Mode	None	Max		Max	Max		C-Max	C-Max				C-Max
Walk Time (s)		10.0		8.0	8.0		8.0	8.0				8.0
Flash Dont Walk (s)		14.0		13.0	13.0		14.0	14.0				14.0
Pedestrian Calls (#/hr)		8		10	10		33	33				32
Act Effect Green (s)	48.0	46.8		34.8	34.8			24.4				24.4
Actuated g/C Ratio	0.60	0.58		0.44	0.44			0.30				0.30
v/c Ratio	0.87	0.52		0.12	1.02			0.59				0.66
Control Delay	48.2	12.3		11.0	54.1			37.0				17.5
Queue Delay	0.0	0.8		0.0	0.0			0.0				0.0
Total Delay	48.2	13.1		11.0	54.1			37.0				17.5
LOS	D	B		B	D			D				B
Approach Delay		23.8			51.8			37.0				17.5
Approach LOS		C			D			D				B
90th %ile Green (s)	9.0	46.8		34.8	34.8		24.4	24.4				24.4
90th %ile Term Code	Max	MaxR		MaxR	MaxR		Coord	Coord				Coord
70th %ile Green (s)	9.0	46.8		34.8	34.8		24.4	24.4				24.4
70th %ile Term Code	Max	MaxR		MaxR	MaxR		Coord	Coord				Coord
50th %ile Green (s)	9.0	46.8		34.8	34.8		24.4	24.4				24.4
50th %ile Term Code	Max	MaxR		MaxR	MaxR		Coord	Coord				Coord
30th %ile Green (s)	9.0	46.8		34.8	34.8		24.4	24.4				24.4
30th %ile Term Code	Max	MaxR		MaxR	MaxR		Coord	Coord				Coord
10th %ile Green (s)	9.0	46.8		34.8	34.8		24.4	24.4				24.4
10th %ile Term Code	Max	MaxR		MaxR	MaxR		Coord	Coord				Coord
Queue Length 50th (ft)	57	136		3	~100			100				84
Queue Length 95th (ft)	#182	215		m15	#550			136				144
Internal Link Dist (ft)		403			212			262				211
Turn Bay Length (ft)	120			65								
Base Capacity (vph)	252	960		319	663			791				988
Starvation Cap Reductn	0	0		0	0			0				0
Spillback Cap Reductn	0	211		0	0			0				0
Storage Cap Reductn	0	0		0	0			0				0
Reduced v/c Ratio	0.87	0.67		0.12	1.02			0.59				0.66

Intersection Summary

Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	80
Offset:	55 (69%), Referenced to phase 4:NBTL and 8:SBT, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.02
Intersection Signal Delay:	32.4
Intersection Capacity Utilization	86.1%
Analysis Period (min)	15
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	

San Rafael Multi-Family TIS - Baseline With Project Conditions

23: Lincoln Ave & Mission Ave

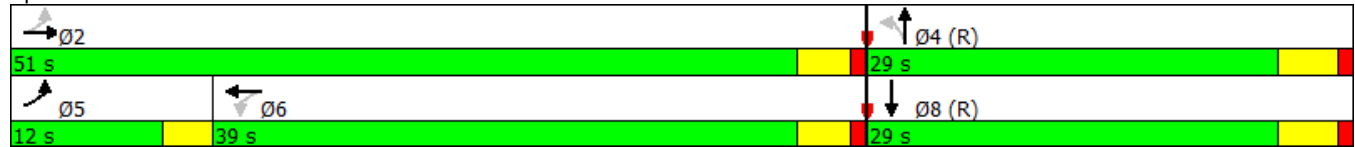
PM PEAK HOUR

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 23: Lincoln Ave & Mission Ave



San Rafael Multi-Family TIS - Baseline With Project Conditions

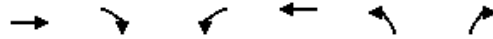
24: Tamalpais Ave (West) & Mission Ave

PM PEAK HOUR

	→	↘	↙	←	↖	↗			
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø3	Ø4	Ø6
Lane Configurations	↗			↖	↗	↘			
Traffic Volume (vph)	568	14	0	634	6	11			
Future Volume (vph)	568	14	0	634	6	11			
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800			
Storage Length (ft)		0	0		0	0			
Storage Lanes		0	0		1	0			
Taper Length (ft)			25		25				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00			
Ped Bike Factor	1.00				0.97				
Frt	0.997				0.910				
Flt Protected					0.984				
Satd. Flow (prot)	1741	0	0	1748	1565	0			
Flt Permitted					0.984				
Satd. Flow (perm)	1741	0	0	1748	1514	0			
Right Turn on Red		Yes				Yes			
Satd. Flow (RTOR)	2				12				
Link Speed (mph)	25			25	25				
Link Distance (ft)	292			71	337				
Travel Time (s)	8.0			1.9	9.2				
Confl. Peds. (#/hr)		6	6		30				
Confl. Bikes (#/hr)		2							
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94			
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%			
Adj. Flow (vph)	604	15	0	674	6	12			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	619	0	0	674	18	0			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Right	Left	Left	Left	Right			
Median Width(ft)	10			10	12				
Link Offset(ft)	0			0	0				
Crosswalk Width(ft)	16			16	16				
Two way Left Turn Lane									
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07			
Turning Speed (mph)		9	15		15	9			
Turn Type	NA			NA	Perm				
Protected Phases	2			3 4 6			3	4	6
Permitted Phases					8				
Detector Phase	2			3 4 6	8				
Switch Phase									
Minimum Initial (s)	8.0				6.0		2.0	6.0	7.0
Minimum Split (s)	18.0				18.0		5.0	11.6	13.0
Total Split (s)	39.0				18.0		5.0	18.0	39.0
Total Split (%)	48.8%				22.5%		6%	23%	49%
Maximum Green (s)	33.0				12.4		2.0	12.4	33.0
Yellow Time (s)	3.6				3.2		3.0	3.2	3.6
All-Red Time (s)	2.4				2.4		0.0	2.4	2.4
Lost Time Adjust (s)	0.0				0.0				
Total Lost Time (s)	6.0				5.6				
Lead/Lag							Lead	Lag	

San Rafael Multi-Family TIS - Baseline With Project Conditions
 24: Tamalpais Ave (West) & Mission Ave

PM PEAK HOUR



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø3	Ø4	Ø6
Lead-Lag Optimize?									
Vehicle Extension (s)	3.0				3.0		0.2	3.0	3.0
Recall Mode	C-Min				None		None	None	C-Min
Walk Time (s)	5.0				5.0				
Flash Dont Walk (s)	7.0				7.4				
Pedestrian Calls (#/hr)	13				13				
Act Effct Green (s)	33.5			57.2	14.2				
Actuated g/C Ratio	0.42			0.72	0.18				
v/c Ratio	0.85			0.54	0.06				
Control Delay	27.1			2.0	16.1				
Queue Delay	0.8			0.1	0.0				
Total Delay	27.9			2.1	16.1				
LOS	C			A	B				
Approach Delay	27.9			2.1	16.1				
Approach LOS	C			A	B				
90th %ile Green (s)	33.0				12.4		2.0	12.4	33.0
90th %ile Term Code	Coord				Max		Max	Max	Coord
70th %ile Green (s)	33.0				14.0		2.0	10.8	33.0
70th %ile Term Code	Coord				Max		Max	Gap	Coord
50th %ile Green (s)	33.0				15.5		2.0	9.3	33.0
50th %ile Term Code	Coord				Max		Max	Gap	Coord
30th %ile Green (s)	33.0				15.8		2.0	9.0	33.0
30th %ile Term Code	Coord				Max		Max	Gap	Coord
10th %ile Green (s)	35.3				13.3		3.7	7.5	35.3
10th %ile Term Code	Coord				Gap		Gap	Gap	Coord
Queue Length 50th (ft)	281			1	2				
Queue Length 95th (ft)	#475			m8	25				
Internal Link Dist (ft)	212			1	257				
Turn Bay Length (ft)									
Base Capacity (vph)	729			1306	278				
Starvation Cap Reductn	18			0	0				
Spillback Cap Reductn	17			67	2				
Storage Cap Reductn	0			0	0				
Reduced v/c Ratio	0.87			0.54	0.07				

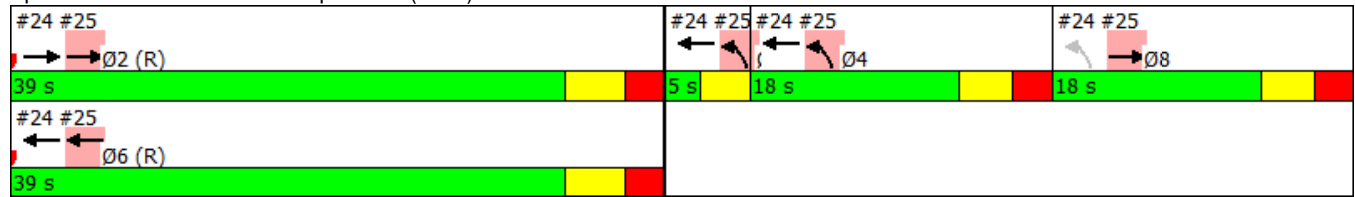
Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 14 (18%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 14.5 Intersection LOS: B
 Intersection Capacity Utilization 48.2% ICU Level of Service A
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

San Rafael Multi-Family TIS - Baseline With Project Conditions
 24: Tamalpais Ave (West) & Mission Ave

PM PEAK HOUR

Splits and Phases: 24: Tamalpais Ave (West) & Mission Ave



San Rafael Multi-Family TIS - Baseline With Project Conditions
 25: Tamalpais Ave (East) & Mission Ave

PM PEAK HOUR

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø2	Ø3	Ø4	Ø8
Lane Configurations	↑			↑	↘					
Traffic Volume (vph)	584	0	0	628	6	12				
Future Volume (vph)	584	0	0	628	6	12				
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00				
Frt					0.908					
Flt Protected					0.984					
Satd. Flow (prot)	1748	0	0	1748	1561	0				
Flt Permitted					0.984					
Satd. Flow (perm)	1748	0	0	1748	1561	0				
Right Turn on Red		Yes				Yes				
Satd. Flow (RTOR)					13					
Link Speed (mph)	25			25	25					
Link Distance (ft)	71			191	329					
Travel Time (s)	1.9			5.2	9.0					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%				
Adj. Flow (vph)	621	0	0	668	6	13				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	621	0	0	668	19	0				
Enter Blocked Intersection	No	No	No	No	No	No				
Lane Alignment	Left	Right	Left	Left	Left	Right				
Median Width(ft)	0			0	12					
Link Offset(ft)	0			0	0					
Crosswalk Width(ft)	16			16	16					
Two way Left Turn Lane										
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07				
Turning Speed (mph)		9	15		15	9				
Turn Type	NA			NA	Prot					
Protected Phases	2 8			6	3 4		2	3	4	8
Permitted Phases										
Detector Phase	2 8			6	3 4					
Switch Phase										
Minimum Initial (s)				7.0			8.0	2.0	6.0	6.0
Minimum Split (s)				13.0			18.0	5.0	11.6	18.0
Total Split (s)				39.0			39.0	5.0	18.0	18.0
Total Split (%)				48.8%			49%	6%	23%	23%
Maximum Green (s)				33.0			33.0	2.0	12.4	12.4
Yellow Time (s)				3.6			3.6	3.0	3.2	3.2
All-Red Time (s)				2.4			2.4	0.0	2.4	2.4
Lost Time Adjust (s)				0.0						
Total Lost Time (s)				6.0						
Lead/Lag								Lead	Lag	
Lead-Lag Optimize?										
Vehicle Extension (s)				3.0			3.0	0.2	3.0	3.0
Recall Mode				C-Min			C-Min	None	None	None
Walk Time (s)							5.0			5.0
Flash Dont Walk (s)							7.0			7.4
Pedestrian Calls (#/hr)							13			13

San Rafael Multi-Family TIS - Baseline With Project Conditions
 25: Tamalpais Ave (East) & Mission Ave

PM PEAK HOUR

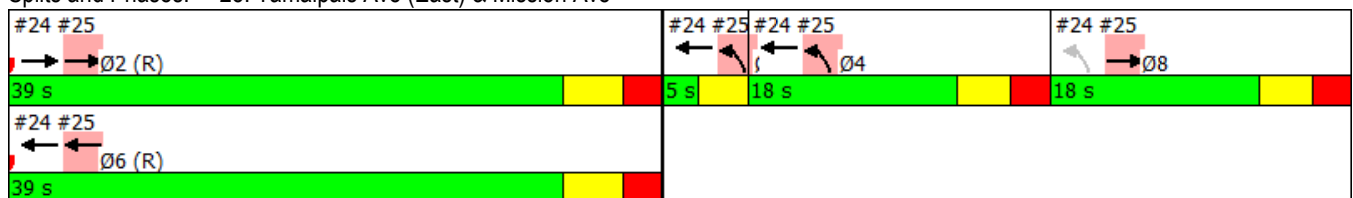


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø2	Ø3	Ø4	Ø8
Act Effct Green (s)	53.3			33.5	17.7					
Actuated g/C Ratio	0.67			0.42	0.22					
v/c Ratio	0.53			0.91	0.05					
Control Delay	3.4			32.7	25.1					
Queue Delay	0.0			49.0	0.0					
Total Delay	3.5			81.7	25.1					
LOS	A			F	C					
Approach Delay	3.5			81.7	25.1					
Approach LOS	A			F	C					
90th %ile Green (s)				33.0			33.0	2.0	12.4	12.4
90th %ile Term Code				Coord			Coord	Max	Max	Max
70th %ile Green (s)				33.0			33.0	2.0	10.8	14.0
70th %ile Term Code				Coord			Coord	Max	Gap	Max
50th %ile Green (s)				33.0			33.0	2.0	9.3	15.5
50th %ile Term Code				Coord			Coord	Max	Gap	Max
30th %ile Green (s)				33.0			33.0	2.0	9.0	15.8
30th %ile Term Code				Coord			Coord	Max	Gap	Max
10th %ile Green (s)				35.3			35.3	3.7	7.5	13.3
10th %ile Term Code				Coord			Coord	Gap	Gap	Gap
Queue Length 50th (ft)	10			324	3					
Queue Length 95th (ft)	m24			m356	25					
Internal Link Dist (ft)	1			111	249					
Turn Bay Length (ft)										
Base Capacity (vph)	1163			731	406					
Starvation Cap Reductn	0			283	0					
Spillback Cap Reductn	13			35	0					
Storage Cap Reductn	0			0	0					
Reduced v/c Ratio	0.54			1.49	0.05					

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 14 (18%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 43.7 Intersection LOS: D
 Intersection Capacity Utilization 46.6% ICU Level of Service A
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 25: Tamalpais Ave (East) & Mission Ave



San Rafael Multi-Family TIS - Baseline With Project Conditions

26: Hetherton St/101 SB Off-Ramp & Mission Ave

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	555	70	66	198	0	0	0	0	221	1146	560
Future Volume (vph)	0	555	70	66	198	0	0	0	0	221	1146	560
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	10	12	12	16	12	12	12	12	12	12	12
Storage Length (ft)	0		0	0		0	0		0	0		360
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor		1.00			1.00							0.96
Frt		0.983										0.850
Flt Protected					0.988						0.992	
Satd. Flow (prot)	0	3034	0	0	1957	0	0	0	0	0	3294	1485
Flt Permitted					0.704						0.992	
Satd. Flow (perm)	0	3034	0	0	1392	0	0	0	0	0	3294	1419
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		20										
Link Speed (mph)		25			25			25			35	
Link Distance (ft)		191			376			325			407	
Travel Time (s)		5.2			10.3			8.9			7.9	
Confl. Peds. (#/hr)			19	19								1
Confl. Bikes (#/hr)			1									24
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	590	74	70	211	0	0	0	0	235	1219	596
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	664	0	0	281	0	0	0	0	0	1454	596
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.17	1.07	1.07	0.91	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA		Perm	NA					Split	NA	custom
Protected Phases		4			8					2	2	
Permitted Phases				8								5
Minimum Split (s)		31.0		31.0	31.0					30.0	30.0	30.0
Total Split (s)		35.0		35.0	35.0					45.0	45.0	38.0
Total Split (%)		43.8%		43.8%	43.8%					56.3%	56.3%	47.5%
Maximum Green (s)		30.8		30.8	30.8					40.4	40.4	33.4
Yellow Time (s)		3.2		3.2	3.2					3.6	3.6	3.6
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	1.0
Lost Time Adjust (s)		0.0			0.0						0.0	0.0
Total Lost Time (s)		4.2			4.2						4.6	4.6
Lead/Lag												Lag
Lead-Lag Optimize?												
Walk Time (s)		7.0		7.0	7.0							0.0

Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Minimum Split (s)	9.0
Total Split (s)	7.0
Total Split (%)	9%
Maximum Green (s)	5.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	
Walk Time (s)	7.0

San Rafael Multi-Family TIS - Baseline With Project Conditions

26: Hetherton St/101 SB Off-Ramp & Mission Ave

PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		12.0		15.0	15.0							12.0
Pedestrian Calls (#/hr)		0		0	0							0
Act Effct Green (s)		30.8			30.8						40.4	33.4
Actuated g/C Ratio		0.38			0.38						0.50	0.42
v/c Ratio		0.56			0.53						0.87	1.01
Control Delay		8.6			9.0						25.1	64.6
Queue Delay		1.7			0.1						0.0	44.2
Total Delay		10.3			9.1						25.1	108.8
LOS		B			A						C	F
Approach Delay		10.3			9.1						49.5	
Approach LOS		B			A						D	
Queue Length 50th (ft)		24			39						319	~293
Queue Length 95th (ft)		84			m53						#438	#510
Internal Link Dist (ft)		111			296			245			327	
Turn Bay Length (ft)												360
Base Capacity (vph)		1180			535						1663	592
Starvation Cap Reductn		335			0						0	0
Spillback Cap Reductn		15			17						0	400
Storage Cap Reductn		0			0						0	0
Reduced v/c Ratio		0.79			0.54						0.87	3.10

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 51 (64%), Referenced to phase 2:SBTL and 7:Ped, Start of Green
 Natural Cycle: 80
 Control Type: Pretimed
 Maximum v/c Ratio: 1.01
 Intersection Signal Delay: 37.0 Intersection LOS: D
 Intersection Capacity Utilization 84.7% ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 26: Hetherton St/101 SB Off-Ramp & Mission Ave



















45 s	35 s
7 s	35 s
38 s	

Lane Group	Ø7
Flash Dont Walk (s)	0.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

San Rafael Multi-Family TIS - Baseline With Project Conditions

27: Irwin St/101 NB On-Ramp & Mission Ave

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	470	306	0	0	190	325	83	1687	40	0	0	0
Future Volume (vph)	470	306	0	0	190	325	83	1687	40	0	0	0
Ideal Flow (vphpl)	2200	1800	1800	1800	2200	2200	1800	2200	2200	1800	1800	1800
Lane Width (ft)	9	10	12	12	10	9	12	12	12	12	12	12
Storage Length (ft)	0		0	0		80	0		0	0		0
Storage Lanes	0		0	0		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor								1.00	0.96			
Frt						0.850			0.850			
Flt Protected	0.950							0.998				
Satd. Flow (prot)	1826	1631	0	0	1994	1634	0	4050	1816	0	0	0
Flt Permitted	0.517							0.998				
Satd. Flow (perm)	994	1631	0	0	1994	1634	0	4048	1736	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						74			74			
Link Speed (mph)		25			25			25			45	
Link Distance (ft)		376			519			313			673	
Travel Time (s)		10.3			14.2			8.5			10.2	
Confl. Peds. (#/hr)							7		13			
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	500	326	0	0	202	346	88	1795	43	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	500	326	0	0	202	346	0	1883	43	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		9			9			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	*1.00	1.17	1.07	1.07	0.90	*1.00	1.07	*1.00	0.82	1.07	1.07	1.07
Turning Speed (mph)	35		9	15		35	35		35	15		9
Turn Type	pm+pt	NA			NA	Perm	Split	NA	Perm			
Protected Phases	7	4			8		2	2				
Permitted Phases	4					8			2			
Minimum Split (s)	10.0	29.0			13.0	13.0	29.0	29.0	29.0			
Total Split (s)	16.0	37.0			21.0	21.0	43.0	43.0	43.0			
Total Split (%)	20.0%	46.3%			26.3%	26.3%	53.8%	53.8%	53.8%			
Maximum Green (s)	11.8	32.8			16.8	16.8	38.8	38.8	38.8			
Yellow Time (s)	3.2	3.2			3.2	3.2	3.2	3.2	3.2			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0	1.0	1.0			
Lost Time Adjust (s)	0.0	0.0			0.0	0.0		0.0	0.0			
Total Lost Time (s)	4.2	4.2			4.2	4.2		4.2	4.2			
Lead/Lag	Lag				Lead	Lead						
Lead-Lag Optimize?												
Walk Time (s)		7.0					7.0	7.0	7.0			

San Rafael Multi-Family TIS - Baseline With Project Conditions

27: Irwin St/101 NB On-Ramp & Mission Ave

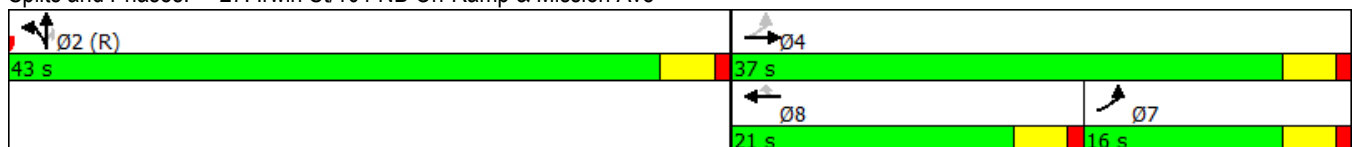
PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		15.0					15.0	15.0	15.0			
Pedestrian Calls (#/hr)		0					0	0	0			
Act Effct Green (s)	32.8	32.8			16.8	16.8		38.8	38.8			
Actuated g/C Ratio	0.41	0.41			0.21	0.21		0.48	0.48			
v/c Ratio	0.94	0.49			0.48	0.86		0.96	0.05			
Control Delay	43.9	15.2			32.3	46.9		18.4	0.1			
Queue Delay	0.0	0.2			0.0	0.0		7.8	0.0			
Total Delay	43.9	15.5			32.3	46.9		26.2	0.1			
LOS	D	B			C	D		C	A			
Approach Delay		32.7			41.5			25.6				
Approach LOS		C			D			C				
Queue Length 50th (ft)	137	87			89	133		259	0			
Queue Length 95th (ft)	m#328	m106			153	#282		m#616	m0			
Internal Link Dist (ft)		296			439			233			593	
Turn Bay Length (ft)						80						
Base Capacity (vph)	530	668			418	401		1964	880			
Starvation Cap Reductn	0	56			0	0		92	0			
Spillback Cap Reductn	0	0			0	0		0	0			
Storage Cap Reductn	0	0			0	0		0	0			
Reduced v/c Ratio	0.94	0.53			0.48	0.86		1.01	0.05			

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 53 (66%), Referenced to phase 2:NBT, Start of Green
 Natural Cycle: 65
 Control Type: Pretimed
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay: 30.0 Intersection LOS: C
 Intersection Capacity Utilization 92.7% ICU Level of Service F
 Analysis Period (min) 15
 * User Entered Value
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.




















Splits and Phases: 27: Irwin St/101 NB On-Ramp & Mission Ave



San Rafael Multi-Family TIS - Baseline With Project Conditions

28: Lincoln Ave & 5th Ave

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	406	48	18	259	45	41	397	38	54	333	39
Future Volume (vph)	63	406	48	18	259	45	41	397	38	54	333	39
Ideal Flow (vphpl)	1600	1700	1700	1600	1700	1700	1600	1700	1700	1600	1700	1700
Lane Width (ft)	10	13	12	10	12	12	12	10	9	12	11	9
Storage Length (ft)	97		0	45		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99	1.00		0.99	0.99			0.99			0.99	
Frt		0.984			0.978			0.988			0.986	
Flt Protected	0.950			0.950				0.996			0.994	
Satd. Flow (prot)	1377	1672	0	1377	1606	0	0	2861	0	0	2939	0
Flt Permitted	0.508			0.365				0.882			0.835	
Satd. Flow (perm)	727	1672	0	524	1606	0	0	2524	0	0	2461	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			16			13			15	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		482			293			292			342	
Travel Time (s)		13.1			8.0			8.0			9.3	
Confl. Peds. (#/hr)	18		22	22		18	51		33	33		51
Confl. Bikes (#/hr)			2			2			10			12
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	67	432	51	19	276	48	44	422	40	57	354	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	483	0	19	324	0	0	506	0	0	452	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.35	1.11	1.15	1.35	1.15	1.15	1.24	1.26	1.31	1.24	1.20	1.31
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	26.0	26.0		25.0	25.0		28.0	28.0		28.0	28.0	
Total Split (s)	45.0	45.0		45.0	45.0		35.0	35.0		35.0	35.0	
Total Split (%)	56.3%	56.3%		56.3%	56.3%		43.8%	43.8%		43.8%	43.8%	
Maximum Green (s)	40.8	40.8		40.4	40.4		30.8	30.8		30.4	30.4	
Yellow Time (s)	3.2	3.2		3.6	3.6		3.2	3.2		3.6	3.6	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	4.2	4.2		4.6	4.6			4.2			4.6	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	

San Rafael Multi-Family TIS - Baseline With Project Conditions

28: Lincoln Ave & 5th Ave

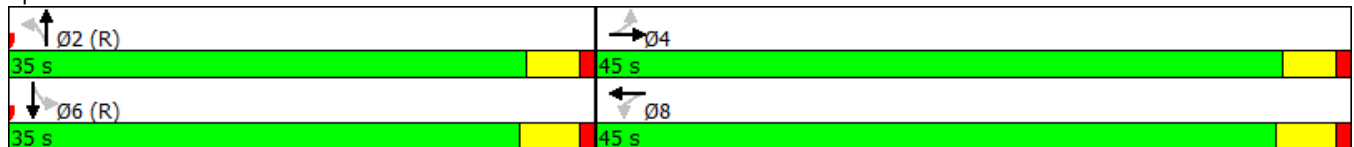
PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	14.0	14.0		13.0	13.0		16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	40.8	40.8		40.4	40.4			30.8			30.4	
Actuated g/C Ratio	0.51	0.51		0.50	0.50			0.38			0.38	
v/c Ratio	0.18	0.56		0.07	0.40			0.52			0.48	
Control Delay	12.2	16.3		7.9	8.0			8.5			11.1	
Queue Delay	0.0	0.1		0.0	0.8			0.1			0.0	
Total Delay	12.2	16.5		7.9	8.8			8.6			11.1	
LOS	B	B		A	A			A			B	
Approach Delay		16.0			8.8			8.6			11.1	
Approach LOS		B			A			A			B	
Queue Length 50th (ft)	17	152		2	32			32			47	
Queue Length 95th (ft)	40	242		10	80			52			57	
Internal Link Dist (ft)		402			213			212			262	
Turn Bay Length (ft)	97			45								
Base Capacity (vph)	370	858		264	818			979			944	
Starvation Cap Reductn	0	0		0	246			57			0	
Spillback Cap Reductn	0	41		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.18	0.59		0.07	0.57			0.55			0.48	

Intersection Summary

















Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 57 (71%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 55
 Control Type: Pretimed
 Maximum v/c Ratio: 0.56
 Intersection Signal Delay: 11.4 Intersection LOS: B
 Intersection Capacity Utilization 97.0% ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 28: Lincoln Ave & 5th Ave



San Rafael Multi-Family TIS - Baseline With Project Conditions
 29: 5th Ave & Tamalpais Ave (West)

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	407	16	1	245	16	22	16	29	9	20	11
Future Volume (vph)	0	407	16	1	245	16	22	16	29	9	20	11
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.98			0.98	
Frt		0.995			0.992			0.941			0.962	
Flt Protected								0.984			0.989	
Satd. Flow (prot)	0	1734	0	0	1730	0	0	1618	0	0	1623	0
Flt Permitted					0.999			0.875			0.908	
Satd. Flow (perm)	0	1734	0	0	1728	0	0	1414	0	0	1490	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			8			31			12	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		293			72			91			337	
Travel Time (s)		8.0			2.0			2.5			9.2	
Confl. Peds. (#/hr)	4		18	18		4	23					23
Confl. Bikes (#/hr)			2			4						5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	433	17	1	261	17	23	17	31	10	21	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	450	0	0	279	0	0	71	0	0	43	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			4 6			8			8	
Permitted Phases				4 6			8			8		
Detector Phase		2		4 6	4 6		8	8		8	8	
Switch Phase												
Minimum Initial (s)		7.0					5.0	5.0		5.0	5.0	
Minimum Split (s)		20.0					22.0	22.0		22.0	22.0	
Total Split (s)		36.0					22.0	22.0		22.0	22.0	
Total Split (%)		45.0%					27.5%	27.5%		27.5%	27.5%	
Maximum Green (s)		30.0					16.0	16.0		16.0	16.0	
Yellow Time (s)		3.6					3.6	3.6		3.6	3.6	
All-Red Time (s)		2.4					2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0						0.0			0.0	
Total Lost Time (s)		6.0						6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0					1.5	1.5		1.5	1.5	
Recall Mode		C-Max					None	None		None	None	

San Rafael Multi-Family TIS - Baseline With Project Conditions
 29: 5th Ave & Tamalpais Ave (West)

PM PEAK HOUR

Lane Group	Ø4	Ø6
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	4	6
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	8.0
Minimum Split (s)	22.0	20.0
Total Split (s)	22.0	36.0
Total Split (%)	28%	45%
Maximum Green (s)	16.0	30.0
Yellow Time (s)	3.6	3.6
All-Red Time (s)	2.4	2.4
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	1.5	3.0
Recall Mode	None	C-Max

San Rafael Multi-Family TIS - Baseline With Project Conditions
 29: 5th Ave & Tamalpais Ave (West)

PM PEAK HOUR

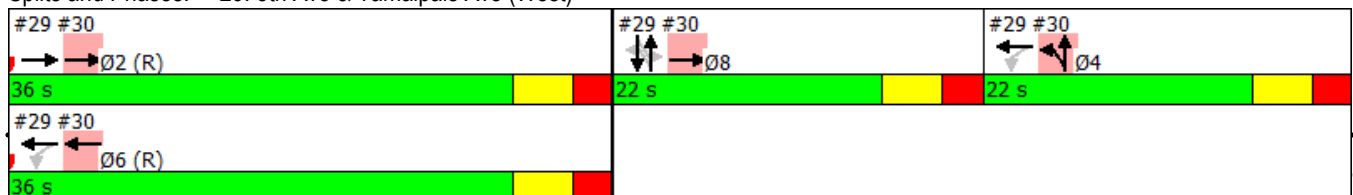


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		7.0					9.0	9.0		9.0	9.0	
Pedestrian Calls (#/hr)		13					13	13		13	13	
Act Effct Green (s)		44.8			59.6			8.4			8.4	
Actuated g/C Ratio		0.56			0.74			0.10			0.10	
v/c Ratio		0.46			0.22			0.41			0.26	
Control Delay		8.7			0.9			17.9			23.7	
Queue Delay		0.4			0.0			0.0			0.0	
Total Delay		9.0			0.9			17.9			23.7	
LOS		A			A			B			C	
Approach Delay		9.0			0.9			17.9			23.7	
Approach LOS		A			A			B			C	
90th %ile Green (s)		30.0					16.0	16.0		16.0	16.0	
90th %ile Term Code		Coord					Ped	Ped		Ped	Ped	
70th %ile Green (s)		44.3					8.8	8.8		8.8	8.8	
70th %ile Term Code		Coord					Gap	Gap		Gap	Gap	
50th %ile Green (s)		48.4					6.2	6.2		6.2	6.2	
50th %ile Term Code		Coord					Gap	Gap		Gap	Gap	
30th %ile Green (s)		49.9					5.7	5.7		5.7	5.7	
30th %ile Term Code		Coord					Gap	Gap		Gap	Gap	
10th %ile Green (s)		51.6					5.1	5.1		5.1	5.1	
10th %ile Term Code		Coord					Gap	Gap		Gap	Gap	
Queue Length 50th (ft)		56			2			16			16	
Queue Length 95th (ft)		179			0			43			m34	
Internal Link Dist (ft)		213			1			11			257	
Turn Bay Length (ft)												
Base Capacity (vph)		973			1290			307			307	
Starvation Cap Reductn		165			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.56			0.22			0.23			0.14	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 20 (25%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.46
 Intersection Signal Delay: 7.8 Intersection LOS: A
 Intersection Capacity Utilization 42.8% ICU Level of Service A
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 29: 5th Ave & Tamalpais Ave (West)


















Lane Group	Ø4	Ø6
Walk Time (s)	7.0	7.0
Flash Dont Walk (s)	9.0	7.0
Pedestrian Calls (#/hr)	13	13
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
90th %ile Green (s)	16.0	30.0
90th %ile Term Code	Ped	Coord
70th %ile Green (s)	8.9	44.3
70th %ile Term Code	Gap	Coord
50th %ile Green (s)	7.4	48.4
50th %ile Term Code	Gap	Coord
30th %ile Green (s)	6.4	49.9
30th %ile Term Code	Gap	Coord
10th %ile Green (s)	5.3	51.6
10th %ile Term Code	Gap	Coord
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

San Rafael Multi-Family TIS - Baseline With Project Conditions

30: 5th Ave & Tamalpais Ave (East)

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	445	0	0	251	8	11	20	31	0	0	0
Future Volume (vph)	0	445	0	0	251	8	11	20	31	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					1.00			0.98				
Frt					0.996			0.932				
Flt Protected								0.991				
Satd. Flow (prot)	0	1748	0	0	1739	0	0	1582	0	0	0	0
Flt Permitted								0.991				
Satd. Flow (perm)	0	1748	0	0	1739	0	0	1582	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					2			33				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		72			180			288			329	
Travel Time (s)		2.0			4.9			7.9			9.0	
Confl. Peds. (#/hr)	4					4			8			
Confl. Bikes (#/hr)						4						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	473	0	0	267	9	12	21	33	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	473	0	0	276	0	0	66	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA			NA		Split	NA				
Protected Phases		2 8			6		4	4				
Permitted Phases												
Detector Phase		2 8			6		4	4				
Switch Phase												
Minimum Initial (s)					8.0		5.0	5.0				
Minimum Split (s)					20.0		22.0	22.0				
Total Split (s)					36.0		22.0	22.0				
Total Split (%)					45.0%		27.5%	27.5%				
Maximum Green (s)					30.0		16.0	16.0				
Yellow Time (s)					3.6		3.6	3.6				
All-Red Time (s)					2.4		2.4	2.4				
Lost Time Adjust (s)					0.0			0.0				
Total Lost Time (s)					6.0			6.0				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)					3.0		1.5	1.5				
Recall Mode					C-Max		None	None				

San Rafael Multi-Family TIS - Baseline With Project Conditions
 30: 5th Ave & Tamalpais Ave (East)

PM PEAK HOUR

Lane Group	Ø2	Ø8
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	2	8
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	7.0	5.0
Minimum Split (s)	20.0	22.0
Total Split (s)	36.0	22.0
Total Split (%)	45%	28%
Maximum Green (s)	30.0	16.0
Yellow Time (s)	3.6	3.6
All-Red Time (s)	2.4	2.4
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	1.5
Recall Mode	C-Max	None

San Rafael Multi-Family TIS - Baseline With Project Conditions
 30: 5th Ave & Tamalpais Ave (East)

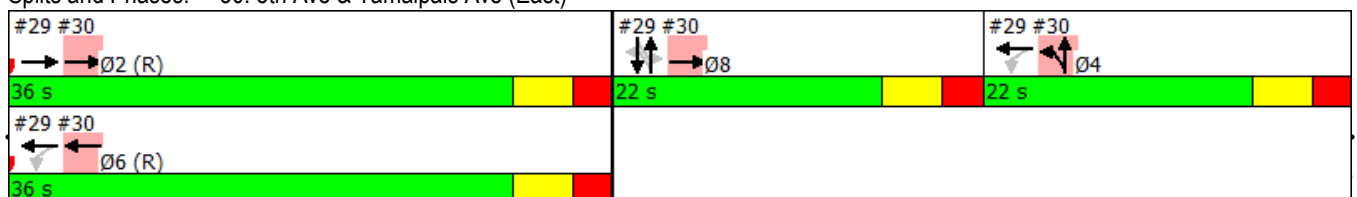
PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)					7.0		7.0	7.0				
Flash Dont Walk (s)					7.0		9.0	9.0				
Pedestrian Calls (#/hr)					13		13	13				
Act Effct Green (s)		59.2			44.8			8.8				
Actuated g/C Ratio		0.74			0.56			0.11				
v/c Ratio		0.37			0.28			0.33				
Control Delay		0.9			6.3			23.6				
Queue Delay		0.1			1.0			0.0				
Total Delay		0.9			7.3			23.6				
LOS		A			A			C				
Approach Delay		0.9			7.3			23.6				
Approach LOS		A			A			C				
90th %ile Green (s)					30.0		16.0	16.0				
90th %ile Term Code					Coord		Ped	Ped				
70th %ile Green (s)					44.3		8.9	8.9				
70th %ile Term Code					Coord		Gap	Gap				
50th %ile Green (s)					48.4		7.4	7.4				
50th %ile Term Code					Coord		Gap	Gap				
30th %ile Green (s)					49.9		6.4	6.4				
30th %ile Term Code					Coord		Gap	Gap				
10th %ile Green (s)					51.6		5.3	5.3				
10th %ile Term Code					Coord		Gap	Gap				
Queue Length 50th (ft)		2			29			16				
Queue Length 95th (ft)		2			93			m48				
Internal Link Dist (ft)		1			100			208			249	
Turn Bay Length (ft)												
Base Capacity (vph)		1460			975			342				
Starvation Cap Reductn		0			462			0				
Spillback Cap Reductn		189			0			3				
Storage Cap Reductn		0			0			0				
Reduced v/c Ratio		0.37			0.54			0.19				

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 20 (25%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.46
 Intersection Signal Delay: 4.9 Intersection LOS: A
 Intersection Capacity Utilization 41.0% ICU Level of Service A
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: 5th Ave & Tamalpais Ave (East)



San Rafael Multi-Family TIS - Baseline With Project Conditions
 30: 5th Ave & Tamalpais Ave (East)



















PM PEAK HOUR

Lane Group	Ø2	Ø8
Walk Time (s)	7.0	7.0
Flash Dont Walk (s)	7.0	9.0
Pedestrian Calls (#/hr)	13	13
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
90th %ile Green (s)	30.0	16.0
90th %ile Term Code	Coord	Ped
70th %ile Green (s)	44.3	8.8
70th %ile Term Code	Coord	Gap
50th %ile Green (s)	48.4	6.2
50th %ile Term Code	Coord	Gap
30th %ile Green (s)	49.9	5.7
30th %ile Term Code	Coord	Gap
10th %ile Green (s)	51.6	5.1
10th %ile Term Code	Coord	Gap
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

San Rafael Multi-Family TIS - Baseline With Project Conditions

31: Hetherton St & 5th Ave

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											  	
Traffic Volume (vph)	0	329	195	66	215	0	0	0	0	34	1096	95
Future Volume (vph)	0	329	195	66	215	0	0	0	0	34	1096	95
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	12	12	16	12	12	12	12	12	12	12
Storage Length (ft)	0		0	0		0	0		0	0		180
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00
Ped Bike Factor		0.99			1.00							0.95
Frt		0.950										0.850
Flt Protected					0.988						0.999	
Satd. Flow (prot)	0	1864	0	0	1957	0	0	0	0	0	4591	1322
Flt Permitted					0.615						0.999	
Satd. Flow (perm)	0	1864	0	0	1217	0	0	0	0	0	4591	1259
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		29										
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		180			388			290			325	
Travel Time (s)		4.9			10.6			7.9			8.9	
Confl. Peds. (#/hr)			8	8								13
Confl. Bikes (#/hr)			9									2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)											2	2
Adj. Flow (vph)	0	350	207	70	229	0	0	0	0	36	1166	101
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	557	0	0	299	0	0	0	0	0	1202	101
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	0.91	1.07	1.07	0.91	1.07	1.07	1.07	1.07	1.07	1.12	1.24
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA		Perm	NA						Split	NA custom
Protected Phases		4			8					2	2	
Permitted Phases				8								5
Minimum Split (s)		31.0		31.0	31.0					31.0	31.0	28.0
Total Split (s)		40.0		40.0	40.0					40.0	40.0	33.0
Total Split (%)		50.0%		50.0%	50.0%					50.0%	50.0%	41.3%
Maximum Green (s)		35.4		35.4	35.4					35.5	35.5	28.5
Yellow Time (s)		3.6		3.6	3.6					3.5	3.5	3.5
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	1.0
Lost Time Adjust (s)		0.0			0.0						0.0	0.0
Total Lost Time (s)		4.6			4.6						4.5	4.5
Lead/Lag												Lag
Lead-Lag Optimize?												

Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Parking (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Minimum Split (s)	10.0
Total Split (s)	7.0
Total Split (%)	9%
Maximum Green (s)	4.0
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	

San Rafael Multi-Family TIS - Baseline With Project Conditions

31: Hetherton St & 5th Ave

PM PEAK HOUR

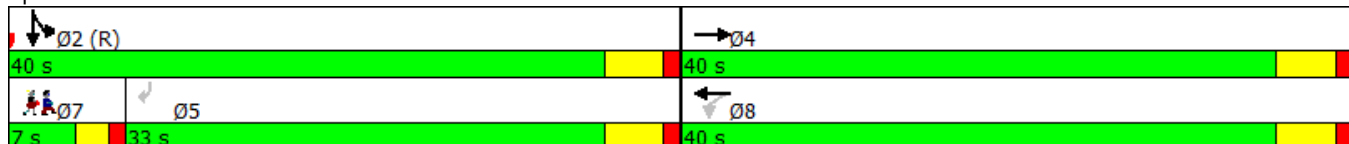


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0		7.0	7.0							7.0
Flash Dont Walk (s)		16.0		16.0	16.0							13.0
Pedestrian Calls (#/hr)		0		0	0							0
Act Effct Green (s)		35.4		35.4	35.4						35.5	28.5
Actuated g/C Ratio		0.44		0.44	0.44						0.44	0.36
v/c Ratio		0.66		0.56	0.56						0.59	0.23
Control Delay		10.6		19.7	19.7						6.7	8.7
Queue Delay		2.5		0.1	0.1						0.5	0.0
Total Delay		13.1		19.8	19.8						7.2	8.7
LOS		B		B	B						A	A
Approach Delay		13.1		19.8	19.8						7.3	
Approach LOS		B		B	B						A	
Queue Length 50th (ft)		116		120	120						38	13
Queue Length 95th (ft)		66		m174	m174						m59	m19
Internal Link Dist (ft)		100		308	308			210			245	
Turn Bay Length (ft)												180
Base Capacity (vph)		840		538	538						2037	448
Starvation Cap Reductn		169		0	0						382	0
Spillback Cap Reductn		0		12	12						0	0
Storage Cap Reductn		0		0	0						0	0
Reduced v/c Ratio		0.83		0.57	0.57						0.73	0.23

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 60 (75%), Referenced to phase 2:SBTL, Start of Green
 Natural Cycle: 70
 Control Type: Pretimed
 Maximum v/c Ratio: 0.66
 Intersection Signal Delay: 10.5 Intersection LOS: B
 Intersection Capacity Utilization 81.4% ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 31: Hetherton St & 5th Ave




















Lane Group	Ø7
Walk Time (s)	7.0
Flash Dont Walk (s)	0.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

San Rafael Multi-Family TIS - Baseline With Project Conditions

32: Irwin St & 5th Ave

PM PEAK HOUR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	121	0	0	147	113	90	1451	14	0	0	0
Future Volume (vph)	235	121	0	0	147	113	90	1451	14	0	0	0
Ideal Flow (vphpl)	1600	1600	1800	1800	1600	1600	1600	1600	1600	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	11	12	12	12	12
Storage Length (ft)	75		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00
Ped Bike Factor	0.99				0.98			1.00				
Frt					0.941			0.999				
Flt Protected	0.950							0.997				
Satd. Flow (prot)	1284	1351	0	0	1251	0	0	4082	0	0	0	0
Flt Permitted	0.517							0.997				
Satd. Flow (perm)	688	1351	0	0	1251	0	0	4082	0	0	0	0
Right Turn on Red			No			Yes			Yes			No
Satd. Flow (RTOR)					13			2				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		388			537			279			313	
Travel Time (s)		10.6			14.6			7.6			8.5	
Confl. Peds. (#/hr)	22						22		9			
Confl. Bikes (#/hr)							3					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)	6	6			6	6						
Adj. Flow (vph)	250	129	0	0	156	120	96	1544	15	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	250	129	0	0	276	0	0	1655	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.47	1.47	1.07	1.07	1.47	1.24	1.24	1.30	1.24	1.07	1.07	1.07
Turning Speed (mph)	25		3	15		9	15		9	15		9
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Minimum Split (s)	27.0	27.0			27.0		28.0	28.0				
Total Split (s)	37.0	37.0			37.0		43.0	43.0				
Total Split (%)	46.3%	46.3%			46.3%		53.8%	53.8%				
Maximum Green (s)	32.4	32.4			32.4		38.4	38.4				
Yellow Time (s)	3.6	3.6			3.6		3.6	3.6				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	4.6	4.6			4.6		4.6	4.6				
Lead/Lag												
Lead-Lag Optimize?												

San Rafael Multi-Family TIS - Baseline With Project Conditions

32: Irwin St & 5th Ave

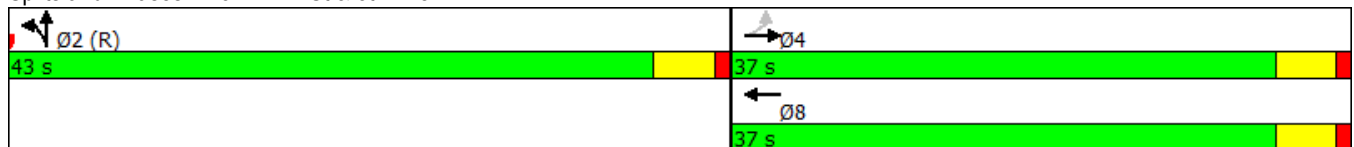
PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0			7.0		7.0	7.0				
Flash Dont Walk (s)	15.0	15.0			15.0		16.0	16.0				
Pedestrian Calls (#/hr)	0	0			0		0	0				
Act Effct Green (s)	32.4	32.4			32.4			38.4				
Actuated g/C Ratio	0.40	0.40			0.40			0.48				
v/c Ratio	0.90	0.24			0.54			0.84				
Control Delay	58.3	24.1			21.9			14.9				
Queue Delay	0.0	0.0			0.0			3.7				
Total Delay	58.3	24.1			21.9			18.6				
LOS	E	C			C			B				
Approach Delay		46.6			21.9			18.6				
Approach LOS		D			C			B				
Queue Length 50th (ft)	90	41			97			192				
Queue Length 95th (ft)	m#246	m77			172			243				
Internal Link Dist (ft)		308			457			199			233	
Turn Bay Length (ft)	75											
Base Capacity (vph)	278	547			514			1960				
Starvation Cap Reductn	0	0			0			27				
Spillback Cap Reductn	0	0			0			226				
Storage Cap Reductn	0	0			0			0				
Reduced v/c Ratio	0.90	0.24			0.54			0.95				

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 45 (56%), Referenced to phase 2:NBT, Start of Green
 Natural Cycle: 60
 Control Type: Pretimed
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 23.6 Intersection LOS: C
 Intersection Capacity Utilization 81.1% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 32: Irwin St & 5th Ave



Arterial Level of Service: EB 2nd St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Lindaro St	IV	25	20.6	23.2	43.8	0.09	7.7	E
Lincoln Ave	IV	25	21.4	24.2	45.6	0.10	7.7	E
Francisco Blvd W.	IV	25	12.2	31.0	43.2	0.05	3.9	F
US-101 SB Ramp	IV	25	14.2	25.4	39.6	0.05	4.9	F
Total	IV		68.4	103.8	172.2	0.29	6.1	F

Arterial Level of Service: WB 3rd St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Hetherton St	IV	25	19.0	9.7	28.7	0.07	9.0	D
Tamalpais Ave (West)	IV	25	14.4	59.7	74.1	0.05	2.6	F
Lincoln Ave	IV	25	13.2	21.3	34.5	0.05	5.2	F
Lindaro St	IV	25	21.4	5.1	26.5	0.10	13.2	C
Total	IV		68.0	95.8	163.8	0.27	6.0	F

Arterial Level of Service: SB Hetherton St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Mission Ave	IV	35	22.2	25.1	47.3	0.16	12.1	D
5th Ave	IV	25	16.3	6.7	23.0	0.06	9.6	D
4th St	IV	25	14.6	7.8	22.4	0.05	8.8	E
3rd St	IV	25	17.7	25.6	43.3	0.07	5.5	F
2nd St	IV	25	15.6	23.1	38.7	0.06	5.5	F
Total	IV		86.4	88.3	174.7	0.40	8.3	E

Arterial Level of Service: NB Irwin St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
2nd	IV	38	19.3	27.3	46.6	0.17	13.0	D
3rd	IV	25	14.8	16.6	31.4	0.06	6.4	F
4th St	IV	25	18.9	3.4	22.3	0.07	11.5	D
5th Ave	IV	25	14.0	14.9	28.9	0.05	6.6	F
Mission Ave	IV	25	15.7	18.4	34.1	0.06	6.3	F
Total	IV		82.7	80.6	163.3	0.41	9.0	E

Arterial Level of Service: NB Lindaro St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
2nd St	IV	25	15.8	18.9	34.7	0.06	6.2	F
3rd St	IV	25	16.7	32.7	49.4	0.06	4.6	F
Total	IV		32.5	51.6	84.1	0.12	5.3	F

Arterial Level of Service: SB Lindaro St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
3rd St	IV	25	9.9	19.1	29.0	0.04	4.7	F
2nd St	IV	25	16.7	18.0	34.7	0.06	6.5	F
Total	IV		26.6	37.1	63.7	0.10	5.7	F

Arterial Level of Service: EB Mission Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Lincoln Ave	IV	25	28.5	12.3	40.8	0.16	14.0	C
Tamalpais Ave (West)	IV	25	14.7	27.1	41.8	0.06	4.8	F
Tamalpais Ave (East)	IV	25	3.6	3.4	7.0	0.01	6.9	F
Hetheron St	IV	25	9.6	8.6	18.2	0.04	7.2	E
Irwin St	IV	25	18.9	15.2	34.1	0.07	7.5	E
Total	IV		75.3	66.6	141.9	0.33	8.5	E

Arterial Level of Service: WB Mission Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
101 NB On-Ramp	IV	25	21.6	32.3	53.9	0.10	6.6	F
Hetheron St	IV	25	18.9	9.0	27.9	0.07	9.2	D
Tamalpais Ave (East)	IV	25	9.6	32.7	42.3	0.04	3.1	F
Tamalpais Ave (West)	IV	25	3.6	2.0	5.6	0.01	8.6	E
Lincoln Ave	IV	25	14.7	54.1	68.8	0.06	2.9	F
Total	IV		68.4	130.1	198.5	0.27	5.0	F

APPENDIX D: SYNCHRO DATA – CUMULATIVE CONDITIONS



HCM 2010 Signalized Intersection Summary
 1: Cijos & 4th



















Cumulative (2040) Conditions
 Timing Plan: AM Peak Hour

	→	↘	↙	←	↖	↗		
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↗		↖	↗	↖	↖		
Traffic Volume (veh/h)	300	10	45	395	144	46		
Future Volume (veh/h)	300	10	45	395	144	46		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		0.94	0.98		1.00	0.97		
Parking Bus, Adj	1.00	0.89	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1573	1620	1573	1573	1573	1620		
Adj Flow Rate, veh/h	326	9	49	429	157	30		
Adj No. of Lanes	1	0	1	1	0	0		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	3	3	3	3	0	0		
Cap, veh/h	867	24	590	1008	251	48		
Arrive On Green	0.64	0.64	0.64	0.64	0.23	0.23		
Sat Flow, veh/h	1353	37	911	1573	1074	205		
Grp Volume(v), veh/h	0	335	49	429	188	0		
Grp Sat Flow(s),veh/h/ln	0	1391	911	1573	1287	0		
Q Serve(g_s), s	0.0	7.4	1.7	8.8	8.5	0.0		
Cycle Q Clear(g_c), s	0.0	7.4	9.2	8.8	8.5	0.0		
Prop In Lane		0.03	1.00		0.84	0.16		
Lane Grp Cap(c), veh/h	0	891	590	1008	300	0		
V/C Ratio(X)	0.00	0.38	0.08	0.43	0.63	0.00		
Avail Cap(c_a), veh/h	0	891	590	1008	396	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	0.00	1.00	0.26	0.26	1.00	0.00		
Uniform Delay (d), s/veh	0.0	5.5	7.7	5.8	22.4	0.0		
Incr Delay (d2), s/veh	0.0	1.2	0.1	0.3	4.5	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	3.1	0.4	3.8	3.4	0.0		
LnGrp Delay(d),s/veh	0.0	6.7	7.8	6.1	26.9	0.0		
LnGrp LOS		A	A	A	C			
Approach Vol, veh/h	335			478	188			
Approach Delay, s/veh	6.7			6.3	26.9			
Approach LOS	A			A	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		45.8				45.8		19.2
Change Period (Y+Rc), s		* 4.2				* 4.2		4.0
Max Green Setting (Gmax), s		* 37				* 37		20.0
Max Q Clear Time (g_c+I1), s		9.4				11.2		10.5
Green Ext Time (p_c), s		8.5				8.3		0.9
Intersection Summary								
HCM 2010 Ctrl Delay			10.3					
HCM 2010 LOS			B					
Notes								
User approved volume balancing among the lanes for turning movement.								

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
2: Lincoln & 4th

Cumulative (2040) Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	265	20	80	340	60	20	235	62	85	370	80
Future Volume (veh/h)	40	265	20	80	340	60	20	235	62	85	370	80
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.90	0.97		0.91	0.97		0.92	0.99		0.92
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.89	1.00	1.00	0.89
Adj Sat Flow, veh/h/ln	1573	1510	1620	1573	1573	1620	1620	1573	1555	1620	1573	1555
Adj Flow Rate, veh/h	43	288	19	87	370	56	22	255	54	92	402	78
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	117	423	28	209	400	60	76	610	124	145	544	100
Arrive On Green	0.30	0.30	0.30	0.10	0.10	0.10	0.19	0.19	0.19	1.00	1.00	1.00
Sat Flow, veh/h	853	1390	92	925	1314	199	42	1045	212	152	931	171
Grp Volume(v), veh/h	43	0	307	87	0	426	331	0	0	572	0	0
Grp Sat Flow(s),veh/h/ln	853	0	1482	925	0	1513	1299	0	0	1255	0	0
Q Serve(g_s), s	1.9	0.0	13.6	7.0	0.0	20.9	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	22.8	0.0	13.6	20.6	0.0	20.9	16.3	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.06	1.00		0.13	0.07		0.16	0.16		0.14
Lane Grp Cap(c), veh/h	117	0	450	209	0	460	810	0	0	789	0	0
V/C Ratio(X)	0.37	0.00	0.68	0.42	0.00	0.93	0.41	0.00	0.00	0.73	0.00	0.00
Avail Cap(c_a), veh/h	117	0	450	209	0	460	810	0	0	789	0	0
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	0.33	0.33	0.33	2.00	2.00	2.00
Upstream Filter(I)	0.92	0.00	0.92	1.00	0.00	1.00	0.79	0.00	0.00	0.49	0.00	0.00
Uniform Delay (d), s/veh	37.0	0.0	22.9	39.5	0.0	32.9	19.2	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	8.0	0.0	7.5	6.0	0.0	27.0	1.2	0.0	0.0	2.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	6.5	2.1	0.0	12.3	6.3	0.0	0.0	0.6	0.0	0.0
LnGrp Delay(d),s/veh	45.1	0.0	30.4	45.5	0.0	59.9	20.4	0.0	0.0	2.9	0.0	0.0
LnGrp LOS	D		C	D		E	C			A		
Approach Vol, veh/h		350			513			331			572	
Approach Delay, s/veh		32.2			57.5			20.4			2.9	
Approach LOS		C			E			C			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		27.0		48.0		27.0		48.0				
Change Period (Y+Rc), s		* 4.2		* 4.2		* 4.2		* 4.2				
Max Green Setting (Gmax), s		* 23		* 44		* 23		* 44				
Max Q Clear Time (g_c+I1), s		24.8		18.3		22.9		2.0				
Green Ext Time (p_c), s		0.0		10.0		0.0		12.0				
Intersection Summary												
HCM 2010 Ctrl Delay			27.8									
HCM 2010 LOS			C									
Notes												
User approved ignoring U-Turning movement.												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	2.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑		↑
Traffic Vol, veh/h	412	0	0	485	0	177
Future Vol, veh/h	412	0	0	485	0	177
Conflicting Peds, #/hr	0	34	0	0	0	49
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	448	0	0	527	0	192

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	-
Pot Cap-1 Maneuver	-	0	0
Stage 1	-	0	0
Stage 2	-	0	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	548	-	-
HCM Lane V/C Ratio	0.351	-	-
HCM Control Delay (s)	15.1	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	1.6	-	-

HCM Signalized Intersection Capacity Analysis

4: 4th & Tamalpais

Cumulative (2040) Conditions
Timing Plan: AM Peak Hour
















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↗
Traffic Volume (vph)	0	489	430	0	0	55
Future Volume (vph)	0	489	430	0	0	55
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.6	5.6			5.2
Lane Util. Factor		1.00	1.00			1.00
Frbp, ped/bikes		1.00	1.00			0.87
Flpb, ped/bikes		1.00	1.00			1.00
Frt		1.00	1.00			0.86
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		1573	1573			1188
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		1573	1573			1188
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	532	467	0	0	60
RTOR Reduction (vph)	0	0	0	0	0	49
Lane Group Flow (vph)	0	532	467	0	0	11
Confl. Peds. (#/hr)				39		46
Confl. Bikes (#/hr)				4		
Turn Type		NA	NA			Perm
Protected Phases		2 8	4 6			
Permitted Phases						8
Actuated Green, G (s)		50.3	50.5			13.7
Effective Green, g (s)		50.3	50.5			13.7
Actuated g/C Ratio		0.67	0.67			0.18
Clearance Time (s)						5.2
Vehicle Extension (s)						3.0
Lane Grp Cap (vph)		1054	1059			217
v/s Ratio Prot		c0.34	c0.30			
v/s Ratio Perm						0.01
v/c Ratio		0.50	0.44			0.05
Uniform Delay, d1		6.1	5.7			25.3
Progression Factor		1.23	0.36			1.00
Incremental Delay, d2		0.3	0.2			0.1
Delay (s)		7.9	2.2			25.4
Level of Service		A	A			C
Approach Delay (s)		7.9	2.2		25.4	
Approach LOS		A	A		C	
Intersection Summary						
HCM 2000 Control Delay			6.4		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.56			
Actuated Cycle Length (s)			75.0		Sum of lost time (s)	16.4
Intersection Capacity Utilization			98.2%		ICU Level of Service	F
Analysis Period (min)			15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5: Tamalpais & 4th





















Cumulative (2040) Conditions
Timing Plan: AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑			↔			↕					
Traffic Volume (vph)	0	489	0	0	420	70	10	10	10	0	0	0	
Future Volume (vph)	0	489	0	0	420	70	10	10	10	0	0	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)		5.6			5.6			5.6					
Lane Util. Factor		1.00			1.00			1.00					
Frbp, ped/bikes		1.00			0.98			0.99					
Flpb, ped/bikes		1.00			1.00			1.00					
Frt		1.00			0.98			0.95					
Flt Protected		1.00			1.00			0.98					
Satd. Flow (prot)		1573			1517			1464					
Flt Permitted		1.00			1.00			0.98					
Satd. Flow (perm)		1573			1517			1464					
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)	0	532	0	0	457	76	11	11	11	0	0	0	
RTOR Reduction (vph)	0	0	0	0	8	0	0	9	0	0	0	0	
Lane Group Flow (vph)	0	532	0	0	525	0	0	24	0	0	0	0	
Confl. Peds. (#/hr)	39		22			39			10				
Turn Type		NA			NA		Split	NA					
Protected Phases		2 8			6		4	4					
Permitted Phases													
Actuated Green, G (s)		50.3			31.0			13.9					
Effective Green, g (s)		50.3			31.0			13.9					
Actuated g/C Ratio		0.67			0.41			0.19					
Clearance Time (s)					5.6			5.6					
Vehicle Extension (s)					3.0			3.0					
Lane Grp Cap (vph)		1054			627			271					
v/s Ratio Prot		c0.34			c0.35			c0.02					
v/s Ratio Perm													
v/c Ratio		0.50			0.84			0.09					
Uniform Delay, d1		6.1			19.7			25.3					
Progression Factor		0.05			0.98			0.98					
Incremental Delay, d2		0.3			11.3			0.1					
Delay (s)		0.6			30.6			25.0					
Level of Service		A			C			C					
Approach Delay (s)		0.6			30.6			25.0			0.0		
Approach LOS		A			C			C			A		
Intersection Summary													
HCM 2000 Control Delay			15.9			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio			0.60										
Actuated Cycle Length (s)			75.0			Sum of lost time (s)		16.4					
Intersection Capacity Utilization			98.2%			ICU Level of Service			F				
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis


















6: Hetherton & 4th

Cumulative (2040) Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											  	
Traffic Volume (vph)	0	294	200	200	305	0	0	0	0	110	970	190
Future Volume (vph)	0	294	200	200	305	0	0	0	0	110	970	190
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	13	10	15	11	12	12	12	12	12	12	12
Total Lost time (s)		4.2	4.2	4.2	4.2						4.6	4.6
Lane Util. Factor		1.00	1.00	1.00	1.00						0.91	1.00
Frbp, ped/bikes		1.00	0.95	1.00	1.00						1.00	0.89
Flpb, ped/bikes		1.00	1.00	0.98	1.00						1.00	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.99	1.00
Satd. Flow (prot)		1625	1181	1606	1520						4265	1184
Flt Permitted		1.00	1.00	0.50	1.00						0.99	1.00
Satd. Flow (perm)		1625	1181	844	1520						4265	1184
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)	0	320	217	217	332	0	0	0	0	120	1054	207
RTOR Reduction (vph)	0	0	27	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	320	190	217	332	0	0	0	0	0	1174	207
Confl. Peds. (#/hr)			40	40		22			9	9		30
Confl. Bikes (#/hr)			8			4						2
Turn Type		NA	Perm	Perm	NA					Perm	NA	custom
Protected Phases		4			8						2	2
Permitted Phases			4	8						2		5
Actuated Green, G (s)		35.8	35.8	35.8	35.8						30.4	23.4
Effective Green, g (s)		35.8	35.8	35.8	35.8						30.4	23.4
Actuated g/C Ratio		0.48	0.48	0.48	0.48						0.41	0.31
Clearance Time (s)		4.2	4.2	4.2	4.2						4.6	4.6
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		775	563	402	725						1728	369
v/s Ratio Prot		0.20			0.22							
v/s Ratio Perm			0.16	c0.26							0.28	0.17
v/c Ratio		0.41	0.34	0.54	0.46						0.68	0.56
Uniform Delay, d1		12.8	12.2	13.8	13.1						18.3	21.5
Progression Factor		0.48	0.39	1.04	1.07						0.32	0.42
Incremental Delay, d2		1.4	1.4	3.5	1.4						1.6	4.4
Delay (s)		7.6	6.2	17.9	15.4						7.4	13.3
Level of Service		A	A	B	B						A	B
Approach Delay (s)		7.0			16.4			0.0			8.3	
Approach LOS		A			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			9.8			HCM 2000 Level of Service		A				
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			75.0			Sum of lost time (s)		10.8				
Intersection Capacity Utilization			88.6%			ICU Level of Service		E				
Analysis Period (min)			15									
c Critical Lane Group												

















HCM 2010 Signalized Intersection Summary
7: Irwin & 4th

Cumulative (2040) Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	239	0	0	380	70	130	1144	50	0	0	0
Future Volume (veh/h)	160	239	0	0	380	70	130	1144	50	0	0	0
Number	5	2	12	1	6	16	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.96	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.89	1.00	1.00	0.89			
Adj Sat Flow, veh/h/ln	1573	1573	0	0	1573	1620	1510	1573	1620			
Adj Flow Rate, veh/h	174	260	0	0	413	66	141	1243	50			
Adj No. of Lanes	1	1	0	0	1	0	1	2	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	152	625	0	0	465	74	706	1355	54			
Arrive On Green	0.79	0.79	0.00	0.00	0.40	0.40	0.16	0.16	0.16			
Sat Flow, veh/h	813	1573	0	0	1170	187	1438	2763	111			
Grp Volume(v), veh/h	174	260	0	0	0	479	141	672	621			
Grp Sat Flow(s),veh/h/ln	813	1573	0	0	0	1357	1438	1494	1379			
Q Serve(g_s), s	5.1	3.8	0.0	0.0	0.0	24.7	6.4	33.2	33.2			
Cycle Q Clear(g_c), s	29.8	3.8	0.0	0.0	0.0	24.7	6.4	33.2	33.2			
Prop In Lane	1.00		0.00	0.00		0.14	1.00		0.08			
Lane Grp Cap(c), veh/h	152	625	0	0	0	539	706	733	677			
V/C Ratio(X)	1.15	0.42	0.00	0.00	0.00	0.89	0.20	0.92	0.92			
Avail Cap(c_a), veh/h	152	625	0	0	0	539	706	733	677			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33			
Upstream Filter(I)	0.91	0.91	0.00	0.00	0.00	1.00	0.17	0.17	0.17			
Uniform Delay (d), s/veh	21.7	5.0	0.0	0.0	0.0	21.1	18.7	29.9	29.9			
Incr Delay (d2), s/veh	115.2	1.9	0.0	0.0	0.0	19.3	0.1	4.1	4.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	7.9	1.8	0.0	0.0	0.0	12.1	2.6	14.6	13.5			
LnGrp Delay(d),s/veh	136.9	6.9	0.0	0.0	0.0	40.3	18.8	34.0	34.4			
LnGrp LOS	F	A				D	B	C	C			
Approach Vol, veh/h		434			479			1434				
Approach Delay, s/veh		59.0			40.3			32.7				
Approach LOS		E			D			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		34.0		41.0		34.0						
Change Period (Y+Rc), s		* 4.2		* 4.2		* 4.2						
Max Green Setting (Gmax), s		* 30		* 37		* 30						
Max Q Clear Time (g_c+I1), s		31.8		35.2		26.7						
Green Ext Time (p_c), s		0.0		1.1		1.5						
Intersection Summary												
HCM 2010 Ctrl Delay				39.1								
HCM 2010 LOS				D								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
8: Lindaro & 3rd

Cumulative (2040) Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	477	1395	30	76	10	0	0	40	10
Future Volume (veh/h)	0	0	0	477	1395	30	76	10	0	0	40	10
Number				1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.94	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1398	1398	1440	1440	1398	0	0	1398	1440
Adj Flow Rate, veh/h				518	1516	31	83	11	0	0	43	1
Adj No. of Lanes				1	3	0	0	1	0	0	1	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				831	2399	49	179	17	0	0	163	4
Arrive On Green				0.21	0.21	0.21	0.12	0.12	0.00	0.00	0.12	0.12
Sat Flow, veh/h				1331	3845	79	741	140	0	0	1361	32
Grp Volume(v), veh/h				518	1003	544	94	0	0	0	0	44
Grp Sat Flow(s),veh/h/ln				1331	1272	1379	880	0	0	0	0	1392
Q Serve(g_s), s				26.6	27.0	27.0	6.0	0.0	0.0	0.0	0.0	2.2
Cycle Q Clear(g_c), s				26.6	27.0	27.0	8.1	0.0	0.0	0.0	0.0	2.2
Prop In Lane				1.00		0.06	0.88		0.00	0.00		0.02
Lane Grp Cap(c), veh/h				831	1588	860	196	0	0	0	0	166
V/C Ratio(X)				0.62	0.63	0.63	0.48	0.00	0.00	0.00	0.00	0.26
Avail Cap(c_a), veh/h				831	1588	860	355	0	0	0	0	368
HCM Platoon Ratio				0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				21.8	21.9	21.9	33.5	0.0	0.0	0.0	0.0	30.0
Incr Delay (d2), s/veh				3.5	1.9	3.5	1.8	0.0	0.0	0.0	0.0	0.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				10.6	10.0	11.2	2.0	0.0	0.0	0.0	0.0	0.9
LnGrp Delay(d),s/veh				25.3	23.8	25.4	35.3	0.0	0.0	0.0	0.0	30.9
LnGrp LOS				C	C	C	D					C
Approach Vol, veh/h				2065			94			44		
Approach Delay, s/veh				24.6			35.3			30.9		
Approach LOS				C			D			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				13.2		51.0		13.2				
Change Period (Y+Rc), s				* 4.2		4.2		* 4.2				
Max Green Setting (Gmax), s				* 20		46.8		* 20				
Max Q Clear Time (g_c+I1), s				10.1		29.0		4.2				
Green Ext Time (p_c), s				0.3		10.3		0.4				
Intersection Summary												
HCM 2010 Ctrl Delay				25.2								
HCM 2010 LOS				C								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Int Delay, s/veh 0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑↑	↑	
Traffic Vol, veh/h	0	0	0	1837	80	0
Future Vol, veh/h	0	0	0	1837	80	0
Conflicting Peds, #/hr	0	23	23	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	0	1997	87	0

Major/Minor

	Major2	Minor1
Conflicting Flow All	-	799
Stage 1	-	0
Stage 2	-	799
Critical Hdwy	-	5.76
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	6.06
Follow-up Hdwy	-	3.83
Pot Cap-1 Maneuver	0	389
Stage 1	0	-
Stage 2	0	364
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	389
Mov Cap-2 Maneuver	-	389
Stage 1	-	-
Stage 2	-	364

Approach

	WB	NB
HCM Control Delay, s	0	16.9
HCM LOS		C

Minor Lane/Major Mvmt

	NBLn1	WBT
Capacity (veh/h)	389	-
HCM Lane V/C Ratio	0.224	-
HCM Control Delay (s)	16.9	-
HCM Lane LOS	C	-
HCM 95th %tile Q(veh)	0.8	-

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑			↑
Traffic Vol, veh/h	0	0	1792	190	0	45
Future Vol, veh/h	0	0	1792	190	0	45
Conflicting Peds, #/hr	0	0	0	28	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	-	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	1948	207	0	49













Major/Minor	Major2	Minor2
Conflicting Flow All	-	0 - 1105
Stage 1	-	- -
Stage 2	-	- -
Critical Hdwy	-	- 7.16
Critical Hdwy Stg 1	-	- -
Critical Hdwy Stg 2	-	- -
Follow-up Hdwy	-	- 3.93
Pot Cap-1 Maneuver	-	0 175
Stage 1	-	0 -
Stage 2	-	0 -
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	- 171
Mov Cap-2 Maneuver	-	- -
Stage 1	-	- -
Stage 2	-	- -

Approach	WB	SB
HCM Control Delay, s	0	34.3
HCM LOS		D

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	171
HCM Lane V/C Ratio	-	-	0.286
HCM Control Delay (s)	-	-	34.3
HCM Lane LOS	-	-	D
HCM 95th %tile Q(veh)	-	-	1.1


















HCM 2010 Signalized Intersection Summary
11: Lincoln & 3rd

Cumulative (2040) Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑			↑				↑
Traffic Volume (veh/h)	0	0	0	174	1775	75	41	182	0	0	289	166
Future Volume (veh/h)	0	0	0	174	1775	75	41	182	0	0	289	166
Number				1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.91	1.00		1.00	1.00		0.92
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88
Adj Sat Flow, veh/h/ln				1620	1573	1620	1620	1573	0	0	1510	1555
Adj Flow Rate, veh/h				189	1929	77	45	198	0	0	314	179
Adj No. of Lanes				0	3	0	0	1	0	0	1	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				0	3	0	3	3	0	0	3	3
Cap, veh/h				173	1885	77	57	177	0	0	314	179
Arrive On Green				0.47	0.47	0.47	0.13	0.13	0.00	0.00	0.13	0.13
Sat Flow, veh/h				366	3982	163	0	436	0	0	773	441
Grp Volume(v), veh/h				803	671	721	243	0	0	0	0	493
Grp Sat Flow(s),veh/h/ln				1555	1431	1525	436	0	0	0	0	1214
Q Serve(g_s), s				35.5	34.9	35.4	0.1	0.0	0.0	0.0	0.0	30.4
Cycle Q Clear(g_c), s				35.5	34.9	35.4	30.5	0.0	0.0	0.0	0.0	30.4
Prop In Lane				0.24		0.11	0.19		0.00	0.00		0.36
Lane Grp Cap(c), veh/h				736	677	722	234	0	0	0	0	494
V/C Ratio(X)				1.09	0.99	1.00	1.04	0.00	0.00	0.00	0.00	1.00
Avail Cap(c_a), veh/h				736	677	722	234	0	0	0	0	494
HCM Platoon Ratio				1.00	1.00	1.00	0.33	0.33	1.00	1.00	0.33	0.33
Upstream Filter(l)				0.09	0.09	0.09	1.00	0.00	0.00	0.00	0.00	0.44
Uniform Delay (d), s/veh				19.8	19.6	19.7	27.9	0.0	0.0	0.0	0.0	32.4
Incr Delay (d2), s/veh				43.8	8.3	9.6	68.9	0.0	0.0	0.0	0.0	26.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				24.1	15.2	16.5	9.3	0.0	0.0	0.0	0.0	13.9
LnGrp Delay(d),s/veh				63.5	27.9	29.4	96.9	0.0	0.0	0.0	0.0	59.1
LnGrp LOS				F	C	C	F					E
Approach Vol, veh/h				2195			243			493		
Approach Delay, s/veh				41.4			96.9			59.1		
Approach LOS				D			F			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				35.0		40.0		35.0				
Change Period (Y+Rc), s				4.5		4.5		4.5				
Max Green Setting (Gmax), s				30.5		35.5		30.5				
Max Q Clear Time (g_c+I1), s				32.5		37.5		32.4				
Green Ext Time (p_c), s				0.0		0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				49.0								
HCM 2010 LOS				D								

HCM Signalized Intersection Capacity Analysis
 12: Tamalpais & 3rd

Cumulative (2040) Conditions
 Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					  							
Traffic Volume (vph)	0	0	0	297	1963	30	50	47	0	0	0	0
Future Volume (vph)	0	0	0	297	1963	30	50	47	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1600	1600	1600	1600	1600	1800	1800	1600	1600
Lane Width	12	12	12	12	12	12	11	12	12	12	12	12
Total Lost time (s)					11.6		7.6	7.6				
Lane Util. Factor					0.91		1.00	1.00				
Frbp, ped/bikes					1.00		1.00	1.00				
Flpb, ped/bikes					0.98		0.93	1.00				
Frt					1.00		1.00	1.00				
Flt Protected					0.99		0.95	1.00				
Satd. Flow (prot)					3699		1057	1237				
Flt Permitted					0.99		0.95	1.00				
Satd. Flow (perm)					3699		1057	1237				
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)	0	0	0	323	2134	33	54	51	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	2488	0	54	51	0	0	0	0
Confl. Peds. (#/hr)			73	73		38	49		63			49
Confl. Bikes (#/hr)						2			2			2
Parking (#/hr)							3	3			3	3
Turn Type				Perm	NA		Perm	NA				
Protected Phases					6			4				
Permitted Phases				6			4					
Actuated Green, G (s)					51.8		19.0	19.0				
Effective Green, g (s)					51.8		19.0	19.0				
Actuated g/C Ratio					0.58		0.21	0.21				
Clearance Time (s)					11.6		7.6	7.6				
Vehicle Extension (s)					5.0		5.0	5.0				
Lane Grp Cap (vph)					2128		223	261				
v/s Ratio Prot								0.04				
v/s Ratio Perm					0.67		c0.05					
v/c Ratio					1.17		0.24	0.20				
Uniform Delay, d1					19.1		29.5	29.2				
Progression Factor					1.00		1.00	1.00				
Incremental Delay, d2					81.6		1.2	0.8				
Delay (s)					100.7		30.7	30.0				
Level of Service					F		C	C				
Approach Delay (s)		0.0			100.7			30.3			0.0	
Approach LOS		A			F			C			A	
Intersection Summary												
HCM 2000 Control Delay			97.9		HCM 2000 Level of Service				F			
HCM 2000 Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				19.2			
Intersection Capacity Utilization			150.5%		ICU Level of Service				H			
Analysis Period (min)			15									

c Critical Lane Group

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↔↑↑↔			↔					
Traffic Vol, veh/h	0	0	0	20	2280	15	10	0	0	0	0	0
Future Vol, veh/h	0	0	0	20	2280	15	10	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	44	0	16	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	22	2478	16	11	0	0	0	0	0


















Major/Minor	Major2	Minor1
Conflicting Flow All	44	0 0 1079
Stage 1	-	- - 44
Stage 2	-	- - 1035
Critical Hdwy	5.36	- - 5.76
Critical Hdwy Stg 1	-	- - -
Critical Hdwy Stg 2	-	- - 6.06
Follow-up Hdwy	3.13	- - 3.83
Pot Cap-1 Maneuver	1098	- - 281 0 0
Stage 1	-	- - - 0 0
Stage 2	-	- - - 272 0 0
Platoon blocked, %	-	- -
Mov Cap-1 Maneuver	1098	- - 271 0 -
Mov Cap-2 Maneuver	-	- - 271 0 -
Stage 1	-	- - - 0 -
Stage 2	-	- - - 272 0 -

Approach	WB	NB
HCM Control Delay, s	0.1	18.8
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	WBL	WBT	WBR
Capacity (veh/h)	271	1098	-	-
HCM Lane V/C Ratio	0.04	0.02	-	-
HCM Control Delay (s)	18.8	8.3	0	-
HCM Lane LOS	C	A	A	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-













HCM 2010 Signalized Intersection Summary
14: Hetherton & 3rd

Cumulative (2040) No Project
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	455	1695	0	0	0	0	0	825	545
Future Volume (veh/h)	0	0	0	455	1695	0	0	0	0	0	825	545
Number				1	6	16				3	8	18
Initial Q (Qb), veh				0	0	0				0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		0.84
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1545	1573	0				0	1573	1485
Adj Flow Rate, veh/h				495	1842	0				0	897	583
Adj No. of Lanes				1	3	0				0	3	1
Peak Hour Factor				0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %				3	3	0				0	3	3
Cap, veh/h				722	2006	0				0	1953	481
Arrive On Green				0.14	0.14	0.00				0.00	0.15	0.15
Sat Flow, veh/h				1471	4718	0				0	4435	1057
Grp Volume(v), veh/h				495	1842	0				0	897	583
Grp Sat Flow(s),veh/h/ln				1471	1573	0				0	1431	1057
Q Serve(g_s), s				24.4	28.9	0.0				0.0	14.3	34.1
Cycle Q Clear(g_c), s				24.4	28.9	0.0				0.0	14.3	34.1
Prop In Lane				1.00		0.00				0.00		1.00
Lane Grp Cap(c), veh/h				722	2006	0				0	1953	481
V/C Ratio(X)				0.69	0.92	0.00				0.00	0.46	1.21
Avail Cap(c_a), veh/h				724	2013	0				0	1953	481
HCM Platoon Ratio				0.33	0.33	1.00				1.00	0.33	0.33
Upstream Filter(I)				0.16	0.16	0.00				0.00	0.75	0.75
Uniform Delay (d), s/veh				29.0	30.9	0.0				0.0	23.5	31.9
Incr Delay (d2), s/veh				0.4	1.4	0.0				0.0	0.6	109.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				10.1	12.9	0.0				0.0	5.8	24.6
LnGrp Delay(d),s/veh				29.5	32.3	0.0				0.0	24.0	141.7
LnGrp LOS				C	C						C	F
Approach Vol, veh/h					2337						1480	
Approach Delay, s/veh					31.7						70.4	
Approach LOS					C						E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs						6		8				
Phs Duration (G+Y+Rc), s						35.9		39.1				
Change Period (Y+Rc), s						4.0		5.0				
Max Green Setting (Gmax), s						32.0		34.0				
Max Q Clear Time (g_c+I1), s						30.9		36.1				
Green Ext Time (p_c), s						1.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay					46.7							
HCM 2010 LOS					D							
Notes												
User approved volume balancing among the lanes for turning movement.												





















HCM 2010 Signalized Intersection Summary
15: Irwin & 3rd/3rd St

Cumulative (2040) Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑	↗	↖	↑↑↑				
Traffic Volume (veh/h)	0	0	0	0	1105	120	1055	1209	0	0	0	0
Future Volume (veh/h)	0	0	0	0	1105	120	1055	1209	0	0	0	0
Number				1	6	16	7	4	14			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		0.94	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				0	1485	1485	1398	1398	0			
Adj Flow Rate, veh/h				0	1201	104	1147	1314	0			
Adj No. of Lanes				0	3	1	2	2	0			
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %				0	3	3	3	3	0			
Cap, veh/h				0	1335	390	1467	1540	0			
Arrive On Green				0.00	0.33	0.33	0.18	0.18	0.00			
Sat Flow, veh/h				0	4189	1185	2663	2796	0			
Grp Volume(v), veh/h				0	1201	104	1147	1314	0			
Grp Sat Flow(s),veh/h/ln				0	1352	1185	1331	1398	0			
Q Serve(g_s), s				0.0	21.2	4.8	30.8	34.1	0.0			
Cycle Q Clear(g_c), s				0.0	21.2	4.8	30.8	34.1	0.0			
Prop In Lane				0.00		1.00	1.00		0.00			
Lane Grp Cap(c), veh/h				0	1335	390	1467	1540	0			
V/C Ratio(X)				0.00	0.90	0.27	0.78	0.85	0.00			
Avail Cap(c_a), veh/h				0	1379	403	1467	1540	0			
HCM Platoon Ratio				1.00	1.00	1.00	0.33	0.33	1.00			
Upstream Filter(l)				0.00	1.00	1.00	0.09	0.09	0.00			
Uniform Delay (d), s/veh				0.0	24.0	18.5	26.4	27.7	0.0			
Incr Delay (d2), s/veh				0.0	8.2	0.4	0.4	0.6	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln				0.0	8.9	1.6	11.5	13.3	0.0			
LnGrp Delay(d),s/veh				0.0	32.1	18.9	26.8	28.4	0.0			
LnGrp LOS					C	B	C	C				
Approach Vol, veh/h					1305			2461				
Approach Delay, s/veh					31.1			27.6				
Approach LOS					C			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs				4		6						
Phs Duration (G+Y+Rc), s				45.8		29.2						
Change Period (Y+Rc), s				4.5		4.5						
Max Green Setting (Gmax), s				40.5		25.5						
Max Q Clear Time (g_c+I1), s				36.1		23.2						
Green Ext Time (p_c), s				3.8		1.5						
Intersection Summary												
HCM 2010 Ctrl Delay				28.8								
HCM 2010 LOS				C								
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 2010 Signalized Intersection Summary
16: Lindaro & 2nd

Cumulative (2040) Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  										
Traffic Volume (veh/h)	42	2288	61	0	0	0	0	54	281	72	442	0
Future Volume (veh/h)	42	2288	61	0	0	0	0	54	281	72	442	0
Number	5	2	12				7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94				1.00		0.94	0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1440	1398	1440				0	1398	1398	1342	1342	0
Adj Flow Rate, veh/h	46	2487	61				0	59	293	78	480	0
Adj No. of Lanes	0	4	0				0	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	3	0				0	3	3	3	3	0
Cap, veh/h	45	2630	66				0	500	399	347	480	0
Arrive On Green	0.53	0.53	0.53				0.00	0.36	0.36	0.71	0.71	0.00
Sat Flow, veh/h	86	4956	125				0	1398	1118	762	1342	0
Grp Volume(v), veh/h	749	1175	670				0	59	293	78	480	0
Grp Sat Flow(s),veh/h/ln	1394	1202	1367				0	1398	1118	762	1342	0
Q Serve(g_s), s	39.8	33.7	33.8				0.0	2.1	17.1	3.3	26.8	0.0
Cycle Q Clear(g_c), s	39.8	33.7	33.8				0.0	2.1	17.1	5.4	26.8	0.0
Prop In Lane	0.06		0.09				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	740	1276	726				0	500	399	347	480	0
V/C Ratio(X)	1.01	0.92	0.92				0.00	0.12	0.73	0.23	1.00	0.00
Avail Cap(c_a), veh/h	740	1276	726				0	500	399	347	480	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.6	16.2	16.2				0.0	16.2	21.0	8.1	10.7	0.0
Incr Delay (d2), s/veh	36.2	12.2	19.2				0.0	0.1	6.8	0.3	41.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.4	13.1	16.5				0.0	0.8	6.0	0.7	14.7	0.0
LnGrp Delay(d),s/veh	53.8	28.4	35.4				0.0	16.3	27.8	8.4	52.0	0.0
LnGrp LOS	F	C	D					B	C	A	F	
Approach Vol, veh/h		2594						352			558	
Approach Delay, s/veh		37.5						25.9			45.9	
Approach LOS		D						C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		44.0		31.0				31.0				
Change Period (Y+Rc), s		* 4.2		* 4.2				* 4.2				
Max Green Setting (Gmax), s		* 40		* 27				* 27				
Max Q Clear Time (g_c+I1), s		41.8		19.1				28.8				
Green Ext Time (p_c), s		0.0		2.9				0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			37.7									
HCM 2010 LOS			D									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection														
Int Delay, s/veh	1.4													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NWL	NWR
Lane Configurations					↕			↕			↕			
Traffic Vol, veh/h	0	0	0	5	5	5	60	230	0	49	395	30	0	0
Future Vol, veh/h	0	0	0	5	5	5	60	230	0	49	395	30	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	12	0	5	5	0	12	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	-	-	-	None	-	-	-	-	-	None	-	-
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	5	5	5	65	250	0	53	429	33	0	0


















Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	943	971	260
Stage 1	391	391	-
Stage 2	552	580	-
Critical Hdwy	6.43	6.53	6.23
Critical Hdwy Stg 1	5.43	5.53	-
Critical Hdwy Stg 2	5.43	5.53	-
Follow-up Hdwy	3.527	4.027	3.327
Pot Cap-1 Maneuver	290	252	776
Stage 1	681	605	-
Stage 2	575	499	-
Platoon blocked, %			
Mov Cap-1 Maneuver	254	0	773
Mov Cap-2 Maneuver	254	0	-
Stage 1	631	0	-
Stage 2	543	0	-

Approach	WB	NB	SB
HCM Control Delay, s	14.8	1.7	0.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR2WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1083	-	-	382	1292	-
HCM Lane V/C Ratio	0.06	-	-	0.043	0.041	-
HCM Control Delay (s)	8.5	0	-	14.8	7.9	0
HCM Lane LOS	A	A	-	B	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	0.1	-



















HCM 2010 Signalized Intersection Summary
18: Lincoln & 2nd

Cumulative (2040) Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	139	2461	41	0	0	0	0	111	50	136	264	0
Future Volume (veh/h)	139	2461	41	0	0	0	0	111	50	136	264	0
Number	5	2	12				7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95				1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1440	1398	1398				0	1398	1398	1382	1342	0
Adj Flow Rate, veh/h	151	2675	28				0	121	41	148	287	0
Adj No. of Lanes	0	4	1				0	1	1	0	2	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	145	2756	656				0	429	353	244	460	0
Arrive On Green	0.19	0.19	0.19				0.00	0.31	0.31	0.10	0.10	0.00
Sat Flow, veh/h	249	4744	1130				0	1398	1149	536	1558	0
Grp Volume(v), veh/h	840	1986	28				0	121	41	224	211	0
Grp Sat Flow(s),veh/h/ln	1386	1202	1130				0	1398	1149	873	1160	0
Q Serve(g_s), s	43.6	40.8	1.5				0.0	4.9	1.9	14.7	13.0	0.0
Cycle Q Clear(g_c), s	43.6	40.8	1.5				0.0	4.9	1.9	19.6	13.0	0.0
Prop In Lane	0.18		1.00				0.00		1.00	0.66		0.00
Lane Grp Cap(c), veh/h	805	2096	656				0	429	353	348	356	0
V/C Ratio(X)	1.04	0.95	0.04				0.00	0.28	0.12	0.65	0.59	0.00
Avail Cap(c_a), veh/h	805	2096	656				0	500	411	400	415	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	0.33	0.33	1.00
Upstream Filter(I)	0.09	0.09	0.09				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.3	29.2	13.3				0.0	19.7	18.7	33.6	29.2	0.0
Incr Delay (d2), s/veh	23.5	1.3	0.0				0.0	0.4	0.1	2.9	1.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.0	13.9	0.5				0.0	1.9	0.6	4.9	4.3	0.0
LnGrp Delay(d),s/veh	53.8	30.5	13.3				0.0	20.1	18.8	36.5	30.9	0.0
LnGrp LOS	F	C	B					C	B	D	C	
Approach Vol, veh/h		2854						162			435	
Approach Delay, s/veh		37.2						19.8			33.8	
Approach LOS		D						B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		47.8		27.2				27.2				
Change Period (Y+Rc), s		* 4.2		* 4.2				* 4.2				
Max Green Setting (Gmax), s		* 40		* 27				* 27				
Max Q Clear Time (g_c+I1), s		45.6		6.9				21.6				
Green Ext Time (p_c), s		0.0		2.5				1.3				
Intersection Summary												
HCM 2010 Ctrl Delay			35.9									
HCM 2010 LOS			D									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

















HCM 2010 Signalized Intersection Summary
 19: Francisco W./Tamalpais & 2nd

Cumulative (2040) Conditions
 Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	2511	70	0	0	0	0	49	270	91	198	0
Future Volume (veh/h)	50	2511	70	0	0	0	0	49	270	91	198	0
Number	5	2	12				7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.91				1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1440	1398	1398				0	1398	1454	1398	1398	0
Adj Flow Rate, veh/h	54	2729	48				0	53	254	99	215	0
Adj No. of Lanes	0	4	1				0	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	52	2798	616				0	359	309	288	359	0
Arrive On Green	0.19	0.19	0.19				0.00	0.26	0.26	0.26	0.26	0.00
Sat Flow, veh/h	91	4910	1081				0	1398	1204	846	1398	0
Grp Volume(v), veh/h	830	1953	48				0	53	254	99	215	0
Grp Sat Flow(s),veh/h/ln	1394	1202	1081				0	1398	1204	846	1398	0
Q Serve(g_s), s	42.7	40.1	2.7				0.0	2.2	14.9	7.7	10.1	0.0
Cycle Q Clear(g_c), s	42.7	40.1	2.7				0.0	2.2	14.9	9.9	10.1	0.0
Prop In Lane	0.07		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	794	2056	616				0	359	309	288	359	0
V/C Ratio(X)	1.04	0.95	0.08				0.00	0.15	0.82	0.34	0.60	0.00
Avail Cap(c_a), veh/h	794	2056	616				0	513	441	381	513	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.09	0.09	0.09				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.4	29.4	14.2				0.0	21.5	26.3	25.3	24.5	0.0
Incr Delay (d2), s/veh	24.1	1.4	0.0				0.0	0.2	8.1	0.7	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	21.8	13.7	0.8				0.0	0.9	5.6	1.8	4.0	0.0
LnGrp Delay(d),s/veh	54.6	30.8	14.2				0.0	21.7	34.4	26.1	26.1	0.0
LnGrp LOS	F	C	B					C	C	C	C	
Approach Vol, veh/h		2831						307			314	
Approach Delay, s/veh		37.5						32.2			26.1	
Approach LOS		D						C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		49.2		25.8				25.8				
Change Period (Y+Rc), s		6.5		6.5				6.5				
Max Green Setting (Gmax), s		34.5		27.5				27.5				
Max Q Clear Time (g_c+I1), s		44.7		16.9				12.1				
Green Ext Time (p_c), s		0.0		2.4				2.8				
Intersection Summary												
HCM 2010 Ctrl Delay			36.0									
HCM 2010 LOS			D									

















HCM 2010 Signalized Intersection Summary
 20: 101 SBO n 2nd/Hetherton & 2nd/2nd St

Cumulative (2040) Conditions
 Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1262	1450	0	0	0	0	0	0	220	1060	0
Future Volume (veh/h)	0	1262	1450	0	0	0	0	0	0	220	1060	0
Number	5	2	12							7	4	14
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1485	1485							1485	1485	0
Adj Flow Rate, veh/h	0	1372	1563							239	1152	0
Adj No. of Lanes	0	3	2							1	2	0
Peak Hour Factor	0.92	0.92	0.92							0.92	0.92	0.92
Percent Heavy Veh, %	0	3	3							3	3	0
Cap, veh/h	0	2406	1364							406	852	0
Arrive On Green	0.00	0.18	0.18							0.09	0.09	0.00
Sat Flow, veh/h	0	4456	2525							1415	2971	0
Grp Volume(v), veh/h	0	1372	1563							239	1152	0
Grp Sat Flow(s),veh/h/ln	0	1485	1263							1415	1485	0
Q Serve(g_s), s	0.0	21.1	40.5							12.1	21.5	0.0
Cycle Q Clear(g_c), s	0.0	21.1	40.5							12.1	21.5	0.0
Prop In Lane	0.00		1.00							1.00		0.00
Lane Grp Cap(c), veh/h	0	2406	1364							406	852	0
V/C Ratio(X)	0.00	0.57	1.15							0.59	1.35	0.00
Avail Cap(c_a), veh/h	0	2406	1364							406	852	0
HCM Platoon Ratio	1.00	0.33	0.33							0.33	0.33	1.00
Upstream Filter(l)	0.00	0.09	0.09							0.85	0.85	0.00
Uniform Delay (d), s/veh	0.0	22.9	30.8							29.7	34.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	66.7							1.9	165.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.7	26.8							5.0	28.4	0.0
LnGrp Delay(d),s/veh	0.0	22.9	97.5							31.6	199.3	0.0
LnGrp LOS		C	F							C	F	
Approach Vol, veh/h		2935									1391	
Approach Delay, s/veh		62.7									170.5	
Approach LOS		E									F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4								
Phs Duration (G+Y+Rc), s		49.0		26.0								
Change Period (Y+Rc), s		8.5		4.5								
Max Green Setting (Gmax), s		40.5		21.5								
Max Q Clear Time (g_c+I1), s		42.5		23.5								
Green Ext Time (p_c), s		0.0		0.0								
Intersection Summary												
HCM 2010 Ctrl Delay			97.3									
HCM 2010 LOS			F									
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 2010 Signalized Intersection Summary
 21: Irwin & 2nd St

Cumulative (2040) Conditions
 Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	774	878	0	0	0	0	0	1500	500	0	0	0
Future Volume (veh/h)	774	878	0	0	0	0	0	1500	500	0	0	0
Number	5	2	12				7	4	14			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1454	1485	0				0	1398	1398			
Adj Flow Rate, veh/h	841	954	0				0	1630	488			
Adj No. of Lanes	2	2	0				0	3	1			
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92			
Percent Heavy Veh, %	3	3	0				0	3	3			
Cap, veh/h	1551	1458	0				0	1466	451			
Arrive On Green	0.16	0.16	0.00				0.00	0.38	0.38			
Sat Flow, veh/h	2769	2971	0				0	3943	1174			
Grp Volume(v), veh/h	841	954	0				0	1630	488			
Grp Sat Flow(s),veh/h/ln	1385	1485	0				0	1272	1174			
Q Serve(g_s), s	21.2	22.6	0.0				0.0	28.8	28.8			
Cycle Q Clear(g_c), s	21.2	22.6	0.0				0.0	28.8	28.8			
Prop In Lane	1.00		0.00				0.00		1.00			
Lane Grp Cap(c), veh/h	1551	1458	0				0	1466	451			
V/C Ratio(X)	0.54	0.65	0.00				0.00	1.11	1.08			
Avail Cap(c_a), veh/h	1551	1458	0				0	1466	451			
HCM Platoon Ratio	0.33	0.33	1.00				1.00	1.00	1.00			
Upstream Filter(l)	0.35	0.35	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	24.9	25.5	0.0				0.0	23.1	23.1			
Incr Delay (d2), s/veh	0.5	0.8	0.0				0.0	60.6	66.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	8.2	9.4	0.0				0.0	18.3	17.6			
LnGrp Delay(d),s/veh	25.4	26.3	0.0				0.0	83.7	89.4			
LnGrp LOS	C	C						F	F			
Approach Vol, veh/h		1795						2118				
Approach Delay, s/veh		25.9						85.0				
Approach LOS		C						F				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4								
Phs Duration (G+Y+Rc), s		41.0		34.0								
Change Period (Y+Rc), s		* 4.2		* 5.2								
Max Green Setting (Gmax), s		* 37		* 29								
Max Q Clear Time (g_c+I1), s		24.6		30.8								
Green Ext Time (p_c), s		10.3		0.0								
Intersection Summary												
HCM 2010 Ctrl Delay			57.9									
HCM 2010 LOS			E									
Notes												
User approved volume balancing among the lanes for turning movement.												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	6.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	625	10	30	869	20	10	10	25	25	10	20
Future Vol, veh/h	10	625	10	30	869	20	10	10	25	25	10	20
Conflicting Peds, #/hr	8	0	3	3	0	8	4	0	6	6	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	11	679	11	33	945	22	11	11	27	27	11	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	974	0	0	693	0	0	1751	1750	694	1761	1744	967
Stage 1	-	-	-	-	-	-	710	710	-	1029	1029	-
Stage 2	-	-	-	-	-	-	1041	1040	-	732	715	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	704	-	-	898	-	-	67	85	441	65	86	307
Stage 1	-	-	-	-	-	-	423	435	-	281	310	-
Stage 2	-	-	-	-	-	-	277	306	-	411	433	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	701	-	-	892	-	-	51	75	437	49	76	304
Mov Cap-2 Maneuver	-	-	-	-	-	-	51	75	-	49	76	-
Stage 1	-	-	-	-	-	-	411	422	-	272	283	-
Stage 2	-	-	-	-	-	-	227	280	-	363	420	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.3			57			135.3		
HCM LOS							F			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	116	701	-	-	892	-	-	78
HCM Lane V/C Ratio	0.422	0.016	-	-	0.037	-	-	0.766
HCM Control Delay (s)	57	10.2	0	-	9.2	0	-	135.3
HCM Lane LOS	F	B	A	-	A	A	-	F
HCM 95th %tile Q(veh)	1.8	0	-	-	0.1	-	-	3.7

HCM 2010 Signalized Intersection Summary
23: Lincoln & Mission

Cumulative (2040) Conditions
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	500	20	80	585	50	19	228	89	60	420	380
Future Volume (veh/h)	120	500	20	80	585	50	19	228	89	60	420	380
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	0.99		0.97	0.99		0.94	0.98		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1660	1660	1710	1660	1660	1710	1800	1678	1728	1800	1748	1728
Adj Flow Rate, veh/h	130	543	20	87	636	50	21	248	79	65	457	206
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	2	0
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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	148	868	32	341	626	49	67	441	134	136	833	363
Arrive On Green	0.09	0.55	0.55	0.55	0.55	0.55	0.85	0.85	0.85	0.43	0.43	0.43
Sat Flow, veh/h	1581	1588	59	787	1515	119	37	1033	314	188	1952	850
Grp Volume(v), veh/h	130	0	563	87	0	686	348	0	0	395	0	333
Grp Sat Flow(s),veh/h/ln	1581	0	1647	787	0	1634	1384	0	0	1614	0	1376
Q Serve(g_s), s	6.1	0.0	17.7	5.7	0.0	31.0	0.0	0.0	0.0	4.5	0.0	13.7
Cycle Q Clear(g_c), s	6.1	0.0	17.7	13.4	0.0	31.0	5.2	0.0	0.0	13.1	0.0	13.7
Prop In Lane	1.00		0.04	1.00		0.07	0.06		0.23	0.16		0.62
Lane Grp Cap(c), veh/h	148	0	900	341	0	676	641	0	0	745	0	587
V/C Ratio(X)	0.88	0.00	0.63	0.26	0.00	1.02	0.54	0.00	0.00	0.53	0.00	0.57
Avail Cap(c_a), veh/h	148	0	900	341	0	676	641	0	0	745	0	587
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.64	0.00	0.64	0.85	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.6	0.0	11.7	15.5	0.0	16.9	3.5	0.0	0.0	16.0	0.0	16.3
Incr Delay (d2), s/veh	47.7	0.0	3.3	1.1	0.0	31.5	2.8	0.0	0.0	2.7	0.0	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	0.0	8.8	1.3	0.0	19.5	2.3	0.0	0.0	6.6	0.0	5.8
LnGrp Delay(d),s/veh	81.3	0.0	15.0	16.7	0.0	48.4	6.3	0.0	0.0	18.7	0.0	20.2
LnGrp LOS	F		B	B		F	A			B		C
Approach Vol, veh/h		693			773			348			728	
Approach Delay, s/veh		27.4			44.8			6.3			19.4	
Approach LOS		C			D			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		45.2		36.8	10.0	35.2		36.8				
Change Period (Y+Rc), s		* 4.2		4.6	3.0	* 4.2		4.6				
Max Green Setting (Gmax), s		* 41		25.4	7.0	* 31		25.4				
Max Q Clear Time (g_c+I1), s		19.7		7.2	8.1	33.0		15.7				
Green Ext Time (p_c), s		13.4		9.5	0.0	0.0		6.1				
Intersection Summary												
HCM 2010 Ctrl Delay				27.5								
HCM 2010 LOS				C								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM Signalized Intersection Capacity Analysis
 24: Tamalpais & Mission

Cumulative (2040) Conditions
 Timing Plan: AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖		
Traffic Volume (vph)	584	75	0	740	0	0
Future Volume (vph)	584	75	0	740	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.6			3.0		
Lane Util. Factor	1.00			1.00		
Frbp, ped/bikes	0.99			1.00		
Flpb, ped/bikes	1.00			1.00		
Frt	0.98			1.00		
Flt Protected	1.00			1.00		
Satd. Flow (prot)	1540			1573		
Flt Permitted	1.00			1.00		
Satd. Flow (perm)	1540			1573		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	635	82	0	804	0	0
RTOR Reduction (vph)	6	0	0	0	0	0
Lane Group Flow (vph)	711	0	0	804	0	0
Confl. Peds. (#/hr)		10	10		10	
Turn Type	NA			NA		
Protected Phases	2			3 4 6		
Permitted Phases						
Actuated Green, G (s)	34.4			51.8		
Effective Green, g (s)	34.4			46.2		
Actuated g/C Ratio	0.46			0.62		
Clearance Time (s)	5.6					
Vehicle Extension (s)	3.0					
Lane Grp Cap (vph)	706			968		
v/s Ratio Prot	c0.46			c0.51		
v/s Ratio Perm						
v/c Ratio	1.01			0.83		
Uniform Delay, d1	20.3			11.3		
Progression Factor	0.97			0.51		
Incremental Delay, d2	30.3			0.6		
Delay (s)	50.1			6.3		
Level of Service	D			A		
Approach Delay (s)	50.1			6.3	0.0	
Approach LOS	D			A	A	
Intersection Summary						
HCM 2000 Control Delay			26.9		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)	19.0
Intersection Capacity Utilization			102.6%		ICU Level of Service	G
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis
 25: Tamalpais & Mission

Cumulative (2040) Conditions
 Timing Plan: AM Peak Hour



















	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	↗
Traffic Volume (vph)	584	0	0	730	10	20
Future Volume (vph)	584	0	0	730	10	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.6			5.6	3.0	
Lane Util. Factor	1.00			1.00	1.00	
Frbp, ped/bikes	1.00			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	1.00			1.00	0.91	
Flt Protected	1.00			1.00	0.98	
Satd. Flow (prot)	1573			1573	1408	
Flt Permitted	1.00			1.00	0.98	
Satd. Flow (perm)	1573			1573	1408	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	635	0	0	793	11	22
RTOR Reduction (vph)	0	0	0	0	19	0
Lane Group Flow (vph)	635	0	0	793	14	0
Confl. Peds. (#/hr)		10				
Turn Type	NA			NA	Prot	
Protected Phases	2 8			6	3 4	
Permitted Phases						
Actuated Green, G (s)	52.4			34.4	11.8	
Effective Green, g (s)	47.2			34.4	11.8	
Actuated g/C Ratio	0.63			0.46	0.16	
Clearance Time (s)				5.6		
Vehicle Extension (s)				3.0		
Lane Grp Cap (vph)	989			721	221	
v/s Ratio Prot	c0.40			c0.50	c0.01	
v/s Ratio Perm						
v/c Ratio	0.64			1.10	0.07	
Uniform Delay, d1	8.6			20.3	26.9	
Progression Factor	0.45			1.16	1.05	
Incremental Delay, d2	0.1			57.1	0.0	
Delay (s)	4.0			80.6	28.3	
Level of Service	A			F	C	
Approach Delay (s)	4.0			80.6	28.3	
Approach LOS	A			F	C	
Intersection Summary						
HCM 2000 Control Delay			46.1		HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.84			
Actuated Cycle Length (s)			75.0		Sum of lost time (s)	19.0
Intersection Capacity Utilization			102.6%		ICU Level of Service	G
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

Cumulative (2040) Conditions

26: Hetherton & Mission


















Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 									 	
Traffic Volume (vph)	0	514	90	40	230	0	0	0	0	245	1095	500
Future Volume (vph)	0	514	90	40	230	0	0	0	0	245	1095	500
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	10	12	12	16	12	12	12	12	12	12	12
Total Lost time (s)		4.2			4.2						4.6	4.6
Lane Util. Factor		0.95			1.00						0.95	1.00
Frb, ped/bikes		0.99			1.00						1.00	0.97
Flpb, ped/bikes		1.00			1.00						1.00	1.00
Frt		0.98			1.00						1.00	0.85
Flt Protected		1.00			0.99						0.99	1.00
Satd. Flow (prot)		2711			1767						2961	1303
Flt Permitted		1.00			0.80						0.99	1.00
Satd. Flow (perm)		2711			1423						2961	1303
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)	0	559	98	43	250	0	0	0	0	266	1190	543
RTOR Reduction (vph)	0	19	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	638	0	0	293	0	0	0	0	0	1456	543
Confl. Peds. (#/hr)	15		22	22		15			16			1
Confl. Bikes (#/hr)			3			2			1			3
Turn Type		NA		Perm	NA					Split	NA	custom
Protected Phases		4			8					2	2	
Permitted Phases				8								5
Actuated Green, G (s)		23.8			23.8						42.4	35.4
Effective Green, g (s)		23.8			23.8						42.4	35.4
Actuated g/C Ratio		0.32			0.32						0.57	0.47
Clearance Time (s)		4.2			4.2						4.6	4.6
Vehicle Extension (s)		3.0			3.0						3.0	3.0
Lane Grp Cap (vph)		860			451						1673	615
v/s Ratio Prot		c0.24									c0.49	
v/s Ratio Perm					0.21							0.42
v/c Ratio		0.74			0.65						0.87	0.88
Uniform Delay, d1		22.9			22.0						13.9	17.9
Progression Factor		0.74			1.33						1.00	1.00
Incremental Delay, d2		4.8			5.5						6.5	16.7
Delay (s)		21.8			34.9						20.4	34.7
Level of Service		C			C						C	C
Approach Delay (s)		21.8			34.9			0.0			24.3	
Approach LOS		C			C			A			C	
Intersection Summary												
HCM 2000 Control Delay			24.8			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			75.0			Sum of lost time (s)			10.8			
Intersection Capacity Utilization			96.7%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

27: Irwin & Mission



















Cumulative (2040) Conditions
Timing Plan: AM Peak Hour

											
Movement	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2	
Lane Configurations											
Traffic Volume (vph)	400	30	329	170	340	10	110	1136	138	40	
Future Volume (vph)	400	30	329	170	340	10	110	1136	138	40	
Ideal Flow (vphpl)	2200	1800	2200	2200	2200	1800	2200	2200	1800	2200	
Lane Width	9	12	10	10	9	12	12	12	12	12	
Total Lost time (s)		4.2	4.2	4.2	4.2			4.2	4.2		
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95	1.00		
Frpb, ped/bikes		1.00	1.00	1.00	1.00			1.00	0.97		
Flpb, ped/bikes		1.00	1.00	1.00	1.00			1.00	1.00		
Fr t		1.00	1.00	1.00	0.85			1.00	0.85		
Fl t Protected		0.95	1.00	1.00	1.00			1.00	1.00		
Satd. Flow (prot)		1494	1794	1615	1471			3430	1294		
Fl t Permitted		0.58	1.00	1.00	1.00			1.00	1.00		
Satd. Flow (perm)		919	1794	1615	1471			3430	1294		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	435	33	358	185	370	11	120	1235	150	43	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	46	0	
Lane Group Flow (vph)	0	468	358	185	381	0	0	1355	147	0	
Confl. Peds. (#/hr)							13			6	
Confl. Bikes (#/hr)					2	2				2	
Parking (#/hr)				0				2			
Turn Type	pm+pt	pm+pt	NA	NA	Prot		Perm	NA	Perm		
Protected Phases	5	5	2	6	6			4			
Permitted Phases	2	2					4		4		
Actuated Green, G (s)		34.8	34.8	19.8	19.8			31.8	31.8		
Effective Green, g (s)		34.8	34.8	19.8	19.8			31.8	31.8		
Actuated g/C Ratio		0.46	0.46	0.26	0.26			0.42	0.42		
Clearance Time (s)		4.2	4.2	4.2	4.2			4.2	4.2		
Vehicle Extension (s)		3.0	3.0	3.0	3.0			3.0	3.0		
Lane Grp Cap (vph)		509	832	426	388			1454	548		
v/s Ratio Prot		c0.13	0.20	0.11	0.26						
v/s Ratio Perm		c0.29						0.40	0.11		
v/c Ratio		0.92	0.43	0.43	0.98			0.93	0.27		
Uniform Delay, d1		19.1	13.5	22.9	27.4			20.6	14.0		
Progression Factor		0.91	0.80	1.00	1.00			0.75	0.71		
Incremental Delay, d2		14.6	0.2	0.7	40.7			5.6	0.5		
Delay (s)		32.0	11.0	23.7	68.1			21.1	10.5		
Level of Service		C	B	C	E			C	B		
Approach Delay (s)			22.9	53.6				19.8			
Approach LOS			C	D				B			
Intersection Summary											
HCM 2000 Control Delay			27.1							HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.97								
Actuated Cycle Length (s)			75.0							Sum of lost time (s)	12.6
Intersection Capacity Utilization			93.7%							ICU Level of Service	F
Analysis Period (min)			15								

c Critical Lane Group
















HCM 2010 Signalized Intersection Summary
28: Lincoln & 5th

Cumulative (2040) Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	320	40	70	290	70	20	236	69	50	420	50
Future Volume (veh/h)	40	320	40	70	290	70	20	236	69	50	420	50
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	0.99		0.95	0.98		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.89	1.00	1.00	0.89
Adj Sat Flow, veh/h/ln	1398	1545	1530	1398	1485	1530	1440	1485	1469	1440	1485	1469
Adj Flow Rate, veh/h	43	348	36	76	315	63	22	257	61	54	457	49
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	126	409	42	143	356	71	73	562	128	97	612	63
Arrive On Green	0.30	0.30	0.30	0.10	0.10	0.10	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	792	1370	142	785	1193	239	38	972	221	76	1057	109
Grp Volume(v), veh/h	43	0	384	76	0	378	340	0	0	560	0	0
Grp Sat Flow(s),veh/h/ln	792	0	1512	785	0	1432	1230	0	0	1242	0	0
Q Serve(g_s), s	2.9	0.0	17.9	4.5	0.0	19.5	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	22.4	0.0	17.9	22.4	0.0	19.5	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.09	1.00		0.17	0.06		0.18	0.10		0.09
Lane Grp Cap(c), veh/h	126	0	452	143	0	428	763	0	0	771	0	0
V/C Ratio(X)	0.34	0.00	0.85	0.53	0.00	0.88	0.45	0.00	0.00	0.73	0.00	0.00
Avail Cap(c_a), veh/h	126	0	452	143	0	428	763	0	0	771	0	0
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	0.94	0.00	0.94	0.87	0.00	0.00	0.39	0.00	0.00
Uniform Delay (d), s/veh	36.5	0.0	24.7	43.6	0.0	32.5	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	7.2	0.0	17.9	12.7	0.0	21.4	1.6	0.0	0.0	2.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	9.7	2.1	0.0	10.3	0.3	0.0	0.0	0.5	0.0	0.0
LnGrp Delay(d),s/veh	43.7	0.0	42.6	56.3	0.0	54.0	1.6	0.0	0.0	2.3	0.0	0.0
LnGrp LOS	D		D	E		D	A			A		
Approach Vol, veh/h		427			454			340			560	
Approach Delay, s/veh		42.7			54.3			1.6			2.3	
Approach LOS		D			D			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		27.0		48.0		27.0		48.0				
Change Period (Y+Rc), s		4.6		4.6		4.6		4.6				
Max Green Setting (Gmax), s		22.4		43.4		22.4		43.4				
Max Q Clear Time (g_c+I1), s		24.4		2.0		24.4		2.0				
Green Ext Time (p_c), s		0.0		4.9		0.0		4.9				
Intersection Summary												
HCM 2010 Ctrl Delay			25.1									
HCM 2010 LOS			C									













HCM Signalized Intersection Capacity Analysis
 29: Tamalpais & 5th

Cumulative (2040) Conditions
 Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	389	50	0	380	0	0	0	0	20	20	30
Future Volume (vph)	0	389	50	0	380	0	0	0	0	20	20	30
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.6			5.6						5.6	
Lane Util. Factor		1.00			1.00						1.00	
Frbp, ped/bikes		0.99			1.00						0.98	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.98			1.00						0.94	
Flt Protected		1.00			1.00						0.99	
Satd. Flow (prot)		1541			1573						1432	
Flt Permitted		1.00			1.00						0.99	
Satd. Flow (perm)		1541			1573						1432	
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)	0	423	54	0	413	0	0	0	0	22	22	33
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	29	0
Lane Group Flow (vph)	0	472	0	0	413	0	0	0	0	0	48	0
Confl. Peds. (#/hr)	10		10	10		10	10					10
Turn Type		NA			NA					Perm	NA	
Protected Phases		2			4						8	
Permitted Phases										8		
Actuated Green, G (s)		39.3			55.7						8.1	
Effective Green, g (s)		39.3			55.7						8.1	
Actuated g/C Ratio		0.52			0.74						0.11	
Clearance Time (s)		5.6									5.6	
Vehicle Extension (s)		3.0									1.5	
Lane Grp Cap (vph)		807			1168						154	
v/s Ratio Prot		c0.31			c0.26							
v/s Ratio Perm											0.03	
v/c Ratio		0.59			0.35						0.31	
Uniform Delay, d1		12.3			3.4						30.9	
Progression Factor		0.57			0.09						0.85	
Incremental Delay, d2		1.8			0.1						0.0	
Delay (s)		8.7			0.4						26.3	
Level of Service		A			A						C	
Approach Delay (s)		8.7			0.4			0.0			26.3	
Approach LOS		A			A			A			C	
Intersection Summary												
HCM 2000 Control Delay			6.5		HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			75.0		Sum of lost time (s)			16.8				
Intersection Capacity Utilization			80.3%		ICU Level of Service			D				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
30: Tamalpais & 5th

Cumulative (2040) Conditions
Timing Plan: AM Peak Hour



















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↔			↕				
Traffic Volume (vph)	0	409	0	0	350	20	30	10	30	0	0	0
Future Volume (vph)	0	409	0	0	350	20	30	10	30	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.6			5.6			5.6				
Lane Util. Factor		1.00			1.00			1.00				
Frbp, ped/bikes		1.00			1.00			0.98				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.99			0.94				
Flt Protected		1.00			1.00			0.98				
Satd. Flow (prot)		1573			1557			1422				
Flt Permitted		1.00			1.00			0.98				
Satd. Flow (perm)		1573			1557			1422				
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)	0	445	0	0	380	22	33	11	33	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	28	0	0	0	0
Lane Group Flow (vph)	0	445	0	0	400	0	0	49	0	0	0	0
Confl. Peds. (#/hr)	10					10			10			
Turn Type		NA			NA		Split	NA				
Protected Phases		2 8			6		4	4				
Permitted Phases												
Actuated Green, G (s)		53.0			39.3			10.8				
Effective Green, g (s)		53.0			39.3			10.8				
Actuated g/C Ratio		0.71			0.52			0.14				
Clearance Time (s)					5.6			5.6				
Vehicle Extension (s)					3.0			1.5				
Lane Grp Cap (vph)		1111			815			204				
v/s Ratio Prot		c0.28			c0.26			c0.03				
v/s Ratio Perm												
v/c Ratio		0.40			0.49			0.24				
Uniform Delay, d1		4.5			11.4			28.5				
Progression Factor		0.02			0.65			1.26				
Incremental Delay, d2		0.1			2.0			0.1				
Delay (s)		0.1			9.4			36.1				
Level of Service		A			A			D				
Approach Delay (s)		0.1			9.4			36.1			0.0	
Approach LOS		A			A			D			A	
Intersection Summary												
HCM 2000 Control Delay			7.2				HCM 2000 Level of Service		A			
HCM 2000 Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			75.0				Sum of lost time (s)		16.8			
Intersection Capacity Utilization			80.3%				ICU Level of Service		D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

Cumulative (2040) Conditions

31: Hetherton & 5th


















Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											  	
Traffic Volume (vph)	0	259	180	40	245	0	0	0	0	50	1050	125
Future Volume (vph)	0	259	180	40	245	0	0	0	0	50	1050	125
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	16	12	12	16	12	12	12	12	12	12	12
Total Lost time (s)		4.2			4.2						4.6	4.6
Lane Util. Factor		1.00			1.00						0.91	1.00
Frb, ped/bikes		0.99			1.00						1.00	0.95
Flpb, ped/bikes		1.00			1.00						1.00	1.00
Frt		0.94			1.00						1.00	0.85
Flt Protected		1.00			0.99						1.00	1.00
Satd. Flow (prot)		1664			1769						4119	1127
Flt Permitted		1.00			0.90						1.00	1.00
Satd. Flow (perm)		1664			1605						4119	1127
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)	0	282	196	43	266	0	0	0	0	54	1141	136
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	467	0	0	309	0	0	0	0	0	1195	136
Confl. Peds. (#/hr)			15	15		14			22	22		10
Confl. Bikes (#/hr)			4			2			2			2
Parking (#/hr)											2	2
Turn Type		NA		Perm	NA					Perm	NA	custom
Protected Phases		4			8						2	
Permitted Phases				8						2		5
Actuated Green, G (s)		35.8			35.8						30.4	23.4
Effective Green, g (s)		35.8			35.8						30.4	23.4
Actuated g/C Ratio		0.48			0.48						0.41	0.31
Clearance Time (s)		4.2			4.2						4.6	4.6
Vehicle Extension (s)		3.0			3.0						3.0	3.0
Lane Grp Cap (vph)		794			766						1669	351
v/s Ratio Prot		c0.28										
v/s Ratio Perm					0.19						0.29	0.12
v/c Ratio		0.59			0.40						0.72	0.39
Uniform Delay, d1		14.2			12.7						18.7	20.2
Progression Factor		0.45			1.31						0.61	0.69
Incremental Delay, d2		3.0			0.9						1.3	1.6
Delay (s)		9.5			17.5						12.7	15.5
Level of Service		A			B						B	B
Approach Delay (s)		9.5			17.5			0.0			13.0	
Approach LOS		A			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			12.9			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			75.0			Sum of lost time (s)		10.8				
Intersection Capacity Utilization			86.7%			ICU Level of Service			E			
Analysis Period (min)			15									

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
32: Irwin & 5th

Cumulative (2040) Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	109	0	0	160	130	150	1174	20	0	0	0
Future Volume (veh/h)	150	109	0	0	160	130	150	1174	20	0	0	0
Number	5	2	12	1	6	16	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.89	0.89	1.00	0.89			
Adj Sat Flow, veh/h/ln	1573	1573	0	0	1573	1620	1620	1573	1620			
Adj Flow Rate, veh/h	163	118	0	0	174	102	163	1276	21			
Adj No. of Lanes	1	1	0	0	1	0	0	2	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	3	3	0	0	3	3	0	3	0			
Cap, veh/h	219	491	0	0	256	150	167	1379	24			
Arrive On Green	0.10	0.10	0.00	0.00	0.31	0.31	0.19	0.19	0.19			
Sat Flow, veh/h	977	1573	0	0	819	480	296	2439	42			
Grp Volume(v), veh/h	163	118	0	0	0	276	763	0	697			
Grp Sat Flow(s),veh/h/ln	977	1573	0	0	0	1299	1385	0	1392			
Q Serve(g_s), s	9.5	5.2	0.0	0.0	0.0	13.9	41.1	0.0	36.6			
Cycle Q Clear(g_c), s	23.4	5.2	0.0	0.0	0.0	13.9	41.1	0.0	36.6			
Prop In Lane	1.00		0.00	0.00		0.37	0.21		0.03			
Lane Grp Cap(c), veh/h	219	491	0	0	0	405	783	0	787			
V/C Ratio(X)	0.74	0.24	0.00	0.00	0.00	0.68	0.97	0.00	0.89			
Avail Cap(c_a), veh/h	219	491	0	0	0	405	783	0	787			
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	0.33	0.33	0.33			
Upstream Filter(I)	0.78	0.78	0.00	0.00	0.00	1.00	0.09	0.00	0.09			
Uniform Delay (d), s/veh	41.7	25.5	0.0	0.0	0.0	22.5	30.0	0.0	28.1			
Incr Delay (d2), s/veh	10.1	0.2	0.0	0.0	0.0	4.6	5.4	0.0	1.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.0	2.3	0.0	0.0	0.0	5.5	16.9	0.0	14.4			
LnGrp Delay(d),s/veh	51.8	25.7	0.0	0.0	0.0	27.1	35.3	0.0	29.7			
LnGrp LOS	D	C				C	D		C			
Approach Vol, veh/h		281			276			1460				
Approach Delay, s/veh		40.8			27.1			32.6				
Approach LOS		D			C			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		28.0		47.0		28.0						
Change Period (Y+Rc), s		4.6		4.6		4.6						
Max Green Setting (Gmax), s		23.4		42.4		23.4						
Max Q Clear Time (g_c+I1), s		25.4		43.1		15.9						
Green Ext Time (p_c), s		0.0		0.0		1.7						
Intersection Summary												
HCM 2010 Ctrl Delay				33.0								
HCM 2010 LOS				C								

Arterial Level of Service: EB 2nd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Lindaro	IV	25	18.6	55.8	74.4	0.07	3.4	F
Lincoln	IV	25	21.4	43.3	64.7	0.10	5.4	F
Francisco W.	IV	25	12.2	70.4	82.6	0.05	2.0	F
101 SBO on 2nd	IV	25	14.2	11.5	25.7	0.05	7.5	E
Total	IV		66.4	181.0	247.4	0.27	3.9	F

Arterial Level of Service: WB 3rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Hetherton	IV	25	19.0	104.4	123.4	0.07	2.1	F
Tamalpais	IV	25	14.4	102.7	117.1	0.05	1.7	F
Lincoln	IV	25	13.2	76.8	90.0	0.05	2.0	F
Lindaro	IV	25	21.5	1.3	22.8	0.10	15.4	C
Total	IV		68.1	285.2	353.3	0.27	2.8	F

Arterial Level of Service: SB Hetherton

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Mission	IV	29	24.0	21.4	45.4	0.16	12.7	D
5th	IV	25	16.3	12.9	29.2	0.06	7.6	E
4th	IV	25	14.6	7.5	22.1	0.05	8.9	E
3rd	IV	25	17.7	7.6	25.3	0.07	9.5	D
2nd	IV	25	15.6	261.4	277.0	0.06	0.8	F
Total	IV		88.2	310.8	399.0	0.40	3.6	F

Arterial Level of Service: NB Irwin

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
2nd St	IV	30	25.2	85.4	110.6	0.17	5.5	F
3rd St	IV	25	14.8	27.6	42.4	0.06	4.7	F
4th	IV	25	18.3	29.5	47.8	0.07	5.2	F
5th	IV	25	14.6	7.9	22.5	0.06	8.8	E
Mission	IV	25	15.7	6.8	22.5	0.06	9.5	D
Total	IV		88.6	157.2	245.8	0.41	6.0	F

Arterial Level of Service: NB Lindaro

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
2nd	IV	25	15.5	17.2	32.7	0.06	6.4	F
3rd	IV	25	16.7	33.4	50.1	0.06	4.5	F
Total	IV		32.2	50.6	82.8	0.12	5.3	F

Arterial Level of Service: SB Lindaro

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
3rd	IV	25	9.9	22.5	32.4	0.04	4.2	F
2nd	IV	25	16.7	93.0	109.7	0.06	2.1	F
Total	IV		26.6	115.5	142.1	0.10	2.5	F

Arterial Level of Service: EB Mission












Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Lincoln	IV	25	27.5	15.7	43.2	0.12	10.4	D
Tamalpais	IV	25	16.0	52.5	68.5	0.06	3.2	F
Tamalpais	IV	25	3.1	2.9	6.0	0.01	7.0	E
Hetherton	IV	25	8.7	21.6	30.3	0.03	3.9	F
Irwin	IV	25	18.9	12.1	31.0	0.07	8.3	E
Total	IV		74.2	104.8	179.0	0.30	6.1	F

Arterial Level of Service: WB Mission

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Irwin	IV	25	21.6	26.8	48.4	0.10	7.3	E
Hetherton	IV	25	18.9	36.0	54.9	0.07	4.7	F
Tamalpais	IV	25	8.7	82.6	91.3	0.03	1.3	F
Tamalpais	IV	25	3.1	3.7	6.8	0.01	6.2	F
Lincoln	IV	25	16.0	88.7	104.7	0.06	2.1	F
Total	IV		68.3	237.8	306.1	0.27	3.2	F

HCM 2010 Signalized Intersection Summary
1: Cijos & 4th

Cumulative (2040)
Timing Plan: PM Peak Hour

								
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations								
Traffic Volume (veh/h)	244	11	115	265	32	90		
Future Volume (veh/h)	244	11	115	265	32	90		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		0.86	0.93		1.00	0.88		
Parking Bus, Adj	1.00	0.89	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1588	1620	1588	1588	1588	1620		
Adj Flow Rate, veh/h	254	9	120	276	33	17		
Adj No. of Lanes	1	0	1	1	0	0		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96		
Percent Heavy Veh, %	2	2	2	2	0	0		
Cap, veh/h	926	33	672	1092	154	80		
Arrive On Green	0.69	0.69	0.69	0.69	0.20	0.20		
Sat Flow, veh/h	1348	48	926	1588	790	407		
Grp Volume(v), veh/h	0	263	120	276	51	0		
Grp Sat Flow(s),veh/h/ln	0	1396	926	1588	1220	0		
Q Serve(g_s), s	0.0	5.1	4.0	4.6	2.5	0.0		
Cycle Q Clear(g_c), s	0.0	5.1	9.1	4.6	2.5	0.0		
Prop In Lane		0.03	1.00		0.65	0.33		
Lane Grp Cap(c), veh/h	0	959	672	1092	239	0		
V/C Ratio(X)	0.00	0.27	0.18	0.25	0.21	0.00		
Avail Cap(c_a), veh/h	0	959	672	1092	384	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	0.00	1.00	0.76	0.76	1.00	0.00		
Uniform Delay (d), s/veh	0.0	4.2	6.0	4.1	23.6	0.0		
Incr Delay (d2), s/veh	0.0	0.7	0.4	0.4	0.9	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	2.1	1.1	2.1	0.9	0.0		
LnGrp Delay(d),s/veh	0.0	4.9	6.4	4.6	24.6	0.0		
LnGrp LOS		A	A	A	C			
Approach Vol, veh/h	263			396	51			
Approach Delay, s/veh	4.9			5.1	24.6			
Approach LOS	A			A	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		52.3				52.3		17.7
Change Period (Y+Rc), s		* 4.2				* 4.2		4.0
Max Green Setting (Gmax), s		* 40				* 40		22.0
Max Q Clear Time (g_c+I1), s		7.1				11.1		4.5
Green Ext Time (p_c), s		7.0				6.8		0.2
Intersection Summary								
HCM 2010 Ctrl Delay			6.4					
HCM 2010 LOS			A					
Notes								
User approved volume balancing among the lanes for turning movement.								

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
2: Lincoln & 4th

Cumulative (2040)
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	245	39	115	280	155	30	429	85	50	309	70
Future Volume (veh/h)	50	245	39	115	280	155	30	429	85	50	309	70
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.91	0.97		0.90	0.93		0.83	0.97		0.83
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1525	1620	1588	1588	1620	1620	1588	1555	1620	1588	1555
Adj Flow Rate, veh/h	52	255	34	120	292	135	31	447	69	52	322	52
Adj No. of Lanes	1	1	0	1	1	0	0	2	0	0	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	284	647	86	446	493	228	84	942	141	124	721	126
Arrive On Green	0.50	0.50	0.50	0.16	0.16	0.16	0.13	0.13	0.13	0.80	0.80	0.80
Sat Flow, veh/h	861	1300	173	949	991	458	85	2370	354	170	1813	316
Grp Volume(v), veh/h	52	0	289	120	0	427	294	0	253	210	0	216
Grp Sat Flow(s),veh/h/ln	861	0	1473	949	0	1450	1512	0	1297	983	0	1316
Q Serve(g_s), s	4.0	0.0	9.8	9.3	0.0	21.8	0.0	0.0	14.5	4.3	0.0	4.0
Cycle Q Clear(g_c), s	25.8	0.0	9.8	19.1	0.0	21.8	13.7	0.0	14.5	18.7	0.0	4.0
Prop In Lane	1.00		0.12	1.00		0.32	0.11		0.27	0.25		0.24
Lane Grp Cap(c), veh/h	284	0	733	446	0	721	651	0	516	447	0	523
V/C Ratio(X)	0.18	0.00	0.39	0.27	0.00	0.59	0.45	0.00	0.49	0.47	0.00	0.41
Avail Cap(c_a), veh/h	284	0	733	446	0	721	651	0	516	447	0	523
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	0.33	0.33	0.33	2.00	2.00	2.00
Upstream Filter(I)	0.97	0.00	0.97	1.00	0.00	1.00	0.81	0.00	0.81	0.80	0.00	0.80
Uniform Delay (d), s/veh	25.6	0.0	12.6	29.3	0.0	25.9	26.9	0.0	27.2	6.6	0.0	5.4
Incr Delay (d2), s/veh	1.4	0.0	1.5	1.5	0.0	3.6	1.8	0.0	2.7	2.8	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	4.2	2.6	0.0	9.5	6.4	0.0	5.6	1.6	0.0	1.6
LnGrp Delay(d),s/veh	27.0	0.0	14.1	30.7	0.0	29.5	28.7	0.0	29.9	9.4	0.0	7.3
LnGrp LOS	C		B	C		C	C		C	A		A
Approach Vol, veh/h		341			547			547			426	
Approach Delay, s/veh		16.1			29.7			29.3			8.3	
Approach LOS		B			C			C			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		44.0		36.0		44.0		36.0				
Change Period (Y+Rc), s		* 4.2		* 4.2		* 4.2		* 4.2				
Max Green Setting (Gmax), s		* 40		* 32		* 40		* 32				
Max Q Clear Time (g_c+I1), s		27.8		16.5		23.8		20.7				
Green Ext Time (p_c), s		6.2		7.6		7.5		6.1				
Intersection Summary												
HCM 2010 Ctrl Delay				22.2								
HCM 2010 LOS				C								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection						
Int Delay, s/veh	3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑		↑
Traffic Vol, veh/h	380	0	0	560	0	218
Future Vol, veh/h	380	0	0	560	0	218
Conflicting Peds, #/hr	0	88	0	0	0	77
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	396	0	0	583	0	227

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	-	-	473
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.318
Pot Cap-1 Maneuver	-	0	0	591
Stage 1	-	0	0	-
Stage 2	-	0	0	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	553
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	16
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	553	-	-
HCM Lane V/C Ratio	0.411	-	-
HCM Control Delay (s)	16	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	2	-	-

HCM Signalized Intersection Capacity Analysis

4: 4th & Tamalpais

Cumulative (2040)
Timing Plan: PM Peak Hour
















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↗
Traffic Volume (vph)	0	458	440	0	0	120
Future Volume (vph)	0	458	440	0	0	120
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)		6.0	6.0			5.6
Lane Util. Factor		1.00	1.00			1.00
Frb, ped/bikes		1.00	1.00			0.78
Flpb, ped/bikes		1.00	1.00			1.00
Frt		1.00	1.00			0.86
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		1588	1588			1074
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		1588	1588			1074
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	477	458	0	0	125
RTOR Reduction (vph)	0	0	0	0	0	104
Lane Group Flow (vph)	0	477	458	0	0	21
Confl. Peds. (#/hr)				59		78
Confl. Bikes (#/hr)				14		
Turn Type		NA	NA			Perm
Protected Phases		2 8	4 6			
Permitted Phases						8
Actuated Green, G (s)		54.9	55.1			13.3
Effective Green, g (s)		54.9	55.1			13.3
Actuated g/C Ratio		0.69	0.69			0.17
Clearance Time (s)						5.6
Vehicle Extension (s)						3.0
Lane Grp Cap (vph)		1089	1093			178
v/s Ratio Prot		c0.30	c0.29			
v/s Ratio Perm						0.02
v/c Ratio		0.44	0.42			0.12
Uniform Delay, d1		5.6	5.4			28.4
Progression Factor		0.96	0.10			1.00
Incremental Delay, d2		0.3	0.2			0.3
Delay (s)		5.7	0.7			28.6
Level of Service		A	A			C
Approach Delay (s)		5.7	0.7		28.6	
Approach LOS		A	A		C	
Intersection Summary						
HCM 2000 Control Delay			6.2		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.50			
Actuated Cycle Length (s)			80.0		Sum of lost time (s)	17.6
Intersection Capacity Utilization			97.3%		ICU Level of Service	F
Analysis Period (min)			15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis



















5: Tamalpais & 4th

Cumulative (2040)
Timing Plan: PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑			↔			↕					
Traffic Volume (vph)	0	458	0	0	420	40	20	15	20	0	0	0	
Future Volume (vph)	0	458	0	0	420	40	20	15	20	0	0	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)		6.0			6.0			6.0					
Lane Util. Factor		1.00			1.00			1.00					
Frbp, ped/bikes		1.00			0.98			0.99					
Flpb, ped/bikes		1.00			1.00			1.00					
Frt		1.00			0.99			0.95					
Flt Protected		1.00			1.00			0.98					
Satd. Flow (prot)		1588			1546			1469					
Flt Permitted		1.00			1.00			0.98					
Satd. Flow (perm)		1588			1546			1469					
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	0	477	0	0	438	42	21	16	21	0	0	0	
RTOR Reduction (vph)	0	0	0	0	4	0	0	17	0	0	0	0	
Lane Group Flow (vph)	0	477	0	0	476	0	0	41	0	0	0	0	
Confl. Peds. (#/hr)	59		21			59			10				
Turn Type		NA			NA		Split	NA					
Protected Phases		2 8			6		4	4					
Permitted Phases													
Actuated Green, G (s)		54.9			35.6			13.5					
Effective Green, g (s)		54.9			35.6			13.5					
Actuated g/C Ratio		0.69			0.45			0.17					
Clearance Time (s)					6.0			6.0					
Vehicle Extension (s)					3.0			3.0					
Lane Grp Cap (vph)		1089			687			247					
v/s Ratio Prot		c0.30			c0.31			c0.03					
v/s Ratio Perm													
v/c Ratio		0.44			0.69			0.16					
Uniform Delay, d1		5.6			17.8			28.4					
Progression Factor		0.10			0.63			1.07					
Incremental Delay, d2		0.3			5.1			0.2					
Delay (s)		0.8			16.3			30.8					
Level of Service		A			B			C					
Approach Delay (s)		0.8			16.3			30.8				0.0	
Approach LOS		A			B			C				A	
Intersection Summary													
HCM 2000 Control Delay			9.9				HCM 2000 Level of Service		A				
HCM 2000 Volume to Capacity ratio			0.54										
Actuated Cycle Length (s)			80.0				Sum of lost time (s)		17.6				
Intersection Capacity Utilization			97.3%				ICU Level of Service		F				
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis
6: Hetherton & 4th

Cumulative (2040)
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	278	190	80	260	0	0	0	0	135	1038	205
Future Volume (vph)	0	278	190	80	260	0	0	0	0	135	1038	205
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	13	10	15	11	12	12	12	12	12	12	12
Total Lost time (s)		4.2	4.2	4.2	4.2						4.6	4.6
Lane Util. Factor		1.00	1.00	1.00	1.00						0.91	1.00
Frbp, ped/bikes		1.00	0.93	1.00	1.00						1.00	0.92
Flpb, ped/bikes		1.00	1.00	0.97	1.00						1.00	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.99	1.00
Satd. Flow (prot)		1641	1172	1608	1535						4142	1102
Flt Permitted		1.00	1.00	0.48	1.00						0.99	1.00
Satd. Flow (perm)		1641	1172	806	1535						4142	1102
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	290	198	83	271	0	0	0	0	141	1081	214
RTOR Reduction (vph)	0	0	38	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	290	160	83	271	0	0	0	0	0	1222	214
Confl. Peds. (#/hr)			51	51		28			11	11		19
Confl. Bikes (#/hr)			10			16			1			1
Parking (#/hr)											2	2
Turn Type		NA	Perm	Perm	NA					Perm	NA	custom
Protected Phases		4			8						2	
Permitted Phases			4	8						2		5
Actuated Green, G (s)		29.8	29.8	29.8	29.8						41.4	34.4
Effective Green, g (s)		29.8	29.8	29.8	29.8						41.4	34.4
Actuated g/C Ratio		0.37	0.37	0.37	0.37						0.52	0.43
Clearance Time (s)		4.2	4.2	4.2	4.2						4.6	4.6
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		611	436	300	571						2143	473
v/s Ratio Prot		c0.18			0.18							
v/s Ratio Perm			0.14	0.10							0.29	0.19
v/c Ratio		0.47	0.37	0.28	0.47						0.57	0.45
Uniform Delay, d1		19.1	18.3	17.6	19.1						13.2	16.1
Progression Factor		0.59	0.43	0.93	0.95						0.36	0.50
Incremental Delay, d2		2.4	2.2	2.1	2.6						0.8	2.1
Delay (s)		13.7	10.1	18.3	20.7						5.4	10.1
Level of Service		B	B	B	C						A	B
Approach Delay (s)		12.2			20.2			0.0			6.1	
Approach LOS		B			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			9.6			HCM 2000 Level of Service			A			
HCM 2000 Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)		10.8				
Intersection Capacity Utilization			78.0%			ICU Level of Service			D			
Analysis Period (min)			15									

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
7: Irwin & 4th

Cumulative (2040)
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	173	230	0	0	210	90	120	1408	170	0	0	0
Future Volume (veh/h)	173	230	0	0	210	90	120	1408	170	0	0	0
Number	5	2	12	1	6	16	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.95	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.87	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1588	1588	0	0	1588	1620	1525	1588	1620			
Adj Flow Rate, veh/h	180	240	0	0	219	83	125	1467	157			
Adj No. of Lanes	1	1	0	0	1	0	1	3	0			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	296	631	0	0	374	142	722	1976	211			
Arrive On Green	0.13	0.13	0.00	0.00	0.40	0.40	0.16	0.16	0.16			
Sat Flow, veh/h	961	1588	0	0	941	356	1452	3973	425			
Grp Volume(v), veh/h	180	240	0	0	0	302	125	1067	557			
Grp Sat Flow(s),veh/h/ln	961	1588	0	0	0	1297	1452	1445	1507			
Q Serve(g_s), s	14.8	11.1	0.0	0.0	0.0	14.6	5.9	28.1	28.1			
Cycle Q Clear(g_c), s	29.5	11.1	0.0	0.0	0.0	14.6	5.9	28.1	28.1			
Prop In Lane	1.00		0.00	0.00		0.27	1.00		0.28			
Lane Grp Cap(c), veh/h	296	631	0	0	0	516	722	1438	750			
V/C Ratio(X)	0.61	0.38	0.00	0.00	0.00	0.59	0.17	0.74	0.74			
Avail Cap(c_a), veh/h	296	631	0	0	0	516	722	1438	750			
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	0.33	0.33	0.33			
Upstream Filter(I)	0.88	0.88	0.00	0.00	0.00	1.00	0.36	0.36	0.36			
Uniform Delay (d), s/veh	41.0	25.7	0.0	0.0	0.0	18.9	19.3	28.5	28.6			
Incr Delay (d2), s/veh	7.9	1.5	0.0	0.0	0.0	4.8	0.2	1.3	2.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.6	5.1	0.0	0.0	0.0	5.9	2.4	11.5	12.3			
LnGrp Delay(d),s/veh	48.9	27.3	0.0	0.0	0.0	23.7	19.5	29.8	31.0			
LnGrp LOS	D	C				C	B	C	C			
Approach Vol, veh/h		420			302			1749				
Approach Delay, s/veh		36.5			23.7			29.5				
Approach LOS		D			C			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		36.0		44.0		36.0						
Change Period (Y+Rc), s		* 4.2		* 4.2		* 4.2						
Max Green Setting (Gmax), s		* 32		* 40		* 32						
Max Q Clear Time (g_c+I1), s		31.5		30.1		16.6						
Green Ext Time (p_c), s		0.1		6.0		3.2						
Intersection Summary												
HCM 2010 Ctrl Delay				30.0								
HCM 2010 LOS				C								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
 8: Lindaro & 3rd

Cumulative (2040)
 Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	243	1880	40	132	20	0	0	50	10
Future Volume (veh/h)	0	0	0	243	1880	40	132	20	0	0	50	10
Number				1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.93	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1412	1412	1440	1440	1412	0	0	1412	1440
Adj Flow Rate, veh/h				253	1958	40	138	21	0	0	52	2
Adj No. of Lanes				1	3	0	0	1	0	0	1	0
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				820	2367	48	238	29	0	0	259	10
Arrive On Green				0.61	0.61	0.61	0.19	0.19	0.00	0.00	0.19	0.19
Sat Flow, veh/h				1345	3881	79	801	150	0	0	1351	52
Grp Volume(v), veh/h				253	1295	703	159	0	0	0	0	54
Grp Sat Flow(s),veh/h/ln				1345	1285	1391	951	0	0	0	0	1403
Q Serve(g_s), s				7.2	31.7	31.9	10.8	0.0	0.0	0.0	0.0	2.6
Cycle Q Clear(g_c), s				7.2	31.7	31.9	13.4	0.0	0.0	0.0	0.0	2.6
Prop In Lane				1.00		0.06	0.87		0.00	0.00		0.04
Lane Grp Cap(c), veh/h				820	1567	848	267	0	0	0	0	269
V/C Ratio(X)				0.31	0.83	0.83	0.60	0.00	0.00	0.00	0.00	0.20
Avail Cap(c_a), veh/h				820	1567	848	370	0	0	0	0	400
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				7.5	12.3	12.3	32.5	0.0	0.0	0.0	0.0	27.2
Incr Delay (d2), s/veh				1.0	5.1	9.1	2.1	0.0	0.0	0.0	0.0	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.9	12.1	14.3	3.6	0.0	0.0	0.0	0.0	1.0
LnGrp Delay(d),s/veh				8.5	17.4	21.4	34.6	0.0	0.0	0.0	0.0	27.5
LnGrp LOS				A	B	C	C					C
Approach Vol, veh/h				2251				159			54	
Approach Delay, s/veh				17.7				34.6			27.5	
Approach LOS				B				C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				19.6		53.0		19.6				
Change Period (Y+Rc), s				* 4.2		4.2		* 4.2				
Max Green Setting (Gmax), s				* 23		48.8		* 23				
Max Q Clear Time (g_c+I1), s				15.4		33.9		4.6				
Green Ext Time (p_c), s				0.5		10.2		0.7				
Intersection Summary												
HCM 2010 Ctrl Delay				19.0								
HCM 2010 LOS				B								
Notes												
User approved ignoring U-Turning movement.												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑↑	↑	
Traffic Vol, veh/h	0	0	0	2053	128	0
Future Vol, veh/h	0	0	0	2053	128	0
Conflicting Peds, #/hr	0	31	31	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	2139	133	0

Major/Minor	Major2	Minor1
Conflicting Flow All	-	855
Stage 1	-	0
Stage 2	-	855
Critical Hdwy	-	5.74
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	6.04
Follow-up Hdwy	-	3.82
Pot Cap-1 Maneuver	0	367
Stage 1	0	-
Stage 2	0	342
Platoon blocked, %		-
Mov Cap-1 Maneuver	-	367
Mov Cap-2 Maneuver	-	367
Stage 1	-	-
Stage 2	-	342

Approach	WB	NB
HCM Control Delay, s	0	20.3
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	WBT
Capacity (veh/h)	367	-
HCM Lane V/C Ratio	0.363	-
HCM Control Delay (s)	20.3	-
HCM Lane LOS	C	-
HCM 95th %tile Q(veh)	1.6	-

Intersection						
Int Delay, s/veh	5.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑			↑
Traffic Vol, veh/h	0	0	1928	125	0	125
Future Vol, veh/h	0	0	1928	125	0	125
Conflicting Peds, #/hr	0	0	0	76	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	-	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	2008	130	0	130













Major/Minor	Major2	Minor2
Conflicting Flow All	-	0 - 1145
Stage 1	-	- -
Stage 2	-	- -
Critical Hdwy	-	- - 7.14
Critical Hdwy Stg 1	-	- -
Critical Hdwy Stg 2	-	- -
Follow-up Hdwy	-	- - 3.92
Pot Cap-1 Maneuver	-	- 0 166
Stage 1	-	- 0 -
Stage 2	-	- 0 -
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	- - 155
Mov Cap-2 Maneuver	-	- -
Stage 1	-	- -
Stage 2	-	- -

Approach	WB	SB
HCM Control Delay, s	0	92.6
HCM LOS		F

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	155
HCM Lane V/C Ratio	-	-	0.84
HCM Control Delay (s)	-	-	92.6
HCM Lane LOS	-	-	F
HCM 95th %tile Q(veh)	-	-	5.6


















HCM 2010 Signalized Intersection Summary
 11: Lincoln & 3rd

Cumulative (2040)
 Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑			↑↑			↑↑	
Traffic Volume (veh/h)	0	0	0	108	1842	151	50	338	0	0	282	161
Future Volume (veh/h)	0	0	0	108	1842	151	50	338	0	0	282	161
Number				1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.92	0.98		1.00	1.00		0.83
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1620	1588	1620	1620	1588	0	0	1525	1555
Adj Flow Rate, veh/h				112	1919	146	52	352	0	0	294	162
Adj No. of Lanes				0	3	0	0	2	0	0	2	0
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				0	2	0	2	2	0	0	2	2
Cap, veh/h				124	2250	175	108	696	0	0	556	288
Arrive On Green				0.56	0.56	0.56	0.65	0.65	0.00	0.00	0.11	0.11
Sat Flow, veh/h				220	3995	311	157	2217	0	0	1790	889
Grp Volume(v), veh/h				803	669	705	197	207	0	0	246	210
Grp Sat Flow(s),veh/h/ln				1577	1445	1503	929	1373	0	0	1448	1154
Q Serve(g_s), s				36.3	30.1	30.8	3.8	6.1	0.0	0.0	12.8	13.8
Cycle Q Clear(g_c), s				36.3	30.1	30.8	17.6	6.1	0.0	0.0	12.8	13.8
Prop In Lane				0.14		0.21	0.26		0.00	0.00		0.77
Lane Grp Cap(c), veh/h				888	814	847	358	445	0	0	470	374
V/C Ratio(X)				0.90	0.82	0.83	0.55	0.46	0.00	0.00	0.52	0.56
Avail Cap(c_a), veh/h				936	858	893	358	445	0	0	470	374
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	0.33	0.33
Upstream Filter(l)				0.09	0.09	0.09	1.00	1.00	0.00	0.00	0.88	0.88
Uniform Delay (d), s/veh				15.6	14.2	14.4	11.6	10.6	0.0	0.0	29.9	30.3
Incr Delay (d2), s/veh				1.3	0.6	0.6	6.0	3.5	0.0	0.0	3.7	5.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				15.9	12.0	12.9	2.6	2.6	0.0	0.0	5.6	5.0
LnGrp Delay(d),s/veh				16.9	14.8	15.0	17.6	14.0	0.0	0.0	33.5	35.6
LnGrp LOS				B	B	B	B	B			C	D
Approach Vol, veh/h				2177			404			456		
Approach Delay, s/veh				15.6			15.8			34.5		
Approach LOS				B			B			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				30.4		49.6		30.4				
Change Period (Y+Rc), s				4.5		4.5		4.5				
Max Green Setting (Gmax), s				23.5		47.5		23.5				
Max Q Clear Time (g_c+I1), s				19.6		38.3		15.8				
Green Ext Time (p_c), s				1.6		6.8		2.5				
Intersection Summary												
HCM 2010 Ctrl Delay				18.5								
HCM 2010 LOS				B								

HCM Signalized Intersection Capacity Analysis
 12: Tamalpais & 3rd

Cumulative (2040)
 Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					  							
Traffic Volume (vph)	0	0	0	332	1956	50	126	53	0	0	0	0
Future Volume (vph)	0	0	0	332	1956	50	126	53	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1600	1600	1600	1600	1600	1800	1800	1600	1600
Lane Width	12	12	12	12	12	12	11	12	12	12	12	12
Total Lost time (s)					11.6		7.6	7.6				
Lane Util. Factor					0.91		1.00	1.00				
Frbp, ped/bikes					1.00		1.00	1.00				
Flpb, ped/bikes					0.97		0.96	1.00				
Frt					1.00		1.00	1.00				
Flt Protected					0.99		0.95	1.00				
Satd. Flow (prot)					3676		1098	1249				
Flt Permitted					0.99		0.95	1.00				
Satd. Flow (perm)					3676		1098	1249				
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	0	0	346	2038	52	131	55	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	2433	0	131	55	0	0	0	0
Confl. Peds. (#/hr)			106	106		44	30		69			30
Confl. Bikes (#/hr)						2			3			8
Parking (#/hr)							3	3			3	3
Turn Type				Perm	NA		Perm	NA				
Protected Phases					6			4				
Permitted Phases				6			4					
Actuated Green, G (s)					51.6		19.2	19.2				
Effective Green, g (s)					51.6		19.2	19.2				
Actuated g/C Ratio					0.57		0.21	0.21				
Clearance Time (s)					11.6		7.6	7.6				
Vehicle Extension (s)					5.0		5.0	5.0				
Lane Grp Cap (vph)					2107		234	266				
v/s Ratio Prot								0.04				
v/s Ratio Perm					0.66		c0.12					
v/c Ratio					1.15		0.56	0.21				
Uniform Delay, d1					19.2		31.6	29.1				
Progression Factor					1.00		1.00	1.00				
Incremental Delay, d2					75.6		4.9	0.8				
Delay (s)					94.8		36.5	29.9				
Level of Service					F		D	C				
Approach Delay (s)		0.0			94.8			34.6			0.0	
Approach LOS		A			F			C			A	
Intersection Summary												
HCM 2000 Control Delay			90.5		HCM 2000 Level of Service				F			
HCM 2000 Volume to Capacity ratio			0.99									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				19.2			
Intersection Capacity Utilization			163.4%		ICU Level of Service				H			
Analysis Period (min)			15									

c Critical Lane Group

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↔↑↑↔			↔					
Traffic Vol, veh/h	0	0	0	10	2283	30	20	0	0	0	0	0
Future Vol, veh/h	0	0	0	10	2283	30	20	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	96	0	15	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	10	2378	31	21	0	0	0	0	0





















Major/Minor	Major2	Minor1
Conflicting Flow All	96	0 0 1068
Stage 1	-	- - 96
Stage 2	-	- - 972
Critical Hdwy	5.34	- - 5.74
Critical Hdwy Stg 1	-	- - -
Critical Hdwy Stg 2	-	- - 6.04
Follow-up Hdwy	3.12	- - 3.82
Pot Cap-1 Maneuver	1043	- - 287 0 0
Stage 1	-	- - - 0 0
Stage 2	-	- - - 296 0 0
Platoon blocked, %	-	- - -
Mov Cap-1 Maneuver	1043	- - 264 0 -
Mov Cap-2 Maneuver	-	- - 264 0 -
Stage 1	-	- - - 0 -
Stage 2	-	- - - 296 0 -

Approach	WB	NB
HCM Control Delay, s	0	19.8
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	WBL	WBT	WBR
Capacity (veh/h)	264	1043	-	-
HCM Lane V/C Ratio	0.079	0.01	-	-
HCM Control Delay (s)	19.8	8.5	0	-
HCM Lane LOS	C	A	A	-
HCM 95th %tile Q(veh)	0.3	0	-	-

HCM 2010 Signalized Intersection Summary
14: Hetherton & 3rd













Cumulative (2040) No Project
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					  						  	
Traffic Volume (veh/h)	0	0	0	510	1740	0	0	0	0	0	725	583
Future Volume (veh/h)	0	0	0	510	1740	0	0	0	0	0	725	583
Number				1	6	16				3	8	18
Initial Q (Qb), veh				0	0	0				0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		0.86
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1560	1588	0				0	1588	1500
Adj Flow Rate, veh/h				531	1812	0				0	755	599
Adj No. of Lanes				1	3	0				0	3	1
Peak Hour Factor				0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %				2	2	0				0	2	2
Cap, veh/h				717	2011	0				0	2018	509
Arrive On Green				0.14	0.14	0.00				0.00	0.15	0.15
Sat Flow, veh/h				1486	4765	0				0	4479	1093
Grp Volume(v), veh/h				531	1812	0				0	755	599
Grp Sat Flow(s),veh/h/ln				1486	1588	0				0	1445	1093
Q Serve(g_s), s				27.9	29.9	0.0				0.0	12.5	37.2
Cycle Q Clear(g_c), s				27.9	29.9	0.0				0.0	12.5	37.2
Prop In Lane				1.00		0.00				0.00		1.00
Lane Grp Cap(c), veh/h				717	2011	0				0	2018	509
V/C Ratio(X)				0.74	0.90	0.00				0.00	0.37	1.18
Avail Cap(c_a), veh/h				721	2025	0				0	2018	509
HCM Platoon Ratio				0.33	0.33	1.00				1.00	0.33	0.33
Upstream Filter(I)				0.09	0.09	0.00				0.00	0.83	0.83
Uniform Delay (d), s/veh				31.9	32.8	0.0				0.0	23.4	33.9
Incr Delay (d2), s/veh				0.4	0.6	0.0				0.0	0.4	96.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				11.6	13.3	0.0				0.0	5.1	24.8
LnGrp Delay(d),s/veh				32.3	33.4	0.0				0.0	23.8	130.0
LnGrp LOS				C	C						C	F
Approach Vol, veh/h					2343						1354	
Approach Delay, s/veh					33.1						70.8	
Approach LOS					C						E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs						6		8				
Phs Duration (G+Y+Rc), s						37.8		42.2				
Change Period (Y+Rc), s						4.0		5.0				
Max Green Setting (Gmax), s						34.0		37.0				
Max Q Clear Time (g_c+I1), s						31.9		39.2				
Green Ext Time (p_c), s						1.8		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay					46.9							
HCM 2010 LOS					D							
Notes												
User approved volume balancing among the lanes for turning movement.												

User approved ignoring U-Turning movement.

HCM 2010 Signalized Intersection Summary
 15: Irwin & 3rd/3rd St

Cumulative (2040)
 Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑	↑	↑	↑↑↑				
Traffic Volume (veh/h)	0	0	0	0	1240	210	1005	1488	0	0	0	0
Future Volume (veh/h)	0	0	0	0	1240	210	1005	1488	0	0	0	0
Number				1	6	16	7	4	14			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		0.93	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				0	1500	1500	1412	1412	0			
Adj Flow Rate, veh/h				0	1292	200	1132	1431	0			
Adj No. of Lanes				0	3	1	2	2	0			
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %				0	2	2	2	2	0			
Cap, veh/h				0	1254	363	1563	1641	0			
Arrive On Green				0.00	0.31	0.31	0.19	0.19	0.00			
Sat Flow, veh/h				0	4230	1184	2689	2824	0			
Grp Volume(v), veh/h				0	1292	200	1132	1431	0			
Grp Sat Flow(s),veh/h/ln				0	1365	1184	1345	1412	0			
Q Serve(g_s), s				0.0	24.5	11.3	31.6	39.3	0.0			
Cycle Q Clear(g_c), s				0.0	24.5	11.3	31.6	39.3	0.0			
Prop In Lane				0.00		1.00	1.00		0.00			
Lane Grp Cap(c), veh/h				0	1254	363	1563	1641	0			
V/C Ratio(X)				0.00	1.03	0.55	0.72	0.87	0.00			
Avail Cap(c_a), veh/h				0	1254	363	1563	1641	0			
HCM Platoon Ratio				1.00	1.00	1.00	0.33	0.33	1.00			
Upstream Filter(I)				0.00	1.00	1.00	0.09	0.09	0.00			
Uniform Delay (d), s/veh				0.0	27.8	23.2	26.3	29.4	0.0			
Incr Delay (d2), s/veh				0.0	33.5	1.8	0.3	0.7	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln				0.0	13.1	3.8	11.8	15.5	0.0			
LnGrp Delay(d),s/veh				0.0	61.2	25.0	26.6	30.1	0.0			
LnGrp LOS					F	C	C	C				
Approach Vol, veh/h					1492			2563				
Approach Delay, s/veh					56.4			28.5				
Approach LOS					E			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs				4		6						
Phs Duration (G+Y+Rc), s				51.0		29.0						
Change Period (Y+Rc), s				4.5		4.5						
Max Green Setting (Gmax), s				46.5		24.5						
Max Q Clear Time (g_c+I1), s				41.3		26.5						
Green Ext Time (p_c), s				4.5		0.0						
Intersection Summary												
HCM 2010 Ctrl Delay					38.8							
HCM 2010 LOS					D							
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 2010 Signalized Intersection Summary
 16: Lindaro & 2nd

Cumulative (2040)
 Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	2370	44	0	0	0	0	91	433	117	181	0
Future Volume (veh/h)	61	2370	44	0	0	0	0	91	433	117	181	0
Number	5	2	12					7	4	14	3	8
Initial Q (Qb), veh	0	0	0					0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94					1.00	0.95	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00					1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1440	1412	1440					0	1412	1412	1355	1355
Adj Flow Rate, veh/h	64	2469	43					0	95	441	122	189
Adj No. of Lanes	0	4	0					0	1	1	1	0
Peak Hour Factor	0.96	0.96	0.96					0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	2	0					0	2	2	2	0
Cap, veh/h	63	2619	47					0	526	426	305	505
Arrive On Green	0.52	0.52	0.52					0.00	0.37	0.37	0.12	0.12
Sat Flow, veh/h	121	5012	89					0	1412	1145	658	1355
Grp Volume(v), veh/h	742	1166	668					0	95	441	122	189
Grp Sat Flow(s),veh/h/ln	1406	1214	1389					0	1412	1145	658	1355
Q Serve(g_s), s	41.8	35.3	35.4					0.0	3.6	29.8	14.1	10.3
Cycle Q Clear(g_c), s	41.8	35.3	35.4					0.0	3.6	29.8	17.7	10.3
Prop In Lane	0.09		0.06					0.00	1.00	1.00		0.00
Lane Grp Cap(c), veh/h	734	1269	726					0	526	426	305	505
V/C Ratio(X)	1.01	0.92	0.92					0.00	0.18	1.03	0.40	0.37
Avail Cap(c_a), veh/h	734	1269	726					0	526	426	305	505
HCM Platoon Ratio	1.00	1.00	1.00					1.00	1.00	1.00	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00					0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.1	17.5	17.6					0.0	16.9	25.1	31.5	26.5
Incr Delay (d2), s/veh	35.8	12.1	18.8					0.0	0.2	52.7	0.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	28.2	13.8	17.2					0.0	1.4	15.6	2.6	3.9
LnGrp Delay(d),s/veh	54.9	29.6	36.4					0.0	17.0	77.8	32.3	27.0
LnGrp LOS	F	C	D						B	F	C	C
Approach Vol, veh/h	2576							536		311		
Approach Delay, s/veh	38.6							67.1		29.1		
Approach LOS	D							E		C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4						8			
Phs Duration (G+Y+Rc), s	46.0		34.0						34.0			
Change Period (Y+Rc), s	* 4.2		* 4.2						* 4.2			
Max Green Setting (Gmax), s	* 42		* 30						* 30			
Max Q Clear Time (g_c+I1), s	43.8		31.8						19.7			
Green Ext Time (p_c), s	0.0		0.0						3.5			
Intersection Summary												
HCM 2010 Ctrl Delay	42.2											
HCM 2010 LOS	D											
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection														
Int Delay, s/veh	1.5													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NWL	NWR
Lane Configurations					↕			↕			↕			
Traffic Vol, veh/h	0	0	0	2	2	6	80	406	0	39	320	30	0	0
Future Vol, veh/h	0	0	0	2	2	6	80	406	0	39	320	30	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	25	0	4	4	0	25	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	-	-	-	None	-	-	-	-	-	None	-	-
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	2	2	6	83	423	0	41	333	31	0	0



















Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	847	1070	221	390	0	0
Stage 1	599	599	-	-	-	-
Stage 2	248	471	-	-	-	-
Critical Hdwy	6.84	6.54	6.94	4.14	-	-
Critical Hdwy Stg 1	5.84	5.54	-	-	-	-
Critical Hdwy Stg 2	5.84	5.54	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	2.22	-	-
Pot Cap-1 Maneuver	301	220	783	1165	-	-
Stage 1	511	489	-	-	-	-
Stage 2	770	558	-	-	-	-
Platoon blocked, %					-	-
Mov Cap-1 Maneuver	259	0	780	1165	-	-
Mov Cap-2 Maneuver	259	0	-	-	-	-
Stage 1	461	0	-	-	-	-
Stage 2	735	0	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	1.6	1
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR2WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1165	-	-	519	1119	-
HCM Lane V/C Ratio	0.072	-	-	0.02	0.036	-
HCM Control Delay (s)	8.3	0.3	-	12.1	8.3	0.2
HCM Lane LOS	A	A	-	B	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	0.1	-

HCM 2010 Signalized Intersection Summary
18: Lincoln & 2nd

Cumulative (2040)
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	233	2565	62	0	0	0	0	203	140	148	187	0
Future Volume (veh/h)	233	2565	62	0	0	0	0	203	140	148	187	0
Number	5	2	12				7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98				1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1440	1412	1412				0	1412	1412	1382	1355	0
Adj Flow Rate, veh/h	243	2672	44				0	211	134	154	195	0
Adj No. of Lanes	0	4	1				0	1	1	0	2	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	220	2608	659				0	471	387	249	408	0
Arrive On Green	0.19	0.19	0.19				0.00	0.33	0.33	0.67	0.67	0.00
Sat Flow, veh/h	391	4643	1172				0	1412	1161	489	1285	0
Grp Volume(v), veh/h	865	2050	44				0	211	134	167	182	0
Grp Sat Flow(s),veh/h/ln	1392	1214	1172				0	1412	1161	540	1172	0
Q Serve(g_s), s	44.9	44.9	2.5				0.0	9.4	7.0	15.2	6.0	0.0
Cycle Q Clear(g_c), s	44.9	44.9	2.5				0.0	9.4	7.0	24.6	6.0	0.0
Prop In Lane	0.28		1.00				0.00		1.00	0.92		0.00
Lane Grp Cap(c), veh/h	782	2046	659				0	471	387	266	391	0
V/C Ratio(X)	1.11	1.00	0.07				0.00	0.45	0.35	0.63	0.46	0.00
Avail Cap(c_a), veh/h	782	2046	659				0	473	389	268	393	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(l)	0.09	0.09	0.09				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.6	32.6	15.3				0.0	20.9	20.1	17.1	9.9	0.0
Incr Delay (d2), s/veh	49.6	6.5	0.0				0.0	0.7	0.5	4.6	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	28.1	16.3	0.8				0.0	3.7	2.3	3.8	1.9	0.0
LnGrp Delay(d),s/veh	82.2	39.1	15.3				0.0	21.6	20.6	21.7	10.8	0.0
LnGrp LOS	F	F	B					C	C	C	B	
Approach Vol, veh/h		2959						345			349	
Approach Delay, s/veh		51.3						21.2			16.0	
Approach LOS		D						C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		49.1		30.9				30.9				
Change Period (Y+Rc), s		* 4.2		* 4.2				* 4.2				
Max Green Setting (Gmax), s		* 45		* 27				* 27				
Max Q Clear Time (g_c+I1), s		46.9		11.4				26.6				
Green Ext Time (p_c), s		0.0		2.9				0.1				
Intersection Summary												
HCM 2010 Ctrl Delay			45.1									
HCM 2010 LOS			D									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

















HCM 2010 Signalized Intersection Summary
 19: Francisco W./Tamalpais & 2nd

Cumulative (2040)
 Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	2691	120	0	0	0	0	149	370	84	261	0
Future Volume (veh/h)	41	2691	120	0	0	0	0	149	370	84	261	0
Number	5	2	12				7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93				1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1440	1412	1412				0	1412	1468	1412	1412	0
Adj Flow Rate, veh/h	43	2803	80				0	155	351	88	272	0
Adj No. of Lanes	0	4	1				0	1	1	1	1	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	37	2598	582				0	446	384	255	446	0
Arrive On Green	0.17	0.17	0.17				0.00	0.32	0.32	0.32	0.32	0.00
Sat Flow, veh/h	71	4979	1116				0	1412	1217	711	1412	0
Grp Volume(v), veh/h	849	1997	80				0	155	351	88	272	0
Grp Sat Flow(s),veh/h/ln	1408	1214	1116				0	1412	1217	711	1412	0
Q Serve(g_s), s	41.7	41.7	4.9				0.0	6.8	22.2	8.7	13.1	0.0
Cycle Q Clear(g_c), s	41.7	41.7	4.9				0.0	6.8	22.2	15.4	13.1	0.0
Prop In Lane	0.05		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	735	1900	582				0	446	384	255	446	0
V/C Ratio(X)	1.16	1.05	0.14				0.00	0.35	0.91	0.35	0.61	0.00
Avail Cap(c_a), veh/h	735	1900	582				0	468	403	266	468	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.1	33.1	17.8				0.0	21.0	26.3	27.0	23.2	0.0
Incr Delay (d2), s/veh	71.7	24.6	0.0				0.0	0.5	24.3	0.8	2.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	30.9	18.4	1.5				0.0	2.7	10.0	1.8	5.3	0.0
LnGrp Delay(d),s/veh	104.8	57.7	17.9				0.0	21.5	50.6	27.8	25.3	0.0
LnGrp LOS	F	F	B					C	D	C	C	
Approach Vol, veh/h		2926						506			360	
Approach Delay, s/veh		70.3						41.7			25.9	
Approach LOS		E						D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		48.2		31.8				31.8				
Change Period (Y+Rc), s		6.5		6.5				6.5				
Max Green Setting (Gmax), s		40.5		26.5				26.5				
Max Q Clear Time (g_c+I1), s		43.7		24.2				17.4				
Green Ext Time (p_c), s		0.0		1.1				3.1				
Intersection Summary												
HCM 2010 Ctrl Delay			62.3									
HCM 2010 LOS			E									

HCM 2010 Signalized Intersection Summary
 20: 101 SBO on Hetherton/Hetherton & 2nd/2nd St

Cumulative (2040)
 Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1975	1165	0	0	0	0	0	0	390	845	0
Future Volume (veh/h)	0	1975	1165	0	0	0	0	0	0	390	845	0
Number	5	2	12							7	4	14
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1500	1500							1500	1500	0
Adj Flow Rate, veh/h	0	2057	1183							406	880	0
Adj No. of Lanes	0	3	2							1	2	0
Peak Hour Factor	0.96	0.96	0.96							0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2							2	2	0
Cap, veh/h	0	2303	1305							465	977	0
Arrive On Green	0.00	0.17	0.17							0.11	0.11	0.00
Sat Flow, veh/h	0	4500	2550							1429	3000	0
Grp Volume(v), veh/h	0	2057	1183							406	880	0
Grp Sat Flow(s),veh/h/ln	0	1500	1275							1429	1500	0
Q Serve(g_s), s	0.0	35.8	36.4							22.4	23.2	0.0
Cycle Q Clear(g_c), s	0.0	35.8	36.4							22.4	23.2	0.0
Prop In Lane	0.00		1.00							1.00		0.00
Lane Grp Cap(c), veh/h	0	2303	1305							465	977	0
V/C Ratio(X)	0.00	0.89	0.91							0.87	0.90	0.00
Avail Cap(c_a), veh/h	0	2303	1305							473	994	0
HCM Platoon Ratio	1.00	0.33	0.33							0.33	0.33	1.00
Upstream Filter(l)	0.00	0.09	0.09							0.89	0.89	0.00
Uniform Delay (d), s/veh	0.0	31.1	31.4							34.1	34.4	0.0
Incr Delay (d2), s/veh	0.0	0.6	1.2							14.6	10.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	15.0	13.1							10.8	11.0	0.0
LnGrp Delay(d),s/veh	0.0	31.7	32.5							48.6	44.4	0.0
LnGrp LOS		C	C							D	D	
Approach Vol, veh/h		3240									1286	
Approach Delay, s/veh		32.0									45.7	
Approach LOS		C									D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4								
Phs Duration (G+Y+Rc), s		49.4		30.6								
Change Period (Y+Rc), s		8.5		4.5								
Max Green Setting (Gmax), s		40.5		26.5								
Max Q Clear Time (g_c+I1), s		38.4		25.2								
Green Ext Time (p_c), s		2.0		0.9								
Intersection Summary												
HCM 2010 Ctrl Delay			35.9									
HCM 2010 LOS			D									
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 2010 Signalized Intersection Summary
 21: Irwin & 2nd St

Cumulative (2040)
 Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1018	1397	0	0	0	0	0	1495	600	0	0	0
Future Volume (veh/h)	1018	1397	0	0	0	0	0	1495	600	0	0	0
Number	5	2	12				7	4	14			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.94			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1468	1500	0				0	1412	1412			
Adj Flow Rate, veh/h	1098	1401	0				0	1557	616			
Adj No. of Lanes	2	2	0				0	3	1			
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0				0	2	2			
Cap, veh/h	1501	1418	0				0	1580	464			
Arrive On Green	0.16	0.16	0.00				0.00	0.41	0.41			
Sat Flow, veh/h	2797	3000	0				0	3981	1132			
Grp Volume(v), veh/h	1098	1401	0				0	1557	616			
Grp Sat Flow(s),veh/h/ln	1398	1500	0				0	1285	1132			
Q Serve(g_s), s	30.5	37.3	0.0				0.0	32.0	32.8			
Cycle Q Clear(g_c), s	30.5	37.3	0.0				0.0	32.0	32.8			
Prop In Lane	1.00		0.00				0.00		1.00			
Lane Grp Cap(c), veh/h	1501	1418	0				0	1580	464			
V/C Ratio(X)	0.73	0.99	0.00				0.00	0.99	1.33			
Avail Cap(c_a), veh/h	1501	1418	0				0	1580	464			
HCM Platoon Ratio	0.33	0.33	1.00				1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	30.7	33.5	0.0				0.0	23.4	23.6			
Incr Delay (d2), s/veh	0.3	5.0	0.0				0.0	19.2	161.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.9	16.5	0.0				0.0	14.1	31.0			
LnGrp Delay(d),s/veh	31.0	38.5	0.0				0.0	42.6	185.4			
LnGrp LOS	C	D						D	F			
Approach Vol, veh/h	2499						2173					
Approach Delay, s/veh	35.2						83.1					
Approach LOS	D						F					
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4									
Phs Duration (G+Y+Rc), s	42.0		38.0									
Change Period (Y+Rc), s	* 4.2		* 5.2									
Max Green Setting (Gmax), s	* 38		* 33									
Max Q Clear Time (g_c+I1), s	39.3		34.8									
Green Ext Time (p_c), s	0.0		0.0									
Intersection Summary												
HCM 2010 Ctrl Delay	57.5											
HCM 2010 LOS	E											
Notes												
User approved volume balancing among the lanes for turning movement.												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	11.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	791	10	20	870	30	10	10	70	30	10	20
Future Vol, veh/h	10	791	10	20	870	30	10	10	70	30	10	20
Conflicting Peds, #/hr	5	0	12	12	0	5	14	0	14	14	0	14
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	824	10	21	906	31	10	10	73	31	10	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	943	0	0	846	0	0	1855	1846	855	1875	1836	941
Stage 1	-	-	-	-	-	-	862	862	-	969	969	-
Stage 2	-	-	-	-	-	-	993	984	-	906	867	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	727	-	-	791	-	-	57	75	358	55	76	319
Stage 1	-	-	-	-	-	-	350	372	-	305	332	-
Stage 2	-	-	-	-	-	-	296	327	-	331	370	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	716	-	-	779	-	-	43	68	348	35	69	313
Mov Cap-2 Maneuver	-	-	-	-	-	-	43	68	-	35	69	-
Stage 1	-	-	-	-	-	-	336	357	-	296	312	-
Stage 2	-	-	-	-	-	-	248	307	-	244	356	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.2			58.6			277		
HCM LOS							F			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	155	716	-	-	779	-	-	56
HCM Lane V/C Ratio	0.605	0.015	-	-	0.027	-	-	1.116
HCM Control Delay (s)	58.6	10.1	0	-	9.7	0	-	277
HCM Lane LOS	F	B	A	-	A	A	-	F
HCM 95th %tile Q(veh)	3.2	0	-	-	0.1	-	-	5.3

HCM 2010 Signalized Intersection Summary
23: Lincoln & Mission

Cumulative (2040)
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	280	495	20	69	550	70	40	525	60	0	400	320
Future Volume (veh/h)	280	495	20	69	550	70	40	525	60	0	400	320
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	0.99		0.93	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1800	1694	1728	0	1765	1728
Adj Flow Rate, veh/h	292	516	19	72	573	67	42	547	52	0	417	144
Adj No. of Lanes	1	1	0	1	1	0	0	2	0	0	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	0	2	2
Cap, veh/h	279	943	35	397	551	64	97	1035	96	0	937	319
Arrive On Green	0.17	0.59	0.59	0.75	0.75	0.75	0.77	0.77	0.77	0.00	0.39	0.39
Sat Flow, veh/h	1597	1606	59	819	1469	172	119	2672	248	0	2506	823
Grp Volume(v), veh/h	292	0	535	72	0	640	332	0	309	0	287	274
Grp Sat Flow(s),veh/h/ln	1597	0	1665	819	0	1641	1563	0	1477	0	1676	1565
Q Serve(g_s), s	14.0	0.0	15.6	2.1	0.0	30.0	0.0	0.0	6.5	0.0	10.1	10.4
Cycle Q Clear(g_c), s	14.0	0.0	15.6	2.1	0.0	30.0	5.8	0.0	6.5	0.0	10.1	10.4
Prop In Lane	1.00		0.04	1.00		0.10	0.13		0.17	0.00		0.53
Lane Grp Cap(c), veh/h	279	0	978	397	0	615	656	0	572	0	650	606
V/C Ratio(X)	1.05	0.00	0.55	0.18	0.00	1.04	0.51	0.00	0.54	0.00	0.44	0.45
Avail Cap(c_a), veh/h	279	0	978	397	0	615	656	0	572	0	650	606
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.76	0.00	0.76	0.75	0.00	0.75	0.00	1.00	1.00
Uniform Delay (d), s/veh	33.0	0.0	10.0	6.5	0.0	10.0	6.2	0.0	6.2	0.0	18.1	18.2
Incr Delay (d2), s/veh	66.1	0.0	2.2	0.8	0.0	42.5	2.1	0.0	2.7	0.0	2.2	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.3	0.0	7.7	0.6	0.0	19.9	2.9	0.0	2.8	0.0	5.1	4.9
LnGrp Delay(d),s/veh	99.1	0.0	12.2	7.3	0.0	52.5	8.3	0.0	9.0	0.0	20.3	20.6
LnGrp LOS	F		B	A		F	A		A		C	C
Approach Vol, veh/h		827			712			641			561	
Approach Delay, s/veh		42.9			48.0			8.6			20.4	
Approach LOS		D			D			A			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		51.2		35.8	17.0	34.2		35.8				
Change Period (Y+Rc), s		* 4.2		4.6	3.0	* 4.2		4.6				
Max Green Setting (Gmax), s		* 47		24.4	14.0	* 30		24.4				
Max Q Clear Time (g_c+I1), s		17.6		8.5	16.0	32.0		12.4				
Green Ext Time (p_c), s		15.1		9.3	0.0	0.0		7.6				
Intersection Summary												
HCM 2010 Ctrl Delay				31.6								
HCM 2010 LOS				C								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM Signalized Intersection Capacity Analysis
 24: Tamalpais & Mission

Cumulative (2040)
 Timing Plan: PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖		
Traffic Volume (vph)	520	60	0	684	0	0
Future Volume (vph)	520	60	0	684	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0			3.0		
Lane Util. Factor	1.00			1.00		
Frbp, ped/bikes	0.99			1.00		
Flpb, ped/bikes	1.00			1.00		
Frt	0.99			1.00		
Flt Protected	1.00			1.00		
Satd. Flow (prot)	1557			1588		
Flt Permitted	1.00			1.00		
Satd. Flow (perm)	1557			1588		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	542	62	0	712	0	0
RTOR Reduction (vph)	5	0	0	0	0	0
Lane Group Flow (vph)	600	0	0	713	0	0
Confl. Peds. (#/hr)		10	10		10	
Turn Type	NA			NA		
Protected Phases	2			3 4 6		
Permitted Phases						
Actuated Green, G (s)	36.4			56.5		
Effective Green, g (s)	36.4			50.5		
Actuated g/C Ratio	0.45			0.63		
Clearance Time (s)	6.0					
Vehicle Extension (s)	3.0					
Lane Grp Cap (vph)	708			1002		
v/s Ratio Prot	c0.38			c0.45		
v/s Ratio Perm						
v/c Ratio	0.85			0.71		
Uniform Delay, d1	19.3			9.9		
Progression Factor	0.62			0.37		
Incremental Delay, d2	10.2			0.6		
Delay (s)	22.2			4.3		
Level of Service	C			A		
Approach Delay (s)	22.2			4.3	0.0	
Approach LOS	C			A	A	
Intersection Summary						
HCM 2000 Control Delay			12.5		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.68			
Actuated Cycle Length (s)			80.0		Sum of lost time (s)	20.2
Intersection Capacity Utilization			94.7%		ICU Level of Service	F
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis
25: Tamalpais & Mission

Cumulative (2040)
Timing Plan: PM Peak Hour













	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	↗
Traffic Volume (vph)	520	0	0	674	10	20
Future Volume (vph)	520	0	0	674	10	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0			6.0	3.0	
Lane Util. Factor	1.00			1.00	1.00	
Frbp, ped/bikes	1.00			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	1.00			1.00	0.91	
Flt Protected	1.00			1.00	0.98	
Satd. Flow (prot)	1588			1588	1420	
Flt Permitted	1.00			1.00	0.98	
Satd. Flow (perm)	1588			1588	1420	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	542	0	0	702	10	21
RTOR Reduction (vph)	0	0	0	0	17	0
Lane Group Flow (vph)	542	0	0	702	14	0
Confl. Peds. (#/hr)		10				
Turn Type	NA			NA	Prot	
Protected Phases	2 8			6	3 4	
Permitted Phases						
Actuated Green, G (s)	54.3			36.4	14.1	
Effective Green, g (s)	48.7			36.4	14.1	
Actuated g/C Ratio	0.61			0.45	0.18	
Clearance Time (s)				6.0		
Vehicle Extension (s)				3.0		
Lane Grp Cap (vph)	966			722	250	
v/s Ratio Prot	c0.34			c0.44	c0.01	
v/s Ratio Perm						
v/c Ratio	0.56			0.97	0.05	
Uniform Delay, d1	9.3			21.3	27.4	
Progression Factor	0.22			1.05	1.93	
Incremental Delay, d2	0.4			22.1	0.0	
Delay (s)	2.4			44.4	52.9	
Level of Service	A			D	D	
Approach Delay (s)	2.4			44.4	52.9	
Approach LOS	A			D	D	
Intersection Summary						
HCM 2000 Control Delay			26.8		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.72			
Actuated Cycle Length (s)			80.0		Sum of lost time (s)	20.2
Intersection Capacity Utilization			94.7%		ICU Level of Service	F
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

26: Hetherton & Mission

Cumulative (2040)

















Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑						↑↑	↑
Traffic Volume (vph)	0	490	50	39	179	0	0	0	0	250	1220	495
Future Volume (vph)	0	490	50	39	179	0	0	0	0	250	1220	495
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	10	12	12	16	12	12	12	12	12	12	12
Total Lost time (s)		4.2			4.2						4.6	4.6
Lane Util. Factor		0.95			1.00						0.95	1.00
Frb, ped/bikes		1.00			1.00						1.00	0.98
Flpb, ped/bikes		1.00			1.00						1.00	1.00
Frt		0.99			1.00						1.00	0.85
Flt Protected		1.00			0.99						0.99	1.00
Satd. Flow (prot)		2769			1782						2992	1321
Flt Permitted		1.00			0.80						0.99	1.00
Satd. Flow (perm)		2769			1443						2992	1321
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	510	52	41	186	0	0	0	0	260	1271	516
RTOR Reduction (vph)	0	9	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	553	0	0	227	0	0	0	0	0	1531	516
Confl. Peds. (#/hr)			15	15		4			11			
Confl. Bikes (#/hr)			3			3			3			2
Turn Type		NA		Perm	NA					Split	NA	custom
Protected Phases		4			8					2	2	
Permitted Phases				8								5
Actuated Green, G (s)		22.8			22.8						48.4	41.4
Effective Green, g (s)		22.8			22.8						48.4	41.4
Actuated g/C Ratio		0.29			0.29						0.60	0.52
Clearance Time (s)		4.2			4.2						4.6	4.6
Vehicle Extension (s)		3.0			3.0						3.0	3.0
Lane Grp Cap (vph)		789			411						1810	683
v/s Ratio Prot		c0.20									c0.51	
v/s Ratio Perm					0.16							0.39
v/c Ratio		0.70			0.55						0.85	0.76
Uniform Delay, d1		25.5			24.3						12.8	15.3
Progression Factor		0.47			0.44						1.00	1.00
Incremental Delay, d2		4.5			4.4						5.1	7.6
Delay (s)		16.6			15.2						17.9	22.9
Level of Service		B			B						B	C
Approach Delay (s)		16.6			15.2			0.0			19.1	
Approach LOS		B			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			18.3									B
HCM 2000 Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			80.0							10.8		
Intersection Capacity Utilization			98.4%									F
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis





















27: Irwin & Mission

Cumulative (2040)
Timing Plan: PM Peak Hour

										
Movement	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Lane Configurations										
Traffic Volume (vph)	400	20	320	143	320	20	70	1621	200	59
Future Volume (vph)	400	20	320	143	320	20	70	1621	200	59
Ideal Flow (vphpl)	2200	1800	2200	2200	2200	1800	2200	2200	1800	2200
Lane Width	9	12	10	10	9	12	12	12	12	12
Total Lost time (s)		4.2	4.2	4.2	4.2			4.2	4.2	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95	1.00	
Frpb, ped/bikes		1.00	1.00	1.00	1.00			1.00	0.97	
Flpb, ped/bikes		1.00	1.00	1.00	1.00			1.00	1.00	
Fr t		1.00	1.00	1.00	0.85			1.00	0.85	
Fl t Protected		0.95	1.00	1.00	1.00			1.00	1.00	
Satd. Flow (prot)		1509	1812	1812	1485			3678	1316	
Fl t Permitted		0.62	1.00	1.00	1.00			1.00	1.00	
Satd. Flow (perm)		991	1812	1812	1485			3678	1316	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	417	21	333	149	333	21	73	1689	208	61
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	39	0
Lane Group Flow (vph)	0	438	333	149	354	0	0	1762	230	0
Confl. Peds. (#/hr)							8			3
Confl. Bikes (#/hr)					4	4				
Turn Type	pm+pt	pm+pt	NA	NA	Prot		Perm	NA	Perm	
Protected Phases	5	5	2	6	6			4		
Permitted Phases	2	2					4		4	
Actuated Green, G (s)		33.8	33.8	18.8	18.8			37.8	37.8	
Effective Green, g (s)		33.8	33.8	18.8	18.8			37.8	37.8	
Actuated g/C Ratio		0.42	0.42	0.24	0.24			0.47	0.47	
Clearance Time (s)		4.2	4.2	4.2	4.2			4.2	4.2	
Vehicle Extension (s)		3.0	3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)		488	765	425	348			1737	621	
v/s Ratio Prot		c0.12	0.18	0.08	c0.24					
v/s Ratio Perm		0.26						0.48	0.17	
v/c Ratio		0.90	0.44	0.35	1.02			1.01	0.37	
Uniform Delay, d1		21.4	16.3	25.5	30.6			21.1	13.5	
Progression Factor		0.69	0.79	1.00	1.00			0.49	0.25	
Incremental Delay, d2		13.2	0.3	0.5	52.7			19.0	0.9	
Delay (s)		28.1	13.2	26.0	83.3			29.3	4.2	
Level of Service		C	B	C	F			C	A	
Approach Delay (s)			21.7	66.3				26.0		
Approach LOS			C	E				C		
Intersection Summary										
HCM 2000 Control Delay			31.1					HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio			1.02							
Actuated Cycle Length (s)			80.0					Sum of lost time (s)		12.6
Intersection Capacity Utilization			102.9%					ICU Level of Service		G
Analysis Period (min)			15							
c Critical Lane Group										

HCM 2010 Signalized Intersection Summary
28: Lincoln & 5th

Cumulative (2040)
Timing Plan: PM Peak Hour
















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	400	40	30	245	65	60	470	89	90	359	40
Future Volume (veh/h)	90	400	40	30	245	65	60	470	89	90	359	40
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	1.00		0.97	0.98		0.93	0.98		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1412	1560	1530	1412	1500	1530	1440	1500	1469	1440	1500	1469
Adj Flow Rate, veh/h	94	417	38	31	255	56	62	490	75	94	374	34
Adj No. of Lanes	1	1	0	1	1	0	0	2	0	0	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	427	622	57	244	525	115	137	935	140	223	812	75
Arrive On Green	0.44	0.44	0.44	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Sat Flow, veh/h	846	1405	128	745	1185	260	189	2114	317	362	1834	170
Grp Volume(v), veh/h	94	0	455	31	0	311	324	0	303	238	0	264
Grp Sat Flow(s),veh/h/ln	846	0	1533	745	0	1446	1339	0	1281	1046	0	1320
Q Serve(g_s), s	6.0	0.0	18.8	2.1	0.0	3.5	0.0	0.0	4.1	0.9	0.0	3.1
Cycle Q Clear(g_c), s	9.5	0.0	18.8	20.9	0.0	3.5	3.5	0.0	4.1	5.0	0.0	3.1
Prop In Lane	1.00		0.08	1.00		0.18	0.19		0.25	0.40		0.13
Lane Grp Cap(c), veh/h	427	0	679	244	0	640	646	0	567	526	0	584
V/C Ratio(X)	0.22	0.00	0.67	0.13	0.00	0.49	0.50	0.00	0.53	0.45	0.00	0.45
Avail Cap(c_a), veh/h	427	0	679	244	0	640	646	0	567	526	0	584
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	0.97	0.00	0.97	0.83	0.00	0.83	0.68	0.00	0.68
Uniform Delay (d), s/veh	16.3	0.0	17.7	9.8	0.0	2.8	2.8	0.0	2.8	2.7	0.0	2.7
Incr Delay (d2), s/veh	1.2	0.0	5.2	1.0	0.0	2.5	2.3	0.0	3.0	1.9	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	8.8	0.5	0.0	1.7	1.7	0.0	1.6	1.1	0.0	1.2
LnGrp Delay(d),s/veh	17.4	0.0	22.9	10.8	0.0	5.3	5.1	0.0	5.8	4.6	0.0	4.5
LnGrp LOS	B		C	B		A	A		A	A		A
Approach Vol, veh/h		549			342			627			502	
Approach Delay, s/veh		22.0			5.8			5.4			4.5	
Approach LOS		C			A			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		40.0		40.0		40.0		40.0				
Change Period (Y+Rc), s		4.6		4.6		4.6		4.6				
Max Green Setting (Gmax), s		35.4		35.4		35.4		35.4				
Max Q Clear Time (g_c+I1), s		20.8		6.1		22.9		7.0				
Green Ext Time (p_c), s		3.9		6.0		3.6		6.0				
Intersection Summary												
HCM 2010 Ctrl Delay				9.8								
HCM 2010 LOS				A								

HCM Signalized Intersection Capacity Analysis

29: Tamalpais & 5th

Cumulative (2040)













Timing Plan: PM Peak Hour

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	0	499	60	0	330	0	0	0	0	30	20	20		
Future Volume (vph)	0	499	60	0	330	0	0	0	0	30	20	20		
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800		
Total Lost time (s)		6.0			6.0						6.0			
Lane Util. Factor		1.00			1.00						1.00			
Frbp, ped/bikes		0.99			1.00						0.99			
Flpb, ped/bikes		1.00			1.00						1.00			
Frt		0.99			1.00						0.96			
Flt Protected		1.00			1.00						0.98			
Satd. Flow (prot)		1557			1588						1476			
Flt Permitted		1.00			1.00						0.98			
Satd. Flow (perm)		1557			1588						1476			
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96		
Adj. Flow (vph)	0	520	62	0	344	0	0	0	0	31	21	21		
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	19	0		
Lane Group Flow (vph)	0	579	0	0	344	0	0	0	0	0	54	0		
Confl. Peds. (#/hr)	10		10	10		10	10					10		
Turn Type		NA			NA					Perm	NA			
Protected Phases		2			4						8			
Permitted Phases										8				
Actuated Green, G (s)		42.7			58.9						9.1			
Effective Green, g (s)		42.7			58.9						9.1			
Actuated g/C Ratio		0.53			0.74						0.11			
Clearance Time (s)		6.0									6.0			
Vehicle Extension (s)		3.0									1.5			
Lane Grp Cap (vph)		831			1169						167			
v/s Ratio Prot		c0.37			c0.22									
v/s Ratio Perm											0.04			
v/c Ratio		0.70			0.29						0.33			
Uniform Delay, d1		13.8			3.6						32.6			
Progression Factor		0.66			0.06						0.64			
Incremental Delay, d2		3.6			0.0						0.3			
Delay (s)		12.7			0.3						21.2			
Level of Service		B			A						C			
Approach Delay (s)		12.7			0.3			0.0			21.2			
Approach LOS		B			A			A			C			
Intersection Summary														
HCM 2000 Control Delay			9.1									HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio			0.59											
Actuated Cycle Length (s)			80.0								18.0		Sum of lost time (s)	
Intersection Capacity Utilization			85.4%										ICU Level of Service	E
Analysis Period (min)			15											
c Critical Lane Group														

HCM Signalized Intersection Capacity Analysis

30: Tamalpais & 5th

Cumulative (2040)
Timing Plan: PM Peak Hour



















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↔			↕				
Traffic Volume (vph)	0	529	0	0	310	10	20	20	20	0	0	0
Future Volume (vph)	0	529	0	0	310	10	20	20	20	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		6.0			6.0			6.0				
Lane Util. Factor		1.00			1.00			1.00				
Frbp, ped/bikes		1.00			1.00			0.99				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			1.00			0.95				
Flt Protected		1.00			1.00			0.98				
Satd. Flow (prot)		1588			1580			1470				
Flt Permitted		1.00			1.00			0.98				
Satd. Flow (perm)		1588			1580			1470				
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	551	0	0	323	10	21	21	21	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	0	0	18	0	0	0	0
Lane Group Flow (vph)	0	551	0	0	332	0	0	45	0	0	0	0
Confl. Peds. (#/hr)	10		10			10			10			
Turn Type		NA			NA		Split	NA				
Protected Phases		2 8			6		4	4				
Permitted Phases												
Actuated Green, G (s)		57.8			42.7			10.2				
Effective Green, g (s)		57.8			42.7			10.2				
Actuated g/C Ratio		0.72			0.53			0.13				
Clearance Time (s)					6.0			6.0				
Vehicle Extension (s)					3.0			1.5				
Lane Grp Cap (vph)		1147			843			187				
v/s Ratio Prot		c0.35			0.21			c0.03				
v/s Ratio Perm												
v/c Ratio		0.48			0.39			0.24				
Uniform Delay, d1		4.7			11.0			31.4				
Progression Factor		0.14			0.61			1.16				
Incremental Delay, d2		0.1			1.3			0.2				
Delay (s)		0.8			8.0			36.6				
Level of Service		A			A			D				
Approach Delay (s)		0.8			8.0			36.6			0.0	
Approach LOS		A			A			D			A	
Intersection Summary												
HCM 2000 Control Delay			5.7				HCM 2000 Level of Service		A			
HCM 2000 Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)		18.0			
Intersection Capacity Utilization			85.4%				ICU Level of Service		E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

31: Hetherton & 5th

Cumulative (2040)

Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											  	
Traffic Volume (vph)	0	359	190	69	180	0	0	0	0	50	1119	140
Future Volume (vph)	0	359	190	69	180	0	0	0	0	50	1119	140
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	16	12	12	16	12	12	12	12	12	12	12
Total Lost time (s)		4.2			4.2						4.6	4.6
Lane Util. Factor		1.00			1.00						0.91	1.00
Frbp, ped/bikes		0.99			1.00						1.00	0.95
Flpb, ped/bikes		1.00			1.00						1.00	1.00
Frt		0.95			1.00						1.00	0.85
Flt Protected		1.00			0.99						1.00	1.00
Satd. Flow (prot)		1700			1774						4164	1147
Flt Permitted		1.00			0.66						1.00	1.00
Satd. Flow (perm)		1700			1188						4164	1147
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	374	198	72	188	0	0	0	0	52	1166	146
RTOR Reduction (vph)	0	9	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	563	0	0	260	0	0	0	0	0	1218	146
Confl. Peds. (#/hr)	12		12	12		12			12	12		7
Confl. Bikes (#/hr)			6			4			2			2
Parking (#/hr)											2	2
Turn Type		NA		Perm	NA						Perm	NA custom
Protected Phases		4			8							2
Permitted Phases				8						2		5
Actuated Green, G (s)		39.8			39.8						31.4	24.4
Effective Green, g (s)		39.8			39.8						31.4	24.4
Actuated g/C Ratio		0.50			0.50						0.39	0.30
Clearance Time (s)		4.2			4.2						4.6	4.6
Vehicle Extension (s)		3.0			3.0						3.0	3.0
Lane Grp Cap (vph)		845			591						1634	349
v/s Ratio Prot		c0.33										
v/s Ratio Perm					0.22						0.29	0.13
v/c Ratio		0.67			0.44						0.75	0.42
Uniform Delay, d1		15.1			12.9						20.9	22.1
Progression Factor		0.33			0.99						0.67	0.74
Incremental Delay, d2		3.8			1.9						1.7	1.9
Delay (s)		8.9			14.7						15.8	18.4
Level of Service		A			B						B	B
Approach Delay (s)		8.9			14.7			0.0			16.0	
Approach LOS		A			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			14.0			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)			10.8			
Intersection Capacity Utilization			94.9%			ICU Level of Service			F			
Analysis Period (min)			15									

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
32: Irwin & 5th

Cumulative (2040)
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	269	160	0	0	139	120	100	1546	20	0	0	0
Future Volume (veh/h)	269	160	0	0	139	120	100	1546	20	0	0	0
Number	5	2	12	1	6	16	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.96			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.87	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1588	1588	0	0	1588	1620	1620	1588	1620			
Adj Flow Rate, veh/h	280	167	0	0	145	120	104	1610	19			
Adj No. of Lanes	1	1	0	0	1	0	0	3	0			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	0	2	0			
Cap, veh/h	366	683	0	0	296	245	118	1950	24			
Arrive On Green	0.72	0.72	0.00	0.00	0.43	0.43	0.15	0.15	0.15			
Sat Flow, veh/h	995	1588	0	0	688	570	260	4286	52			
Grp Volume(v), veh/h	280	167	0	0	0	265	631	527	575			
Grp Sat Flow(s),veh/h/ln	995	1588	0	0	0	1258	1575	1445	1577			
Q Serve(g_s), s	22.2	2.9	0.0	0.0	0.0	12.2	31.4	28.2	28.2			
Cycle Q Clear(g_c), s	34.4	2.9	0.0	0.0	0.0	12.2	31.4	28.2	28.2			
Prop In Lane	1.00		0.00	0.00		0.45	0.16		0.03			
Lane Grp Cap(c), veh/h	366	683	0	0	0	541	717	658	717			
V/C Ratio(X)	0.76	0.24	0.00	0.00	0.00	0.49	0.88	0.80	0.80			
Avail Cap(c_a), veh/h	366	683	0	0	0	541	717	658	717			
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00	0.33	0.33	0.33			
Upstream Filter(I)	0.69	0.69	0.00	0.00	0.00	1.00	0.49	0.49	0.49			
Uniform Delay (d), s/veh	17.5	6.8	0.0	0.0	0.0	16.5	31.9	30.5	30.5			
Incr Delay (d2), s/veh	6.5	0.1	0.0	0.0	0.0	0.7	7.9	5.1	4.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	6.8	1.3	0.0	0.0	0.0	4.3	15.2	12.2	13.2			
LnGrp Delay(d),s/veh	24.0	7.0	0.0	0.0	0.0	17.2	39.8	35.6	35.2			
LnGrp LOS	C	A				B	D	D	D			
Approach Vol, veh/h		447			265			1733				
Approach Delay, s/veh		17.6			17.2			37.0				
Approach LOS		B			B			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		39.0		41.0		39.0						
Change Period (Y+Rc), s		4.6		4.6		4.6						
Max Green Setting (Gmax), s		34.4		36.4		34.4						
Max Q Clear Time (g_c+I1), s		36.4		33.4		14.2						
Green Ext Time (p_c), s		0.0		2.2		3.7						
Intersection Summary												
HCM 2010 Ctrl Delay				31.3								
HCM 2010 LOS				C								

Arterial Level of Service: EB 2nd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Lindaro	IV	25	12.4	56.2	68.6	0.05	2.5	F
Lincoln	IV	25	21.4	23.9	45.3	0.10	7.7	E
Francisco W.	IV	25	12.2	89.2	101.4	0.05	1.6	F
101 SBO on Hetherton	IV	25	14.2	81.7	95.9	0.05	2.0	F
Total	IV		60.2	251.0	311.2	0.24	2.8	F

Arterial Level of Service: WB 3rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Hetherton	IV	25	19.0	96.7	115.7	0.07	2.2	F
Tamalpais	IV	25	14.4	96.4	110.8	0.05	1.8	F
Lincoln	IV	25	13.2	19.0	32.2	0.05	5.6	F
Lindaro	IV	25	10.3	4.7	15.0	0.04	9.4	D
Total	IV		56.9	216.8	273.7	0.21	2.8	F

Arterial Level of Service: SB Hetherton

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Mission	IV	35	22.2	18.6	40.8	0.16	14.0	C
5th	IV	25	16.3	16.0	32.3	0.06	6.9	F
4th	IV	25	14.6	5.5	20.1	0.05	9.8	D
3rd	IV	25	17.7	22.0	39.7	0.07	6.0	F
2nd	IV	25	15.6	55.5	71.1	0.06	3.0	F
Total	IV		86.4	117.6	204.0	0.40	7.1	E

Arterial Level of Service: NB Irwin

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
2nd St	IV	38	19.3	44.2	63.5	0.17	9.5	D
3rd St	IV	25	14.8	12.6	27.4	0.06	7.3	E
4th	IV	25	18.9	12.1	31.0	0.07	8.3	E
5th	IV	25	14.0	13.8	27.8	0.05	6.8	F
Mission	IV	25	15.7	3.4	19.1	0.06	11.2	D
Total	IV		82.7	86.1	168.8	0.41	8.7	E

Arterial Level of Service: NB Lindaro

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
2nd	IV	25	15.8	18.2	34.0	0.06	6.3	F
3rd	IV	25	16.7	49.7	66.4	0.06	3.4	F
Total	IV		32.5	67.9	100.4	0.12	4.4	F

Arterial Level of Service: SB Lindaro

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
3rd	IV	25	9.9	22.2	32.1	0.04	4.2	F
2nd	IV	25	16.7	17.7	34.4	0.06	6.6	F
Total	IV		26.6	39.9	66.5	0.10	5.4	F

Arterial Level of Service: EB Mission

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Lincoln	IV	25	28.5	12.8	41.3	0.16	13.8	C
Tamalpais	IV	25	16.1	24.0	40.1	0.06	5.5	F
Tamalpais	IV	25	4.3	2.3	6.6	0.02	8.9	E
Hetherton	IV	25	7.5	16.6	24.1	0.03	4.2	F
Irwin	IV	25	18.9	14.5	33.4	0.07	7.7	E
Total	IV		75.3	70.2	145.5	0.33	8.3	E

Arterial Level of Service: WB Mission

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Irwin	IV	25	21.6	28.3	49.9	0.10	7.1	E
Hetherton	IV	25	18.9	15.5	34.4	0.07	7.5	E
Tamalpais	IV	25	7.5	47.0	54.5	0.03	1.9	F
Tamalpais	IV	25	4.3	2.7	7.0	0.02	8.4	E
Lincoln	IV	25	16.1	88.2	104.3	0.06	2.1	F
Total	IV		68.4	181.7	250.1	0.27	4.0	F

**APPENDIX E: SYNCHRO DATA – CUMULATIVE WITH PROJECT
CONDITIONS**



HCM 2010 Signalized Intersection Summary
1: Cijos & 4th




















Cumulative (2040) With Project Conditions
Timing Plan: AM Peak Hour

	→	↘	↙	←	↖	↗		
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↗		↖	↗	↖	↗		
Traffic Volume (veh/h)	300	10	45	395	144	46		
Future Volume (veh/h)	300	10	45	395	144	46		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		0.94	0.98		1.00	0.97		
Parking Bus, Adj	1.00	0.89	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1573	1620	1573	1573	1573	1620		
Adj Flow Rate, veh/h	326	9	49	429	157	30		
Adj No. of Lanes	1	0	1	1	0	0		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	3	3	3	3	0	0		
Cap, veh/h	867	24	590	1008	251	48		
Arrive On Green	0.64	0.64	0.64	0.64	0.23	0.23		
Sat Flow, veh/h	1353	37	911	1573	1074	205		
Grp Volume(v), veh/h	0	335	49	429	188	0		
Grp Sat Flow(s),veh/h/ln	0	1391	911	1573	1287	0		
Q Serve(g_s), s	0.0	7.4	1.7	8.8	8.5	0.0		
Cycle Q Clear(g_c), s	0.0	7.4	9.2	8.8	8.5	0.0		
Prop In Lane		0.03	1.00		0.84	0.16		
Lane Grp Cap(c), veh/h	0	891	590	1008	300	0		
V/C Ratio(X)	0.00	0.38	0.08	0.43	0.63	0.00		
Avail Cap(c_a), veh/h	0	891	590	1008	396	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	0.00	1.00	0.26	0.26	1.00	0.00		
Uniform Delay (d), s/veh	0.0	5.5	7.7	5.8	22.4	0.0		
Incr Delay (d2), s/veh	0.0	1.2	0.1	0.3	4.5	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	3.1	0.4	3.8	3.4	0.0		
LnGrp Delay(d),s/veh	0.0	6.7	7.8	6.1	26.9	0.0		
LnGrp LOS		A	A	A	C			
Approach Vol, veh/h	335			478	188			
Approach Delay, s/veh	6.7			6.3	26.9			
Approach LOS	A			A	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		45.8				45.8		19.2
Change Period (Y+Rc), s		* 4.2				* 4.2		4.0
Max Green Setting (Gmax), s		* 37				* 37		20.0
Max Q Clear Time (g_c+I1), s		9.4				11.2		10.5
Green Ext Time (p_c), s		8.5				8.3		0.9
Intersection Summary								
HCM 2010 Ctrl Delay			10.3					
HCM 2010 LOS			B					
Notes								
User approved volume balancing among the lanes for turning movement.								

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
2: Lincoln & 4th

Cumulative (2040) With Project Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	265	20	80	340	60	20	240	70	85	371	80
Future Volume (veh/h)	40	265	20	80	340	60	20	240	70	85	371	80
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.90	0.97		0.91	0.97		0.92	0.99		0.92
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.89	1.00	1.00	0.89
Adj Sat Flow, veh/h/ln	1573	1510	1620	1573	1573	1620	1620	1573	1555	1620	1573	1555
Adj Flow Rate, veh/h	43	288	19	87	370	56	22	261	62	92	403	78
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	117	423	28	209	400	60	74	598	136	144	541	99
Arrive On Green	0.30	0.30	0.30	0.10	0.10	0.10	0.19	0.19	0.19	1.00	1.00	1.00
Sat Flow, veh/h	853	1390	92	925	1314	199	39	1024	233	151	927	170
Grp Volume(v), veh/h	43	0	307	87	0	426	345	0	0	573	0	0
Grp Sat Flow(s),veh/h/ln	853	0	1482	925	0	1513	1296	0	0	1248	0	0
Q Serve(g_s), s	1.9	0.0	13.6	7.0	0.0	20.9	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	22.8	0.0	13.6	20.6	0.0	20.9	17.1	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.06	1.00		0.13	0.06		0.18	0.16		0.14
Lane Grp Cap(c), veh/h	117	0	450	209	0	460	808	0	0	784	0	0
V/C Ratio(X)	0.37	0.00	0.68	0.42	0.00	0.93	0.43	0.00	0.00	0.73	0.00	0.00
Avail Cap(c_a), veh/h	117	0	450	209	0	460	808	0	0	784	0	0
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	0.33	0.33	0.33	2.00	2.00	2.00
Upstream Filter(I)	0.92	0.00	0.92	1.00	0.00	1.00	0.75	0.00	0.00	0.48	0.00	0.00
Uniform Delay (d), s/veh	37.0	0.0	22.9	39.5	0.0	32.9	19.5	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	8.0	0.0	7.5	6.0	0.0	27.0	1.2	0.0	0.0	2.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	6.5	2.1	0.0	12.3	6.6	0.0	0.0	0.6	0.0	0.0
LnGrp Delay(d),s/veh	45.1	0.0	30.4	45.5	0.0	59.9	20.8	0.0	0.0	2.9	0.0	0.0
LnGrp LOS	D		C	D		E	C			A		
Approach Vol, veh/h		350			513			345			573	
Approach Delay, s/veh		32.2			57.5			20.8			2.9	
Approach LOS		C			E			C			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		27.0		48.0		27.0		48.0				
Change Period (Y+Rc), s		* 4.2		* 4.2		* 4.2		* 4.2				
Max Green Setting (Gmax), s		* 23		* 44		* 23		* 44				
Max Q Clear Time (g_c+I1), s		24.8		19.1		22.9		2.0				
Green Ext Time (p_c), s		0.0		10.0		0.0		12.3				
Intersection Summary												
HCM 2010 Ctrl Delay				27.9								
HCM 2010 LOS				C								
Notes												
User approved ignoring U-Turning movement.												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	2.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑		↑
Traffic Vol, veh/h	420	0	0	485	0	180
Future Vol, veh/h	420	0	0	485	0	180
Conflicting Peds, #/hr	0	34	0	0	0	49
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	457	0	0	527	0	196

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	-
Pot Cap-1 Maneuver	-	0	0
Stage 1	-	0	0
Stage 2	-	0	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	541	-	-
HCM Lane V/C Ratio	0.362	-	-
HCM Control Delay (s)	15.4	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	1.6	-	-

HCM Signalized Intersection Capacity Analysis
4: 4th & Tamalpais

Cumulative (2040) With Project Conditions
Timing Plan: AM Peak Hour
















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↗
Traffic Volume (vph)	0	500	430	0	0	55
Future Volume (vph)	0	500	430	0	0	55
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.6	5.6			5.2
Lane Util. Factor		1.00	1.00			1.00
Frbp, ped/bikes		1.00	1.00			0.87
Flpb, ped/bikes		1.00	1.00			1.00
Frt		1.00	1.00			0.86
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		1573	1573			1188
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		1573	1573			1188
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	543	467	0	0	60
RTOR Reduction (vph)	0	0	0	0	0	49
Lane Group Flow (vph)	0	543	467	0	0	11
Confl. Peds. (#/hr)				39		46
Confl. Bikes (#/hr)				4		
Turn Type		NA	NA			Perm
Protected Phases		2 8	4 6			
Permitted Phases						8
Actuated Green, G (s)		50.3	50.4			13.8
Effective Green, g (s)		50.3	50.4			13.8
Actuated g/C Ratio		0.67	0.67			0.18
Clearance Time (s)						5.2
Vehicle Extension (s)						3.0
Lane Grp Cap (vph)		1054	1057			218
v/s Ratio Prot		c0.35	c0.30			
v/s Ratio Perm						0.01
v/c Ratio		0.52	0.44			0.05
Uniform Delay, d1		6.2	5.7			25.2
Progression Factor		1.22	0.36			1.00
Incremental Delay, d2		0.4	0.2			0.1
Delay (s)		7.9	2.2			25.3
Level of Service		A	A			C
Approach Delay (s)		7.9	2.2		25.3	
Approach LOS		A	A		C	

Intersection Summary			
HCM 2000 Control Delay	6.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	16.4
Intersection Capacity Utilization	98.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group













HCM Signalized Intersection Capacity Analysis
5: Tamalpais & 4th

Cumulative (2040) With Project Conditions
Timing Plan: AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑			↔			↕					
Traffic Volume (vph)	0	500	0	0	420	70	10	10	10	0	0	0	
Future Volume (vph)	0	500	0	0	420	70	10	10	10	0	0	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)		5.6			5.6			5.6					
Lane Util. Factor		1.00			1.00			1.00					
Frbp, ped/bikes		1.00			0.98			0.99					
Flpb, ped/bikes		1.00			1.00			1.00					
Frt		1.00			0.98			0.95					
Flt Protected		1.00			1.00			0.98					
Satd. Flow (prot)		1573			1517			1464					
Flt Permitted		1.00			1.00			0.98					
Satd. Flow (perm)		1573			1517			1464					
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)	0	543	0	0	457	76	11	11	11	0	0	0	
RTOR Reduction (vph)	0	0	0	0	8	0	0	9	0	0	0	0	
Lane Group Flow (vph)	0	543	0	0	525	0	0	24	0	0	0	0	
Confl. Peds. (#/hr)	39		22			39			10				
Turn Type		NA			NA		Split	NA					
Protected Phases		2 8			6		4	4					
Permitted Phases													
Actuated Green, G (s)		50.3			30.9			13.9					
Effective Green, g (s)		50.3			30.9			13.9					
Actuated g/C Ratio		0.67			0.41			0.19					
Clearance Time (s)					5.6			5.6					
Vehicle Extension (s)					3.0			3.0					
Lane Grp Cap (vph)		1054			625			271					
v/s Ratio Prot		c0.35			c0.35			c0.02					
v/s Ratio Perm													
v/c Ratio		0.52			0.84			0.09					
Uniform Delay, d1		6.2			19.8			25.3					
Progression Factor		0.05			0.98			0.97					
Incremental Delay, d2		0.4			11.5			0.1					
Delay (s)		0.7			30.9			24.7					
Level of Service		A			C			C					
Approach Delay (s)		0.7			30.9			24.7			0.0		
Approach LOS		A			C			C			A		
Intersection Summary													
HCM 2000 Control Delay			15.9				HCM 2000 Level of Service		B				
HCM 2000 Volume to Capacity ratio			0.61										
Actuated Cycle Length (s)			75.0				Sum of lost time (s)		16.4				
Intersection Capacity Utilization			98.9%				ICU Level of Service		F				
Analysis Period (min)			15										
c Critical Lane Group													


















HCM Signalized Intersection Capacity Analysis
6: Hetherton & 4th

Cumulative (2040) With Project Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↖↗	↗
Traffic Volume (vph)	0	305	200	200	305	0	0	0	0	110	972	190
Future Volume (vph)	0	305	200	200	305	0	0	0	0	110	972	190
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	13	10	15	11	12	12	12	12	12	12	12
Total Lost time (s)		4.2	4.2	4.2	4.2						4.6	4.6
Lane Util. Factor		1.00	1.00	1.00	1.00						0.91	1.00
Frbp, ped/bikes		1.00	0.95	1.00	1.00						1.00	0.89
Flpb, ped/bikes		1.00	1.00	0.98	1.00						1.00	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.99	1.00
Satd. Flow (prot)		1625	1181	1607	1520						4265	1184
Flt Permitted		1.00	1.00	0.49	1.00						0.99	1.00
Satd. Flow (perm)		1625	1181	824	1520						4265	1184
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)	0	332	217	217	332	0	0	0	0	120	1057	207
RTOR Reduction (vph)	0	0	27	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	332	190	217	332	0	0	0	0	0	1177	207
Confl. Peds. (#/hr)			40	40		22			9	9		30
Confl. Bikes (#/hr)			8			4						2
Turn Type		NA	Perm	Perm	NA					Perm	NA	custom
Protected Phases		4			8							2
Permitted Phases			4	8						2		5
Actuated Green, G (s)		35.8	35.8	35.8	35.8						30.4	23.4
Effective Green, g (s)		35.8	35.8	35.8	35.8						30.4	23.4
Actuated g/C Ratio		0.48	0.48	0.48	0.48						0.41	0.31
Clearance Time (s)		4.2	4.2	4.2	4.2						4.6	4.6
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		775	563	393	725						1728	369
v/s Ratio Prot		0.20			0.22							
v/s Ratio Perm			0.16	c0.26							0.28	0.17
v/c Ratio		0.43	0.34	0.55	0.46						0.68	0.56
Uniform Delay, d1		12.9	12.2	13.9	13.1						18.3	21.5
Progression Factor		0.49	0.42	1.03	1.07						0.32	0.42
Incremental Delay, d2		1.5	1.4	3.8	1.4						1.6	4.4
Delay (s)		7.9	6.5	18.2	15.4						7.4	13.3
Level of Service		A	A	B	B						A	B
Approach Delay (s)		7.4			16.5			0.0			8.3	
Approach LOS		A			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			9.9			HCM 2000 Level of Service				A		
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			75.0			Sum of lost time (s)				10.8		
Intersection Capacity Utilization			89.4%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												


















HCM 2010 Signalized Intersection Summary
7: Irwin & 4th

Cumulative (2040) With Project Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	240	0	0	380	70	130	1150	50	0	0	0
Future Volume (veh/h)	170	240	0	0	380	70	130	1150	50	0	0	0
Number	5	2	12	1	6	16	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.96	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.89	1.00	1.00	0.89			
Adj Sat Flow, veh/h/ln	1573	1573	0	0	1573	1620	1510	1573	1620			
Adj Flow Rate, veh/h	185	261	0	0	413	66	141	1250	50			
Adj No. of Lanes	1	1	0	0	1	0	1	2	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	152	625	0	0	465	74	706	1356	54			
Arrive On Green	0.79	0.79	0.00	0.00	0.40	0.40	0.16	0.16	0.16			
Sat Flow, veh/h	813	1573	0	0	1170	187	1438	2763	110			
Grp Volume(v), veh/h	185	261	0	0	0	479	141	675	625			
Grp Sat Flow(s),veh/h/ln	813	1573	0	0	0	1357	1438	1494	1380			
Q Serve(g_s), s	5.1	3.8	0.0	0.0	0.0	24.7	6.4	33.4	33.5			
Cycle Q Clear(g_c), s	29.8	3.8	0.0	0.0	0.0	24.7	6.4	33.4	33.5			
Prop In Lane	1.00		0.00	0.00		0.14	1.00		0.08			
Lane Grp Cap(c), veh/h	152	625	0	0	0	539	706	733	677			
V/C Ratio(X)	1.22	0.42	0.00	0.00	0.00	0.89	0.20	0.92	0.92			
Avail Cap(c_a), veh/h	152	625	0	0	0	539	706	733	677			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33			
Upstream Filter(I)	0.91	0.91	0.00	0.00	0.00	1.00	0.16	0.16	0.16			
Uniform Delay (d), s/veh	21.7	5.0	0.0	0.0	0.0	21.1	18.7	30.0	30.0			
Incr Delay (d2), s/veh	141.0	1.9	0.0	0.0	0.0	19.3	0.1	4.1	4.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	9.0	1.8	0.0	0.0	0.0	12.1	2.6	14.7	13.6			
LnGrp Delay(d),s/veh	162.7	6.9	0.0	0.0	0.0	40.3	18.8	34.1	34.6			
LnGrp LOS	F	A				D	B	C	C			
Approach Vol, veh/h		446			479			1441				
Approach Delay, s/veh		71.5			40.3			32.8				
Approach LOS		E			D			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		34.0		41.0		34.0						
Change Period (Y+Rc), s		* 4.2		* 4.2		* 4.2						
Max Green Setting (Gmax), s		* 30		* 37		* 30						
Max Q Clear Time (g_c+I1), s		31.8		35.5		26.7						
Green Ext Time (p_c), s		0.0		0.9		1.5						
Intersection Summary												
HCM 2010 Ctrl Delay				41.6								
HCM 2010 LOS				D								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
8: Lindaro & 3rd

Cumulative (2040) With Project Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	477	1396	30	76	10	0	0	40	10
Future Volume (veh/h)	0	0	0	477	1396	30	76	10	0	0	40	10
Number				1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.94	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1398	1398	1440	1440	1398	0	0	1398	1440
Adj Flow Rate, veh/h				518	1517	31	83	11	0	0	43	1
Adj No. of Lanes				1	3	0	0	1	0	0	1	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				831	2399	49	179	17	0	0	163	4
Arrive On Green				0.21	0.21	0.21	0.12	0.12	0.00	0.00	0.12	0.12
Sat Flow, veh/h				1331	3845	79	741	140	0	0	1361	32
Grp Volume(v), veh/h				518	1004	544	94	0	0	0	0	44
Grp Sat Flow(s),veh/h/ln				1331	1272	1379	880	0	0	0	0	1392
Q Serve(g_s), s				26.6	27.0	27.0	6.0	0.0	0.0	0.0	0.0	2.2
Cycle Q Clear(g_c), s				26.6	27.0	27.0	8.1	0.0	0.0	0.0	0.0	2.2
Prop In Lane				1.00		0.06	0.88		0.00	0.00		0.02
Lane Grp Cap(c), veh/h				831	1588	860	196	0	0	0	0	166
V/C Ratio(X)				0.62	0.63	0.63	0.48	0.00	0.00	0.00	0.00	0.26
Avail Cap(c_a), veh/h				831	1588	860	355	0	0	0	0	368
HCM Platoon Ratio				0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				21.8	21.9	21.9	33.5	0.0	0.0	0.0	0.0	30.0
Incr Delay (d2), s/veh				3.5	1.9	3.5	1.8	0.0	0.0	0.0	0.0	0.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				10.6	10.0	11.2	2.0	0.0	0.0	0.0	0.0	0.9
LnGrp Delay(d),s/veh				25.3	23.9	25.4	35.3	0.0	0.0	0.0	0.0	30.9
LnGrp LOS				C	C	C	D					C
Approach Vol, veh/h				2066			94			44		
Approach Delay, s/veh				24.6			35.3			30.9		
Approach LOS				C			D			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				13.2		51.0		13.2				
Change Period (Y+Rc), s				* 4.2		4.2		* 4.2				
Max Green Setting (Gmax), s				* 20		46.8		* 20				
Max Q Clear Time (g_c+I1), s				10.1		29.0		4.2				
Green Ext Time (p_c), s				0.3		10.3		0.4				
Intersection Summary												
HCM 2010 Ctrl Delay				25.2								
HCM 2010 LOS				C								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Int Delay, s/veh 0.7

Movement EBT EBR WBL WBT NBL NBR

Lane Configurations				↑↑↑	↑	
Traffic Vol, veh/h	0	0	0	1838	80	0
Future Vol, veh/h	0	0	0	1838	80	0
Conflicting Peds, #/hr	0	23	23	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	0	1998	87	0

Major/Minor Major2 Minor1

Conflicting Flow All	-	-	799	-
Stage 1	-	-	0	-
Stage 2	-	-	799	-
Critical Hdwy	-	-	5.76	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	6.06	-
Follow-up Hdwy	-	-	3.83	-
Pot Cap-1 Maneuver	0	-	389	0
Stage 1	0	-	-	0
Stage 2	0	-	364	0
Platoon blocked, %			-	
Mov Cap-1 Maneuver	-	-	389	-
Mov Cap-2 Maneuver	-	-	389	-
Stage 1	-	-	-	-
Stage 2	-	-	364	-

Approach WB NB

HCM Control Delay, s	0	16.9
HCM LOS		C

Minor Lane/Major Mvmt NBLn1 WBT

Capacity (veh/h)	389	-
HCM Lane V/C Ratio	0.224	-
HCM Control Delay (s)	16.9	-
HCM Lane LOS	C	-
HCM 95th %tile Q(veh)	0.8	-

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑			↑
Traffic Vol, veh/h	0	0	1793	190	0	45
Future Vol, veh/h	0	0	1793	190	0	45
Conflicting Peds, #/hr	0	0	0	28	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	-	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	1949	207	0	49













Major/Minor	Major2	Minor2
Conflicting Flow All	-	0 - 1106
Stage 1	-	-
Stage 2	-	-
Critical Hdwy	-	- 7.16
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	-	- 3.93
Pot Cap-1 Maneuver	-	0 175
Stage 1	-	0 -
Stage 2	-	0 -
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	- 171
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

Approach	WB	SB
HCM Control Delay, s	0	34.3
HCM LOS		D

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	171
HCM Lane V/C Ratio	-	-	0.286
HCM Control Delay (s)	-	-	34.3
HCM Lane LOS	-	-	D
HCM 95th %tile Q(veh)	-	-	1.1


















HCM 2010 Signalized Intersection Summary
 11: Lincoln & 3rd

Cumulative (2040) With Project Conditions
 Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑			↑				↑
Traffic Volume (veh/h)	0	0	0	175	1775	75	42	195	0	0	290	166
Future Volume (veh/h)	0	0	0	175	1775	75	42	195	0	0	290	166
Number				1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.91	1.00		1.00	1.00		0.92
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88
Adj Sat Flow, veh/h/ln				1620	1573	1620	1620	1573	0	0	1510	1555
Adj Flow Rate, veh/h				190	1929	77	46	212	0	0	315	179
Adj No. of Lanes				0	3	0	0	1	0	0	1	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				0	3	0	3	3	0	0	3	3
Cap, veh/h				174	1884	77	57	184	0	0	315	179
Arrive On Green				0.47	0.47	0.47	0.13	0.13	0.00	0.00	0.13	0.13
Sat Flow, veh/h				367	3980	163	0	452	0	0	774	440
Grp Volume(v), veh/h				804	671	721	258	0	0	0	0	494
Grp Sat Flow(s),veh/h/ln				1554	1431	1525	452	0	0	0	0	1214
Q Serve(g_s), s				35.5	34.9	35.4	0.0	0.0	0.0	0.0	0.0	30.5
Cycle Q Clear(g_c), s				35.5	34.9	35.4	30.5	0.0	0.0	0.0	0.0	30.5
Prop In Lane				0.24		0.11	0.18		0.00	0.00		0.36
Lane Grp Cap(c), veh/h				736	677	722	240	0	0	0	0	494
V/C Ratio(X)				1.09	0.99	1.00	1.07	0.00	0.00	0.00	0.00	1.00
Avail Cap(c_a), veh/h				736	677	722	240	0	0	0	0	494
HCM Platoon Ratio				1.00	1.00	1.00	0.33	0.33	1.00	1.00	0.33	0.33
Upstream Filter(I)				0.09	0.09	0.09	1.00	0.00	0.00	0.00	0.00	0.44
Uniform Delay (d), s/veh				19.8	19.6	19.7	27.7	0.0	0.0	0.0	0.0	32.5
Incr Delay (d2), s/veh				44.0	8.4	9.8	79.2	0.0	0.0	0.0	0.0	26.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				24.1	15.2	16.8	10.3	0.0	0.0	0.0	0.0	13.9
LnGrp Delay(d),s/veh				63.7	28.0	29.5	106.9	0.0	0.0	0.0	0.0	59.3
LnGrp LOS				F	C	C	F					F
Approach Vol, veh/h				2196			258			494		
Approach Delay, s/veh				41.6			106.9			59.3		
Approach LOS				D			F			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				35.0		40.0		35.0				
Change Period (Y+Rc), s				4.5		4.5		4.5				
Max Green Setting (Gmax), s				30.5		35.5		30.5				
Max Q Clear Time (g_c+I1), s				32.5		37.5		32.5				
Green Ext Time (p_c), s				0.0		0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				50.3								
HCM 2010 LOS				D								

HCM Signalized Intersection Capacity Analysis
12: Tamalpais & 3rd

Cumulative (2040) With Project Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					  							
Traffic Volume (vph)	0	0	0	295	1960	30	50	50	0	0	0	0
Future Volume (vph)	0	0	0	295	1960	30	50	50	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1600	1600	1600	1600	1600	1800	1800	1600	1600
Lane Width	12	12	12	12	12	12	11	12	12	12	12	12
Total Lost time (s)					11.6		7.6	7.6				
Lane Util. Factor					0.91		1.00	1.00				
Frbp, ped/bikes					1.00		1.00	1.00				
Flpb, ped/bikes					0.98		0.93	1.00				
Frt					1.00		1.00	1.00				
Flt Protected					0.99		0.95	1.00				
Satd. Flow (prot)					3699		1057	1237				
Flt Permitted					0.99		0.95	1.00				
Satd. Flow (perm)					3699		1057	1237				
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)	0	0	0	321	2130	33	54	54	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	2482	0	54	54	0	0	0	0
Confl. Peds. (#/hr)			73	73		38	49		63			49
Confl. Bikes (#/hr)						2			2			2
Parking (#/hr)							3	3			3	3
Turn Type				Perm	NA		Perm	NA				
Protected Phases					6			4				
Permitted Phases				6			4					
Actuated Green, G (s)					51.8		19.0	19.0				
Effective Green, g (s)					51.8		19.0	19.0				
Actuated g/C Ratio					0.58		0.21	0.21				
Clearance Time (s)					11.6		7.6	7.6				
Vehicle Extension (s)					5.0		5.0	5.0				
Lane Grp Cap (vph)					2128		223	261				
v/s Ratio Prot								0.04				
v/s Ratio Perm					0.67		c0.05					
v/c Ratio					1.17		0.24	0.21				
Uniform Delay, d1					19.1		29.5	29.3				
Progression Factor					1.00		1.00	1.00				
Incremental Delay, d2					80.4		1.2	0.8				
Delay (s)					99.5		30.7	30.1				
Level of Service					F		C	C				
Approach Delay (s)		0.0			99.5			30.4			0.0	
Approach LOS		A			F			C			A	
Intersection Summary												
HCM 2000 Control Delay			96.7		HCM 2000 Level of Service				F			
HCM 2000 Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				19.2			
Intersection Capacity Utilization			150.5%		ICU Level of Service				H			
Analysis Period (min)			15									

c Critical Lane Group

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↔↑↑↔			↔					
Traffic Vol, veh/h	0	0	0	20	2275	15	10	0	0	0	0	0
Future Vol, veh/h	0	0	0	20	2275	15	10	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	44	0	16	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	22	2473	16	11	0	0	0	0	0


















Major/Minor	Major2	Minor1
Conflicting Flow All	44	0 0 1077
Stage 1	-	- - 44
Stage 2	-	- - 1033
Critical Hdwy	5.36	- - 5.76
Critical Hdwy Stg 1	-	- - -
Critical Hdwy Stg 2	-	- - 6.06
Follow-up Hdwy	3.13	- - 3.83
Pot Cap-1 Maneuver	1098	- - 282 0 0
Stage 1	-	- - - 0 0
Stage 2	-	- - - 272 0 0
Platoon blocked, %	-	- -
Mov Cap-1 Maneuver	1098	- - 272 0 -
Mov Cap-2 Maneuver	-	- - 272 0 -
Stage 1	-	- - - 0 -
Stage 2	-	- - - 272 0 -

Approach	WB	NB
HCM Control Delay, s	0.1	18.8
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	WBL	WBT	WBR
Capacity (veh/h)	272	1098	-	-
HCM Lane V/C Ratio	0.04	0.02	-	-
HCM Control Delay (s)	18.8	8.3	0	-
HCM Lane LOS	C	A	A	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-













HCM 2010 Signalized Intersection Summary
14: Hetherton & 3rd

Cumulative (2040) With Project
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	455	1688	0	0	0	0	0	825	547
Future Volume (veh/h)	0	0	0	455	1688	0	0	0	0	0	825	547
Number				1	6	16				3	8	18
Initial Q (Qb), veh				0	0	0				0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		0.84
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1545	1573	0				0	1573	1485
Adj Flow Rate, veh/h				495	1835	0				0	897	586
Adj No. of Lanes				1	3	0				0	3	1
Peak Hour Factor				0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %				3	3	0				0	3	3
Cap, veh/h				721	2006	0				0	1954	481
Arrive On Green				0.14	0.14	0.00				0.00	0.15	0.15
Sat Flow, veh/h				1471	4718	0				0	4435	1057
Grp Volume(v), veh/h				495	1835	0				0	897	586
Grp Sat Flow(s),veh/h/ln				1471	1573	0				0	1431	1057
Q Serve(g_s), s				24.4	28.8	0.0				0.0	14.3	34.1
Cycle Q Clear(g_c), s				24.4	28.8	0.0				0.0	14.3	34.1
Prop In Lane				1.00		0.00				0.00		1.00
Lane Grp Cap(c), veh/h				721	2006	0				0	1954	481
V/C Ratio(X)				0.69	0.91	0.00				0.00	0.46	1.22
Avail Cap(c_a), veh/h				724	2013	0				0	1954	481
HCM Platoon Ratio				0.33	0.33	1.00				1.00	0.33	0.33
Upstream Filter(I)				0.17	0.17	0.00				0.00	0.75	0.75
Uniform Delay (d), s/veh				29.0	30.9	0.0				0.0	23.4	31.9
Incr Delay (d2), s/veh				0.5	1.4	0.0				0.0	0.6	112.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				10.1	12.8	0.0				0.0	5.8	24.9
LnGrp Delay(d),s/veh				29.5	32.3	0.0				0.0	24.0	143.9
LnGrp LOS				C	C						C	F
Approach Vol, veh/h					2330						1483	
Approach Delay, s/veh					31.7						71.4	
Approach LOS					C						E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs						6		8				
Phs Duration (G+Y+Rc), s						35.9		39.1				
Change Period (Y+Rc), s						4.0		5.0				
Max Green Setting (Gmax), s						32.0		34.0				
Max Q Clear Time (g_c+I1), s						30.8		36.1				
Green Ext Time (p_c), s						1.1		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay					47.1							
HCM 2010 LOS					D							
Notes												
User approved volume balancing among the lanes for turning movement.												


















HCM 2010 Signalized Intersection Summary
 15: Irwin & 3rd/3rd St

Cumulative (2040) With Project Conditions
 Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑	↗	↖	↑↑↑				
Traffic Volume (veh/h)	0	0	0	0	1101	120	1052	1215	0	0	0	0
Future Volume (veh/h)	0	0	0	0	1101	120	1052	1215	0	0	0	0
Number				1	6	16	7	4	14			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		0.94	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				0	1485	1485	1398	1398	0			
Adj Flow Rate, veh/h				0	1197	104	1143	1321	0			
Adj No. of Lanes				0	3	1	2	2	0			
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %				0	3	3	3	3	0			
Cap, veh/h				0	1333	389	1468	1542	0			
Arrive On Green				0.00	0.33	0.33	0.18	0.18	0.00			
Sat Flow, veh/h				0	4189	1184	2663	2796	0			
Grp Volume(v), veh/h				0	1197	104	1143	1321	0			
Grp Sat Flow(s),veh/h/ln				0	1352	1184	1331	1398	0			
Q Serve(g_s), s				0.0	21.1	4.8	30.7	34.3	0.0			
Cycle Q Clear(g_c), s				0.0	21.1	4.8	30.7	34.3	0.0			
Prop In Lane				0.00		1.00	1.00		0.00			
Lane Grp Cap(c), veh/h				0	1333	389	1468	1542	0			
V/C Ratio(X)				0.00	0.90	0.27	0.78	0.86	0.00			
Avail Cap(c_a), veh/h				0	1379	403	1468	1542	0			
HCM Platoon Ratio				1.00	1.00	1.00	0.33	0.33	1.00			
Upstream Filter(l)				0.00	1.00	1.00	0.09	0.09	0.00			
Uniform Delay (d), s/veh				0.0	24.0	18.5	26.3	27.8	0.0			
Incr Delay (d2), s/veh				0.0	8.0	0.4	0.4	0.6	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln				0.0	8.9	1.6	11.4	13.4	0.0			
LnGrp Delay(d),s/veh				0.0	32.0	18.9	26.7	28.4	0.0			
LnGrp LOS					C	B	C	C				
Approach Vol, veh/h					1301			2464				
Approach Delay, s/veh					31.0			27.6				
Approach LOS					C			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs				4		6						
Phs Duration (G+Y+Rc), s				45.8		29.2						
Change Period (Y+Rc), s				4.5		4.5						
Max Green Setting (Gmax), s				40.5		25.5						
Max Q Clear Time (g_c+I1), s				36.3		23.1						
Green Ext Time (p_c), s				3.7		1.6						
Intersection Summary												
HCM 2010 Ctrl Delay				28.8								
HCM 2010 LOS				C								
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 2010 Signalized Intersection Summary
16: Lindaro & 2nd

Cumulative (2040) With Project Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	2289	61	0	0	0	0	54	281	72	442	0
Future Volume (veh/h)	42	2289	61	0	0	0	0	54	281	72	442	0
Number	5	2	12				7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94				1.00		0.94	0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1440	1398	1440				0	1398	1398	1342	1342	0
Adj Flow Rate, veh/h	46	2488	61				0	59	293	78	480	0
Adj No. of Lanes	0	4	0				0	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	3	0				0	3	3	3	3	0
Cap, veh/h	45	2630	66				0	500	399	347	480	0
Arrive On Green	0.53	0.53	0.53				0.00	0.36	0.36	0.71	0.71	0.00
Sat Flow, veh/h	86	4956	124				0	1398	1118	762	1342	0
Grp Volume(v), veh/h	749	1176	670				0	59	293	78	480	0
Grp Sat Flow(s),veh/h/ln	1394	1202	1367				0	1398	1118	762	1342	0
Q Serve(g_s), s	39.8	33.7	33.8				0.0	2.1	17.1	3.3	26.8	0.0
Cycle Q Clear(g_c), s	39.8	33.7	33.8				0.0	2.1	17.1	5.4	26.8	0.0
Prop In Lane	0.06		0.09				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	740	1276	726				0	500	399	347	480	0
V/C Ratio(X)	1.01	0.92	0.92				0.00	0.12	0.73	0.23	1.00	0.00
Avail Cap(c_a), veh/h	740	1276	726				0	500	399	347	480	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(l)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.6	16.2	16.2				0.0	16.2	21.0	8.1	10.7	0.0
Incr Delay (d2), s/veh	36.3	12.3	19.2				0.0	0.1	6.8	0.3	41.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.5	13.1	16.5				0.0	0.8	6.0	0.7	14.7	0.0
LnGrp Delay(d),s/veh	53.9	28.4	35.4				0.0	16.3	27.8	8.4	52.0	0.0
LnGrp LOS	F	C	D					B	C	A	F	
Approach Vol, veh/h		2595						352			558	
Approach Delay, s/veh		37.6						25.9			45.9	
Approach LOS		D						C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		44.0		31.0				31.0				
Change Period (Y+Rc), s		* 4.2		* 4.2				* 4.2				
Max Green Setting (Gmax), s		* 40		* 27				* 27				
Max Q Clear Time (g_c+I1), s		41.8		19.1				28.8				
Green Ext Time (p_c), s		0.0		2.9				0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			37.7									
HCM 2010 LOS			D									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection														
Int Delay, s/veh	1.4													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NWL	NWR
Lane Configurations					↕			↕			↕			
Traffic Vol, veh/h	0	0	0	5	5	5	60	232	0	50	405	30	0	0
Future Vol, veh/h	0	0	0	5	5	5	60	232	0	50	405	30	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	12	0	5	5	0	12	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	-	-	-	None	-	-	-	-	-	None	-	-
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	5	5	5	65	252	0	54	440	33	0	0



















Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	958	987	263
Stage 1	393	393	-
Stage 2	565	594	-
Critical Hdwy	6.43	6.53	6.23
Critical Hdwy Stg 1	5.43	5.53	-
Critical Hdwy Stg 2	5.43	5.53	-
Follow-up Hdwy	3.527	4.027	3.327
Pot Cap-1 Maneuver	284	246	773
Stage 1	680	604	-
Stage 2	567	491	-
Platoon blocked, %			
Mov Cap-1 Maneuver	248	0	770
Mov Cap-2 Maneuver	248	0	-
Stage 1	629	0	-
Stage 2	535	0	-

Approach	WB	NB	SB
HCM Control Delay, s	15	1.7	0.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR2WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1073	-	-	375	1290	-
HCM Lane V/C Ratio	0.061	-	-	0.043	0.042	-
HCM Control Delay (s)	8.6	0	-	15	7.9	0
HCM Lane LOS	A	A	-	C	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	0.1	-



















HCM 2010 Signalized Intersection Summary
18: Lincoln & 2nd

Cumulative (2040) With Project Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	2461	41	0	0	0	0	112	50	140	270	0
Future Volume (veh/h)	140	2461	41	0	0	0	0	112	50	140	270	0
Number	5	2	12				7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95				1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1440	1398	1398				0	1398	1398	1382	1342	0
Adj Flow Rate, veh/h	152	2675	28				0	122	41	152	293	0
Adj No. of Lanes	0	4	1				0	1	1	0	2	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	144	2733	651				0	436	358	248	465	0
Arrive On Green	0.19	0.19	0.19				0.00	0.31	0.31	0.10	0.10	0.00
Sat Flow, veh/h	251	4742	1129				0	1398	1150	540	1554	0
Grp Volume(v), veh/h	840	1987	28				0	122	41	229	216	0
Grp Sat Flow(s),veh/h/ln	1386	1202	1129				0	1398	1150	873	1160	0
Q Serve(g_s), s	43.2	40.9	1.5				0.0	4.9	1.9	15.1	13.3	0.0
Cycle Q Clear(g_c), s	43.2	40.9	1.5				0.0	4.9	1.9	20.0	13.3	0.0
Prop In Lane	0.18		1.00				0.00		1.00	0.66		0.00
Lane Grp Cap(c), veh/h	799	2079	651				0	436	358	352	361	0
V/C Ratio(X)	1.05	0.96	0.04				0.00	0.28	0.11	0.65	0.60	0.00
Avail Cap(c_a), veh/h	799	2079	651				0	500	411	399	415	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	0.33	0.33	1.00
Upstream Filter(l)	0.09	0.09	0.09				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.4	29.4	13.5				0.0	19.5	18.4	33.6	29.1	0.0
Incr Delay (d2), s/veh	27.0	1.6	0.0				0.0	0.3	0.1	3.1	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.6	13.9	0.5				0.0	1.9	0.6	5.0	4.5	0.0
LnGrp Delay(d),s/veh	57.4	31.0	13.5				0.0	19.8	18.6	36.8	31.0	0.0
LnGrp LOS	F	C	B					B	B	D	C	
Approach Vol, veh/h		2855						163			445	
Approach Delay, s/veh		38.6						19.5			33.9	
Approach LOS		D						B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		47.4		27.6				27.6				
Change Period (Y+Rc), s		* 4.2		* 4.2				* 4.2				
Max Green Setting (Gmax), s		* 40		* 27				* 27				
Max Q Clear Time (g_c+I1), s		45.2		6.9				22.0				
Green Ext Time (p_c), s		0.0		2.6				1.2				
Intersection Summary												
HCM 2010 Ctrl Delay			37.1									
HCM 2010 LOS			D									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

















HCM 2010 Signalized Intersection Summary
 19: Francisco W./Tamalpais & 2nd

Cumulative (2040) With Project Conditions
 Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	2516	70	0	0	0	0	50	270	100	200	0
Future Volume (veh/h)	50	2516	70	0	0	0	0	50	270	100	200	0
Number	5	2	12				7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.91				1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1440	1398	1398				0	1398	1454	1398	1398	0
Adj Flow Rate, veh/h	54	2735	48				0	54	254	109	217	0
Adj No. of Lanes	0	4	1				0	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	52	2795	615				0	360	310	288	360	0
Arrive On Green	0.19	0.19	0.19				0.00	0.26	0.26	0.26	0.26	0.00
Sat Flow, veh/h	90	4910	1081				0	1398	1204	845	1398	0
Grp Volume(v), veh/h	832	1957	48				0	54	254	109	217	0
Grp Sat Flow(s),veh/h/ln	1394	1202	1081				0	1398	1204	845	1398	0
Q Serve(g_s), s	42.7	40.3	2.7				0.0	2.2	14.9	8.6	10.2	0.0
Cycle Q Clear(g_c), s	42.7	40.3	2.7				0.0	2.2	14.9	10.8	10.2	0.0
Prop In Lane	0.06		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	793	2053	615				0	360	310	288	360	0
V/C Ratio(X)	1.05	0.95	0.08				0.00	0.15	0.82	0.38	0.60	0.00
Avail Cap(c_a), veh/h	793	2053	615				0	513	441	381	513	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.09	0.09	0.09				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.5	29.5	14.2				0.0	21.5	26.2	25.7	24.5	0.0
Incr Delay (d2), s/veh	25.6	1.5	0.0				0.0	0.2	8.0	0.8	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.1	13.7	0.8				0.0	0.9	5.6	2.1	4.1	0.0
LnGrp Delay(d),s/veh	56.0	31.0	14.3				0.0	21.7	34.2	26.5	26.1	0.0
LnGrp LOS	F	C	B					C	C	C	C	
Approach Vol, veh/h		2837						308			326	
Approach Delay, s/veh		38.0						32.0			26.2	
Approach LOS		D						C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		49.2		25.8				25.8				
Change Period (Y+Rc), s		6.5		6.5				6.5				
Max Green Setting (Gmax), s		34.5		27.5				27.5				
Max Q Clear Time (g_c+I1), s		44.7		16.9				12.8				
Green Ext Time (p_c), s		0.0		2.4				2.8				
Intersection Summary												
HCM 2010 Ctrl Delay			36.4									
HCM 2010 LOS			D									

















HCM 2010 Signalized Intersection Summary
 20: 101 SBO n 2nd/Hetherton & 2nd/2nd St

Cumulative (2040) With Project Conditions
 Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1270	1456	0	0	0	0	0	0	220	1060	0
Future Volume (veh/h)	0	1270	1456	0	0	0	0	0	0	220	1060	0
Number	5	2	12							7	4	14
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1485	1485							1485	1485	0
Adj Flow Rate, veh/h	0	1380	1570							239	1152	0
Adj No. of Lanes	0	3	2							1	2	0
Peak Hour Factor	0.92	0.92	0.92							0.92	0.92	0.92
Percent Heavy Veh, %	0	3	3							3	3	0
Cap, veh/h	0	2406	1364							406	852	0
Arrive On Green	0.00	0.18	0.18							0.09	0.09	0.00
Sat Flow, veh/h	0	4456	2525							1415	2971	0
Grp Volume(v), veh/h	0	1380	1570							239	1152	0
Grp Sat Flow(s),veh/h/ln	0	1485	1263							1415	1485	0
Q Serve(g_s), s	0.0	21.3	40.5							12.1	21.5	0.0
Cycle Q Clear(g_c), s	0.0	21.3	40.5							12.1	21.5	0.0
Prop In Lane	0.00		1.00							1.00		0.00
Lane Grp Cap(c), veh/h	0	2406	1364							406	852	0
V/C Ratio(X)	0.00	0.57	1.15							0.59	1.35	0.00
Avail Cap(c_a), veh/h	0	2406	1364							406	852	0
HCM Platoon Ratio	1.00	0.33	0.33							0.33	0.33	1.00
Upstream Filter(l)	0.00	0.09	0.09							0.86	0.86	0.00
Uniform Delay (d), s/veh	0.0	22.9	30.8							29.7	34.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	69.0							1.9	165.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.8	27.2							5.0	28.4	0.0
LnGrp Delay(d),s/veh	0.0	23.0	99.8							31.6	199.3	0.0
LnGrp LOS		C	F							C	F	
Approach Vol, veh/h		2950									1391	
Approach Delay, s/veh		63.9									170.5	
Approach LOS		E									F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4								
Phs Duration (G+Y+Rc), s		49.0		26.0								
Change Period (Y+Rc), s		8.5		4.5								
Max Green Setting (Gmax), s		40.5		21.5								
Max Q Clear Time (g_c+I1), s		42.5		23.5								
Green Ext Time (p_c), s		0.0		0.0								
Intersection Summary												
HCM 2010 Ctrl Delay			98.1									
HCM 2010 LOS			F									
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 2010 Signalized Intersection Summary
21: Irwin & 2nd St

Cumulative (2040) With Project Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	780	880	0	0	0	0	0	1497	500	0	0	0
Future Volume (veh/h)	780	880	0	0	0	0	0	1497	500	0	0	0
Number	5	2	12				7	4	14			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1454	1485	0				0	1398	1398			
Adj Flow Rate, veh/h	848	957	0				0	1627	489			
Adj No. of Lanes	2	2	0				0	3	1			
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92			
Percent Heavy Veh, %	3	3	0				0	3	3			
Cap, veh/h	1551	1458	0				0	1466	451			
Arrive On Green	0.16	0.16	0.00				0.00	0.38	0.38			
Sat Flow, veh/h	2769	2971	0				0	3943	1174			
Grp Volume(v), veh/h	848	957	0				0	1627	489			
Grp Sat Flow(s),veh/h/ln	1385	1485	0				0	1272	1174			
Q Serve(g_s), s	21.4	22.7	0.0				0.0	28.8	28.8			
Cycle Q Clear(g_c), s	21.4	22.7	0.0				0.0	28.8	28.8			
Prop In Lane	1.00		0.00				0.00		1.00			
Lane Grp Cap(c), veh/h	1551	1458	0				0	1466	451			
V/C Ratio(X)	0.55	0.66	0.00				0.00	1.11	1.08			
Avail Cap(c_a), veh/h	1551	1458	0				0	1466	451			
HCM Platoon Ratio	0.33	0.33	1.00				1.00	1.00	1.00			
Upstream Filter(l)	0.34	0.34	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	25.0	25.5	0.0				0.0	23.1	23.1			
Incr Delay (d2), s/veh	0.5	0.8	0.0				0.0	59.8	67.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	8.3	9.5	0.0				0.0	18.2	17.7			
LnGrp Delay(d),s/veh	25.5	26.3	0.0				0.0	82.9	90.1			
LnGrp LOS	C	C						F	F			
Approach Vol, veh/h		1805						2116				
Approach Delay, s/veh		25.9						84.6				
Approach LOS		C						F				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4								
Phs Duration (G+Y+Rc), s		41.0		34.0								
Change Period (Y+Rc), s		* 4.2		* 5.2								
Max Green Setting (Gmax), s		* 37		* 29								
Max Q Clear Time (g_c+I1), s		24.7		30.8								
Green Ext Time (p_c), s		10.3		0.0								
Intersection Summary												
HCM 2010 Ctrl Delay			57.6									
HCM 2010 LOS			E									
Notes												
User approved volume balancing among the lanes for turning movement.												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	6.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	625	10	30	870	20	10	10	25	25	10	20
Future Vol, veh/h	10	625	10	30	870	20	10	10	25	25	10	20
Conflicting Peds, #/hr	8	0	3	3	0	8	4	0	6	6	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	11	679	11	33	946	22	11	11	27	27	11	22




















Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	975	0	0	693	0	0	1752	1751	694	1762	1745	969
Stage 1	-	-	-	-	-	-	710	710	-	1030	1030	-
Stage 2	-	-	-	-	-	-	1042	1041	-	732	715	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	703	-	-	898	-	-	66	85	441	65	86	306
Stage 1	-	-	-	-	-	-	423	435	-	281	309	-
Stage 2	-	-	-	-	-	-	276	306	-	411	433	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	700	-	-	892	-	-	50	75	437	49	76	303
Mov Cap-2 Maneuver	-	-	-	-	-	-	50	75	-	49	76	-
Stage 1	-	-	-	-	-	-	411	422	-	272	282	-
Stage 2	-	-	-	-	-	-	226	280	-	363	420	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0.2		0.3		57.7		135.3	
HCM LOS					F		F	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	115	700	-	-	892	-	-	78
HCM Lane V/C Ratio	0.425	0.016	-	-	0.037	-	-	0.766
HCM Control Delay (s)	57.7	10.2	0	-	9.2	0	-	135.3
HCM Lane LOS	F	B	A	-	A	A	-	F
HCM 95th %tile Q(veh)	1.8	0	-	-	0.1	-	-	3.7

HCM 2010 Signalized Intersection Summary
23: Lincoln & Mission

Cumulative (2040) With Project Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	500	20	80	585	50	20	230	90	60	421	380
Future Volume (veh/h)	120	500	20	80	585	50	20	230	90	60	421	380
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	0.99		0.97	0.99		0.94	0.98		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1660	1660	1710	1660	1660	1710	1800	1678	1728	1800	1748	1728
Adj Flow Rate, veh/h	130	543	20	87	636	50	22	250	80	65	458	206
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	2	0
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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	148	868	32	341	626	49	68	439	134	136	833	362
Arrive On Green	0.09	0.55	0.55	0.55	0.55	0.55	0.85	0.85	0.85	0.43	0.43	0.43
Sat Flow, veh/h	1581	1588	59	787	1515	119	39	1028	314	187	1953	849
Grp Volume(v), veh/h	130	0	563	87	0	686	352	0	0	395	0	334
Grp Sat Flow(s),veh/h/ln	1581	0	1647	787	0	1634	1381	0	0	1614	0	1376
Q Serve(g_s), s	6.1	0.0	17.7	5.7	0.0	31.0	0.0	0.0	0.0	4.5	0.0	13.8
Cycle Q Clear(g_c), s	6.1	0.0	17.7	13.4	0.0	31.0	5.3	0.0	0.0	13.2	0.0	13.8
Prop In Lane	1.00		0.04	1.00		0.07	0.06		0.23	0.16		0.62
Lane Grp Cap(c), veh/h	148	0	900	341	0	676	640	0	0	744	0	587
V/C Ratio(X)	0.88	0.00	0.63	0.26	0.00	1.02	0.55	0.00	0.00	0.53	0.00	0.57
Avail Cap(c_a), veh/h	148	0	900	341	0	676	640	0	0	744	0	587
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.64	0.00	0.64	0.84	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.6	0.0	11.7	15.5	0.0	16.9	3.5	0.0	0.0	16.0	0.0	16.3
Incr Delay (d2), s/veh	47.7	0.0	3.3	1.1	0.0	31.5	2.8	0.0	0.0	2.7	0.0	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	0.0	8.8	1.3	0.0	19.5	2.3	0.0	0.0	6.6	0.0	5.8
LnGrp Delay(d),s/veh	81.3	0.0	15.0	16.7	0.0	48.4	6.4	0.0	0.0	18.7	0.0	20.2
LnGrp LOS	F		B	B		F	A			B		C
Approach Vol, veh/h		693			773			352			729	
Approach Delay, s/veh		27.4			44.8			6.4			19.4	
Approach LOS		C			D			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		45.2		36.8	10.0	35.2		36.8				
Change Period (Y+Rc), s		* 4.2		4.6	3.0	* 4.2		4.6				
Max Green Setting (Gmax), s		* 41		25.4	7.0	* 31		25.4				
Max Q Clear Time (g_c+I1), s		19.7		7.3	8.1	33.0		15.8				
Green Ext Time (p_c), s		13.4		9.5	0.0	0.0		6.1				
Intersection Summary												
HCM 2010 Ctrl Delay				27.5								
HCM 2010 LOS				C								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM Signalized Intersection Capacity Analysis
 24: Tamalpais & Mission

Cumulative (2040) With Project Conditions
 Timing Plan: AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶		↷			
Traffic Volume (vph)	585	75	0	740	0	0
Future Volume (vph)	585	75	0	740	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.6			3.0		
Lane Util. Factor	1.00			1.00		
Frbp, ped/bikes	0.99			1.00		
Flpb, ped/bikes	1.00			1.00		
Frt	0.98			1.00		
Flt Protected	1.00			1.00		
Satd. Flow (prot)	1540			1573		
Flt Permitted	1.00			1.00		
Satd. Flow (perm)	1540			1573		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	636	82	0	804	0	0
RTOR Reduction (vph)	6	0	0	0	0	0
Lane Group Flow (vph)	712	0	0	804	0	0
Confl. Peds. (#/hr)	10		10		10	
Turn Type	NA			NA		
Protected Phases	2			3 4 6		
Permitted Phases						
Actuated Green, G (s)	34.4			51.8		
Effective Green, g (s)	34.4			46.2		
Actuated g/C Ratio	0.46			0.62		
Clearance Time (s)	5.6					
Vehicle Extension (s)	3.0					
Lane Grp Cap (vph)	706			968		
v/s Ratio Prot	c0.46			c0.51		
v/s Ratio Perm						
v/c Ratio	1.01			0.83		
Uniform Delay, d1	20.3			11.3		
Progression Factor	0.97			0.51		
Incremental Delay, d2	30.6			0.6		
Delay (s)	50.4			6.3		
Level of Service	D			A		
Approach Delay (s)	50.4			6.3		0.0
Approach LOS	D			A		A
Intersection Summary						
HCM 2000 Control Delay	27.1			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)		19.0
Intersection Capacity Utilization	102.6%			ICU Level of Service		G
Analysis Period (min)	15					
c Critical Lane Group						













HCM Signalized Intersection Capacity Analysis
 25: Tamalpais & Mission

Cumulative (2040) With Project Conditions
 Timing Plan: AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘↙	
Traffic Volume (vph)	585	0	0	730	10	20
Future Volume (vph)	585	0	0	730	10	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.6			5.6	3.0	
Lane Util. Factor	1.00			1.00	1.00	
Frbp, ped/bikes	1.00			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	1.00			1.00	0.91	
Flt Protected	1.00			1.00	0.98	
Satd. Flow (prot)	1573			1573	1408	
Flt Permitted	1.00			1.00	0.98	
Satd. Flow (perm)	1573			1573	1408	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	636	0	0	793	11	22
RTOR Reduction (vph)	0	0	0	0	19	0
Lane Group Flow (vph)	636	0	0	793	14	0
Confl. Peds. (#/hr)		10				
Turn Type	NA			NA	Prot	
Protected Phases	2 8			6	3 4	
Permitted Phases						
Actuated Green, G (s)	52.4			34.4	11.8	
Effective Green, g (s)	47.2			34.4	11.8	
Actuated g/C Ratio	0.63			0.46	0.16	
Clearance Time (s)				5.6		
Vehicle Extension (s)				3.0		
Lane Grp Cap (vph)	989			721	221	
v/s Ratio Prot	c0.40			c0.50	c0.01	
v/s Ratio Perm						
v/c Ratio	0.64			1.10	0.07	
Uniform Delay, d1	8.7			20.3	26.9	
Progression Factor	0.45			1.16	1.05	
Incremental Delay, d2	0.1			57.1	0.0	
Delay (s)	4.0			80.6	28.4	
Level of Service	A			F	C	
Approach Delay (s)	4.0			80.6	28.4	
Approach LOS	A			F	C	
Intersection Summary						
HCM 2000 Control Delay			46.1		HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.84			
Actuated Cycle Length (s)			75.0		Sum of lost time (s)	19.0
Intersection Capacity Utilization			102.6%		ICU Level of Service	G
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis
26: Hetherton & Mission


















Cumulative (2040) With Project Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑						↑↑	↑
Traffic Volume (vph)	0	515	90	40	230	0	0	0	0	245	1097	500
Future Volume (vph)	0	515	90	40	230	0	0	0	0	245	1097	500
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	10	12	12	16	12	12	12	12	12	12	12
Total Lost time (s)		4.2			4.2						4.6	4.6
Lane Util. Factor		0.95			1.00						0.95	1.00
Frb, ped/bikes		0.99			1.00						1.00	0.97
Flpb, ped/bikes		1.00			1.00						1.00	1.00
Frt		0.98			1.00						1.00	0.85
Flt Protected		1.00			0.99						0.99	1.00
Satd. Flow (prot)		2711			1767						2961	1303
Flt Permitted		1.00			0.80						0.99	1.00
Satd. Flow (perm)		2711			1421						2961	1303
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)	0	560	98	43	250	0	0	0	0	266	1192	543
RTOR Reduction (vph)	0	19	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	639	0	0	293	0	0	0	0	0	1458	543
Confl. Peds. (#/hr)	15		22	22		15			16			1
Confl. Bikes (#/hr)			3			2			1			3
Turn Type		NA		Perm	NA					Split	NA	custom
Protected Phases		4			8					2	2	
Permitted Phases				8								5
Actuated Green, G (s)		23.8			23.8						42.4	35.4
Effective Green, g (s)		23.8			23.8						42.4	35.4
Actuated g/C Ratio		0.32			0.32						0.57	0.47
Clearance Time (s)		4.2			4.2						4.6	4.6
Vehicle Extension (s)		3.0			3.0						3.0	3.0
Lane Grp Cap (vph)		860			450						1673	615
v/s Ratio Prot		c0.24									c0.49	
v/s Ratio Perm					0.21							0.42
v/c Ratio		0.74			0.65						0.87	0.88
Uniform Delay, d1		22.9			22.0						14.0	17.9
Progression Factor		0.74			1.33						1.00	1.00
Incremental Delay, d2		4.8			5.6						6.6	16.7
Delay (s)		21.8			34.9						20.5	34.7
Level of Service		C			C						C	C
Approach Delay (s)		21.8			34.9			0.0			24.4	
Approach LOS		C			C			A			C	
Intersection Summary												
HCM 2000 Control Delay			24.8			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			75.0			Sum of lost time (s)			10.8			
Intersection Capacity Utilization			96.8%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
27: Irwin & Mission

Cumulative (2040) With Project Conditions




















Timing Plan: AM Peak Hour

										
Movement	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Lane Configurations										
Traffic Volume (vph)	400	30	330	170	340	10	110	1150	140	40
Future Volume (vph)	400	30	330	170	340	10	110	1150	140	40
Ideal Flow (vphpl)	2200	1800	2200	2200	2200	1800	2200	2200	1800	2200
Lane Width	9	12	10	10	9	12	12	12	12	12
Total Lost time (s)		4.2	4.2	4.2	4.2			4.2	4.2	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95	1.00	
Frpb, ped/bikes		1.00	1.00	1.00	1.00			1.00	0.97	
Flpb, ped/bikes		1.00	1.00	1.00	1.00			1.00	1.00	
Fr t		1.00	1.00	1.00	0.85			1.00	0.85	
Fl t Protected		0.95	1.00	1.00	1.00			1.00	1.00	
Satd. Flow (prot)		1494	1794	1615	1471			3430	1294	
Fl t Permitted		0.58	1.00	1.00	1.00			1.00	1.00	
Satd. Flow (perm)		919	1794	1615	1471			3430	1294	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	435	33	359	185	370	11	120	1250	152	43
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	46	0
Lane Group Flow (vph)	0	468	359	185	381	0	0	1370	149	0
Confl. Peds. (#/hr)							13			6
Confl. Bikes (#/hr)					2	2				2
Parking (#/hr)				0				2		
Turn Type	pm+pt	pm+pt	NA	NA	Prot		Perm	NA	Perm	
Protected Phases	5	5	2	6	6			4		
Permitted Phases	2	2					4		4	
Actuated Green, G (s)		34.8	34.8	19.8	19.8			31.8	31.8	
Effective Green, g (s)		34.8	34.8	19.8	19.8			31.8	31.8	
Actuated g/C Ratio		0.46	0.46	0.26	0.26			0.42	0.42	
Clearance Time (s)		4.2	4.2	4.2	4.2			4.2	4.2	
Vehicle Extension (s)		3.0	3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)		509	832	426	388			1454	548	
v/s Ratio Prot		c0.13	0.20	0.11	0.26					
v/s Ratio Perm		c0.29						0.40	0.12	
v/c Ratio		0.92	0.43	0.43	0.98			0.94	0.27	
Uniform Delay, d1		19.1	13.5	22.9	27.4			20.7	14.1	
Progression Factor		0.91	0.80	1.00	1.00			0.75	0.71	
Incremental Delay, d2		14.6	0.2	0.7	40.7			6.1	0.5	
Delay (s)		32.0	11.0	23.7	68.1			21.7	10.5	
Level of Service		C	B	C	E			C	B	
Approach Delay (s)			22.9	53.6				20.3		
Approach LOS			C	D				C		
Intersection Summary										
HCM 2000 Control Delay			27.4					HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio			0.98							
Actuated Cycle Length (s)			75.0					Sum of lost time (s)		12.6
Intersection Capacity Utilization			94.1%					ICU Level of Service		F
Analysis Period (min)			15							

c Critical Lane Group
















HCM 2010 Signalized Intersection Summary
28: Lincoln & 5th

Cumulative (2040) With Project Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	320	40	70	290	70	20	240	70	50	421	50
Future Volume (veh/h)	40	320	40	70	290	70	20	240	70	50	421	50
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	0.99		0.95	0.98		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.89	1.00	1.00	0.89
Adj Sat Flow, veh/h/ln	1398	1545	1530	1398	1485	1530	1440	1485	1469	1440	1485	1469
Adj Flow Rate, veh/h	43	348	36	76	315	63	22	261	62	54	458	49
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	126	409	42	143	356	71	72	563	128	97	612	63
Arrive On Green	0.30	0.30	0.30	0.10	0.10	0.10	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	792	1370	142	785	1193	239	37	973	221	76	1057	108
Grp Volume(v), veh/h	43	0	384	76	0	378	345	0	0	561	0	0
Grp Sat Flow(s),veh/h/ln	792	0	1512	785	0	1432	1231	0	0	1242	0	0
Q Serve(g_s), s	2.9	0.0	17.9	4.5	0.0	19.5	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	22.4	0.0	17.9	22.4	0.0	19.5	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.09	1.00		0.17	0.06		0.18	0.10		0.09
Lane Grp Cap(c), veh/h	126	0	452	143	0	428	763	0	0	771	0	0
V/C Ratio(X)	0.34	0.00	0.85	0.53	0.00	0.88	0.45	0.00	0.00	0.73	0.00	0.00
Avail Cap(c_a), veh/h	126	0	452	143	0	428	763	0	0	771	0	0
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	0.94	0.00	0.94	0.86	0.00	0.00	0.38	0.00	0.00
Uniform Delay (d), s/veh	36.5	0.0	24.7	43.6	0.0	32.5	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	7.2	0.0	17.9	12.7	0.0	21.4	1.7	0.0	0.0	2.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	9.7	2.1	0.0	10.3	0.4	0.0	0.0	0.5	0.0	0.0
LnGrp Delay(d),s/veh	43.7	0.0	42.6	56.3	0.0	54.0	1.7	0.0	0.0	2.3	0.0	0.0
LnGrp LOS	D		D	E		D	A			A		
Approach Vol, veh/h		427			454			345			561	
Approach Delay, s/veh		42.7			54.3			1.7			2.3	
Approach LOS		D			D			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		27.0		48.0		27.0		48.0				
Change Period (Y+Rc), s		4.6		4.6		4.6		4.6				
Max Green Setting (Gmax), s		22.4		43.4		22.4		43.4				
Max Q Clear Time (g_c+I1), s		24.4		2.0		24.4		2.0				
Green Ext Time (p_c), s		0.0		4.9		0.0		4.9				
Intersection Summary												
HCM 2010 Ctrl Delay			25.1									
HCM 2010 LOS			C									













HCM Signalized Intersection Capacity Analysis
29: Tamalpais & 5th

Cumulative (2040) With Project Conditions
Timing Plan: AM Peak Hour

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	0	390	50	0	380	0	0	0	0	20	20	30		
Future Volume (vph)	0	390	50	0	380	0	0	0	0	20	20	30		
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800		
Total Lost time (s)		5.6			5.6						5.6			
Lane Util. Factor		1.00			1.00						1.00			
Frbp, ped/bikes		0.99			1.00						0.98			
Flpb, ped/bikes		1.00			1.00						1.00			
Frt		0.98			1.00						0.94			
Flt Protected		1.00			1.00						0.99			
Satd. Flow (prot)		1541			1573						1432			
Flt Permitted		1.00			1.00						0.99			
Satd. Flow (perm)		1541			1573						1432			
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)	0	424	54	0	413	0	0	0	0	22	22	33		
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	29	0		
Lane Group Flow (vph)	0	473	0	0	413	0	0	0	0	0	48	0		
Confl. Peds. (#/hr)	10		10	10		10	10					10		
Turn Type		NA			NA					Perm	NA			
Protected Phases		2			4						8			
Permitted Phases										8				
Actuated Green, G (s)		39.3			55.7						8.1			
Effective Green, g (s)		39.3			55.7						8.1			
Actuated g/C Ratio		0.52			0.74						0.11			
Clearance Time (s)		5.6									5.6			
Vehicle Extension (s)		3.0									1.5			
Lane Grp Cap (vph)		807			1168						154			
v/s Ratio Prot		c0.31			c0.26									
v/s Ratio Perm											0.03			
v/c Ratio		0.59			0.35						0.31			
Uniform Delay, d1		12.3			3.4						30.9			
Progression Factor		0.57			0.09						0.85			
Incremental Delay, d2		1.8			0.1						0.0			
Delay (s)		8.8			0.4						26.2			
Level of Service		A			A						C			
Approach Delay (s)		8.8			0.4			0.0			26.2			
Approach LOS		A			A			A			C			
Intersection Summary														
HCM 2000 Control Delay			6.6									HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio			0.52											
Actuated Cycle Length (s)			75.0								16.8		Sum of lost time (s)	
Intersection Capacity Utilization			80.3%										ICU Level of Service	D
Analysis Period (min)			15											
c Critical Lane Group														



















HCM Signalized Intersection Capacity Analysis
30: Tamalpais & 5th

Cumulative (2040) With Project Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↔			↕				
Traffic Volume (vph)	0	410	0	0	350	20	30	10	30	0	0	0
Future Volume (vph)	0	410	0	0	350	20	30	10	30	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.6			5.6			5.6				
Lane Util. Factor		1.00			1.00			1.00				
Frbp, ped/bikes		1.00			1.00			0.98				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.99			0.94				
Flt Protected		1.00			1.00			0.98				
Satd. Flow (prot)		1573			1557			1422				
Flt Permitted		1.00			1.00			0.98				
Satd. Flow (perm)		1573			1557			1422				
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)	0	446	0	0	380	22	33	11	33	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	28	0	0	0	0
Lane Group Flow (vph)	0	446	0	0	400	0	0	49	0	0	0	0
Confl. Peds. (#/hr)	10					10			10			
Turn Type		NA			NA		Split	NA				
Protected Phases		2 8			6		4	4				
Permitted Phases												
Actuated Green, G (s)		53.0			39.3			10.8				
Effective Green, g (s)		53.0			39.3			10.8				
Actuated g/C Ratio		0.71			0.52			0.14				
Clearance Time (s)					5.6			5.6				
Vehicle Extension (s)					3.0			1.5				
Lane Grp Cap (vph)		1111			815			204				
v/s Ratio Prot		c0.28			c0.26			c0.03				
v/s Ratio Perm												
v/c Ratio		0.40			0.49			0.24				
Uniform Delay, d1		4.5			11.4			28.5				
Progression Factor		0.02			0.65			1.26				
Incremental Delay, d2		0.1			2.0			0.1				
Delay (s)		0.1			9.3			36.1				
Level of Service		A			A			D				
Approach Delay (s)		0.1			9.3			36.1			0.0	
Approach LOS		A			A			D			A	
Intersection Summary												
HCM 2000 Control Delay			7.1				HCM 2000 Level of Service		A			
HCM 2000 Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			75.0				Sum of lost time (s)		16.8			
Intersection Capacity Utilization			80.3%				ICU Level of Service		D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
31: Hetherton & 5th


















Cumulative (2040) With Project Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											  	
Traffic Volume (vph)	0	260	180	40	245	0	0	0	0	50	1052	125
Future Volume (vph)	0	260	180	40	245	0	0	0	0	50	1052	125
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	16	12	12	16	12	12	12	12	12	12	12
Total Lost time (s)		4.2			4.2						4.6	4.6
Lane Util. Factor		1.00			1.00						0.91	1.00
Frbp, ped/bikes		0.99			1.00						1.00	0.95
Flpb, ped/bikes		1.00			1.00						1.00	1.00
Frt		0.94			1.00						1.00	0.85
Flt Protected		1.00			0.99						1.00	1.00
Satd. Flow (prot)		1665			1769						4119	1127
Flt Permitted		1.00			0.90						1.00	1.00
Satd. Flow (perm)		1665			1604						4119	1127
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)	0	283	196	43	266	0	0	0	0	54	1143	136
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	468	0	0	309	0	0	0	0	0	1197	136
Confl. Peds. (#/hr)			15	15		14			22	22		10
Confl. Bikes (#/hr)			4			2			2			2
Parking (#/hr)											2	2
Turn Type		NA		Perm	NA					Perm	NA	custom
Protected Phases		4			8						2	
Permitted Phases				8						2		5
Actuated Green, G (s)		35.8			35.8						30.4	23.4
Effective Green, g (s)		35.8			35.8						30.4	23.4
Actuated g/C Ratio		0.48			0.48						0.41	0.31
Clearance Time (s)		4.2			4.2						4.6	4.6
Vehicle Extension (s)		3.0			3.0						3.0	3.0
Lane Grp Cap (vph)		794			765						1669	351
v/s Ratio Prot		c0.28										
v/s Ratio Perm					0.19						0.29	0.12
v/c Ratio		0.59			0.40						0.72	0.39
Uniform Delay, d1		14.2			12.7						18.7	20.2
Progression Factor		0.45			1.32						0.61	0.69
Incremental Delay, d2		3.0			0.9						1.3	1.6
Delay (s)		9.5			17.6						12.7	15.5
Level of Service		A			B						B	B
Approach Delay (s)		9.5			17.6			0.0			13.0	
Approach LOS		A			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			12.9			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			75.0			Sum of lost time (s)		10.8				
Intersection Capacity Utilization			86.8%			ICU Level of Service			E			
Analysis Period (min)			15									

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
32: Irwin & 5th

Cumulative (2040) With Project Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	110	0	0	160	130	150	1190	20	0	0	0
Future Volume (veh/h)	150	110	0	0	160	130	150	1190	20	0	0	0
Number	5	2	12	1	6	16	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.89	0.89	1.00	0.89			
Adj Sat Flow, veh/h/ln	1573	1573	0	0	1573	1620	1620	1573	1620			
Adj Flow Rate, veh/h	163	120	0	0	174	103	163	1293	21			
Adj No. of Lanes	1	1	0	0	1	0	0	2	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	3	3	0	0	3	3	0	3	0			
Cap, veh/h	218	491	0	0	254	151	165	1381	23			
Arrive On Green	0.10	0.10	0.00	0.00	0.31	0.31	0.19	0.19	0.19			
Sat Flow, veh/h	976	1573	0	0	816	483	292	2443	41			
Grp Volume(v), veh/h	163	120	0	0	0	277	772	0	705			
Grp Sat Flow(s),veh/h/ln	976	1573	0	0	0	1299	1385	0	1392			
Q Serve(g_s), s	9.4	5.3	0.0	0.0	0.0	14.0	41.7	0.0	37.1			
Cycle Q Clear(g_c), s	23.4	5.3	0.0	0.0	0.0	14.0	41.7	0.0	37.1			
Prop In Lane	1.00		0.00	0.00		0.37	0.21		0.03			
Lane Grp Cap(c), veh/h	218	491	0	0	0	405	783	0	787			
V/C Ratio(X)	0.75	0.24	0.00	0.00	0.00	0.68	0.99	0.00	0.90			
Avail Cap(c_a), veh/h	218	491	0	0	0	405	783	0	787			
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	0.33	0.33	0.33			
Upstream Filter(I)	0.77	0.77	0.00	0.00	0.00	1.00	0.09	0.00	0.09			
Uniform Delay (d), s/veh	41.8	25.5	0.0	0.0	0.0	22.6	30.2	0.0	28.3			
Incr Delay (d2), s/veh	10.4	0.2	0.0	0.0	0.0	4.7	6.9	0.0	1.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.0	2.3	0.0	0.0	0.0	5.5	17.5	0.0	14.7			
LnGrp Delay(d),s/veh	52.2	25.7	0.0	0.0	0.0	27.3	37.1	0.0	30.1			
LnGrp LOS	D	C				C	D		C			
Approach Vol, veh/h		283			277			1477				
Approach Delay, s/veh		41.0			27.3			33.7				
Approach LOS		D			C			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		28.0		47.0		28.0						
Change Period (Y+Rc), s		4.6		4.6		4.6						
Max Green Setting (Gmax), s		23.4		42.4		23.4						
Max Q Clear Time (g_c+I1), s		25.4		43.7		16.0						
Green Ext Time (p_c), s		0.0		0.0		1.7						
Intersection Summary												
HCM 2010 Ctrl Delay				33.9								
HCM 2010 LOS				C								

Arterial Level of Service: EB 2nd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Lindaro	IV	25	18.6	56.0	74.6	0.07	3.4	F
Lincoln	IV	25	21.4	46.9	68.3	0.10	5.1	F
Francisco W.	IV	25	12.2	71.5	83.7	0.05	2.0	F
101 SBO on 2nd	IV	25	14.2	11.7	25.9	0.05	7.4	E
Total	IV		66.4	186.1	252.5	0.27	3.8	F

Arterial Level of Service: WB 3rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Hetherton	IV	25	19.0	102.6	121.6	0.07	2.1	F
Tamalpais	IV	25	14.4	101.5	115.9	0.05	1.7	F
Lincoln	IV	25	13.2	77.0	90.2	0.05	2.0	F
Lindaro	IV	25	21.5	1.3	22.8	0.10	15.4	C
Total	IV		68.1	282.4	350.5	0.27	2.8	F

Arterial Level of Service: SB Hetherton

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Mission	IV	29	24.0	21.5	45.5	0.16	12.6	D
5th	IV	25	16.3	12.9	29.2	0.06	7.6	E
4th	IV	25	14.6	7.5	22.1	0.05	8.9	E
3rd	IV	25	17.7	7.6	25.3	0.07	9.5	D
2nd	IV	25	15.6	261.4	277.0	0.06	0.8	F
Total	IV		88.2	310.9	399.1	0.40	3.6	F

Arterial Level of Service: NB Irwin

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
2nd St	IV	30	25.2	84.6	109.8	0.17	5.5	F
3rd St	IV	25	14.8	28.5	43.3	0.06	4.6	F
4th	IV	25	18.3	30.9	49.2	0.07	5.0	F
5th	IV	25	14.6	8.5	23.1	0.06	8.6	E
Mission	IV	25	15.7	6.8	22.5	0.06	9.5	D
Total	IV		88.6	159.3	247.9	0.41	5.9	F

Arterial Level of Service: NB Lindaro

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
2nd	IV	25	15.5	17.2	32.7	0.06	6.4	F
3rd	IV	25	16.7	33.4	50.1	0.06	4.5	F
Total	IV		32.2	50.6	82.8	0.12	5.3	F

Arterial Level of Service: SB Lindaro

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
3rd	IV	25	9.9	22.5	32.4	0.04	4.2	F
2nd	IV	25	16.7	93.0	109.7	0.06	2.1	F
Total	IV		26.6	115.5	142.1	0.10	2.5	F

Arterial Level of Service: EB Mission












Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Lincoln	IV	25	27.5	15.7	43.2	0.12	10.4	D
Tamalpais	IV	25	16.0	52.8	68.8	0.06	3.2	F
Tamalpais	IV	25	3.1	2.9	6.0	0.01	7.0	E
Hetherton	IV	25	8.7	21.6	30.3	0.03	3.9	F
Irwin	IV	25	18.9	12.1	31.0	0.07	8.3	E
Total	IV		74.2	105.1	179.3	0.30	6.0	F

Arterial Level of Service: WB Mission

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Irwin	IV	25	21.6	26.8	48.4	0.10	7.3	E
Hetherton	IV	25	18.9	36.1	55.0	0.07	4.7	F
Tamalpais	IV	25	8.7	82.6	91.3	0.03	1.3	F
Tamalpais	IV	25	3.1	3.7	6.8	0.01	6.2	F
Lincoln	IV	25	16.0	88.7	104.7	0.06	2.1	F
Total	IV		68.3	237.9	306.2	0.27	3.2	F

HCM 2010 Signalized Intersection Summary
1: Cijos & 4th




















Cumulative (2040) With Project Conditions
Timing Plan: PM Peak Hour

								
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations								
Traffic Volume (veh/h)	245	11	115	265	32	90		
Future Volume (veh/h)	245	11	115	265	32	90		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		0.86	0.93		1.00	0.88		
Parking Bus, Adj	1.00	0.89	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1588	1620	1588	1588	1588	1620		
Adj Flow Rate, veh/h	255	9	120	276	33	17		
Adj No. of Lanes	1	0	1	1	0	0		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96		
Percent Heavy Veh, %	2	2	2	2	0	0		
Cap, veh/h	926	33	671	1092	154	80		
Arrive On Green	0.69	0.69	0.69	0.69	0.20	0.20		
Sat Flow, veh/h	1348	48	925	1588	790	407		
Grp Volume(v), veh/h	0	264	120	276	51	0		
Grp Sat Flow(s),veh/h/ln	0	1396	925	1588	1220	0		
Q Serve(g_s), s	0.0	5.1	4.0	4.6	2.5	0.0		
Cycle Q Clear(g_c), s	0.0	5.1	9.1	4.6	2.5	0.0		
Prop In Lane		0.03	1.00		0.65	0.33		
Lane Grp Cap(c), veh/h	0	959	671	1092	239	0		
V/C Ratio(X)	0.00	0.28	0.18	0.25	0.21	0.00		
Avail Cap(c_a), veh/h	0	959	671	1092	384	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	0.00	1.00	0.76	0.76	1.00	0.00		
Uniform Delay (d), s/veh	0.0	4.2	6.0	4.1	23.6	0.0		
Incr Delay (d2), s/veh	0.0	0.7	0.4	0.4	0.9	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	2.1	1.1	2.1	0.9	0.0		
LnGrp Delay(d),s/veh	0.0	4.9	6.4	4.6	24.6	0.0		
LnGrp LOS		A	A	A	C			
Approach Vol, veh/h	264			396	51			
Approach Delay, s/veh	4.9			5.1	24.6			
Approach LOS	A			A	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		52.3				52.3		17.7
Change Period (Y+Rc), s		* 4.2				* 4.2		4.0
Max Green Setting (Gmax), s		* 40				* 40		22.0
Max Q Clear Time (g_c+I1), s		7.1				11.1		4.5
Green Ext Time (p_c), s		7.1				6.8		0.2
Intersection Summary								
HCM 2010 Ctrl Delay			6.5					
HCM 2010 LOS			A					
Notes								
User approved volume balancing among the lanes for turning movement.								

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
2: Lincoln & 4th

Cumulative (2040) With Project Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	245	40	115	280	155	30	431	90	50	311	70
Future Volume (veh/h)	50	245	40	115	280	155	30	431	90	50	311	70
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.91	0.97		0.90	0.93		0.83	0.97		0.83
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1525	1620	1588	1588	1620	1620	1588	1555	1620	1588	1555
Adj Flow Rate, veh/h	52	255	34	120	292	135	31	449	73	52	324	52
Adj No. of Lanes	1	1	0	1	1	0	0	2	0	0	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	284	647	86	446	493	228	83	934	147	122	720	125
Arrive On Green	0.50	0.50	0.50	0.16	0.16	0.16	0.13	0.13	0.13	0.80	0.80	0.80
Sat Flow, veh/h	861	1300	173	949	991	458	84	2351	370	167	1810	315
Grp Volume(v), veh/h	52	0	289	120	0	427	298	0	255	210	0	218
Grp Sat Flow(s),veh/h/ln	861	0	1473	949	0	1450	1513	0	1291	975	0	1316
Q Serve(g_s), s	4.0	0.0	9.8	9.3	0.0	21.8	0.0	0.0	14.7	4.4	0.0	4.1
Cycle Q Clear(g_c), s	25.8	0.0	9.8	19.1	0.0	21.8	13.9	0.0	14.7	19.1	0.0	4.1
Prop In Lane	1.00		0.12	1.00		0.32	0.10		0.29	0.25		0.24
Lane Grp Cap(c), veh/h	284	0	733	446	0	721	651	0	513	444	0	523
V/C Ratio(X)	0.18	0.00	0.39	0.27	0.00	0.59	0.46	0.00	0.50	0.47	0.00	0.42
Avail Cap(c_a), veh/h	284	0	733	446	0	721	651	0	513	444	0	523
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	0.33	0.33	0.33	2.00	2.00	2.00
Upstream Filter(I)	0.97	0.00	0.97	1.00	0.00	1.00	0.80	0.00	0.80	0.80	0.00	0.80
Uniform Delay (d), s/veh	25.6	0.0	12.6	29.3	0.0	25.9	27.0	0.0	27.3	6.7	0.0	5.4
Incr Delay (d2), s/veh	1.4	0.0	1.5	1.5	0.0	3.6	1.8	0.0	2.7	2.9	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	4.2	2.6	0.0	9.5	6.5	0.0	5.6	1.6	0.0	1.6
LnGrp Delay(d),s/veh	27.0	0.0	14.1	30.7	0.0	29.5	28.8	0.0	30.0	9.5	0.0	7.3
LnGrp LOS	C		B	C		C	C		C	A		A
Approach Vol, veh/h		341			547			553			428	
Approach Delay, s/veh		16.1			29.7			29.4			8.4	
Approach LOS		B			C			C			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		44.0		36.0		44.0		36.0				
Change Period (Y+Rc), s		* 4.2		* 4.2		* 4.2		* 4.2				
Max Green Setting (Gmax), s		* 40		* 32		* 40		* 32				
Max Q Clear Time (g_c+I1), s		27.8		16.7		23.8		21.1				
Green Ext Time (p_c), s		6.2		7.6		7.5		6.0				
Intersection Summary												
HCM 2010 Ctrl Delay				22.3								
HCM 2010 LOS				C								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Int Delay, s/veh 3.1

Movement EBT EBR WBL WBT NBL NBR

Lane Configurations	↑			↑		↑
Traffic Vol, veh/h	385	0	0	560	0	220
Future Vol, veh/h	385	0	0	560	0	220
Conflicting Peds, #/hr	0	88	0	0	0	77
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	401	0	0	583	0	229

Major/Minor Major1 Major2 Minor1

Conflicting Flow All	0	-	-	-	-	478
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	0	0	-	0	587
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	549
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach EB WB NB

HCM Control Delay, s	0	0	16.2
HCM LOS			C

Minor Lane/Major Mvmt NBLn1 EBT WBT

Capacity (veh/h)	549	-	-
HCM Lane V/C Ratio	0.417	-	-
HCM Control Delay (s)	16.2	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	2	-	-

HCM Signalized Intersection Capacity Analysis

4: 4th & Tamalpais

Cumulative (2040) With Project Conditions

Timing Plan: PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↗
Traffic Volume (vph)	0	465	440	0	0	120
Future Volume (vph)	0	465	440	0	0	120
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)		6.0	6.0			5.6
Lane Util. Factor		1.00	1.00			1.00
Frbp, ped/bikes		1.00	1.00			0.78
Flpb, ped/bikes		1.00	1.00			1.00
Frt		1.00	1.00			0.86
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		1588	1588			1074
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		1588	1588			1074
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	484	458	0	0	125
RTOR Reduction (vph)	0	0	0	0	0	104
Lane Group Flow (vph)	0	484	458	0	0	21
Confl. Peds. (#/hr)				59		78
Confl. Bikes (#/hr)				14		
Turn Type		NA	NA			Perm
Protected Phases		2 8	4 6			
Permitted Phases						8
Actuated Green, G (s)		54.9	55.1			13.3
Effective Green, g (s)		54.9	55.1			13.3
Actuated g/C Ratio		0.69	0.69			0.17
Clearance Time (s)						5.6
Vehicle Extension (s)						3.0
Lane Grp Cap (vph)		1089	1093			178
v/s Ratio Prot		c0.30	c0.29			
v/s Ratio Perm						0.02
v/c Ratio		0.44	0.42			0.12
Uniform Delay, d1		5.7	5.4			28.4
Progression Factor		0.97	0.10			1.00
Incremental Delay, d2		0.3	0.2			0.3
Delay (s)		5.8	0.7			28.6
Level of Service		A	A			C
Approach Delay (s)		5.8	0.7		28.6	
Approach LOS		A	A		C	














Intersection Summary

HCM 2000 Control Delay	6.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	17.6
Intersection Capacity Utilization	97.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group













HCM Signalized Intersection Capacity Analysis
5: Tamalpais & 4th

Cumulative (2040) With Project Conditions
Timing Plan: PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑			↔			↕					
Traffic Volume (vph)	0	465	0	0	420	40	20	15	20	0	0	0	
Future Volume (vph)	0	465	0	0	420	40	20	15	20	0	0	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)		6.0			6.0			6.0					
Lane Util. Factor		1.00			1.00			1.00					
Frbp, ped/bikes		1.00			0.98			0.99					
Flpb, ped/bikes		1.00			1.00			1.00					
Frt		1.00			0.99			0.95					
Flt Protected		1.00			1.00			0.98					
Satd. Flow (prot)		1588			1546			1469					
Flt Permitted		1.00			1.00			0.98					
Satd. Flow (perm)		1588			1546			1469					
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	0	484	0	0	438	42	21	16	21	0	0	0	
RTOR Reduction (vph)	0	0	0	0	4	0	0	17	0	0	0	0	
Lane Group Flow (vph)	0	484	0	0	476	0	0	41	0	0	0	0	
Confl. Peds. (#/hr)	59		21			59			10				
Turn Type		NA			NA		Split	NA					
Protected Phases		2 8			6		4	4					
Permitted Phases													
Actuated Green, G (s)		54.9			35.6			13.5					
Effective Green, g (s)		54.9			35.6			13.5					
Actuated g/C Ratio		0.69			0.45			0.17					
Clearance Time (s)					6.0			6.0					
Vehicle Extension (s)					3.0			3.0					
Lane Grp Cap (vph)		1089			687			247					
v/s Ratio Prot		c0.30			c0.31			c0.03					
v/s Ratio Perm													
v/c Ratio		0.44			0.69			0.16					
Uniform Delay, d1		5.7			17.8			28.4					
Progression Factor		0.10			0.63			1.07					
Incremental Delay, d2		0.3			5.1			0.2					
Delay (s)		0.8			16.3			30.8					
Level of Service		A			B			C					
Approach Delay (s)		0.8			16.3			30.8				0.0	
Approach LOS		A			B			C				A	
Intersection Summary													
HCM 2000 Control Delay			9.8				HCM 2000 Level of Service		A				
HCM 2000 Volume to Capacity ratio			0.54										
Actuated Cycle Length (s)			80.0				Sum of lost time (s)		17.6				
Intersection Capacity Utilization			97.7%				ICU Level of Service		F				
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis
6: Hetherton & 4th



















Cumulative (2040) With Project Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	↗
Traffic Volume (vph)	0	285	190	80	260	0	0	0	0	135	1053	205
Future Volume (vph)	0	285	190	80	260	0	0	0	0	135	1053	205
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	13	10	15	11	12	12	12	12	12	12	12
Total Lost time (s)		4.2	4.2	4.2	4.2						4.6	4.6
Lane Util. Factor		1.00	1.00	1.00	1.00						0.91	1.00
Frbp, ped/bikes		1.00	0.93	1.00	1.00						1.00	0.92
Flpb, ped/bikes		1.00	1.00	0.97	1.00						1.00	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.99	1.00
Satd. Flow (prot)		1641	1172	1609	1535						4143	1102
Flt Permitted		1.00	1.00	0.47	1.00						0.99	1.00
Satd. Flow (perm)		1641	1172	792	1535						4143	1102
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	297	198	83	271	0	0	0	0	141	1097	214
RTOR Reduction (vph)	0	0	36	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	297	162	83	271	0	0	0	0	0	1238	214
Confl. Peds. (#/hr)			51	51		28			11	11		19
Confl. Bikes (#/hr)			10			16			1			1
Parking (#/hr)											2	2
Turn Type		NA	Perm	Perm	NA					Perm	NA	custom
Protected Phases		4			8						2	
Permitted Phases			4	8						2		5
Actuated Green, G (s)		29.8	29.8	29.8	29.8						41.4	34.4
Effective Green, g (s)		29.8	29.8	29.8	29.8						41.4	34.4
Actuated g/C Ratio		0.37	0.37	0.37	0.37						0.52	0.43
Clearance Time (s)		4.2	4.2	4.2	4.2						4.6	4.6
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		611	436	295	571						2144	473
v/s Ratio Prot		c0.18			0.18							
v/s Ratio Perm			0.14	0.10							0.30	0.19
v/c Ratio		0.49	0.37	0.28	0.47						0.58	0.45
Uniform Delay, d1		19.2	18.3	17.6	19.1						13.3	16.1
Progression Factor		0.59	0.44	0.93	0.95						0.36	0.49
Incremental Delay, d2		2.5	2.2	2.2	2.6						0.8	2.1
Delay (s)		13.9	10.2	18.5	20.7						5.5	10.0
Level of Service		B	B	B	C						A	B
Approach Delay (s)		12.4			20.2			0.0			6.2	
Approach LOS		B			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			9.7									A
HCM 2000 Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			80.0							10.8		
Intersection Capacity Utilization			78.5%									D
Analysis Period (min)			15									

c Critical Lane Group


















HCM 2010 Signalized Intersection Summary
7: Irwin & 4th

Cumulative (2040) With Project Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	230	0	0	210	90	120	1410	170	0	0	0
Future Volume (veh/h)	180	230	0	0	210	90	120	1410	170	0	0	0
Number	5	2	12	1	6	16	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.95	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.87	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1588	1588	0	0	1588	1620	1525	1588	1620			
Adj Flow Rate, veh/h	188	240	0	0	219	83	125	1469	157			
Adj No. of Lanes	1	1	0	0	1	0	1	3	0			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	296	631	0	0	374	142	722	1977	211			
Arrive On Green	0.13	0.13	0.00	0.00	0.40	0.40	0.16	0.16	0.16			
Sat Flow, veh/h	961	1588	0	0	941	356	1452	3973	424			
Grp Volume(v), veh/h	188	240	0	0	0	302	125	1068	558			
Grp Sat Flow(s),veh/h/ln	961	1588	0	0	0	1297	1452	1445	1507			
Q Serve(g_s), s	15.5	11.1	0.0	0.0	0.0	14.6	5.9	28.2	28.2			
Cycle Q Clear(g_c), s	30.2	11.1	0.0	0.0	0.0	14.6	5.9	28.2	28.2			
Prop In Lane	1.00		0.00	0.00		0.27	1.00		0.28			
Lane Grp Cap(c), veh/h	296	631	0	0	0	516	722	1438	750			
V/C Ratio(X)	0.63	0.38	0.00	0.00	0.00	0.59	0.17	0.74	0.74			
Avail Cap(c_a), veh/h	296	631	0	0	0	516	722	1438	750			
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	0.33	0.33	0.33			
Upstream Filter(I)	0.87	0.87	0.00	0.00	0.00	1.00	0.36	0.36	0.36			
Uniform Delay (d), s/veh	41.3	25.7	0.0	0.0	0.0	18.9	19.3	28.6	28.6			
Incr Delay (d2), s/veh	8.7	1.5	0.0	0.0	0.0	4.8	0.2	1.3	2.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.9	5.1	0.0	0.0	0.0	5.9	2.4	11.5	12.3			
LnGrp Delay(d),s/veh	50.0	27.3	0.0	0.0	0.0	23.7	19.5	29.9	31.0			
LnGrp LOS	D	C				C	B	C	C			
Approach Vol, veh/h		428			302			1751				
Approach Delay, s/veh		37.2			23.7			29.5				
Approach LOS		D			C			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		36.0		44.0		36.0						
Change Period (Y+Rc), s		* 4.2		* 4.2		* 4.2						
Max Green Setting (Gmax), s		* 32		* 40		* 32						
Max Q Clear Time (g_c+I1), s		32.2		30.2		16.6						
Green Ext Time (p_c), s		0.0		6.0		3.2						
Intersection Summary												
HCM 2010 Ctrl Delay				30.1								
HCM 2010 LOS				C								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
8: Lindaro & 3rd

Cumulative (2040) With Project Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	242	1872	40	132	20	0	0	50	10
Future Volume (veh/h)	0	0	0	242	1872	40	132	20	0	0	50	10
Number				1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.93	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1412	1412	1440	1440	1412	0	0	1412	1440
Adj Flow Rate, veh/h				252	1950	40	138	21	0	0	52	2
Adj No. of Lanes				1	3	0	0	1	0	0	1	0
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				820	2367	48	238	29	0	0	259	10
Arrive On Green				0.61	0.61	0.61	0.19	0.19	0.00	0.00	0.19	0.19
Sat Flow, veh/h				1345	3881	79	801	150	0	0	1351	52
Grp Volume(v), veh/h				252	1290	700	159	0	0	0	0	54
Grp Sat Flow(s),veh/h/ln				1345	1285	1391	951	0	0	0	0	1403
Q Serve(g_s), s				7.2	31.5	31.6	10.8	0.0	0.0	0.0	0.0	2.6
Cycle Q Clear(g_c), s				7.2	31.5	31.6	13.4	0.0	0.0	0.0	0.0	2.6
Prop In Lane				1.00		0.06	0.87		0.00	0.00		0.04
Lane Grp Cap(c), veh/h				820	1567	848	267	0	0	0	0	269
V/C Ratio(X)				0.31	0.82	0.82	0.60	0.00	0.00	0.00	0.00	0.20
Avail Cap(c_a), veh/h				820	1567	848	370	0	0	0	0	400
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				7.5	12.2	12.2	32.5	0.0	0.0	0.0	0.0	27.2
Incr Delay (d2), s/veh				1.0	5.0	9.0	2.1	0.0	0.0	0.0	0.0	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.9	12.0	14.0	3.6	0.0	0.0	0.0	0.0	1.0
LnGrp Delay(d),s/veh				8.5	17.3	21.2	34.6	0.0	0.0	0.0	0.0	27.5
LnGrp LOS				A	B	C	C					C
Approach Vol, veh/h				2242			159			54		
Approach Delay, s/veh				17.5			34.6			27.5		
Approach LOS				B			C			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				19.6		53.0		19.6				
Change Period (Y+Rc), s				* 4.2		4.2		* 4.2				
Max Green Setting (Gmax), s				* 23		48.8		* 23				
Max Q Clear Time (g_c+I1), s				15.4		33.6		4.6				
Green Ext Time (p_c), s				0.5		10.3		0.7				
Intersection Summary												
HCM 2010 Ctrl Delay				18.8								
HCM 2010 LOS				B								
Notes												
User approved ignoring U-Turning movement.												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑↑	↑	
Traffic Vol, veh/h	0	0	0	2044	128	0
Future Vol, veh/h	0	0	0	2044	128	0
Conflicting Peds, #/hr	0	31	31	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	2129	133	0

Major/Minor	Major2	Minor1
Conflicting Flow All	-	852
Stage 1	-	0
Stage 2	-	852
Critical Hdwy	-	5.74
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	6.04
Follow-up Hdwy	-	3.82
Pot Cap-1 Maneuver	0	368
Stage 1	0	-
Stage 2	0	343
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	368
Mov Cap-2 Maneuver	-	368
Stage 1	-	-
Stage 2	-	343

Approach	WB	NB
HCM Control Delay, s	0	20.2
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	WBT
Capacity (veh/h)	368	-
HCM Lane V/C Ratio	0.362	-
HCM Control Delay (s)	20.2	-
HCM Lane LOS	C	-
HCM 95th %tile Q(veh)	1.6	-

Intersection						
Int Delay, s/veh	5.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑			↑
Traffic Vol, veh/h	0	0	1919	125	0	125
Future Vol, veh/h	0	0	1919	125	0	125
Conflicting Peds, #/hr	0	0	0	76	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	-	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	1999	130	0	130













Major/Minor	Major2	Minor2
Conflicting Flow All	-	0 - 1141
Stage 1	-	- -
Stage 2	-	- -
Critical Hdwy	-	- - 7.14
Critical Hdwy Stg 1	-	- -
Critical Hdwy Stg 2	-	- -
Follow-up Hdwy	-	- - 3.92
Pot Cap-1 Maneuver	-	- 0 167
Stage 1	-	- 0 -
Stage 2	-	- 0 -
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	- - 156
Mov Cap-2 Maneuver	-	- -
Stage 1	-	- -
Stage 2	-	- -

Approach	WB	SB
HCM Control Delay, s	0	91.1
HCM LOS		F

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	156
HCM Lane V/C Ratio	-	-	0.835
HCM Control Delay (s)	-	-	91.1
HCM Lane LOS	-	-	F
HCM 95th %tile Q(veh)	-	-	5.6


















HCM 2010 Signalized Intersection Summary
11: Lincoln & 3rd

Cumulative (2040) With Project Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑			↑↑			↑↑	
Traffic Volume (veh/h)	0	0	0	110	1832	150	51	346	0	0	285	161
Future Volume (veh/h)	0	0	0	110	1832	150	51	346	0	0	285	161
Number				1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.92	0.98		1.00	1.00		0.83
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1620	1588	1620	1620	1588	0	0	1525	1555
Adj Flow Rate, veh/h				115	1908	145	53	360	0	0	297	162
Adj No. of Lanes				0	3	0	0	2	0	0	2	0
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				0	2	0	2	2	0	0	2	2
Cap, veh/h				127	2242	175	108	698	0	0	560	288
Arrive On Green				0.56	0.56	0.56	0.65	0.65	0.00	0.00	0.11	0.11
Sat Flow, veh/h				227	3988	311	156	2218	0	0	1797	885
Grp Volume(v), veh/h				800	666	702	202	211	0	0	247	212
Grp Sat Flow(s),veh/h/ln				1577	1445	1504	928	1373	0	0	1448	1157
Q Serve(g_s), s				36.1	30.0	30.7	3.9	6.2	0.0	0.0	12.9	13.9
Cycle Q Clear(g_c), s				36.1	30.0	30.7	17.8	6.2	0.0	0.0	12.9	13.9
Prop In Lane				0.14		0.21	0.26		0.00	0.00		0.77
Lane Grp Cap(c), veh/h				886	812	845	359	447	0	0	471	377
V/C Ratio(X)				0.90	0.82	0.83	0.56	0.47	0.00	0.00	0.52	0.56
Avail Cap(c_a), veh/h				936	858	893	359	447	0	0	471	377
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	0.33	0.33
Upstream Filter(I)				0.09	0.09	0.09	1.00	1.00	0.00	0.00	0.88	0.88
Uniform Delay (d), s/veh				15.6	14.2	14.4	11.5	10.5	0.0	0.0	29.8	30.3
Incr Delay (d2), s/veh				1.3	0.6	0.6	6.2	3.6	0.0	0.0	3.7	5.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				15.9	12.0	12.6	2.6	2.7	0.0	0.0	5.7	5.0
LnGrp Delay(d),s/veh				16.8	14.8	15.0	17.8	14.1	0.0	0.0	33.5	35.6
LnGrp LOS				B	B	B	B	B			C	D
Approach Vol, veh/h				2168			413			459		
Approach Delay, s/veh				15.6			15.9			34.5		
Approach LOS				B			B			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				30.5		49.5		30.5				
Change Period (Y+Rc), s				4.5		4.5		4.5				
Max Green Setting (Gmax), s				23.5		47.5		23.5				
Max Q Clear Time (g_c+I1), s				19.8		38.1		15.9				
Green Ext Time (p_c), s				1.5		6.9		2.6				
Intersection Summary												
HCM 2010 Ctrl Delay				18.5								
HCM 2010 LOS				B								

HCM Signalized Intersection Capacity Analysis
12: Tamalpais & 3rd

Cumulative (2040) With Project Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					  							
Traffic Volume (vph)	0	0	0	350	1952	50	125	55	0	0	0	0
Future Volume (vph)	0	0	0	350	1952	50	125	55	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1600	1600	1600	1600	1600	1800	1800	1600	1600
Lane Width	12	12	12	12	12	12	11	12	12	12	12	12
Total Lost time (s)					11.6		7.6	7.6				
Lane Util. Factor					0.91		1.00	1.00				
Frbp, ped/bikes					1.00		1.00	1.00				
Flpb, ped/bikes					0.96		0.96	1.00				
Frt					1.00		1.00	1.00				
Flt Protected					0.99		0.95	1.00				
Satd. Flow (prot)					3669		1098	1249				
Flt Permitted					0.99		0.95	1.00				
Satd. Flow (perm)					3669		1098	1249				
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	0	0	365	2033	52	130	57	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	2447	0	130	57	0	0	0	0
Confl. Peds. (#/hr)			106	106		44	30		69			30
Confl. Bikes (#/hr)						2			3			8
Parking (#/hr)							3	3			3	3
Turn Type				Perm	NA		Perm	NA				
Protected Phases					6			4				
Permitted Phases				6			4					
Actuated Green, G (s)					51.6		19.2	19.2				
Effective Green, g (s)					51.6		19.2	19.2				
Actuated g/C Ratio					0.57		0.21	0.21				
Clearance Time (s)					11.6		7.6	7.6				
Vehicle Extension (s)					5.0		5.0	5.0				
Lane Grp Cap (vph)					2103		234	266				
v/s Ratio Prot								0.05				
v/s Ratio Perm					0.67		c0.12					
v/c Ratio					1.16		0.56	0.21				
Uniform Delay, d1					19.2		31.6	29.2				
Progression Factor					1.00		1.00	1.00				
Incremental Delay, d2					79.4		4.8	0.8				
Delay (s)					98.6		36.4	30.0				
Level of Service					F		D	C				
Approach Delay (s)		0.0			98.6			34.4			0.0	
Approach LOS		A			F			C			A	
Intersection Summary												
HCM 2000 Control Delay			94.0		HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio			1.00									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)			19.2				
Intersection Capacity Utilization			163.8%		ICU Level of Service			H				
Analysis Period (min)			15									

c Critical Lane Group

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↔↑↑↔			↔					
Traffic Vol, veh/h	0	0	0	10	2297	30	20	0	0	0	0	0
Future Vol, veh/h	0	0	0	10	2297	30	20	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	96	0	15	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	10	2393	31	21	0	0	0	0	0


















Major/Minor	Major2	Minor1
Conflicting Flow All	96	0 0 1074
Stage 1	-	- - 96
Stage 2	-	- - 978
Critical Hdwy	5.34	- - 5.74
Critical Hdwy Stg 1	-	- - -
Critical Hdwy Stg 2	-	- - 6.04
Follow-up Hdwy	3.12	- - 3.82
Pot Cap-1 Maneuver	1043	- - 285 0 0
Stage 1	-	- - - 0 0
Stage 2	-	- - - 294 0 0
Platoon blocked, %	-	- -
Mov Cap-1 Maneuver	1043	- - 262 0 -
Mov Cap-2 Maneuver	-	- - 262 0 -
Stage 1	-	- - - 0 -
Stage 2	-	- - - 294 0 -

Approach	WB	NB
HCM Control Delay, s	0	19.9
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	WBL	WBT	WBR
Capacity (veh/h)	262	1043	-	-
HCM Lane V/C Ratio	0.08	0.01	-	-
HCM Control Delay (s)	19.9	8.5	0	-
HCM Lane LOS	C	A	A	-
HCM 95th %tile Q(veh)	0.3	0	-	-

HCM 2010 Signalized Intersection Summary
 14: Hetherton & 3rd













Cumulative (2040) With Project Conditions
 Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	510	1739	0	0	0	0	0	725	598
Future Volume (veh/h)	0	0	0	510	1739	0	0	0	0	0	725	598
Number				1	6	16				3	8	18
Initial Q (Qb), veh				0	0	0				0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		0.86
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1560	1588	0				0	1588	1500
Adj Flow Rate, veh/h				531	1811	0				0	755	615
Adj No. of Lanes				1	3	0				0	3	1
Peak Hour Factor				0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %				2	2	0				0	2	2
Cap, veh/h				717	2011	0				0	2018	509
Arrive On Green				0.14	0.14	0.00				0.00	0.15	0.15
Sat Flow, veh/h				1486	4765	0				0	4479	1093
Grp Volume(v), veh/h				531	1811	0				0	755	615
Grp Sat Flow(s),veh/h/ln				1486	1588	0				0	1445	1093
Q Serve(g_s), s				27.9	29.9	0.0				0.0	12.5	37.2
Cycle Q Clear(g_c), s				27.9	29.9	0.0				0.0	12.5	37.2
Prop In Lane				1.00		0.00				0.00		1.00
Lane Grp Cap(c), veh/h				717	2011	0				0	2018	509
V/C Ratio(X)				0.74	0.90	0.00				0.00	0.37	1.21
Avail Cap(c_a), veh/h				721	2025	0				0	2018	509
HCM Platoon Ratio				0.33	0.33	1.00				1.00	0.33	0.33
Upstream Filter(I)				0.09	0.09	0.00				0.00	0.82	0.82
Uniform Delay (d), s/veh				31.9	32.8	0.0				0.0	23.4	33.9
Incr Delay (d2), s/veh				0.4	0.6	0.0				0.0	0.4	108.7
Initial Q Delay(d3),s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				11.6	13.3	0.0				0.0	5.1	26.6
LnGrp Delay(d),s/veh				32.3	33.4	0.0				0.0	23.8	142.6
LnGrp LOS				C	C						C	F
Approach Vol, veh/h					2342						1370	
Approach Delay, s/veh					33.1						77.1	
Approach LOS					C						E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs						6		8				
Phs Duration (G+Y+Rc), s						37.8		42.2				
Change Period (Y+Rc), s						4.0		5.0				
Max Green Setting (Gmax), s						34.0		37.0				
Max Q Clear Time (g_c+I1), s						31.9		39.2				
Green Ext Time (p_c), s						1.8		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay					49.4							
HCM 2010 LOS					D							
Notes												
User approved volume balancing among the lanes for turning movement.												

User approved ignoring U-Turning movement.






















HCM 2010 Signalized Intersection Summary
 15: Irwin & 3rd/3rd St

Cumulative (2040) With Project Conditions
 Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑	↗	↖	↑↑↑				
Traffic Volume (veh/h)	0	0	0	0	1236	210	1008	1490	0	0	0	0
Future Volume (veh/h)	0	0	0	0	1236	210	1008	1490	0	0	0	0
Number				1	6	16	7	4	14			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		0.93	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				0	1500	1500	1412	1412	0			
Adj Flow Rate, veh/h				0	1288	200	1134	1434	0			
Adj No. of Lanes				0	3	1	2	2	0			
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %				0	2	2	2	2	0			
Cap, veh/h				0	1254	363	1563	1641	0			
Arrive On Green				0.00	0.31	0.31	0.19	0.19	0.00			
Sat Flow, veh/h				0	4230	1184	2689	2824	0			
Grp Volume(v), veh/h				0	1288	200	1134	1434	0			
Grp Sat Flow(s),veh/h/ln				0	1365	1184	1345	1412	0			
Q Serve(g_s), s				0.0	24.5	11.3	31.7	39.4	0.0			
Cycle Q Clear(g_c), s				0.0	24.5	11.3	31.7	39.4	0.0			
Prop In Lane				0.00		1.00	1.00		0.00			
Lane Grp Cap(c), veh/h				0	1254	363	1563	1641	0			
V/C Ratio(X)				0.00	1.03	0.55	0.73	0.87	0.00			
Avail Cap(c_a), veh/h				0	1254	363	1563	1641	0			
HCM Platoon Ratio				1.00	1.00	1.00	0.33	0.33	1.00			
Upstream Filter(l)				0.00	1.00	1.00	0.09	0.09	0.00			
Uniform Delay (d), s/veh				0.0	27.8	23.2	26.3	29.5	0.0			
Incr Delay (d2), s/veh				0.0	32.5	1.8	0.3	0.7	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln				0.0	13.0	3.8	11.9	15.6	0.0			
LnGrp Delay(d),s/veh				0.0	60.3	25.0	26.6	30.2	0.0			
LnGrp LOS					F	C	C	C				
Approach Vol, veh/h					1488			2568				
Approach Delay, s/veh					55.5			28.6				
Approach LOS					E			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs				4		6						
Phs Duration (G+Y+Rc), s				51.0		29.0						
Change Period (Y+Rc), s				4.5		4.5						
Max Green Setting (Gmax), s				46.5		24.5						
Max Q Clear Time (g_c+I1), s				41.4		26.5						
Green Ext Time (p_c), s				4.5		0.0						
Intersection Summary												
HCM 2010 Ctrl Delay				38.5								
HCM 2010 LOS				D								
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 2010 Signalized Intersection Summary
16: Lindaro & 2nd

Cumulative (2040) With Project Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  							 	 		
Traffic Volume (veh/h)	61	2372	44	0	0	0	0	91	433	117	180	0
Future Volume (veh/h)	61	2372	44	0	0	0	0	91	433	117	180	0
Number	5	2	12				7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94				1.00		0.95	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1440	1412	1440				0	1412	1412	1355	1355	0
Adj Flow Rate, veh/h	64	2471	43				0	95	441	122	188	0
Adj No. of Lanes	0	4	0				0	1	1	1	1	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	63	2619	47				0	526	426	305	505	0
Arrive On Green	0.52	0.52	0.52				0.00	0.37	0.37	0.12	0.12	0.00
Sat Flow, veh/h	121	5013	89				0	1412	1145	658	1355	0
Grp Volume(v), veh/h	743	1167	669				0	95	441	122	188	0
Grp Sat Flow(s),veh/h/ln	1406	1214	1389				0	1412	1145	658	1355	0
Q Serve(g_s), s	41.8	35.3	35.4				0.0	3.6	29.8	14.1	10.2	0.0
Cycle Q Clear(g_c), s	41.8	35.3	35.4				0.0	3.6	29.8	17.7	10.2	0.0
Prop In Lane	0.09		0.06				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	734	1269	726				0	526	426	305	505	0
V/C Ratio(X)	1.01	0.92	0.92				0.00	0.18	1.03	0.40	0.37	0.00
Avail Cap(c_a), veh/h	734	1269	726				0	526	426	305	505	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	0.33	0.33	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.1	17.6	17.6				0.0	16.9	25.1	31.5	26.5	0.0
Incr Delay (d2), s/veh	36.0	12.2	18.9				0.0	0.2	52.7	0.8	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	23.3	13.8	17.2				0.0	1.4	15.6	2.6	3.9	0.0
LnGrp Delay(d),s/veh	55.1	29.7	36.5				0.0	17.0	77.8	32.3	26.9	0.0
LnGrp LOS	F	C	D					B	F	C	C	
Approach Vol, veh/h		2578						536			310	
Approach Delay, s/veh		38.8						67.1			29.1	
Approach LOS		D						E			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		46.0		34.0				34.0				
Change Period (Y+Rc), s		* 4.2		* 4.2				* 4.2				
Max Green Setting (Gmax), s		* 42		* 30				* 30				
Max Q Clear Time (g_c+I1), s		43.8		31.8				19.7				
Green Ext Time (p_c), s		0.0		0.0				3.5				
Intersection Summary												
HCM 2010 Ctrl Delay			42.3									
HCM 2010 LOS			D									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection														
Int Delay, s/veh	1.5													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NWL	NWR
Lane Configurations					↕			↕			↕			
Traffic Vol, veh/h	0	0	0	2	2	6	80	417	0	40	325	30	0	0
Future Vol, veh/h	0	0	0	2	2	6	80	417	0	40	325	30	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	25	0	4	4	0	25	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	-	-	-	None	-	-	-	-	-	None	-	-
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	2	2	6	83	434	0	42	339	31	0	0


















Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	863	1088	226	395	0	0
Stage 1	610	610	-	-	-	-
Stage 2	253	478	-	-	-	-
Critical Hdwy	6.84	6.54	6.94	4.14	-	-
Critical Hdwy Stg 1	5.84	5.54	-	-	-	-
Critical Hdwy Stg 2	5.84	5.54	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	2.22	-	-
Pot Cap-1 Maneuver	294	214	777	1160	-	-
Stage 1	505	483	-	-	-	-
Stage 2	766	554	-	-	-	-
Platoon blocked, %					-	-
Mov Cap-1 Maneuver	252	0	774	1160	-	-
Mov Cap-2 Maneuver	252	0	-	-	-	-
Stage 1	456	0	-	-	-	-
Stage 2	729	0	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.2	1.6	1
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR2WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1160	-	-	510	1108	-
HCM Lane V/C Ratio	0.072	-	-	0.02	0.038	-
HCM Control Delay (s)	8.3	0.3	-	12.2	8.4	0.2
HCM Lane LOS	A	A	-	B	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	0.1	-



















HCM 2010 Signalized Intersection Summary
18: Lincoln & 2nd

Cumulative (2040) With Project Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	236	2564	62	0	0	0	0	211	140	150	190	0
Future Volume (veh/h)	236	2564	62	0	0	0	0	211	140	150	190	0
Number	5	2	12				7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98				1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1440	1412	1412				0	1412	1412	1382	1355	0
Adj Flow Rate, veh/h	246	2671	44				0	220	134	156	198	0
Adj No. of Lanes	0	4	1				0	1	1	0	2	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	222	2598	657				0	473	389	246	408	0
Arrive On Green	0.18	0.18	0.18				0.00	0.34	0.34	0.67	0.67	0.00
Sat Flow, veh/h	396	4638	1172				0	1412	1161	475	1281	0
Grp Volume(v), veh/h	865	2052	44				0	220	134	169	185	0
Grp Sat Flow(s),veh/h/ln	1392	1214	1172				0	1412	1161	523	1172	0
Q Serve(g_s), s	44.8	44.8	2.5				0.0	9.8	6.9	15.9	6.1	0.0
Cycle Q Clear(g_c), s	44.8	44.8	2.5				0.0	9.8	6.9	25.8	6.1	0.0
Prop In Lane	0.28		1.00				0.00		1.00	0.92		0.00
Lane Grp Cap(c), veh/h	780	2040	657				0	473	389	262	393	0
V/C Ratio(X)	1.11	1.01	0.07				0.00	0.47	0.34	0.65	0.47	0.00
Avail Cap(c_a), veh/h	780	2040	657				0	473	389	262	393	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(l)	0.09	0.09	0.09				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.6	32.6	15.4				0.0	21.0	20.0	17.5	9.8	0.0
Incr Delay (d2), s/veh	51.4	7.5	0.0				0.0	0.7	0.5	5.4	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	28.4	16.5	0.8				0.0	3.9	2.3	4.0	1.9	0.0
LnGrp Delay(d),s/veh	84.0	40.1	15.4				0.0	21.7	20.5	22.9	10.7	0.0
LnGrp LOS	F	F	B					C	C	C	B	
Approach Vol, veh/h		2961						354			354	
Approach Delay, s/veh		52.6						21.2			16.5	
Approach LOS		D						C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		49.0		31.0				31.0				
Change Period (Y+Rc), s		* 4.2		* 4.2				* 4.2				
Max Green Setting (Gmax), s		* 45		* 27				* 27				
Max Q Clear Time (g_c+I1), s		46.8		11.8				27.8				
Green Ext Time (p_c), s		0.0		3.0				0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			46.1									
HCM 2010 LOS			D									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

















HCM 2010 Signalized Intersection Summary
 19: Francisco W./Tamalpais & 2nd

Cumulative (2040) With Project Conditions
 Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	2694	120	0	0	0	0	150	370	85	255	0
Future Volume (veh/h)	40	2694	120	0	0	0	0	150	370	85	255	0
Number	5	2	12				7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93				1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1440	1412	1412				0	1412	1468	1412	1412	0
Adj Flow Rate, veh/h	42	2806	80				0	156	351	89	266	0
Adj No. of Lanes	0	4	1				0	1	1	1	1	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	36	2599	582				0	446	384	254	446	0
Arrive On Green	0.17	0.17	0.17				0.00	0.32	0.32	0.32	0.32	0.00
Sat Flow, veh/h	70	4981	1116				0	1412	1217	710	1412	0
Grp Volume(v), veh/h	850	1998	80				0	156	351	89	266	0
Grp Sat Flow(s),veh/h/ln	1408	1214	1116				0	1412	1217	710	1412	0
Q Serve(g_s), s	41.7	41.7	4.9				0.0	6.8	22.2	8.8	12.7	0.0
Cycle Q Clear(g_c), s	41.7	41.7	4.9				0.0	6.8	22.2	15.6	12.7	0.0
Prop In Lane	0.05		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	735	1901	582				0	446	384	254	446	0
V/C Ratio(X)	1.16	1.05	0.14				0.00	0.35	0.91	0.35	0.60	0.00
Avail Cap(c_a), veh/h	735	1901	582				0	468	403	265	468	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.09	0.09	0.09				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.1	33.1	17.8				0.0	21.1	26.3	27.1	23.1	0.0
Incr Delay (d2), s/veh	71.9	24.8	0.0				0.0	0.5	24.3	0.8	1.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	30.9	18.4	1.5				0.0	2.7	10.0	1.8	5.2	0.0
LnGrp Delay(d),s/veh	105.0	57.9	17.9				0.0	21.5	50.7	27.9	25.0	0.0
LnGrp LOS	F	F	B					C	D	C	C	
Approach Vol, veh/h		2928						507			355	
Approach Delay, s/veh		70.5						41.7			25.7	
Approach LOS		E						D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		48.2		31.8				31.8				
Change Period (Y+Rc), s		6.5		6.5				6.5				
Max Green Setting (Gmax), s		40.5		26.5				26.5				
Max Q Clear Time (g_c+I1), s		43.7		24.2				17.6				
Green Ext Time (p_c), s		0.0		1.1				3.0				
Intersection Summary												
HCM 2010 Ctrl Delay			62.4									
HCM 2010 LOS			E									

















HCM 2010 Signalized Intersection Summary
 20: 101 SBO on Hetherton/Hetherton & 2nd/2nd St

Cumulative (2040) With Project Conditions
 Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1976	1168	0	0	0	0	0	0	390	845	0
Future Volume (veh/h)	0	1976	1168	0	0	0	0	0	0	390	845	0
Number	5	2	12							7	4	14
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1500	1500							1500	1500	0
Adj Flow Rate, veh/h	0	2058	1186							406	880	0
Adj No. of Lanes	0	3	2							1	2	0
Peak Hour Factor	0.96	0.96	0.96							0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2							2	2	0
Cap, veh/h	0	2303	1305							465	977	0
Arrive On Green	0.00	0.17	0.17							0.11	0.11	0.00
Sat Flow, veh/h	0	4500	2550							1429	3000	0
Grp Volume(v), veh/h	0	2058	1186							406	880	0
Grp Sat Flow(s),veh/h/ln	0	1500	1275							1429	1500	0
Q Serve(g_s), s	0.0	35.8	36.5							22.4	23.2	0.0
Cycle Q Clear(g_c), s	0.0	35.8	36.5							22.4	23.2	0.0
Prop In Lane	0.00		1.00							1.00		0.00
Lane Grp Cap(c), veh/h	0	2303	1305							465	977	0
V/C Ratio(X)	0.00	0.89	0.91							0.87	0.90	0.00
Avail Cap(c_a), veh/h	0	2303	1305							473	994	0
HCM Platoon Ratio	1.00	0.33	0.33							0.33	0.33	1.00
Upstream Filter(l)	0.00	0.09	0.09							0.89	0.89	0.00
Uniform Delay (d), s/veh	0.0	31.1	31.4							34.1	34.4	0.0
Incr Delay (d2), s/veh	0.0	0.6	1.2							14.6	10.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	15.0	13.1							10.8	11.0	0.0
LnGrp Delay(d),s/veh	0.0	31.7	32.6							48.6	44.4	0.0
LnGrp LOS		C	C							D	D	
Approach Vol, veh/h		3244									1286	
Approach Delay, s/veh		32.0									45.7	
Approach LOS		C									D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4								
Phs Duration (G+Y+Rc), s		49.4		30.6								
Change Period (Y+Rc), s		8.5		4.5								
Max Green Setting (Gmax), s		40.5		26.5								
Max Q Clear Time (g_c+I1), s		38.5		25.2								
Green Ext Time (p_c), s		1.9		0.9								
Intersection Summary												
HCM 2010 Ctrl Delay			35.9									
HCM 2010 LOS			D									
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 2010 Signalized Intersection Summary
21: Irwin & 2nd St

Cumulative (2040) With Project Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1020	1396	0	0	0	0	0	1498	600	0	0	0
Future Volume (veh/h)	1020	1396	0	0	0	0	0	1498	600	0	0	0
Number	5	2	12				7	4	14			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.94			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1468	1500	0				0	1412	1412			
Adj Flow Rate, veh/h	1099	1402	0				0	1560	616			
Adj No. of Lanes	2	2	0				0	3	1			
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0				0	2	2			
Cap, veh/h	1501	1418	0				0	1580	464			
Arrive On Green	0.16	0.16	0.00				0.00	0.41	0.41			
Sat Flow, veh/h	2797	3000	0				0	3981	1132			
Grp Volume(v), veh/h	1099	1402	0				0	1560	616			
Grp Sat Flow(s),veh/h/ln	1398	1500	0				0	1285	1132			
Q Serve(g_s), s	30.5	37.3	0.0				0.0	32.1	32.8			
Cycle Q Clear(g_c), s	30.5	37.3	0.0				0.0	32.1	32.8			
Prop In Lane	1.00		0.00				0.00		1.00			
Lane Grp Cap(c), veh/h	1501	1418	0				0	1580	464			
V/C Ratio(X)	0.73	0.99	0.00				0.00	0.99	1.33			
Avail Cap(c_a), veh/h	1501	1418	0				0	1580	464			
HCM Platoon Ratio	0.33	0.33	1.00				1.00	1.00	1.00			
Upstream Filter(l)	0.09	0.09	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	30.7	33.6	0.0				0.0	23.4	23.6			
Incr Delay (d2), s/veh	0.3	5.1	0.0				0.0	19.7	161.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	11.9	16.5	0.0				0.0	14.1	31.0			
LnGrp Delay(d),s/veh	31.0	38.6	0.0				0.0	43.0	185.4			
LnGrp LOS	C	D						D	F			
Approach Vol, veh/h		2501						2176				
Approach Delay, s/veh		35.3						83.3				
Approach LOS		D						F				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4								
Phs Duration (G+Y+Rc), s		42.0		38.0								
Change Period (Y+Rc), s		* 4.2		* 5.2								
Max Green Setting (Gmax), s		* 38		* 33								
Max Q Clear Time (g_c+I1), s		39.3		34.8								
Green Ext Time (p_c), s		0.0		0.0								
Intersection Summary												
HCM 2010 Ctrl Delay			57.6									
HCM 2010 LOS			E									
Notes												
User approved volume balancing among the lanes for turning movement.												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	11.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	791	10	20	870	30	10	10	70	30	10	20
Future Vol, veh/h	10	791	10	20	870	30	10	10	70	30	10	20
Conflicting Peds, #/hr	5	0	12	12	0	5	14	0	14	14	0	14
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	824	10	21	906	31	10	10	73	31	10	21





















Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	943	0	0	846	0	0	1855	1846	855	1875	1836	941
Stage 1	-	-	-	-	-	-	862	862	-	969	969	-
Stage 2	-	-	-	-	-	-	993	984	-	906	867	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	727	-	-	791	-	-	57	75	358	55	76	319
Stage 1	-	-	-	-	-	-	350	372	-	305	332	-
Stage 2	-	-	-	-	-	-	296	327	-	331	370	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	716	-	-	779	-	-	43	68	348	35	69	313
Mov Cap-2 Maneuver	-	-	-	-	-	-	43	68	-	35	69	-
Stage 1	-	-	-	-	-	-	336	357	-	296	312	-
Stage 2	-	-	-	-	-	-	248	307	-	244	356	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.2			58.6			277		
HCM LOS							F			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	155	716	-	-	779	-	-	56
HCM Lane V/C Ratio	0.605	0.015	-	-	0.027	-	-	1.116
HCM Control Delay (s)	58.6	10.1	0	-	9.7	0	-	277
HCM Lane LOS	F	B	A	-	A	A	-	F
HCM 95th %tile Q(veh)	3.2	0	-	-	0.1	-	-	5.3

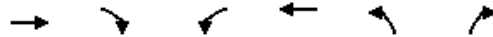
HCM 2010 Signalized Intersection Summary
23: Lincoln & Mission

Cumulative (2040) With Project Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	280	495	20	70	550	70	40	526	60	0	401	320
Future Volume (veh/h)	280	495	20	70	550	70	40	526	60	0	401	320
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	0.99		0.93	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1800	1694	1728	0	1765	1728
Adj Flow Rate, veh/h	292	516	19	73	573	67	42	548	52	0	418	144
Adj No. of Lanes	1	1	0	1	1	0	0	2	0	0	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	0	2	2
Cap, veh/h	279	943	35	397	551	64	97	1036	96	0	938	318
Arrive On Green	0.17	0.59	0.59	0.75	0.75	0.75	0.77	0.77	0.77	0.00	0.39	0.39
Sat Flow, veh/h	1597	1606	59	819	1469	172	119	2673	248	0	2508	822
Grp Volume(v), veh/h	292	0	535	73	0	640	332	0	310	0	288	274
Grp Sat Flow(s),veh/h/ln	1597	0	1665	819	0	1641	1562	0	1477	0	1676	1565
Q Serve(g_s), s	14.0	0.0	15.6	2.2	0.0	30.0	0.0	0.0	6.5	0.0	10.2	10.4
Cycle Q Clear(g_c), s	14.0	0.0	15.6	2.2	0.0	30.0	5.8	0.0	6.5	0.0	10.2	10.4
Prop In Lane	1.00		0.04	1.00		0.10	0.13		0.17	0.00		0.53
Lane Grp Cap(c), veh/h	279	0	978	397	0	615	656	0	572	0	650	606
V/C Ratio(X)	1.05	0.00	0.55	0.18	0.00	1.04	0.51	0.00	0.54	0.00	0.44	0.45
Avail Cap(c_a), veh/h	279	0	978	397	0	615	656	0	572	0	650	606
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.76	0.00	0.76	0.75	0.00	0.75	0.00	1.00	1.00
Uniform Delay (d), s/veh	33.0	0.0	10.0	6.5	0.0	10.0	6.2	0.0	6.2	0.0	18.1	18.2
Incr Delay (d2), s/veh	66.1	0.0	2.2	0.8	0.0	42.5	2.1	0.0	2.7	0.0	2.2	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.3	0.0	7.7	0.6	0.0	19.9	3.0	0.0	2.8	0.0	5.1	4.9
LnGrp Delay(d),s/veh	99.1	0.0	12.2	7.3	0.0	52.5	8.3	0.0	9.0	0.0	20.3	20.6
LnGrp LOS	F		B	A		F	A		A		C	C
Approach Vol, veh/h		827			713			642			562	
Approach Delay, s/veh		42.9			47.9			8.6			20.5	
Approach LOS		D			D			A			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		51.2		35.8	17.0	34.2		35.8				
Change Period (Y+Rc), s		* 4.2		4.6	3.0	* 4.2		4.6				
Max Green Setting (Gmax), s		* 47		24.4	14.0	* 30		24.4				
Max Q Clear Time (g_c+I1), s		17.6		8.5	16.0	32.0		12.4				
Green Ext Time (p_c), s		15.1		9.3	0.0	0.0		7.6				
Intersection Summary												
HCM 2010 Ctrl Delay				31.6								
HCM 2010 LOS				C								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM Signalized Intersection Capacity Analysis
 24: Tamalpais & Mission

Cumulative (2040) With Project Conditions
 Timing Plan: PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩			↩		
Traffic Volume (vph)	520	60	0	685	0	0
Future Volume (vph)	520	60	0	685	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0			3.0		
Lane Util. Factor	1.00			1.00		
Frbp, ped/bikes	0.99			1.00		
Flpb, ped/bikes	1.00			1.00		
Frt	0.99			1.00		
Flt Protected	1.00			1.00		
Satd. Flow (prot)	1557			1588		
Flt Permitted	1.00			1.00		
Satd. Flow (perm)	1557			1588		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	542	62	0	714	0	0
RTOR Reduction (vph)	5	0	0	0	0	0
Lane Group Flow (vph)	600	0	0	714	0	0
Confl. Peds. (#/hr)		10	10		10	
Turn Type	NA			NA		
Protected Phases	2			3 4 6		
Permitted Phases						
Actuated Green, G (s)	36.4			56.5		
Effective Green, g (s)	36.4			50.5		
Actuated g/C Ratio	0.45			0.63		
Clearance Time (s)	6.0					
Vehicle Extension (s)	3.0					
Lane Grp Cap (vph)	708			1002		
v/s Ratio Prot	c0.38			c0.45		
v/s Ratio Perm						
v/c Ratio	0.85			0.71		
Uniform Delay, d1	19.3			9.9		
Progression Factor	0.62			0.37		
Incremental Delay, d2	10.2			0.6		
Delay (s)	22.2			4.3		
Level of Service	C			A		
Approach Delay (s)	22.2			4.3	0.0	
Approach LOS	C			A	A	
Intersection Summary						
HCM 2000 Control Delay			12.5		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.68			
Actuated Cycle Length (s)			80.0		Sum of lost time (s)	20.2
Intersection Capacity Utilization			94.8%		ICU Level of Service	F
Analysis Period (min)			15			
c Critical Lane Group						



















HCM Signalized Intersection Capacity Analysis
 25: Tamalpais & Mission

Cumulative (2040) With Project Conditions
 Timing Plan: PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	↗
Traffic Volume (vph)	520	0	0	675	10	20
Future Volume (vph)	520	0	0	675	10	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0			6.0	3.0	
Lane Util. Factor	1.00			1.00	1.00	
Frbp, ped/bikes	1.00			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	1.00			1.00	0.91	
Flt Protected	1.00			1.00	0.98	
Satd. Flow (prot)	1588			1588	1420	
Flt Permitted	1.00			1.00	0.98	
Satd. Flow (perm)	1588			1588	1420	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	542	0	0	703	10	21
RTOR Reduction (vph)	0	0	0	0	17	0
Lane Group Flow (vph)	542	0	0	703	14	0
Confl. Peds. (#/hr)		10				
Turn Type	NA			NA	Prot	
Protected Phases	2 8			6	3 4	
Permitted Phases						
Actuated Green, G (s)	54.3			36.4	14.1	
Effective Green, g (s)	48.7			36.4	14.1	
Actuated g/C Ratio	0.61			0.45	0.18	
Clearance Time (s)				6.0		
Vehicle Extension (s)				3.0		
Lane Grp Cap (vph)	966			722	250	
v/s Ratio Prot	c0.34			c0.44	c0.01	
v/s Ratio Perm						
v/c Ratio	0.56			0.97	0.05	
Uniform Delay, d1	9.3			21.3	27.4	
Progression Factor	0.22			1.04	1.94	
Incremental Delay, d2	0.4			22.3	0.0	
Delay (s)	2.4			44.5	53.1	
Level of Service	A			D	D	
Approach Delay (s)	2.4			44.5	53.1	
Approach LOS	A			D	D	
Intersection Summary						
HCM 2000 Control Delay			26.8		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.72			
Actuated Cycle Length (s)			80.0		Sum of lost time (s)	20.2
Intersection Capacity Utilization			94.8%		ICU Level of Service	F
Analysis Period (min)			15			
c Critical Lane Group						


















HCM Signalized Intersection Capacity Analysis
26: Hetherton & Mission

Cumulative (2040) With Project Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 									 	
Traffic Volume (vph)	0	490	50	40	180	0	0	0	0	250	1233	495
Future Volume (vph)	0	490	50	40	180	0	0	0	0	250	1233	495
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	10	12	12	16	12	12	12	12	12	12	12
Total Lost time (s)		4.2			4.2						4.6	4.6
Lane Util. Factor		0.95			1.00						0.95	1.00
Frb, ped/bikes		1.00			1.00						1.00	0.98
Flpb, ped/bikes		1.00			1.00						1.00	1.00
Frt		0.99			1.00						1.00	0.85
Flt Protected		1.00			0.99						0.99	1.00
Satd. Flow (prot)		2769			1781						2992	1321
Flt Permitted		1.00			0.80						0.99	1.00
Satd. Flow (perm)		2769			1431						2992	1321
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	510	52	42	188	0	0	0	0	260	1284	516
RTOR Reduction (vph)	0	9	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	553	0	0	230	0	0	0	0	0	1544	516
Confl. Peds. (#/hr)			15	15		4			11			
Confl. Bikes (#/hr)			3			3			3			2
Turn Type		NA		Perm	NA					Split	NA	custom
Protected Phases		4			8					2	2	
Permitted Phases				8								5
Actuated Green, G (s)		22.8			22.8						48.4	41.4
Effective Green, g (s)		22.8			22.8						48.4	41.4
Actuated g/C Ratio		0.29			0.29						0.60	0.52
Clearance Time (s)		4.2			4.2						4.6	4.6
Vehicle Extension (s)		3.0			3.0						3.0	3.0
Lane Grp Cap (vph)		789			407						1810	683
v/s Ratio Prot		c0.20									c0.52	
v/s Ratio Perm					0.16							0.39
v/c Ratio		0.70			0.57						0.85	0.76
Uniform Delay, d1		25.5			24.4						12.9	15.3
Progression Factor		0.47			0.44						1.00	1.00
Incremental Delay, d2		4.5			4.7						5.3	7.6
Delay (s)		16.6			15.5						18.2	22.9
Level of Service		B			B						B	C
Approach Delay (s)		16.6			15.5			0.0			19.4	
Approach LOS		B			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			18.5								HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			80.0								Sum of lost time (s)	10.8
Intersection Capacity Utilization			98.9%								ICU Level of Service	F
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
27: Irwin & Mission

Cumulative (2040) With Project Conditions
Timing Plan: PM Peak Hour

										
Movement	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Lane Configurations										
Traffic Volume (vph)	400	20	320	145	320	20	70	1630	200	60
Future Volume (vph)	400	20	320	145	320	20	70	1630	200	60
Ideal Flow (vphpl)	2200	1800	2200	2200	2200	1800	2200	2200	1800	2200
Lane Width	9	12	10	10	9	12	12	12	12	12
Total Lost time (s)		4.2	4.2	4.2	4.2			4.2	4.2	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95	1.00	
Frpb, ped/bikes		1.00	1.00	1.00	1.00			1.00	0.97	
Flpb, ped/bikes		1.00	1.00	1.00	1.00			1.00	1.00	
Fr t		1.00	1.00	1.00	0.85			1.00	0.85	
Fl t Protected		0.95	1.00	1.00	1.00			1.00	1.00	
Satd. Flow (prot)		1509	1812	1812	1485			3678	1316	
Fl t Permitted		0.62	1.00	1.00	1.00			1.00	1.00	
Satd. Flow (perm)		986	1812	1812	1485			3678	1316	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	417	21	333	151	333	21	73	1698	208	62
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	39	0
Lane Group Flow (vph)	0	438	333	151	354	0	0	1771	232	0
Confl. Peds. (#/hr)							8			3
Confl. Bikes (#/hr)					4	4				
Turn Type	pm+pt	pm+pt	NA	NA	Prot		Perm	NA	Perm	
Protected Phases	5	5	2	6	6			4		
Permitted Phases	2	2					4		4	
Actuated Green, G (s)		33.8	33.8	18.8	18.8			37.8	37.8	
Effective Green, g (s)		33.8	33.8	18.8	18.8			37.8	37.8	
Actuated g/C Ratio		0.42	0.42	0.24	0.24			0.47	0.47	
Clearance Time (s)		4.2	4.2	4.2	4.2			4.2	4.2	
Vehicle Extension (s)		3.0	3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)		487	765	425	348			1737	621	
v/s Ratio Prot		c0.12	0.18	0.08	c0.24					
v/s Ratio Perm		0.26						0.48	0.18	
v/c Ratio		0.90	0.44	0.36	1.02			1.02	0.37	
Uniform Delay, d1		21.5	16.3	25.5	30.6			21.1	13.5	
Progression Factor		0.69	0.79	1.00	1.00			0.48	0.24	
Incremental Delay, d2		13.4	0.3	0.5	52.7			20.3	0.8	
Delay (s)		28.2	13.2	26.1	83.3			30.5	4.1	
Level of Service		C	B	C	F			C	A	
Approach Delay (s)			21.7	66.2				27.0		
Approach LOS			C	E				C		
Intersection Summary										
HCM 2000 Control Delay			31.7					HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio			1.02							
Actuated Cycle Length (s)			80.0					Sum of lost time (s)		12.6
Intersection Capacity Utilization			103.2%					ICU Level of Service		G
Analysis Period (min)			15							
c Critical Lane Group										
















HCM 2010 Signalized Intersection Summary
28: Lincoln & 5th

Cumulative (2040) With Project Conditions
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	400	40	30	245	65	60	471	90	90	361	40
Future Volume (veh/h)	90	400	40	30	245	65	60	471	90	90	361	40
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	1.00		0.97	0.98		0.93	0.98		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1412	1560	1530	1412	1500	1530	1440	1500	1469	1440	1500	1469
Adj Flow Rate, veh/h	94	417	38	31	255	56	62	491	76	94	376	34
Adj No. of Lanes	1	1	0	1	1	0	0	2	0	0	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	427	622	57	244	525	115	137	934	142	222	813	75
Arrive On Green	0.44	0.44	0.44	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Sat Flow, veh/h	846	1405	128	745	1185	260	188	2111	320	360	1837	169
Grp Volume(v), veh/h	94	0	455	31	0	311	325	0	304	239	0	265
Grp Sat Flow(s),veh/h/ln	846	0	1533	745	0	1446	1339	0	1280	1046	0	1321
Q Serve(g_s), s	6.0	0.0	18.8	2.1	0.0	3.5	0.0	0.0	4.2	0.9	0.0	3.1
Cycle Q Clear(g_c), s	9.5	0.0	18.8	20.9	0.0	3.5	3.5	0.0	4.2	5.1	0.0	3.1
Prop In Lane	1.00		0.08	1.00		0.18	0.19		0.25	0.39		0.13
Lane Grp Cap(c), veh/h	427	0	679	244	0	640	646	0	567	526	0	584
V/C Ratio(X)	0.22	0.00	0.67	0.13	0.00	0.49	0.50	0.00	0.54	0.45	0.00	0.45
Avail Cap(c_a), veh/h	427	0	679	244	0	640	646	0	567	526	0	584
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	0.97	0.00	0.97	0.82	0.00	0.82	0.68	0.00	0.68
Uniform Delay (d), s/veh	16.3	0.0	17.7	9.8	0.0	2.8	2.8	0.0	2.8	2.7	0.0	2.7
Incr Delay (d2), s/veh	1.2	0.0	5.2	1.0	0.0	2.5	2.3	0.0	3.0	1.9	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	8.8	0.5	0.0	1.7	1.7	0.0	1.7	1.1	0.0	1.3
LnGrp Delay(d),s/veh	17.4	0.0	22.9	10.8	0.0	5.3	5.1	0.0	5.8	4.6	0.0	4.5
LnGrp LOS	B		C	B		A	A		A	A		A
Approach Vol, veh/h		549			342			629			504	
Approach Delay, s/veh		22.0			5.8			5.4			4.5	
Approach LOS		C			A			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		40.0		40.0		40.0		40.0				
Change Period (Y+Rc), s		4.6		4.6		4.6		4.6				
Max Green Setting (Gmax), s		35.4		35.4		35.4		35.4				
Max Q Clear Time (g_c+I1), s		20.8		6.2		22.9		7.1				
Green Ext Time (p_c), s		3.9		6.1		3.6		6.0				
Intersection Summary												
HCM 2010 Ctrl Delay			9.8									
HCM 2010 LOS			A									













HCM Signalized Intersection Capacity Analysis
29: Tamalpais & 5th

Cumulative (2040) With Project Conditions
Timing Plan: PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	0	500	60	0	330	0	0	0	0	30	20	20	
Future Volume (vph)	0	500	60	0	330	0	0	0	0	30	20	20	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)		6.0			6.0						6.0		
Lane Util. Factor		1.00			1.00						1.00		
Frbp, ped/bikes		0.99			1.00						0.99		
Flpb, ped/bikes		1.00			1.00						1.00		
Frt		0.99			1.00						0.96		
Flt Protected		1.00			1.00						0.98		
Satd. Flow (prot)		1557			1588						1476		
Flt Permitted		1.00			1.00						0.98		
Satd. Flow (perm)		1557			1588						1476		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	0	521	62	0	344	0	0	0	0	31	21	21	
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	19	0	
Lane Group Flow (vph)	0	580	0	0	344	0	0	0	0	0	54	0	
Confl. Peds. (#/hr)	10		10	10		10	10					10	
Turn Type		NA			NA					Perm	NA		
Protected Phases		2			4						8		
Permitted Phases										8			
Actuated Green, G (s)		42.7			58.9						9.1		
Effective Green, g (s)		42.7			58.9						9.1		
Actuated g/C Ratio		0.53			0.74						0.11		
Clearance Time (s)		6.0									6.0		
Vehicle Extension (s)		3.0									1.5		
Lane Grp Cap (vph)		831			1169						167		
v/s Ratio Prot		c0.37			c0.22								
v/s Ratio Perm											0.04		
v/c Ratio		0.70			0.29						0.33		
Uniform Delay, d1		13.9			3.6						32.6		
Progression Factor		0.66			0.06						0.64		
Incremental Delay, d2		3.6			0.0						0.3		
Delay (s)		12.7			0.3						21.3		
Level of Service		B			A						C		
Approach Delay (s)		12.7			0.3			0.0			21.3		
Approach LOS		B			A			A			C		
Intersection Summary													
HCM 2000 Control Delay			9.1									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.59										
Actuated Cycle Length (s)			80.0									Sum of lost time (s)	18.0
Intersection Capacity Utilization			85.5%									ICU Level of Service	E
Analysis Period (min)			15										
c Critical Lane Group													



















HCM Signalized Intersection Capacity Analysis
30: Tamalpais & 5th

Cumulative (2040) With Project Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↔			↕				
Traffic Volume (vph)	0	530	0	0	310	10	20	20	20	0	0	0
Future Volume (vph)	0	530	0	0	310	10	20	20	20	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		6.0			6.0			6.0				
Lane Util. Factor		1.00			1.00			1.00				
Frbp, ped/bikes		1.00			1.00			0.99				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			1.00			0.95				
Flt Protected		1.00			1.00			0.98				
Satd. Flow (prot)		1588			1580			1470				
Flt Permitted		1.00			1.00			0.98				
Satd. Flow (perm)		1588			1580			1470				
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	552	0	0	323	10	21	21	21	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	0	0	18	0	0	0	0
Lane Group Flow (vph)	0	552	0	0	332	0	0	45	0	0	0	0
Confl. Peds. (#/hr)	10		10			10			10			
Turn Type		NA			NA		Split	NA				
Protected Phases		2 8			6		4	4				
Permitted Phases												
Actuated Green, G (s)		57.8			42.7			10.2				
Effective Green, g (s)		57.8			42.7			10.2				
Actuated g/C Ratio		0.72			0.53			0.13				
Clearance Time (s)					6.0			6.0				
Vehicle Extension (s)					3.0			1.5				
Lane Grp Cap (vph)		1147			843			187				
v/s Ratio Prot		c0.35			0.21			c0.03				
v/s Ratio Perm												
v/c Ratio		0.48			0.39			0.24				
Uniform Delay, d1		4.7			11.0			31.4				
Progression Factor		0.15			0.61			1.16				
Incremental Delay, d2		0.1			1.3			0.2				
Delay (s)		0.8			7.9			36.6				
Level of Service		A			A			D				
Approach Delay (s)		0.8			7.9			36.6			0.0	
Approach LOS		A			A			D			A	
Intersection Summary												
HCM 2000 Control Delay			5.7				HCM 2000 Level of Service		A			
HCM 2000 Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)		18.0			
Intersection Capacity Utilization			85.5%				ICU Level of Service		E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
31: Hetherton & 5th


















Cumulative (2040) With Project Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											  	
Traffic Volume (vph)	0	360	190	70	180	0	0	0	0	50	1133	140
Future Volume (vph)	0	360	190	70	180	0	0	0	0	50	1133	140
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	16	12	12	16	12	12	12	12	12	12	12
Total Lost time (s)		4.2			4.2						4.6	4.6
Lane Util. Factor		1.00			1.00						0.91	1.00
Frbp, ped/bikes		0.99			1.00						1.00	0.95
Flpb, ped/bikes		1.00			1.00						1.00	1.00
Frt		0.95			1.00						1.00	0.85
Flt Protected		1.00			0.99						1.00	1.00
Satd. Flow (prot)		1700			1773						4164	1147
Flt Permitted		1.00			0.66						1.00	1.00
Satd. Flow (perm)		1700			1178						4164	1147
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	375	198	73	188	0	0	0	0	52	1180	146
RTOR Reduction (vph)	0	9	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	564	0	0	261	0	0	0	0	0	1232	146
Confl. Peds. (#/hr)	12		12	12		12			12	12		7
Confl. Bikes (#/hr)			6			4			2			2
Parking (#/hr)											2	2
Turn Type		NA		Perm	NA					Perm	NA	custom
Protected Phases		4			8						2	
Permitted Phases				8						2		5
Actuated Green, G (s)		39.8			39.8						31.4	24.4
Effective Green, g (s)		39.8			39.8						31.4	24.4
Actuated g/C Ratio		0.50			0.50						0.39	0.30
Clearance Time (s)		4.2			4.2						4.6	4.6
Vehicle Extension (s)		3.0			3.0						3.0	3.0
Lane Grp Cap (vph)		845			586						1634	349
v/s Ratio Prot		c0.33										
v/s Ratio Perm					0.22						0.30	0.13
v/c Ratio		0.67			0.45						0.75	0.42
Uniform Delay, d1		15.1			13.0						21.0	22.1
Progression Factor		0.34			0.99						0.68	0.75
Incremental Delay, d2		3.9			1.9						1.7	1.9
Delay (s)		8.9			14.7						16.0	18.5
Level of Service		A			B						B	B
Approach Delay (s)		8.9			14.7			0.0			16.2	
Approach LOS		A			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			14.2			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)			10.8			
Intersection Capacity Utilization			95.3%			ICU Level of Service			F			
Analysis Period (min)			15									

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
32: Irwin & 5th

Cumulative (2040) With Project Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	160	0	0	140	120	100	1555	20	0	0	0
Future Volume (veh/h)	270	160	0	0	140	120	100	1555	20	0	0	0
Number	5	2	12	1	6	16	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.96			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.87	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1588	1588	0	0	1588	1620	1620	1588	1620			
Adj Flow Rate, veh/h	281	167	0	0	146	121	104	1620	19			
Adj No. of Lanes	1	1	0	0	1	0	0	3	0			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	0	2	0			
Cap, veh/h	365	683	0	0	296	245	117	1951	24			
Arrive On Green	0.72	0.72	0.00	0.00	0.43	0.43	0.15	0.15	0.15			
Sat Flow, veh/h	993	1588	0	0	688	570	258	4288	52			
Grp Volume(v), veh/h	281	167	0	0	0	267	635	530	578			
Grp Sat Flow(s),veh/h/ln	993	1588	0	0	0	1258	1575	1445	1577			
Q Serve(g_s), s	22.1	2.9	0.0	0.0	0.0	12.3	31.6	28.4	28.4			
Cycle Q Clear(g_c), s	34.4	2.9	0.0	0.0	0.0	12.3	31.6	28.4	28.4			
Prop In Lane	1.00		0.00	0.00		0.45	0.16		0.03			
Lane Grp Cap(c), veh/h	365	683	0	0	0	541	717	658	717			
V/C Ratio(X)	0.77	0.24	0.00	0.00	0.00	0.49	0.89	0.81	0.81			
Avail Cap(c_a), veh/h	365	683	0	0	0	541	717	658	717			
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00	0.33	0.33	0.33			
Upstream Filter(l)	0.69	0.69	0.00	0.00	0.00	1.00	0.48	0.48	0.48			
Uniform Delay (d), s/veh	17.7	6.8	0.0	0.0	0.0	16.5	32.0	30.6	30.6			
Incr Delay (d2), s/veh	6.9	0.1	0.0	0.0	0.0	0.7	8.1	5.2	4.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	6.8	1.3	0.0	0.0	0.0	4.3	15.4	12.3	13.3			
LnGrp Delay(d),s/veh	24.5	7.0	0.0	0.0	0.0	17.2	40.1	35.7	35.3			
LnGrp LOS	C	A				B	D	D	D			
Approach Vol, veh/h		448			267			1743				
Approach Delay, s/veh		18.0			17.2			37.2				
Approach LOS		B			B			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		39.0		41.0		39.0						
Change Period (Y+Rc), s		4.6		4.6		4.6						
Max Green Setting (Gmax), s		34.4		36.4		34.4						
Max Q Clear Time (g_c+I1), s		36.4		33.6		14.3						
Green Ext Time (p_c), s		0.0		2.1		3.7						
Intersection Summary												
HCM 2010 Ctrl Delay				31.5								
HCM 2010 LOS				C								

Arterial Level of Service: EB 2nd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Lindaro	IV	25	12.4	56.5	68.9	0.05	2.4	F
Lincoln	IV	25	21.4	26.7	48.1	0.10	7.3	E
Francisco W.	IV	25	12.2	89.5	101.7	0.05	1.6	F
101 SBO on Hetherton	IV	25	14.2	82.3	96.5	0.05	2.0	F
Total	IV		60.2	255.0	315.2	0.24	2.8	F

Arterial Level of Service: WB 3rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Hetherton	IV	25	19.0	96.2	115.2	0.07	2.2	F
Tamalpais	IV	25	14.4	100.0	114.4	0.05	1.7	F
Lincoln	IV	25	13.2	18.9	32.1	0.05	5.6	F
Lindaro	IV	25	10.3	4.6	14.9	0.04	9.4	D
Total	IV		56.9	219.7	276.6	0.21	2.8	F

Arterial Level of Service: SB Hetherton

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Mission	IV	35	22.2	19.0	41.2	0.16	13.9	C
5th	IV	25	16.3	16.2	32.5	0.06	6.8	F
4th	IV	25	14.6	5.6	20.2	0.05	9.8	D
3rd	IV	25	17.7	21.9	39.6	0.07	6.1	F
2nd	IV	25	15.6	55.5	71.1	0.06	3.0	F
Total	IV		86.4	118.2	204.6	0.40	7.1	E

Arterial Level of Service: NB Irwin

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
2nd St	IV	38	19.3	44.6	63.9	0.17	9.5	D
3rd St	IV	25	14.8	12.6	27.4	0.06	7.3	E
4th	IV	25	18.9	12.1	31.0	0.07	8.3	E
5th	IV	25	14.0	14.3	28.3	0.05	6.7	F
Mission	IV	25	15.7	3.4	19.1	0.06	11.2	D
Total	IV		82.7	87.0	169.7	0.41	8.6	E

Arterial Level of Service: NB Lindaro

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
2nd	IV	25	15.8	18.2	34.0	0.06	6.3	F
3rd	IV	25	16.7	49.7	66.4	0.06	3.4	F
Total	IV		32.5	67.9	100.4	0.12	4.4	F

Arterial Level of Service: SB Lindaro

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
3rd	IV	25	9.9	22.2	32.1	0.04	4.2	F
2nd	IV	25	16.7	17.6	34.3	0.06	6.6	F
Total	IV		26.6	39.8	66.4	0.10	5.5	F

Arterial Level of Service: EB Mission

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Lincoln	IV	25	28.5	12.8	41.3	0.16	13.8	C
Tamalpais	IV	25	16.1	24.0	40.1	0.06	5.5	F
Tamalpais	IV	25	4.3	2.3	6.6	0.02	8.9	E
Hetherton	IV	25	7.5	16.6	24.1	0.03	4.2	F
Irwin	IV	25	18.9	14.5	33.4	0.07	7.7	E
Total	IV		75.3	70.2	145.5	0.33	8.3	E

Arterial Level of Service: WB Mission

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Irwin	IV	25	21.6	28.4	50.0	0.10	7.1	E
Hetherton	IV	25	18.9	15.9	34.8	0.07	7.4	E
Tamalpais	IV	25	7.5	47.1	54.6	0.03	1.9	F
Tamalpais	IV	25	4.3	2.7	7.0	0.02	8.4	E
Lincoln	IV	25	16.1	88.2	104.3	0.06	2.1	F
Total	IV		68.4	182.3	250.7	0.27	3.9	F