



SAN RAFAEL TRANSIT CENTER RELOCATION STUDY

10 APPENDICES

Appendix A: City of San Rafael Traffic Analysis Results

TRANSIT RELOCATION VISSIM SIMULATION - Intersection Delay & LOS*

		AM										PM													
		ExistNoTrain		IOS1		Concept 4		Alt 2		Alt 4A		Alt 5B ⁽¹⁾		ExistNoTrain		IOS1		Concept 4		Alt 2		Alt 4A		Alt 5B ⁽¹⁾	
ID	Intersection	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
511	2nd & Grand	37	D	36	D	44	D	34	C	34	C	22	C	38	D	41	D	42	D	41	D	43	D	36	D
501	2nd & Hetherton	37	D	40	D	28	C	28	C	28	C	23	C	16	B	19	B	17	B	16	B	17	B	13	B
506	2nd & Irwin	44	D	44	D	51	D	46	D	47	D	40	D	33	C	36	D	44	D	43	D	41	D	37	D
516	2nd & Lincoln	65	E	62	E	63	E	62	E	60	E	52	D	23	C	26	C	40	D	42	D	39	D	44	D
542	2nd & Tamalpais	29	C	27	C	27	C	26	C	24	C	22	C	13	B	17	B	24	C	21	C	22	C	21	C
512	3rd & Grand	53	D	50	D	64	E	51	D	52	D	35	C	17	B	21	C	28	C	26	C	26	C	20	C
502	3rd & Hetherton	38	D	35	C	45	D	44	D	43	D	40	D	23	C	22	C	35	C	36	D	36	D	29	C
507	3rd & Irwin	62	E	59	E	67	E	61	E	61	E	51	D	27	C	36	D	43	D	41	D	41	D	32	C
517	3rd & Lincoln	13	B	12	B	14	B	15	B	14	B	15	B	13	B	13	B	15	B	18	B	15	B	24	C
783	3rd & Ritter**	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	1	A	1	A	1	A	1	A
543	3rd & Tamalpais	6	A	8	A	6	A	5	A	6	A	5	A	8	A	12	B	11	B	13	B	13	B	15	B
612	3rd & Union	53	D	49	D	54	D	48	D	49	D	38	D	60	E	58	E	58	E	55	D	55	E	53	D
546	4th & Cijos	14	B	18	B	28	C	27	C	32	C	57	E	13	B	21	C	36	D	67	E	56	E	95	F
513	4th & Grand	19	B	18	B	20	C	19	B	19	B	17	B	18	B	20	B	21	C	20	B	20	C	17	B
503	4th & Hetherton	15	B	15	B	34	C	37	D	37	D	34	C	13	B	17	B	24	C	32	C	32	C	24	C
508	4th & Irwin	8	A	13	B	12	B	11	B	12	B	12	B	40	D	54	D	39	D	39	D	38	D	28	C
518	4th & Lincoln	20	B	23	C	30	C	33	C	34	C	50	D	14	B	23	C	31	C	44	D	37	D	68	E
74	4th & Queue Cutter	5	A	10	B	15	B	18	B	21	C	25	C	8	A	21	C	26	C	38	D	31	C	33	C
514	5th & Grand**	4	A	4	A	8	A	5	A	5	A	2	A	4	A	5	A	8	A	7	A	7	A	2	A
504	5th & Hetherton	9	A	9	A	21	C	21	C	22	C	16	B	7	A	10	B	10	B	13	B	13	B	6	A
509	5th & Irwin	7	A	9	A	8	A	8	A	8	A	6	A	43	D	46	D	42	D	41	D	42	D	25	C
519	5th & Lincoln	14	B	17	B	25	C	28	C	26	C	64	E	12	B	28	C	28	C	28	C	32	C	45	D
786	5th & Nye**	1	A	1	A	7	A	10	A	3	A	87	F	1	A	7	A	8	A	9	A	11	B	4	A
876	5th & Queue Cutter ⁽¹⁾	3	A	10	B	23	C	23	C	21	C	7	A	4	A	25	C	25	C	25	C	28	C	7	A
784	Lincoln & Ritter**	8	A	8	A	9	A	8	A	8	A	12	B	2	A	2	A	3	A	4	A	3	A	9	A
515	Mission & Grand**	29	D	31	D	35	E	32	D	31	D	28	D	21	C	21	C	29	D	24	C	24	C	55	F
505	Mission & Hetherton	21	C	25	C	30	C	27	C	29	C	30	C	21	C	26	C	26	C	26	C	26	C	31	C
510	Mission & Irwin	17	B	20	C	18	B	19	B	18	B	19	B	35	C	36	D	39	D	35	D	35	C	43	D
520	Mission & Lincoln	20	B	25	C	26	C	26	C	26	C	32	C	31	C	39	D	39	D	38	D	38	D	49	D
787	Mission & Nye**	1	A	2	A	2	A	2	A	2	A	2	A	4	A	7	A	7	A	8	A	6	A	13	B
235	Mission & Queue Cutter	1	A	6	A	5	A	5	A	5	A	7	A	2	A	8	A	8	A	8	A	8	A	13	B
60	2 lanes to 1 SB On Ramp	45	E	46	E	35	E	36	E	36	E	31	D	19	C	20	C	18	C	19	C	21	C	12	B
81	2 lanes to 1 NB On Ramp	5	A	6	A	6	A	6	A	6	A	5	A	10	B	9	A	10	A	9	A	9	A	9	A
13 Runs Total:		Still In	17,836	17,661	18,968	18,358	18,751	17,293			17,575	18,749	20,226	20,032	20,026	19,915									
		Arrived	257,982	258,345	257,151	258,572	260,185	261,301			293,132	290,916	288,699	288,600	290,646	288,520									
		Not Enter	6,195	6,386	6,815	6,437	6,289	8,850			6,051	6,872	8,248	9,961	8,852	12,102									
		% Not In	2.2%	2.3%	2.4%	2.3%	2.2%	3.1%			1.9%	2.2%	2.6%	3.1%	2.8%	3.8%									
Avg:	Delay per veh (sec)	77.776	80.376	91.058	84.842	85.695	81.403	68.255	80.344	91.122	90.713	90.388	92.170												
	Stop per veh	2.225	2.225	2.308	2.202	2.206	2.172	1.866	2.141	2.268	2.239	2.264	2.328												
	Speed (mph)	22.485	22.121	20.885	21.508	21.324	21.858	23.250	21.562	20.318	20.326	20.285	20.105												
	Standstill time per veh (sec)	39.482	40.646	49.893	46.639	46.670	44.190	34.535	42.396	48.650	49.918	49.251	51.107												
Total:	Distance (mile)	23,178	23,108	23,114	23,022	23,095	23,070	24,536	24,340	24,233	24,107	24,157	23,971												
	Travel Time (sec)	3,714,554	3,768,047	3,988,027	3,858,586	3,902,187	3,803,531	3,803,744	4,067,443	4,298,091	4,274,535	4,290,681	4,296,331												
	Delay (sec)	1,649,983	1,705,867	1,934,158	1,806,518	1,838,604	1,744,717	1,631,608	1,913,968	2,165,602	2,153,993	2,160,254	2,186,836												
	Stops	47,251	47,238	49,016	46,912	47,352	46,570	44,608	51,007	53,871	53,160	54,152	55,236												
	Standstill Time(sec)	837,554	862,637	1,059,730	992,954	1,001,301	947,140	825,499	1,009,962	1,156,180	1,185,123	1,176,998	1,212,551												
	Wait Time Not Used (sec)	612,032	636,107	715,794	705,910	694,385	951,278	758,082	818,472	959,046	1,095,929	1,029,209	1,354,064												

* Train's dwell times for IOS1 are 33 minutes and for all other alternatives are 30 seconds, all scheduled for every 30 minutes.

** Unsignalized intersection.

(1) 5th Ave closed between Tamalpais and Hetherton in Alt 5B. No queue cutter and unsignalized.

TRANSIT RELOCATION VISSIM SIMULATION - Approach Delay (sec)*

		AM																				PM																											
		ExistNoTrain				IOS1				Concept 4				Alt 2				Alt 4A				Alt 5B ⁽¹⁾				ExistNoTrain				IOS1				Concept 4				Alt 2				Alt 4A				Alt 5B ⁽¹⁾			
ID	Intersection	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB				
511	2nd & Grand	90	9	25	0	86	10	25	0	116	9	27	0	79	10	22	0	75	10	23	0	39	9	19	0	44	14	39	0	54	14	39	0	60	14	37	0	56	14	38	0	59	15	40	0	46	13	34	0
501	2nd & Hetherton	0	51	30	0	0	52	33	0	0	39	23	0	0	40	22	0	0	38	23	0	0	32	19	0	0	22	13	0	0	22	18	0	0	26	13	0	0	25	12	0	0	27	12	0	0	20	10	0
506	2nd & Irwin	51	0	36	0	54	0	33	0	68	0	33	0	59	0	31	0	61	0	32	0	50	0	29	0	46	0	21	0	49	0	23	0	69	0	22	0	68	0	21	0	64	0	21	0	59	0	17	0
516	2nd & Lincoln	25	17	77	0	24	18	74	0	25	16	75	0	24	16	73	0	23	17	70	0	23	16	61	0	21	12	24	0	21	12	29	0	21	14	46	0	26	14	49	0	22	13	46	0	34	17	51	0
542	2nd & Tamalpais	20	17	32	0	20	17	30	0	21	17	29	0	20	16	28	0	20	15	26	0	19	14	23	0	26	19	10	0	40	20	13	0	70	20	17	0	53	20	15	0	62	20	15	0	65	19	14	0
512	3rd & Grand	34	49	0	63	38	49	0	57	48	65	0	71	37	54	0	58	36	49	0	61	23	33	0	41	7	25	0	24	8	36	0	26	12	51	0	34	11	43	0	33	11	46	0	32	8	32	0	27
502	3rd & Hetherton	0	41	0	35	0	35	0	34	0	60	0	36	0	62	0	34	0	58	0	34	0	61	0	29	0	38	0	14	0	37	0	13	0	59	0	22	0	70	0	20	0	63	0	21	0	52	0	19
507	3rd & Irwin	24	0	0	131	24	0	0	123	21	0	0	155	19	0	0	136	19	0	0	138	17	0	0	111	18	0	0	39	24	0	0	52	19	0	0	74	19	0	0	69	18	0	0	70	14	0	0	55
517	3rd & Lincoln	21	41	0	3	20	39	0	3	26	48	0	3	28	49	0	3	26	46	0	3	30	50	0	4	18	40	0	5	19	41	0	5	25	47	0	5	33	47	0	6	27	45	0	5	54	47	0	11
783	3rd & Ritter**	8	0	0	0	8	0	0	0	7	0	0	0	8	0	0	0	7	0	0	0	8	0	0	0	9	0	0	0	9	0	0	0	8	0	0	0	9	0	0	0	9	0	0	0	11	0	0	1
543	3rd & Tamalpais	31	26	0	3	32	26	0	5	43	33	0	1	36	31	0	1	40	35	0	1	41	29	0	2	40	27	0	3	61	29	0	5	70	35	0	1	78	41	0	1	85	42	0	1	90	58	0	3
612	3rd & Union	60	48	31	72	59	47	31	62	61	50	32	73	56	48	30	60	57	47	31	62	46	41	30	41	47	41	50	93	47	41	50	86	49	41	47	89	47	42	45	82	49	41	47	80	46	39	46	76
546	4th & Cijos	19	0	20	7	25	0	26	7	32	0	45	8	31	0	44	8	34	0	54	8	64	0	108	8	22	0	17	7	31	0	33	7	65	0	65	7	190	0	139	7	127	0	104	7	282	0	191	7
513	4th & Grand	15	23	17	13	16	22	17	13	15	27	18	13	16	23	17	13	17	23	16	13	20	19	16	12	17	19	18	19	16	22	22	20	17	26	21	20	16	24	20	19	16	25	21	19	16	16	19	19
503	4th & Hetherton	0	15	13	13	0	15	11	17	0	41	23	22	0	45	25	24	0	47	20	21	0	42	25	23	0	9	19	17	0	13	20	27	0	20	29	28	0	30	39	33	0	36	26	29	0	18	23	36
508	4th & Irwin	4	0	13	21	11	0	12	19	10	0	13	19	9	0	12	21	11	0	12	19	9	0	14	21	40	0	45	34	59	0	45	38	40	0	39	30	40	0	38	38	38	0	40	38	22	0	39	48
518	4th & Lincoln	15	19	23	20	17	20	32	21	25	26	46	24	33	28	47	26	30	28	55	24	41	49	96	24	19	8	16	11	28	12	38	15	32	18	63	15	52	24	116	16	40	19	88	16	88	55	126	26
74	4th & Queue Cutter	16	7	4	1	15	2	3	9	21	2	6	11	22	25	21	11	27	15	27	12	27	17	36	14	27	7	8	1	41	17	27	7	47	18	40	8	75	17	63	10	51	19	49	12	46	30	47	18
514	5th & Grand**	1	3	12	0	1	3	10	0	1	9	14	0	1	5	12	0	1	4	12	0	1	2	8	0	2	3	12	0	1	4	13	0	1	9	16	0	1	8	14	0	2	8	15	0	1	2	7	0
504	5th & Hetherton	0	7	9	18	0	7	10	20	0	21	20	23	0	20	22	24	0	22	19	24	0	13	131	39	0	5	10	12	0	8	13	19	0	8	13	17	0	11	14	17	0	12	15	16	0	3	73	28
509	5th & Irwin	4	0	19	23	8	0	13	21	5	0	18	22	5	0	16	23	5	0	17	23	5	0	26	20	45	0	40	28	49	0	38	24	44	0	37	22	43	0	39	22	44	0	40	23	26	0	17	22
519	5th & Lincoln	13	6	19	25	16	8	29	20	23	11	53	24	29	14	61	21	25	13	50	23	23	39	219	19	14	8	14	9	26	16	50	12	24	17	50	11	27	15	52	11	28	20	60	11	61	37	39	13
786	5th & Nye**	6	0	0	0	7	0	0	0	9	0	12	0	10	0	18	0	8	0	5	0	35	0	198	0	6	0	0	0	7	0	10	0	7	0	11	0	7	0	13	0	8	0	16	0	7	0	6	0
876	5th & Queue Cutter ⁽¹⁾	7	6	4	0	21	16	12	5	45	16	33	6	42	19	37	6	42	19	30	6	7	6	7	0	9	7	3	0	35	17	31	6	34	17	32	6	38	19	31	6	41	19	35	5	7	6	7	0
784	Lincoln & Ritter**	1	12	0	0	0	12	0	0	1	13	0	0	1	12	0	0	1	11	0	0	1	16	0	0	1	3	0	0	1	3	0	0	2	5	0	0	4	4	0	0	3	3	0	0	9	11	0	0
515	Mission & Grand**	14	45	20	19	13	50	22	19																																								

TRANSIT RELOCATION VISSIM SIMULATION - Average Queue (feet)*

		AM																				PM																											
		ExistNoTrain				IOS1				Concept 4				Alt 2				Alt 4A				Alt 5B ⁽¹⁾				ExistNoTrain				IOS1				Concept 4				Alt 2				Alt 4A				Alt 5B ⁽¹⁾			
ID	Intersection	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB				
511	2nd & Grand	241	26	82	0	236	28	83	0	292	27	92	0	200	30	64	0	199	27	71	0	100	27	50	0	219	23	252	0	293	25	242	0	300	24	230	0	279	23	229	0	301	23	247	0	234	19	210	0
501	2nd & Hetherton	0	183	102	0	0	181	190	0	0	129	81	0	0	131	82	0	0	120	80	0	0	90	71	0	0	97	63	0	0	91	97	0	0	100	54	0	0	90	54	0	0	103	54	0	0	64	41	0
506	2nd & Irwin	218	0	216	0	240	0	195	0	308	0	195	0	259	0	183	0	278	0	181	0	214	0	168	0	236	0	117	0	259	0	142	0	393	0	123	0	385	0	114	0	364	0	113	0	327	0	85	0
516	2nd & Lincoln	10	33	344	0	10	33	352	0	10	34	336	0	10	31	339	0	10	31	340	0	11	41	343	0	33	19	129	0	33	18	141	0	33	22	257	0	42	18	266	0	34	18	267	0	66	37	301	0
542	2nd & Tamalpais	13	24	188	0	13	24	190	0	14	23	167	0	14	20	161	0	14	20	162	0	14	19	145	0	39	26	61	0	61	26	80	0	101	27	91	0	87	22	87	0	95	23	85	0	102	22	92	0
512	3rd & Grand	122	87	0	238	118	85	0	205	141	111	0	244	113	92	0	192	106	82	0	207	64	56	0	122	31	44	0	67	37	67	0	74	57	95	0	101	51	74	0	104	53	82	0	96	33	50	0	77
502	3rd & Hetherton	0	194	0	270	0	155	0	257	0	278	0	238	0	282	0	226	0	309	0	219	0	279	0	199	0	132	0	90	0	125	0	75	0	236	0	137	0	287	0	114	0	298	0	129	0	188	0	102
507	3rd & Irwin	167	0	0	425	157	0	0	400	127	0	0	481	114	0	0	437	116	0	0	445	98	0	0	363	78	0	0	161	90	0	0	233	81	0	0	294	76	0	0	276	75	0	0	279	59	0	0	219
517	3rd & Lincoln	16	125	0	12	15	115	0	12	21	145	0	11	22	145	0	13	21	137	0	10	22	154	0	20	28	67	0	20	28	66	0	21	38	77	0	22	48	77	0	30	42	74	0	22	70	79	0	66
783	3rd & Ritter**	3	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	3	0	0	0	4	0	0	0	4	0	0	0	4	0	0	0	4	0	0	0	4	0	0	0	5	0	0	1
543	3rd & Tamalpais	15	15	0	17	15	15	0	32	48	31	0	6	19	18	0	3	22	20	0	4	22	15	0	5	48	17	0	16	114	18	0	33	193	32	0	5	146	29	0	3	170	27	0	4	179	45	0	10
612	3rd & Union	18	82	66	299	19	85	62	246	18	88	64	312	18	84	64	231	18	83	64	276	17	71	61	137	61	110	169	277	60	107	164	252	61	103	143	260	60	104	136	225	61	104	146	222	59	95	145	206
546	4th & Cijos	2	0	30	11	2	0	39	11	3	0	74	11	2	0	76	11	3	0	93	12	4	0	168	12	10	0	28	16	14	0	60	15	35	0	110	15	106	0	175	16	70	0	159	16	150	0	206	14
513	4th & Grand	16	58	17	11	17	53	17	10	16	68	17	10	19	58	17	10	18	56	15	10	22	42	16	9	33	45	24	11	32	50	30	12	31	62	25	11	32	56	22	10	31	58	29	11	31	26	22	11
503	4th & Hetherton	0	48	30	13	0	43	22	18	0	123	45	23	0	134	53	31	0	134	51	26	0	121	61	34	0	23	52	27	0	32	69	42	0	46	89	43	0	69	124	53	0	78	86	56	0	41	87	90
508	4th & Irwin	13	0	15	29	31	0	14	27	30	0	14	25	29	0	13	33	32	0	13	26	28	0	17	32	137	0	90	44	215	0	88	43	137	0	65	32	136	0	54	45	126	0	63	41	68	0	72	61
518	4th & Lincoln	12	54	48	30	14	58	69	30	23	72	103	41	40	76	100	46	36	75	118	40	66	166	194	42	33	12	32	24	47	17	77	36	57	22	136	36	98	28	220	37	71	22	188	37	187	113	268	73
74	4th & Queue Cutter	6 0	1	1	0	5 1	0	21	124	7 1	0	53	16	7 2	8	69	18	9 2	3	91	23	8 2	2	168	29	18 1	1	10	0	22 5	2	85	21	19 7	2	139	22	30 14	2	202	25	19 11	2	184	34	20 3	2	224	48
514	5th & Grand**	1	6	8	0	1	4	6	0	0	15	8	0	1	8	7	0	1	6	7	0	0	1	4	0	1	3	10	0	1	7	11	0	1	17	12	0	1	12	12	0	1	13	12	0	0	2	3	0
504	5th & Hetherton	0	16	22	17	0	16	26	20	0	47	58	22	0	44	66	23	0	47	58	25	0	25	38	10	0	11	35	6	0	18	70	10	0	19	71	8	0	26	70	9	0	25	78	9	0	5	27	7
509	5th & Irwin	11	0	17	9	20	0	8	9	14	0	14	9	15	0	11	9	15	0	13	9	13	0	7	5	178	0	47	16	191	0	44	11	164	0	42	11	159	0	46	11	162	0	49	12	92	0	4	7
519	5th & Lincoln	16	12	30	25	20	17	48	23	40	21	89	24	52	28	120	26	43	26	94	26	45	94	411	4	28	15	29	9	52	28	131	11	47	30	126	11	54	26	136	11	56	37	163	10	161	70	92	3
786	5th & Nye**	2	0	0	0	2	0	0	0	2	0	18	0	2	0	29	0	2	0	8	0	2	0	218	0	3	0	0	0	3	0	16	0	3	0	19	0	3	0	28	0	3	0	29	0	2	0	10	0
876	5th & Queue Cutter ⁽¹⁾	0 1	1	3	0	2 3	3	20	6	4 10	3	75	6	2 9	3	93	9	4 8	3	79	7	1	1	0	0	1 1	1	2	0	10 8	2	102	5	10 7	2	106	4	12 7	3	102	4	11 9	3	118	4	2	1	0	0
784	Lincoln & Ritter**	0	7	0	0	0	5	0	0	0	7	0	0	0	6	0	0	0	5	0	0	1	14	0	0	0	0	0	0	0	0	0	0	1	1	0	0	5	0	0	0	2	0	0	0	12	4	0	0
515	Mission & Grand**	13	210	41	36	12	235	48	37	13	256	53	49	14	210	4																																	

TRANSIT RELOCATION VISSIM SIMULATION - Maximum Queue (feet)*

		AM																				PM																											
		ExistNoTrain				IOS1				Concept 4				Alt 2				Alt 4A				Alt 5B ⁽¹⁾				ExistNoTrain				IOS1				Concept 4				Alt 2				Alt 4A				Alt 5B ⁽¹⁾			
ID	Intersection	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB				
511	2nd & Grand	644	265	285	0	691	262	291	0	717	262	337	0	623	263	286	0	671	261	286	0	465	264	245	0	658	248	493	0	684	260	466	0	708	256	482	0	695	251	498	0	679	254	533	0	647	229	452	0
501	2nd & Hetherton	0	326	191	0	0	326	344	0	0	321	190	0	0	321	217	0	0	323	185	0	0	321	187	0	0	305	189	0	0	307	345	0	0	324	189	0	0	321	197	0	0	326	186	0	0	311	179	0
506	2nd & Irwin	897	0	379	0	814	0	380	0	942	0	379	0	926	0	378	0	939	0	374	0	936	0	373	0	852	0	368	0	837	0	376	0	932	0	368	0	938	0	373	0	935	0	368	0	944	0	358	0
516	2nd & Lincoln	96	148	468	0	92	143	470	0	89	148	469	0	87	145	468	0	92	145	468	0	98	147	470	0	246	125	456	0	244	130	451	0	235	132	465	0	295	122	468	0	241	122	468	0	355	143	469	0
542	2nd & Tamalpais	87	233	294	0	83	211	293	0	93	272	291	0	94	219	287	0	97	228	289	0	95	230	288	0	180	264	281	0	193	292	285	0	245	307	291	0	246	233	284	0	240	241	290	0	242	234	285	0
512	3rd & Grand	285	303	0	709	284	308	0	666	288	347	0	727	272	314	0	679	283	328	0	715	255	248	0	601	261	217	0	426	263	283	0	451	273	343	0	612	271	304	0	610	273	305	0	559	265	224	0	486
502	3rd & Hetherton	0	398	0	415	0	390	0	412	0	405	0	412	0	401	0	410	0	404	0	409	0	408	0	408	0	364	0	374	0	366	0	370	0	389	0	400	0	403	0	401	0	405	0	394	0	396	0	398
507	3rd & Irwin	326	0	0	658	324	0	0	657	317	0	0	658	317	0	0	653	318	0	0	655	315	0	0	648	303	0	0	552	311	0	0	613	304	0	0	644	300	0	0	645	294	0	0	645	287	0	0	641
517	3rd & Lincoln	137	390	0	143	126	381	0	134	157	388	0	141	144	386	0	142	148	388	0	133	154	393	0	246	170	232	0	190	162	246	0	181	218	295	0	191	220	269	0	231	218	268	0	171	225	300	0	280
783	3rd & Ritter**	69	0	0	0	66	0	0	1	65	0	0	11	68	0	0	18	64	0	0	0	66	0	0	5	77	0	0	1	71	0	0	8	77	0	0	29	71	0	0	27	72	0	0	37	82	0	0	44
543	3rd & Tamalpais	115	111	0	111	128	117	0	290	168	155	0	112	129	140	0	91	139	157	0	90	155	135	0	97	236	150	0	113	330	149	0	299	336	150	0	101	332	213	0	87	337	162	0	80	336	224	0	98
612	3rd & Union	86	191	286	1016	84	192	289	835	81	194	278	1173	80	196	304	954	85	191	287	1129	79	192	303	653	259	201	626	719	259	196	591	686	261	196	575	742	262	200	573	680	255	193	610	693	259	193	590	601
546	4th & Cijos	50	0	227	179	50	0	251	193	63	0	264	210	45	0	266	180	53	0	266	207	61	0	279	194	108	0	239	245	119	0	251	267	193	0	268	289	287	0	277	286	274	0	272	284	321	0	278	276
513	4th & Grand	122	303	180	128	126	267	188	117	123	304	199	118	128	305	178	128	132	286	186	120	138	272	198	116	157	289	258	114	185	290	304	136	166	296	241	122	165	282	225	125	165	289	252	115	160	222	233	138
503	4th & Hetherton	0	234	256	142	0	236	245	173	0	309	250	200	0	311	254	215	0	315	249	242	0	312	257	293	0	163	250	260	0	212	261	354	0	243	257	275	0	281	264	311	0	285	255	355	0	245	257	387
508	4th & Irwin	89	0	148	215	353	0	140	198	371	0	158	205	346	0	146	262	342	0	140	211	350	0	200	231	379	0	357	289	395	0	358	259	392	0	337	222	392	0	308	315	388	0	297	288	391	0	340	345
518	4th & Lincoln	175	269	277	283	181	278	344	275	256	296	345	274	272	299	352	273	280	299	350	304	364	307	362	284	238	96	255	280	326	146	349	334	330	171	355	329	358	190	358	347	348	177	360	327	383	308	363	359
74	4th & Queue Cutter	97 37	48	105	31	77 31	0	274	250	94 40	0	329	250	98 43	89	337	174	112 38	69	335	184	96 40	53	347	179	135 43	40	202	62	177 77	46	332	182	150 68	60	343	183	193 102	56	344	184	163 84	54	346	192	140 51	45	347	188
514	5th & Grand**	66	115	135	0	66	59	105	0	65	150	125	0	73	139	106	0	59	92	111	0	46	45	78	0	71	54	117	0	65	79	150	0	68	173	146	0	68	112	134	0	74	132	131	0	49	23	70	0
504	5th & Hetherton	0	144	223	150	0	116	235	168	0	283	248	194	0	296	248	194	0	266	250	207	0	243	258	117	0	117	223	106	0	250	248	131	0	235	249	121	0	263	250	116	0	260	249	134	0	100	253	141
509	5th & Irwin	95	0	147	94	196	0	123	92	121	0	149	103	141	0	134	109	123	0	147	95	109	0	90	73	321	0	228	139	325	0	253	116	321	0	221	111	323	0	267	108	320	0	262	117	313	0	91	80
519	5th & Lincoln	173	142	236	192	246	242	344	203	274	203	417	209	304	238	485	219	285	261	468	223	315	348	555	72	192	120	264	127	282	304	519	163	272	307	523	144	262	272	523	144	294	330	534	141	322	351	498	61
786	5th & Nye**	71	0	0	0	74	0	0	0	69	0	60	0	73	0	190	0	70	0	105	0	69	0	368	0	69	0	0	0	67	0	185	0	73	0	163	0	69	0	184	0	68	0	298	0	64	0	162	0
876	5th & Queue Cutter ⁽¹⁾	36 41	48	104	31	43 61	65	264	152	55 96	56	319	133	44 89	55	326	174	52 83	62	319	156	58	48	57	0	48 47	39	146	15	103 82	60	333	124	92 74	62	336	111	98 77	58	334	105	98 85	59	339	113	65	45	56	0
784	Lincoln & Ritter**	0	180	0	0	1	165	0	0	10	184	0	0	12	169	0	0	0	171	0	0	13	208	0	0	0	13	0	0	0	0	19	0	0															

BUS LINE TRAVEL TIME - AM PEAK		No Scheduled	Existing No Trains				IOS1				Interim Concept 4 ⁽¹⁾				Long Term Alt 2				Long Term Alt 4a ⁽²⁾				Long Term Alt 5b			
Line#	Bus Line Description		Travel		Completed		Travel		Completed		Travel		Completed		Travel		Completed		Travel		Completed		Travel		Completed	
			Time Sec	Distance Feet	No	%	Time Sec	Distance Feet	No	%	Time Sec	Distance Feet	No	%	Time Sec	Distance Feet	No	%	Time Sec	Distance Feet	No	%	Time Sec	Distance Feet	No	%
17	17: Sausalito-SanRafael	26	441	9,365	25	96%	460	9,365	25	96%	396	9,366	24	92%	334	9,364	24	92%	475	10,687	24	92%	491	11,298	24	92%
22	22: MarinCity-SRTC	26	291	2,912	25	96%	261	2,916	21	81%	351	3,000	26	100%	249	2,360	26	100%	228	2,368	25	96%	471	3,652	25	96%
23	23E/23EX: EB Manor-Shoreline	26	382	3,622	26	100%	354	3,623	26	100%	348	3,623	26	100%												
23	23E: EB Manor-Shoreline	13													569	3,615	8	62%	565	4,047	13	100%	763	5,470	12	92%
24	23EX: EB Manor-Shoreline	13													335	3,304	13	100%	605	4,731	10	77%	678	5,960	5	38%
27	27S: SB SanAnselmo - SF	39	354	6,130	37	95%	377	6,133	38	97%	469	6,108	35	90%	480	6,071	33	85%	555	6,634	31	79%	632	7,967	28	72%
29	29E: EB MarinGeneral-Canal	13	428	8,166	13	100%	437	8,165	13	100%	438	8,165	13	100%	378	6,869	13	100%	420	7,473	13	100%	589	8,706	13	100%
35	35N: Canal-Novato	26	623	7,442	16	62%	600	7,438	15	58%	720	7,433	14	54%	684	6,260	17	65%	534	5,289	23	88%	546	5,861	25	96%
36	36S: SB Canal-Marin City	26	314	6,584	20	77%	333	6,583	20	77%	400	6,582	24	92%	364	6,583	24	92%	597	7,823	25	96%	473	8,437	26	100%
40	40: El Cerrito - San Rafael	13	475	10,315	13	100%	442	10,317	13	100%	412	10,314	13	100%	418	10,257	13	100%	512	10,903	12	92%	567	11,485	13	100%
44	44S: Marinwood - SF	13	411	8,523	12	92%	412	8,523	12	92%	436	8,525	13	100%	406	8,522	11	85%	687	9,971	9	69%	429	8,512	13	100%
49	49: SRTC- Novato	26	388	9,668	25	96%	372	9,669	22	85%	418	9,666	21	81%	457	8,963	23	88%	423	8,343	24	92%	303	7,664	26	100%
68	68: SRTC - West Marin	13	290	4,600	13	100%	298	4,605	13	100%	313	4,602	13	100%	131	2,802	13	100%	168	2,821	13	100%	162	3,062	13	100%
70	30/70/71X/101: SB SantaRosa-SF	65	315	8,522	64	98%	317	8,522	63	97%	345	8,522	64	98%	350	8,523	63	97%	350	8,512	65	100%	362	8,512	62	95%
71	30/70/71/101: NB SF-SantaRosa	65	608	9,834	60	92%	603	9,778	58	89%	600	10,538	62	95%	511	9,691	60	92%	373	9,220	63	97%	339	9,174	65	100%
122	122: College of Marin-SRTC	13	202	2,206	13	100%	157	2,207	13	100%	201	1,775	13	100%	195	2,361	13	100%	270	2,368	13	100%	898	3,300	11	85%
125	125: Lagunitas-SRTC	13	327	4,659	13	100%	311	4,660	13	100%	121	1,950	13	100%	186	2,361	13	100%	128	2,369	13	100%	334	3,302	13	100%
228	228: Manor - SRTC	13	568	9,765	11	85%	561	9,763	12	92%	552	9,765	13	100%	584	10,261	12	92%	613	10,901	12	92%	653	11,487	6	46%
230	23W/23XW: WB Shoreline-Manor	26	512	3,388	21	81%	518	3,388	23	88%	704	3,388	22	85%	553	3,572	26	100%								
230	23W: WB Shoreline-Manor	13																	348	4,044	11	85%	447	4,759	13	100%
231	23XW: WB Shoreline-Manor	13																	640	4,236	13	100%	599	4,984	10	77%
233	233: SRTC-SantaVenetia	13	501	5,824	13	100%	548	5,823	13	100%	589	5,823	12	92%	536	5,691	13	100%	635	6,294	13	100%	703	6,151	13	100%
245	245: SRTC - SmithRanch	13	598	9,104	9	69%	467	9,103	10	77%	656	9,103	9	69%	576	8,941	7	54%	298	7,636	9	69%	434	7,651	13	100%
257	257: SRTC-Indian Valley Campus	13	846	5,821	8	62%	970	5,824	4	31%	995	5,822	5	38%	825	5,691	7	54%	890	6,294	8	62%	801	6,105	8	62%
270	27N: NB SF-San Anselmo																									
290	29W: WB Canal-MarinGeneral	13	446	6,580	11	85%	447	6,580	11	85%	384	6,581	11	85%	375	7,474	13	100%	437	7,471	13	100%	751	8,621	11	85%
350	35S: Novato-Canal	26	556	5,725	26	100%	532	5,724	24	92%	554	5,738	26	100%	633	4,776	20	77%	438	5,258	25	96%	637	5,293	21	81%
360	36N: NB MarinCity-Canal	26	577	7,754	25	96%	582	7,755	26	100%	440	7,769	25	96%	392	6,869	25	96%	472	7,474	24	92%	493	8,707	26	100%
580	580W: WB Emeryville - San Rafael	26	316	6,172	25	96%	336	6,171	23	88%	315	6,173	24	92%	294	6,441	24	92%	393	7,095	25	96%	562	7,842	19	73%
580	580E: San Rafael-Emeryville																									
TOTAL or AVERAGE		572	449	6,778	524	92%	446	6,776	511	89%	465	6,680	521	91%	433	6,305	514	90%	464	6,549	529	92%	543	7,075	514	90%
COMPARE WITH Existing							-1%	0%	-2%	-2%	4%	-1%	-1%	-1%	-4%	-7%	-2%	-2%	3%	-3%	1%	1%	21%	4%	-2%	-2%

(1) Interim Concept4 AM: 3 buses scheduled at 8:15AM (2100 sec) at platform B SB (Northbound 30/70/71/101 and Westbound 23/23X), while only 2 bays available.

(2) Alternative 4a AM: 3 buses scheduled at 7:45AM (300 sec) at platform C (Southbound 36, 71X, and 101), while only 2 bays available.

BUS LINE TRAVEL TIME - PM PEAK		No Scheduled	Existing No Trains				IOS1				Interim Concept 4				Long Term Alt2				Long Term Alt 4a				Long Term Alt 5b ⁽¹⁾			
Line#	Bus Line Description		Travel		Completed		Travel		Completed		Travel		Completed		Travel		Completed		Travel		Completed		Travel		Completed	
			Time Sec	Distance Feet	No	%	Time Sec	Distance Feet	No	%	Time Sec	Distance Feet	No	%	Time Sec	Distance Feet	No	%	Time Sec	Distance Feet	No	%	Time Sec	Distance Feet	No	%
17	17: Sausalito-SanRafael	13	321	9,366	13	100%	303	9,365	13	100%	420	9,365	12	92%	389	9,365	12	92%	695	10,690	13	100%	589	11,303	13	100%
22	22: MarinCity-SRTC	26	272	2,916	23	88%	292	2,918	22	85%	383	3,000	25	96%	314	2,369	22	85%	298	2,365	24	92%	622	3,644	22	85%
23	23E/23EX: EB Manor-Shoreline	26	238	3,625	26	100%	253	3,624	26	100%	263	3,624	26	100%												
23	23E: EB Manor-Shoreline	13													796	3,614	10	77%	639	4,072	13	100%	845	5,497	12	92%
24	23EX: EB Manor-Shoreline	13													252	3,304	13	100%	555	4,758	13	100%	635	5,988	12	92%
27	27S: SB SanAnselmo - SF	13	136	6,138	13	100%	148	6,138	13	100%	145	6,137	13	100%	147	6,137	13	100%	243	6,835	13	100%	342	8,065	13	100%
29	29E: EB MarinGeneral-Canal	13	417	8,169	13	100%	427	8,170	13	100%	458	8,170	13	100%	371	6,867	12	92%	481	7,500	13	100%	532	8,739	13	100%
35	35N: Canal-Novato	26	588	7,494	25	96%	691	7,493	24	92%	695	7,493	23	88%	692	6,254	25	96%	605	5,284	22	85%	607	5,898	21	81%
36	36S: SB Canal-Marin City	26	227	6,582	26	100%	234	6,583	25	96%	252	6,582	25	96%	244	6,583	25	96%	543	7,827	25	96%	428	8,439	23	88%
40	40: El Cerrito - San Rafael	52	408	10,314	52	100%	403	10,314	51	98%	434	10,314	52	100%	605	10,163	47	90%	544	10,905	52	100%	512	11,499	51	98%
44	44S: Marinwood - SF																									
49	49: SRTC- Novato	26	585	9,666	26	100%	582	9,665	23	88%	572	9,665	22	85%	553	8,956	24	92%	552	8,354	22	85%	385	7,679	18	69%
68	68: SRTC - West Marin	13	313	4,581	13	100%	320	4,583	13	100%	288	2,996	13	100%	162	2,817	13	100%	203	2,817	13	100%	193	3,051	13	100%
70	30/70/71X/101: SB SantaRosa-SF	65	347	8,515	65	100%	360	8,516	64	98%	400	8,517	61	94%	456	8,515	63	97%	417	8,506	62	95%	357	8,507	63	97%
71	30/70/71/101: NB SF-SantaRosa	65	416	9,836	65	100%	456	9,836	62	95%	595	10,541	61	94%	452	9,691	65	100%	416	9,225	53	82%	429	9,197	64	98%
122	122: College of Marin-SRTC	13	94	2,202	13	100%	90	2,203	13	100%	168	1,779	13	100%	120	2,373	13	100%	125	2,370	13	100%	290	3,296	12	92%
125	125: Lagunitas-SRTC	13	319	4,658	13	100%	314	4,658	13	100%	150	1,951	13	100%	177	2,370	13	100%	179	2,366	13	100%	383	3,295	13	100%
228	228: Manor - SRTC	13	380	9,767	13	100%	390	9,767	13	100%	472	9,769	12	92%	674	10,262	9	69%	665	10,908	13	100%	650	11,503	11	85%
230	13W/23XW: WB Shoreline-Manor	26	285	3,389	26	100%	293	3,387	26	100%	384	3,387	26	100%	305	3,573	26	100%								
230	13W: WB Shoreline-Manor	13																	343	4,044	11	85%	474	4,773	13	100%
231	23XW: WB Shoreline-Manor	13																	579	4,228	9	69%	676	4,999	8	62%
233	233: SRTC-SantaVenetia	13	519	5,826	13	100%	501	5,827	13	100%	486	5,825	13	100%	485	5,692	13	100%	712	6,322	13	100%	541	6,173	13	100%
245	245: SRTC - SmithRanch	13	649	9,092	12	92%	697	9,092	12	92%	766	9,093	7	54%	1102	8,974	6	46%	467	7,636	6	46%	508	7,653	13	100%
257	257: SRTC-Indian Valley Campus	13	679	5,825	12	92%	763	5,808	11	85%	831	5,806	11	85%	677	5,691	10	77%	782	6,308	5	38%	827	6,172	7	54%
270	27N: NB SF-San Anselmo	13	289	6,166	13	100%	306	6,165	13	100%	517	7,303	13	100%	364	6,459	13	100%	444	6,929	13	100%	396	6,875	13	100%
290	29W: WB Canal-MarinGeneral	13	275	6,580	13	100%	288	6,581	13	100%	334	6,580	13	100%	838	7,477	13	100%	595	7,487	13	100%	585	8,637	11	85%
350	35S: Novato-Canal	26	415	5,732	26	100%	480	5,732	26	100%	487	5,746	21	81%	658	4,776	18	69%	516	5,283	26	100%	592	5,319	25	96%
360	36N: NB MarinCity-Canal	26	361	7,772	26	100%	379	7,772	26	100%	409	7,772	26	100%	335	6,868	26	100%	403	7,499	26	100%	491	8,741	26	100%
580	580W: WB Emeryville - San Rafael																									
580	580E: San Rafael-Emeryville	26	478	7,571	25	96%	485	7,570	24	92%	488	7,567	25	96%	798	7,465	16	62%	598	8,050	23	88%	569	8,753	24	92%
TOTAL or AVERAGE		572	375	6,741	565	99%	394	6,740	552	97%	433	6,624	539	94%	479	6,265	520	91%	485	6,483	522	91%	518	7,065	527	92%
COMPARE WITH Existing							5%	0%	-2%	-2%	15%	-2%	-5%	-5%	27%	-7%	-8%	-8%	29%	-4%	-8%	-8%	38%	5%	-7%	-7%

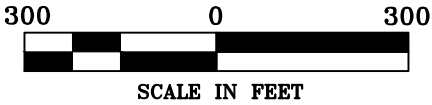
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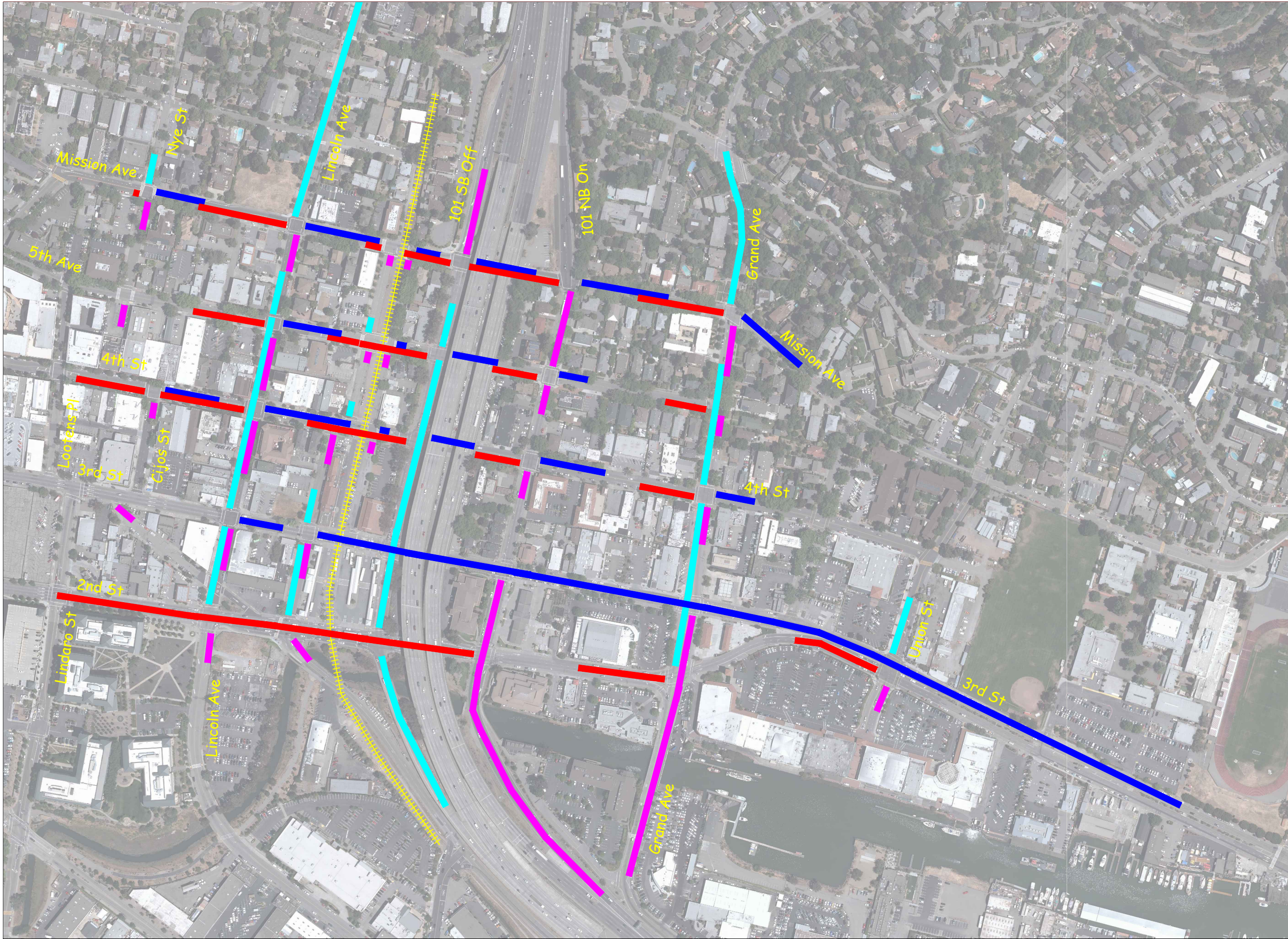


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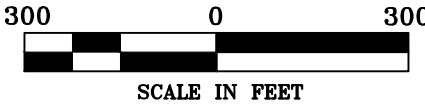




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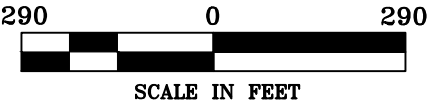


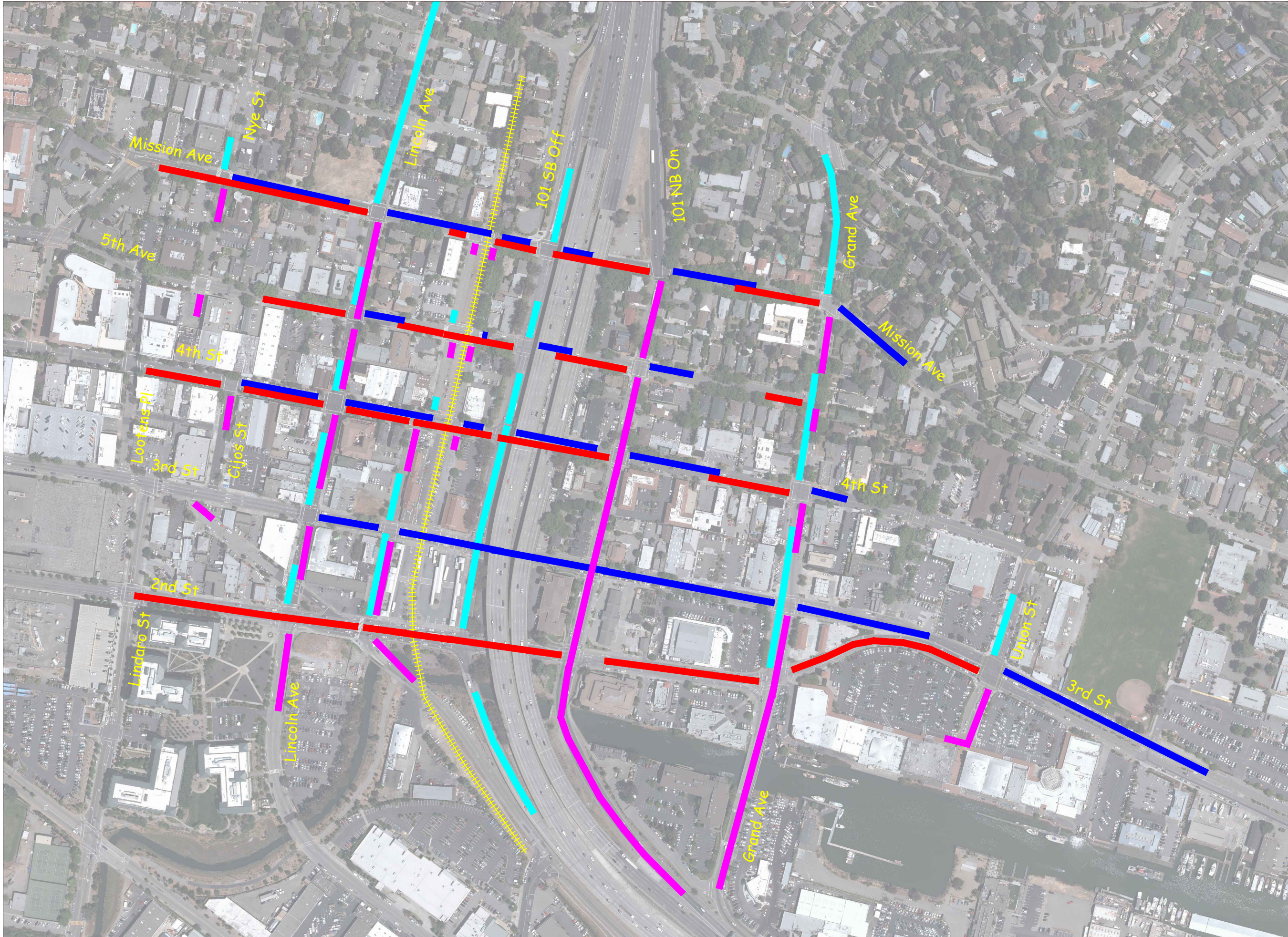


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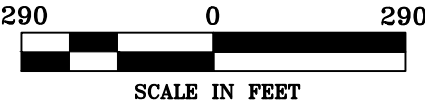




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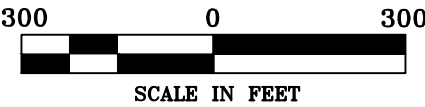


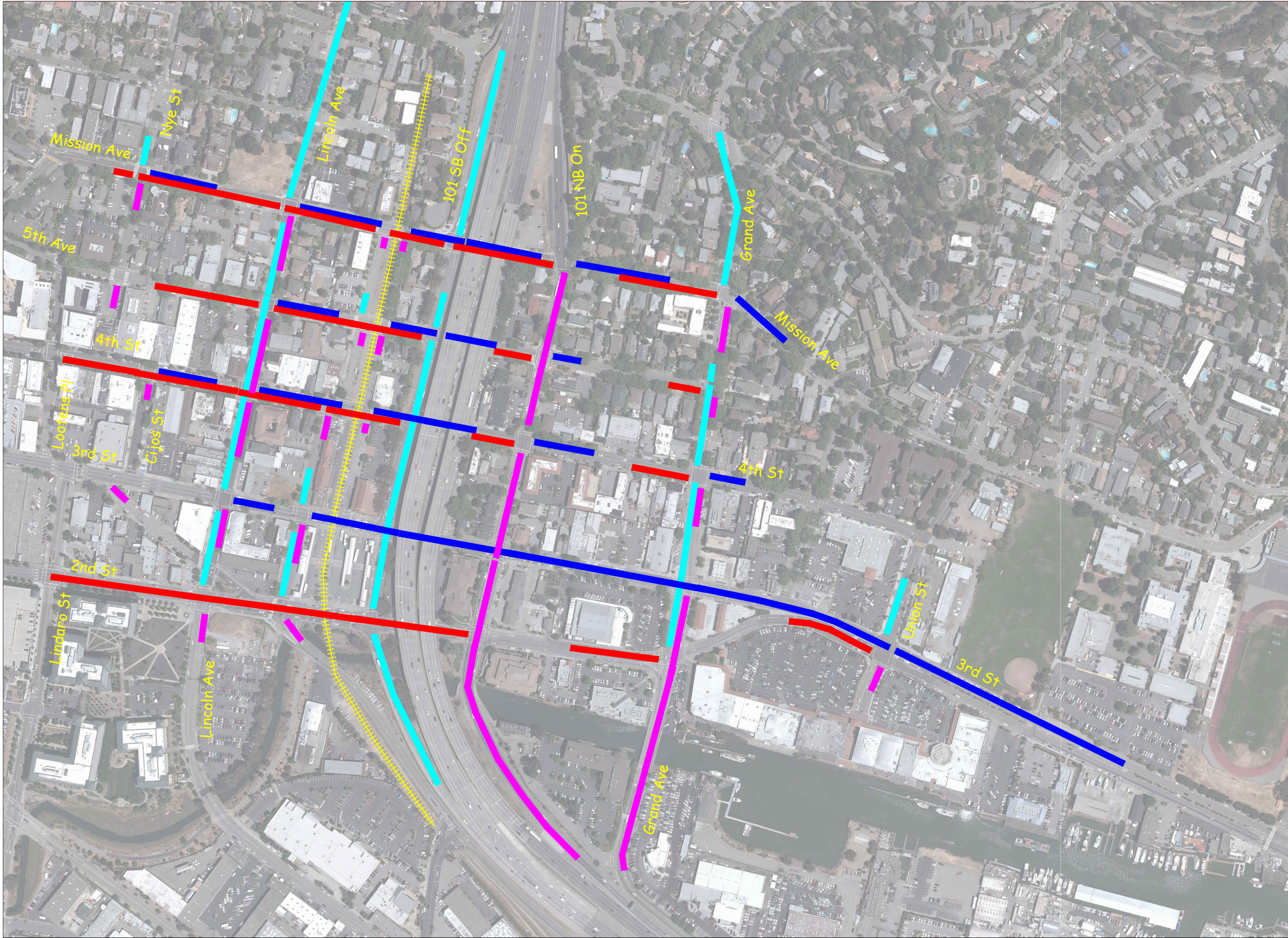


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AVERAGE QUEUE
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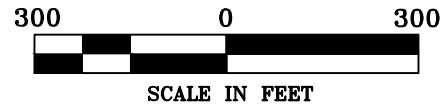




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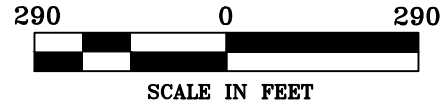


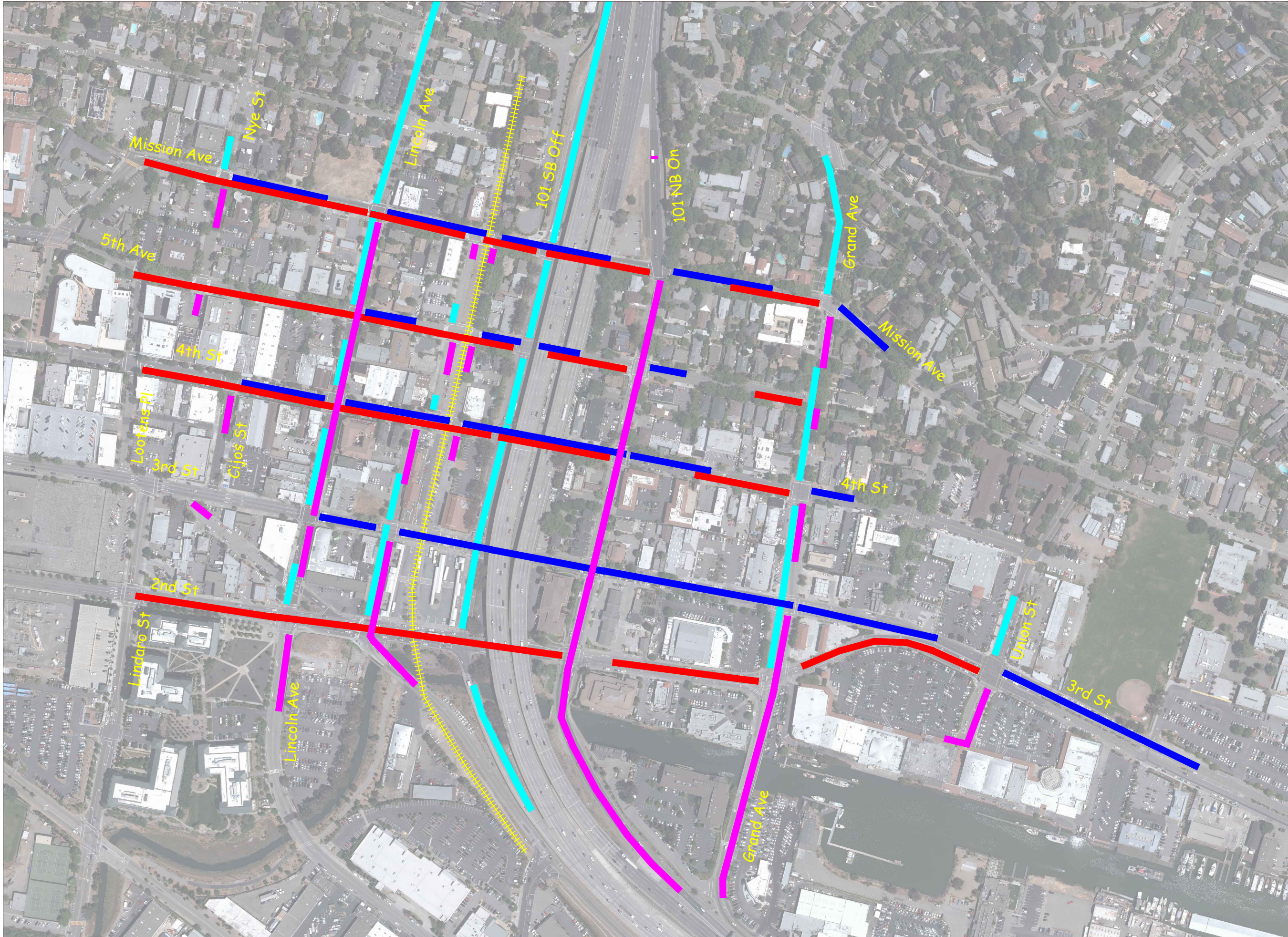


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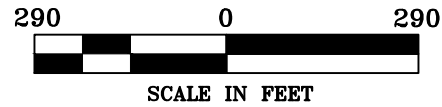




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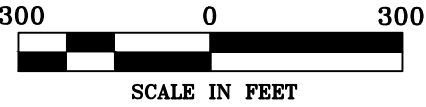


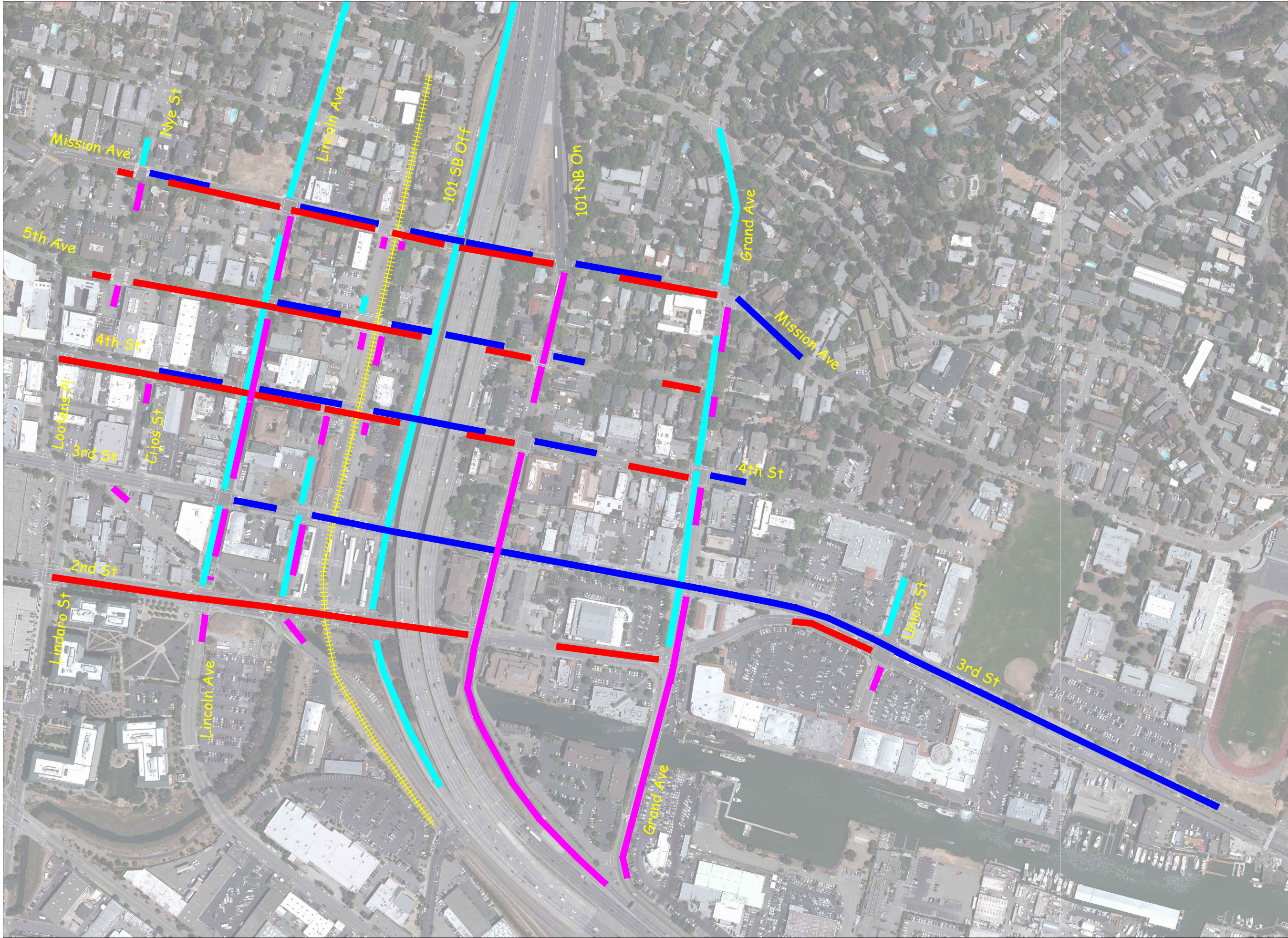


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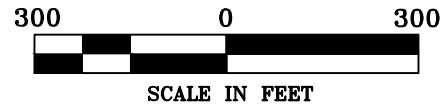




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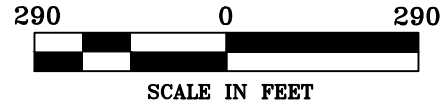




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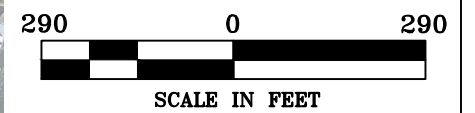
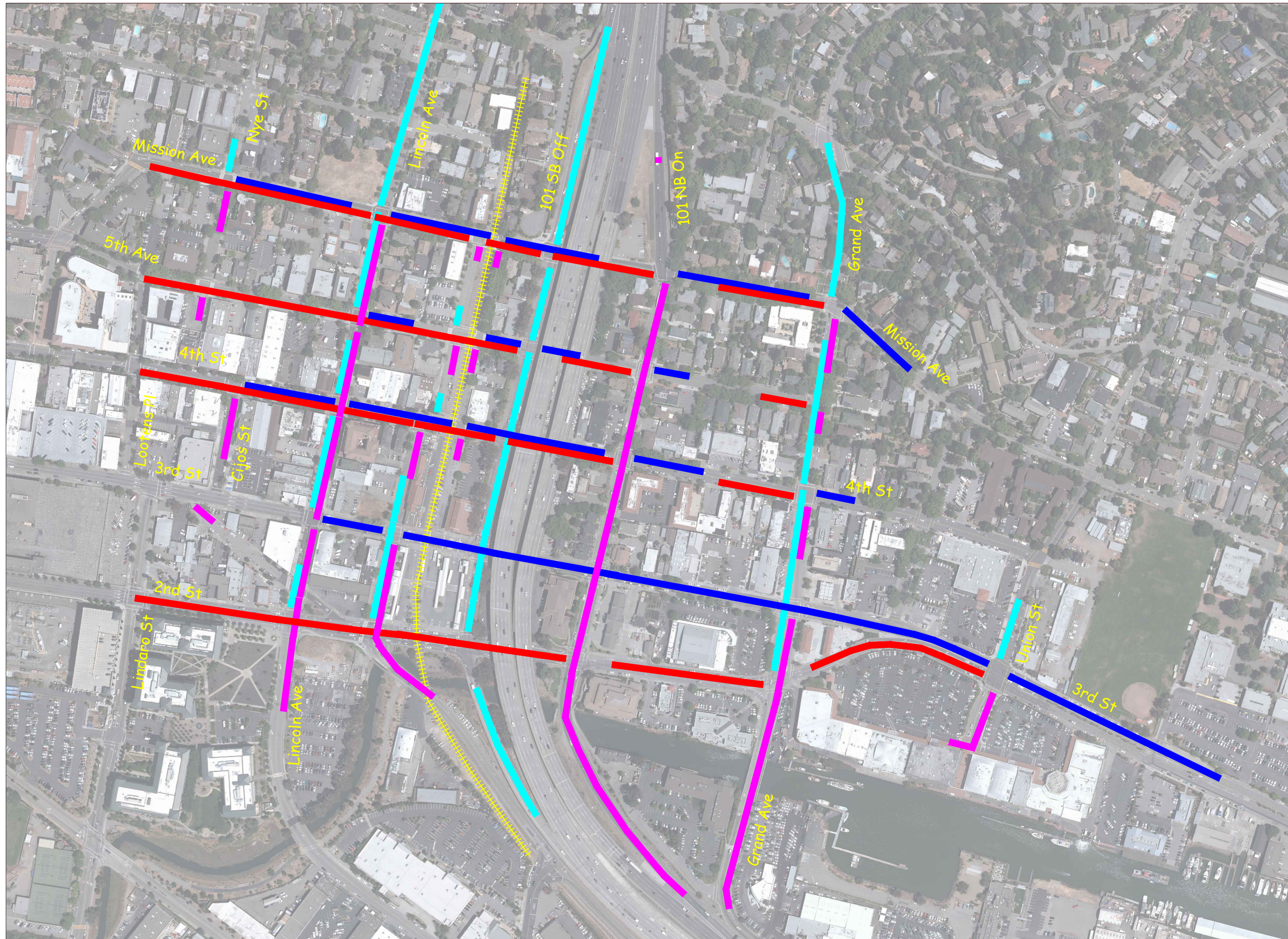
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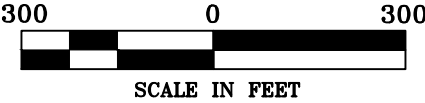
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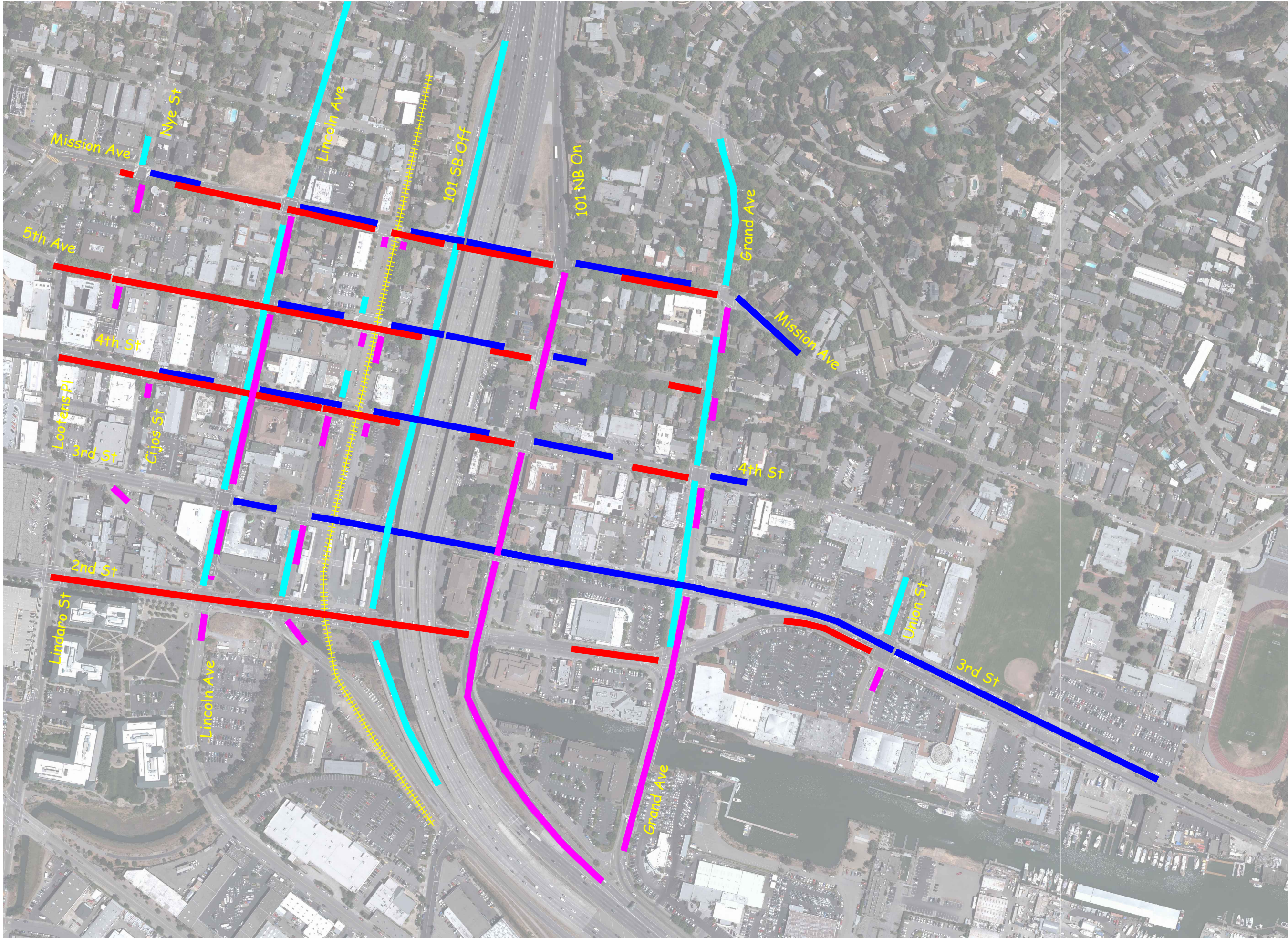


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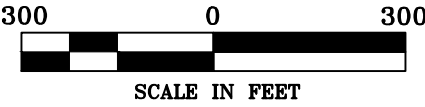




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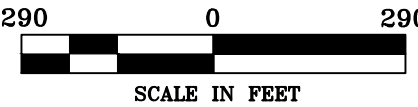




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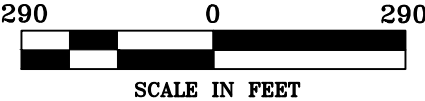
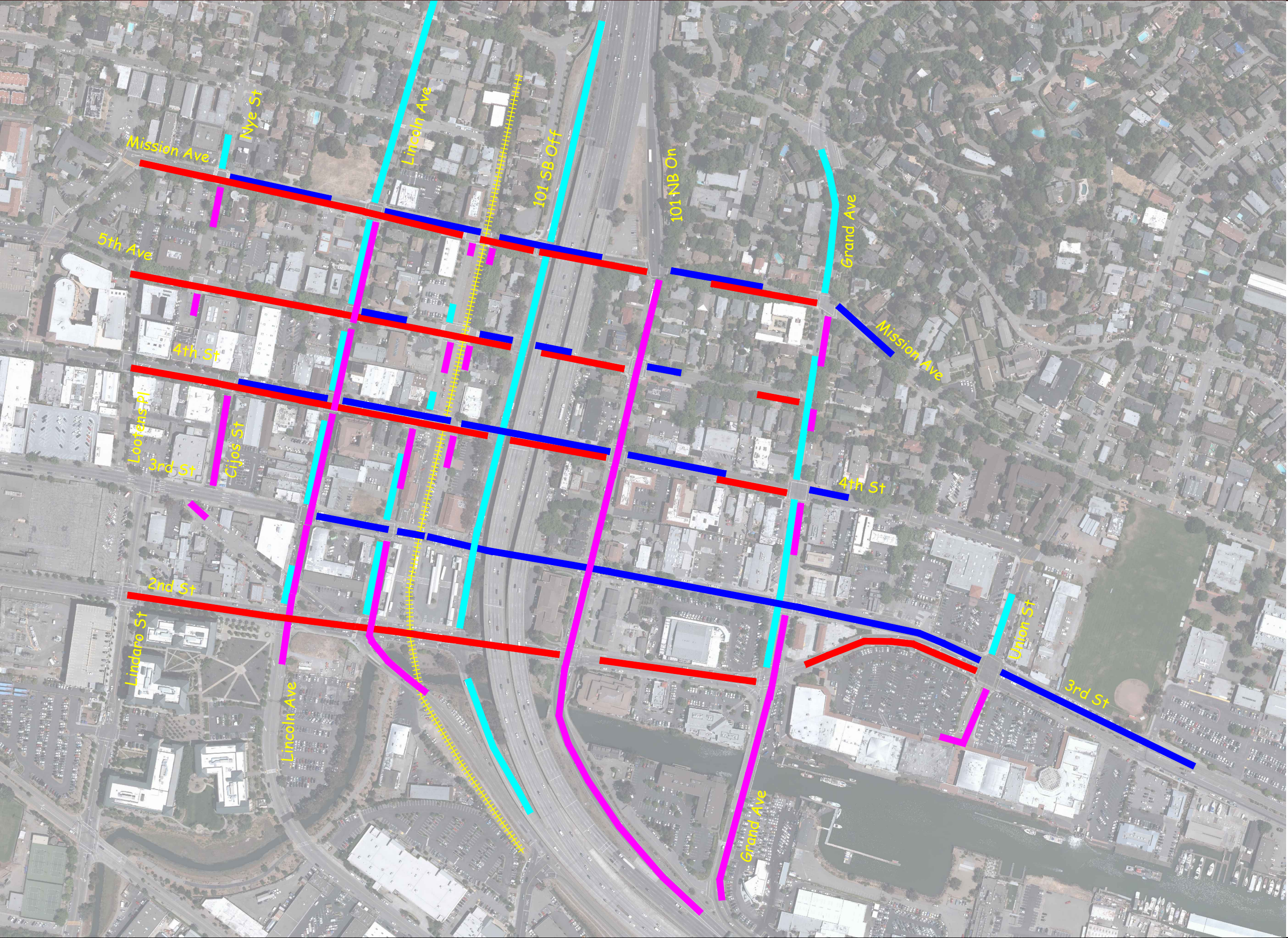
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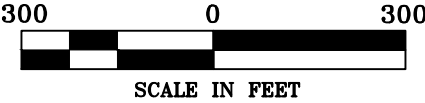
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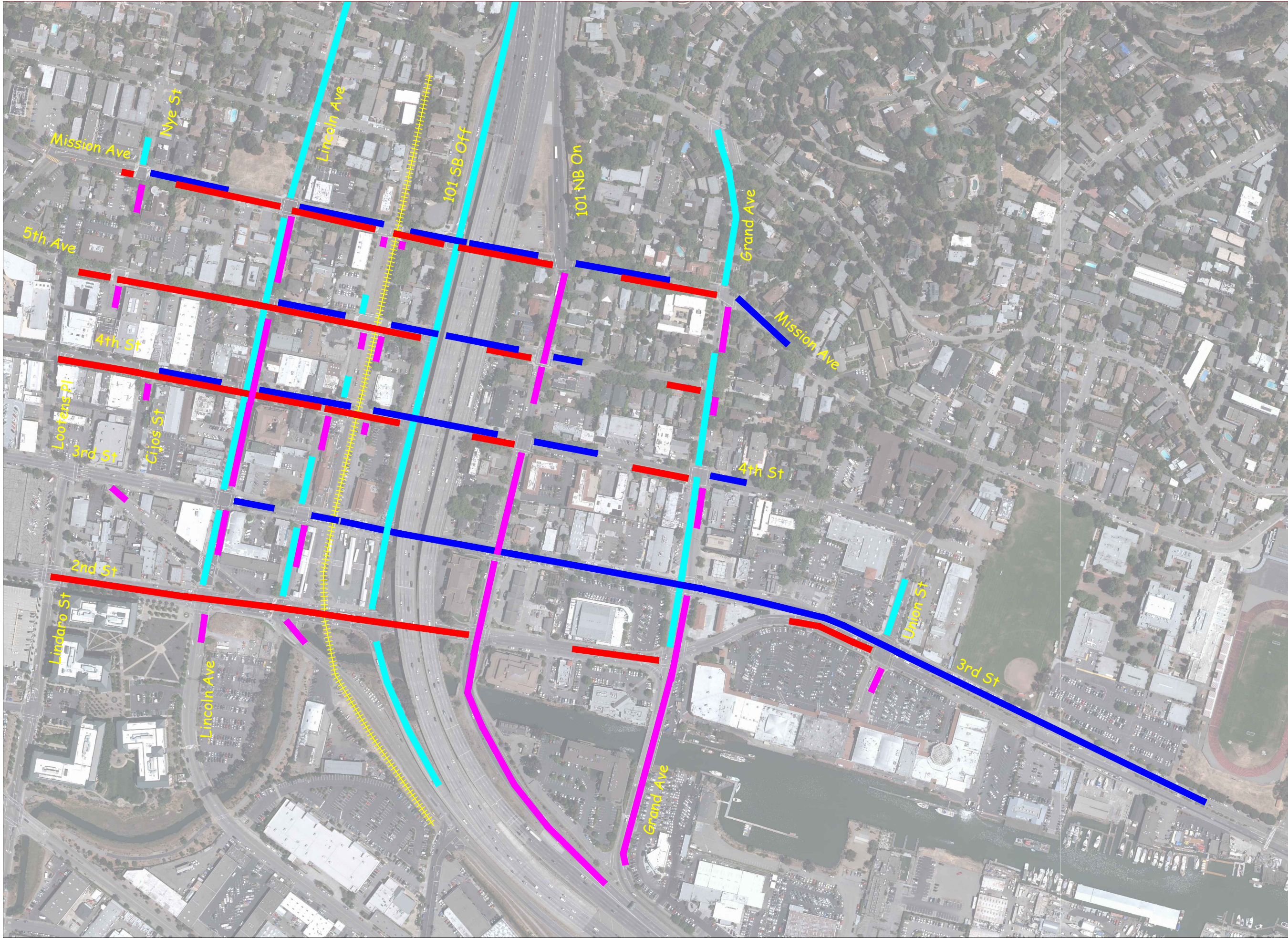


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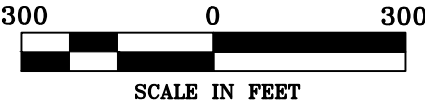




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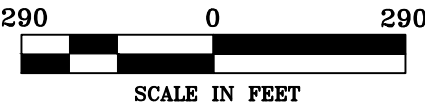




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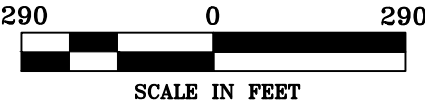
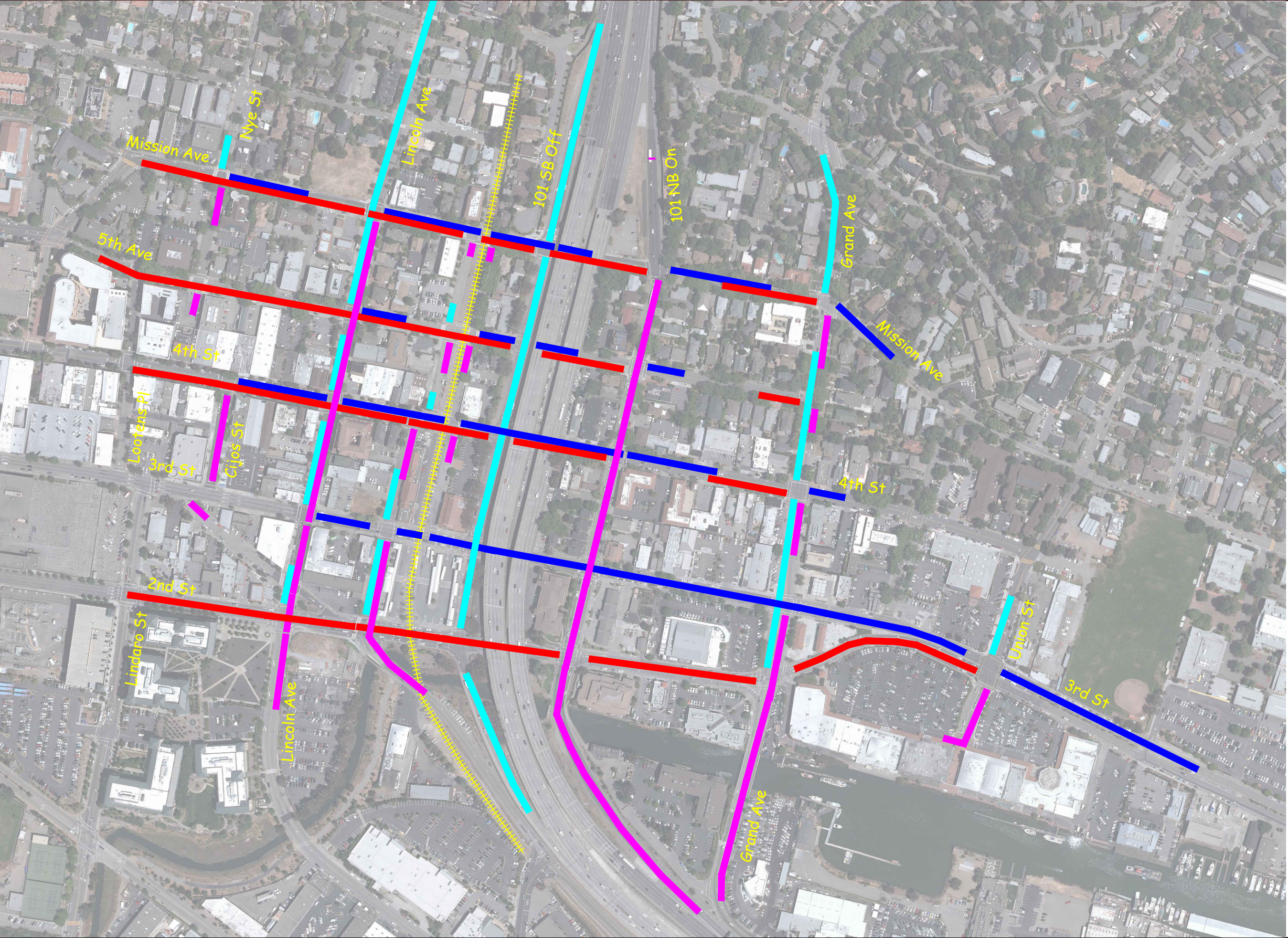
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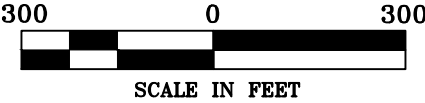
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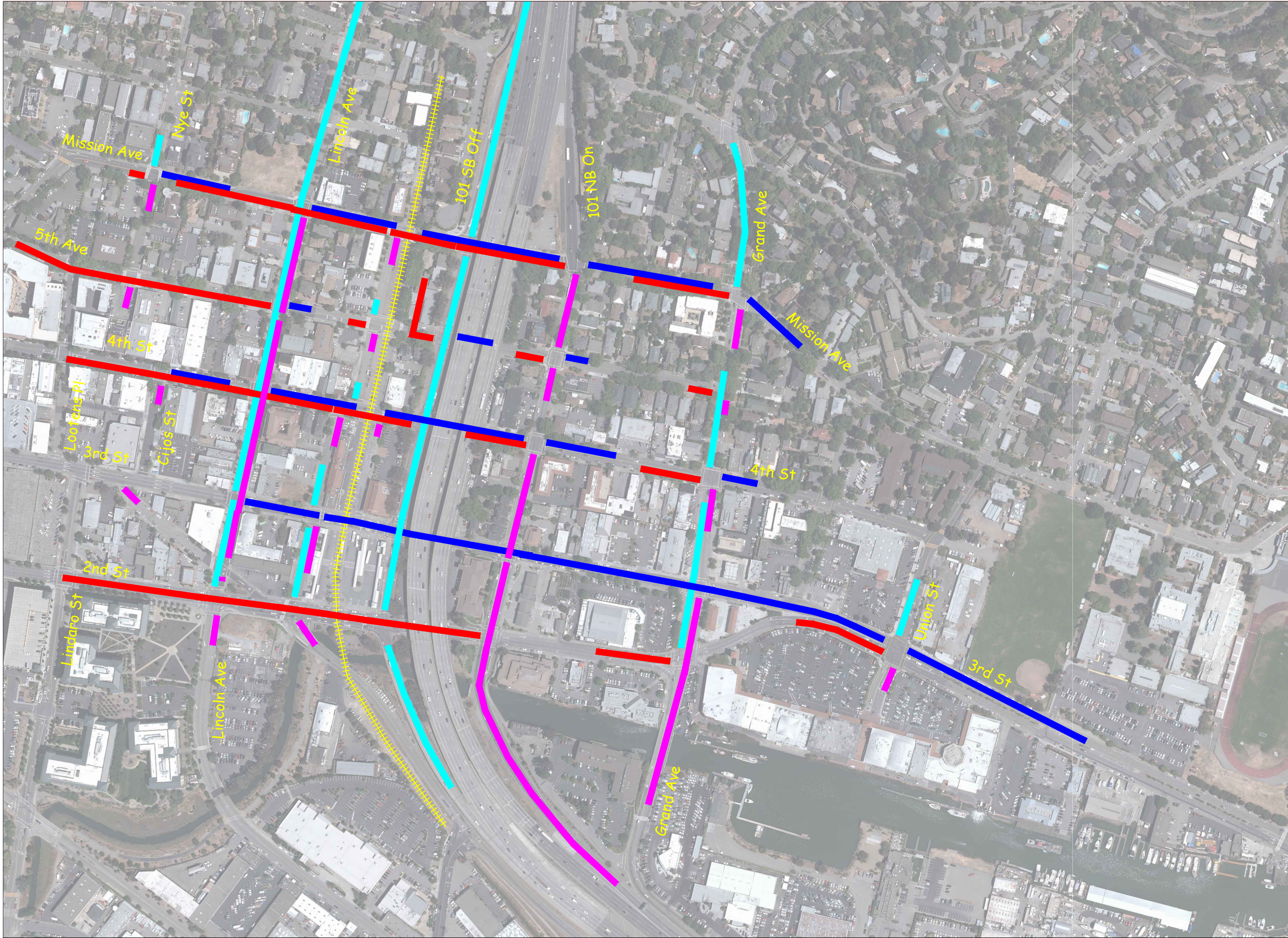


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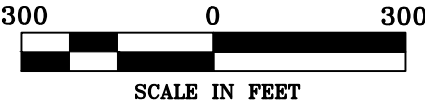




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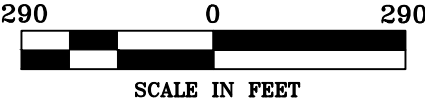
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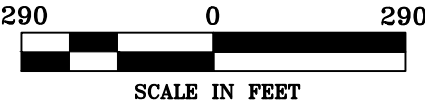
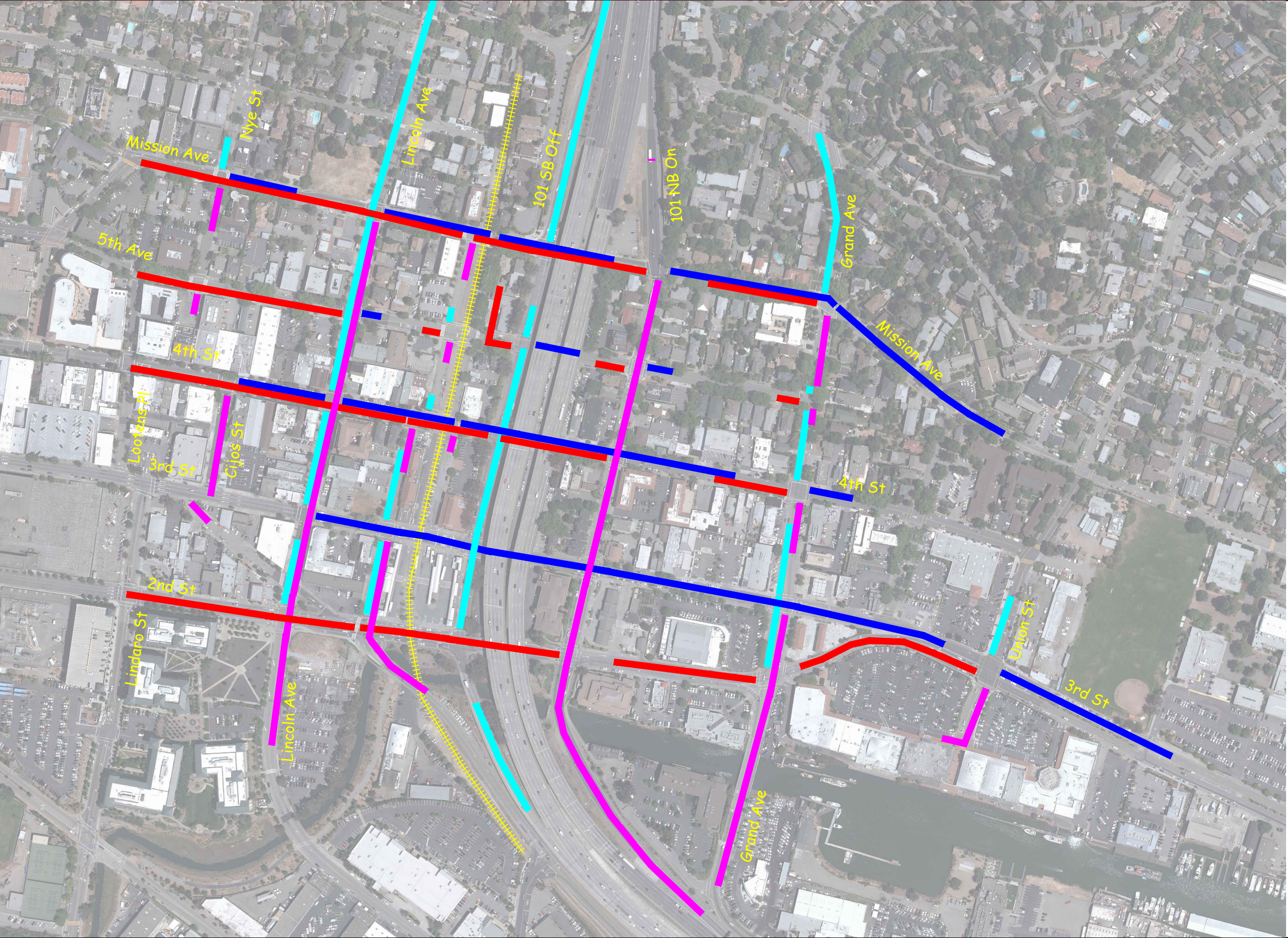
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SAN RAFAEL TRANSIT CENTER RELOCATION STUDY

Appendix B: Strategic Economics SRTC Reuse Analysis



MEMORANDUM

Date: June 20, 2016

To: Norma Jellison and Ron Downing, Golden Gate Bridge Highway and Transportation District
Tom Adams, City of San Rafael
Adam Dankberg, Kimley-Horn

From: Nadine Fogarty, Alison Nemirow, and Jake Cummings, Strategic Economics

Subject: Reuse Options for the Existing San Rafael Transit Center Property - DRAFT

INTRODUCTION

The City of San Rafael and its public transit partners, the Golden Gate Bridge Highway and Transportation District (GGT), Sonoma-Marín Area Rail Transit (SMART) and Marin Transit, are studying options for relocating the existing San Rafael Transit Center in order to accommodate future SMART service. Relocation of the transit center would create an intermodal hub for bus and rail service, and open up the potential for redevelopment of the existing transit center site.

This memo explores potential reuse options for the site of the existing transit center, which is owned by GGT. Following this introduction, the memo includes the following sections:

- Summary of key findings.
- Overview of site context, including a description of the site, its location, existing zoning, and the vision for the site included in the Downtown Station Area Plan.
- Considerations for site disposition, including GGT goals, transaction options, and other factors.
- A description and evaluation of ten potential development scenarios developed in conjunction with Kimley-Horn and with input from GGT.

Appendix A includes a survey of the site, and Appendix B provides additional information on the potential for developing a building that would span the SMART right-of-way.

KEY FINDINGS

Key findings from the evaluation of reuse potential are summarized below.

- **GGT's goals and objectives for the site will influence the disposition strategy, and will need to be clearly defined in advance of the developer solicitation process.** Potential goals may include maximizing the value of the land in order to help offset the cost of relocating the transit center; promoting transit ridership and transit-oriented development (TOD); and supporting implementation of the San Rafael Downtown Station Area Plan vision. Note that there may be some tradeoffs among potential goals. For example, affordable housing development is consistent with DSAP vision, would support transit ridership, and would help meet the regional need for affordable housing. However, GGT might need to consider selling or leasing the land at a discount in order to enable this type of development. GGT's goals may also influence whether the agency chooses to offer the property for sale, or enter into a long-term ground lease with an entity who develops the site. A lease would allow GGT to maintain long-term control over the site, but may not generate upfront revenues to help offset the cost of the new transit center.
- **To maximize opportunity for redevelopment, GGT should begin working with Caltrans and Federal Transit Administration (FTA) as soon as possible to "set the table" for development, as well as working with the City to clarify zoning, heights, and other regulatory constraints.** Caltrans owns a narrow strip of land on the eastern edge of the transit site. Obtaining the rights to the Caltrans parcel prior to issuing a call for development proposals will enable GGT to maximize the development potential and value of the site. It will also be important to work closely with the FTA to ensure that reuse of the site is consistent with the agency's joint development policy. Finally, GGT should work closely with the City to clarify the applicable land use regulations.
- **Parking is an important factor driving the viability of development on the site.** The size and configuration of the transit center site limit the amount of parking that can be provided on-site. At least 1 to 1.5 parking spaces per unit will likely be required to make the site attractive for market-rate developers and tenants, limiting the number of market-rate units that the site can accommodate. Affordable housing could be built with a lower parking ratio than market-rate housing, allowing for a higher residential density. Office or other commercial uses may also be viable with limited on-site parking; however, off-site parking would need to be provided within walking distance of the site, and allowing some on-site parking would make the site more attractive for office developers and tenants.
- **Market rate residential is currently the highest and best use from the perspective of maximizing revenues from a ground lease or sale of the property, and is likely to remain so for the foreseeable future.** Other uses such as commercial office, retail, and hotel are expected to generate a lower land value. However, the market may fluctuate over time and GGT may wish to reevaluate prior to issuing a developer solicitation, or allow some flexibility in the types of uses that developers may propose. Requiring a "horizontal" mix of uses – i.e., that each parcel be developed with a different use such as office, market-rate residential, or affordable residential – would present development challenges and is unlikely to maximize the value of the land.
- **The site is also well-suited for affordable residential development, particularly if providing affordable housing near transit is a priority for GGT.** Due to the walkable location and close proximity to transit service, the site is expected to be an excellent candidate for attracting low-income housing tax credits, funding from the Affordable Housing and Sustainable Communities Program (from cap-and-trade), and other affordable housing subsidies.

- **The market is expected to support a maximum building height of four to six stories.** This mid-rise building type is consistent with the zoning for the surrounding parcels and the vision for the transit center site described in the DSAP, although it would require a zoning change from the current Public/Quasi-Public designation. Buildings under six stories can also be constructed using wood frame construction over a concrete podium on the ground floor. A taller building would require more expensive construction materials, and is not expected to be profitable for a developer to construct. The market is also unlikely to support building housing units, office, or other occupied space over the tracks. However, GGT and the site's future developers may wish to consider including an internal pedestrian bridge across the tracks as part of the development program, in order to facilitate sharing parking and other amenities between the two parcels.

SITE DESCRIPTION AND CONTEXT

This section describes the site and its context within Downtown San Rafael.

SITE DESCRIPTION

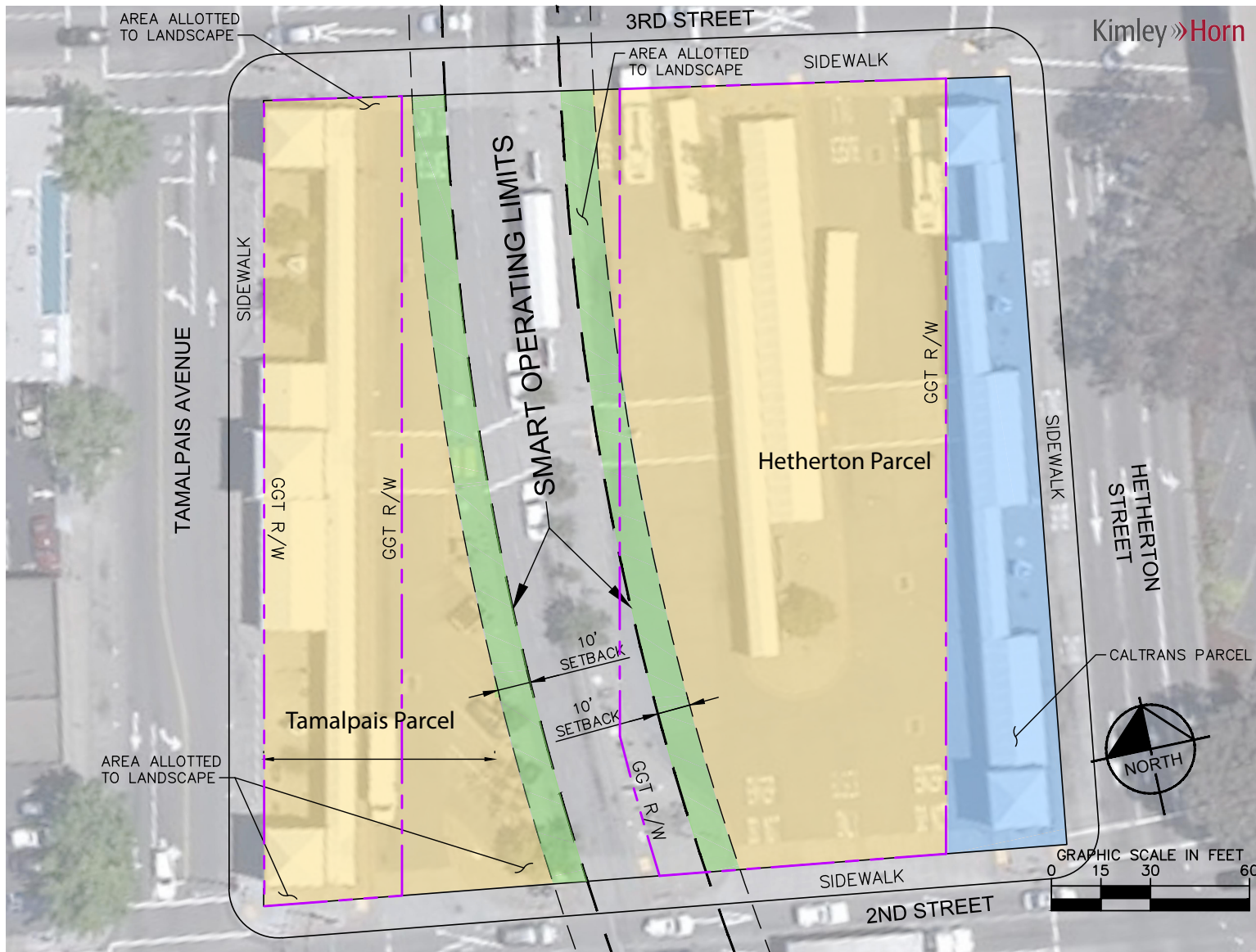
The current site of the San Rafael Transit Center (referred to as the “transit center site” throughout this memo) consists of a block in Downtown San Rafael bounded by 3rd Street on the north, 2nd Street on the south, Hetherton Street on the east, and Tamalpais Avenue on the west. The site consists of four parcels, two owned by GGT, one owned by SMART, and a smaller parcel owned by Caltrans (see survey in Appendix A). The SMART parcel is a former rail right-of-way that was decommissioned from the Northwest Pacific Railroad, and will be used for Phase 2 of SMART operations. The SMART parcel runs north-south between the two GGT parcels. Caltrans owns a narrow (approximately 2,300 square foot) strip of land on the eastern side of the site fronting Hetherton Street (referred to as “the Caltrans parcel”). GGT currently has an encroachment permit that allows the agency to construct “canopies, sidewalk curb, and gutter” on the Caltrans parcel.

It should be noted that the future SMART alignment is generally within the SMART parcel, but not entirely, and that SMART rail operations will not require use of the entire SMART parcel. For the purpose of this analysis, the site is defined to include two irregularly shaped parcels divided by the SMART operating limits, and encompassing some SMART property (Figure 1):

- **Tamalpais Parcel:** A parcel of approximately 16,900 square feet located west of the railroad ROW.
- **Hetherton Parcel:** A parcel of approximately 23,500 square feet located east of the railroad ROW.

The transit center may be relocated to accommodate future SMART service, leaving potential development sites on both the Tamalpais and Hetherton parcels; depending on the outcome of negotiations with Caltrans, the Caltrans site may also be redeveloped.

Figure 1. San Rafael Transit Center Site



Land Use and Zoning

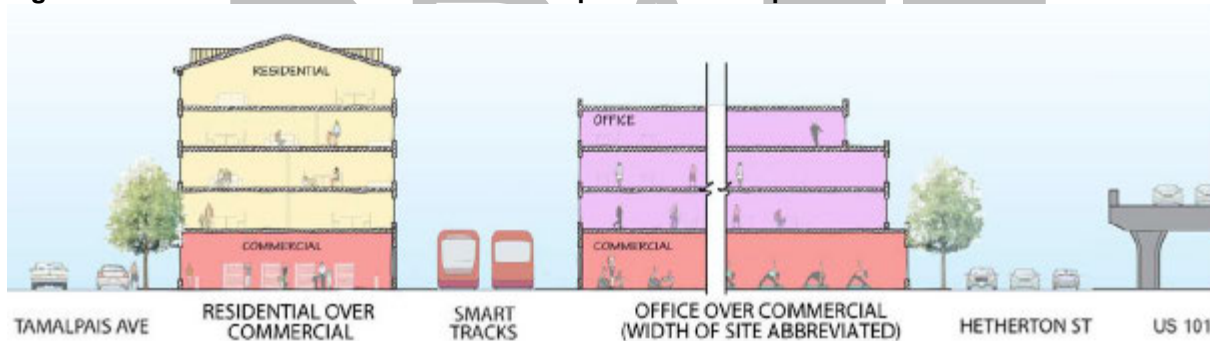
Reflecting its use as a public facility, the current zoning of the site is Public/Quasi-Public. This zoning designation includes the following requirements:

- Maximum height limit: 36 feet
- Maximum density: 24 dwelling units per acre
- Maximum non-residential floor-area-ratio (FAR): 1.0
- Minimum parcel width: 60 feet

Pursuant to California law, the zoning code also allows for height and density bonuses tied to the provision of affordable housing.

While the site is currently subject to the Public/Quasi-Public zoning designation, the Downtown San Rafael Station Area Plan (DSAP), approved in 2012, envisions significantly higher density development. The development concept included in the DSAP (Figure 2) includes office development on the Hetherton parcel and affordable residential on the Tamalpais parcel, with ground floor retail on both parcels. To accommodate this, the plan recommends rezoning the site to “Hetherton Office” (the current zoning designation for surrounding parcels), which allows development up to 66 feet in height, and 72.6 dwelling units per acre. The DSAP calls for all parking to be accommodated in a nearby structure off-site.

Figure 2. Downtown Station Area Plan Concept for Redevelopment of the Transit Center Site



Source: San Rafael Downtown Station Area Plan, 2012.

SITE CONTEXT

The transit center site is located on the eastern side of Downtown San Rafael. The area is attracting development activity and developer interest for a variety of uses, including market-rate and affordable housing, offices, and hotels. Recent development in the Downtown includes the San Rafael Corporate Center, a 300,000 square foot office complex recently purchased by BioMarin. The new intermodal transit hub is expected to add to the attractiveness of Downtown for both residential and commercial development.

While the site's Downtown location, visibility and access enhance its value for new development, the site's close proximity to the elevated highway US-101, and the fact that the SMART train will run through the middle of the site, pose some challenges for development. In order to mitigate the impacts of environmental noise, vibration, and air quality, any development may require special windows and HVAC systems.

CONSIDERATIONS FOR SITE DISPOSITION

As GGT moves forward with redevelopment of the transit center site, the agency will need to develop a strategy for disposition of the property. This section describes potential goals and objectives that might influence the disposition strategy, options for how a real estate transaction could be structured, and other factors that will influence the approach to site disposition.

POTENTIAL GOALS AND OBJECTIVES

GGT's goals and objectives for the site will influence the disposition strategy, and should be clearly defined in advance of the developer solicitation process (Request for Proposals or Request for Qualifications). Potential objectives include:

- **Maximizing value.** Relocation of the transit center is expected to cost between \$22.8 and \$28.9 million dollars, including the costs of property acquisition but exclusive of the cost to relocate existing owners and tenants. By selecting a development program that maximizes the value of the site, GGT may be able to offset some of the relocation cost. However, note that the transit center will need to be relocated before the site becomes available for development, creating a timing challenge for any strategy for financing the transit center relocation that relies on the sale or lease of the existing transit center site. This challenge is discussed in more detail below, under "Transaction Options."
- **Supporting transit ridership and transit-oriented development (TOD).** Redevelopment of the site presents an opportunity to promote transit-supportive development and enhance ridership of both bus and future SMART rail service. As discussed later in this memo, the location is well suited as a site for affordable housing, because of its location near transit and ability to leverage affordable housing funding sources such as the state Affordable Housing and Sustainable Communities Program.
- **Supporting implementation of the DSAP vision.** Beyond the specific development concept shown in the DSAP (Figure 2), the Plan envisions that new development on the site will promote transit ridership, support a strong sense of place, thriving retail businesses, and pedestrian activity.

Note that there may be some tradeoffs among these three potential goals. For example, the DSAP development concept calls for affordable housing on the site. While this use would help support transit ridership and help meet the critical regional need for affordable housing, GGT might need to consider selling or leasing the land to an affordable housing developer at a discount in order to enable this type of development.

TRANSACTION OPTIONS

If the existing transit center is relocated, GGT may choose to offer the property for sale or enter into a long-term ground lease with an entity who develops the site. Some transit agencies prefer to lease property because this allows them to maintain long-term control over the asset, and/or because they prefer a steady revenue stream over time instead of a one-time payment. However, it is important to note that choosing to dispose of the property via a ground lease may pose some additional challenges; developers may find it more difficult to obtain financing for development on a ground lease due to the perception of increased risk. In addition, unless it were prepaid, a ground lease would not generate funding up front to offset the cost of the new transit center.

Strategic Economics also considered the potential for GGT to include the site as part of a public-private partnership (PPP), wherein GGT would contribute the site to a private developer, who in exchange would agree to deliver the new transit center. However, this strategy would face significant challenges. As noted previously, the total cost to deliver the new transit center is estimated to be between \$22.8 and \$28.9 million.

The majority of this cost consists of land acquisition and assembly, including relocation of existing businesses and/or residents. The estimated value of the existing transit center property is less than 20 percent of the estimated cost to acquire the properties needed for a new transit center, and thus insufficient to compensate a private developer for the challenges associated with building the new transit center. Furthermore, the new transit center will need to be completed before the site of the existing transit center can be made available for development, and land assembly and relocation of existing businesses and residents is likely to take some time to complete. Thus, a PPP approach would require GGT to complete property acquisition for the new transit center before entering into an agreement with a developer. Even then, GGT would be required to contribute additional funds above and beyond the property, to make it worthwhile for a developer to participate. Given the additional complexity of this transaction, a PPP approach is unlikely to be successful.

OTHER FACTORS

Caltrans Parcel

Obtaining development rights for the property owned by Caltrans along Hetherton Street will create a significantly more attractive site for development. Working with Caltrans to obtain the rights to the parcel prior to issuing a call for development proposals will enable GGT to maximize the development potential and value of the site, and also help to support transit ridership and TOD goals by enabling a larger development project.

FTA Joint Development Requirements

The existing transit center property was purchased in part using federal funds. As a result, any use of funds from development of the property must comply with federal requirements administered by the Federal Transit Administration. FTA generally supports joint development projects that promote transit ridership, and often allows transit agencies to retain revenues from the sale or lease of property for development if the project meets certain criteria, including use of revenues for transit purposes.¹ GGT will need to consult with legal counsel and the FTA regional office to clarify any limitations or other requirements associated with disposition of the property.

DEVELOPMENT SCENARIOS

The consultant team worked with GGT to identify a range of development scenarios for the transit center site. This section describes the ten scenarios and key assumptions used in their development, discusses the viability of a range of land uses, and evaluates the scenarios based on the potential scale of value that each scenario might generate and consistency with the DSAP vision. The scenarios and the result of the evaluation are shown in Figure 3.

KEY ASSUMPTIONS

The general assumptions used in developing the scenarios are described below.

- **Caltrans parcel:** All of the scenarios include the Caltrans encroachment parcel within the development footprint. Including the Caltrans parcel, the total land area available for development is 46,600 square feet, including 16,900 square feet on the Tamalpais parcel and 29,700 square feet on the Hetherton site (the Hetherton parcel plus the Caltrans parcel).











¹ FTA joint development criteria are set forth in Circular 7050.1, August 25, 2014:
<https://www.transit.dot.gov/funding/fta-c-70501-federal-transit-administration-guidance-joint-development>

- **SMART operating setback:** To accommodate SMART operations, the analysis assumes that any development would need to be set back from the SMART operating limits by ten feet.
- **Heights, FARs, and Densities:** Scenario 5 models a residential development that is consistent with the current Public/Quasi-Public zoning described earlier in the memo. However, most other scenarios assume higher FARs and additional building height. The development scenarios generally assume three- to five-stories of wood frame residential or office development over a concrete podium, for a total building height of four to six stories (or no more than 66 feet, or 78 feet for affordable housing). While this mid-rise building type would require a zoning change, it is consistent with the zoning for the parcels surrounding the transit center, and the vision for the transit center site described in the DSAP. Buildings under six stories can also be constructed using wood frame construction over a concrete podium on the ground floor (Type IV or V). A taller building would require more expensive construction materials, and is not expected to be profitable for a developer to construct.²
- **Parking:** The scenarios generally assume that parking is provided on-site for residential uses and off-site for office and retail uses. However, Scenario 6 provides no on-site parking for either the residential or office uses (as discussed below, this is consistent with the DSAP vision).

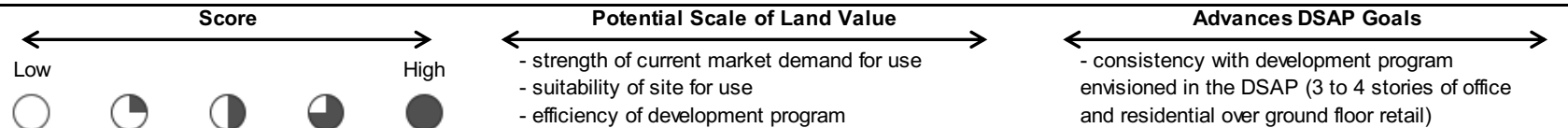
DRAFT

² For buildings above six stories, building codes usually necessitate the use of the costlier Type III concrete construction type, which necessitates concrete and/or steel building materials. For buildings of nine stories or more, additional life/safety features, such as sophisticated alarm systems, pressurized exit stairs, and other safety provisions are usually required, which further increase construction cost. Steel frame materials may be required for buildings of 11 stories or higher.











Figure 3. Development Scenarios

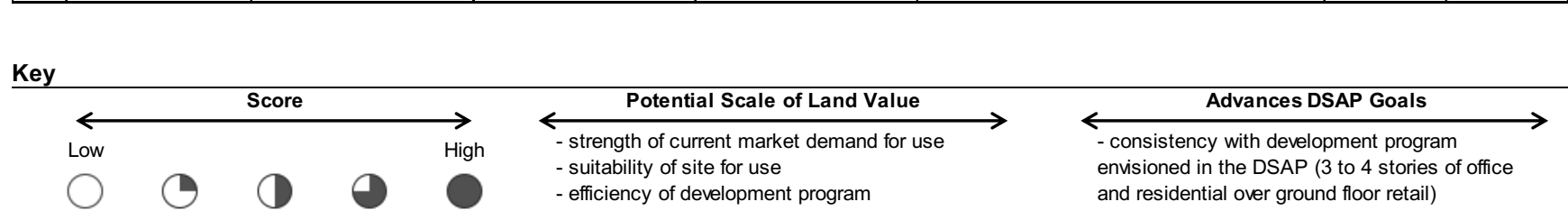
#	Scenario Name	Residential Uses	Commercial Uses	Parking	Height/Building Type	Potential Scale of Land Value	Advances DSAP Goals
1	All Market Rate Residential	32 units market rate on Tamalpais 48 units market rate on Hetherton	12,900 gsf retail on Tamalpais	116 on-site stalls on Hetherton	Tamalpais: 4 stories office over retail podium, 66' height Hetherton: 3 stories residential over 2 stories parking podium, 66' height		
2	Affordable and Market Rate Residential	50 units affordable on Tamalpais 64 units market rate on Hetherton	12,900 gsf retail on Tamalpais	116 on-site stalls on Hetherton	Tamalpais: 5 stories residential over retail podium, 78' height Hetherton: 4 stories residential over 2 stories parking podium, 78' height		
3	Market Rate Residential and Office	54 units market rate on Hetherton	38,700 gsf office on Tamalpais 12,900 gsf retail on Tamalpais	54 on-site stalls on Hetherton for residential 207 off-site stalls for commercial uses	Tamalpais: 3 stories office over retail podium Hetherton: 4 stories residential over parking podium, 66' height		
4	Affordable Residential and Office*	85 units affordable on Hetherton	41,600 gsf office on Tamalpais 12,900 gsf retail on Tamalpais	54 on-site stalls on Hetherton for residential 258 off-site stalls for commercial uses	Tamalpais: 4 stories office over retail podium Hetherton: 5 stories residential over parking podium, 78' height		
5	Residential on Existing Zoning	24 market rate units in 2 stories	None	On-site	2 stories over podium, not exceeding existing 36' height limit for Public/Quasi-Public zoning district		

Key



* This scenario has the same development program as the Downtown Station Area Plan (Scenario 6 below), except with parking for the affordable residential units in place of retail on Hetherton.

#	Scenario Name	Residential Uses	Commercial Uses	Parking	Height/Building Type	Potential Scale of Land Value	Advances DSAP Goals
6	Affordable Residential and Office, No Parking (DSAP Scenario)	Affordable residential on Tamalpais	Office on Hetherton Ground floor retail on both parcels	Off-site	3-4 stories over podium, not exceeding 66'		
7	All Affordable Residential	Up to 135 affordable/senior residential units (both parcels)	No ground floor retail	On-site parking on Hetherton	4-5 stories over podium, not exceeding 66'		
8	All Office	None	Maximum of 80,800 sf office (both parcels) Ground floor retail on Tamalpais	On-site parking on Hetherton (3 levels) 323 additional off-site parking spaces required	Up to 66'		
9	Hotel	None	Hotel on both parcels	Off-site parking	Up to 66'		
10	Parking Garage	None	None		Up to 66'		



POTENTIAL LAND USES

The scenarios include a range of different possible land uses, including market-rate and affordable housing, office, hotel, ground-floor retail, and a public parking facility. Each of the uses is described below. The opportunities and challenges associated with the different uses are summarized below, in Figure 4.

Market-Rate Housing

- **In the current real estate market, market-rate housing development is expected to maximize the value of the land.** Market-rate housing is currently the highest and best use from the perspective of maximizing revenues from a ground lease or sale of the property. Strong regional and local demand for housing is currently driving residential development throughout San Rafael, including a proposed apartment development in Downtown (at Third Street and Lootens Place).
- **Proximity to transit and Downtown make the site particularly attractive for market-rate housing.** Downtown's restaurants, shopping, and other amenities have proven attractive for multi-family development, and the excellent transit access at the site is expected to add to this appeal.
- **At least 1 to 1.5 parking spaces per unit will likely be required to make the site attractive for market-rate developers and tenants, limiting the number of market-rate units that the site can accommodate.** Although transit service may help reduce residents' reliance on the private automobile, it is expected that a minimum of one space per unit will be required to make the site marketable for market-rate residential development. All of the scenarios in Figure 3 assume at least one space per market-rate residential unit. The need to provide on-site parking is one factor that limits the number of residential units that the site can accommodate; others include regulatory limitations on heights and densities, and the higher costs associated with taller building types as discussed in the previous section.

Affordable Housing

- **The potential to develop affordable (or mixed-income) housing will depend largely on the availability of subsidies, rather than on market factors. In part due to its close proximity to transit service, the site is expected to be an excellent candidate for attracting low-income housing tax credits, funding from the Affordable Housing and Sustainable Communities Program (from cap-and-trade), and other affordable housing subsidies.** Affordable housing subsidy programs are highly competitive, but many prioritize projects that are located in close proximity to transit. For example, the competitive scoring system for the low-income housing tax credit (LIHTC) program – the largest single source of funding for affordable housing in California – provides extra points for projects located within a half-mile of a fixed-guideway transit station. The Affordable Housing and Sustainable Communities Program (AHSC), which is funded by revenues from California's cap-and-trade program on greenhouse gas emissions, sets aside funding for affordable housing projects and transportation-related infrastructure located within a half-mile of transit.
- **Affordable housing could be built with a lower parking ratio than market-rate housing, maximizing the number of units that can be built on the site.** Compared to market-rate housing, affordable housing projects are often built with fewer parking spaces per unit.³ A senior housing development could provide even fewer parking spaces. Note also that an affordable housing project could qualify for the state density bonus program, which allows for increased heights and densities.

³ Indeed, Assembly Bill (AB) 744, passed by the state legislature in 2015, allows an affordable or senior housing developer that qualifies for a density bonus to also request that the city reduce the minimum parking requirements for the development to no more than 0.5 space per unit.

- **In order to facilitate affordable housing development and meet other policy goals, GGT could consider selling the site to an affordable housing developer at a discount.** The rankings shown in Figure 3 assume that an affordable housing developer would pay the market value of the land. However, public agencies often provide land to affordable housing developers at a substantially reduced price in order to facilitate this type of development.

Office

- **Office is likely to generate lower revenues for GGT compared to market-rate housing under current market conditions, although the office market in Downtown San Rafael shows signs of strengthening.** Given current market values in the San Rafael area, office development is expected to support a lower land value compared to market-rate housing development. However, office rents in Downtown San Rafael have increased and vacancy rates have declined significantly since the height of recession. In one sign of Downtown's growing office market, BioMarin recently purchased the San Rafael Corporate Center for the pharmaceutical company's new headquarters, and has plans to build additional space at the former PG&E site in Downtown. If demand for office continues to expand, office could become a more valuable use in the future.
- **The site's proximity to transit and the BioMarin headquarters could make it attractive for office as the market strengthens.** The site also benefits from visibility from the freeway.
- **The development scenarios assume that parking for office uses would be provided off-site; however, providing some on-site parking spaces would make the site more attractive for office development.** In order for office development to proceed with limited on-site parking, as shown in Figure 3, off-site parking would need to be provided within walking distance of the site.

Hotel

- **Proximity to BioMarin headquarters and recent interest from hotel developers suggest demand for a hotel in the area.** According to City staff, hotel developers have been actively looking for a site near Downtown San Rafael.
- **However, hotel development typically requires a larger site with significant parking.** While some boutique hotel developers are redeveloping historic properties on smaller sites, the minimum site size for a new hotel development is typically two acres. A hotel would also require a pick-up/drop-off area, which would be difficult to incorporate on the site given narrow parcel depths and busy fronting streets. In addition, most hotel development requires significant parking, whether provided on- or off-site. Given these factors, the transit center site is unlikely to be highly attractive for hotel development.

Ground-Floor Retail

- **Ground-floor retail will help support the success of residential or office development and contribute to creating a walkable, transit-oriented district.** Small amounts of ground-floor retail will serve as an amenity for both residents or workers on the site, and in the surrounding district.
- **However, retail is unlikely to generate significant revenues.** Given current retail rents in the San Rafael area, ground-floor retail is unlikely to generate significant revenues for a developer (and therefore for GGT as part of a sale or ground lease).
- **Appropriate design and location will be important factors in determining the success of ground-floor retail.** Key considerations for successful ground-floor retail include visibility from the street, adequate signage, and large, appealing storefront windows. Retail is more likely to be successful on the Tamalpais parcel than on Hetherton, because Tamalpais is a slower, more retail- and pedestrian-oriented street with better access to Downtown.

Public Parking Facility

- **A parking structure may not be consistent with the goals of GGT.** A parking structure would be very expensive to build, and could encourage auto access to Downtown San Rafael to the detriment of transit ridership.
- **It is possible that a public parking facility on the site could help enable transit-oriented development on other nearby parcels.** The City of San Rafael is conducting a parking study that, among other strategies, will consider the potential to expand the Downtown Parking District to include the site and adjacent properties. Expanding the parking district could enable additional transit-oriented development throughout the area by reducing the need for individual developers to provide on-site parking; similar to the transit center site, many of the parcels in the area are small, shallow, and have limited capacity to accommodate on-site parking, limiting the densities that can be achieved. A key challenge for expanding the district, however, is the lack of public parking near the station area. The transit center site could be a good location for a public parking garage that would serve this need.⁴
- **Similar to affordable housing, the potential scale of land value from a parking garage would be related to the availability of subsidy, rather than market demand.** Public funding sources, potentially supplemented by contributions from developers and/or property owners, would be required to build a parking garage. As with affordable housing, GGT could consider discounting the cost of the land for a public parking facility in order to help support the policy goal of enabling TOD throughout the area.

Figure 4. Summary of Land Use Considerations

Use	Opportunities	Challenges
Market-Rate Residential	Strong market for housing, likely to be the highest value use Proximity to transit and Downtown make the site highly attractive for housing	At least one parking space per unit will be required to successfully market the site for development Residential density is limited by the need for parking
Affordable Residential	Site is likely to be highly competitive for affordable housing subsidies Likely to require fewer parking spaces than market-rate housing (0.5 spaces/unit assumed), maximizing the potential density	Feasibility and ability to pay for land depends on availability of public subsidies; project may also require significant land subsidy

⁴ Note that further discussion with the FTA would be required to determine whether a parking garage would meet the criteria required for GGT to retain revenues from the sale or lease of the property; additional analysis may be required to show that providing parking on the site could enable TOD – and thus transit ridership – that would not occur in the absence of a garage.

Use	Opportunities	Challenges
Office	Brings more jobs downtown Freeway, SMART access, proximity to BioMarin could help attract office use	Likely to generate lower land value than market-rate housing, although this may change as the office market improves Limited ability to provide parking on-site makes office less competitive with nearby properties
Hotel	Proximity to BioMarin and other offices suggest there is demand for business lodging	Hotel developers typically require a larger site (2 acres or more) and significant on-site parking
Ground Floor Retail	Creates an active street frontage	Unlikely to generate significant revenues for developer
Parking	Could help enable TOD on other nearby parcels	Feasibility and ability to pay for land depends on availability of public subsidies; project may also require significant land subsidy May not be consistent with GGT's vision for the site

EVALUATION OF DEVELOPMENT SCENARIOS

Figure 3 ranks each scenario based on two criteria:

1. The potential scale of land value likely to be generated by the scenario; and
2. Consistency with the DSAP vision.

The two criteria are discussed below.

Potential Scale of Land Value

From GGT's perspective, a key consideration in the eventual redevelopment of the transit center site will be the extent to which a given development program maximizes revenues from the sale or ground lease of the land, and can therefore help offset the cost of the transit center relocation. In general, the value of a parcel of land is closely tied to what type of uses can be built on it, given local real estate market conditions, zoning, lot size and configuration, neighborhood context, and other factors. As discussed above, given current market conditions and the characteristics of the site, market-rate residential is expected to provide the highest returns for GGT, while office development is expected to generate lower revenues and hotel development is likely to generate limited returns. Ground-floor retail is unlikely to generate significant revenues on its own, but will help support the overall success of a "vertical" mixed-use development that includes residential or office on the upper floors. For other uses (i.e., affordable housing and public parking), the potential scale of land value will be related to the availability of public subsidies rather than market conditions.

The evaluation of potential value that would be generated by each of the development scenarios also takes into account the efficiency of development on the site. Several of the development scenarios involve a “horizontal” mix of uses – meaning that each parcel would be developed with a different use such as office, market-rate residential, or affordable residential. As discussed below, horizontal mixed-use development is consistent with the vision for the transit center site described in the DSAP. However, a horizontal mixed-use product would present distinct challenges from both a development and operational perspective. Because most developers specialize in one type of development (e.g., office or residential), requiring horizontal mixed-use development that incorporates both office and residential may make it more difficult to attract a developer. In addition, providing parking for two distinct uses may be challenging. Including most or all of the structured parking on the Hetherton parcel is most efficient, because the parcel is larger and more regularly shaped. Two buildings of the same use (office or residential, whether affordable or market-rate) could share access to the parking, for example via a pedestrian bridge between the buildings. However, sharing a common parking garage between office and residential uses could make the residential units less desirable.

If the site is used for affordable housing, maximizing the number of affordable housing units on the site may also be important for securing funding. Beginning with the next round of funding, the California LIHTC program is expected to tie funding allocation in part to project size, by providing additional points for larger projects as part of the competitive scoring system.

As a result of these considerations described above, projects that involve a horizontal mix of uses were given a lower ranking on Figure 3. However, as discussed above, including ground-floor retail in a vertical mixed-use project could help support the overall success of the project and the larger district.

Based on all of these factors, Scenario 1 (all market-rate residential) ranked the highest in terms of the potential scale of land value, followed by Scenario 3 (which includes market-rate residential as well as some office).

Consistency with the DSAP Vision

The DSAP envisions two, four- to five-story buildings⁵ with office on the Hetherton side and 82 units of affordable residential on the Tamalpais side. The buildings include ground-floor retail on both the Hetherton and Tamalpais parcels, but no on-site parking. As described in the plan, this development concept is intended to generate activity on the street throughout the day and evening, improve the vibrancy and safety of the area, provide affordable housing, and encourage transit use over personal vehicle use. Scenario 6 matches the development concept described in the plan.

This analysis is intended to build on the DSAP vision by testing the viability of the specific development program included in the DSAP relative to other options for the site, incorporating more detailed evaluation of market conditions, parking needs, and other factors. However, in an effort to remain consistent with the DSAP vision, all of the scenarios were ranked based on the extent to which they would advance the DSAP goals of supporting an active, vibrant, and safe street environment and encouraging transit use.

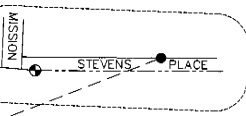
⁵ I.e., three- to four-stories over a ground floor podium structure.

APPENDIX A: PARCEL SURVEY

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SEE DETAIL

LINE TABLE				
BEARINGS PER M-1				
	BEARING	METERS (GRID)	FEET (GRID)	FEET (GROUND)
L1	S14°51.44'W	12.594m	41.318'	41.321'
L2	N77°50.07'W	11.264m	36.955'	36.957'
L3	N10°34.53'E	30.912m	101.417'	101.423'
L4	N10°34.53'E	97.515m	319.830'	319.949'



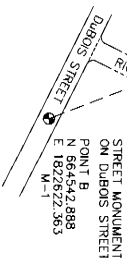
POINT A AND POINT C
POSITIONS DERIVED BY
COORDINATES FROM M-1
FOR METES AND BOUNDS
SEE M-1

POINT C
N 665230.198
E 1822292.185
M-1
SEE SHEET 2

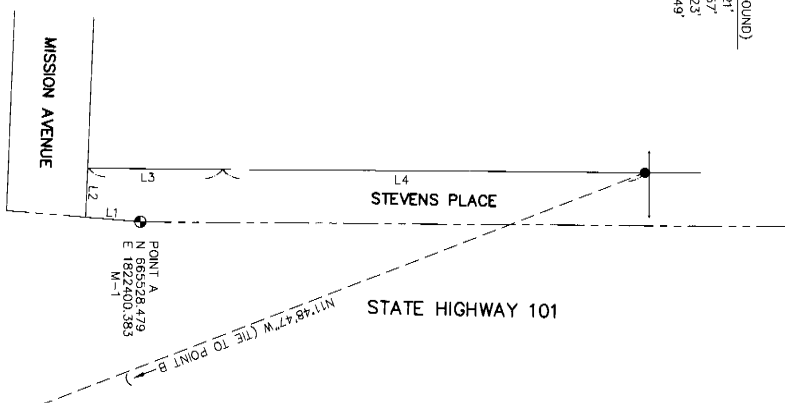
CALTRANS R/W PER
R-22.18 AND 1999 M 239

(L1) 10°55.15'W 1122.413m
(L2) 11°48.47'W 3682.451' (GRID)
(L3) 11°48.47'W 3682.46'
(L4) 11°48.47'W 3682.46' (GROUND)

RECORDERS STATEMENT
FILED THIS 21ST DAY OF December 2012
IN BOOK 2012
AT PAGE 150
COUNTY OF MARIN DEPT. OF PUBLIC WORKS
SERIAL NO. 2012-02320 FEE \$12.00
MAY 12 11 00 AM
COUNTY RECORDER
BY DEPUTY



STREET MONUMENT
ON DUBOIS STREET
POINT B
N 664542.888
E 1822622.363
M-1



MISSION AVENUE

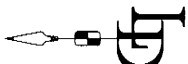
STEVENS PLACE

STATE HIGHWAY 101

POINT A
N 665528.479
E 1822400.383
M-1

COUNTY SURVEYOR'S STATEMENT
THIS MAP HAS BEEN EXAMINED IN ACCORDANCE
WITH SECTION 8766 OF THE PROFESSIONAL LAND
SURVEYORS ACT THIS 17TH DAY OF Dec. 2012
CRAIG TACKABERRY, COUNTY SURVEYOR

SURVEYOR'S STATEMENT
THIS MAP CORRECTLY REPRESENTS A SURVEY
MADE BY ME OR UNDER MY DIRECTION IN
CONFORMANCE WITH THE REQUIREMENTS OF
THE PROFESSIONAL LAND SURVEYORS ACT AT THE
REQUEST OF THE GOLDEN GATE BRIDGE, HIGHWAY
AND TRANSPORTATION DISTRICT IN APRIL OF 2012.
Lawrence P. Doyle
LAWRENCE P. DOYLE P.L.S. 4694
EXP. 9/30/13



- LEGEND
- COORDINATE POINTS PER M-1
 - FOUND NAIL & WASHER, L.S. 8176 PER M-3
 - ⊗ SET NAIL & TAG, L.S. 4694
 - [] GRID DISTANCES PER M-3 (SEE NOTE 4)
 - FOUND OPEN PIPE PER M-1
 - CALTRANS R/W PER R-22.18 AND 1999 M 239

- MAP REFERENCE
- M-1 1999 M 239
 - M-2 CALTRANS R/W MAP 2-22.18 DATED 1-78
 - M-3 2011 M 13
 - M-4 25 P.M. 22

- DEED REFERENCE
- R-1 D.N. 1992-046365
 - R-2 D.N. 1988-063098
 - R-3 2359 O.R. 276

BASIS OF BEARING
THE BASIS OF BEARING FOR THIS SURVEY
IS 5795111E BETWEEN FOUND POINTS ON
THIRD STREET PER M-3.

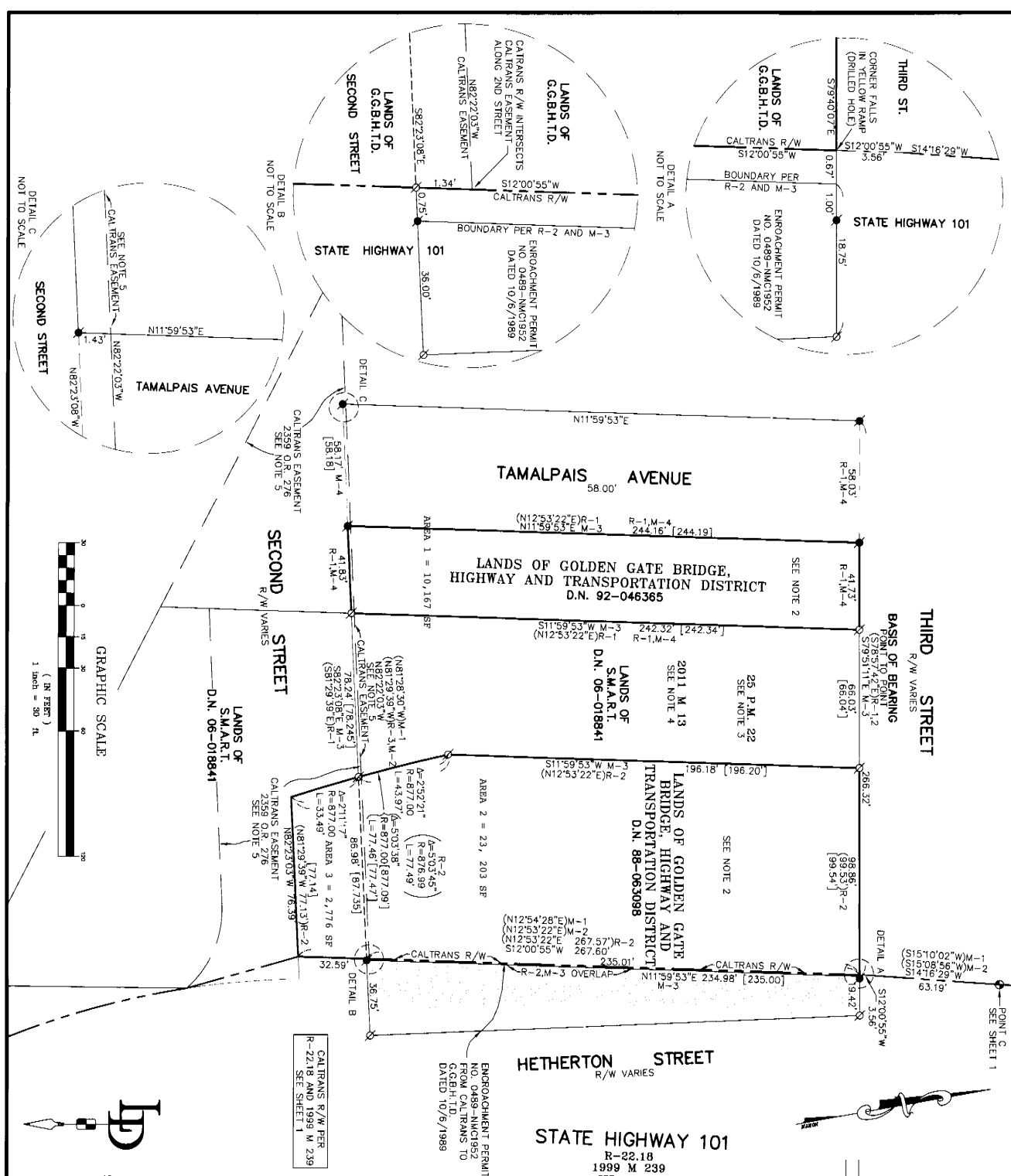
- NOTES
1. ALL DISTANCES ON SHEET 1 ARE METERS (GRID). ALL DISTANCES ON SHEET 2 ARE FEET (GROUND).
 2. THE DEEDS 1988-063098 AND 1992-046365 HAVE BEEN ROTATED -053°29' TO MATCH THE BASIS OF BEARING OF 2011 M 13.
 3. 25 P.M. 22 CANNOT BE RETRACED. ALL POINTS HAVE BEEN DESTROYED DUE TO EXTENSIVE STREET AND SIDEWALK WORK.
 4. 2011 M 13 HAS GRID DISTANCES AND GIVES A CONVERSION TO GROUND DISTANCES. THIS MAP HAS GROUND DISTANCES TO CORRESPOND WITH PAST MAPS AND DEEDS.
 5. 1999 M 239 SHOWS CALTRANS R/W EXTENDING INTO 2ND STREET. CALTRANS M-2 SHOWS THE AREA IN 2ND STREET AS BEING DESCRIBED IN 2359 O.R. 276 WHICH IS AN EASEMENT.
 6. R-22.18 AND 1999 M 239 HAVE GRID DISTANCES WITH TWO DIFFERENT CONVERSIONS TO GROUND DISTANCES. TO OBTAIN MORE INFORMATION ON THE GRID DISTANCES, LOOK ON THE REFERENCED MAPS.

RECORD OF SURVEY

LANDS OF GOLDEN GATE
BRIDGE, HIGHWAY AND
TRANSPORTATION DISTRICT

D.N. 1988-063098
D.N. 1982-046365

SAN RAFAEL
MARIN COUNTY CALIFORNIA
LAWRENCE P. DOYLE
LAND SURVEYOR/CIVIL ENGINEER
100 HELENS LANE MILL VALLEY, CA 94541 (415) 386-9585
DATE: 7/20/12 SHEET 1 OF 2 A.P. 11-279-0103
SCALE: NO SCALE JOB NO. 2242



LEGEND

- COORDINATE POINT PER M-1 (SEE SHEET 1)
- FOUND NAIL & WASHER, L.S. 8176 PER M-3
- SET NAIL & TAG, L.S. 4694
- GRID DISTANCES PER M-3 (SEE NOTE 4)
- CALTRANS R/W PER R-22.18 AND 1999 M 239
- CALTRANS EASEMENT ONTO 2ND ST. (SEE NOTE 5)

MAP REFERENCE

- M-1 1999 M 239
- M-2 CALTRANS R/W MAP 2-22.18 DATED 1-78
- M-3 2011 M 13
- M-4 25 P.M. 22

DEED REFERENCE

- R-1 D.N. 1992-046365
- R-2 D.N. 1988-063098
- R-3 2359 O.R. 276

NOTES

- ALL DISTANCES ARE IN FEET AND DECIMALS THEREOF.
- THE DEEDS 1988-063098 AND 1992-046365 HAVE BEEN ROTATED -053.29° TO MATCH THE BASIS OF BEARING OF 2011 M 13.
- 25 P.M. 22 CANNOT BE RETRACED. ALL POINTS HAVE BEEN DESTROYED DUE TO EXTENSIVE STREET AND SIDEWALK WORK.
- 2011 M 13 HAS GRID DISTANCES AND GIVES A CONVERSION TO GROUND DISTANCES. THIS MAP HAS GROUND DISTANCES TO CORRESPOND WITH PAST MAPS AND DEEDS.
- 1999 M 239 SHOWS CALTRANS R/W EXTENDING INTO 2ND STREET. CALTRANS M-2 SHOWS THE AREA IN 2ND STREET AS BEING DESCRIBED IN 2359 O.R. 276 WHICH IS AN EASEMENT.
- R-22.18 AND 1999 M 239 HAVE GRID DISTANCES WITH TWO DIFFERENT CONVERSIONS TO GROUND DISTANCES. TO OBTAIN WORKING DISTANCES, THE DISTANCES LOOK ON THE REFERENCED MAPS.

BASIS OF BEARING

THE BASIS OF BEARING FOR THIS SURVEY IS 5759111E BETWEEN FOUND POINTS ON THIRD STREET PER M-3.

RECORD OF SURVEY

LANDS OF GOLDEN GATE BRIDGE, HIGHWAY AND TRANSPORTATION DISTRICT

D.N. 1988-063098
D.N. 1992-046365

LAWRENCE P. DOYLE
LAND SURVEYOR/CIVIL ENGINEER
100 HELENS LANE MILL VALLEY, CA 94541 (415) 386-8585
DATE: 7/20/12 SHEET 2 OF 2 A.P. 11-279-0103 JOB NO. 2242

APPENDIX B: BUILDING ACROSS THE SMART RIGHT-OF-WAY

In addition to evaluating the scenarios shown in Figure 3, the consultant team conducted a preliminary exploration of the potential to build one large building that would span across the SMART tracks in order to maximize the density of development that can be accommodated on the transit center site. Examples of this type of building include the Del Mar Station apartment building in Pasadena (Figure 5) and the San Diego Metropolitan Transit System's headquarters (Figure 6). Similar types of projects are currently being proposed and/or constructed in Downtown Milwaukee and Chicago. In the Milwaukee and Chicago examples, the proposed buildings were high-rise (greater than 20 stories) residential buildings over an electrified rail line. A preliminary analysis of this concept raised the following issues that would need to be considered:

- **Type of transit:** The consultant team located a handful of examples of this building type, including the examples described above. All of the examples involved electric trains; there is no known recent precedent for constructing a building over a diesel-powered rail system. A diesel-powered rail system like SMART may present unique building challenges in terms of noise, vibration, and exhaust, requiring significant setbacks, ventilation systems, and other, potentially costly, engineering solutions.
- **Length of the site:** Most of the examples involve spanning the train tracks over a relatively short distance (for example, no more than sixty feet). The transit center site is approximately 200 feet long. Again, spanning this distance could create engineering challenges.
- **Building height:** Buildings that span rail tracks are typically much taller than the development scenarios considered for this analysis (e.g., in the range of 8-10 stories or more). As discussed in the body of the memo, a building of this height would not be consistent with the City of San Rafael's current land use plan for this area, and would require a significantly more expensive construction type that is unlikely to be justified by current market values in Downtown San Rafael.

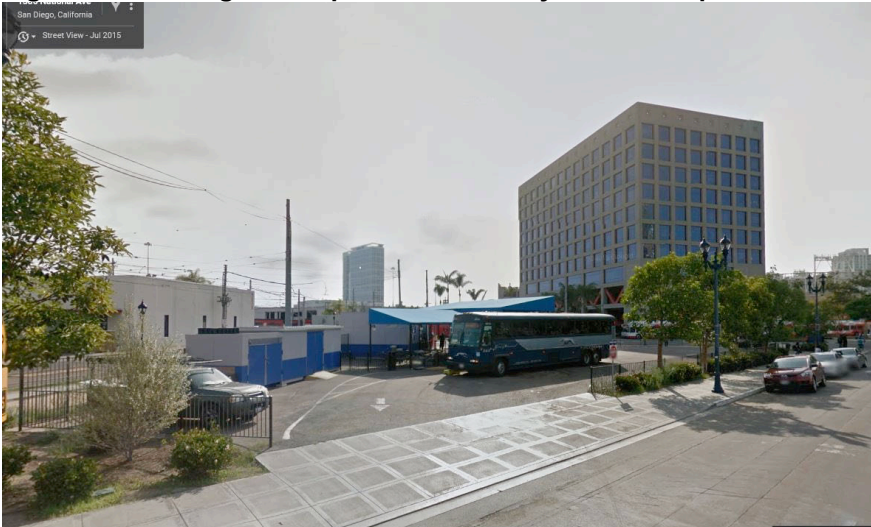
While further analysis would be required to make a final determination about the potential to build over the SMART right-of-way, the factors identified above suggest that building housing units, office, or other occupied space over the tracks is likely to be cost prohibitive given current market conditions. However, GGT and the site's future developers may wish to consider including an internal pedestrian bridge across the tracks as part of the development program, in order to facilitate sharing parking and other amenities between the two parcels.

Figure 5. Del Mar Station in Pasadena



Source: Moule & Polyzoides, Architects and Urbanists

Figure 6. San Diego Metropolitan Transit System Headquarters



Source: Google StreetView.



MEMORANDUM

Date: June 20, 2016

To: Norma Jellison and Ron Downing, Golden Gate Bridge Highway and Transportation District
Adam Dankberg, Kimley-Horn

From: Nadine Fogarty, Alison Nemirow and Jake Cummings, Strategic Economics

Subject: Residual Land Value Analysis for Reuse of the Existing San Rafael Transit Center Site - DRAFT

INTRODUCTION

This memo provides the methodology and key findings of a residual land value analysis performed for the site of the existing San Rafael Transit Center (also known as the Bettini Transit Center). The analysis estimates the residual land value of the site based on a pro forma model of two development scenarios. The first scenario consists of a market-rate residential development over ground-floor retail and parking, while the second scenario includes a combination of market-rate residential and office, also over ground floor retail and parking. Based on a qualitative assessment of a variety of reuse options for the site, these scenarios were identified as the two with the highest potential to create economic value for GGT. For background information on the full range of uses and development strategies considered, please see the memo titled “Reuse Options for the Existing San Rafael Transit Center Property.”

The remainder of this memo includes:

- A description of the two development scenarios tested,
- An overview of the residual land value approach, and
- A summary of findings from the analysis.

Key assumptions used for the analysis and the detailed pro forma models are provided in the appendix.

DEVELOPMENT SCENARIOS TESTED

Strategic Economics analyzed two scenarios for redevelopment of the San Rafael Transit Center site, summarized in Figure 1. Both scenarios anticipate two buildings: one on the Tamalpais parcel (west of the SMART right-of-way) and one on the Hetherton parcel (east of the SMART right-of-way). Both of the buildings in both scenarios are envisioned with a concrete (Type I) podium and three to five stories of wood frame (Type V) construction built over the podium.

Figure 1: Description of Development Scenarios

	Scenario 1	Scenario 2
	All Market-Rate Residential	Market-Rate Residential and Office
Tamalpais Parcel		
Parcel size (sf)	16,900	16,900
Upper Levels		
Use	Apartments	Office
Floors	4	3
Dwelling Units (if applicable)	32	n/a
Floor Area (gsf)	51,600	38,700
Podium		
Use	Retail	Retail
Floors	1	1
Floor Area (gsf)	12,900	12,900
Hetherton Parcel		
Parcel size (sf)	29,700	29,700
Upper Levels		
Use	Apartments	Apartments
Floors	3	4
Dwelling Units (if applicable)	48	54
Floor Area (gsf)	63,000	84,000
Podium		
Use	Parking	Parking
Floors	2	1
Parking Stalls	116	54
Floor Area (gsf)	42,000	21,000
Combined Development		
Site Area (sf)	46,600	46,600
Floor Area (gsf)		
Residential	89,412	60,353
Office	0	38,700
Retail	12,900	12,900
Parking	42,000	21,000
Total Floor Area (gsf)	144,312	132,953
Floor Area Ratio	3.1	2.9
Dwelling Units		
Market Rate	80	54
Affordable	0	0
Total Dwelling Units	80	54
Parking Stalls		
Provided On-site (for Residential)	116	54
Needed Off-site (for Office)	0	207

Source: Kimley-Horn 2016; Strategic Economics, 2016.

In both scenarios, ground-floor retail is located on the Tamalpais parcel and parking is located on the Hetherton parcel (including two stories of parking in Scenario 1 and just one story in Scenario 2). In Scenario 1, the upper floors of both buildings contain rental apartments offered at market rates.¹ In Scenario 2, the Hetherton parcel still contains market-rate apartments in its upper floors, while the Tamalpais parcel contains office space above the podium. In both scenarios, on-site parking is provided primarily for the residential units. Required parking for office space (207 spaces in Scenario 2) is assumed to be provided off-site, in a location to be determined. The scenarios assume that parking for the retail space is accommodated on the street or elsewhere off-site.

RESIDUAL LAND VALUE METHOD

Strategic Economics estimated residual land value for each development scenario using a static pro forma model. The residual land value method recognizes that land value is closely tied to what can be built on it, and that development potential is heavily influenced by zoning as well as lot size and configuration, neighborhood context, and other factors. The method involves the following steps:

1. Estimating all development costs (except land cost) including direct construction costs (“hard” costs), indirect costs (“soft” costs such as development fees, permits and overhead), financing costs and an expected financial return;
2. Estimating the value of the project based on expected revenues from unit sales or rental leases; and
3. Calculating the residual land value by subtracting (1) from (2).

The result is the estimated price a developer would be willing to pay for the land if pursuing that project. Because the residual land value of a development scenario is closely related to that scenario’s economic value, this method is a useful tool for understanding the highest and best use for a given development site.

SUMMARY OF FINDINGS

Figure 2 shows the financial results of the residual land value analysis, including total project value, total development costs, and residual land value for each scenario. For a more detailed pro forma statement of financial results, please see Figure 7 in the Appendix.

Based on the results for Scenario 1, the residual value of the San Rafael Transit Center Site is approximately \$3.7 million (\$79 per square foot of land area). The total projected revenues of the development project in Scenario 1 are \$48.3 million (\$43.9 million for the residential portion and \$4.4 million for the retail portion) compared with \$44.6 million in total development costs.

Mixing residential and office uses in a development project would significantly reduce the potential value of the site. Scenario 2 yields a residual land value of \$1.7 million (\$37 per square foot of land area). The total projected revenues of the development project in Scenario 2 are \$45.9 million (\$27.6 million for the residential portion, \$11.8 million for the office portion, and \$4.4 million for the retail portion) compared with \$44.2 million in development costs for the project.

¹ The analysis tests rental apartments instead of condominium units because under current market conditions apartments are expected to generate higher returns for a residential project at this location.

Figure 2: Financial Results by Scenario

	Scenario 1	Scenario 2
	All Market Rate Residential	Market Rate Residential and Office
Total Project Value	\$48,306,000	\$45,874,200
Total Development Costs (minus land)	<u>\$44,603,315</u>	<u>\$44,151,739</u>
Residual Land Value	\$3,702,685	\$1,722,461
Per Square Foot of Land Area	\$79	\$37

Source: Strategic Economics, 2016.

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APPENDIX

This appendix explains the major cost and revenue assumptions used in the analysis and provides the pro forma models used to estimate residual land value for each scenario.

DEVELOPMENT COST ASSUMPTIONS

Strategic Economics developed assumptions for the following categories of development cost (see Figure 3):

- **Hard Costs:** “Hard” or “direct” costs include all costs associated with the actual work on the development site, such as preparing the site, demolishing existing improvements, constructing new buildings, and installing finishes. Strategic Economics developed hard cost assumptions based on interviews with developers who have recent experience building similar wood frame over podium developments in the San Francisco Bay Area.
- **Soft Costs:** Estimated “soft” or “indirect” costs include project expenses such as permits, architectural fees, engineering fees, insurance, taxes, legal, accounting fees, and marketing costs. Based on standard industry ratios, total soft costs were estimated as 20 percent of hard costs.
- **Financing Costs:** Financing costs were estimated assuming that a construction loan would be obtained for 65 percent of the cost of development, with a 6 percent interest rate and a 1.5 percent loan fee. Given that the construction loan would be drawn down over the course of the project, the total financing cost was estimated assuming an average outstanding loan balance of 55 percent. Construction time was assumed to be 15 months.
- **Contingency:** A contingency equal to 5 percent of hard costs was factored into the analysis to account for unforeseen expenses.
- **Developer Overhead and Profit:** Total costs to the developer, including overhead costs and an expected financial return, were estimated to be 12 percent.

Figure 3: Development Cost Assumptions

	Units	Value
Hard Costs		
Site Prep/Demo	Per sf land area	\$20
Residential Area	Per gsf	\$275
Office Area	Per gsf	\$250
Type I Podium	Per gsf	\$95
Soft Costs		
	% of Hard Costs	20%
Financing		
Amount Financed	% of Hard + Soft Costs	65%
Average outstanding balance	% of Amount Financed	55%
Construction Loan Fee	% of Amount Financed	1.50%
Construction Interest (annual)	% of Avg Outstanding Balance	6%
Term	Months	15
Contingency		
	% of Hard Costs	5%
Developer Overhead and Profit		
	% of Total Dev. Costs	12%

Source: Strategic Economics, 2016.

REVENUE ASSUMPTIONS

Apartments

Based on RealFacts data on the only apartment project completed in San Rafael within the last ten years (33 North, completed in 2010), rents for new apartments were estimated at \$3.21 per square foot per month. This rental rate equates to \$3,050 per unit, with an average unit size assumption of 950 square feet, reflecting typical unit sizes and mix for such projects. The rental rates were translated into a per-unit capitalized value using the income capitalization approach. In this approach to property valuation, a building's anticipated operating expenses and vacancy rate (stabilized after an initial lease-up period) are subtracted from anticipated operating revenues to derive net operating income. This net operating income is then divided by a "capitalization rate," which is the ratio of stabilized net operating income to property sale value expected in the general real estate market. The capitalization rate assumption was derived from the most recent available rate published by Cushman & Wakefield (Q3 2015). Strategic Economics then validated the resulting per-unit capitalized value against recent sales of rental properties in San Rafael. Revenue assumptions and the capitalized value calculation are shown in Figure 4.

Figure 4: Assumptions and Capitalized Value Calculation for Rental Apartments

<u>Assumptions</u>	
Average Unit Size (nsf)	950
Average Monthly Rent (per nsf)	\$3.21
Average Monthly Rent (per unit)	\$3,050
Vacancy	5.0%
Operating Expenses	20.0%
Capitalization Rate	5.0%
 <u>Estimated Value per Unit</u>	
Gross Annual Income	\$36,600
Less Vacancy	-\$1,830
Less Expenses	-\$7,320
Net Operating Income	\$27,450
Capitalized Value	\$549,000

Source: RealFacts, 2016; Strategic Economics, 2016.

Office

Strategic Economics estimated that office space in Scenario 2 would rent for \$2.60 per square foot per month triple net.² Similar to apartment values, the office lease rate was translated into a capitalized value using the income capitalization approach (unlike the calculation for apartments, capitalized value was calculated on a per-square foot basis rather than a per-unit basis). Lease rates and capitalization rates are based on market data for Marin County published by Cushman & Wakefield (Q4 2015). Strategic Economics then validated the resulting per-square foot capitalized value against recent sales of office properties in San Rafael. Revenue assumptions and the capitalized value calculation are shown in Figure 6.

Ground Floor Retail

Strategic Economics estimated that ground-floor retail at the SRTC site would rent for \$2.00 per square foot per month triple net. As with office values, the retail lease rate was translated into a capitalized value using the income capitalization approach on a per-square foot basis. Rental rates and capitalization rates are based on market data for Marin County published by Cushman & Wakefield (Q4 2015) and CoStar (2015). Revenue assumptions and the capitalized value calculation are shown in Figure 6.

² Triple-net leases require the tenant to pay for net real estate taxes on the leased asset, net building insurance and net common area maintenance.

Figure 5: Assumptions and Capitalized Value Calculation for Commercial Uses

	Office	Retail
<u>Assumptions</u>		
Monthly Rent (per nsf)	\$2.60	\$2.00
Vacancy (%)	5.0%	5.0%
Operating Expenses (%)	20.0%	10.0%
Capitalization Rate	6.5%	6.0%
<u>Estimated Value per Net SF</u>		
Gross Annual Retail Income	\$31.20	\$24.00
Less Vacancy	-\$1.56	-\$1.20
Less Non-Reimbursable Exp	-\$6.24	-\$2.40
Net Operating Income	\$23.40	\$20.40
Capitalized Value	\$360.00	\$340.00

Source: Cushman & Wakefield, 2016; Strategic Economics, 2016.

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PRO FORMA MODELS

Figure 6: Financial Pro Forma by Development Scenario

	Scenario 1	Scenario 2
Description	All Market Rate Residential	Market Rate Residential and Office
Revenues		
<u>Capitalized Value</u>		
Market Rate Units	\$43,920,000	\$29,646,000
Office	--	\$11,842,200
Retail	\$4,386,000	\$4,386,000
Total Capitalized Value	\$48,306,000	\$45,874,200
Project Costs		
<u>Hard Costs</u>		
Site Prep/Demo	\$932,000	\$932,000
Residential Area	\$24,588,235	\$16,597,059
Office Area	--	\$9,675,000
Retail or Parking Podium	\$5,215,500	\$3,220,500
Subtotal Direct Costs	\$30,735,735	\$30,424,559
<u>Soft costs</u>	\$6,147,147	\$6,084,912
<u>Contingency</u>	\$1,536,787	\$1,521,228
<u>Financing Costs</u>		
Construction Loan Fee	\$374,592	\$370,799
Construction Interest	\$1,030,127	\$1,019,698
Subtotal Financing Costs	\$1,404,719	\$1,390,497
<u>Developer Overhead and Profit</u>	\$4,778,927	\$4,730,544
Total Development Cost	\$44,603,315	\$44,151,739
Residual Land Value	\$3,702,685	\$1,722,461
Per sf Land Area	\$79	\$37

Source: Strategic Economics, 2016



SAN RAFAEL TRANSIT CENTER RELOCATION STUDY

Appendix C: Public Presentation PowerPoint Slides

Interim San Rafael Transit Center Solutions

9/10/15

Golden Gate Bridge Highway and Transportation District
Transportation Committee of the Board of Directors

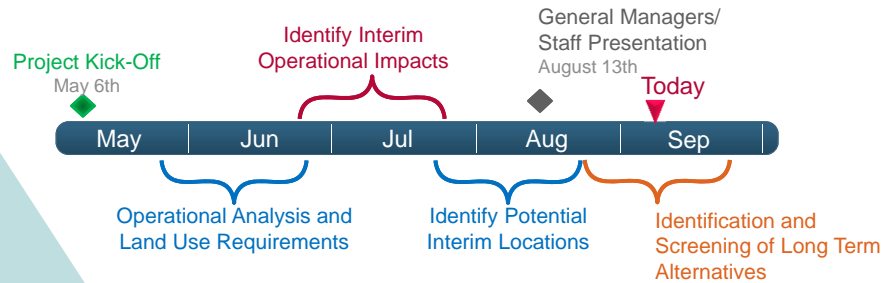
Kimley»Horn

San Rafael Transit Center & SMART Extension to Larkspur

- Transit Center Project Timeline
 - Progress to Date
- SMART Phase 2
 - Construction
 - Operation
- Pending Construction Details
- Types of Impacts
- Interim Opportunities
- Transit Center Project Timeline
 - Next Steps

Kimley»Horn

Project Timeline - Effort to Date

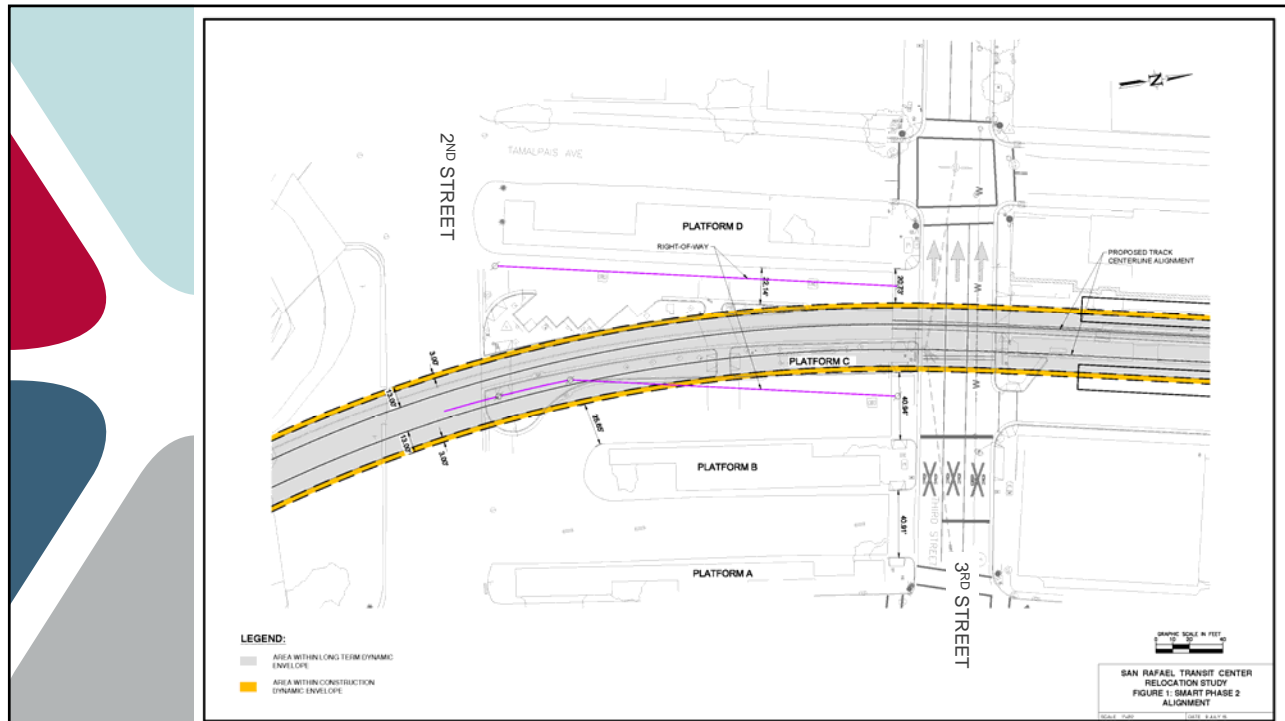


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SMART at San Rafael Transit Center

- SMART Phase 2 Construction
 - June/July 2017 at Transit Center
 - Rail Construction Envelope through Transit Center
- SMART Phase 2 Operation
 - Starting with Systems Testing
 - Operating Envelope through Transit Center
 - Grade-Crossings of 2nd and 3rd Streets
 - Transfer Activity between bus and rail

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Fence and Rail Crossing



Type of Impacts

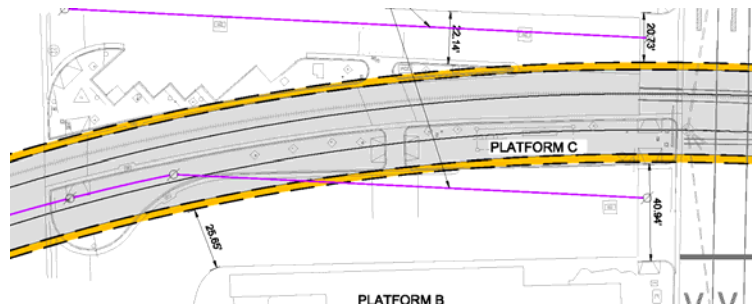
- Elimination of bus bays due to track alignment and operating envelopes (Platform C)
- Limitation on bus movement around Platform B and into Platform D
- Bus and pedestrian circulation

Kimley»Horn



Platform C

- Elimination of Platform C ~ 170 linear feet of curb
- Routes 70, 71, 101
 - Bus Vehicle Trips Per Day: 70
 - Bus Passenger Boardings/Alightings Per Day: 1800
 - Bus Transfers Per Day: 500
- Golden Gate Transit relief vehicle
- Taxis and Bicycle Parking

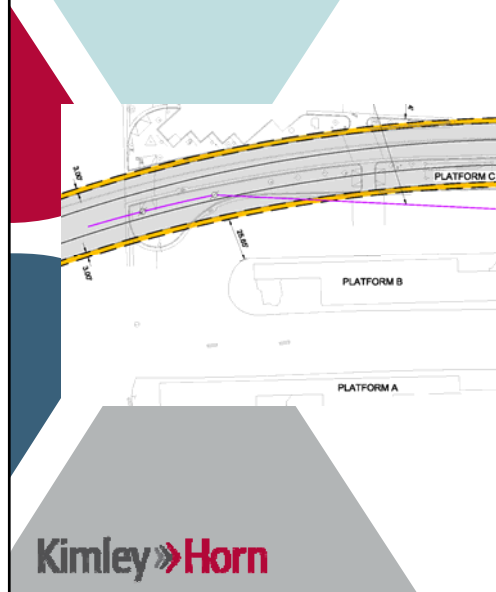


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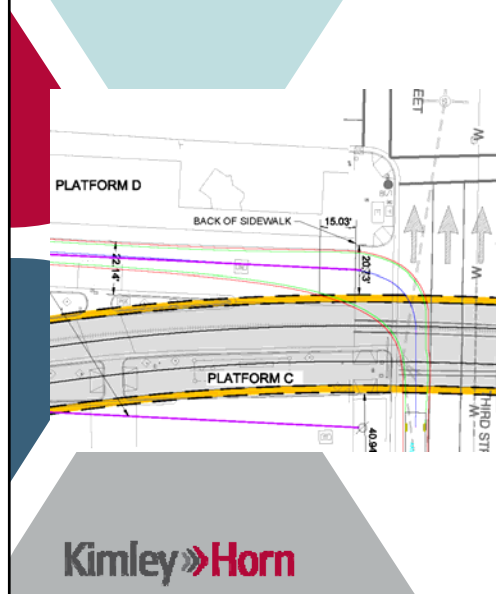
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Platform B



- Clockwise movement around bottom of Platform B
- Mitigation options to facilitate movement of 40' vehicle
 - Eliminate southernmost bay on the west side of Platform A
 - Use of Alternative SMART Alignment
 - Swap of crosswalk and southernmost bus bay
 - Requires combination of mitigations to address impact
- Routes 22, 23, NB 27, 40, 45, 45k, 49
 - Bus Vehicle Trips Impacted: 160
 - Bus Passenger Trips Impacted: 2,600
 - Bus Transfers Impacted: 1,200

Platform D

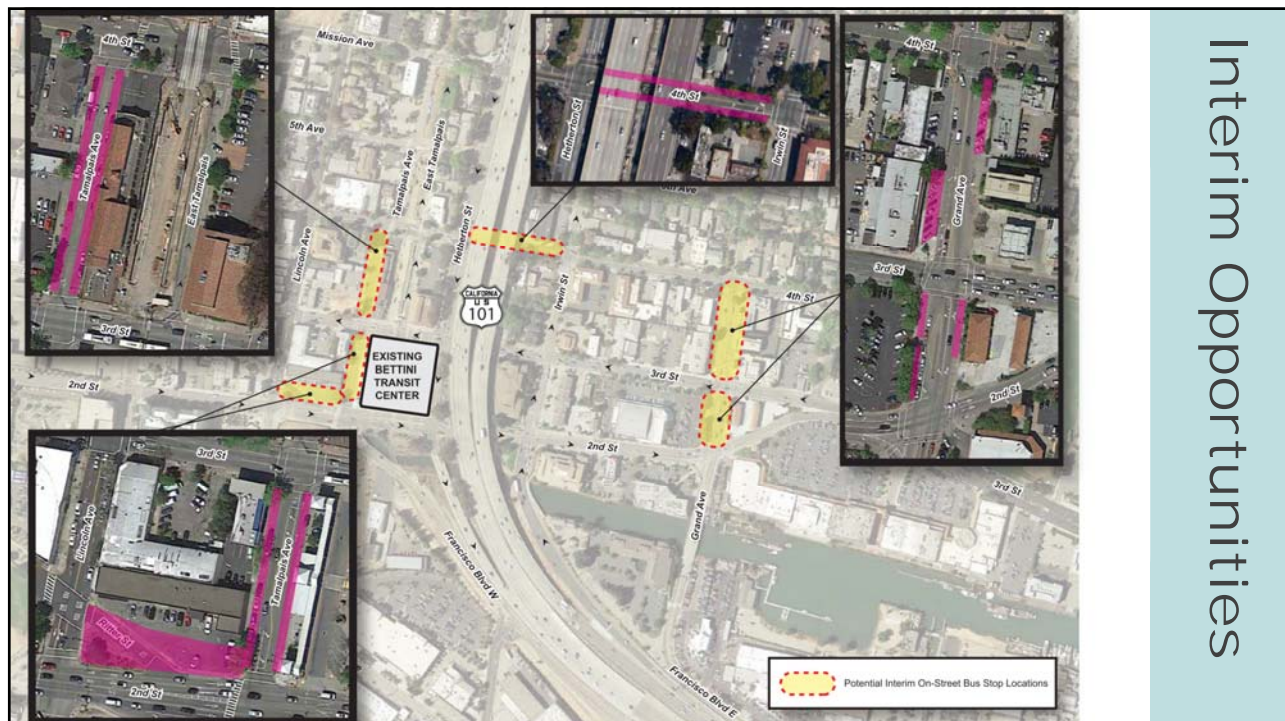


- Magnitude of impact dependent on grade-crossing design
 - Uncertainty regarding pedestrian gates, pedestrian refuge, vehicle exit gate
 - Impact slightly exacerbated with alternative alignments
- Services on Platform D
 - Route 44, 125, 145
 - Route 228, 233, 257, 259, 68 (Stagecoach)
 - Sonoma County Transit
 - Greyhound
 - Marin Airporter
 - Sonoma County Airport Express
- Bus Vehicle Trips Per Day: 70
- Bus Passenger Boardings/Alightings Per Day: 600

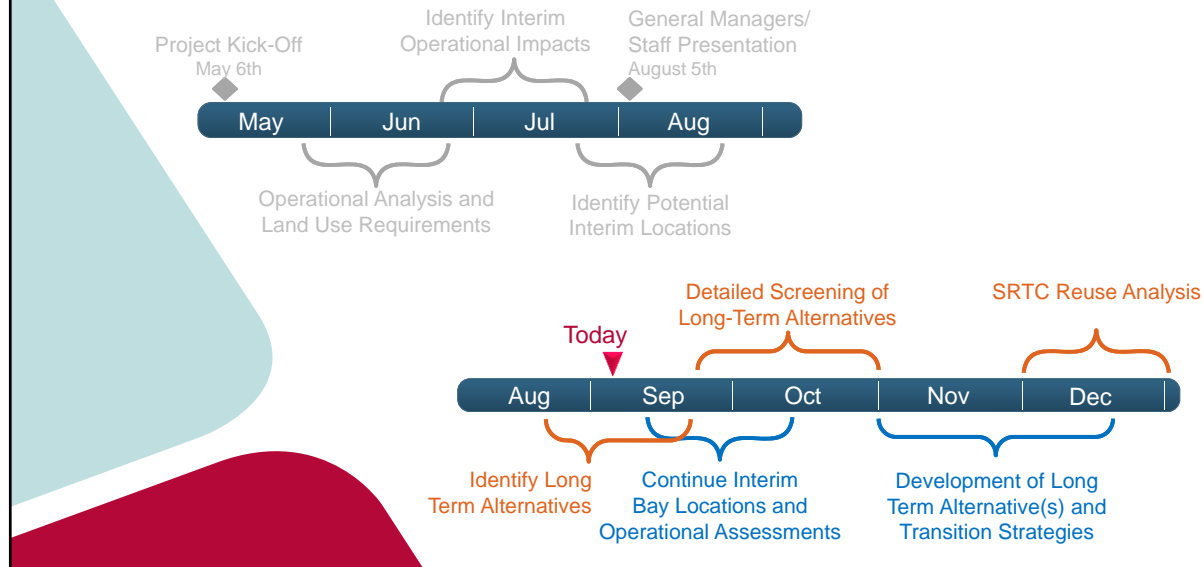
Circulation Impacts

- Pedestrian circulation within transit center
 - Transfers
 - Access to Customer Service/Restrooms
- Impact of gate-down times on bus access/egress into/out of transit center
- Rail-to-bus transfers

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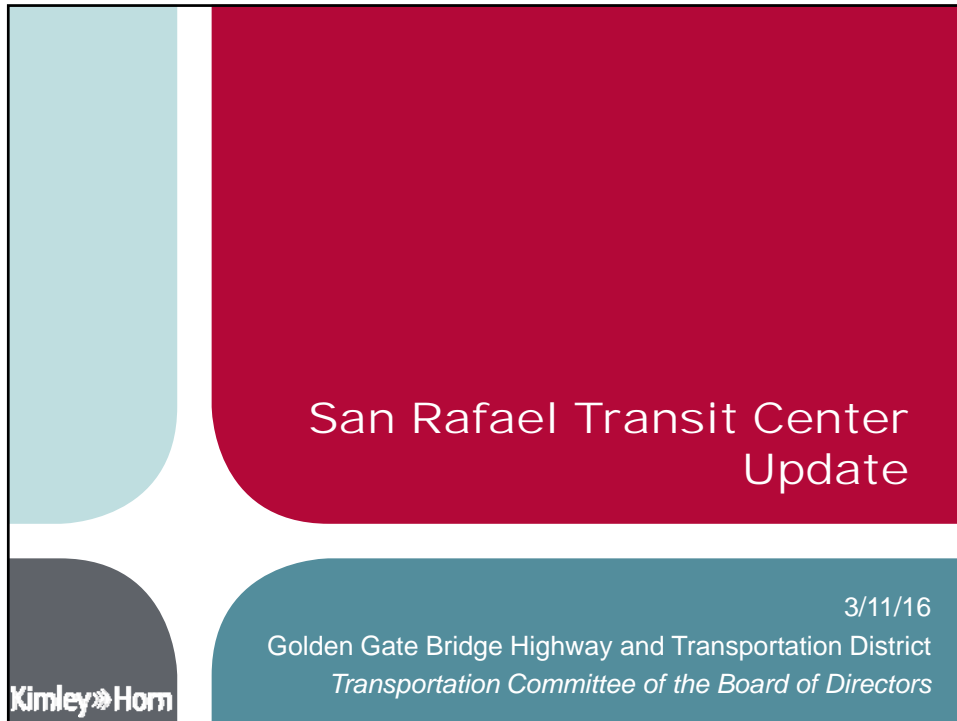
Project Timeline - Next Steps



Long Term Solution Needed

- 16-18 Bays
- Operating Flexibility
 - Minimizing Bus Turns and Rail Crossings
 - Vehicle Sizing & Bay Utilization
 - Accessible from Key Directions of Travel (i.e. US-101)
- Proximity to Downtown San Rafael and SMART Station
- Accommodate Taxis
- Bicycle Parking

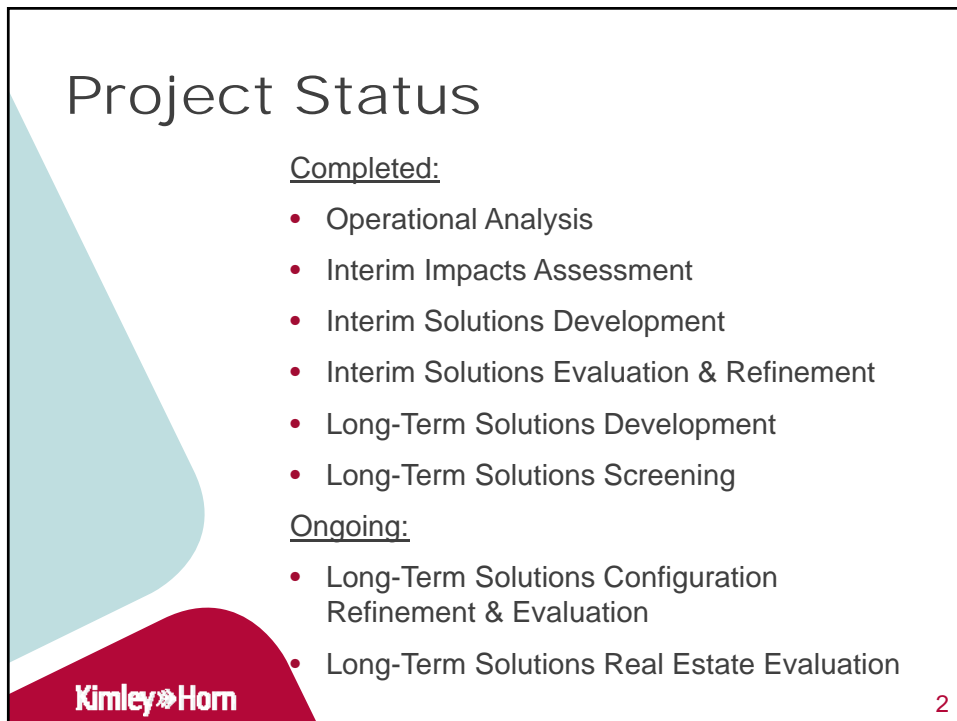


A presentation slide with a red background and a light blue vertical bar on the left. The title "San Rafael Transit Center Update" is in white text. The date "3/11/16" and the text "Golden Gate Bridge Highway and Transportation District Transportation Committee of the Board of Directors" are in white text. The Kimley-Horn logo is in the bottom left corner.

San Rafael Transit Center Update

3/11/16
Golden Gate Bridge Highway and Transportation District
Transportation Committee of the Board of Directors

Kimley-Horn

A presentation slide with a white background and a light blue triangle on the left. The title "Project Status" is in black text. The sections "Completed:" and "Ongoing:" are underlined. The list of project items is in black text. The Kimley-Horn logo is in the bottom left corner.

Project Status

Completed:

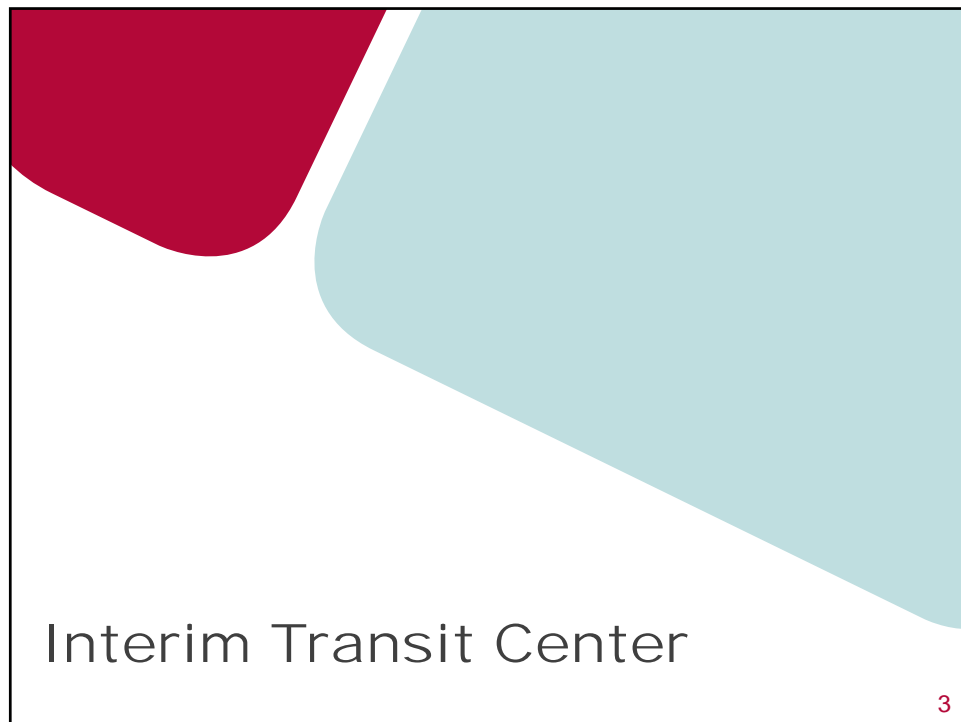
- Operational Analysis
- Interim Impacts Assessment
- Interim Solutions Development
- Interim Solutions Evaluation & Refinement
- Long-Term Solutions Development
- Long-Term Solutions Screening

Ongoing:

- Long-Term Solutions Configuration Refinement & Evaluation
- Long-Term Solutions Real Estate Evaluation

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2

A presentation slide with a white background. In the top left corner, there is a light blue abstract shape. In the bottom left corner, there is a red abstract shape containing the "Kimley-Horn" logo. The title "Process to Date" is centered at the top. Below it is a bulleted list of interim needs. A small red number "4" is in the bottom right corner.

Process to Date

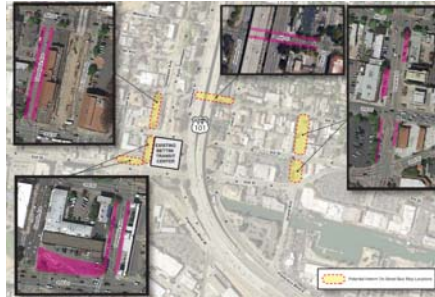
- Focus on the interim needs
 - Close Proximity to SRTC
 - Minimum 4 replacement bays for GGT, MT, SCT
 - Meets minimum requirements
 - Within Downtown San Rafael
 - Marin Airporter and Sonoma County Airport Express
 - Greyhound
 - Taxis
 - Bicycle Parking

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4

Identification of Potential Interim Solutions

- Identified preliminary set of potential solutions in vicinity of Downtown San Rafael
- Refined set of potential solutions based on analysis of transit operations, available right-of-way and curb space
- Most deemed not viable due to operational or physical limitations



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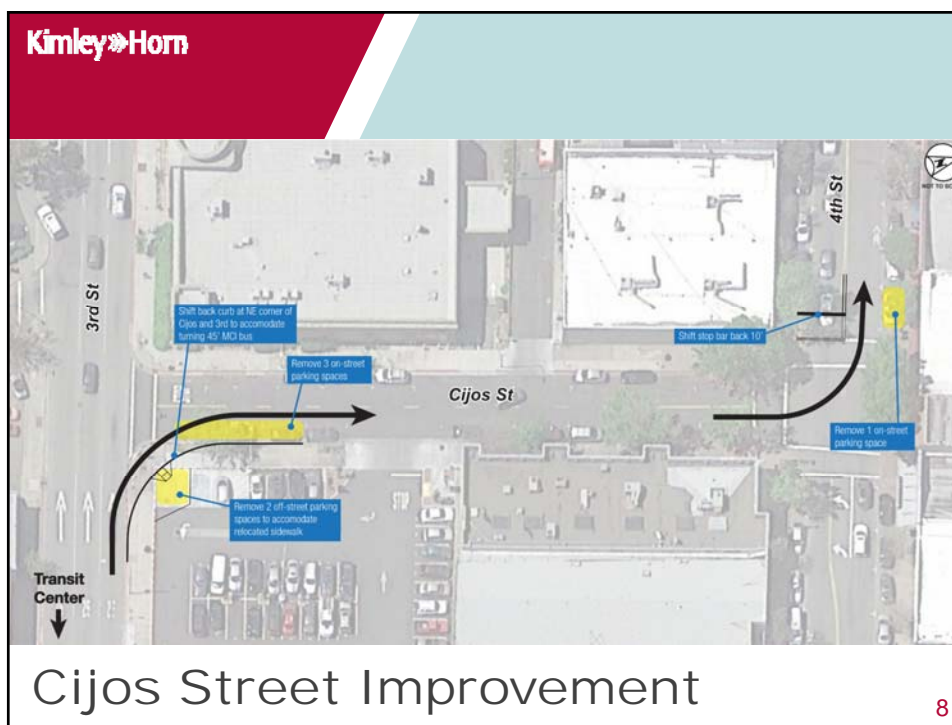
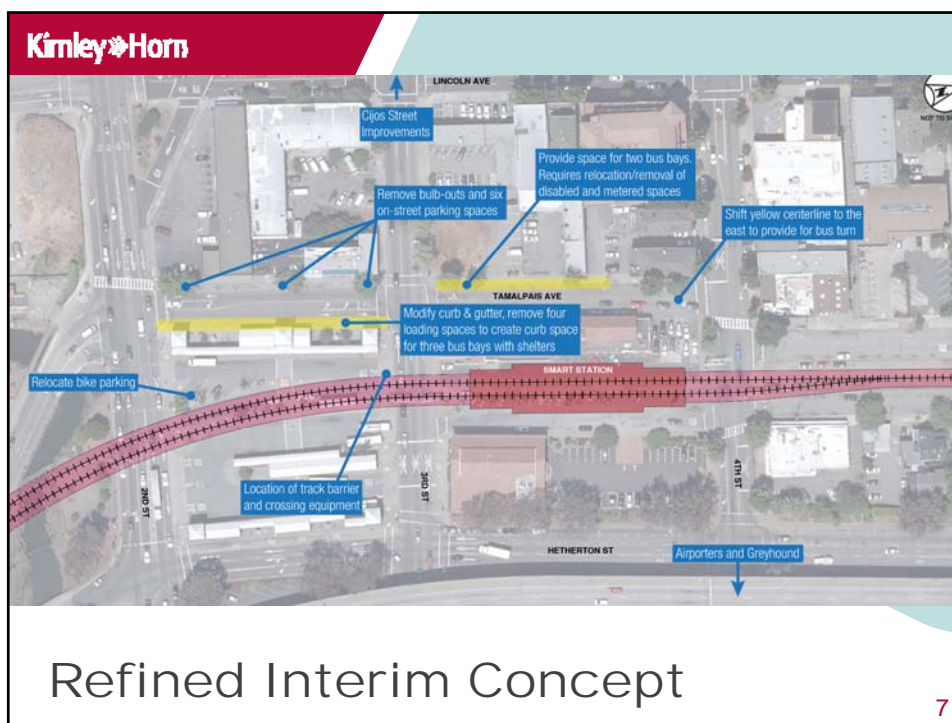
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Summary of Refined Interim Solution

- Refined solution is a combination of several concepts considered
- Relatively minor cost compared to what is needed for long-term solution
- Airporters move to 4th Street beneath US-101
- Cijos Street improvement
- Physical impacts of final rail alignment on bus operations still need to be assessed

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6





Key Elements of Refined Interim Solution

- Constrained: only meets minimum bay needs in the short term and imposes severe limits on expansion of service
- Tries to maintain system efficiencies for transferring customers
- Cannot provide most efficient routing for each route
- Balances the inconveniences and impacts between City of San Rafael, Marin Transit, and Golden Gate Transit



10

Preliminary Cost Estimate

	Tamalpais Avenue, Cijos Street, and 4 th Street Improvements
Initial Project Total	\$3.25 M
Rehab Total	\$0.20 M
Total Project	\$3.45 M

Notes:

All dollars in year of expenditure

Assumes a 5-year lifespan of interim improvements

All costs include interim bus bays, Cijos Street improvements, and 4th Street airporter/Greyhound bays

Rehab includes pavement resurfacing, improvements removal (does not include rehab to the SRTC)

Includes soft costs and a 30% contingency

Some of these feature will remain in place after relocation of bus operations to a long term facility

Next Steps for Interim Concept

- Funding*
- Preliminary Engineering*
- Environmental*
- Work on these tasks should begin no less than one year prior to SMART's expected construction date

* These tasks have not been assigned and are not included in current consultant contract



Long Term Transit Center

13



Long Term Evaluation Parameters

- Pedestrian Circulation
 - Connectivity to SMART and Downtown San Rafael
 - Improve pedestrian safety
- Transfer Convenience
 - Proximity to all transit routes
- Size Requirements
 - Number of bays and waiting areas for customers
 - Allow for future needs
- Bus Operations
 - Efficiency of routing and grade-crossing delays
- Local Circulation
 - Accessibility
 - Effects on pedestrian, bike, and vehicular circulation
- ROW Acquisition
 - Magnitude of acquisition and land use development potential

14



Next Steps for Project

- Long-term Solution Refinement and Evaluation
 - Bus Operations
 - Traffic Operations
- Long-term Real Estate Evaluation
 - GGBHTD Reuse Potential
- Long-term Cost Estimates
 - Acquisition Costs
 - Construction Costs



San Rafael Transit Center Update

10/17/16

San Rafael City Council

Kimley»Horn



Project Need



2

Project Overview

1. Operations Analysis
2. Needs Identification
3. Interim Solution
4. Long-Term Alternatives



3

Transit Center Overview

- 9,000 daily boardings and alightings at transit center
- SMART projected to add 1,000 boardings and alightings in future
- 55% of bus ridership is generated by downtown San Rafael/Montecito
- 29 different bus routes and services generating over 500 daily bus trips

4

SMART to Larkspur Schedule

- Construction
 - Summer 2017
 - Effect on transit center:
 - Rail construction envelope
- Operations
 - By end of 2018
 - Effect on transit center:
 - Operating envelope
 - Grade crossings of 2nd and 3rd Streets
 - Transfer activity between bus and rail

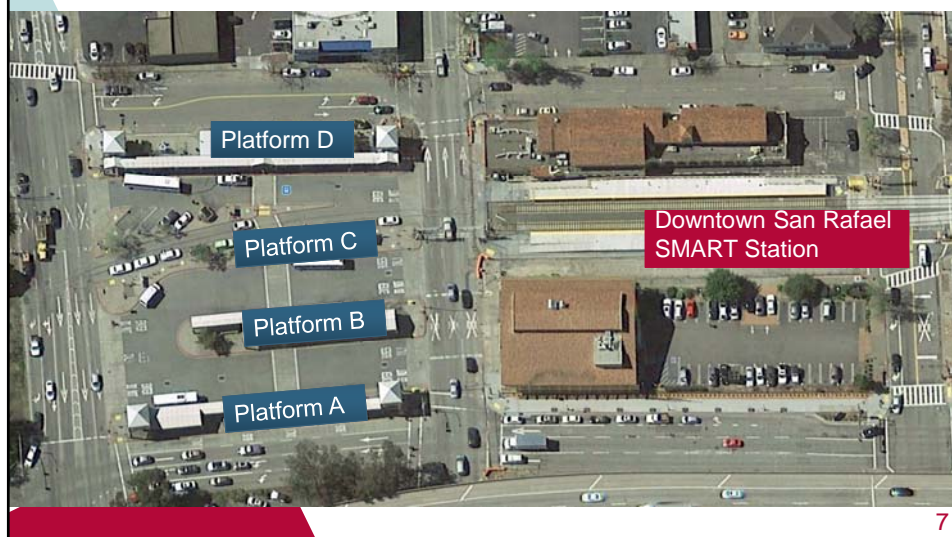
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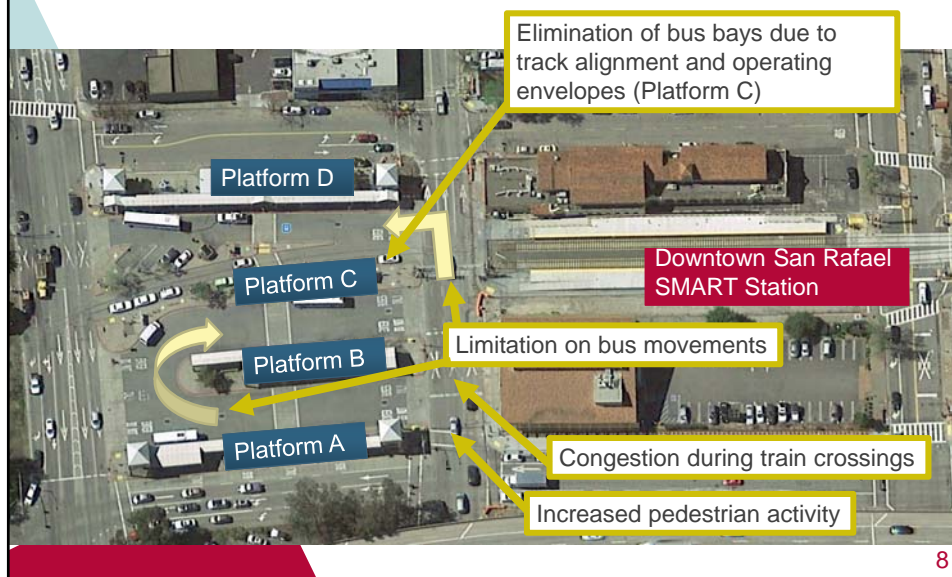
Interim Transit Center

6

Transit Center Configuration

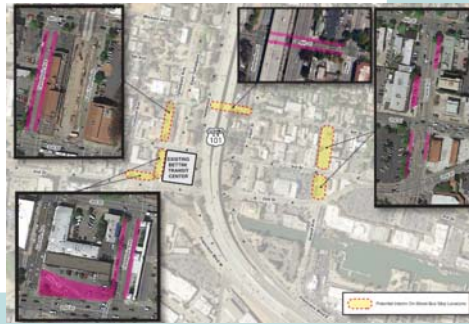


Effects from SMART



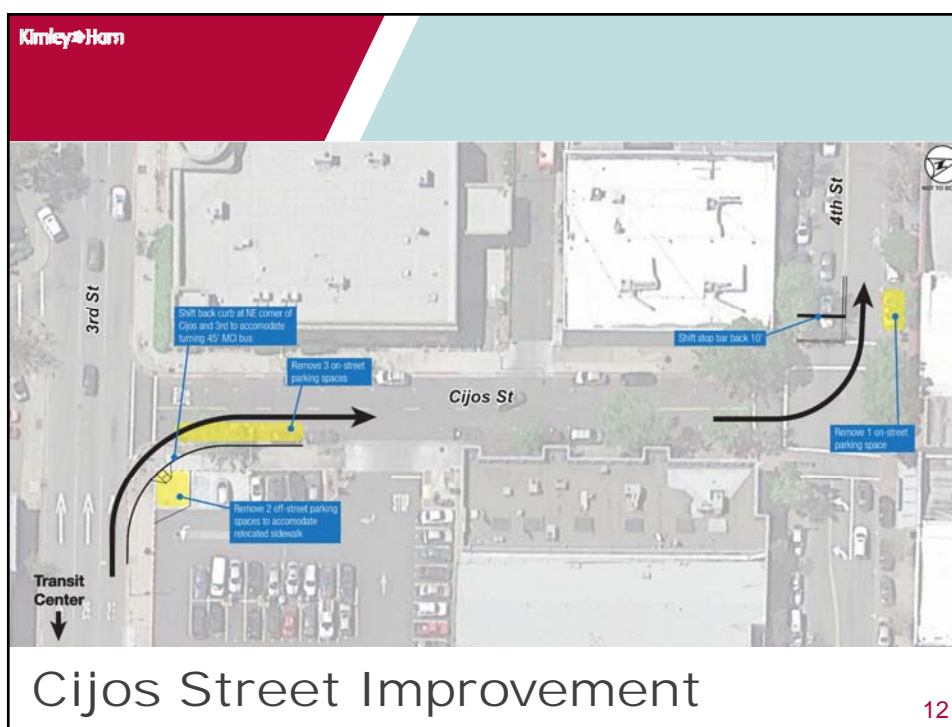
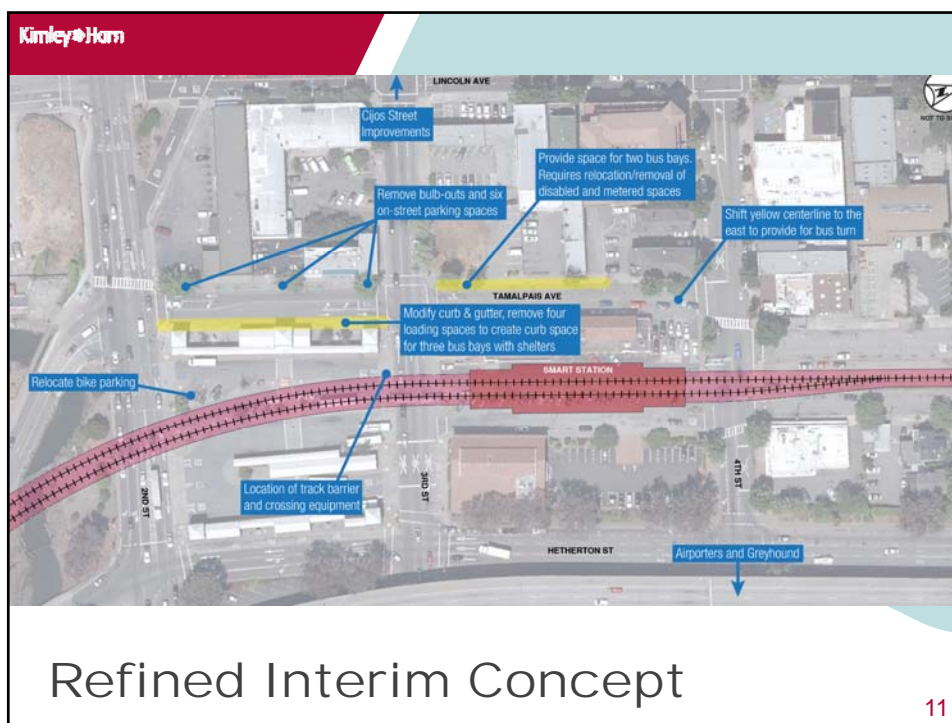
Identification of Potential Interim Solutions

- Identified preliminary set of potential solutions in vicinity of Downtown San Rafael
- Refined set of potential solutions based on analysis of transit operations, available right-of-way and curb space
- Most deemed not viable due to operational or physical limitations



Summary of Refined Interim Solution

- Refined solution is a combination of several concepts considered
- Relatively minor cost compared to what is needed for long-term solution
- Airporters move to 4th Street beneath US-101
- Cijos Street improvement
- Physical impacts of final rail alignment on bus operations still need to be assessed





Key Elements of Refined Interim Solution

- Constrained: only meets minimum bay needs in the short term and imposes severe limits on expansion of service
- Tries to maintain system efficiencies for transferring customers
- Cannot provide most efficient routing for each route
- Balances the inconveniences and impacts between City of San Rafael, Marin Transit, and Golden Gate Transit



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Interim Solution Preliminary Cost Estimate

	Tamalpais Avenue, Cijos Street, and 4 th Street Improvements
Initial Project Total	\$3.25 M
Rehab Total	\$0.20 M
Total Project	\$3.45 M

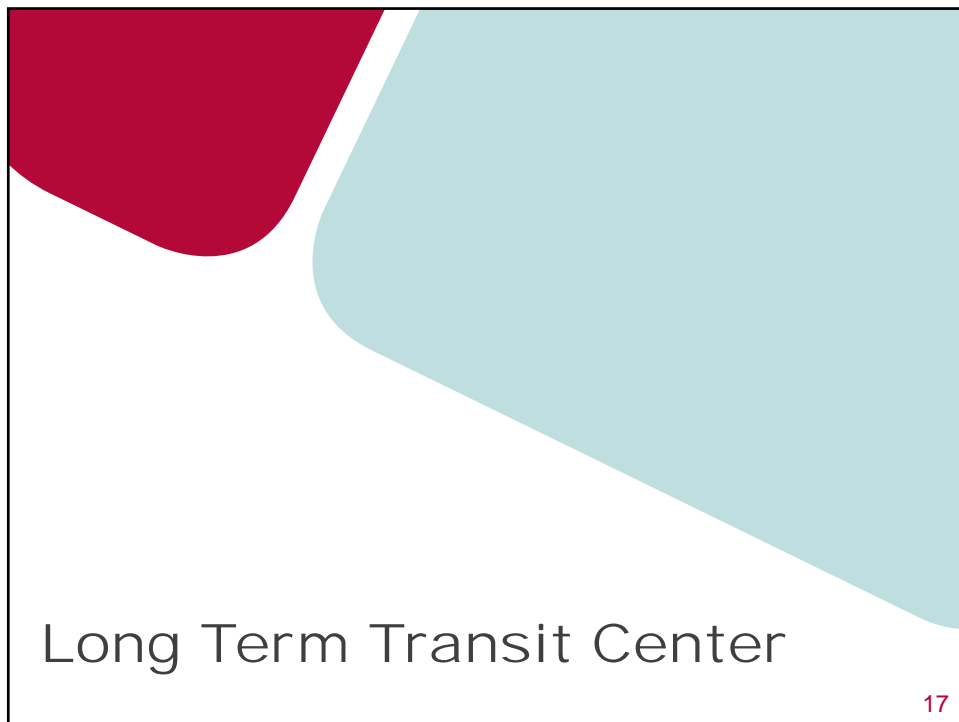
15

Next Steps for Interim Concept

- Preliminary Engineering/ Environmental
- Design and Construction

➡ To be led by SMART

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Long Term Evaluation Parameters

- Pedestrian Circulation
 - Connectivity to SMART and Downtown San Rafael
 - Improve pedestrian safety
- Transfer Convenience
 - Proximity to all transit routes
- Size Requirements
 - Number of bays and waiting areas for customers
 - Allow for future needs
- Bus Operations
 - Efficiency of routing and grade-crossing delays
- Local Circulation
 - Accessibility
 - Effects on pedestrian, bike, and vehicular circulation
- ROW Acquisition
 - Magnitude of acquisition and land use development potential

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Long-Term Evaluation Screening

- Screened 10+ different potential locations for long-term solution
- Selected top 3 locations for further study based on evaluation parameters

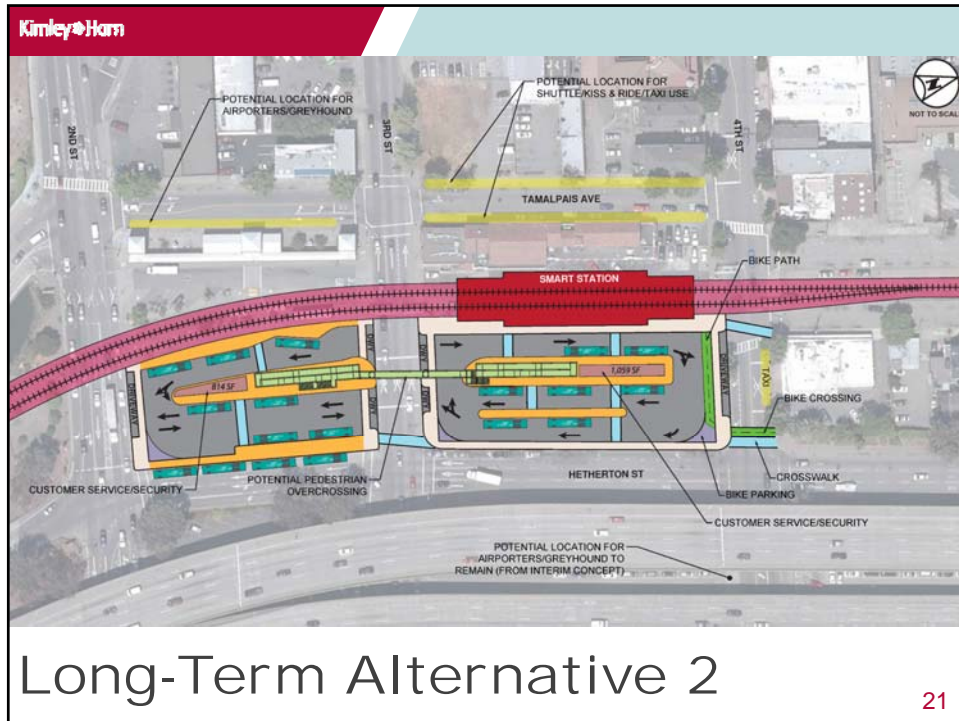


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Long Term Alternatives

- All alternatives include:
 - On-site bike parking
 - On-site security facilities
 - Connection to Puerto Suello Bike Path
 - Identified space for pick-up/drop-off and taxi
 - Airporters/Greyhound to remain on 4th Street (except Alternative 5)

20



21

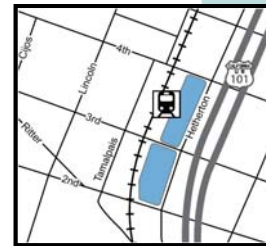
Long-Term Alternative 2

- Positives

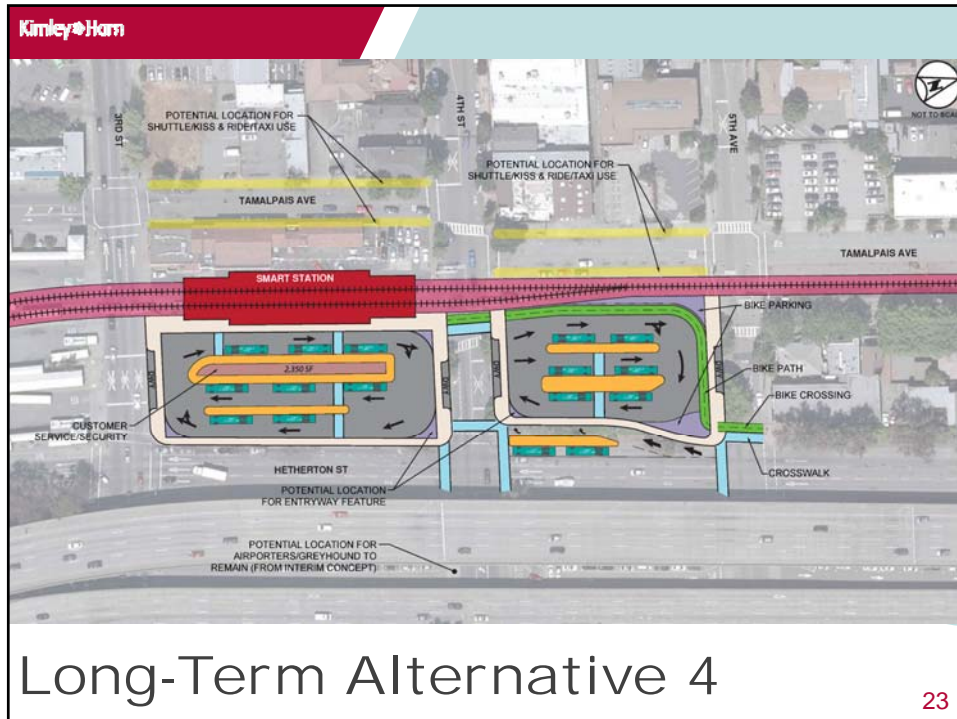
- Lowest cost
- Adequate number of bus bays
- Efficient bus routing

- Drawbacks

- Introduces large pedestrian demand for crossing 3rd Street
- Lots of auto congestion accessing/departing transit center
- Would require off-site customer service facility



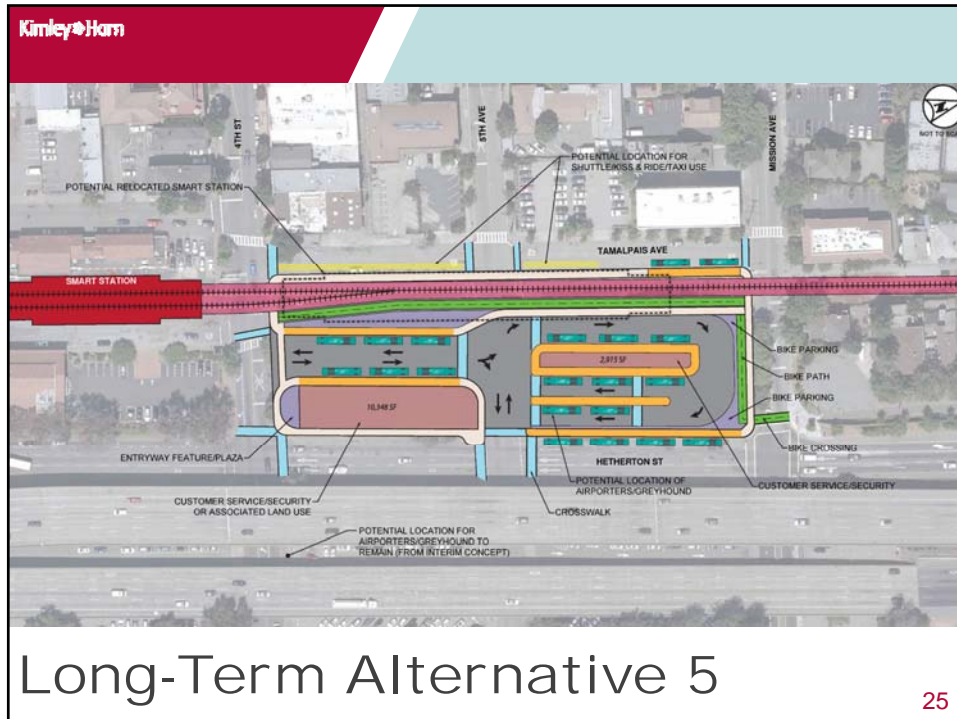
22



Long-Term Alternative 4

- Positives
 - Pedestrian activity across 4th Street more desirable than across 3rd Street
 - Convenient access to downtown
- Drawbacks
 - Provides limited flexibility for future service changes
 - All driveways located close to Hetherton Street
 - New driveways along 3rd and 4th Streets





Long-Term Alternative 5

- Positives
 - Consolidated transit center ideal for transfer activity and pedestrian access
 - Allows for relocation of SMART station and longer SMART trains systemwide
 - Most efficient for bus access/egress and most flexible for future needs
 - Eliminates one at-grade crossing
- Drawbacks
 - Closure of 5th Avenue to auto traffic
 - Greater bus diversion to access bays
 - Highest cost and greatest right-of-way need



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Traffic Analysis

- Used micro-simulation tool to analyze downtown street network under following scenarios:
 - Existing
 - SMART Phase 1
 - SMART Phase 2 and Interim Concept
 - SMART Phase 2 and Long-Term Concepts
- Included autos, bicycles, pedestrians, and transit routes

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Evaluation Summary

High = Most Desirable
Low = Least Desirable

Category	Interim Condition	Alternative 2 2nd to 4th	Alternative 4 3rd to 5th	Alternative 5 4th to Mission
Customer Connectivity (Mode-to-Mode)	Low	Low	Low/ Medium	High
Pedestrian Comfort/ Accessibility	Low/ Medium	Low	Medium	High
Traffic	Low	Medium	Medium	Low/ Medium
Bus Operations	Very Low	Medium	Low/ Medium	Medium
SRTC Redevelopment Potential	N/A	Low	High	High
Land Acquisition and Construction Cost	\$3.5 Million	\$22-\$25 Million	\$23-\$27 Million	\$27-\$32 Million

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Next Steps for Long-Term Solution

- Environmental Analysis
- Public Outreach
- Funding Plan
- Selection of Preferred Alternative
- Preliminary Engineering
- Right-of-Way Acquisition



Golden Gate Transit to lead in close partnership with City, Marin Transit, SMART, TAM and MTC

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Discussion

Kimley»Horn



SAN RAFAEL TRANSIT CENTER RELOCATION STUDY

Appendix D: San Rafael Transit Center Average Daily Ridership

San Rafael Transit Center
Average Daily Ridership

GOLDEN GATE TRANSIT

Weekdays:

Route	Direction	Patrons	Days	Ons	Offs	Total	Ons/Day	Offs/Day
27	N	55,995	254	6	90	170	8	117
27	S	82,256	254	149	4	258	187	5
40	E	27,489	254	63	0	69	99	0
40	W	26,270	254	0	90	114	0	82
42	E	78,515	254	87	0	120	224	0
42	W	80,649	254	0	139	201	0	220
44	N	12,416	254	3	33	51	3	32
44	S	16,794	254	56	8	104	36	5
70	N	269,273	254	167	194	637	278	323
70	S	192,809	254	154	126	507	231	189
80	N	60,142	242	46	41	193	59	53
80	S	73,753	242	13	3	40	99	23
101	N	195,903	254	135	137	479	217	221
101	S	169,742	254	51	54	261	131	138
Total	-	-	-	-	-	-	1,571	1,406

Weekends & Holidays:

Route	Direction	Patrons	Days	Ons	Offs	Total	Ons/Day	Offs/Day
42	E	22,035	111	57	0	79	143	0
42	W	24,192	111	0	72	124	0	127
70	N	90,080	111	72	96	342	171	228
70	S	83,866	111	147	45	343	324	99
80	N	94,461	105	46	41	193	214	191
80	S	104,021	105	13	3	40	322	74
101	N	35,904	111	24	45	161	48	90
101	S	32,397	111	41	33	152	79	63
Total	-	-	-	-	-	-	1,301	873

MARIN TRANSIT

Route	WD Pax On	WD Pax Off	SAT Pax On	SAT Pax Off	SUN Pax On	SUN Pax Off
17	305	189	217	105	183	104
22	332	267	287	198	233	198
23	155	129	4	1	0	0
29	208	238	123	220	0	0
35	647	767	547	603	564	11
36	235	121	0	0	0	0
45	397	367	175	128	90	63
49	160	127	171	110	108	127
52	101	114	0	0	0	0
71	445	335	63	90	53	75
Total	2985	2654	1587	1455	1231	578

Golden Gate Transit Ridership Data from 2014.
Marin Transit Ridership Data from 2011.



SAN RAFAEL TRANSIT CENTER RELOCATION STUDY

Appendix E: Route Profile Sheets



Service Characteristics

	Weekday	Weekend/Holiday
Peak	30 minutes	60 minutes
Off-Peak	60 minutes	60 minutes
Pulse	:00, :30	:30
Span	5:30am - 11:25pm	6:30am - 11:25pm (10:25pm Sunday/ Holidays)
SRTC Trips/Day	45	30 (29 Sun/Hol)
Vehicle Type	40' Nova/Orion, 35' Hybrid	35' Hybrid

Average Daily Ridership

WKDY	SAT	SUN
1,271	899	654

Major Destinations

- SRTC
- Strawberry Village
- Tamalpais HS
- Manzanita P&R
- Marin City
- Sausalito Ferry Terminal

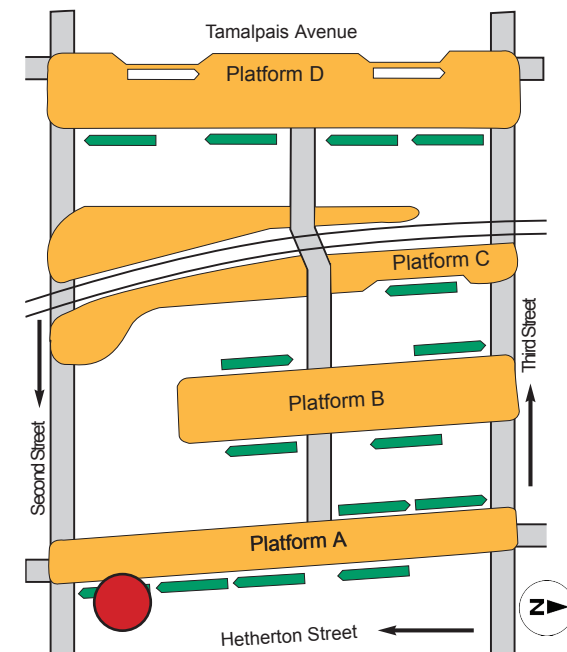
Route	35	70	71	42	45	29	22	219	36	23	101
Average Weekday Transfers	77	46	40	22	21	21	18	18	15	14	11

Other routes with minor transfer activity include:
Route 40, Route 49, Route 233, Route 257,
Route 259, Route 27, and Route 68

Route Map



Transit Center Location





Service Characteristics

	Weekday	Weekend/Holiday
Peak	30 minutes	60 minutes
Off-Peak	60 minutes	60 minutes
Pulse	:00, :30	:00
Span	5:32am - 11:55pm	7:00am - 9:55pm
SRTC Trips/Day	48	30
Vehicle Type	45' MCI, 35' Hybrid, 40' Nova/Orion	35' Hybrid

Average Daily Ridership

WKDY	SAT	SUN
1,141	541	391

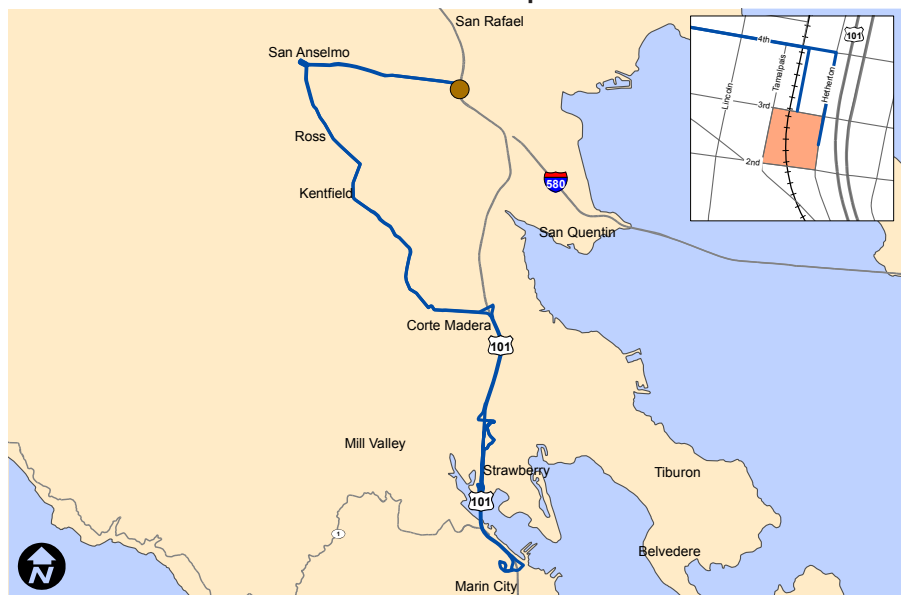
Major Destinations

- SRTC
- San Anselmo Hub
- College of Marin
- Larkspur
- Town Center at Corte Madera
- Strawberry Village
- Marin City

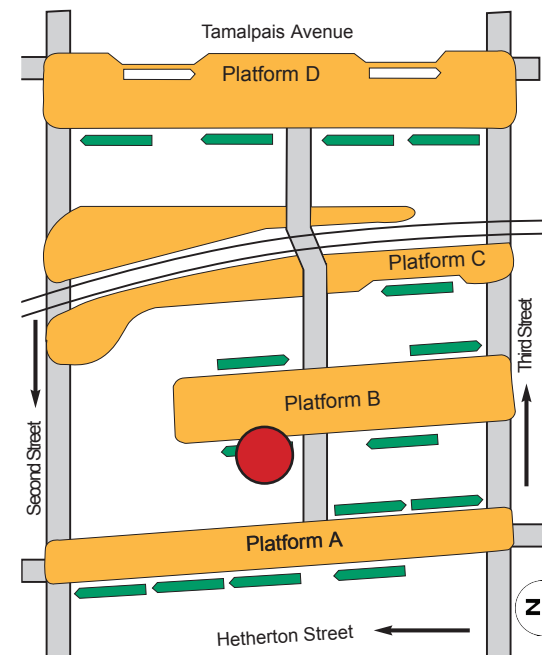
Route	35	71	29	70	45	42	17	101	23	49
Average Weekday Transfers	51	37	36	35	28	21	18	17	16	10

Other routes with minor transfer activity include: Route 40, Route 257, Route 233, Route 68, Route 36, Route 27, Route 259, and Route 125

Route Map



Transit Center Location





Service Characteristics

	Weekday	Weekend/Holiday
Peak	60 minutes	60 minutes
Off-Peak	60 minutes	60 minutes
Pulse	:15	:30
Span	5:51am - 10:45pm	7:04am - 9:55pm (8:55pm Sundays/Holidays)
SRTC Trips/Day	34	29 (28 Sun/Hol)
Vehicle Type	35' Hybrid, 40' Nova/Orion	35' Hybrid

Average Daily Ridership

WKDY	SAT	SUN
1,331	1,001	757

Major Destinations

- SRTC
- United Market
- San Anselmo Hub
- Fairfax
- White Hill MS

Route	101	49	35	29	70	71	22	17	36	45
Average Weekday Transfers	55	39	33	24	21	17	16	14	13	12

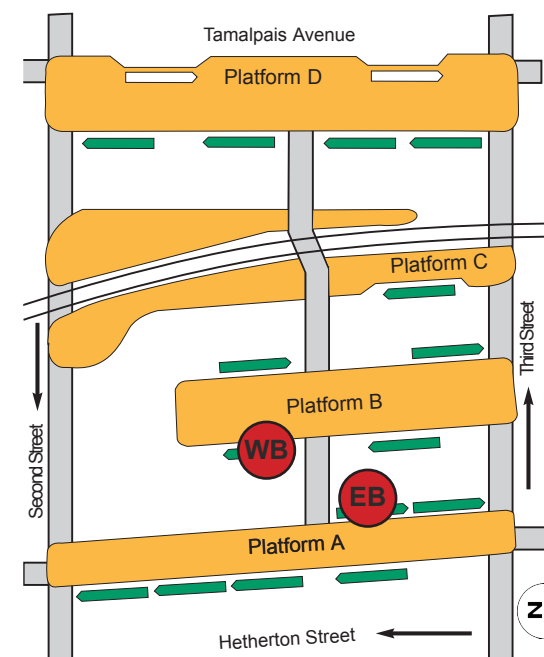
Other routes with minor transfer activity include: Route 42, Route 40, Route 68, Route 27, Route 233, Route 257, Route 259, and Route 125

Route Map



Note: New express Route 23X to be implemented between the Canal, SRTC, San Anselmo Hub, Fairfax, and Manor per Marin Transit SRTP.

Transit Center Location





Service Characteristics

	Weekday	Weekend/Holiday
Peak (directional)	15 minutes	N/A
Off-Peak	60 minutes	N/A
Pulse	:00, :30, :45	N/A
Span	4:35am - 7:45pm	N/A
SRTC Trips/Day	37	N/A
Vehicle Type	45' MCI, 40' Orion	N/A

Average Daily Ridership

WKDY	SAT	SUN
696	N/A	N/A

Major Destinations

- SRTC
- San Domenico School
- San Anselmo Hub
- Golden Gate Bridge Toll Plaza
- Financial District
- South of Market

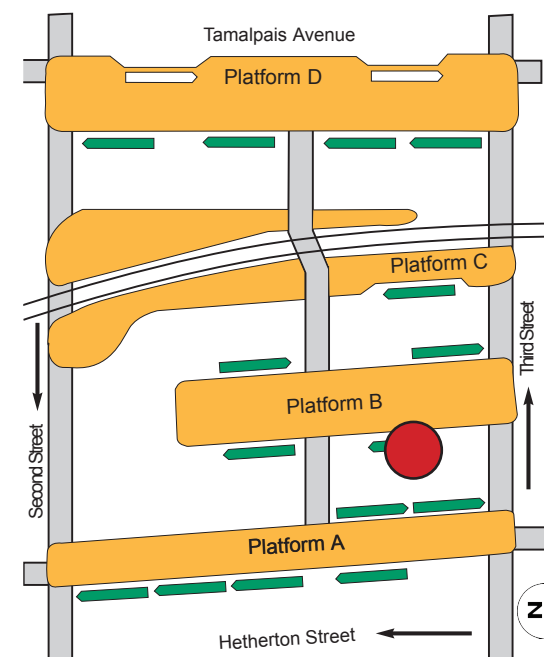
Route	35
Average Weekday Transfers	13

Other routes with minor transfer activity include: Route 29, Route 45, Route 71, Route 70, Route 49, Route 23, Route 36, Route 68, Route 22, Route 42, Route 259, Route 101, Route 257, Route 233, Route 17

Route Map



Transit Center Location





Service Characteristics

	Weekday	Weekend/Holiday
Peak	30 minutes (limited peak)	N/A
Off-Peak	60 minutes	N/A
Pulse	:00, :30	N/A
Span	6:30am - 9:05pm	N/A
SRTC Trips/Day	38	N/A
Vehicle Type	35' Hybrid, 40' Nova/Orion	N/A

Average Daily Ridership

WKDY	SAT	SUN
1,096	N/A	N/A

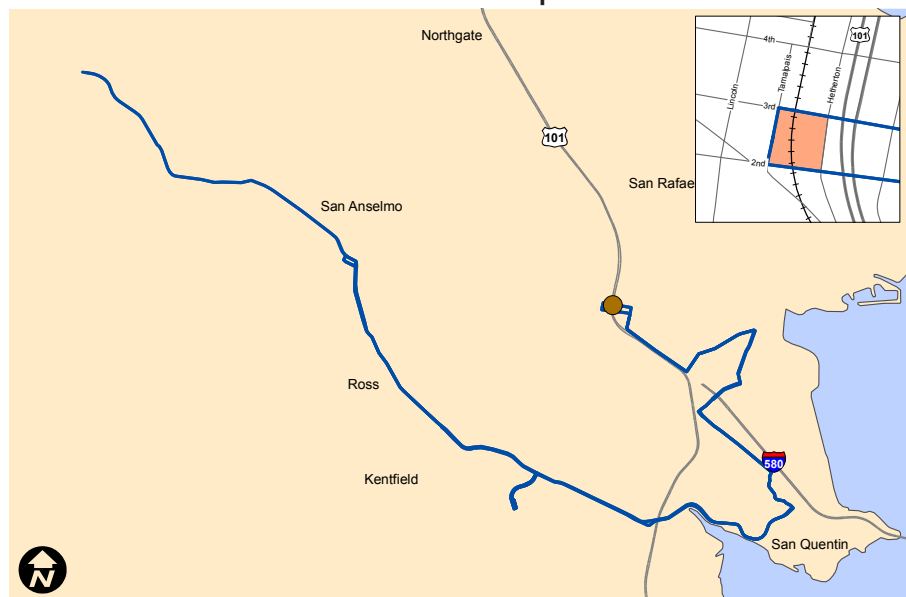
Major Destinations

- SRTC
- San Rafael GGT
- Larkspur Landing
- Marin General Hospital
- College of Marin
- San Anselmo Hub
- Fairfax

Route	71	22	70	45	35	23	17	42
Average Weekday Transfers	50	36	36	29	24	24	21	11

Other routes with minor transfer activity include: Route 233, Route 101, Route 27, Route 259, Route 49, Route 68, Route 36, Route 40, Route 257, Route 125, and Route 145

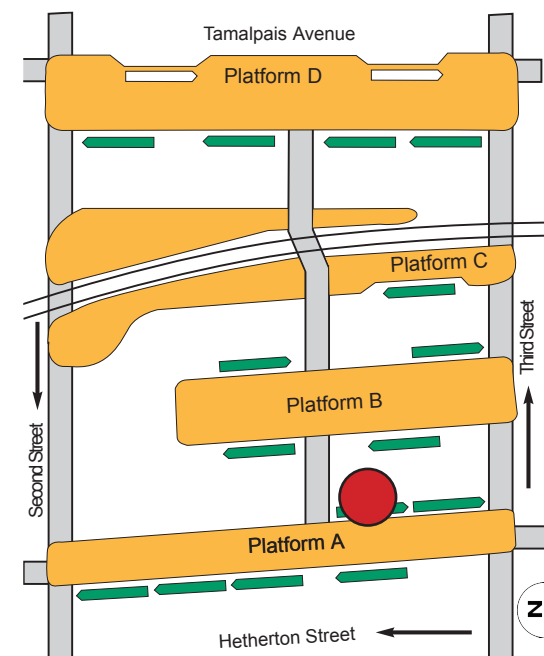
Route Map



Note: Current route to be restructured, provide direct service between SRTC and Larkspur Landing. Weekday service on Route 228 to serve current Route 29 market west of College of Marin per Marin Transit SRTP.

Ridership and transfer data from April 2015

Transit Center Location





Service Characteristics

	Weekday	Weekend/Holiday
Peak	15 minutes	30 minutes
Off-Peak	30 minutes	30 minutes
Pulse	:00, :30	:00, :30
Span	5:07am - 2:25am	5:09am - 2:25am
SRTC Trips/Day	98	83
Vehicle Type	45' MCI, 40' Orion, 60' Articulated	40' Orion, 60' Articulated

Average Daily Ridership

WKDY	SAT	SUN
2,101	1,678	1,335

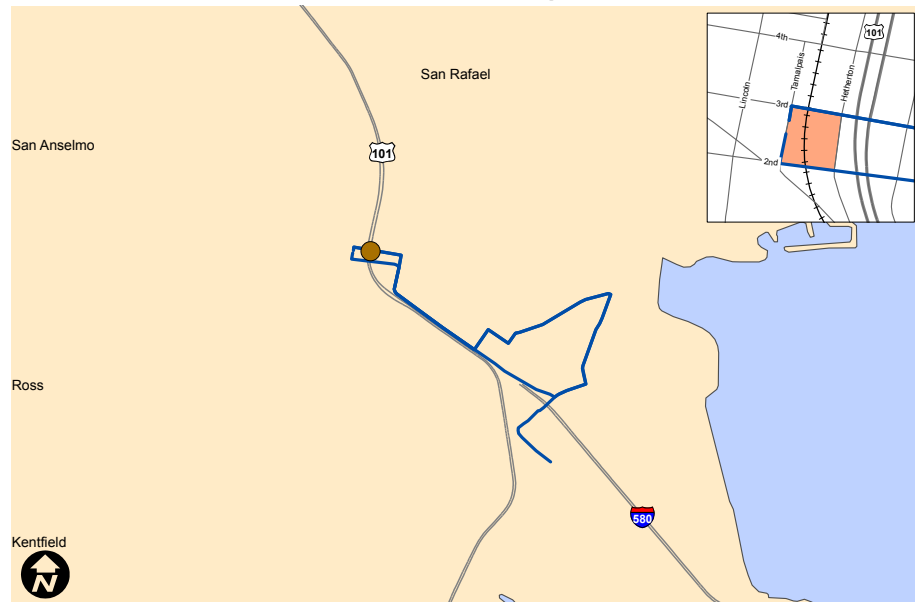
Major Destinations

- SRTC
- Canal

Route	70	71	17	22	45	23	101	29	36	49	27	259	257
Average Weekday Transfers	137	111	77	51	51	33	28	24	17	14	13	11	11

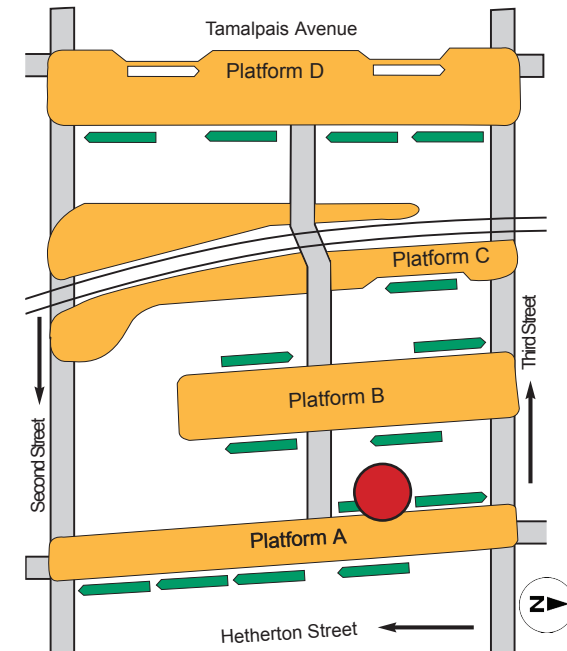
Other routes with minor transfer activity include: Route 42, Route 233, Route 68, Route 40, Route 125, and Route 145

Route Map



Note: Route 35/45 to be consolidated into Route 45 serving Canal, Downtown San Rafael and Novato via Civic Center and Northgate per Marin Transit SRTP.

Transit Center Location





Service Characteristics

	Weekday	Weekend/Holiday
Peak	30 minutes	N/A
Off-Peak	60 minutes	N/A
Pulse	:15, :45	N/A
Span	6:53am - 5:54pm	N/A
SRTC Trips/Day	16	N/A
Vehicle Type	60' Articulated	N/A

Average Daily Ridership

WKDY	SAT	SUN
564	N/A	N/A

Major Destinations

- SRTC
- Canal
- Marin City

Route	35	17	101	23	70	71
Average Weekday Transfers	17	15	14	13	10	10

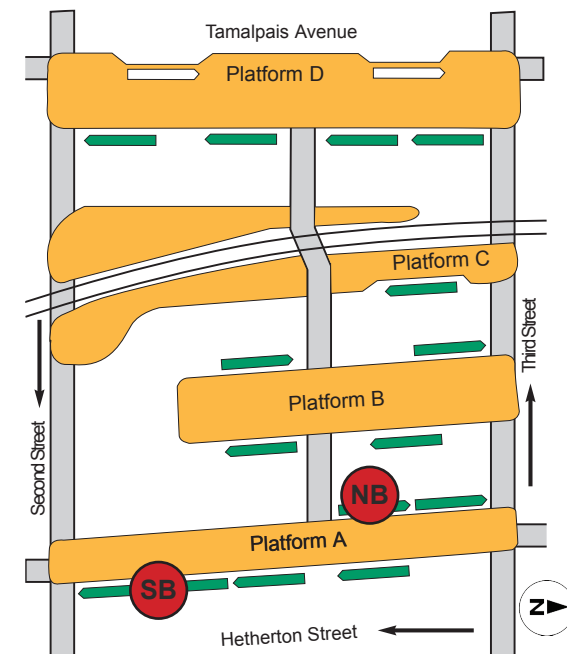
Other routes with minor transfer activity include: Route 45, Route 49, Route 42, Route 68, Route 22, Route 27, Route 259, Route 29, Route 233, Route 40, Route 145, Route 257, and Route 125

Route Map



Note: Increased service on existing route and addition service to Strawberry per Marin Transit SRTP.

Transit Center Location



40 San Rafael - Del Norte BART Station (Express)



Service Characteristics

	Weekday	Weekend/Holiday
Peak	30 minutes	N/A
Off-Peak	N/A	N/A
Pulse	:00, :30	N/A
Span	6:00am - 6:55pm	N/A
SRTC Trips/Day	14	N/A
Vehicle Type	40' Orion	N/A

Average Daily Ridership

WKDY	SAT	SUN
85	N/A	N/A

Major Destinations

- SRTC
- San Quentin Village
- El Cerrito Del Norte BART Station

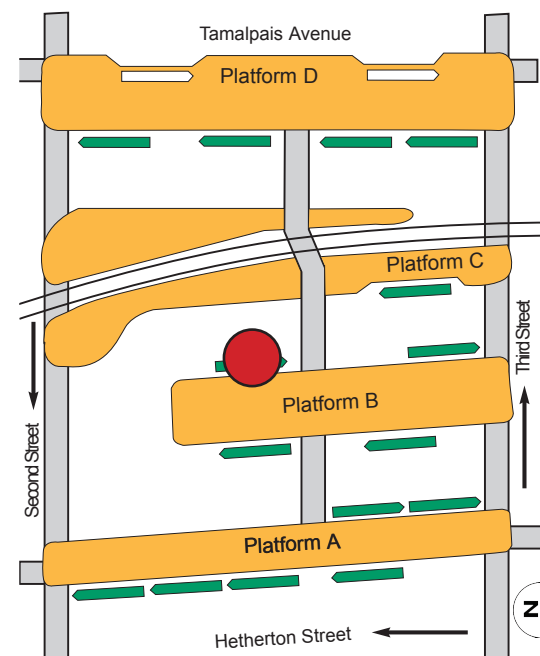
Routes with minor average weekday transfer activity include: Route 22, Route 70, Route 71, Route 23, Route 17, Route 45, Route 49, Route 29, Route 35, Route 101, Route 36, Route 257, Route 42, Route 68, Route 233, and Route 259

Route Map



Note: Route 40 will see increased frequencies per GGT staff.

Transit Center Location





Service Characteristics

	Weekday	Weekend/Holiday
Peak	30 minutes (directional)	60 minutes
Off-Peak	60 minutes	60 minutes
Pulse	:00, :30	:00
Span	5:44am - 11:55pm	6:00am - 10:55pm
SRTC Trips/Day	39	32
Vehicle Type	40' Orion	40' Orion

Average Daily Ridership

WKDY	SAT	SUN
653	591	419

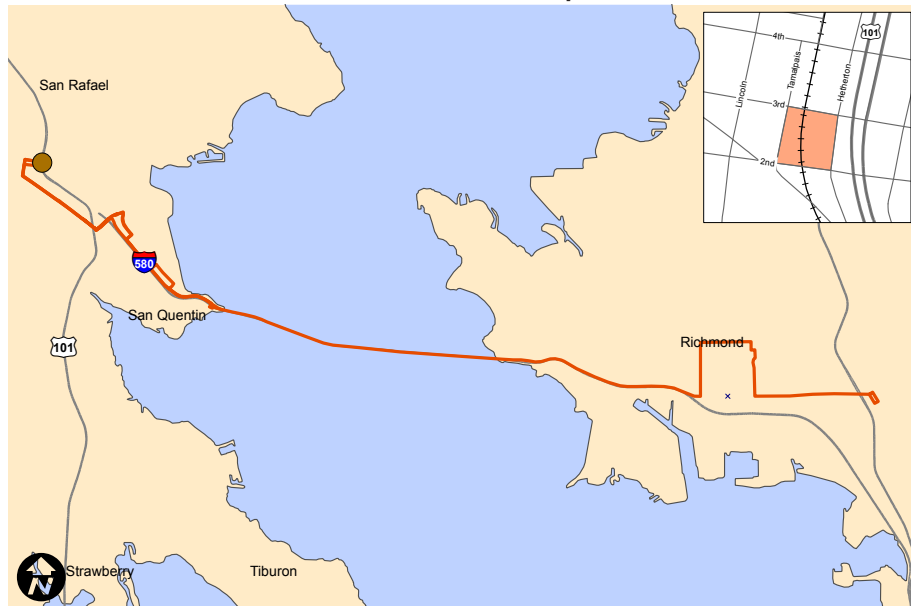
Major Destinations

- SRTC
- San Quentin Village
- Richmond BART Station
- El Cerrito Del Norte BART Station

Route	70	71	17	22	45	29
Average Weekday Transfers	25	23	22	21	14	11

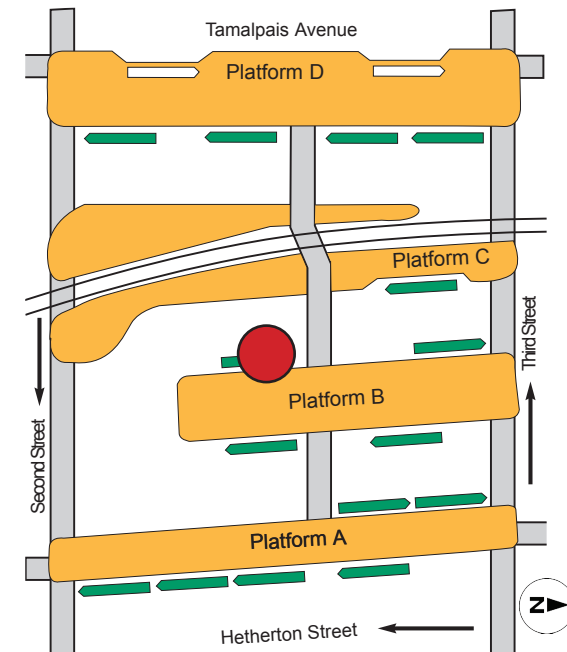
Other routes with minor transfer activity include: Route 23, Route 35, Route 259, Route 101, Route 49, Route 36, Route 233, Route 257, Route 27, Route 68, and Route 40

Route Map



Note: Route 42 will see increased frequencies per GGT staff.

Transit Center Location





Service Characteristics

	Weekday	Weekend/Holiday
Peak	2 trips, each peak-direction	N/A
Off-Peak	N/A	N/A
Pulse	:00, :15	N/A
Span	6:39am-9:03am, 5:04pm-7:31pm	N/A
SRTC Trips/Day	4	N/A
Vehicle Type	40' Orion, 45' MCI	N/A

Average Daily Ridership

WKDY	SAT	SUN
114	N/A	N/A

Major Destinations

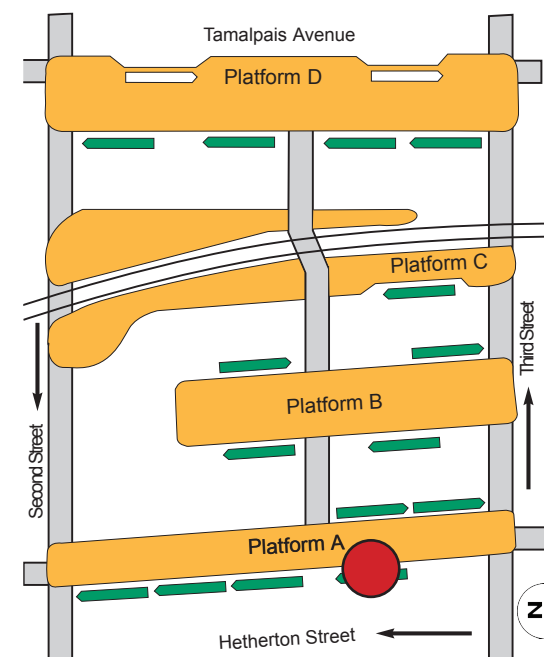
- SRTC
- Lucas Valley
- Golden Gate Bridge Toll Plaza
- Financial District
- South of Market

Routes with minor average weekday transfer activity include: Route 29 and Route 22.

Route Map



Transit Center Location



Service Characteristics

	Weekday	Weekend/Holiday
Peak	30 minutes	60 minutes
Off-Peak	30 minutes	60 minutes
Pulse	:00, :30	:30
Span	6:03am-8:54pm	7:30am-7:50pm (8:04am-6:50pm Sun/Hol)
SRTC Trips/Day	58	25 (22 Sun/Hol)
Vehicle Type	35' Hybrid, 40' Orion	60' Articulated

Average Daily Ridership

WKDY	SAT	SUN
991	569	406

Major Destinations

- SRTC
- Terra Linda
- Kaiser Hospital
- Northgate Mall
- Marin Civic Center

Route	35	29	22	70	17	71	42	23	49
Average Weekday Transfers	51	29	28	23	21	17	14	12	10

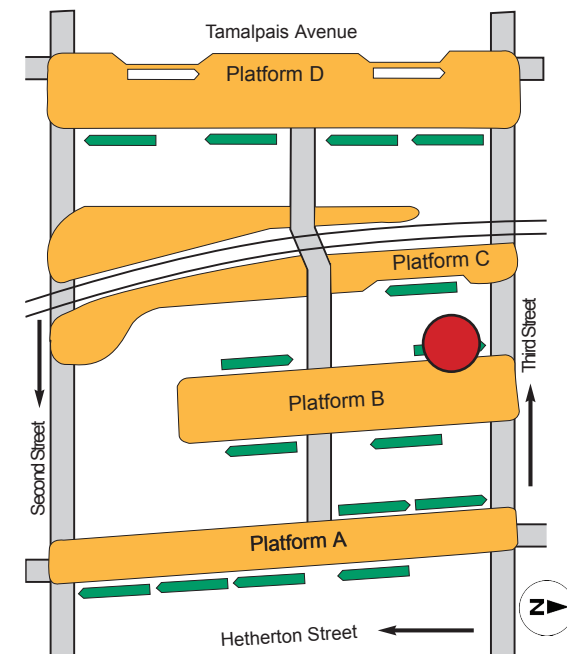
Other routes with minor transfer activity include: Route 36, Route 27, Route 259, Route 101, Route 233, Route 40, Route 257, Route 68, Route 145, and Route 125

Route Map



Note: Route 35/45 to be consolidated into Route 45 serving Canal, Downtown San Rafael and Novato via Civic Center and Northgate per Marin Transit SRTC.

Transit Center Location





Service Characteristics

	Weekday	Weekend/Holiday
Peak	60 minutes	N/A
Off-Peak	60 minutes	N/A
Pulse	:15	N/A
Span	6:15am - 8:10pm	N/A
SRTC Trips/Day	28	N/A
Vehicle Type	35' Hybrid, 40' Orion	N/A

Average Daily Ridership

WKDY	SAT	SUN
779	N/A	N/A

Major Destinations

- SRTC
- Marin Civic Center
- Northgate Mall
- Hamilton Theater
- Lynwood ES
- Novato GGT

Route	23	101	35	71	70	45	22
Average Weekday Transfers	39	15	14	12	12	10	10

Other routes with minor transfer activity include: Route 36, Route 259, Route 42, Route 29, Route 17, Route 27, Route 40, Route 233, Route 257, and Route 68

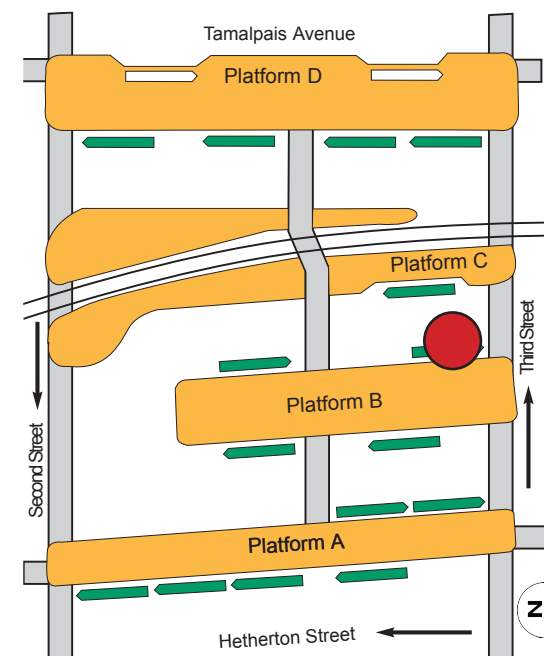
Route Map



Note: Route 30 minute service to be implemented and add service to Hamilton SMART Station (pending necessary capital improvements) per Marin Transit SRTP.

Ridership and transfer data from April 2015

Transit Center Location





Service Characteristics

	Weekday	Weekend/Holiday
Peak	60 minutes	60 minutes
Off-Peak	120 minutes	120 minutes
Pulse	:45	:45
Span	6:16am - 11:18pm	7:16am - 11:18pm
SRTC Trips/Day	22	24
Vehicle Type	29' or 32' Cutaways	29' or 32' Cutaways

Average Daily Ridership

WKDY	SAT	SUN
2,532	426	334

Ridership counts do not include Clipper boardings that did not involve a transfer

Major Destinations

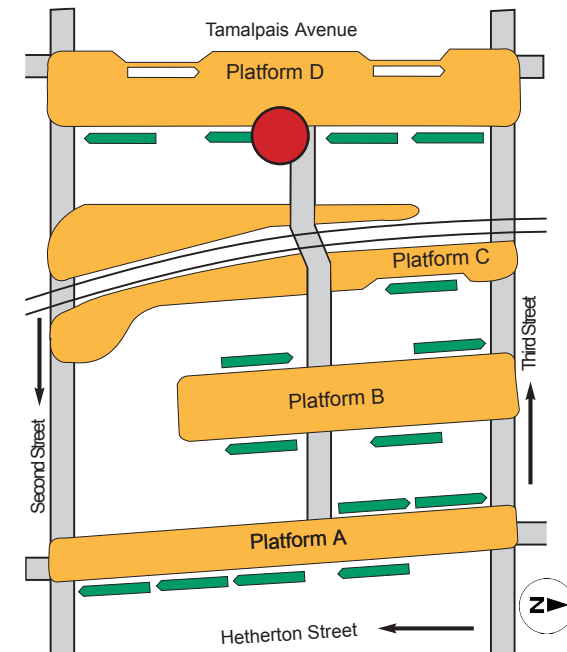
- SRTC
- Sir Francis Drake HS
- Manor ES
- White Hill MS
- Dickson Ranch
- Samuel Taylor State Park
- Inverness

Routes with minor average weekday transfer activity include: Route 70, Route 35, Route 29, Route 23, Route 71, Route 36, Route 22, Route 27, Route 101, Route 42, Route 259, Route 45, Route 17, Route 40, Route 257, Route 49, Route 125, and Route 233

Route Map



Transit Center Location





Service Characteristics

	Weekday	Weekend/Holiday
Peak	30 minutes	30 minutes
Off-Peak	60 minutes	30 minutes
Pulse	:00, :30	:00, :30
Span	4:00am - 1:55pm	4:00am-2:10am
SRTC Trips/Day	57	85
Vehicle Type	40' Orion	40' Orion

Average Daily Ridership

WKDY	SAT	SUN
2,473	3,625	2,642

Major Destinations

- SRTC
- Novato GGT
- Marin City
- Golden Gate Bridge Toll Plaza
- San Francisco Civic Center
- Transbay Terminal

Route	35	17	29	22	42	45	101	23	71	49	36
Average Weekday Transfers	137	46	36	35	25	23	22	21	19	12	10

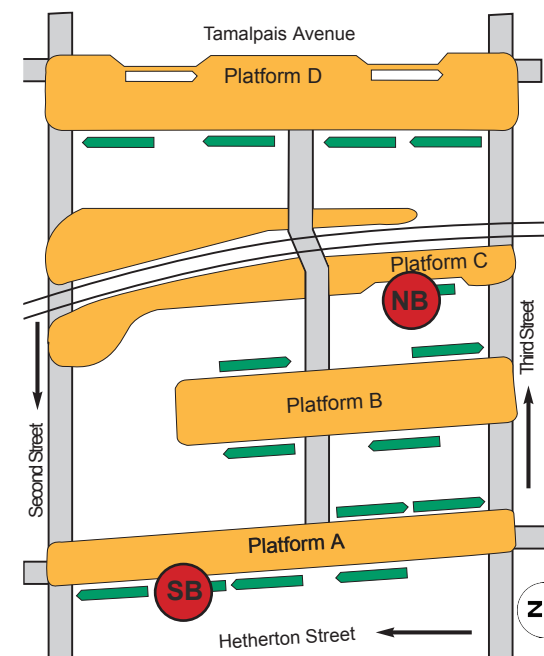
Other routes with minor transfer activity include:
Route 40, Route 259, Route 68, Route 233,
Route 27, Route 257, and Route 145

Route Map



Note: A limited number of Route 70 trips serve Lincoln Ave.

Transit Center Location





Service Characteristics

	Weekday	Weekend/Holiday
Peak	60 minutes	N/A
Off-Peak	60 minutes	7 trips daily
Pulse	:00, :30	:00, :30
Span	6:03am - 8:30pm	7:54am-7:24pm
SRTC Trips/Day	31	7
Vehicle Type	40' Orion/Nova	60' Articulated

Average Daily Ridership

WKDY	SAT	SUN
1,486	285	199

Major Destinations

- SRTC
- Novato GGT
- Marin City

Route	35	29	17	22	42	101	70	45	23	49	36
Average Weekday Transfers	111	50	40	37	23	21	19	17	17	12	10

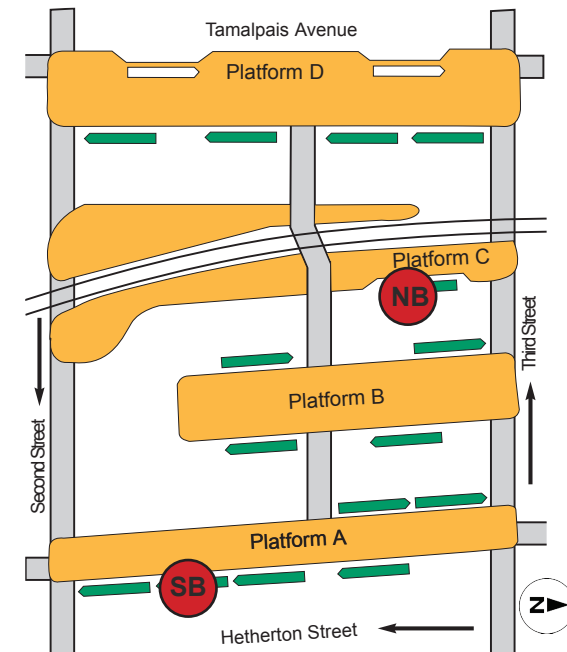
Other routes with minor transfer activity include: Route 40, Route 27, Route 259, Route 257, Route 233, Route 68, and Route 125

Route Map



Note: To be modified to provide limited express service and not duplicate the other local and regional services, and extend to serve Novato- San Marin/Atherton SMART Station per Marin Transit SRTF.

Transit Center Location





Service Characteristics

	Weekday	Weekend/Holiday
Peak	30 minutes	30 minutes (midday)
Off-Peak	60 minutes	60 minutes
Pulse	:15	:15, :45
Span	3:43am - 2:43am	4:16am-2:41am
SRTC Trips/Day	42	46
Vehicle Type	40' Orion	45' MCI, 40' Orion

Average Daily Ridership

WKDY	SAT	SUN
1,792	1,491	1,148

Major Destinations

- SRTC
- Santa Rosa GGT
- SR Transit Mall
- Rohnert Park
- Cotati Hub
- Copeland St Transit Mall
- GGB Toll Plaza
- San Francisco Civic Center
- Transbay Terminal

Route	23	35	70	71	22	49	36	17
Average Weekday Transfers	55	28	22	21	17	15	14	11

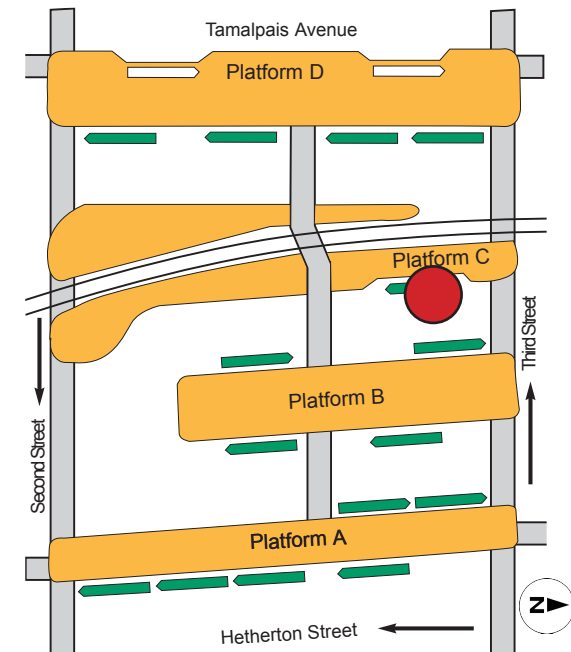
Other routes with minor transfer activity include:
Route 29, Route 42, Route 45, Route 68, Route 259,
Route 27, Route 257, Route 40, and Route 233

Route Map



Note: Route 101 will see increased frequencies per GGT staff.

Transit Center Location





Service Characteristics

	Weekday	Weekend/Holiday
Peak	4 trips	N/A
Off-Peak	N/A	N/A
Pulse	:00, :30	N/A
Span	6:30am - 4:55pm	N/A
SRTC Trips/Day	4	N/A
Vehicle Type	35' XHF, 40' Nova	N/A

Average Daily Ridership

WKDY	SAT	SUN
312	N/A	N/A

Ridership counts do not include Clipper boardings that did not involve a transfer

Major Destinations

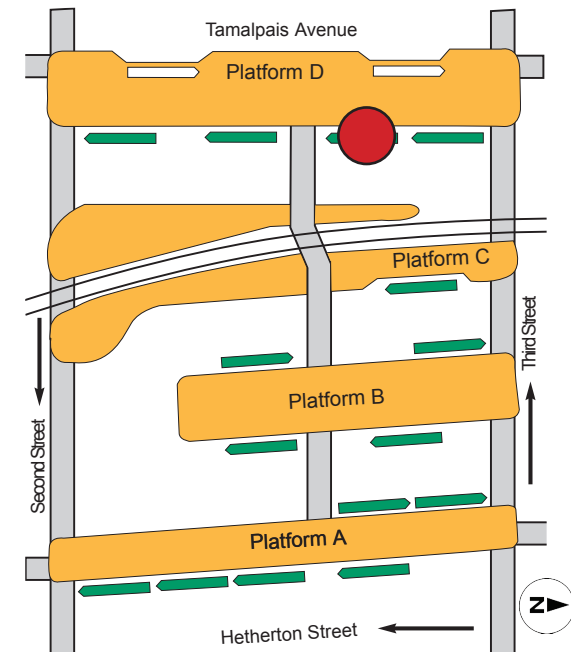
- SRTC
- San Anselmo Hub
- Drake HS
- Fairfax
- Manor ES
- Lagunitas ES

Routes with minor average weekday transfer activity include: Route 68, Route 29, Route 23, Route 35, Route 45, Route 36, Route 22, and Route 71

Route Map



Transit Center Location





Service Characteristics

	Weekday	Weekend/Holiday
Peak	1 trip/day (2 on Tuesdays and Thursdays)*	N/A
Off-Peak		N/A
Pulse	:15, :30, :45	N/A
Span	2:00pm-4:10pm	N/A
SRTC Trips/Day	1 (2 on Tues/Thurs)	N/A
Vehicle Type	35' XHF	N/A

*Service operates on school days only

Average Daily Ridership

WKDY	SAT	SUN
254	N/A	N/A

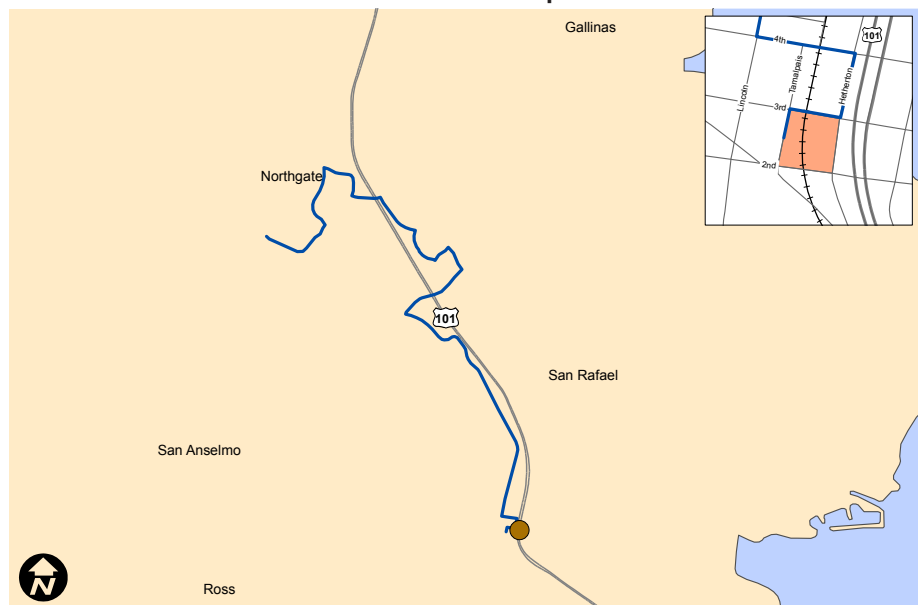
Ridership counts do not include Clipper boardings that did not involve a transfer

Major Destinations

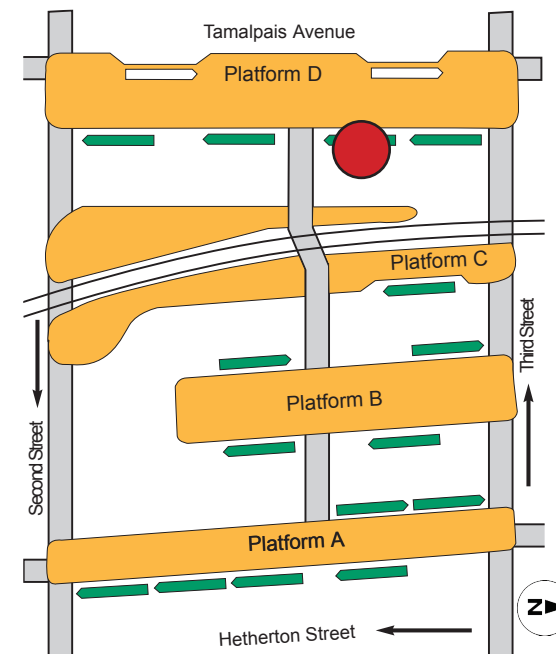
- SRTC
- Terra Linda HS
- Northgate Mall
- Marin Civic Center

Routes with minor average weekday transfer activity include: Route 23, Route 36, Route 35, Route 45, Route 29, and Route 70

Route Map



Transit Center Location





Service Characteristics

	Weekday	Weekend/Holiday
Peak	N/A	N/A
Off-Peak	N/A	60 minutes
Pulse	N/A	:30
Span	N/A	6:39am-8:25pm
SRTC Trips/Day	N/A	26
Vehicle Type	N/A	24' Cutaway

Average Daily Ridership

WKDY	SAT	SUN
N/A	425	313

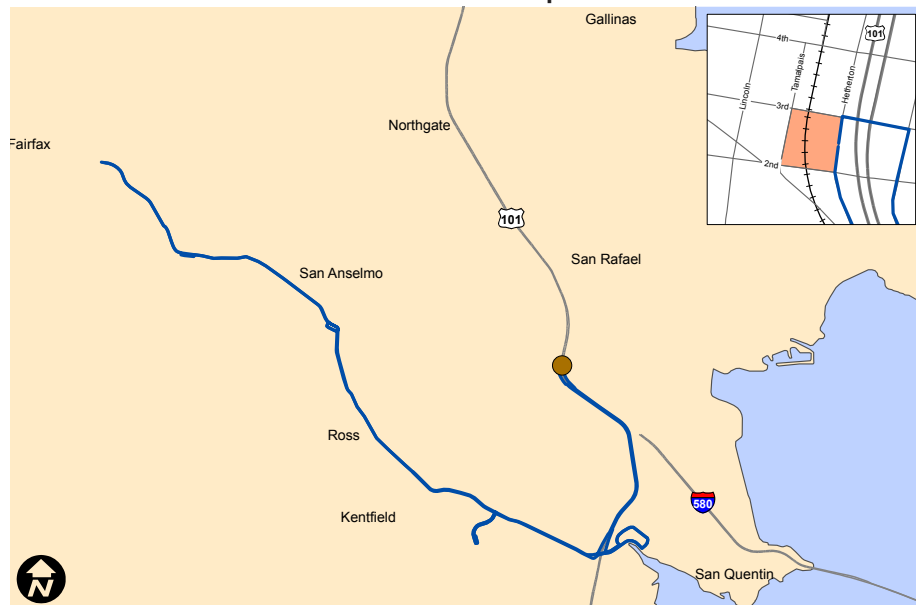
Ridership counts do not include Clipper boardings that did not involve a transfer

Major Destinations

- SRTC
- Larkspur Landing
- Marin General Hospital
- Marin Catholic HS
- Anthony G Bacich ES
- College of Marin
- St Anselm School
- San Anselmo Hub
- Sir Francis Drake HS
- Manor ES
- Fairfax

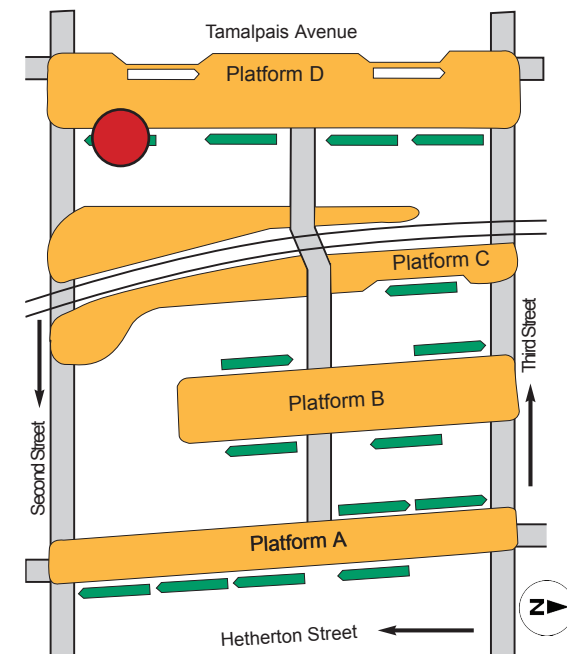
Route 228 does not provide a weekday service, resulting in zero average weekday transfers

Route Map



Note: Implement weekday service to serve current Route 29 market west of College of Marin, provide direct service between SRTC and Larkspur Landing per Marin Transit SRTP.

Transit Center Location





Service Characteristics

	Weekday	Weekend/Holiday
Peak	60 minutes	60 minutes
Off-Peak	60 minutes	60 minutes
Pulse	:00	:00
Span	6:24am - 7:28pm	7:24am-5:55pm
SRTC Trips/Day	25	19
Vehicle Type	24' Cutaway	24' Cutaway

Average Daily Ridership

WKDY	SAT	SUN
2,095	233	131

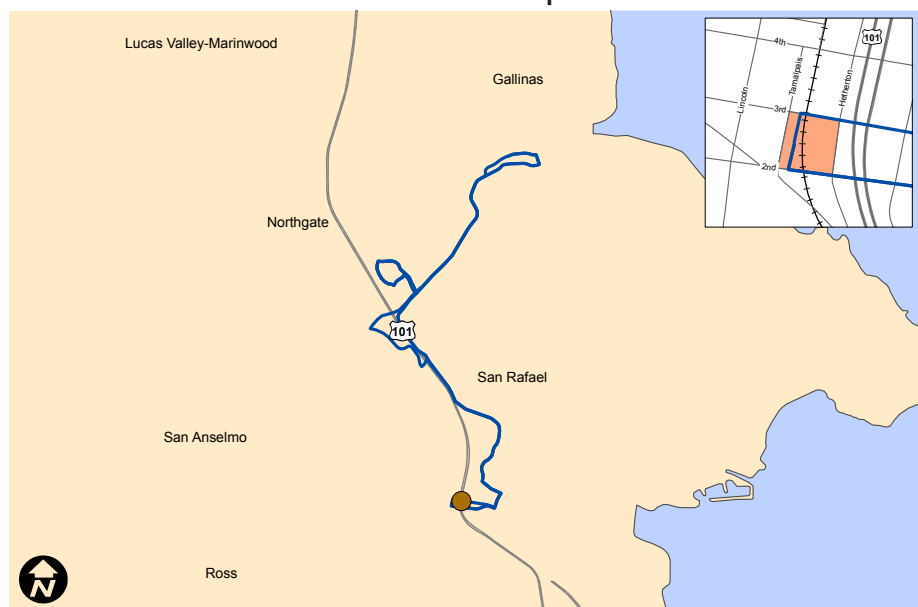
Ridership counts do not include Clipper boardings that did not involve a transfer

Major Destinations

- SRTC
- Dominican University
- Marin Civic Center
- Venetia Valley School
- Santa Venetia

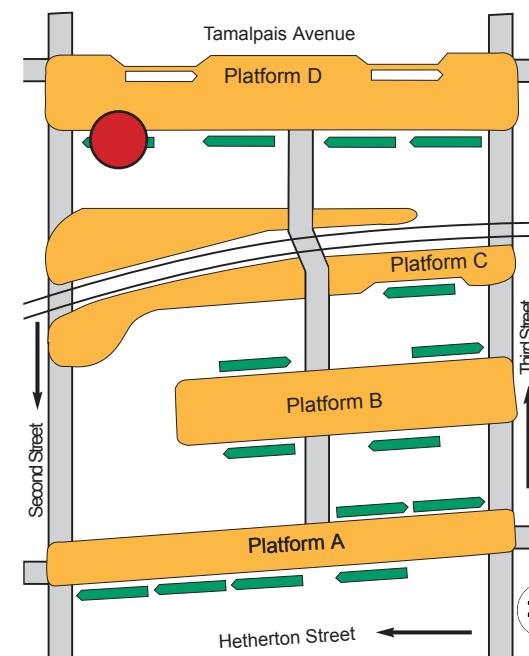
Routes with minor average weekday transfer activity include: Route 29, Route 22, Route 35, Route 70, Route 45, Route 71, Route 17, Route 42, Route 23, Route 49, Route 36, Route 101, Route 259, Route 27, Route 257, Route 40, and Route 68

Route Map



Note: Extend route to serve Civic Center SMART Station (pending necessary capital improvements) per Marin Transit SRTP.

Transit Center Location





Service Characteristics

	Weekday	Weekend/Holiday
Peak	60 minutes	N/A
Off-Peak	60 minutes	N/A
Pulse	:30	N/A
Span	6:33am-7:25pm	N/A
SRTC Trips/Day	25	N/A
Vehicle Type	24' Cutaway	N/A

Average Daily Ridership

WKDY	SAT	SUN
3,151	N/A	N/A

Ridership counts do not include Clipper boardings that did not involve a transfer

Major Destinations

- SRTC
- College of Marin (Indian Valley Campus)
- Pacheco Plaza
- Hamilton Theater
- Health and Human Services
- Northgate Mall
- Dominican University

Route	35
Average Weekday Transfers	11

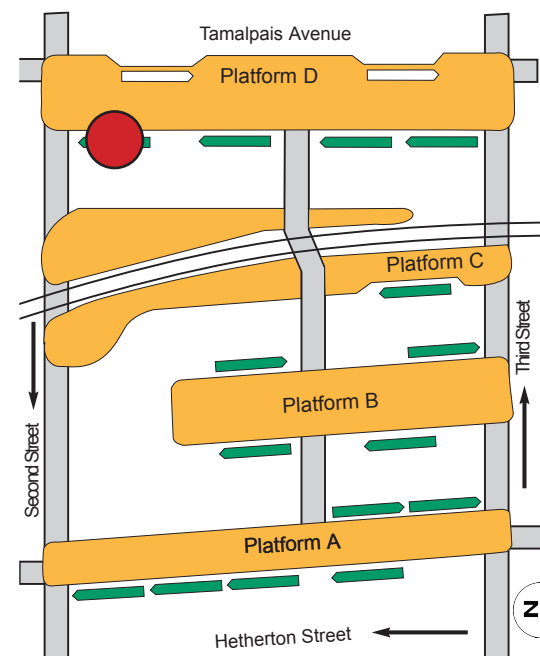
Other routes with minor transfer activity include: Route 22, Route 71, Route 70, Route 42, Route 45, Route 23, Route 29, Route 17, Route 259, Route 49, Route 101, Route 27, Route 40, Route 233, Route 36, Route 68

Route Map



Note: Add service to Hamilton SMART Station (pending necessary capital improvements) per Marin Transit SRTP.

Transit Center Location





Service Characteristics

	Weekday	Weekend/Holiday
Peak	60 minutes	60 minutes
Off-Peak	60 minutes	60 minutes
Pulse	:45	:00
Span	7:45am - 10:53pm	7:00am-11:22pm
SRTC Trips/Day	29	30
Vehicle Type	24' Cutaway	24' Cutaway

Average Daily Ridership

WKDY	SAT	SUN
4,827	1,087	885

Ridership counts do not include Clipper boardings that did not involve a transfer

Major Destinations

- SRTC
- Marin Civic Center
- Northgate Mall
- Hamilton Theater
- Lynwood ES
- Novato

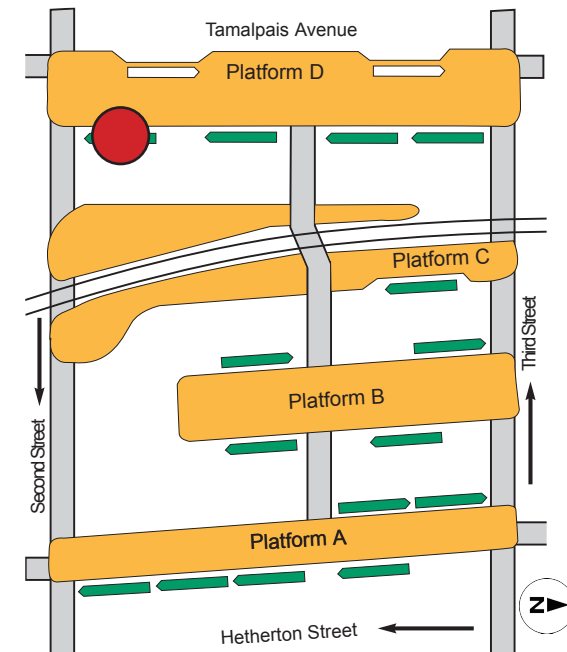
Route	35
Average Weekday Transfers	11

Other routes with minor transfer activity include: Route 70, Route 42, Route 29, Route 49, Route 45, Route 71, Route 36, Route 101, Route 28, Route 22, Route 257, Route 68, Route 17, Route 23, Route 233, and Route 40

Route Map



Transit Center Location





SAN RAFAEL TRANSIT CENTER RELOCATION STUDY

Appendix F: On-Time Performance Summary

Weekday SRTC On-Time Performance

Route	Dir	Operator	AM Peak		Midday Peak		PM Peak	
			% On-Time	>5' Late	% On-Time	>5' Late	% On-Time	>5' Late
40	NB/SB	GGT	84%	16%	88%	11%		
42	WB/EB	GGT	79%	13%	81%	14%	81%	14%
101	NB/SB	GGT	79%	13%	81%	14%	81%	14%
70	NB/SB	GGT	79%	13%	81%	14%	81%	14%
27	NB/SB	GGT	84%	16%	88%	12%		
44	NB/SB	GGT	84%	16%	87%	12%		
17	SB/NB	MT (GGT)	93%	6%	93%	6%	92%	6%
22	SB	MT (GGT)	93%	6%	93%	6%	92%	6%
23	WB	MT (GGT)	93%	6%	93%	6%	92%	6%
29	WB/EB	MT (GGT)	93%	6%	93%	6%	92%	6%
35	EB	MT (GGT)	93%	6%	93%	6%	92%	6%
36	NB/SB	MT (GGT)	93%	6%	91%	7%		
71	NB/SB	MT	93%	6%	93%	6%	92%	6%
126	EB	MT	89%	9%				

Source: Data represents On-Time Performance for January and February 2015, as provided by Golden Gate Transit.

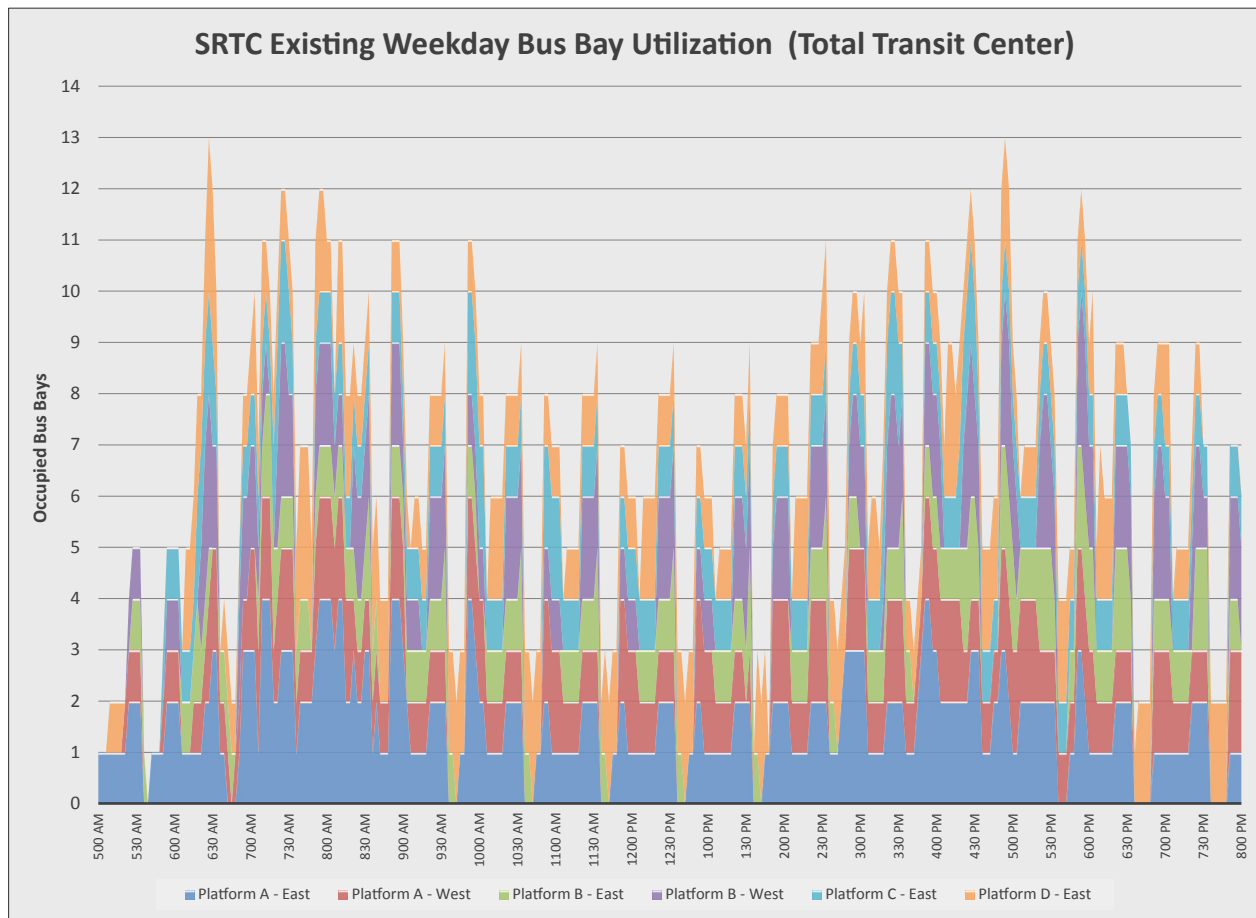


SAN RAFAEL TRANSIT CENTER RELOCATION STUDY

Appendix G: Existing SRTC Bay Utilization



SRTC Bay Utilization and Needs



Assumptions:

- Bay utilization assessment based on existing weekday operating schedules, assuming a 3-5 minute buffer for arrivals and departures
- Evaluation includes ancillary services (Marin Airporter, Sonoma Transit, Sonoma County Airport Express), but excludes Greyhound bus service.

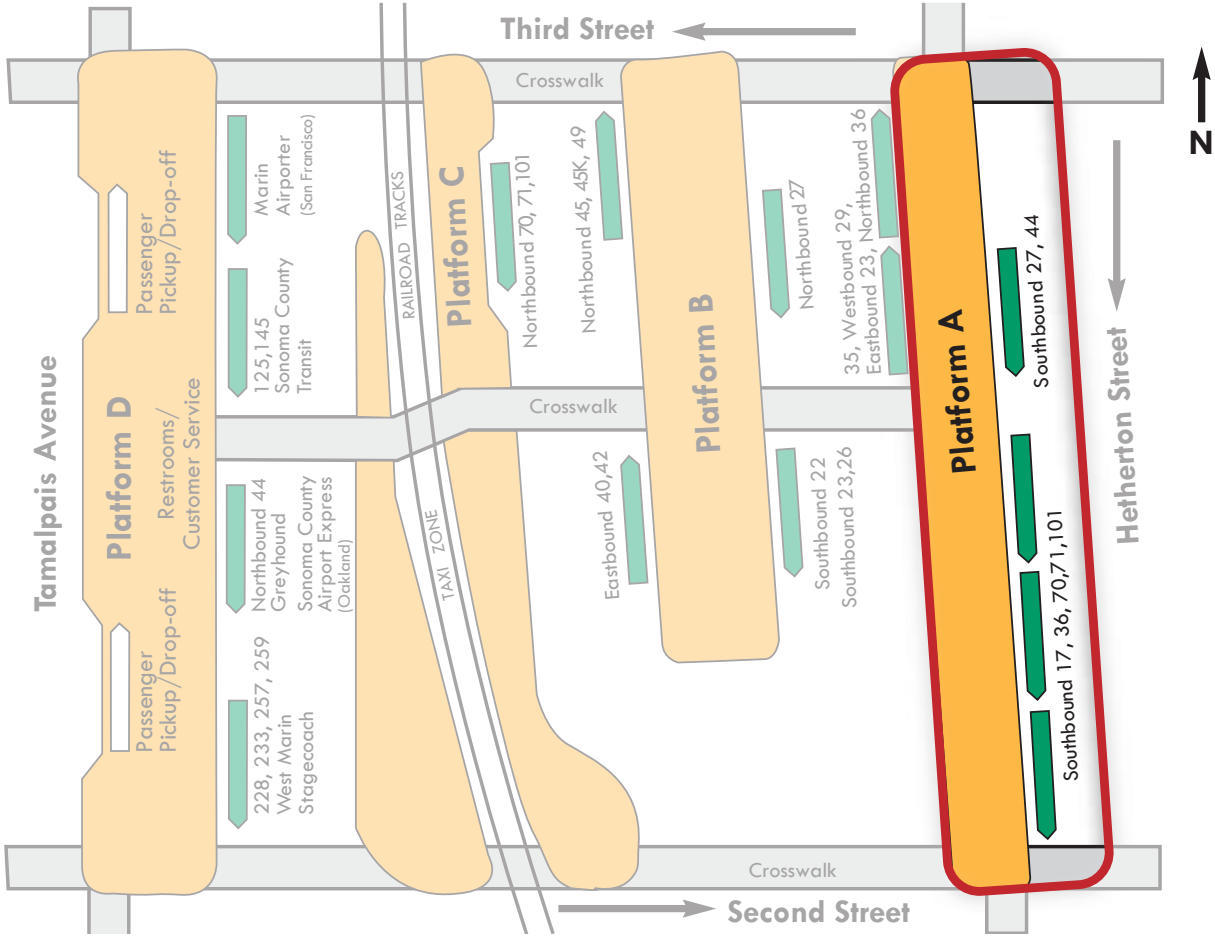
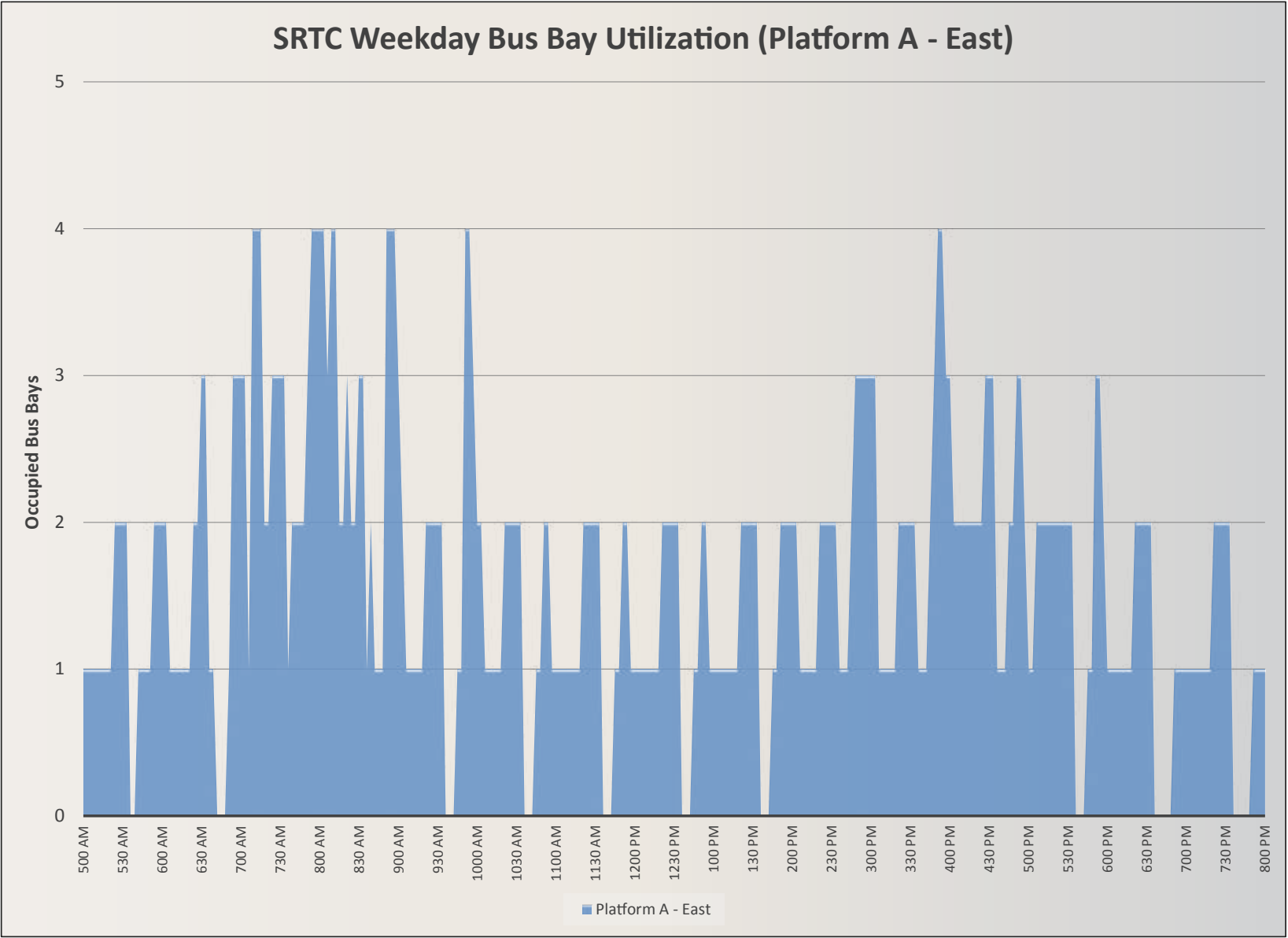
Existing Peak Weekday Bus Bay Utilization:

- For existing weekday operations, a maximum of 13 bus bays are utilized during the highest-demand pulses

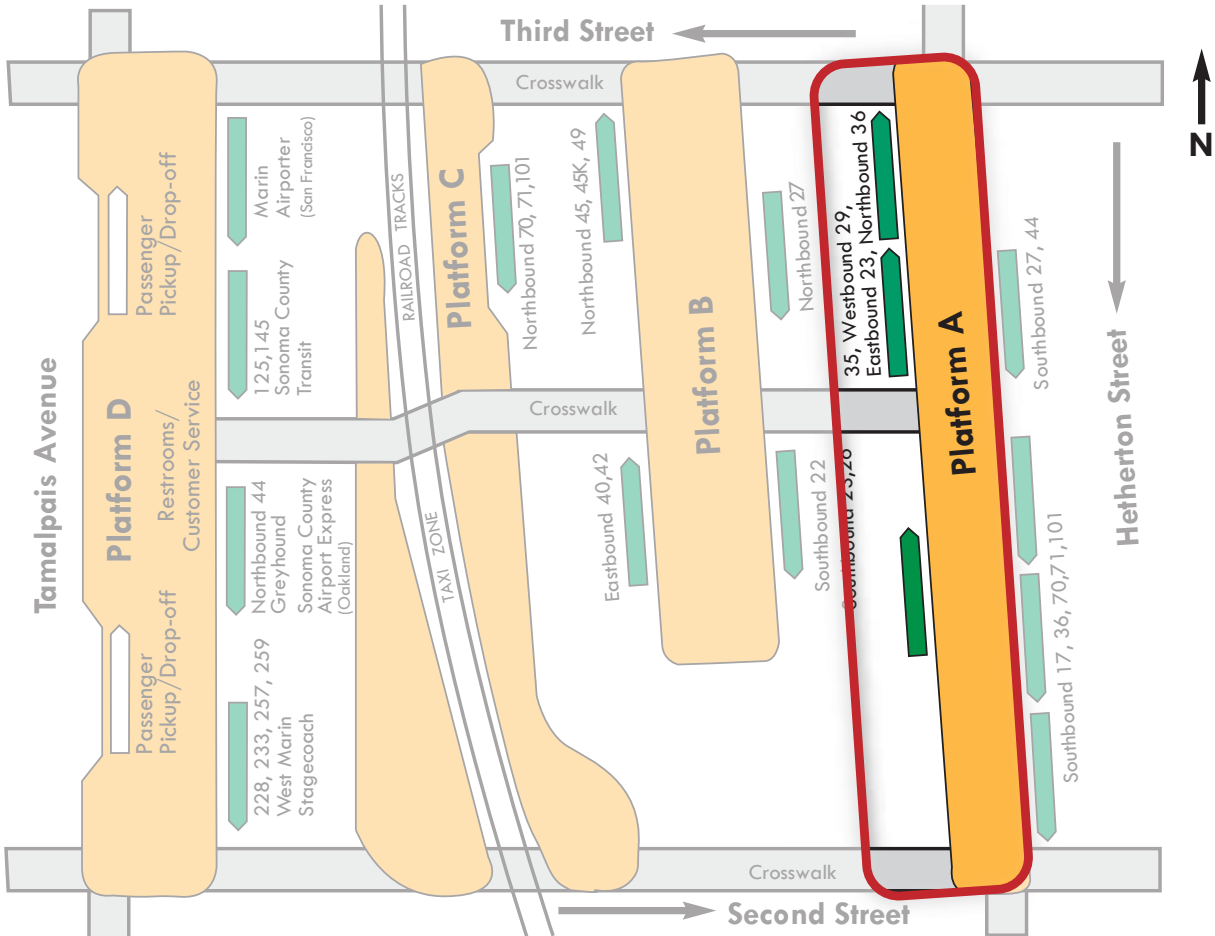
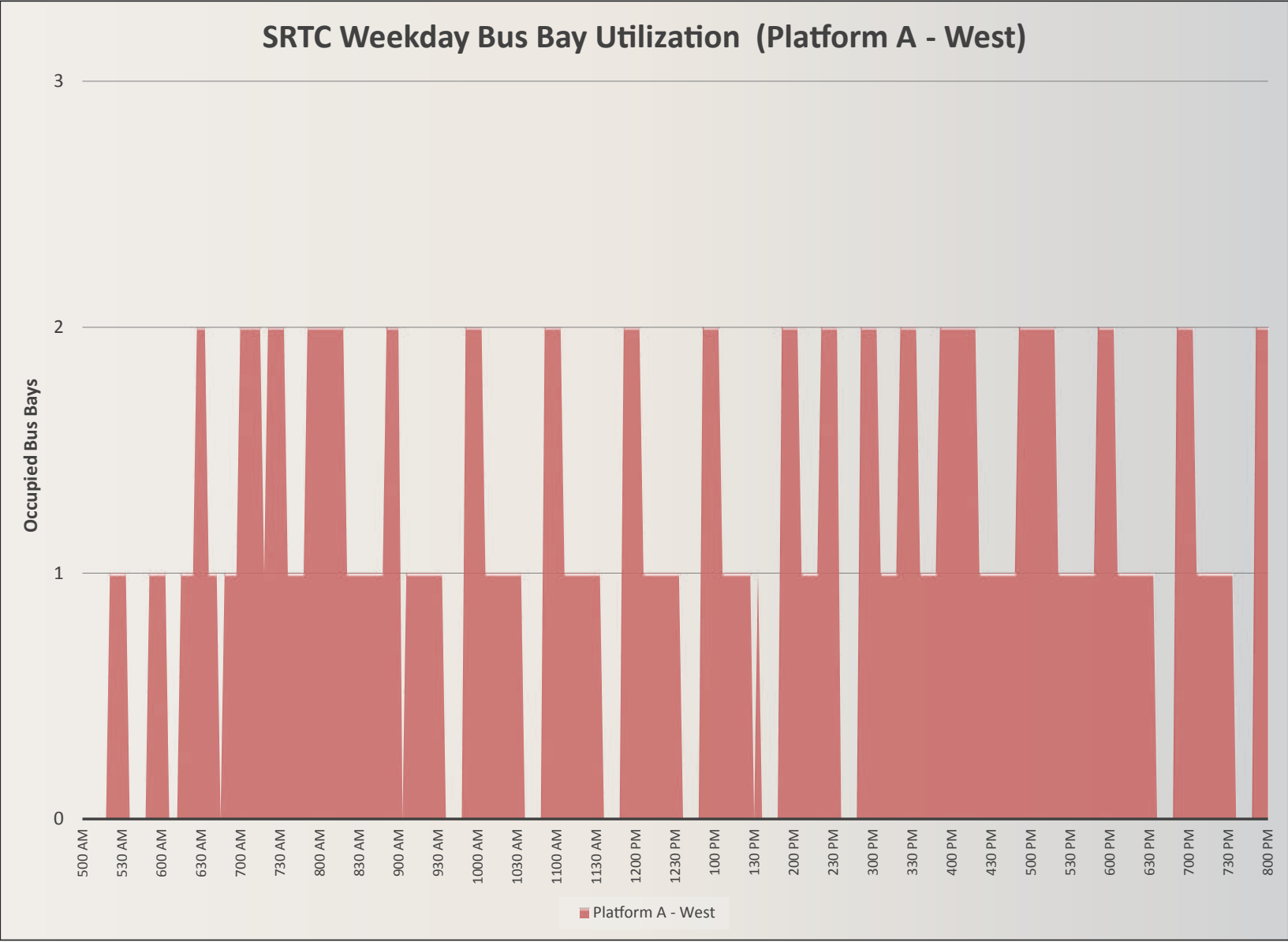
Bus Bay Needs with Planned Service Changes:

- Planned Marin Transit Route 122 serving College of Marin is anticipated to utilize the bay at the west side of Platform A and will add demand at this platform
- Planned Marin Transit service modifications to Routes 35/45 are anticipated to reduce the peak bay utilization at the SRTC by one bay
- Planned Golden Gate Transit service frequency increases on Routes 40/42 and 101 may require one additional bay at the SRTC

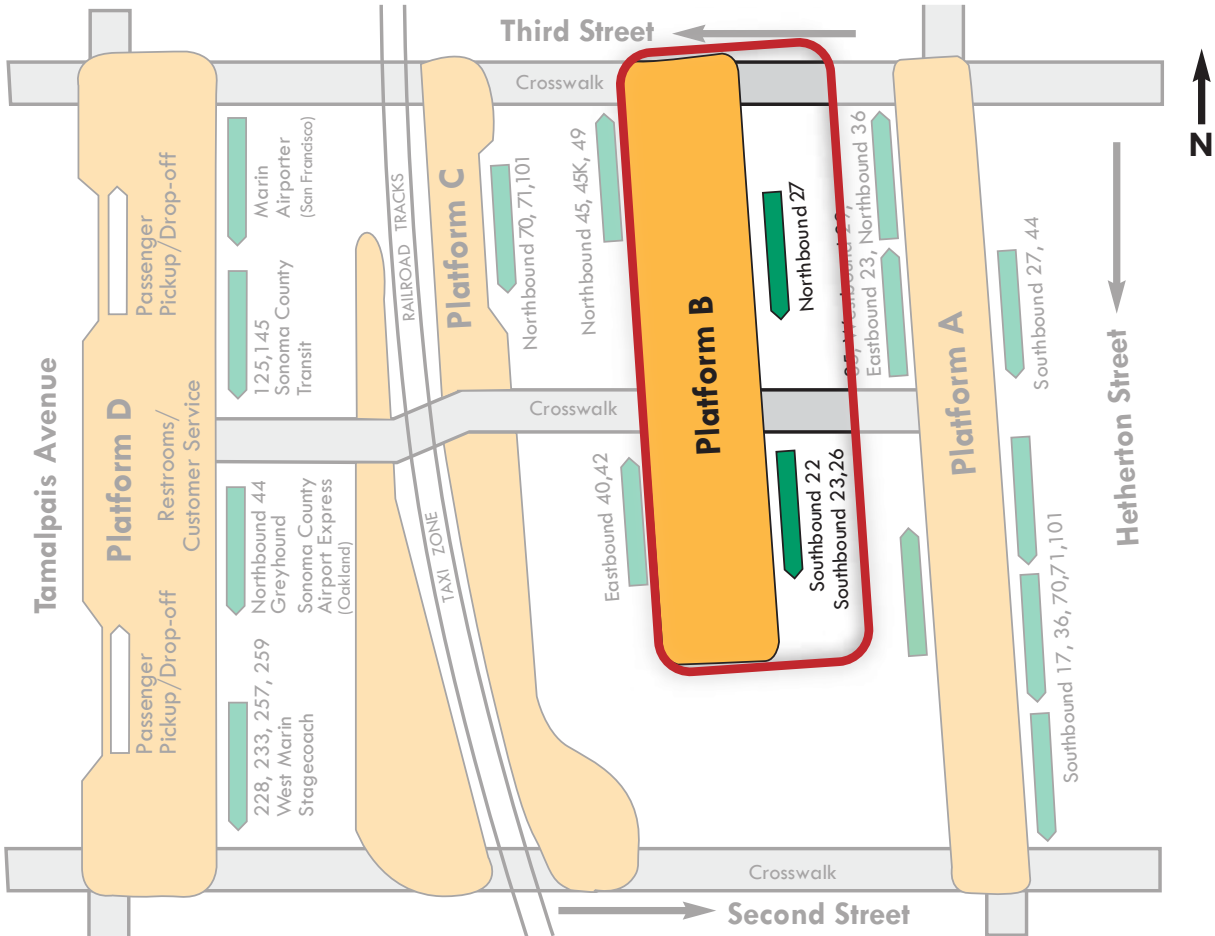
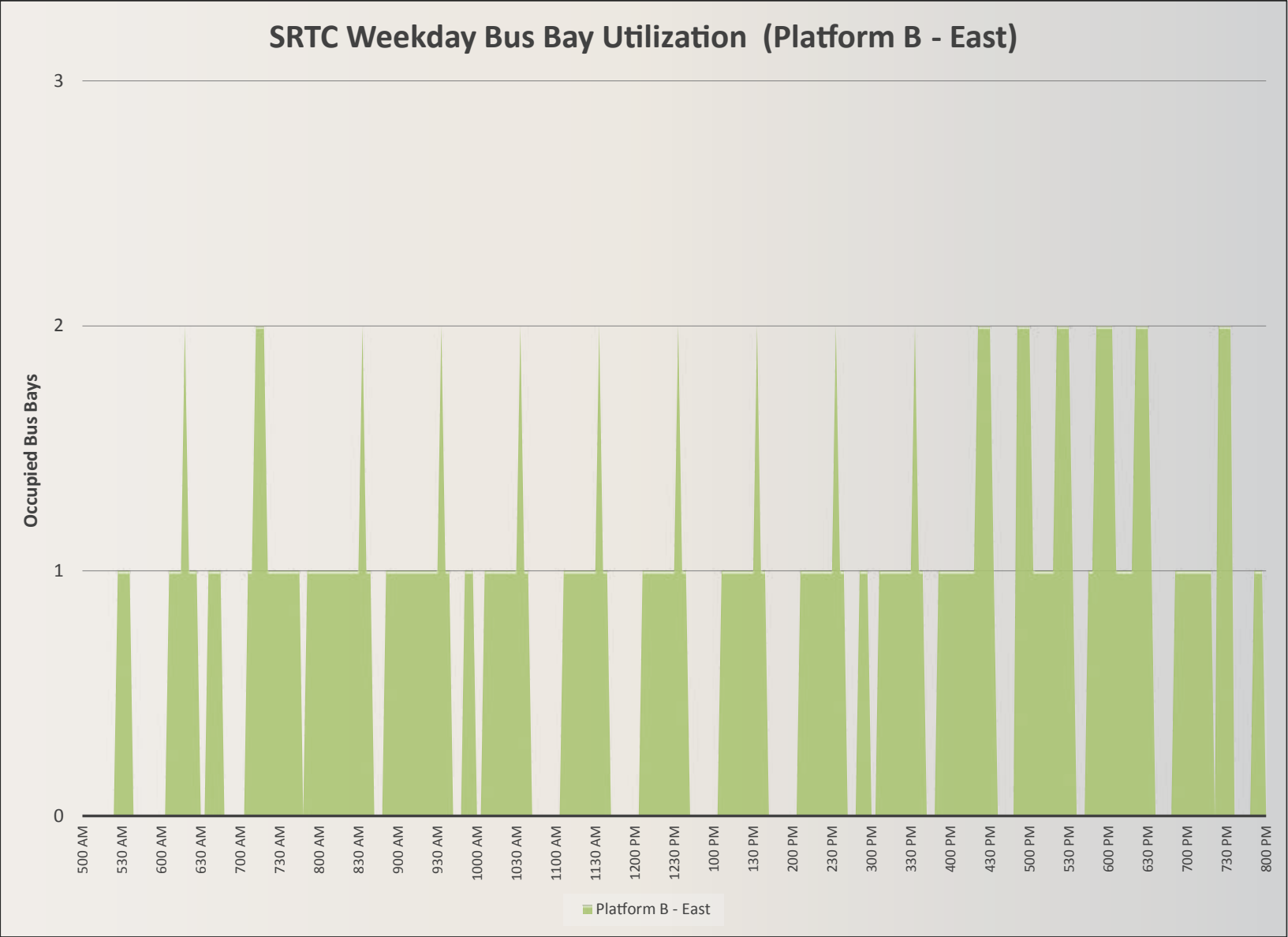
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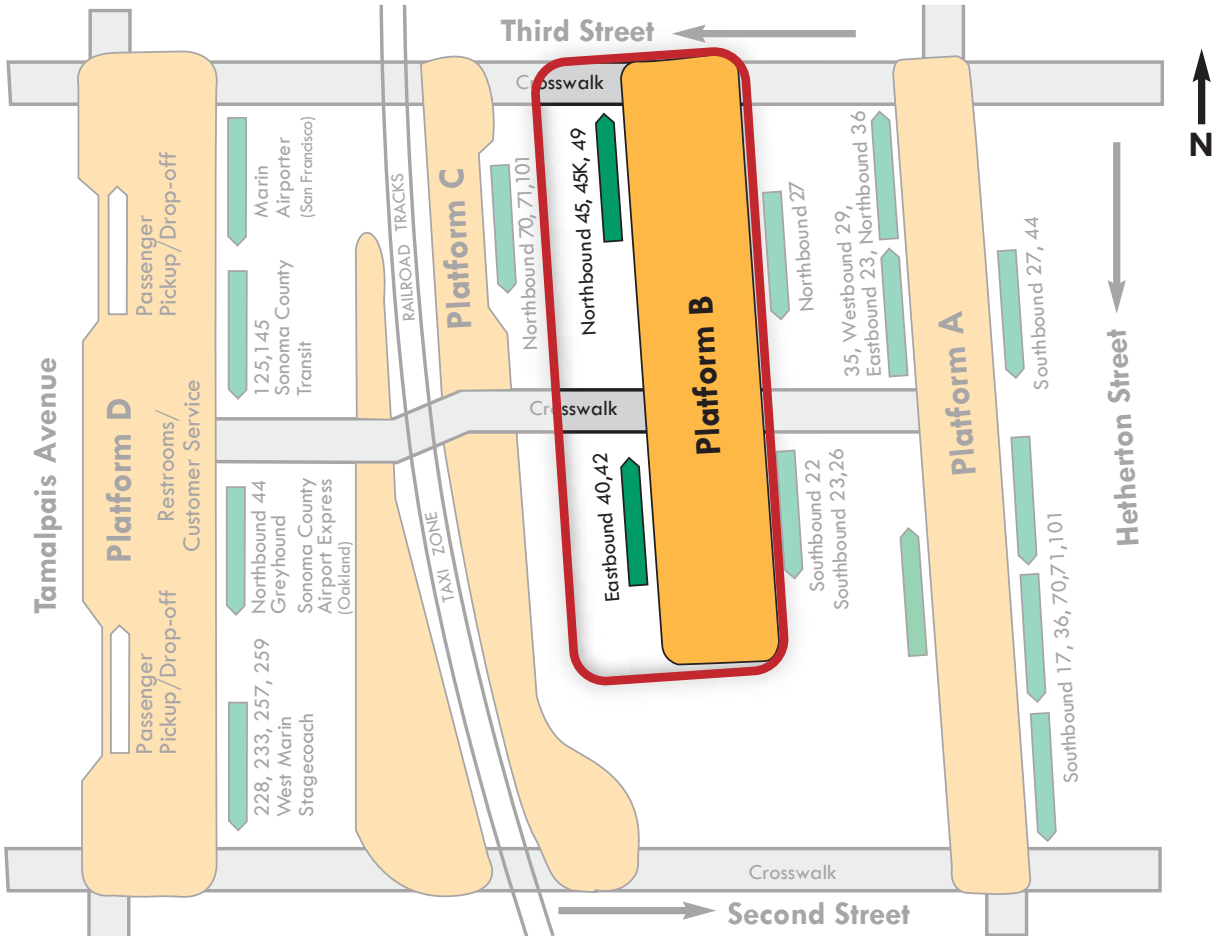
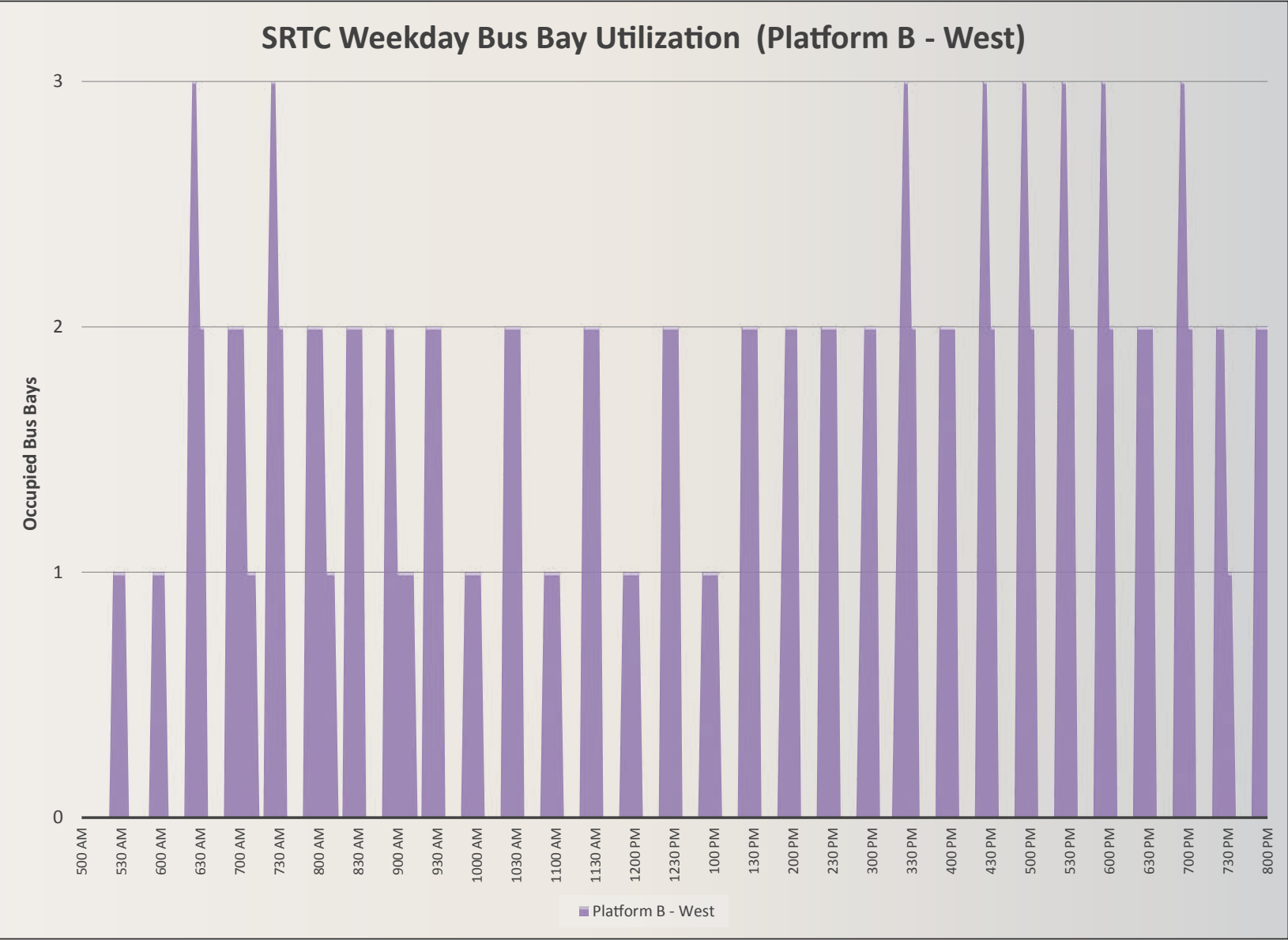
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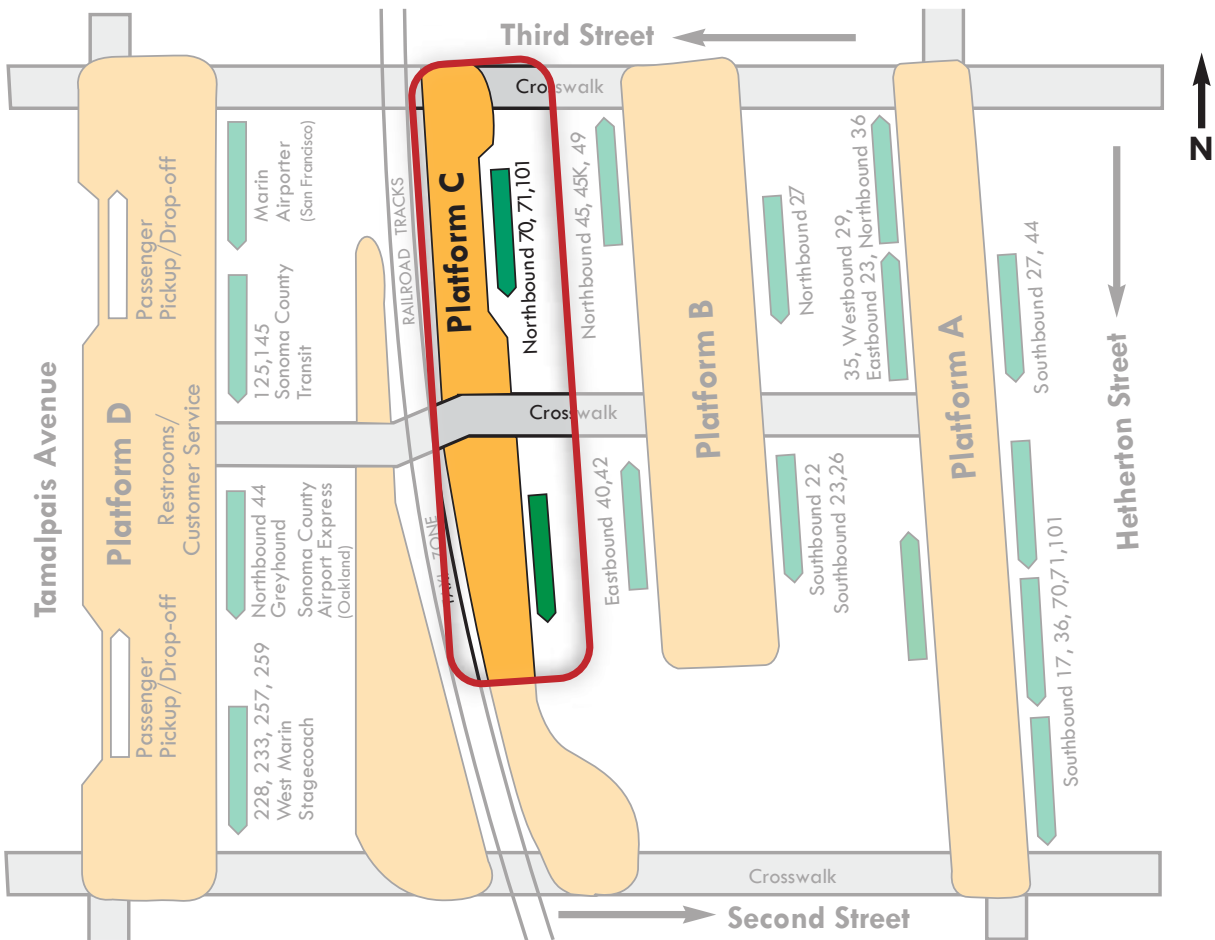
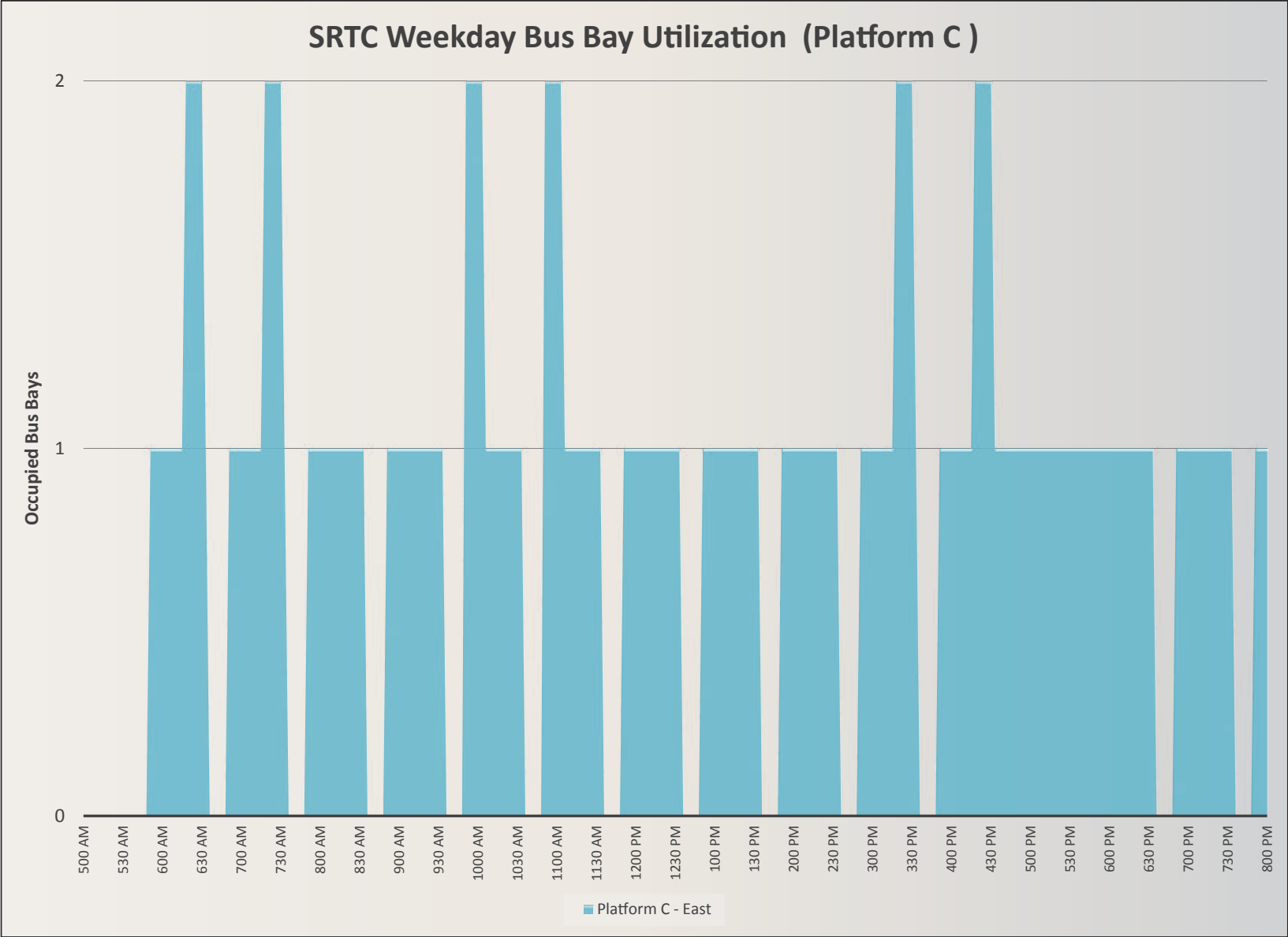
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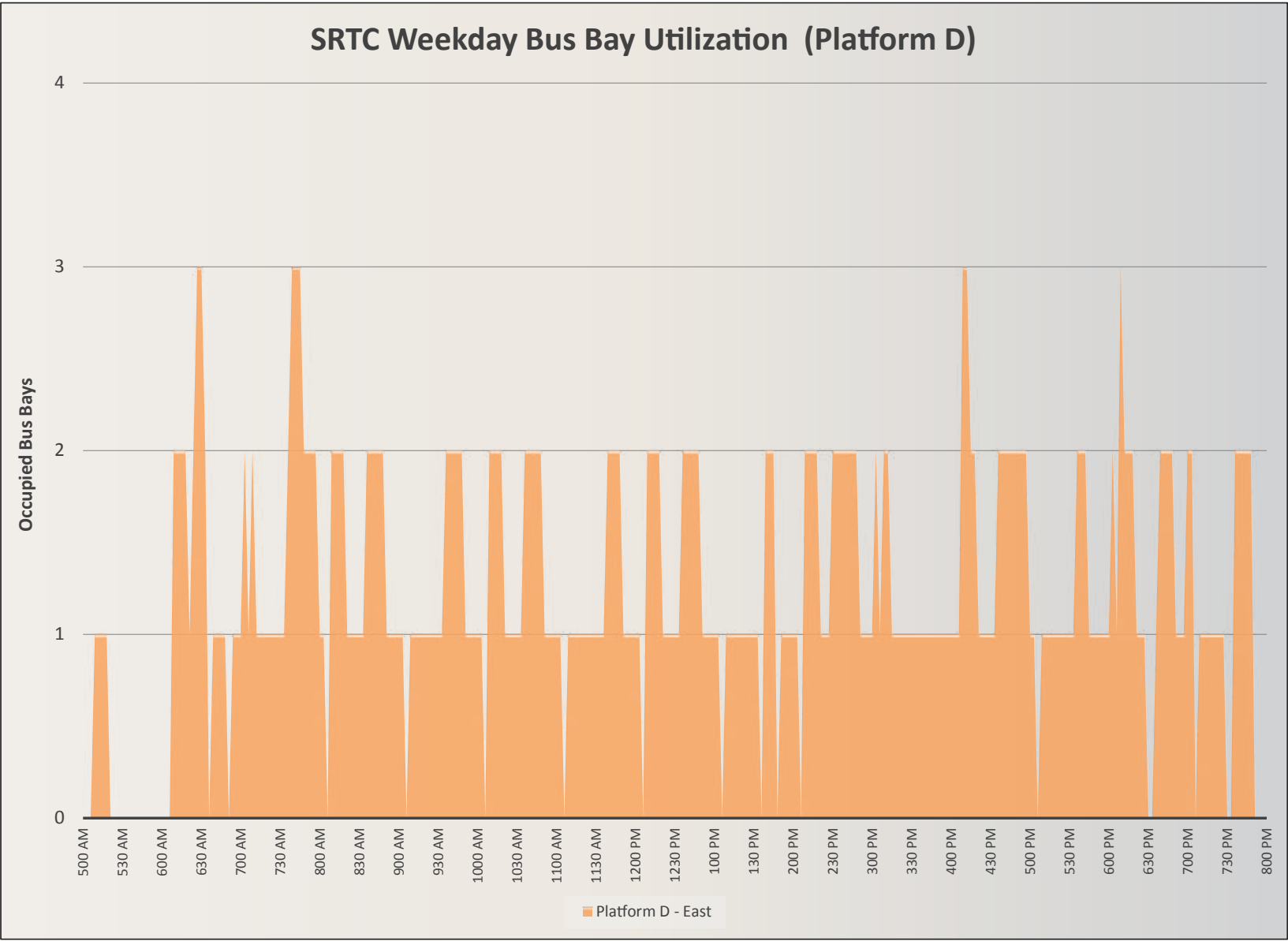
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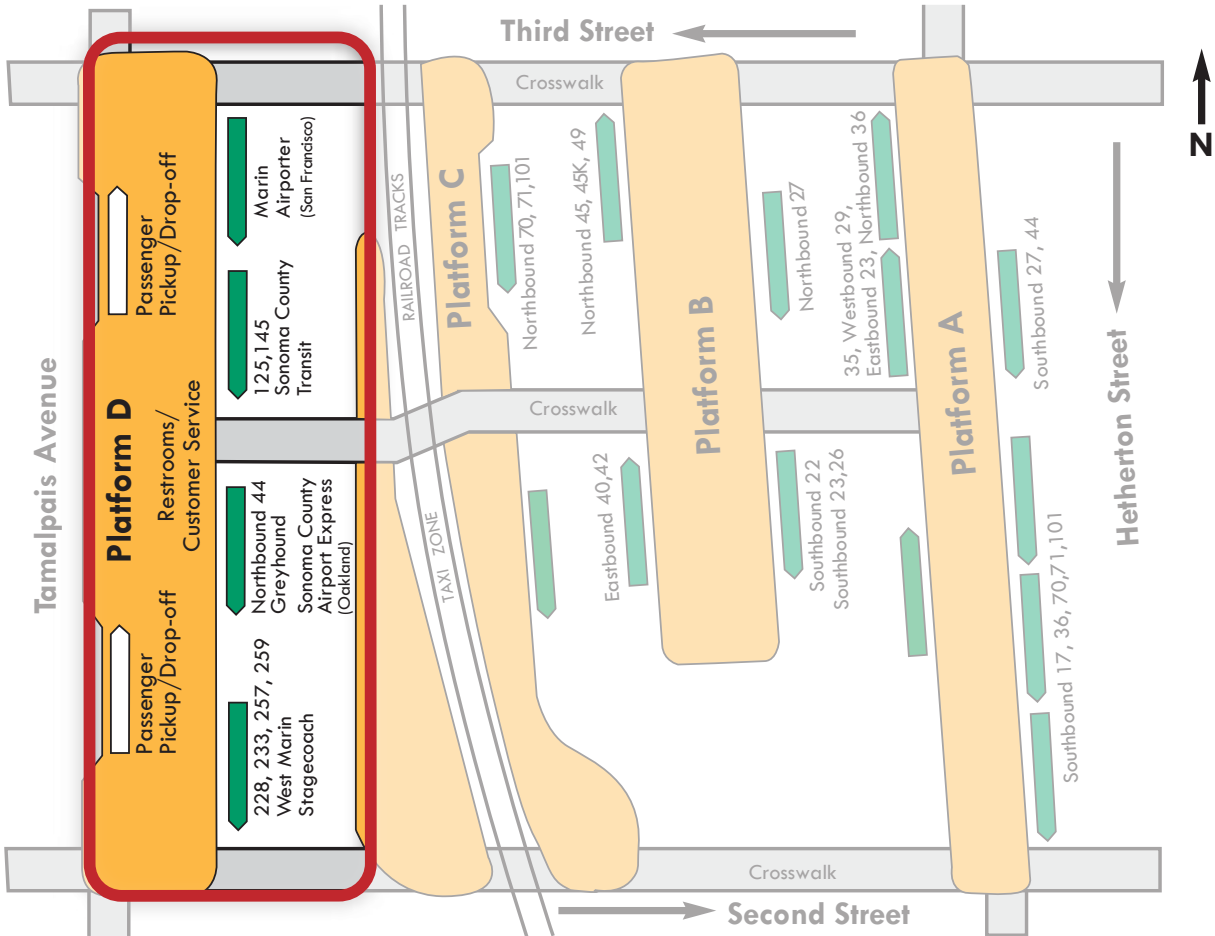
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*Excludes Greyhound bus service.

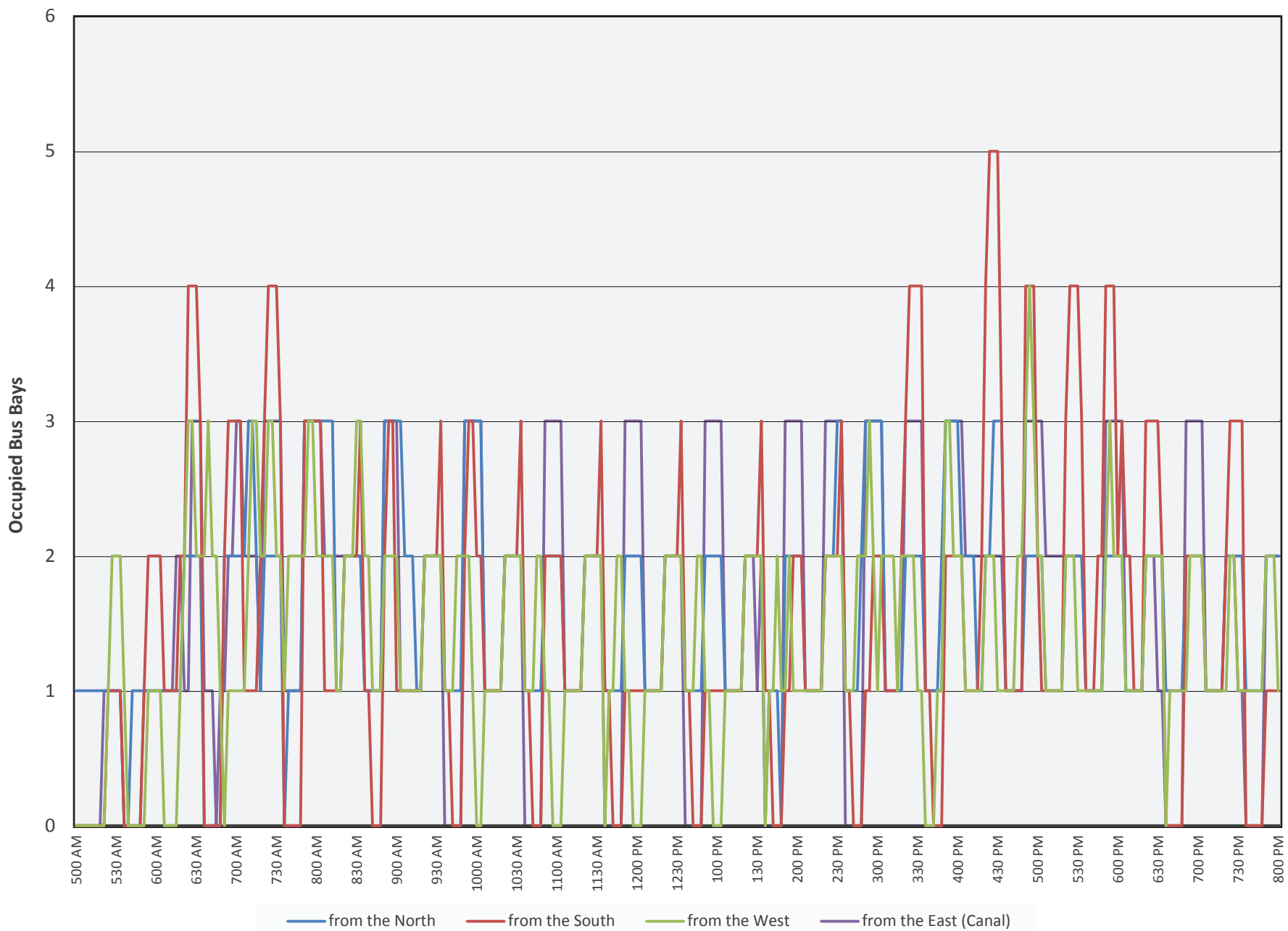




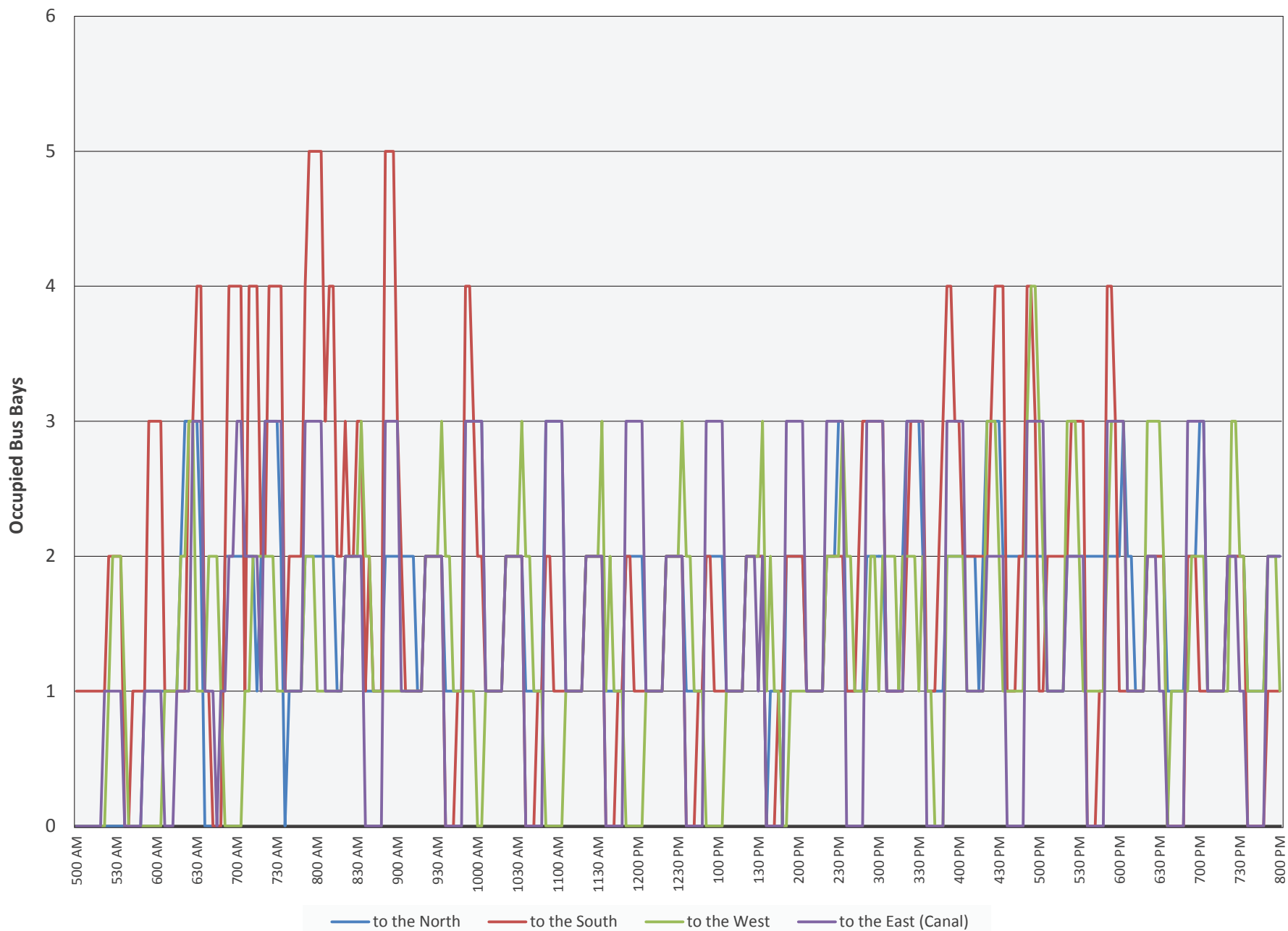
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Appendix H: Bus Bay Utilization Charts

SAN RAFAEL TRANSIT CENTER RELOCATION STUDY



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WEEKDAY BUS BAY UTILIZATION BY DEPARTURE DIRECTION



SAN RAFAEL TRANSIT CENTER RELOCATION STUDY

Appendix I: Interim Solution Opinion of Probable Cost

San Rafael Transit Center Relocation Study
Draft Concept 4 Opinion of Probable Cost

Item	Qty	Unit	Unit Cost	Cost	Comments
Demolition					
Remove Pavement (Sidewalk, Asphalt, Conc.)	6,925	SF	\$3	\$20,775	Includes: Sidewalk, Asphalt, Misc. Concrete. Areas such as the east and west side of Tam between 2nd and 3rd and west side of Tam north of 3rd
Remove curb or curb-and-gutter	600	LF	\$15	\$9,000	
Relocate street light standard	2	EA	\$4,500	\$9,000	Light on Corner of Tam and 2nd to be set back so that it's current offset from the adjacent curbface and street corner remains the same. Light on west side of Tam between 2nd/3rd.
Relocate Sign	7	EA	\$250	\$1,750	
Relocate Bike Racks	3	EA	\$1,000	\$3,000	Relocate racks adjacent to SMART
Remove Drainage Inlet	2	EA	\$1,500	\$3,000	NE and NW corner of Tam and 2nd
Remove Trees	6	EA	\$1,000	\$6,000	Bulbouts along Tam between 2nd and 3rd (Protect northernmost 2 adjacent to utilities) and west side of Tam north of 3rd
Demolition Subtotal				\$52,525	
Structures					
Bus Shelter w/ furnishings	4	EA	\$19,000	\$76,000	2 on Tam between 2nd and 3rd, 1 on Tam between 3rd and 4th. Includes: Bench, Trash, Lighting, Conduit, Trenching for Conduit
Structures Subtotal				\$76,000	
Utilities & Drainage					
Curb Inlet w/ filter units	2	EA	\$10,000	\$20,000	NE and NW corner of Tam and 2nd
12" RCP (Class V)	10	LF	\$500	\$5,000	Tie into existing pipe with lug
Concrete Lug	1	EA	\$2,000	\$2,000	see above
Adjust utility valve/manhole to grade	2	EA	\$800	\$1,600	Water Access Ports along SB Tam between 2nd and 3rd
Underground Utility(electrical/cable/fiber-optic, etc)	150	LF	\$500	\$75,000	Along SB Tam between 3rd & 4th (new underground line)
5" Conduit	150	LF	\$60	\$9,000	Along SB Tam between 3rd & 4th (new underground line)
Pull Box	2	EA	\$1,000	\$2,000	Along SB Tam between 3rd & 4th (new underground line)
New Street Light	1	EA	\$6,000	\$6,000	SB Tam between 3rd and 4th

San Rafael Transit Center Relocation Study
Draft Concept 4 Opinion of Probable Cost

Item	Qty	Unit	Unit Cost	Cost	Comments
CCTV/Poles/Conduit	5	EA	\$12,000	\$60,000	Cameras on shelter structure, conduit, and trenching (likely same trench as shelter lighting)
Utilities & Drainage Subtotal				\$180,600	
Landscape & Irrigation					
BMP	1	LS	\$20,000	\$20,000	
Landscape & Irrigation Subtotal				\$20,000	
Street Improvements					
Sawcut	1,100	LF	\$1	\$1,100	Pavement replacement perimeter
Slurry Seal	9,109	SF	\$1	\$9,109	Tamalpais between 3rd and 2nd curb to curb
Curb and gutter	600	LF	\$70	\$42,000	Tamalpais 2nd to 3rd both sides
Pavement (HMA)	100	SF	\$20	\$2,000	Misc. locations (i.e. bulbout removal and corner/c&g setbacks)
Resurface Asphalt 4" AC Course	10,583	SF	\$10	\$105,830	Tamalpais 3rd to 4th, curb to curb
9" PCC Pavement (Bus Pads)	3,250	SF	\$34	\$110,500	Bus lane on Tam from 2nd to 3rd and 2 pullouts north of 3rd
Curb ramps	3	EA	\$3,200	\$9,600	NW & NE corner of 2nd and Tam(2 directional and 1 winged)
Driveway	2	EA	\$8,500	\$17,000	West side of Tam from 2nd to 3rd
Sidewalk	2,000	SF	\$15	\$30,000	East and west side of Tam from 2nd to 3rd, along bus bays on east side of Tam between 3rd and 4th
Pavement Stripe/Marking	1	LS	\$11,670	\$11,670	
Signal Modification	1	LS	\$270,000	\$270,000	1 @ NE & NW Corner of 2nd & Tam, 1 @ SW Corner of 3rd & Tam. 90k Per Quad, includes loops, trenching, pullboxes, mast, lights, signage, etc.
Temporary Way Finding	1	LS	\$15,908	\$15,908	2 - C4 and 1 - K (Platform Between 3rd and 4th), 2 - Remove and Relocate to Stalls on Platform Island with Transit Center Facility
Street Improvements Subtotal				\$624,717	
Cijos St Subtotal				\$220,920	

San Rafael Transit Center Relocation Study
Draft Concept 4 Opinion of Probable Cost

Item	Qty	Unit	Unit Cost	Cost	Comments
4th St Subtotal				\$366,500	
Traffic Control	10%			\$154,126	
Water Pollution Control	2%			\$30,825	
Mobilization	10%			\$136,066	
Construction Subtotal				\$1,862,280	
Environmental/Permitting Fees	5%			\$93,114	
Construction Management/Administration	10%			\$186,228	
Final Design & Engineering	12%			\$223,474	
Soft Costs Total				\$502,816	
Contingency	30%			\$709,528.73	
Initial Project Total (Current \$)				\$3,074,624	
2yr Escalation	6.3%			\$173,267	Caltrans Cost Indices and Forecast
Initial Project Total (YOE \$)				\$3,247,892	

REHAB					
Item	Qty	Unit	Unit Cost	Cost	Comments
Mill & Overlay	23,070	SF	\$3	\$69,210	
Pavement Stripe/Marking	1	LS	\$11,670	\$11,670	
Remove/Salvage Bus Shelter	2	EA	\$1,200	\$2,400	
Rehab Street Improvements Total				\$83,280	
Traffic Control	10%			\$8,328	
Water Pollution Control	2%			\$1,666	
Mobilization	10%			\$8,328	

San Rafael Transit Center Relocation Study
Draft Concept 4 Opinion of Probable Cost

Item	Qty	Unit	Unit Cost	Cost	Comments
Construction Subtotal				\$101,602	
Environmental/Permitting Fees	5%			\$5,080	
Construction Management/Administration	10%			\$10,160	
Final Design & Engineering	12%			\$12,192	
Soft Costs Total				\$27,432	
Contingency	30%			\$38,710	
Rehab Total (Current \$)				\$167,744	
7yr Escalation	21.6%			\$36,160	Caltrans Cost Indices and Forecast
Rehab Total (YOE \$)				\$203,904	



SAN RAFAEL TRANSIT CENTER RELOCATION STUDY

Appendix J: Preliminary Alternatives Concepts

SAN RAFAEL TRANSIT CENTER RELOCATION STUDY



Alternative 1



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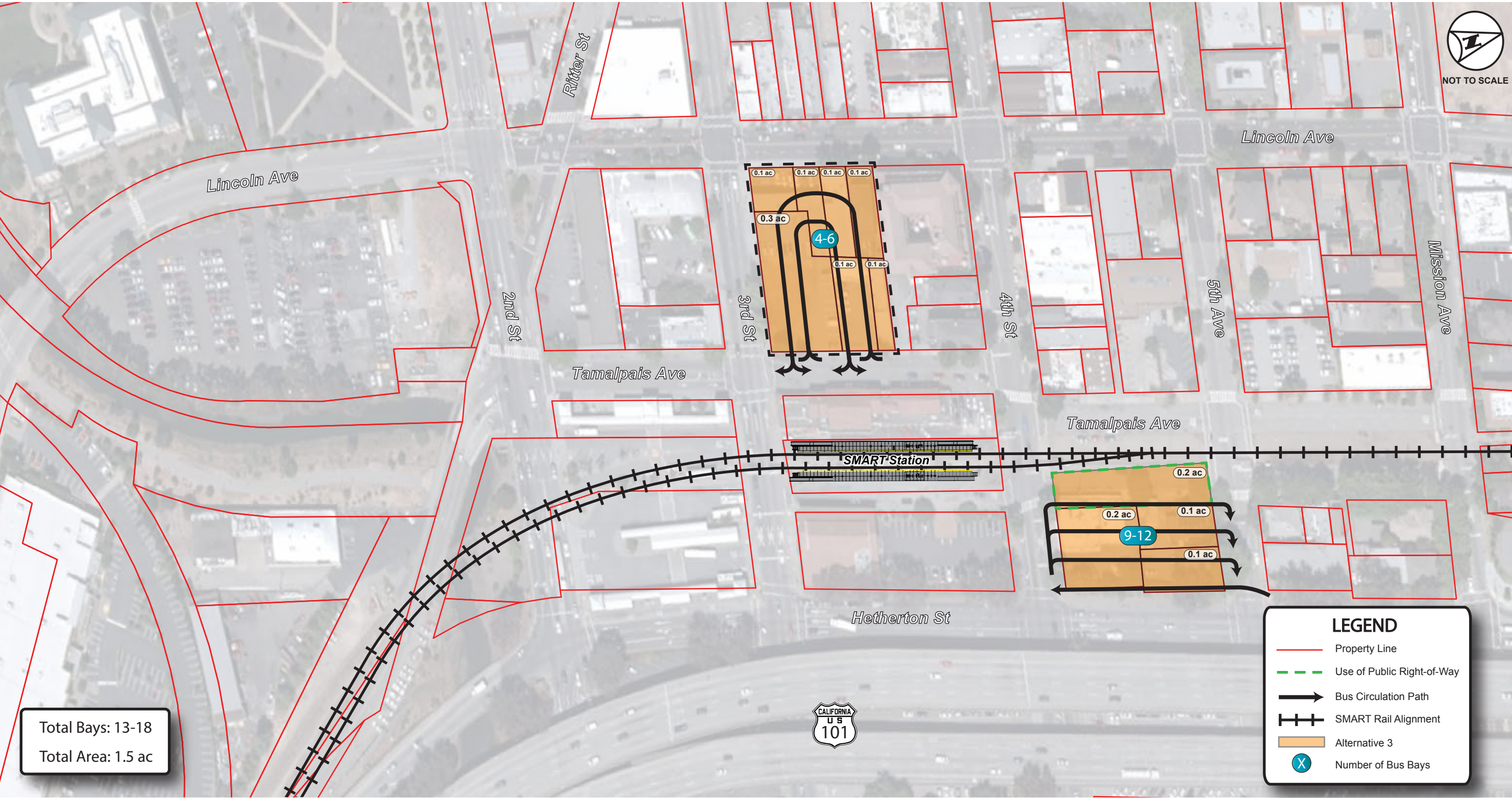
Alternative 2



SAN RAFAEL TRANSIT CENTER RELOCATION STUDY



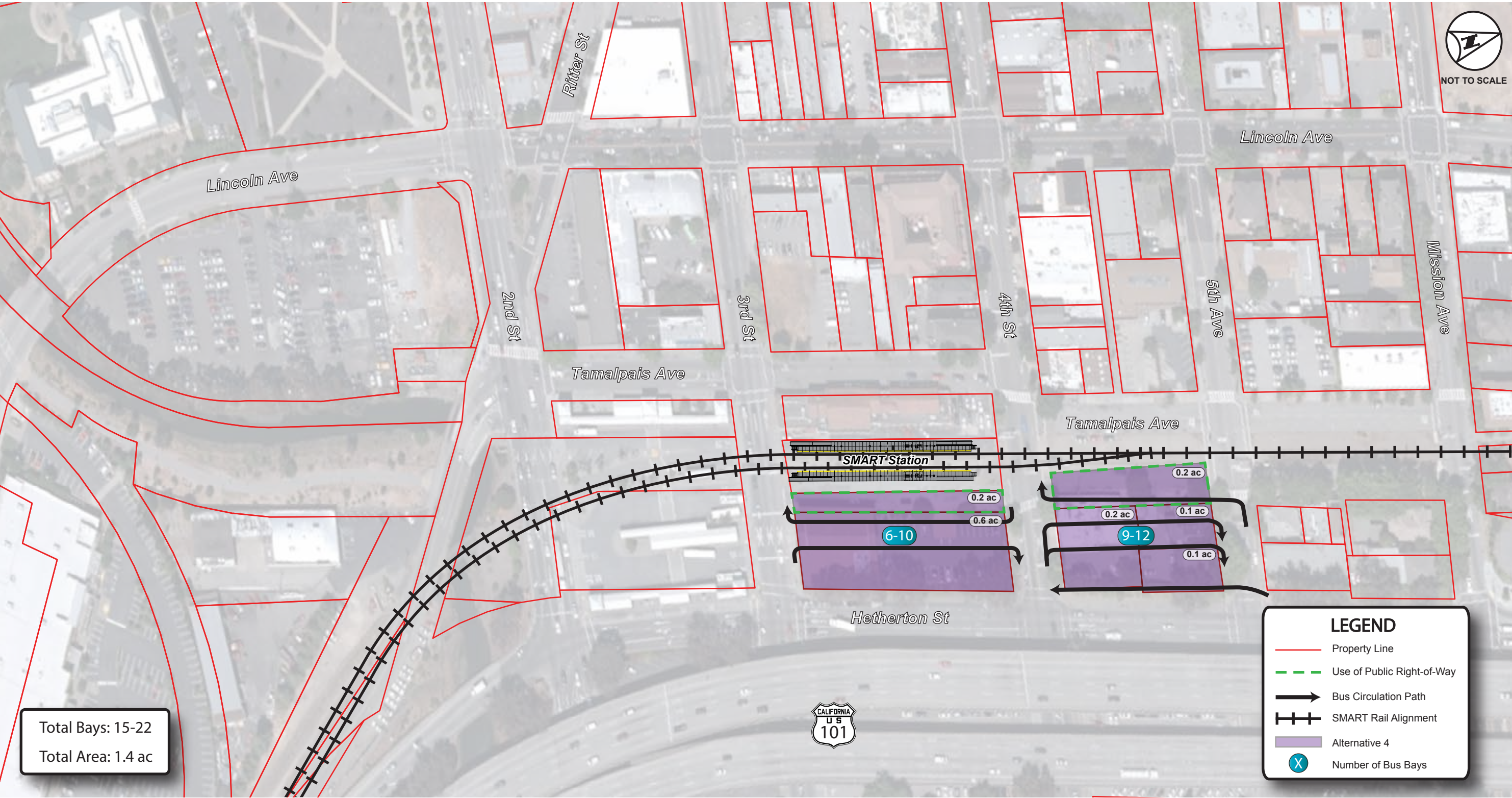
Alternative 3



SAN RAFAEL TRANSIT CENTER RELOCATION STUDY



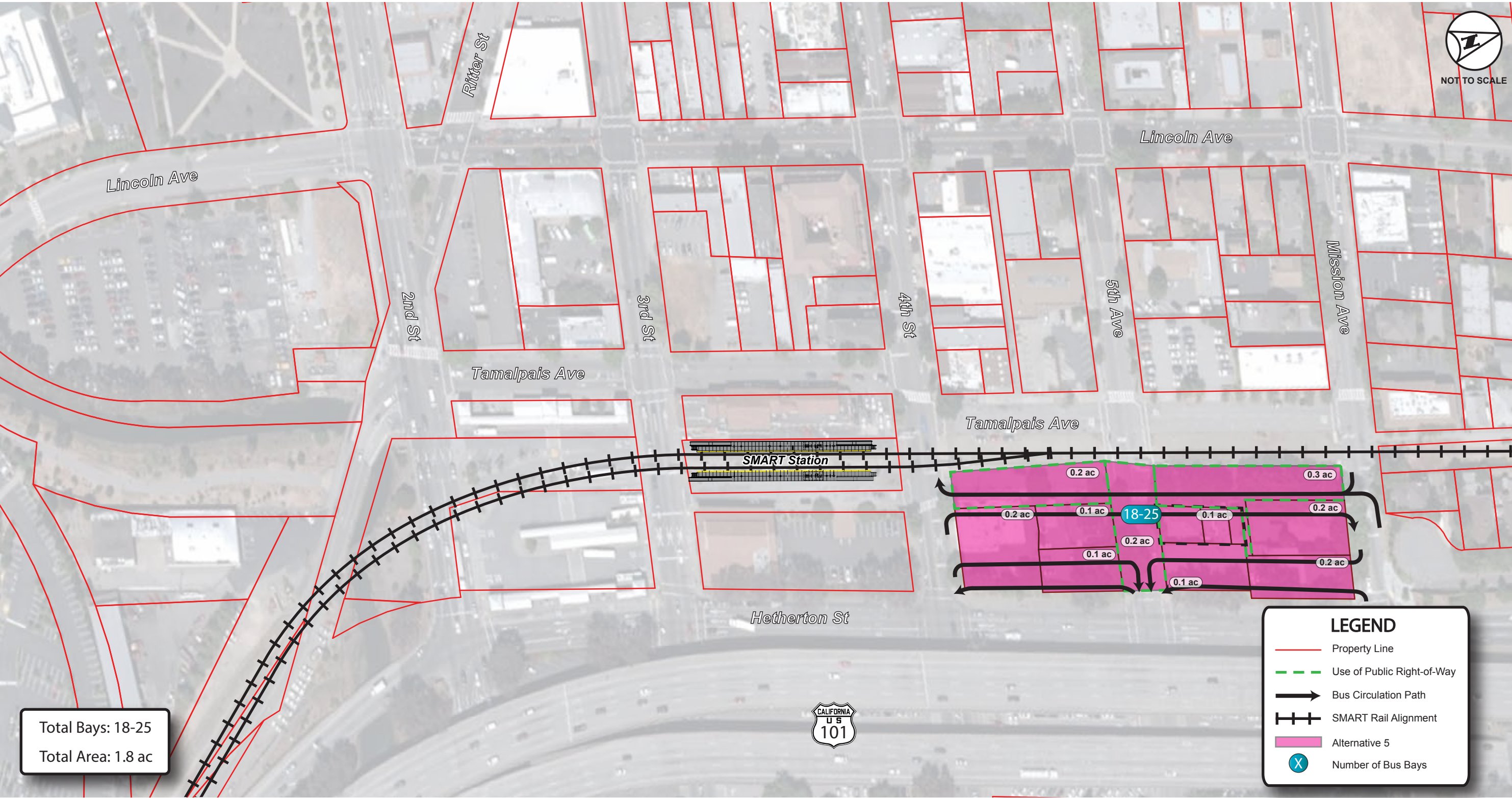
Alternative 4



SAN RAFAEL TRANSIT CENTER RELOCATION STUDY



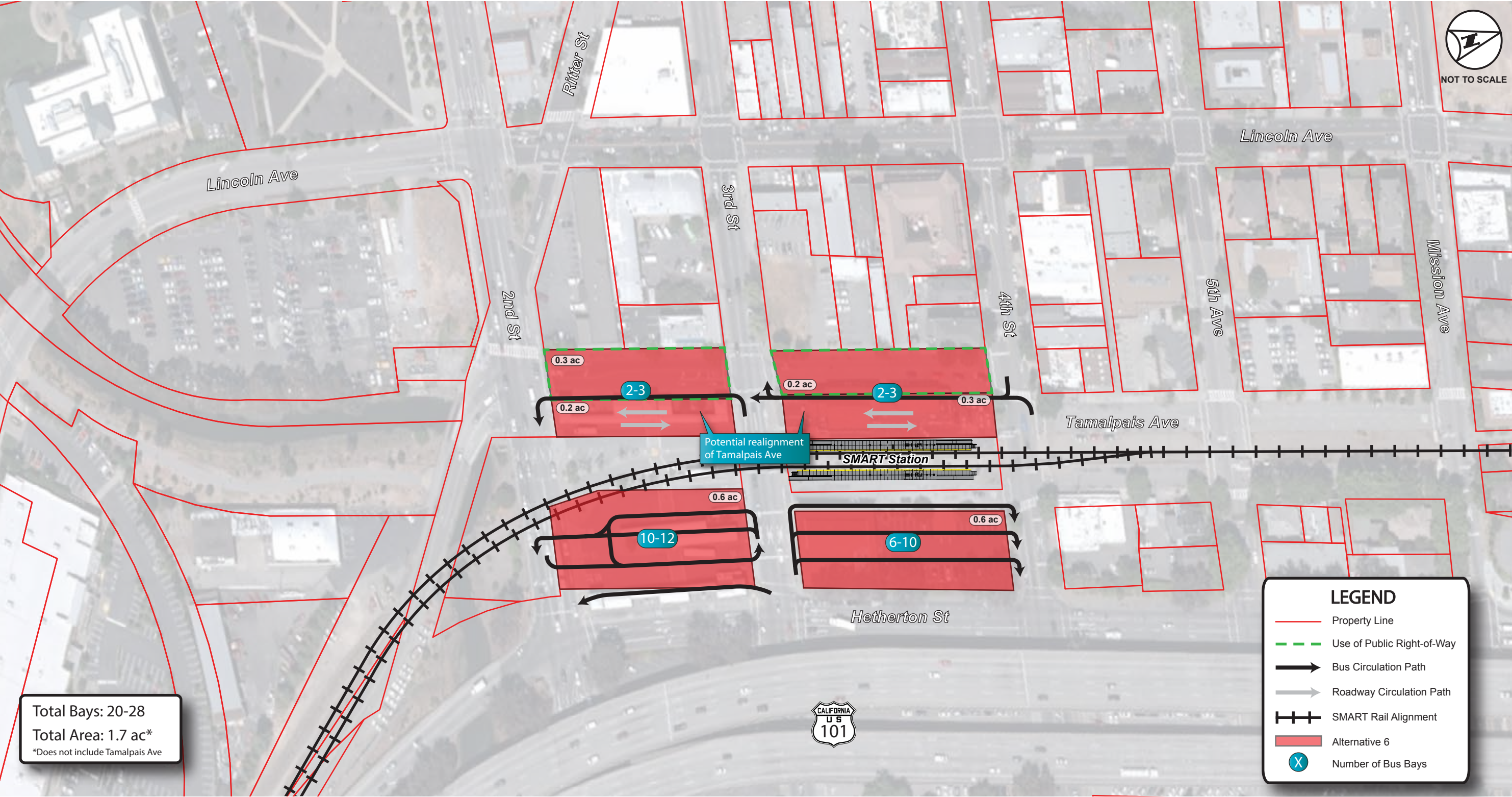
Alternative 5



SAN RAFAEL TRANSIT CENTER RELOCATION STUDY



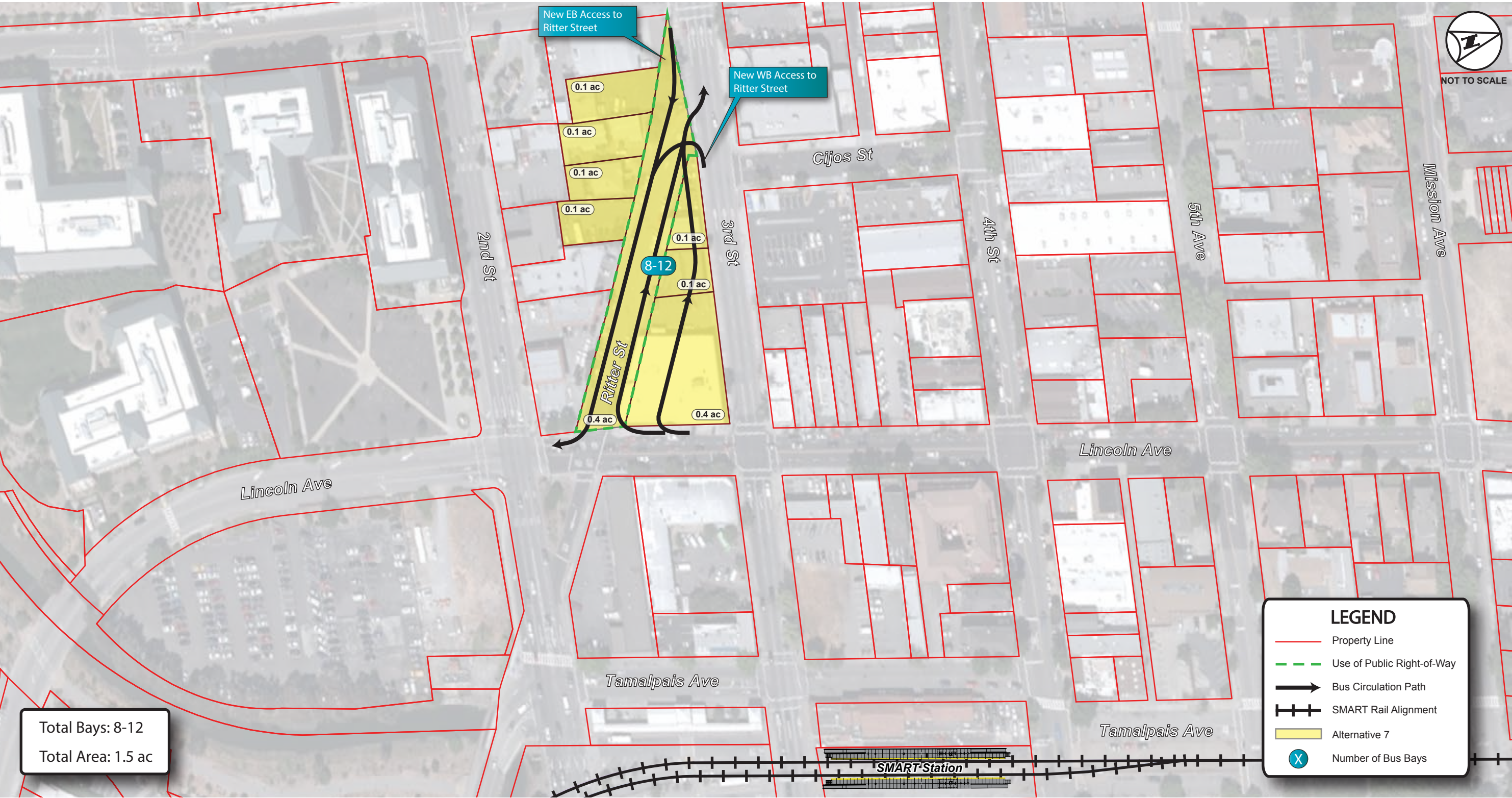
Alternative 6



SAN RAFAEL TRANSIT CENTER RELOCATION STUDY



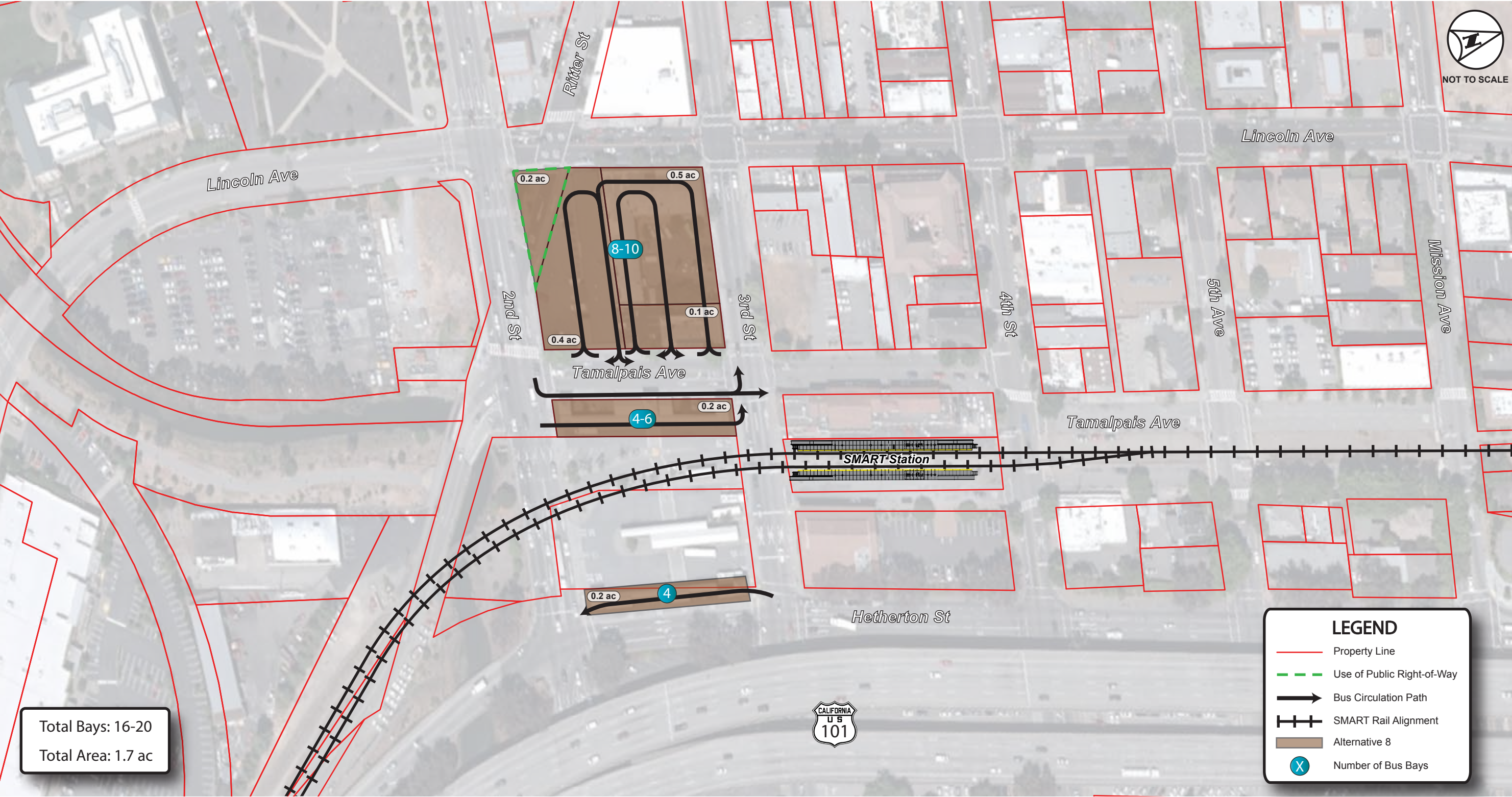
Alternative 7



SAN RAFAEL TRANSIT CENTER RELOCATION STUDY



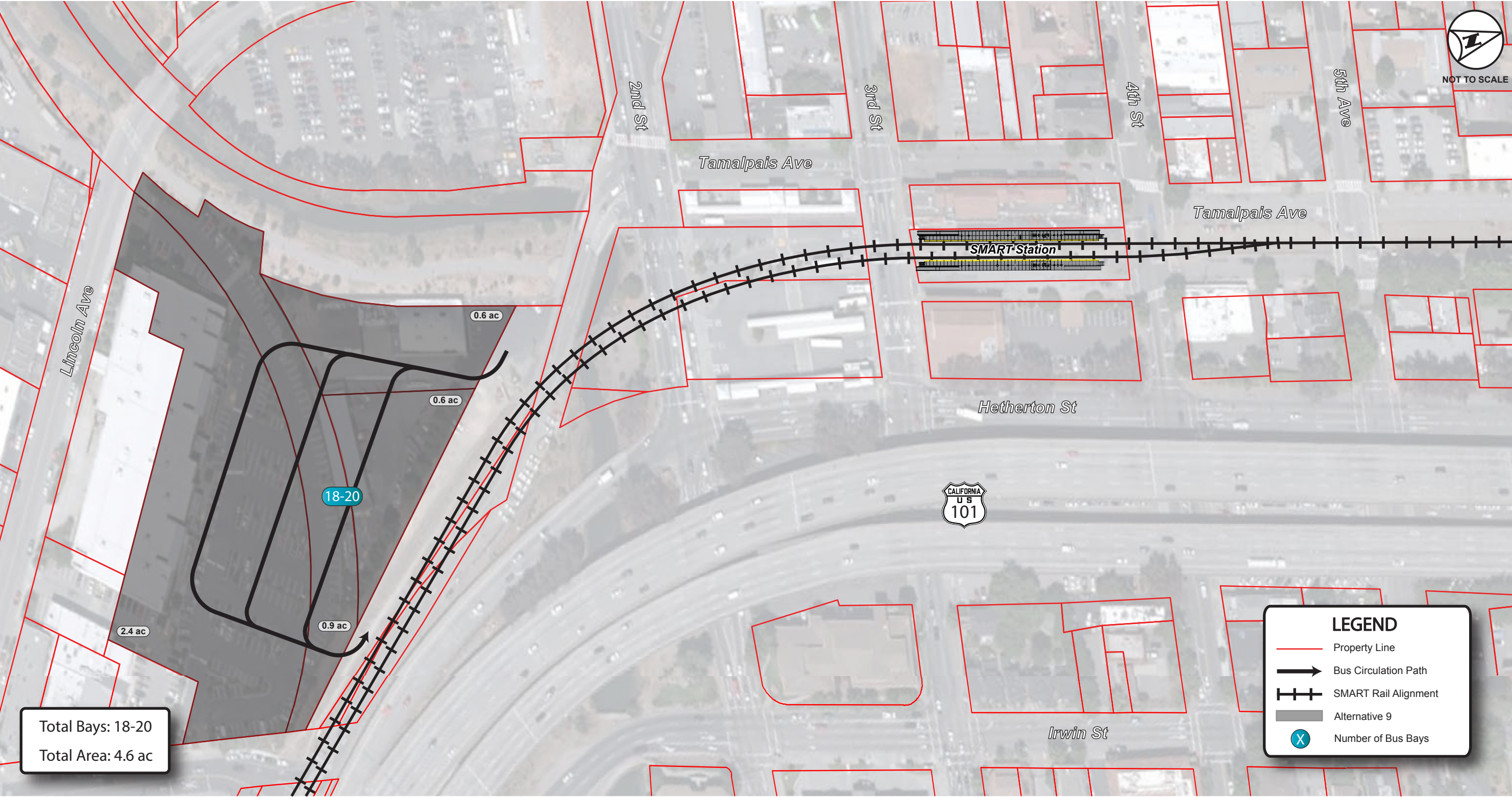
Alternative 8



SAN RAFAEL TRANSIT CENTER RELOCATION STUDY



Alternative 9

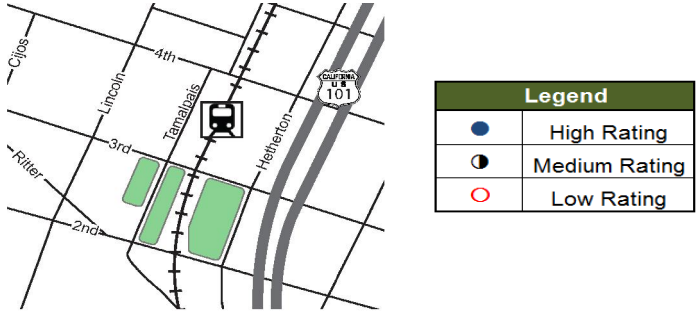




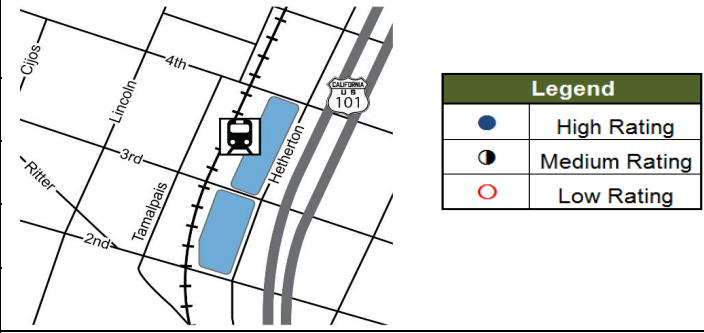
SAN RAFAEL TRANSIT CENTER RELOCATION STUDY

Appendix K: Preliminary Alternative Screening Sheets

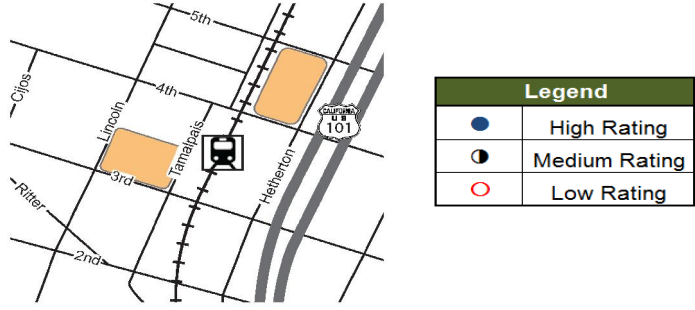
PRELIMINARY ALTERNATIVES SCREENING - ALTERNATIVE 1

Criteria	Rating	Explanation
Description: <u>Expand Bettini West</u> – Utilizes the remaining useable area of Bettini Transit Center—both the east and west portions. Space for displaced platforms/services would be identified through two properties: 1) the eastern curb of Tamalpais Ave, and 2) the property on the southwest corner of 3rd St & Tamalpais Ave.		
Land Requirements		
Land Acquisition	●	
o ROW Acquisition Needed (acres)	0.16	
o Number of Parcels	1	
o Number of Private Owners/Tenants	1	
o Assessed Value	\$1,050,000	
Alignment w/ Land Use and Economic Development Goals	●	Limited impact on opportunity sites.
Site Functionality		
Number of Bays	●	This alternative includes 14-20 bays. The Marin Filmworks site is fairly small and would be best utilized by community buses and shuttles. This assumes reconfiguration of Bettini and complete reconstruction of Platform D to provide two northbound bays. A new location for customer service and restrooms would be required.
o Total Size of Site (acres)	0.93	
Overall Integration of Transit Center Facilities	●	All parcels utilized in this alternative are located adjacent to each other, but are separated by the future SMART alignment and Tamalpais Avenue. A new location for customer service and restrooms would need to be identified.
Bus Operations		
Efficiency in Bus Route Access/Egress	●	The Marin FilmWorks site would be challenging to access and not very efficient for buses as it would likely require two track crossings. Platform D would be revised to provide NB bays. This would allow vehicles in both directions to avoid crossing the tracks unnecessarily, but would not result in an efficient operation for east-west through routes.
Interaction with Vehicle and Grade-Crossing Delays	●	The location of facilities on both sides of SMART would allow for minimal crossings over the future rail alignment, thus minimizing any potential delays caused by buses waiting for trains to clear the grade crossing. There is significant potential for grade-crossing delays to buses as transit center access points are located immediately prior to the grade crossings.
Connectivity Between Transit Services		
Transfer Convenience between Bus Transit Routes	●	Major transfer routes would likely be able to utilize the same parcels. Tamalpais Avenue and the SMART alignment would delay pedestrians transferring between routes stopping at different parcels.
o Contiguous Parcels for Transit Operations	N	
Connectivity to SMART	○	Passengers have to cross 3rd Street to transfer to and from SMART - an undesirable crossing given the width of the road and presence of heavy vehicle traffic.
Local Circulation		
Bicycle and Pedestrian Accessibility	●	Connectivity to 4th St and the downtown core is provided via sidewalks on Tamalpais. Would require crossing of heavily trafficked 3rd St to access downtown. The transit center would be accessible via the Puerto Suello bike path extension, Mahon Creek path, and a bike route on Tamalpais.
o Connectivity to Downtown San Rafael	●	
o Accessibility from Bike Paths	●	
Effects on External Circulation	●	Does not substantially change existing vehicle circulation. A majority of turning movements to and from the transit center would take place on 2nd and 3rd Street and may cause delay and be difficult to access/egress for buses. Keeping the transit center south of 3rd Street will increase demand for pedestrian crossings across 3rd Street at Hetherton, already a challenging location.
o Effects on Vehicle Circulation	●	
o Effects on Pedestrian Circulation	●	

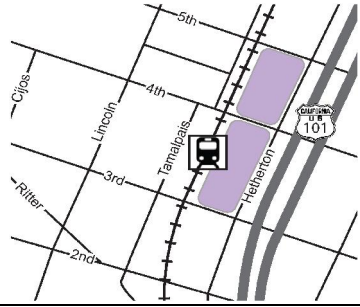
PRELIMINARY ALTERNATIVES SCREENING - ALTERNATIVE 2

Criteria	Rating	Explanation
Description: <u>Expand Bettini North</u> – Utilizes the remaining eastern portion of Bettini Transit Center plus the Citibank property. No public transit facilities would be provided west of the SMART tracks		
Land Requirements		
Land Acquisition	●	 <div style="border: 1px solid black; padding: 5px; width: fit-content;"> Legend <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 10px; height: 10px; background-color: blue; border-radius: 50%; margin-right: 5px;"></div> High Rating </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 10px; height: 10px; background: radial-gradient(circle, black 1px, transparent 1px); border: 1px solid black; border-radius: 50%; margin-right: 5px;"></div> Medium Rating </div> <div style="display: flex; align-items: center;"> <div style="width: 10px; height: 10px; border: 1px solid red; border-radius: 50%; margin-right: 5px;"></div> Low Rating </div> </div>
o ROW Acquisition Needed (acres)	0.53	
o Number of Parcels	2	
o Number of Private Owners/Tenants	2	
o Assessed Value	\$2,651,088	
Alignment w/ Land Use and Economic Development Goals	●	Limited impact on opportunity sites.
Site Functionality		
Number of Bays	●	This alternative includes 17-22 bays.
o Total Size of Site (acres)	1.06	
Overall Integration of Transit Center Facilities	●	The area used in this alternative is comprised of two blocks located next to each other, separated by highly utilized 3rd St. A new location would need to be identified, likely on the Citibank property for the customer service center and restrooms. This may reduce the bay count.
Bus Operations		
Efficiency in Bus Route Access/Egress	●	Access is not ideal for all through routes and routes staying west of the tracks. Movements for all of these routes may require significant out of direction travel.
Interaction with Vehicle and Grade-Crossing Delays	○	All parcels are located to the east of the SMART alignment. All routes to/from the west would need to cross the tracks twice. In addition nearly all access points are just prior to grade crossings, likely resulting in delays for buses accessing the transit center.
Connectivity Between Transit Services		
Transfer Convenience between Bus Transit Routes	●	Some passengers would have to cross 3rd St to transfer buses. Some high transfer routes may have to use bays on different blocks, depending on the bay configuration.
o Contiguous Parcels for Transit Operations	N	
Connectivity to SMART	●	The facility located adjacent to the SMART station would have direct access; however, passengers coming from the eastern portion of Bettini Transit Center would have to cross 3rd St to access the station.
Local Circulation		
Bicycle and Pedestrian Accessibility	●	The facility north of 3rd St would have direct access to 4th St and the downtown core. Pedestrians coming from the facilities south of 3rd St can access 4th St by crossing 3rd St and traveling one block north. Bicyclists would have direct access to the northern half of the transit center via shared use lanes on 4th St and the Puerto Sullo Bike Path at the corner of 4th and Hetherton. A gap would need to be closed to access the transit center from the Mahon Creek Path.
o Connectivity to Downtown San Rafael	●	
o Accessibility from Bike Paths	●	
Effects on External Circulation	●	This configuration would further increase the number of pedestrian crossings across 3rd Street at Hetherton, already a challenging location. It would also create a number of bus turning movements on 2nd St and 3rd St that may cause delay in combination with the grade crossings. New driveways on 3rd, and 4th St may worsen pedestrian circulation by adding pedestrian/vehicle conflicts.
o Effects on Vehicle Circulation	●	
o Effects on Pedestrian Circulation	●	


PRELIMINARY ALTERNATIVES SCREENING - ALTERNATIVE 3

Criteria	Rating	Explanation
Description: <u>Two Node Transit Center</u> – Utilizes the southern half of the block bordered by 3rd St, Lincoln Ave, 4th St, and Tamalpais Ave. Limits bus crossings of the SMART tracks by providing two separate transit areas where two objectives were achieved: 1) transit customers do not need to cross a 2nd or 3rd Streets to access SMART or other transit services; 2) locations provided multiple paths for buses to access to the site while not crossing the tracks. The Puerto Suello Bike Path may need to be relocated from Hetherton St. to East Tamalpais Ave. to allow transit vehicles to use the west curb of Hetherton St. Includes the portion of E. Tamalpais Ave between 4th St and 5th Ave to achieve this shift.		
Land Requirements		
Land Acquisition	○	
o ROW Acquisition Needed (acres)	1.23	
o Number of Parcels	9	
o Number of Private Owners/Tenants	10	
o Assessed Value	\$6,746,859	
Alignment w/ Land Use and Economic Development Goals	○	Utilizes prime site at 3rd and Tamalpais.
Site Functionality		
Number of Bays	●	This alternative includes 13-18 bays. Use of the collection of parcels along 3rd St, Tamalpais and Lincoln is very inefficient for bus bays due to the lack of depth of the block. Bays would be provided along Hetherton for SB US 101 routes.
o Total Size of Site (acres)	1.47	
Overall Integration of Transit Center Facilities	○	The two facilities created in this alternative are separated by a street block and a rail crossing, and are not well integrated with each other.
Bus Operations		
Efficiency in Bus Route Access/Egress	●	Driveway access on Tamalpais Ave (a 2-way street) would enable buses to enter and exit from different directions, requiring only minimal deviation to access the transit center. This portion would likely be utilized by east-west through routes and routes staying west of the track. US 101 routes would have fairly efficient using the Hetherton portion of the transit center.
Interaction with Vehicle and Grade-Crossing Delays	●	The location of the two nodes on each side of the SMART alignment would minimize crossings over the tracks, reducing any potential delay or queuing caused by buses waiting for trains to clear the grade crossing.
Connectivity Between Transit Services		
Transfer Convenience between Bus Transit Routes	○	Inherently the eastern node would be ideal for US 101 routes while the western node would be idea for east-west routes. However, this may cause very inconvenient transfers for the many connecting between those routes. Any transfers between the two nodes would require riders to cross SMART, Tamalpais Avenue, and 4th Street.
o Contiguous Parcels for Transit Operations	N	
Connectivity to SMART	●	Transfers between SMART and bus routes would require pedestrians to make one crossing at either 4th Street or Tamalpais Avenue.
Local Circulation		
Bicycle and Pedestrian Accessibility	●	Both nodes do not require pedestrians to make any crossings to reach 4th St and the downtown core. The Puerto Suello bike path would need to be shifted within the transit center, providing bicycle accessibility to the eastern node of this configuration. The western node would be accessible via shared use lanes on 4th St and Lincoln Ave. An extension would be needed from the Mahon Creek Path.
o Connectivity to Downtown San Rafael	●	
o Accessibility from Bike Paths	●	
Effects on External Circulation	●	This configuration would provide access/egress at 4th St, 5th Ave, Tamalpais Ave, and Hetherton St, eliminating bus turning movements on 2nd and 3rd St. Eastern Tamalpais Ave between 4th St and 5th Ave would be closed to vehicle traffic, although given the turn restrictions associated with SMART this should have minimal effect. Pedestrians would have conflicts with bus driveways interrupting sidewalks on 4th St, 5th Ave, and Tamalpais Ave.
o Effects on Vehicle Circulation	●	
o Effects on Pedestrian Circulation	●	

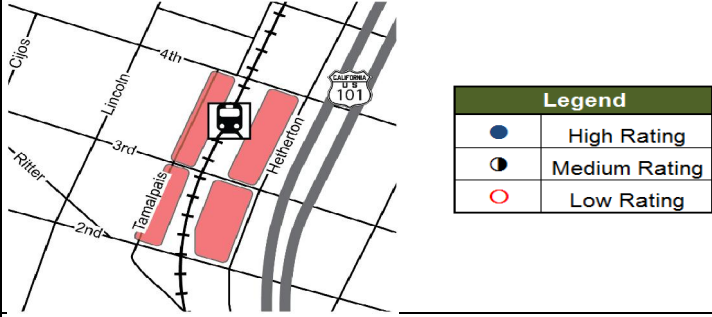
PRELIMINARY ALTERNATIVES SCREENING - ALTERNATIVE 4

Criteria	Rating	Explanation
Description: <u>3rd to 5th</u> – Utilizes the area between 3rd St, the SMART tracks, 5th Ave, and Hetherton St. Limits pedestrian crossings of 3rd St for transit patrons accessing downtown and SMART. It would include use of E. Tamalpais Ave between 3rd St and 5th St as well. Due to its prominence as an entrance into downtown San Rafael, 4th St would remain open for all traffic. The Puerto Suello Bike Path would need to be shifted from Hetherton St to adjacent to the SMART tracks to allow transit vehicles to use the west curb of Hetherton St.		
Land Requirements		
Land Acquisition	●	
o ROW Acquisition Needed (acres)	0.99	
o Number of Parcels	4	
o Number of Private Owners/Tenants	5	
o Assessed Value	\$5,048,987	
Alignment w/ Land Use and Economic Development Goals	●	Limited impact on opportunity sites. Crosses over 4th St.
Site Functionality		
Number of Bays	●	This alternative includes 15-22 bays. A new customer service and restroom facility would need to be provided. Bays would be provided along Hetherton for SB US 101 routes.
o Total Size of Site (acres)	1.56	
Overall Integration of Transit Center Facilities	●	The area used in this alternative is comprised of two blocks located next to each other, separated by 4th St.
Bus Operations		
Efficiency in Bus Route Access/Egress	●	Access/egress points on 3rd St, 4th St, and 5th Ave would enable many bays at the transit center to be efficiently aligned with routes. The lack of any internal circulation combined with right-in/right-out limitations on 4th St would lead to some out-of-direction travel. Routes that use 2nd St would have to deviate from their usual path to reach the transit center.
Interaction with Vehicle and Grade-Crossing Delays	○	Since all parcels are located to the east of the SMART alignment and 4th St would be limited to right-in/right-out a number of routes would have to cross the grade crossings in two locations, creating the potential for increased delay. In addition, delays may be experienced using the driveways on 3rd St just east of the grade crossing.
Connectivity Between Transit Services		
Transfer Convenience between Bus Transit Routes	●	Pedestrians must cross 4th St to transfer between routes in different station areas. Major transfer routes may be able to utilize bays within the same block, although that will likely come with the trade-off of out-of-direction travel.
o Contiguous Parcels for Transit Operations	N	
Connectivity to SMART	●	The southern block of this configuration is located directly adjacent to the planned SMART station and would allow for easy transfers to and from SMART. The northern block would be accessible to the station by crossing 4th St.
Local Circulation		
Bicycle and Pedestrian Accessibility	●	Pedestrians have direct access to 4th St and the downtown core from the transit center. As part of this alternative, the Puerto Suello Bike Path would be shifted to adjacent to the SMART tracks, which would provide direct access to the path from the transit center. Additionally, bicyclists would have direct access to and from shared use lanes on 4th St. An extension would be needed from the Mahon Creek Path.
o Connectivity to Downtown San Rafael	●	
o Accessibility from Bike Paths	●	
Effects on External Circulation	●	Two sections of eastern Tamalpais Ave would be closed to vehicle traffic: between 3rd St and 4th St and between 4th St and 5th Ave. Elimination of these roadways will not have any substantive effect as all fronting land uses will also be eliminated. Buses entering/exiting the transit center on 4th St may create additional pedestrian/vehicle conflicts.
o Effects on Vehicle Circulation	●	
o Effects on Pedestrian Circulation	●	

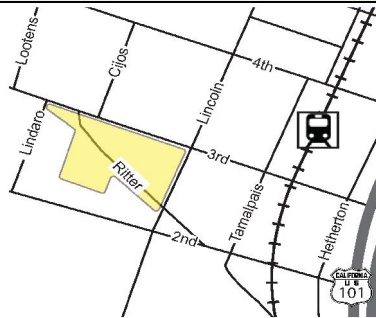
PRELIMINARY ALTERNATIVES SCREENING - ALTERNATIVE 5

Criteria	Rating	Explanation
Description: 5th Avenue – Utilizes the area bounded by 4th St, the SMART tracks, Mission Ave, and Hetherton St. Provides convenient pedestrian access between the transit center, SMART, and downtown. 5th Ave would be incorporated into the transit center—providing an access point for buses only and avoiding a trafficked public street running through the transit center. The Puerto Suello Bike Path would be relocated from Hetherton St to E. Tamalpais Ave or into the transit center to allow transit vehicles to use the west curb of Hetherton St. This alternative may limit the grade crossing at 5th St to bus only or completely close the gradecrossing to vehicles altogether.		
Land Requirements		
Land Acquisition	○	 <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> Legend <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 15px; height: 15px; background-color: blue; border-radius: 50%;"></div> High Rating </div> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 15px; height: 15px; background-color: black; border-radius: 50%; border: 1px solid white;"></div> Medium Rating </div> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 15px; height: 15px; border: 1px solid red; border-radius: 50%;"></div> Low Rating </div> </div>
o ROW Acquisition Needed (acres)	1.09	
o Number of Parcels	9	
o Number of Private Owners/Tenants	10	
o Assessed Value	\$5,679,101	
Alignment w/ Land Use and Economic Development Goals	●	Limited impact on opportunity sites.
Site Functionality		
Number of Bays	●	This alternative includes 18-25 bays. There should be ample room to create an on-site customer service and break facility.
o Total Size of Site (acres)	1.79	
Overall Integration of Transit Center Facilities	●	Utilizes one continuous area, creating a well-integrated facility.
Bus Operations		
Efficiency in Bus Route Access/Egress	●	Multiple driveways on two-way streets, along with curbside stops on Hetherton, would make bus bays accessible from different directions. This alternative's location north of 4th St would require east-west routes that normally use 2nd and 3rd to deviate from their usual path.
Interaction with Vehicle and Grade-Crossing Delays	●	All parcels are located to the east of the SMART alignment which would require routes to/from the west to have to cross the tracks twice. One option may be to retain the existing grade-crossing at 5th St, providing a dedicated bus-only access point to the transit center for those routes.
Connectivity Between Transit Services		
Transfer Convenience between Bus Transit Routes	●	Since all bays would be located in the same block, pedestrians would not have to cross any streets or rail tracks to make transfers.
o Contiguous Parcels for Transit Operations	Y	
Connectivity to SMART	●	Pedestrians have to cross 4th St to transfer to and from SMART. 4th St is considered a more pedestrian-friendly crossing than 2nd or 3rd St. One option with this alternative would be to relocate SMART one block to the north (requires the closure of 5th St), optimally integrating SMART with the transit center.
Local Circulation		
Bicycle and Pedestrian Accessibility	●	Pedestrians can directly access 4th St from the transit center without having to cross any major streets. The transit center would be directly accessible from the Puerto Suello Bike Path, which would run along the eastern edge of the transit center. Bicyclists would also have direct access to and from shared use lanes on 4th St. An extension would be needed from the Mahon Creek Path.
o Connectivity to Downtown San Rafael	●	
o Accessibility from Bike Paths	●	
Effects on External Circulation	●	As part of this alternative, eastern Tamalpais between 4th St and Mission Ave, and 5th Ave between the SMART alignment and Hetherton St would be closed to vehicular traffic. Further analysis will be required to identify the effect of the closure of the segment of 5th St. Pedestrian circulation would see a minimal impact, as bus access/egress would be concentrated at driveways on Mission Ave, 4th St, and Hetherton, although this will likely shift more traffic to 4th St.
o Effects on Vehicle Circulation	○	
o Effects on Pedestrian Circulation	●	

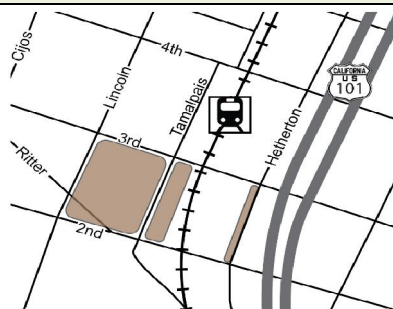
PRELIMINARY ALTERNATIVES SCREENING - ALTERNATIVE 6

Criteria	Rating	Explanation
Description: <u>Four Quadrant Transit Center</u> – Utilizes the remaining useable area of Bettini Transit Center—both the east and west parcels. Also includes the "Citibank" parcel (the property east of the SMART station) and the "Whistlestop" property. This configuration would allow routes that terminate at the SRTC or operate on US-101 to avoid from having to cross the tracks. It would also allow for the re-alignment of Tamalpais to eliminate the jog at 4th Street and more efficiently use the area west of the tracks.		
Land Requirements		
Land Acquisition	●	
o ROW Acquisition Needed (acres)	0.88	
o Number of Parcels	8	
o Number of Private Owners/Tenants	7	
o Assessed Value	\$5,083,561	
Alignment w/ Land Use and Economic Development Goals	○	Use of Whistlestop for a transit center could encounter significant community opposition. May compromise the value of opportunity sites.
Site Functionality		
Number of Bays	●	This alternative includes 21+ bays. The large number of potential bays using the collective area of these sites presents a number of options including additional bike/ped facilities, a customer service and break area, a pedestrian plaza and other uses.
o Total Size of Site (acres)	2.34	
Overall Integration of Transit Center Facilities	●	The quadrants of this alternative are separated by 3rd Street, the SMART tracks, and Tamalpais Ave. This will lead to separation of the transit facilities, although without any private land uses separating the parcels, features could be implemented to reduce the perceived separation.
Bus Operations		
Efficiency in Bus Route Access/Egress	●	A large number of bays and access points on 2nd, 3rd, 4th St, and Hetherton would enable bays at the transit center to be efficiently aligned with bus routes.
Interaction with Vehicle and Grade-Crossing Delays	●	The location of facilities on both sides of SMART would allow for minimal crossings of the rail alignment. However, if the grade crossings result in significant congestion on 2nd and 3rd St, it may be difficult to access/egress the transit center during pulse periods.
Connectivity Between Transit Services		
Transfer Convenience between Bus Transit Routes	●	The separation of the transit center into four different facilities means that many passengers would be required to cross SMART tracks, 3rd St, or both, in order to get to their next route. However, the size of the facility may allow for strategic bay placement to co-locate primary transfer routes.
o Contiguous Parcels for Transit Operations	N	
Connectivity to SMART	●	The facilities located adjacent to the SMART station would have direct access; however, passengers coming from the eastern or western portion of Bettini Transit Center would have to cross 3rd St to access the station. The alternative may provide the opportunity for convenient pick-up/drop-off for SMART associated with the realignment of Tamalpais.
Local Circulation		
Bicycle and Pedestrian Accessibility	●	Half of the facilities would have direct access to 4th St and the downtown core. Pedestrians coming from the facilities south of 3rd St can access 4th St by crossing 3rd St and traveling one block north. Bicyclists would have direct access to facilities adjacent to 4th St via the Puerto Suello Bike Path and shared use lanes on 4th St. Direct access to the southern portion would be provided from the Mahon Creek Path.
o Connectivity to Downtown San Rafael	●	
o Accessibility from Bike Paths	●	
Effects on External Circulation	●	This alternative includes a number of access/egress points along 2nd and 3rd St, which may cause some vehicle delays. The realignment of Tamalpais Street will improve north-south circulation in San Rafael, and improve connectivity to Francisco. Providing facilities on both sides of 3rd St will increase pedestrian crossings across 3rd St, impacting vehicle circulation on 3rd St. The alternative includes a number of driveways which will create pedestrian/bus conflicts.
o Effects on Vehicle Circulation	●	
o Effects on Pedestrian Circulation	○	

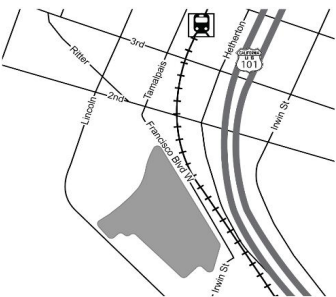
PRELIMINARY ALTERNATIVES SCREENING - ALTERNATIVE 7

Criteria	Rating	Explanation								
Description: <u>Ritter St</u> – Utilizes Ritter St, the parcels to the northwest to 3rd St and Lincoln Ave, and adjacent parcels with access only via Ritter St. Access would be provided via Lincoln Ave, 3rd St, and Lindaro St. Ritter St would be closed to mixed flow traffic. All US-101 services would be required to cross the SMART tracks to Access/egress the transit center.										
Land Requirements										
Land Acquisition	●	 <table><tr><th colspan="2">Legend</th></tr><tr><td>●</td><td>High Rating</td></tr><tr><td>●</td><td>Medium Rating</td></tr><tr><td>○</td><td>Low Rating</td></tr></table>	Legend		●	High Rating	●	Medium Rating	○	Low Rating
Legend										
●	High Rating									
●	Medium Rating									
○	Low Rating									
o ROW Acquisition Needed (acres)	1.03									
o Number of Parcels	7									
o Number of Private Owners/Tenants	7									
o Assessed Value	\$4,087,347									
Alignment w/ Land Use and Economic Development Goals	○	Significant impact on opportunity sites around Ritter.								
Site Functionality										
Number of Bays	○	This alternative includes 8-12 bays. The alternative as shown will not provide a sufficient number of bays. In order to provide a sufficient number of bays, it would require acquisition of the entire block bounded by Lincoln, 2nd, Lindaro, and 3rd.								
o Total Size of Site (acres)	1.65									
Overall Integration of Transit Center Facilities	●	Transit center contained within one continuous block, creating a well-integrated facility.								
Bus Operations										
Efficiency in Bus Route Access/Egress	○	US 101 routes would be required to deviate significantly from their usual route in order to reach the the transit center.								
Interaction with Vehicle and Grade-Crossing Delays	○	All parcels are located to the west of the SMART alignment, requiring all US 101 and Canal routes to cross the tracks to access. In addition, access/egress is from busy Lincoln or 3rd St, possibly introducing delays for buses. However, it is located further from the SMART tracks than other alternatives, reducing the impact of SMART tracks on access for routes to/from the west.								
Connectivity Between Transit Services										
Transfer Convenience between Bus Transit Routes	●	Since all bays would be located in the same block, pedestrians would not have to cross any streets or rail tracks to make transfers.								
o Contiguous Parcels for Transit Operations	Y									
Connectivity to SMART	○	Pedestrians would have to cross both 3rd St and Lincoln Ave, which are busy corridors, to access the SMART station.								
Local Circulation										
Bicycle and Pedestrian Accessibility	●	Pedestrians can access 4th St and the downtown core by crossing 3rd St and traveling one block north. The facility would have direct access to shared use bicycle lanes on Lincoln Ave, which would allow bicyclists to connect to shared use lanes on 4th St and the Puerto Suello Bike Path, although it is further from the Puerto Suello Bike Path than other alternatives. This alternative may allow for the creation of a north-south pedestrian/bike corridor between Bio Marin and downtown San Rafael along Cijos St or Lindaro St.								
o Connectivity to Downtown San Rafael	●									
o Accessibility from Bike Paths	●									
Effects on External Circulation	●	As part of this alternative, Ritter St between 3rd St and Lincoln Ave would be closed to vehicle traffic, although it currently primarily is only utilized for access to fronting businesses. Providing a connection from Lindaro Street may impact circulation and pedestrian flow at the Lindaro/3rd St intersection. A number of access and egress points would be located along Lincoln Avenue, creating new conflicts with pedestrians.								
o Effects on Vehicle Circulation	●									
o Effects on Pedestrian Circulation	●									

PRELIMINARY ALTERNATIVES SCREENING - ALTERNATIVE 8

Criteria	Rating	Explanation
Description: <u>Tamalpais/Lincoln</u> – Utilizes the entire block bounded by 2nd St, Lincoln Ave, 3rd St, and Tamalpais Ave. The diagonal Ritter St connection would be repurposed as needed for the transit center. The remaining portion of the Bettini transit center west of the SMART tracks and the Hetherton St curb would be utilized for transit operations.		
Land Requirements		
Land Acquisition	●	
o ROW Acquisition Needed (acres)	1.24	
o Number of Parcels	3	
o Number of Private Owners/Tenants	5	
o Assessed Value	\$4,448,124	
Alignment w/ Land Use and Economic Development Goals	●	Some encroachment on opportunity sites.
Site Functionality		
Number of Bays	●	This alternative includes 16-20 bays. Options were evaluated to include either Hetherton St curb or the western portion of Bettini, but neither option provided a sufficient number of bays. The alternative includes the reconstruction of the western portion of Bettini, which will require the relocation of the customer service center and restrooms.
o Total Size of Site (acres)	1.71	
Overall Integration of Transit Center Facilities	○	With this alternative, SB US 101 routes would be separated from the other facilities.
Bus Operations		
Efficiency in Bus Route Access/Egress	●	Buses traveling south on Route 101 would be able to use bays that are well aligned with their route. Driveway access on Tamalpais Ave (a 2-way street) would enable buses to enter and exit from different directions with fairly minimal deviation from their normal route to access the transit center.
Interaction with Vehicle and Grade-Crossing Delays	○	With access provided from Tamalpais, delays from queues associated with the grade crossings would be reduced. As most bays would be located to the west of the SMART alignment, routes to/from the east and NB 101 routes would have to cross the rail alignment twice, creating the potential for increased delay.
Connectivity Between Transit Services		
Transfer Convenience between Bus Transit Routes	●	There would be a longer walk distance for the numerous transfers between the SB US 101 routes and all east-west routes. These transfers would need to occur across the SMART tracks. However, the alternative does not require any transfers to cross busy 3rd St.
o Contiguous Parcels for Transit Operations	N	
Connectivity to SMART	○	Pedestrians have to cross 3rd St to transfer to and from the SMART station.
Local Circulation		
Bicycle and Pedestrian Accessibility	●	Pedestrians can access 4th St (the primary downtown street) by crossing 3rd St and traveling one block north. The facility west of Tamalpais would have direct access to shared use bicycle lanes on Lincoln Ave. Bicyclists can access the Puerto Suello Bike Path via shared use lanes on 4th St and Lincoln Ave, and via Tamalpais Ave. Would have a direct connection to the Mahon Creek Path.
o Connectivity to Downtown San Rafael	●	
o Accessibility from Bike Paths	●	
Effects on External Circulation	●	Buses would use Tamalpais Ave or Hetherton St for access and egress to the facility. This would help buses minimize delay on 2nd and 3rd St. Effects on pedestrian circulation not be significant as there would be a limited number of sidewalk/bus driveway conflict points.
o Effects on Vehicle Circulation	●	
o Effects on Pedestrian Circulation	●	

PRELIMINARY ALTERNATIVES SCREENING - ALTERNATIVE 9

Criteria	Rating	Explanation
Description: <u>Southern Transit Center</u> – Utilizes parcels south of Francisco Blvd W., south of 2nd St, including the Glass & Sash property and the Sprouts/Staples parking lot. With the flip of the SMART tracks and Francisco Blvd W., the roadway would provide direct access to those parcels. Would allow for the relocation of the SMART station south to be adjacent to this site.		
Land Requirements		
Land Acquisition	○	 <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> Legend <div style="display: flex; align-items: center;">● High Rating</div> <div style="display: flex; align-items: center;">● Medium Rating</div> <div style="display: flex; align-items: center;">○ Low Rating </div> </div>
o ROW Acquisition Needed (acres)	4.58	
o Number of Parcels	4	
o Number of Private Owners/Tenants	4	
o Assessed Value	\$8,808,086	
Alignment w/ Land Use and Economic Development Goals	●	Does not impact any opportunity sites. Reduces accessibility of transit center. Reduces parking.
Site Functionality		
Number of Bays	●	This alternative includes 18-20 bays. The transit center would utilize most of the parking area for the existing shopping center in addition to Glass & Sash. Given the large size of this area, there would be significant flexibility in the number and orientation of bays and supporting facilities.
o Total Size of Site (acres)	4.58	
Overall Integration of Transit Center Facilities	●	Utilizes one continuous area, creating a well-integrated facility.
Bus Operations		
Efficiency in Bus Route Access/Egress	○	Access/egress would be available on Francisco Blvd W only, requiring all routes to deviate significantly from their usual path. Route deviations, particularly for NB 101 routes would be through heavily trafficked areas. Upon departure, buses may have difficulty making a sharp right turn from Francisco Blvd W to 2nd St to access SB US 101.
Interaction with Vehicle and Grade-Crossing Delays	○	The transit center would be located to the west of the SMART alignment, requiring all US 101 routes to cross the tracks twice via heavily trafficked 2nd and 3rd St.
Connectivity Between Transit Services		
Transfer Convenience between Bus Transit Routes	●	Since all bays would be located in the same block, pedestrians would not have to cross any streets or rail tracks to make transfers.
o Contiguous Parcels for Transit Operations	Y	
Connectivity to SMART	○	Pedestrians would have to cross both 2nd and 3rd St, which are considered less pedestrian-friendly crossings, to access the SMART station. This alternative may include relocation of the SMART station adjacent to the transit center, which would improve connectivity to SMART, although would significantly deteriorate the connectivity of SMART to downtown San Rafael.
Local Circulation		
Bicycle and Pedestrian Accessibility	○	This location would have poor accessibility to 4th St and the downtown core, as pedestrians would have to make multiple difficult crossings going to and from the transit center. The nearest point on 4th St would be a 1/4 mile walk from the transit center. The Mahon Creek Path is located adjacent to the site. A significant gap would remain from the Puerto Suello bike path.
o Connectivity to Downtown San Rafael	○	
o Accessibility from Bike Paths	●	
Effects on External Circulation	○	Bus volumes through the Francisco Blvd W/2nd St and Tamalpais/3rd St intersections would be substantial. Further analysis would be required to evaluate the effect from the large number of bus volumes added to Tamalpais Blvd. With the location south of 2nd St, there would be minimal conflicts with pedestrians; however, it would substantially increase the number of pedestrians crossing 2nd and 3rd St.
o Effects on Vehicle Circulation	○	
o Effects on Pedestrian Circulation	●	



SAN RAFAEL TRANSIT CENTER RELOCATION STUDY

Appendix L: Refined Alternatives Opinions of Probable Cost

San Rafael Transit Center Relocation Study - Long-Term Transit Center Draft Improvement Cost Comparison

	Alternative 2	Alternative 4A	Alternative 5B
Demolition	\$354,000	\$312,000	\$463,000
Structures	\$4,481,000	\$2,033,000	\$2,580,000
Utilities & Drainage	\$1,254,000	\$1,638,000	\$1,668,000
Landscape & Irrigation	\$201,000	\$474,000	\$490,000
Street Improvements	\$1,430,000	\$2,129,000	\$1,838,000
<i>Construction Subtotal</i>	<i>\$9,032,000</i>	<i>\$7,706,000</i>	<i>\$8,236,000</i>
<i>Soft Costs Total</i>	<i>\$2,258,000</i>	<i>\$1,927,000</i>	<i>\$2,060,000</i>
<i>Contingency (30%)</i>	<i>\$3,387,000</i>	<i>\$2,890,000</i>	<i>\$3,088,800</i>
<i>Total Project</i>			
<i>Total Construction (Current \$)</i>	<i>\$14,677,000</i>	<i>\$12,523,000</i>	<i>\$13,384,800</i>
<i>Right of Way/Property Acquisition</i>	<i>\$4,057,000</i>	<i>\$7,167,000</i>	<i>\$10,358,000</i>
<i>Project Total (Current \$)</i>	<i>\$18,734,000</i>	<i>\$19,690,000</i>	<i>\$23,742,800</i>
<i>7yr Escalation</i>	<i>\$4,038,000</i>	<i>\$4,244,000</i>	<i>\$5,118,000</i>
<i>Total Project (YOE \$)</i>	<i>\$22,772,000</i>	<i>\$23,934,000</i>	<i>\$28,860,800</i>

Notes:

Construction total includes the total of each of the construction elements

Soft costs total includes allocations for enviromental/permitting, engineering, and construction admin.

Does not include relocation costs or legal costs associated with property acquisition

Property acquisition costs represent higher end of estimated value, but are estimates only

San Rafael Transit Center Relocation Study - Long-Term Transit Center Draft Alternative 2 Opinion of Probable Cost

Item	Qty	Unit	Unit Cost	Cost	Comments
Demolition					
Remove Existing Improvements	1	LS	\$117,000	117,000	Remove Pavement (sidewalk, curb or curb-and-gutter, asphalt, and misc concrete)
Clear and Grub	1	LS	\$37,000	\$37,000	Remove Citi sign, Remove Salvage Fence, Remove Salvage Roadside Sign, Remove Trees
Remove Existing Structures	1	LS	\$200,000	\$200,000	Remove Building, Remove Building Foundation, Remove Canopy
Demolition Subtotal				\$354,000	
Structures					
Station Canopies w/ furnishings	5,420	SF	\$242	\$1,312,000	Station canopy is taken as 80% of the platform area. Unit cost per square foot includes benches and trash cans. Standard bus shelters are considered on all platforms with widths less than 10 feet
Standard Bus Shelter	6	EA	\$22,000	\$132,000	
Customer Service/Security	3,000	SF	\$275	\$825,000	
OH Ped Ramp W/Stairs	1	LS	\$2,212,000	\$2,212,000	
Structures Subtotal				\$4,481,000	
Utilities & Drainage					
Utilities	1	LS	\$81,550	\$82,000	Relocate street light, utilities, existing fire hydrant, high-voltage utilities. Adjust utility valve/manhole to grade. Install: CCTV cameras, electrical and communications, Drainage (inlets, pipe, onsite water treatment-BMP).
Electrical/Comms	1	LS	\$787,000	\$787,000	
Drainage	1	LS	\$385,000	\$385,000	
Utilities & Drainage Subtotal				\$1,254,000	
Landscape & Irrigation					
Landscape and Irrigation	1	LS	\$201,000	\$201,000	General landscape and Irrigation. Install new trees, tree grate and frame, protective/pedestrian railing
Landscape & Irrigation Subtotal				\$201,000	
Street/Site Improvements					
Street/Site Improvements	1	LS	\$1,430,000	\$1,430,000	Excavation in areas requiring new pavement sections. Install curb & gutter, pavement, curb ramps and wayfinding. Slurry seal Bettini site.
Street/Site Improvements Subtotal				\$1,430,000	

San Rafael Transit Center Relocation Study - Long-Term Transit Center Draft Alternative 2 Opinion of Probable Cost

Item	Qty	Unit	Unit Cost	Cost	Comments
Traffic Control	5%			\$386,000	
Water Pollution Control	2%			\$154,000	
Mobilization	10%			\$772,000	
Construction Subtotal				\$9,032,000	
Environmental/Permitting Fees	5%			\$452,000	
Construction Management/Admin	10%			\$903,000	
Final Design & Engineering	10%			\$903,000	
Soft Costs Total				\$2,258,000	
Contingency	30%			\$3,387,000	
Project Construction Total (Current \$)				\$14,677,000	
Right of Way/Property Acquisition				\$4,057,000	FMV High
Project Total (Current \$)				\$18,734,000	
7yr Escalation	21.6%			\$4,038,000	Caltrans Cost Indices and Forecast
Project Total (YOE \$)				\$22,772,000	

San Rafael Transit Center Relocation Study - Long-Term Transit Center Draft Alternative 4A Opinion of Probable Cost

Item	Qty	Unit	Unit Cost	Cost	Comments
Demolition					
Remove Existing Improvements	1	LS	\$144,000	\$144,000	Remove Pavement (sidewalk, curb or curb-and-gutter, asphalt, and misc concrete)
Clear and Grub	1	LS	\$48,000	\$48,000	Remove Citi sign, Remove Salvage Fence, Remove Salvage Roadside Sign, Remove Trees
Remove Existing Structures	1	LS	\$120,000	\$120,000	Remove Building, Remove Building Foundation
Demolition Subtotal				\$312,000	
Structures					
Station Canopies w/ furnishings	4,628	SF	\$242	\$1,120,000	Station canopy is taken as 80% of the platform area. Unit cost per square foot includes benches and trash cans. Standard bus shelters are considered on all platforms with widths less than 10 feet
Standard Bus Shelter	4	EA	\$22,000	\$88,000	
Customer Service/Security	3,000	SF	\$275	\$825,000	
Structures Subtotal				\$2,033,000	
Utilities & Drainage					
Utilities	1	LS	\$318,000	318,000	Relocate street light, utilities, existing fire hydrant, high-voltage utilities, and PG&E utility poles. Adjust utility valve/manhole to grade. Install: CCTV cameras, electrical and communications. Install drainage inlets, pipe and onsite water treatment-BMP).
Electrical/Comms	1	LS	\$787,000	\$787,000	
Drainage	1	LS	\$533,000	\$533,000	
Utilities & Drainage Subtotal				\$1,638,000	
Landscape & Irrigation					
Landscape and Irrigation	1	LS	\$354,000	\$354,000	General landscape and Irrigation. Install new trees, tree grate and frame, protective/pedestrian railing. 2 monuments, plaza art
Monuments	2	EA	\$10,000	\$20,000	
Plaza Art	1	LS	\$100,000	\$100,000	
Landscape & Irrigation Subtotal				\$474,000	
Street/Site Improvements					
Street/Site Improvements	1	LS	\$2,129,000	2,129,000	Excavation, Install: curb & gutter, pavement, curb ramps, driveways, street side bus pads,bike barrier, and wayfinding. Modify signal at 4th and Hetherton.
Street/Site Improvements Subtotal				\$2,129,000	

San Rafael Transit Center Relocation Study - Long-Term Transit Center Draft Alternative 4A Opinion of Probable Cost

Item	Qty	Unit	Unit Cost	Cost	Comments
Traffic Control	5%			\$329,000	
Water Pollution Control	2%			\$132,000	
Mobilization	10%			\$659,000	
Construction Subtotal				\$7,706,000	
Environmental/Permitting Fees	5%			\$385,000	
Construction Management/Admin	10%			\$771,000	
Final Design & Engineering	10%			\$771,000	
Soft Costs Total				\$1,927,000	
Contingency	30%			\$2,890,000	
Project Construction Total (Current \$)				\$12,523,000	
Right of Way/Property Acquisition				\$7,167,000	FMV High
Project Total (Current \$)				\$19,690,000	
7yr Escalation	21.6%			\$4,244,000	Caltrans Cost Indices and Forecast
Project Total (YOE \$)				\$23,934,000	

San Rafael Transit Center Relocation Study - Long-Term Transit Center Draft Alternative 5B Opinion of Probable Cost

Item	Qty	Unit	Unit Cost	Cost	Comments
Demolition					
Remove Existing Improvements	1	LS	\$173,000	\$173,000	Remove pavement (sidewalk, curb or curb-and-gutter, asphalt, and misc concrete). Remove Citi sign, remove salvage fence, remove salvage roadside sign, remove trees. remove building, remove building foundation, remove canopy.
Clear and Grub	1	LS	\$54,000	\$54,000	
Remove Existing Structures	1	LS	\$236,000	\$236,000	
Demolition Subtotal				\$463,000	
Structures					
Station Canopies w/ furnishings	6,796	SF	\$242	\$1,645,000	Station canopy unit cost per square foot includes benches and trash cans and is taken as 80% of the platform area. Standard bus shelters are considered on all platforms with widths less than 10 feet
Standard Bus Shelter	5	EA	\$22,000	\$110,000	
Customer Service/Security	3,000	SF	\$275	\$825,000	
Structures Subtotal				\$2,580,000	
Utilities & Drainage					
Utilities	1	LS	\$471,000	\$471,000	Relocate street light, utilities, existing fire hydrant, high-voltage utilities, and PG&E utility poles. Adjust utility valve/manhole to grade. Install: CCTV cameras, electrical and communications. Install drainage inlets, pipe and onsite water treatment-BMP).
Electrical/Comms	1	LS	\$787,000	\$787,000	
Drainage	1	LS	\$410,000	\$410,000	
Utilities & Drainage Subtotal				\$1,668,000	
Landscape & Irrigation					
Landscape and Irrigation	1	LS	\$370,000	\$370,000	General landscape and Irrigation. Install new trees, tree grate and frame, protective/pedestrian railing. Install "Welcome to San Rafael" monument, and plaza monument. Miscellaneous art for plaza.
Monuments	2	EA	\$10,000	\$20,000	
Plaza Art	1	LS	\$100,000	\$100,000	
Landscape & Irrigation Subtotal				\$490,000	
Street/Site Improvements					
Street/Site Improvements	1	LS	\$1,838,000	1,838,000	Excavation, Install: curb & gutter, pavement, curb ramps, driveways, street side bus pads, bike barrier, and wayfinding. Modify signal at 5th and Hetherton.
Street/Site Improvements Subtotal				\$1,838,000	

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San Rafael Transit Center Relocation Study - Long-Term Transit Center Draft Alternative 5B Opinion of Probable Cost

Item	Qty	Unit	Unit Cost	Cost	Comments
Traffic Control	5%			\$352,000	
Water Pollution Control	2%			\$141,000	
Mobilization	10%			\$704,000	
Construction Subtotal				\$8,236,000	
Environmental/Permitting Fees	5%			\$412,000	
Construction Management/Admin	10%			\$824,000	
Final Design & Engineering	10%			\$824,000	
Soft Costs Total				\$2,060,000	
Contingency	30%			\$3,088,800	
Project Construction Total (Current \$)				\$13,384,800	
Right of Way/Property Acquisition				\$10,358,000	FMV High
Project Total (Current \$)				\$23,742,800	
7yr Escalation	21.6%			\$5,118,000	Caltrans Cost Indices and Forecast
Project Total (YOE \$)				\$28,860,800	



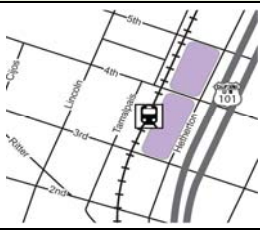
SAN RAFAEL TRANSIT CENTER RELOCATION STUDY

Appendix M: Refined Alternatives Evaluation Sheets

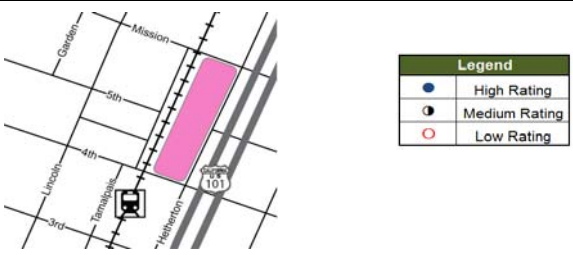
LONG-TERM ALTERNATIVES EVALUATION - ALTERNATIVE 2

Criteria	Rating	Explanation
Description: <u>Expand Bettini North</u> – Utilizes the remaining eastern portion of Bettini Transit Center plus the Citibank property. No public transit facilities would be provided west of the SMART tracks. A pedestrian overcrossing over 3rd St may be constructed between the northern and southern portions of the transit center.		
ROW Acquisition and Construction Costs		
Land Acquisition	●	
○ Number of Parcels to be Acquired	1	
○ Number of Businesses to be Relocated	1	
○ Estimated Acquisition Cost	\$2.9M - \$4.1M	
Development Potential of Sites	●	Includes transit uses on two largest parcels in the area. However, these sites are most constrained from an access and parking standpoint.
Construction Cost (includes property acquisition)	\$22.8M	
Pedestrian Circulation		
Distance and Major Barriers to SMART Station	●	The northern portion of the site will be located directly adjacent to the SMART station. Passengers coming from the southern portion of the transit center would be able to access SMART via the 3rd St overcrossing.
Distance and Major Barriers to Downtown San Rafael	●	The northern portion of the site will have access to Downtown via 4th St. The southern portion requires pedestrians to cross 3rd St, a less pedestrian-friendly crossing. Access to Downtown requires crossing SMART tracks.
Transfer Convenience		
Number of Transfers per day Required to Cross Major/Minor Street	○	Approximately 30% of transfers would have to cross 3rd St, a high volume roadway. A similar number would have a 3+ minute walk between transfers, which provides limited buffer time for transfers to occur within the pulse. The longest transfer time would exceed 5 minutes and thus would not be feasible within the pulse.
○ Total Transfers	1572	
○ Transfers Crossing 3rd St	463	
○ Transfers requiring 3+ minute walk	463	
Conflict Points/Obstructions for Transfers Between Public Transit Services	○	3rd St lies between the two portion of the transit center. While a pedestrian overcrossing is proposed, it still requires significant ramping and out-of-direction travel. Many passengers may still cross 3rd St at Hetherton or jaywalk.
Site Functionality		
Number of Bays	●	This alternative includes 18 bays, exceeding the minimum requirement by 2 bays.
Flexibility in Vehicle Sizing/Utilization of Bays	●	Both surplus bus bays are ideal for routes arriving from and departing to the west. Limited additional capacity available for north-south routes.
Available Space for Transit-Related Land Use	○	An estimated 1,870 square feet would be available for customer service, security, or other transit-related land uses. This is not adequate and additional off-site facilities will be required.
Bus Operations		
Accessibility of Bays from All Key Directions of Travel	●	Access points on 2nd, 3rd, and 4th Street allows for buses to efficiently access and egress the transit center. Maintains the existing challenge of requiring most buses to pass through the congested 3rd St & Hetherton intersection.
Effects on Bus Circulation	●	The high accessibility of bays from all directions of travel creates a large decrease in revenue service miles relative to baseline. Since this alternative does not include a platform west of SMART, routes that come to and from west of the transit center will have to cross SMART tracks twice.
○ Net Change in Revenue Service Miles	-42.1	
○ Number of Bus Grade Crossings per Day	137	
Local Circulation		
Accessibility from Bike Paths	●	The Puerto Suello bike path would be integrated into the northern portion of this site configuration. Access to the remaining bays will require crossing 3rd St.
Change in Vehicle Delay (sec/veh) due to any Circulation Changes	●	Reducing out-of-direction bus travel results in a moderate decrease in average vehicle delay (Reduction of 6.3 seconds in AM and 0.4 seconds in PM). Number of deficient intersections decreases in the AM.
Effects on Pedestrian Circulation	○	Six separate driveways along 2nd, 3rd, and 4th St, including large driveways on 2nd and 4th, would create a large number of pedestrian/vehicle conflicts. Maintains or increases pedestrian activity at the congested Hetherton & 3rd St intersection.

LONG-TERM ALTERNATIVES EVALUATION - ALTERNATIVE 4

Criteria	Rating	Explanation
Description: 3rd to 5th – Utilizes the area between 3rd St, the SMART tracks, 5th Ave, and Hetherton St. Would require vacancy of E. Tamalpais Ave between 3rd St and 5th St. 4th St would remain open for all traffic. It would also include right-turn channelization and a two-bay bus island on Hetherton St between 4th St and 5th Ave. The Puerto Suello Bike Path would be shifted from Hetherton St to adjacent to the SMART tracks to allow transit vehicles to use the west curb of Hetherton St. Opportunity for small entryway features on either side of 4th St at Hetherton. Would allow for reuse of Bettini site.		
ROW Acquisition and Construction Costs		
Land Acquisition	●	
○ Number of Parcels to be Acquired	4	
○ Number of Businesses to be Relocated	4	
○ Estimated Acquisition Cost	\$6.0M - \$7.2M	
Development Potential of Sites	●	Site circulation and proximity to downtown is desirable; however, small parcels north of 4th St may make private sector redevelopment challenging. Allows for redevelopment of Bettini site.
Construction Cost (includes property acquisition)	\$23.9M	
Pedestrian Circulation		
Distance and Major Barriers to SMART Station	●	The southern portion of the site will be located directly adjacent to the SMART station. The northern portion requires pedestrians to cross 4th St, where a signalized pedestrian crossing is provided.
Distance and Major Barriers to Downtown San Rafael	●	All portions of the site would have access to downtown San Rafael via sidewalks on 4th St. Access to Downtown would require crossing SMART tracks.
Transfer Convenience		
Number of Transfers per day Required to Cross Major/Minor Street	●	Approximately 40% of transfers would have to cross 4th St, a comparatively lower volume roadway than 3rd St. A similar number would have a 3+ minute walk between transfers, which provides limited buffer time for transfers to occur within the pulse. The longest transfer time would be approximately 3.5 minutes.
○ Total Transfers	1572	
○ 4th St	625	
○ Transfers requiring 3+ minute walk	620	
Conflict Points/Obstructions for Transfers Between Public Transit Services	●	Transferring between the northern and southern portions of the transit center would require crossing 4th St. Transfers going to and from the two bays located on the island on Hetherton Street would have to cross the right-turn pocket at 4th and Hetherton.
Site Functionality		
Number of Bays	●	This alternative includes 16 bays, matching the minimum requirement.
Flexibility in Vehicle Sizing/Utilization of Bays	○	All 16 bays in this configuration would be utilized by at least one existing or near-term planned route; some additional routes could be accommodated by sharing bays with other non-conflicting routes.
Available Space for Transit-Related Land Use	●	An estimated 2,350 square feet would be available for customer service, security, or other transit-related land uses. This represents only a small increase to what is provided today.
Bus Operations		
Accessibility of Bays from All Key Directions of Travel	●	Routes approaching from the west on 2nd Street would have to circulate via Irwin Street to access the transit center. Most other routes would be able to access the transit center without significant detouring.
Effects on Bus Circulation	●	The accessibility of bays from 3rd, 4th, and 5th Street produces a moderate decrease in total revenue service miles.
○ Net Change in Revenue Service Miles	-32.7	
○ Number of Bus Grade Crossings per Day	137	
Local Circulation		
Accessibility from Bike Paths	●	The Puerto Suello bike path will be reconfigured to travel around the perimeter of the northern portion of the transit center, then cross 4th St, providing direct access to all parts of the transit center. Limited bike parking would be provided along the site periphery.
Change in Vehicle Delay due to any Circulation Changes	●	Alternative would decrease bus movements through 3rd St & Hetherton intersection. Alternative achieves reduction in delay per vehicle of 5.4 seconds in AM and 0.7 seconds in PM. Right-turn channelization may be confusing to drivers on Hetherton approaching 4th St and may result in undesirable maneuvers.
Effects on Pedestrian Circulation	○	Four driveways on 3rd St, 4th St, and 5th Ave would produce a moderate number of pedestrian/vehicle conflicts. Wide driveways are less desirable from the pedestrian perspective. Would increase length of pedestrian crossing of Hetherton St at 4th St.

LONG-TERM ALTERNATIVES EVALUATION - ALTERNATIVE 5

Criteria	Rating	Explanation
Description: 5th Avenue – Utilizes the area bounded by 4th St, the SMART tracks, Mission Ave, and Hetherton St. 5th Ave would be incorporated into the transit center, providing an access point for buses only, facilitating easy transfers between all routes. Would completely eliminate the 5th Ave grade-crossing. Two bays would be provided along Tamalpais Ave between 5th Ave and Mission Ave. The Puerto Suello Bike Path would be relocated from Hetherton St to run adjacent to the SMART tracks. Would allow for the relocation of the SMART station to north of 4th St to provide a consolidated transit center. Allows for a large plaza, entryway feature, and/or redevelopment of the corner of 4th St and Hetherton St. Would allow for reuse of Bettini site.		
ROW Acquisition and Construction Costs		
Land Acquisition	○	
○ Number of Parcels to be Acquired	9	
○ Number of Businesses to be Relocated	6	
○ Number of Households to be Relocated	9	
○ Estimated Acquisition Cost	\$8.3M-\$10.4M	
Development Potential of Sites	●	Site circulation and proximity to downtown is desirable; however, numerous small parcels and residential uses may make redevelopment challenging. Allows for redevelopment of Bettini and Citibank sites.
Construction Cost (includes property acquisition)	\$28.9M	
Pedestrian Circulation		
Distance and Major Barriers to SMART Station	●	The current location of SMART is located across 4th St from the transit center, although a signalized crossing will be provided. Allows for the relocation of the SMART station to provide a consolidated transit center.
Distance and Major Barriers to Downtown San Rafael	●	All pedestrians would be able to access 4th St from the Transit Center without making a street crossing. Access to Downtown would require crossing SMART tracks.
Transfer Convenience		
Number of Transfers per day Required to Cross Major/Minor Street	●	Since the transit center site would be on one continuous block, all transfers would be made without crossing any public streets. Less than 3% of transfers would have to cross the SMART alignment to transfer between the main site and the platform west of the SMART tracks. Less than 1% would have a greater than three minute walk to complete a transfer, with the longest transfer time being 4 minutes.
○ Total Transfers	1572	
○ SMART	43	
○ Transfers requiring 3+ minute walk	11	
Conflict Points/Obstructions for Transfers Between Public Transit Services	●	Most transfers could be made without street or rail crossings. Transfers going to and from Marin Transit routes west of SMART would require crossing rail tracks.
Site Functionality alternative includes 18 bays, exceeding the minimum requirement by 2 bays.		
Number of Bays	●	This alternative includes 20 bays. 18 bays would be provided if the SMART station were relocated, exceeding the minimum requirement by 2 bays.
Flexibility in Vehicle Sizing/Utilization of Bays	●	This alternative would have up to four bays open to allow for future expansion of transit service. Because of the consolidated nature of the transit center, this alternative provides optimal flexibility in bay assignments.
Available Space for Transit-Related Land Use	●	An estimated 13,263 square feet would be available for customer service, security, or other land uses, far exceeding the needs of transit operators.
Bus Operations		
Accessibility of Bays from All Key Directions of Travel	●	Right-in/right-out only access on 4th Street requires routes approaching from the west to circulate around to the driveway at 5th & Hetherton via Irwin Street.
Effects on Bus Circulation	●	East-west routes on 2nd St would have a somewhat longer circulation path due to a diversion up to 5th Ave. This mostly offsets the travel distance benefits associated with enhanced internal circulation. This alternative has the fewest number of crossings of the SMART tracks due to the provision of adjacent bays on the west side of the tracks.
○ Net Change in Revenue Service Miles	-3.3	
○ Number of Bus Grade Crossings per Day	129	
Local Circulation		
Accessibility from Bike Paths	●	The Puerto Suello bike path would be redirected to follow Mission Avenue, then the SMART right-of-way, but will stay within the transit center site. Cyclists would be able to access all bays from the bike path. Bike parking would be provided along the site periphery.
Change in Vehicle Delay due to any Circulation Changes	○	The closure of 5th Ave would require some re-routing of vehicle trips to 4th St or Mission Ave, causing backups on 4th St, 5th Ave, Mission Ave, and Lincoln Ave. Achieves a reduction in vehicle delay of 9.7 seconds in AM and increase of 1.1 seconds in PM; however, additional delay not captured experienced by vehicles entering downtown area. This alternative would allow for the provision of a second southbound right-turn lane from Hetherton to 3rd St and a decrease in pedestrian activity at the 2nd St and 3rd St intersections with Hetherton.
Effects on Pedestrian Circulation	●	This alternative only has two driveways, and thus minimizes the number of pedestrian/vehicle conflicts. Existing pedestrian access into downtown from 5th Ave would likely be shifted over to 4th St, although a pedestrian crossing of the tracks at 5th Ave may be feasible to maintain.