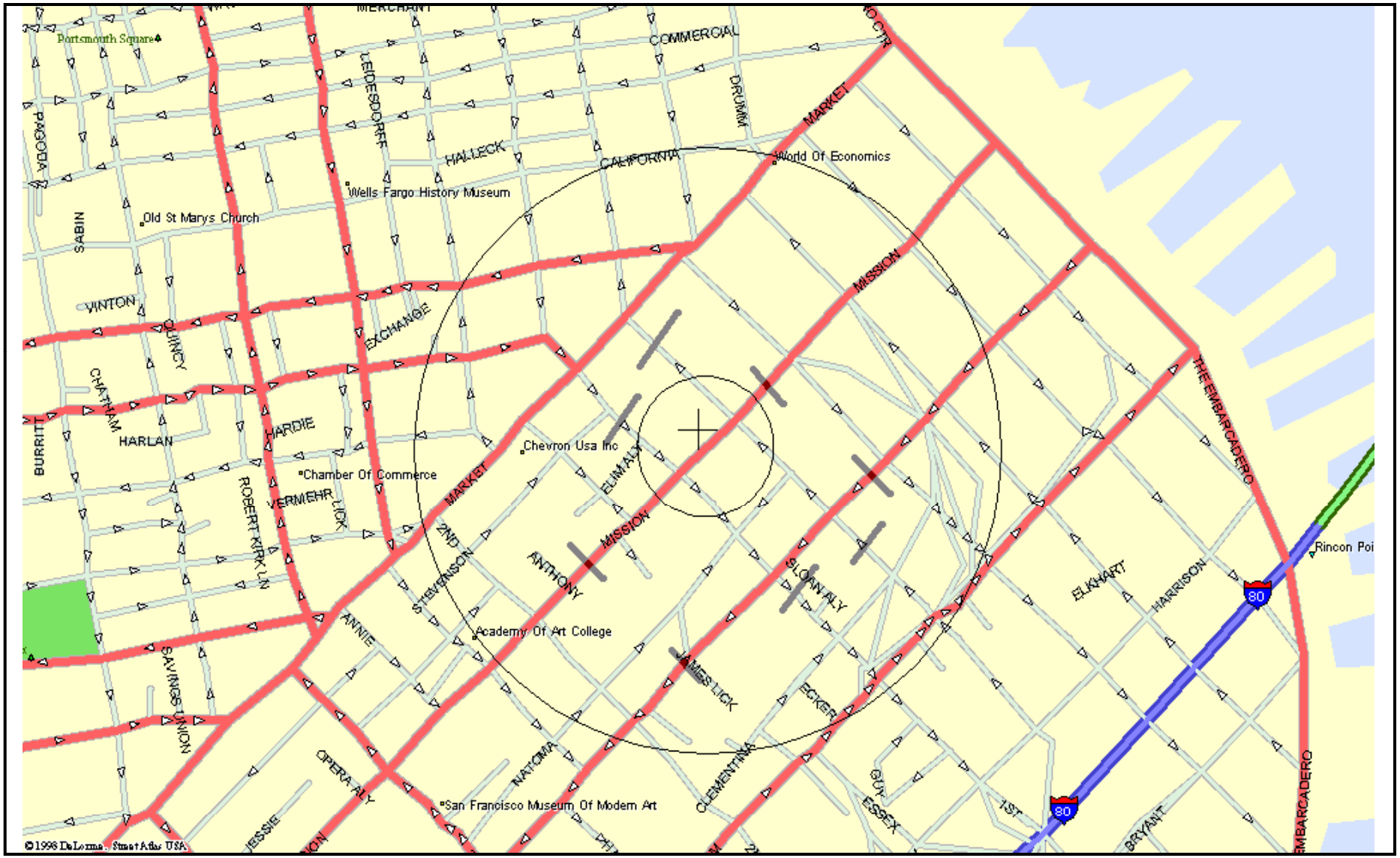
APPENDIX 3.1-A

STATION LOCATION STREET MAPS

1. Transbay Terminal, San Francisco



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of Transportation
Federal Railroad
Administration

2. Fourth Street and King Street, San Francisco

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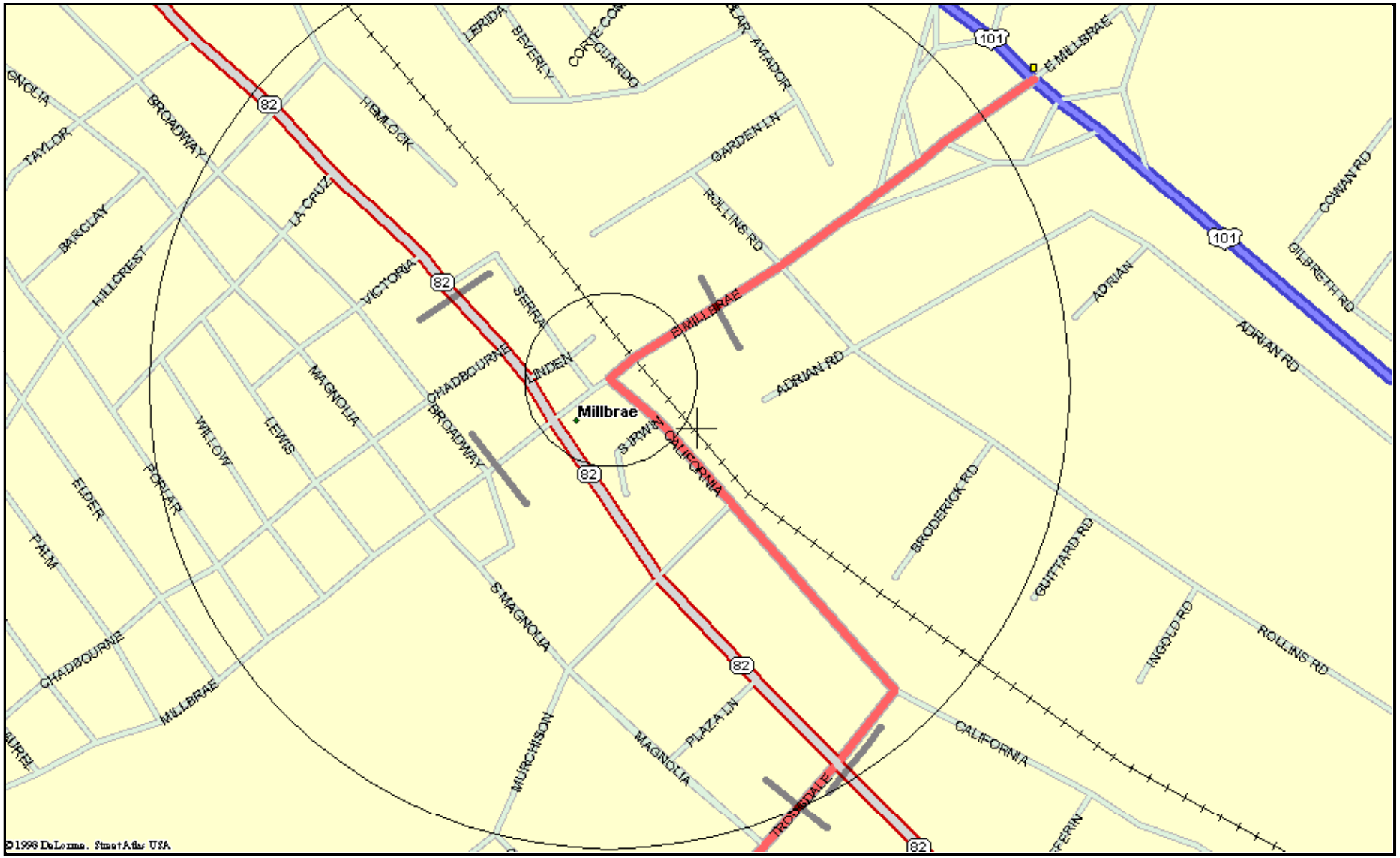
of Transportation
Federal Railroad
Administration

3. Milbrae Station, San Francisco Airport



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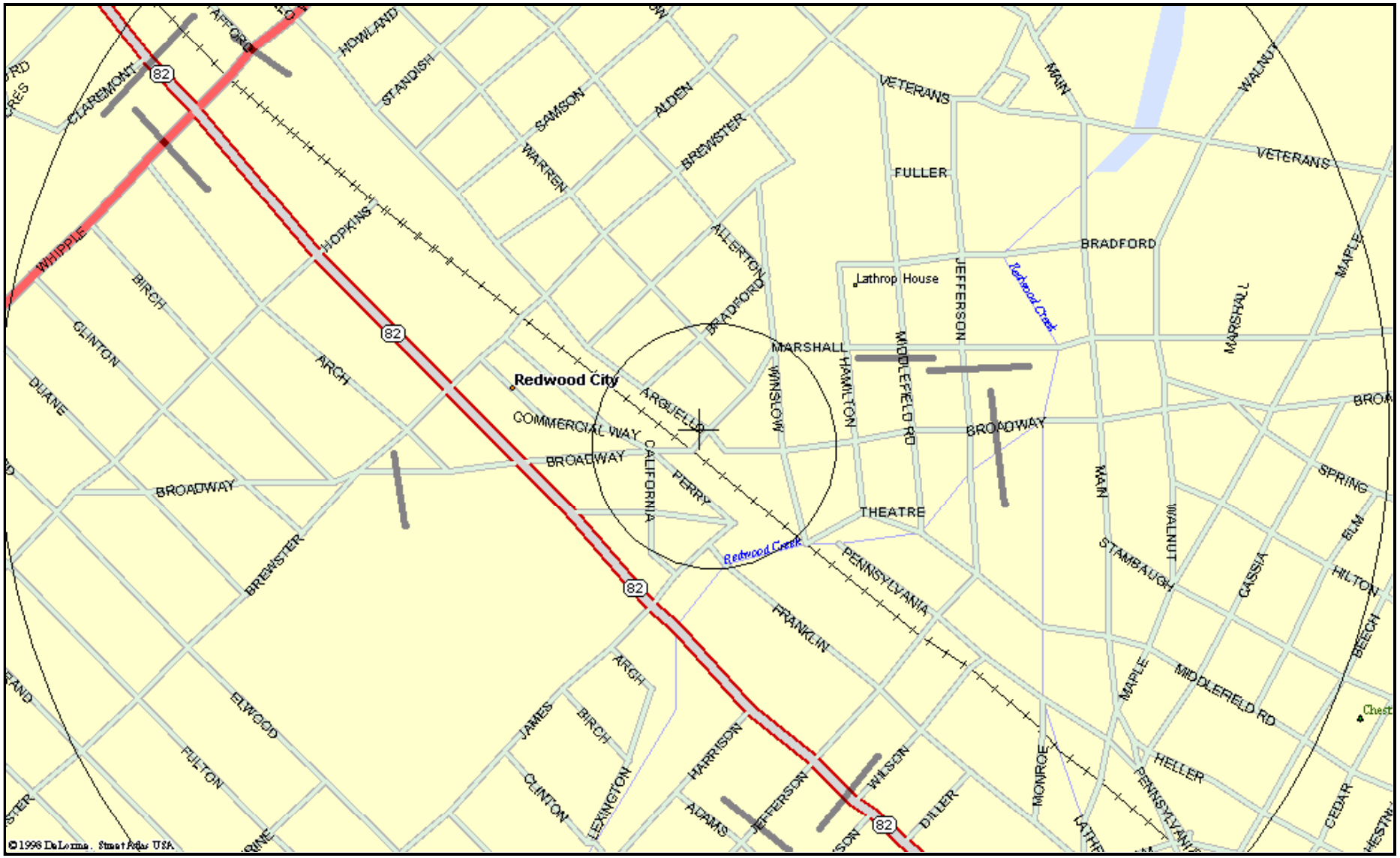
of Transportation
Federal Railroad
Administration

4. Redwood City



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Federal Railroad
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5. Palo Alto

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of Transportation
Federal Railroad
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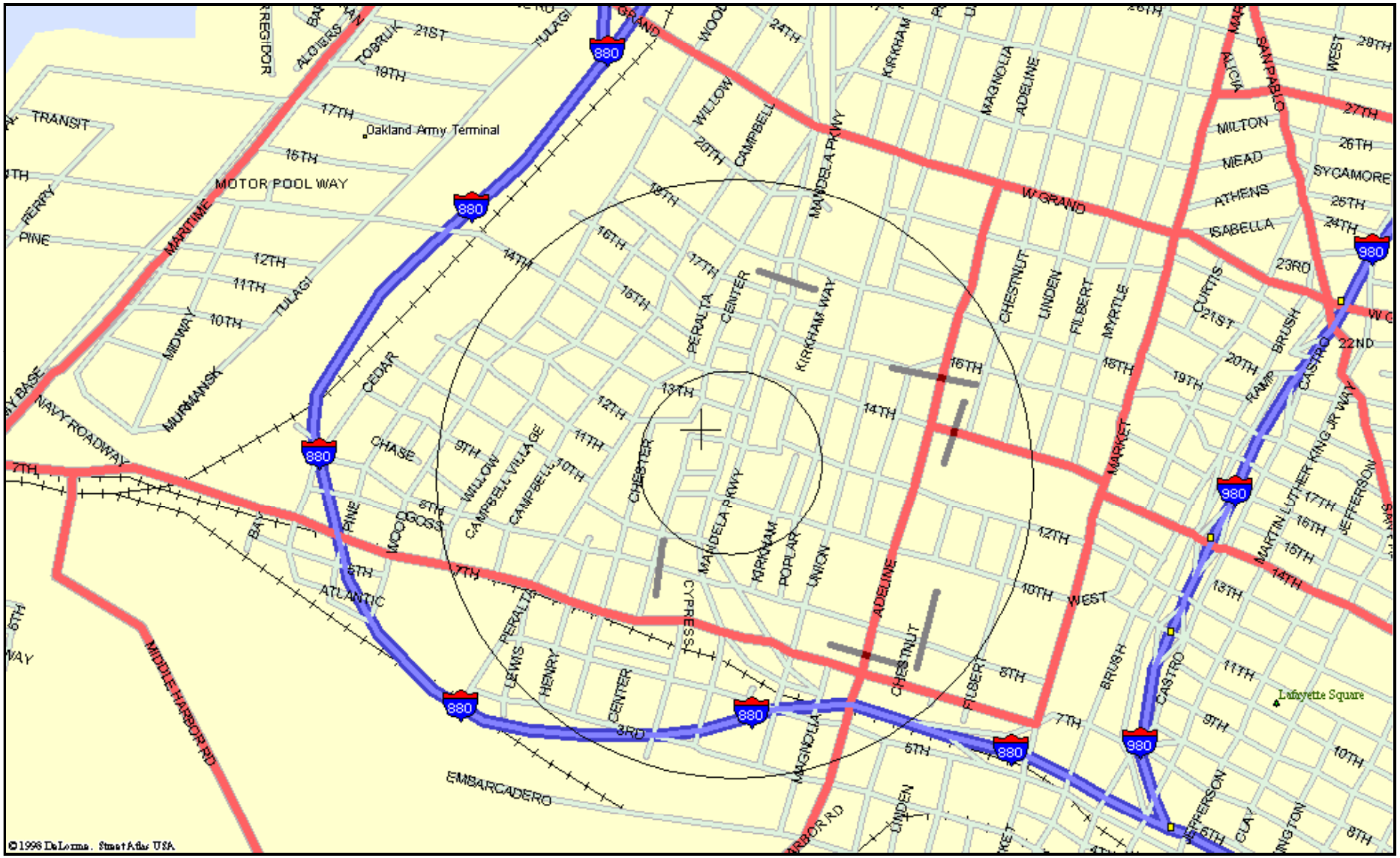
6. West Oakland



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7. Oakland 12th Street/City Center

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Federal Railroad
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8. Oakland Coliseum/Oakland Airport

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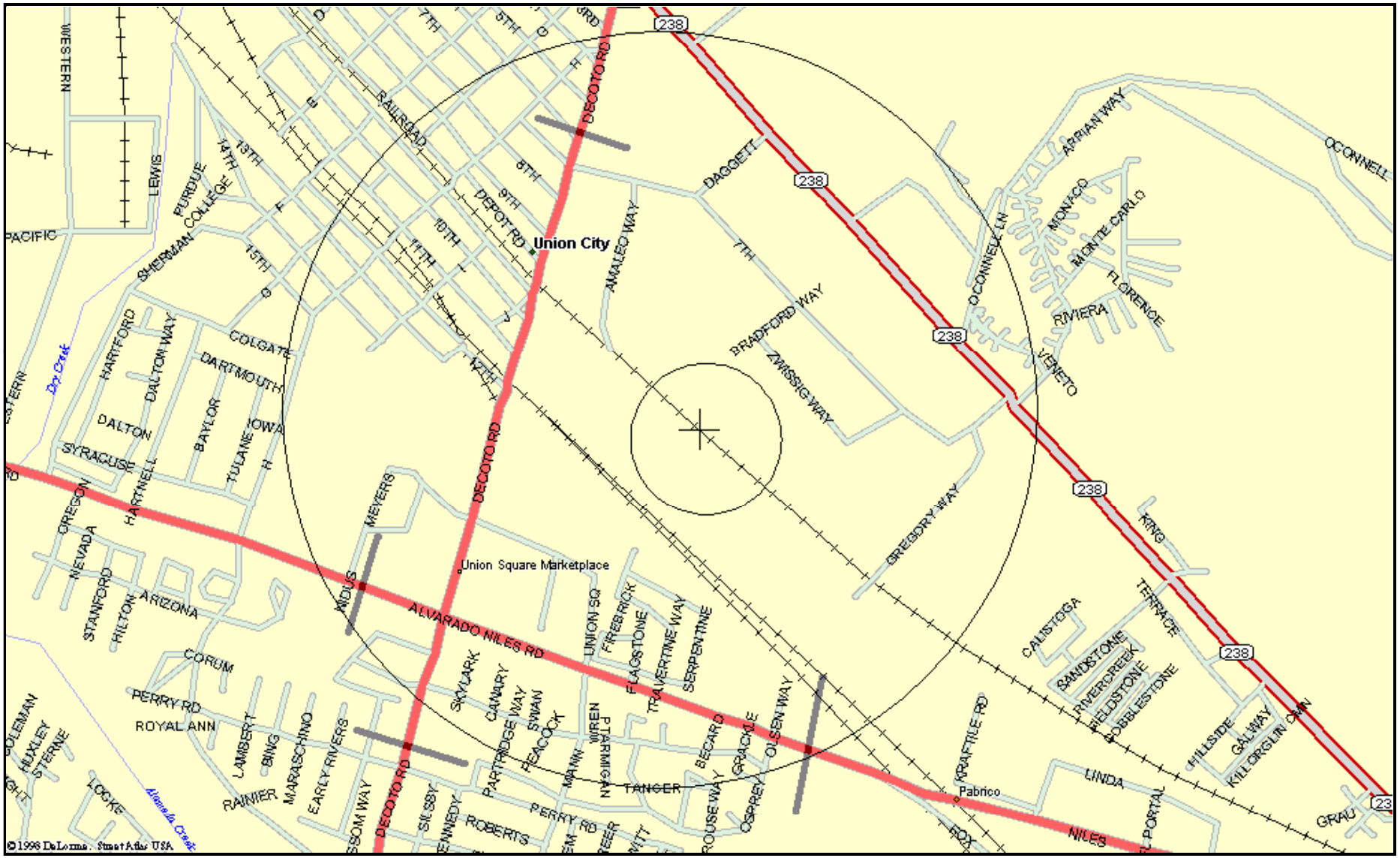
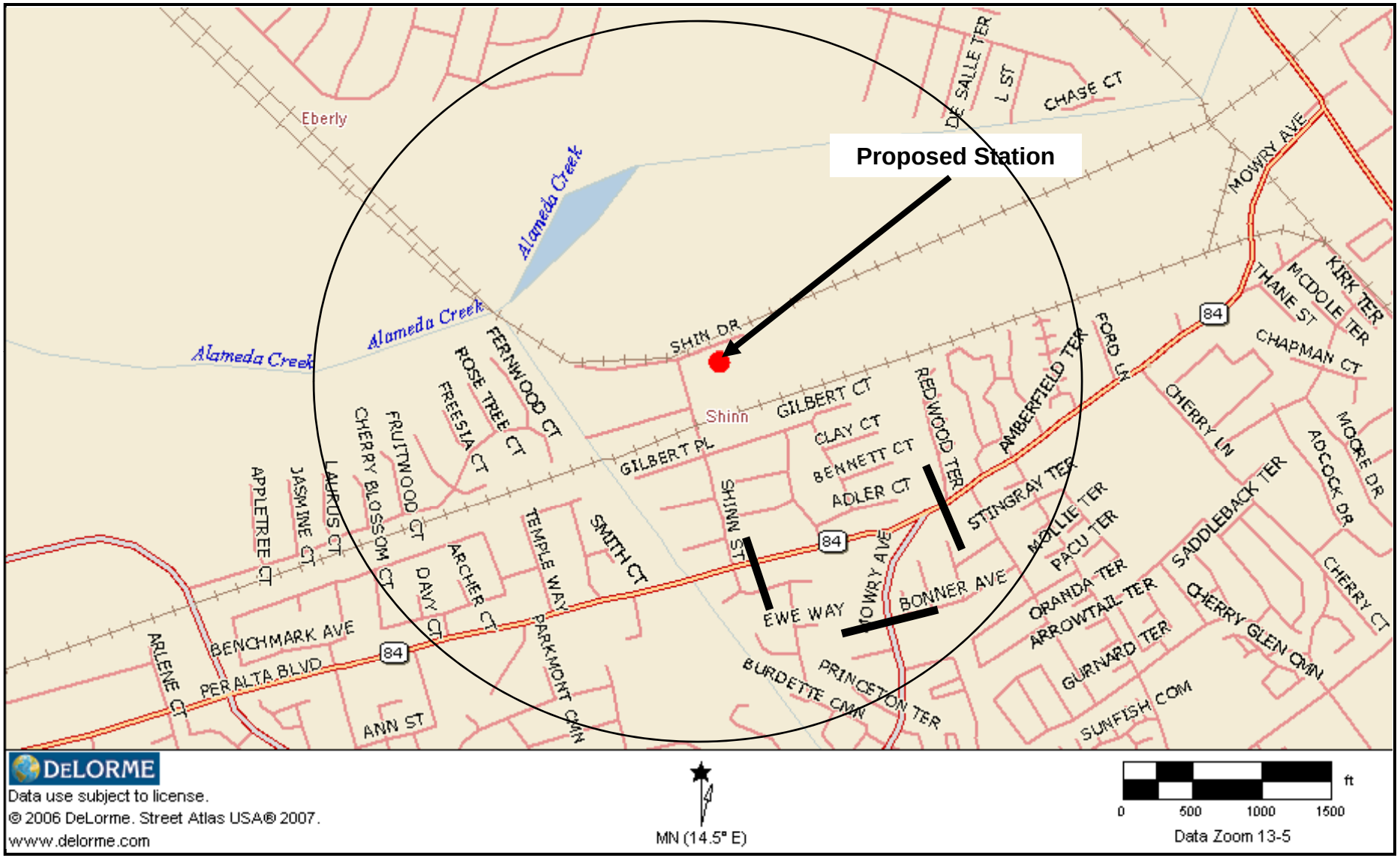
Federal Railroad Administration

9. Union City



U.S. Department of Transportation
Federal Railroad Administration

10. Shinn



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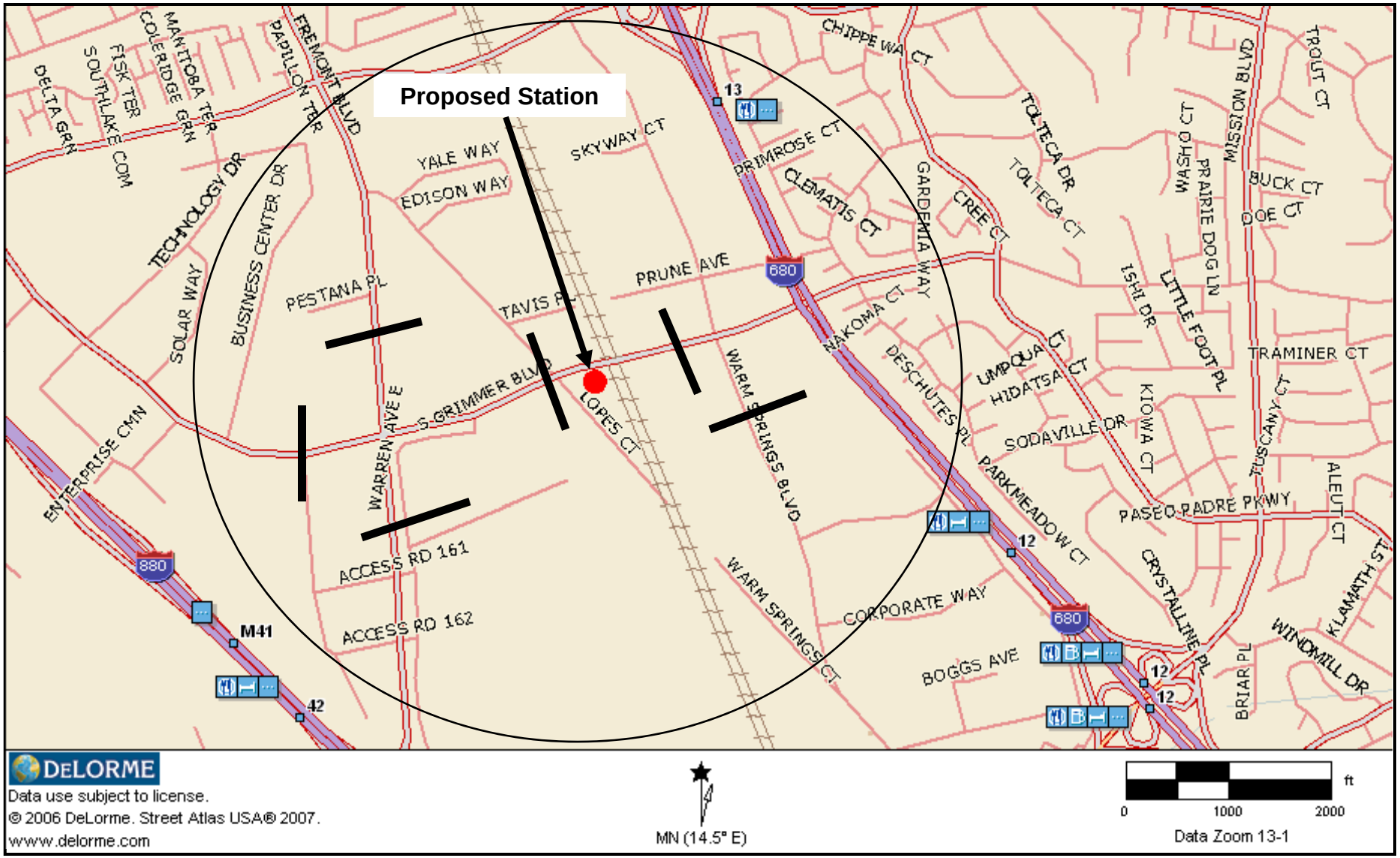
Federal Railroad
Administration

11. Warm Springs



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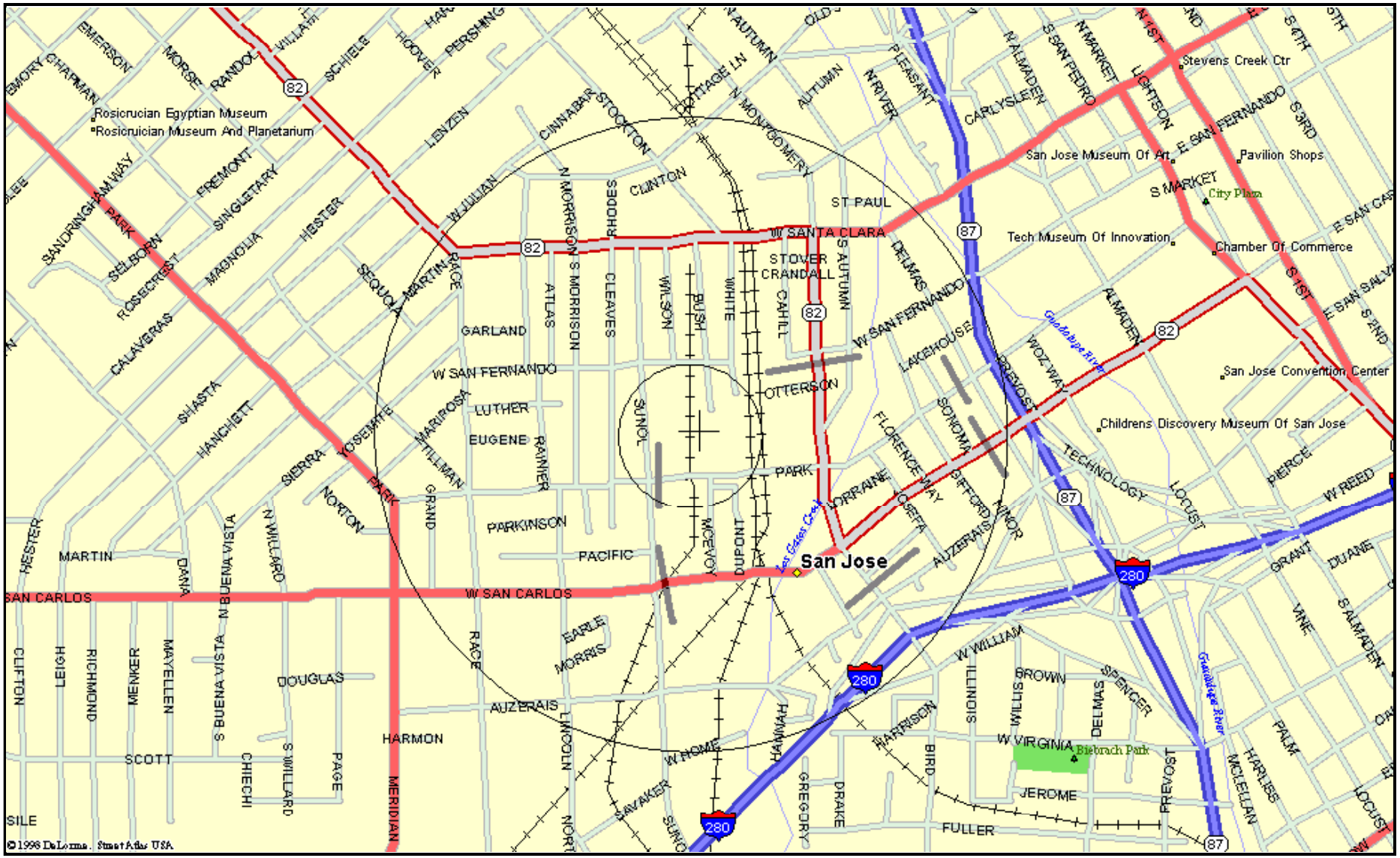
Federal Railroad
Administration

12. San Jose



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Federal Railroad
Administration

13. Morgan Hill

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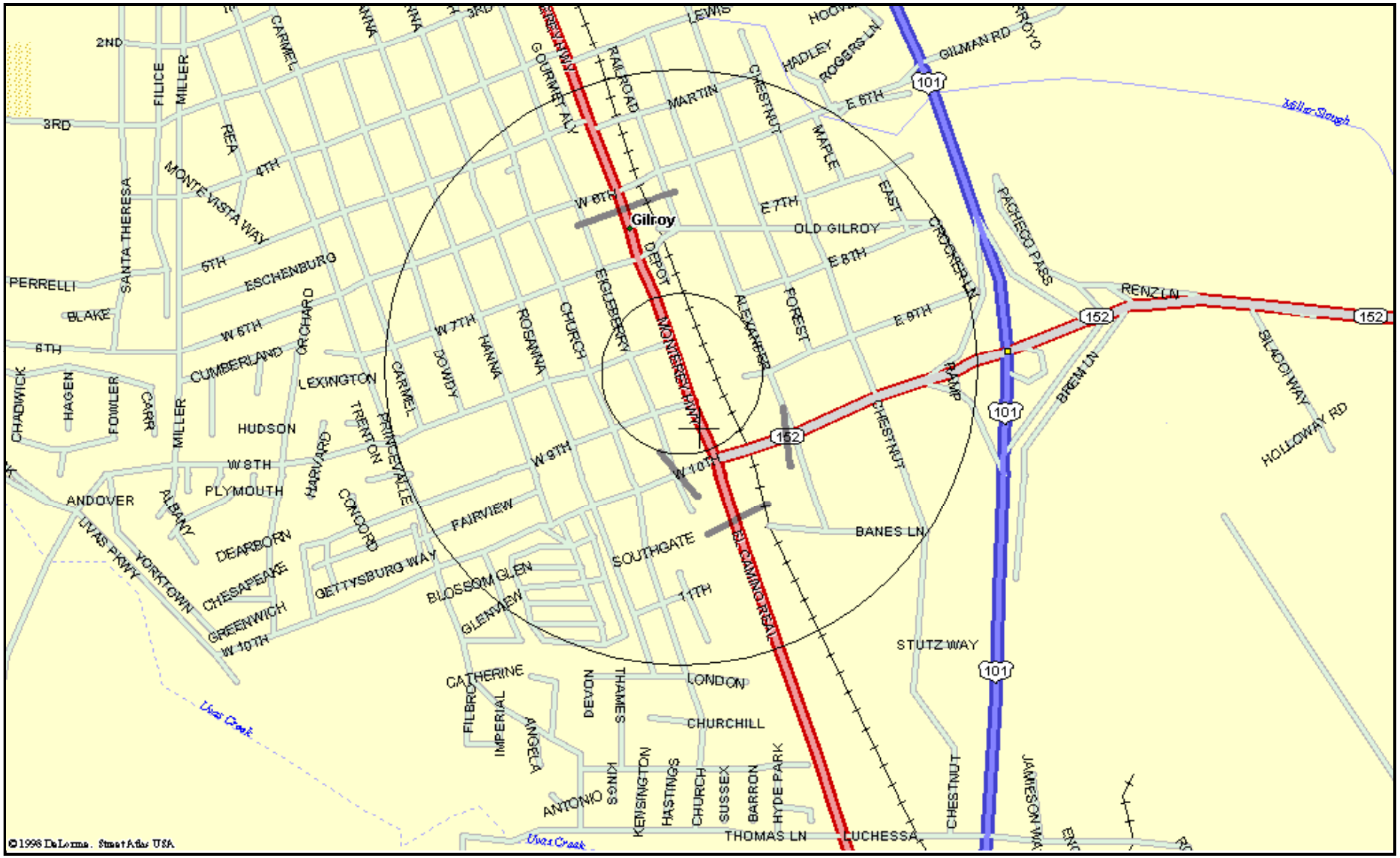
Federal Railroad Administration

14. Gilroy



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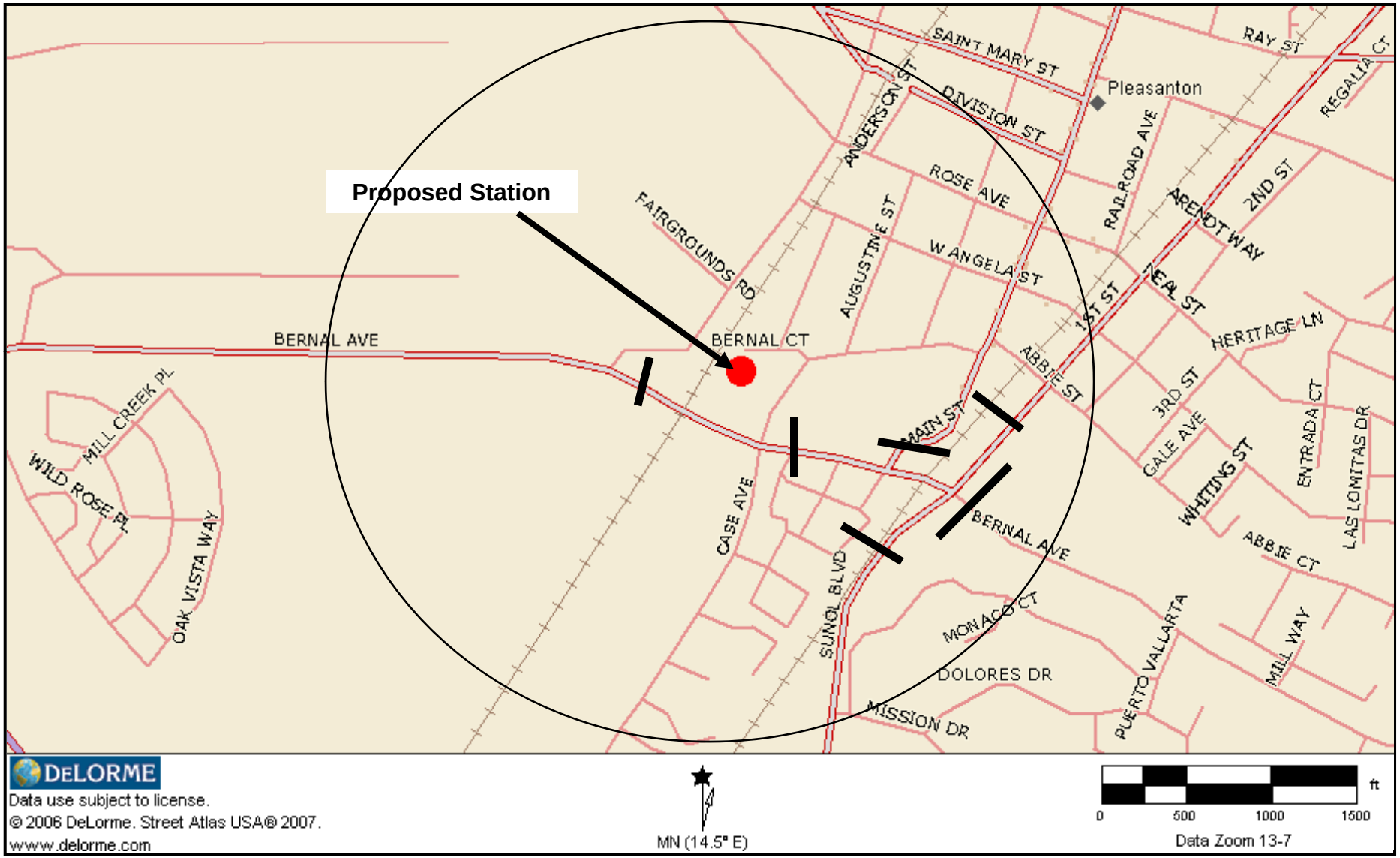
Federal Railroad
Administration

15. Bernal Station



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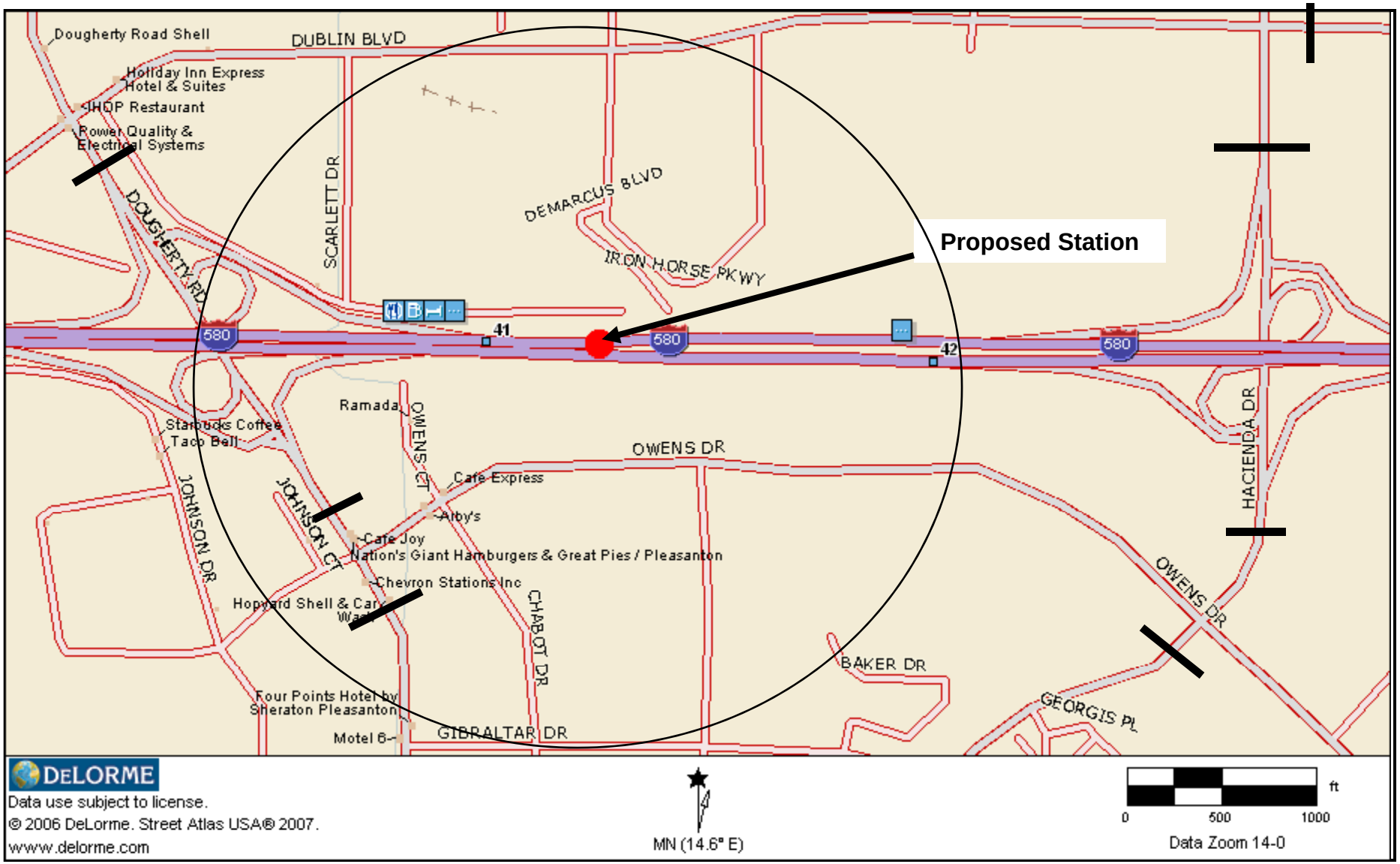
16. Dublin/Pleasanton Station



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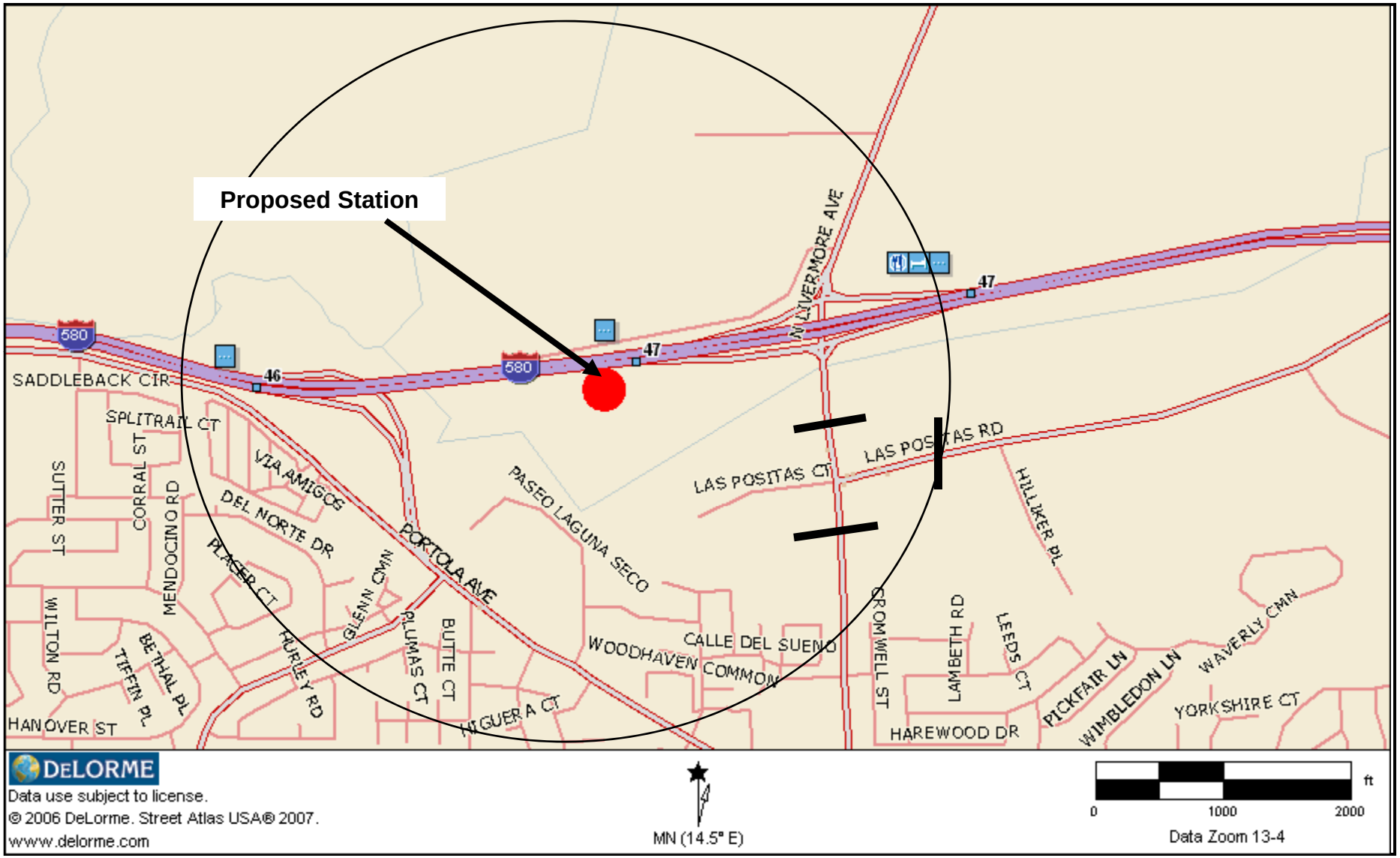
17. Livermore I-580



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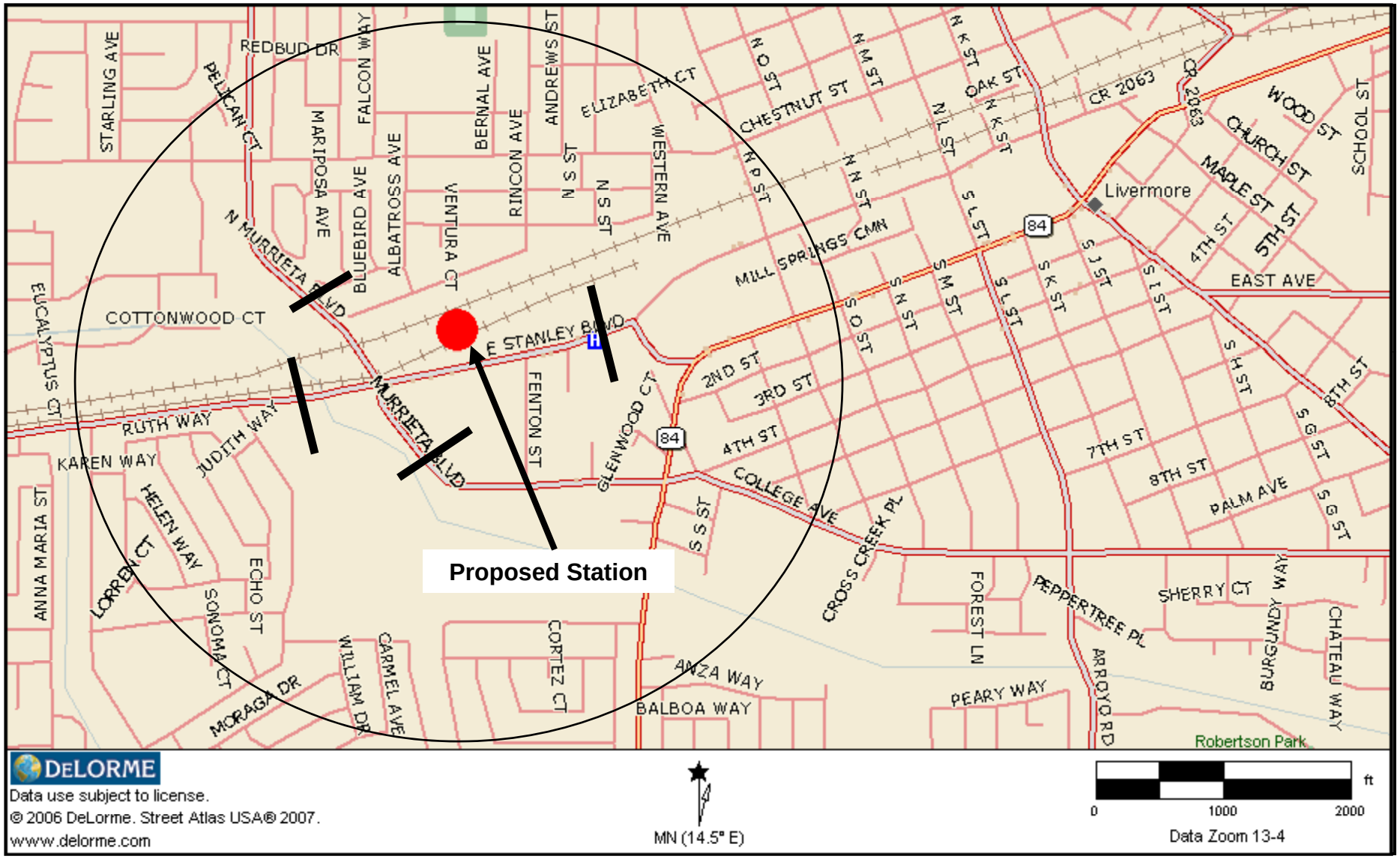
Federal Railroad Administration

18. Downtown Livermore



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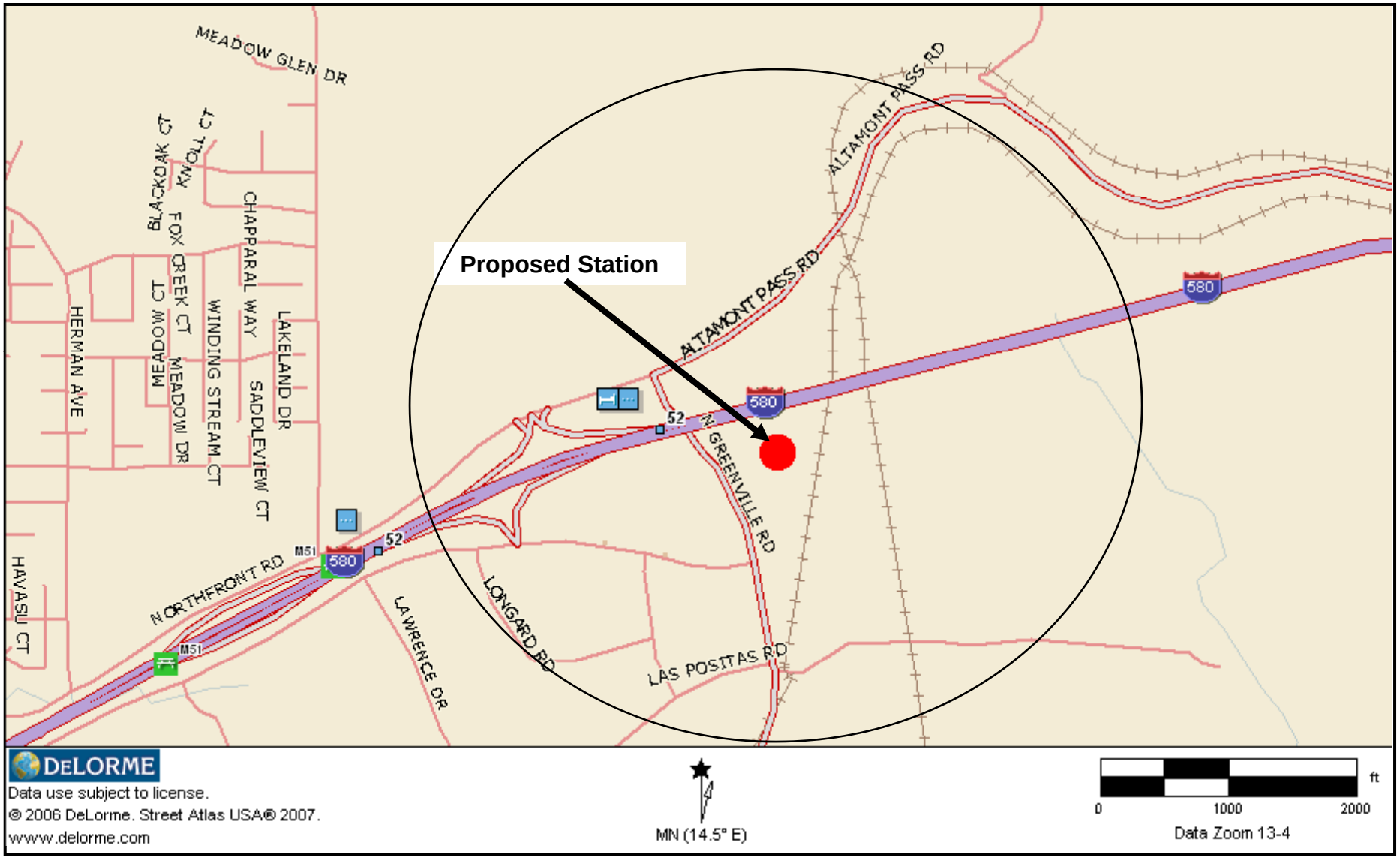
Federal Railroad Administration

19. Greenville I-580



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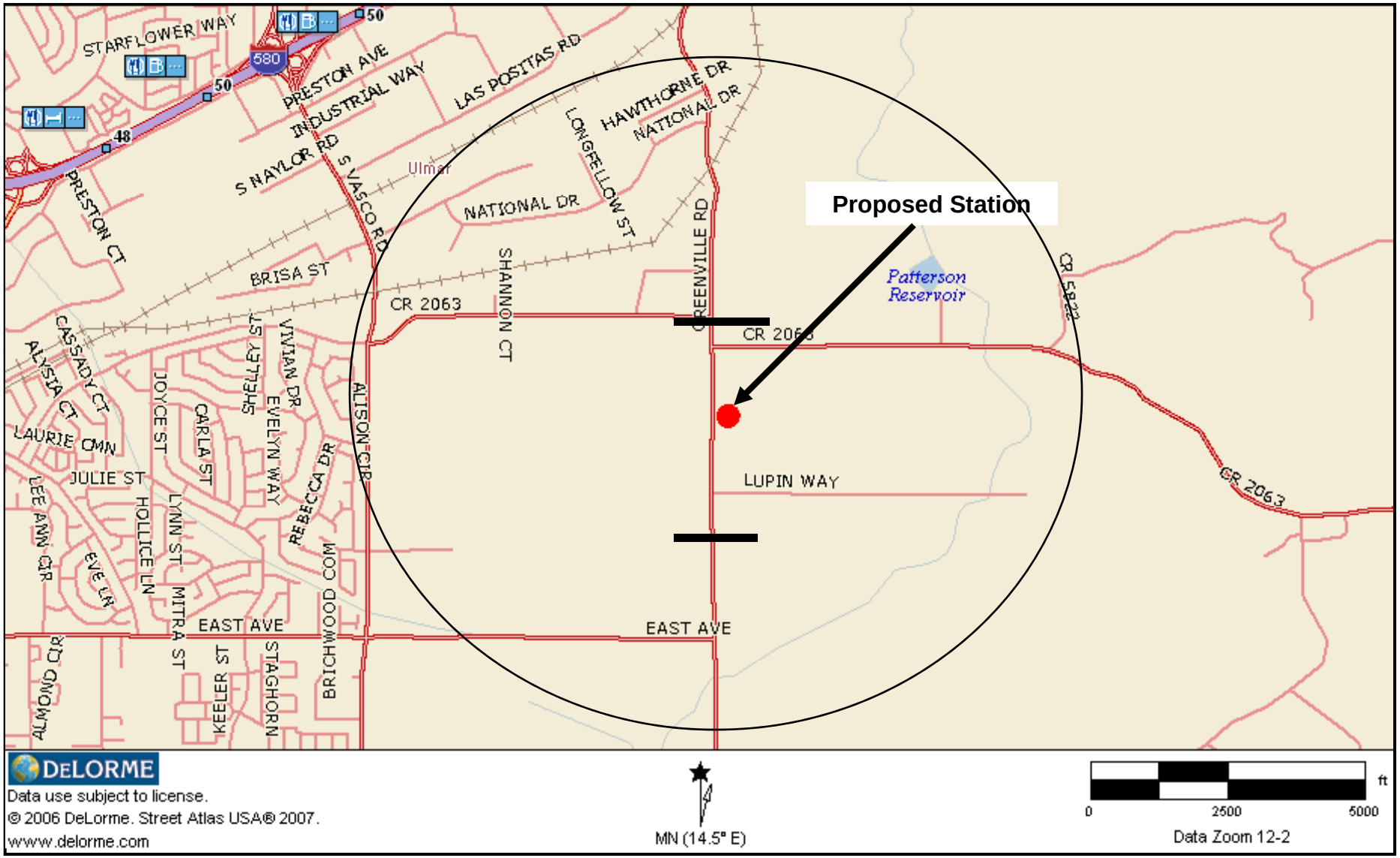
Federal Railroad Administration

20. Greenville UPRR



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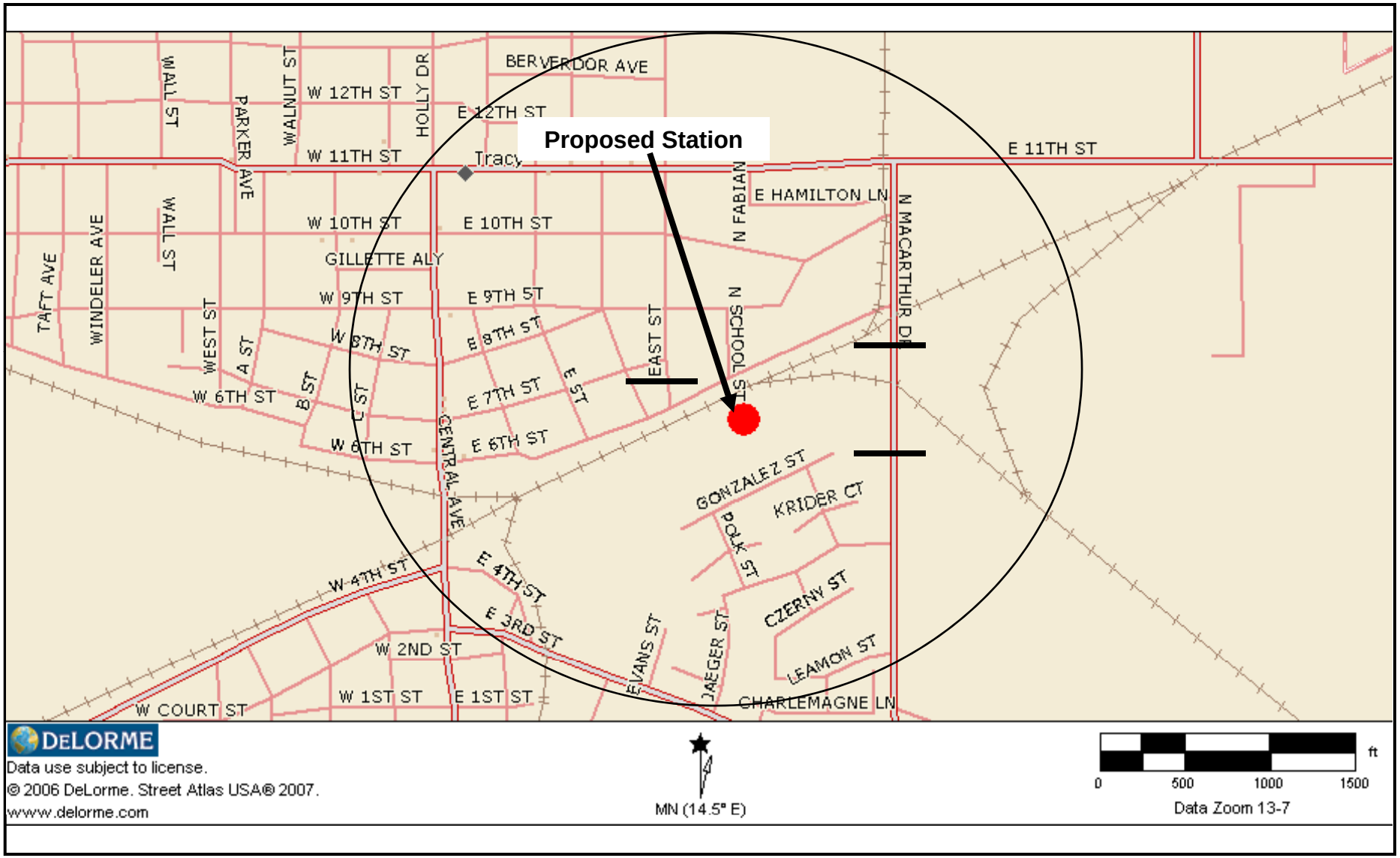
Federal Railroad Administration

21. Tracy Downtown



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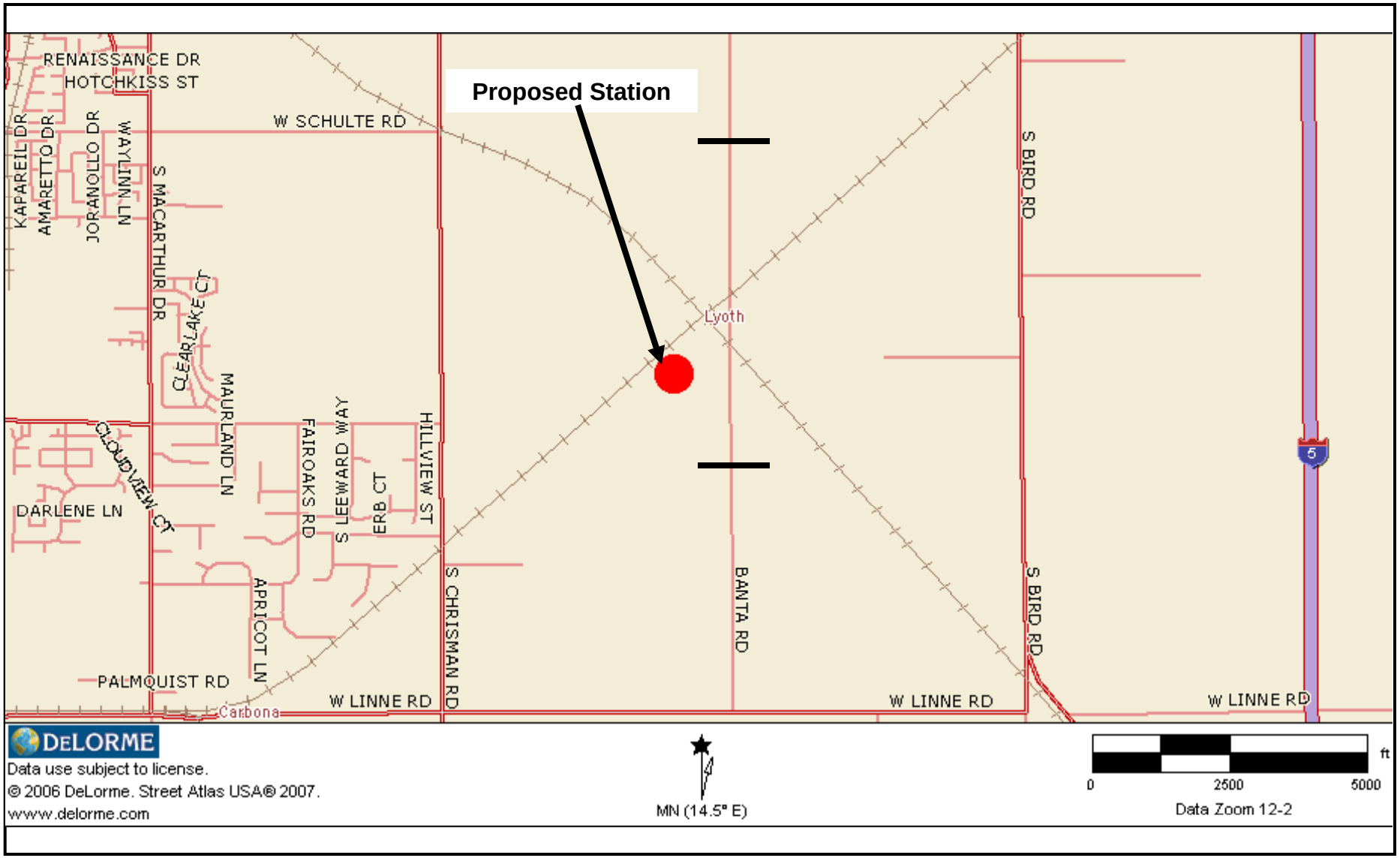
Federal Railroad Administration

22. Tracy ACE



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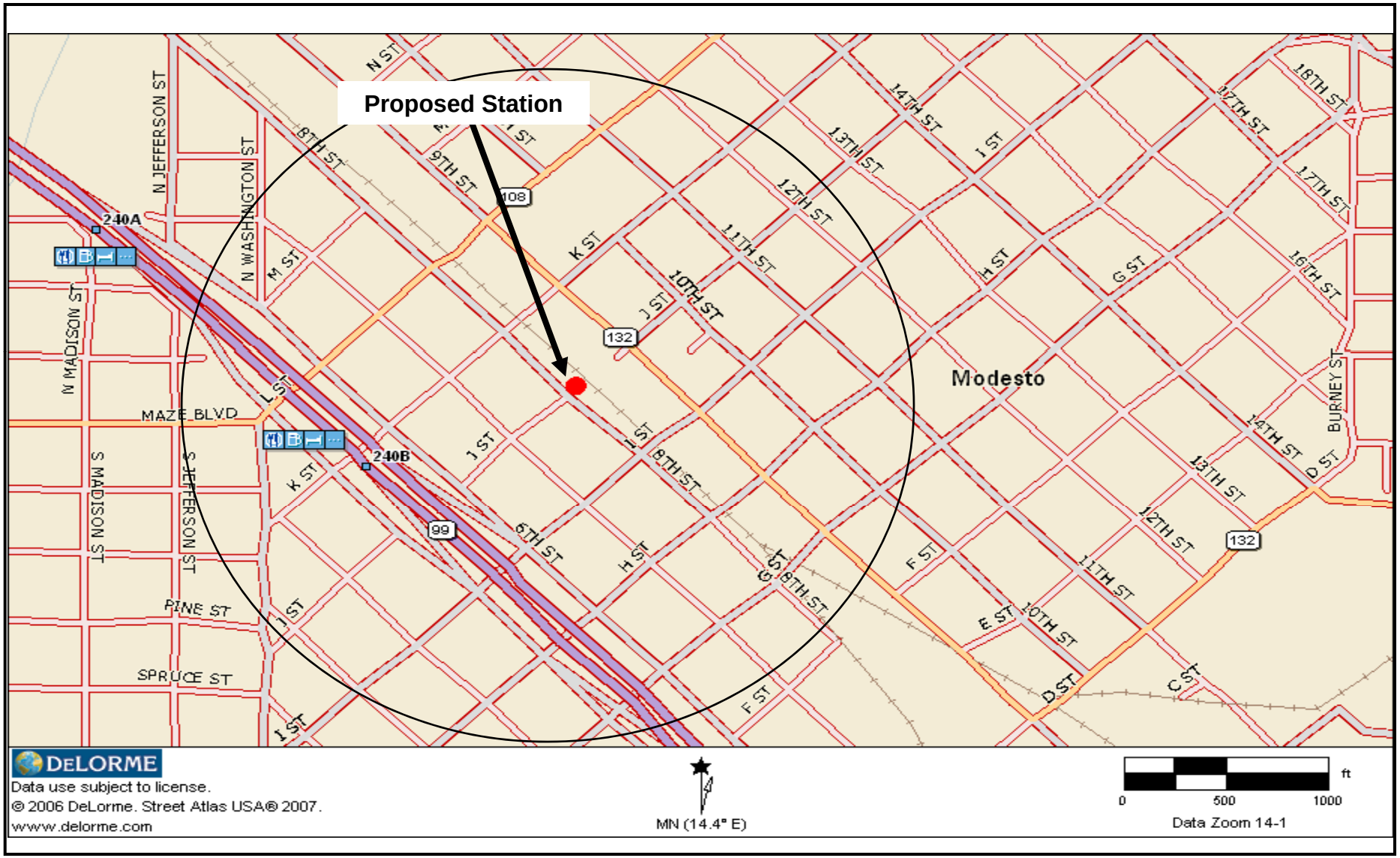
Federal Railroad Administration

23. Modesto Downtown



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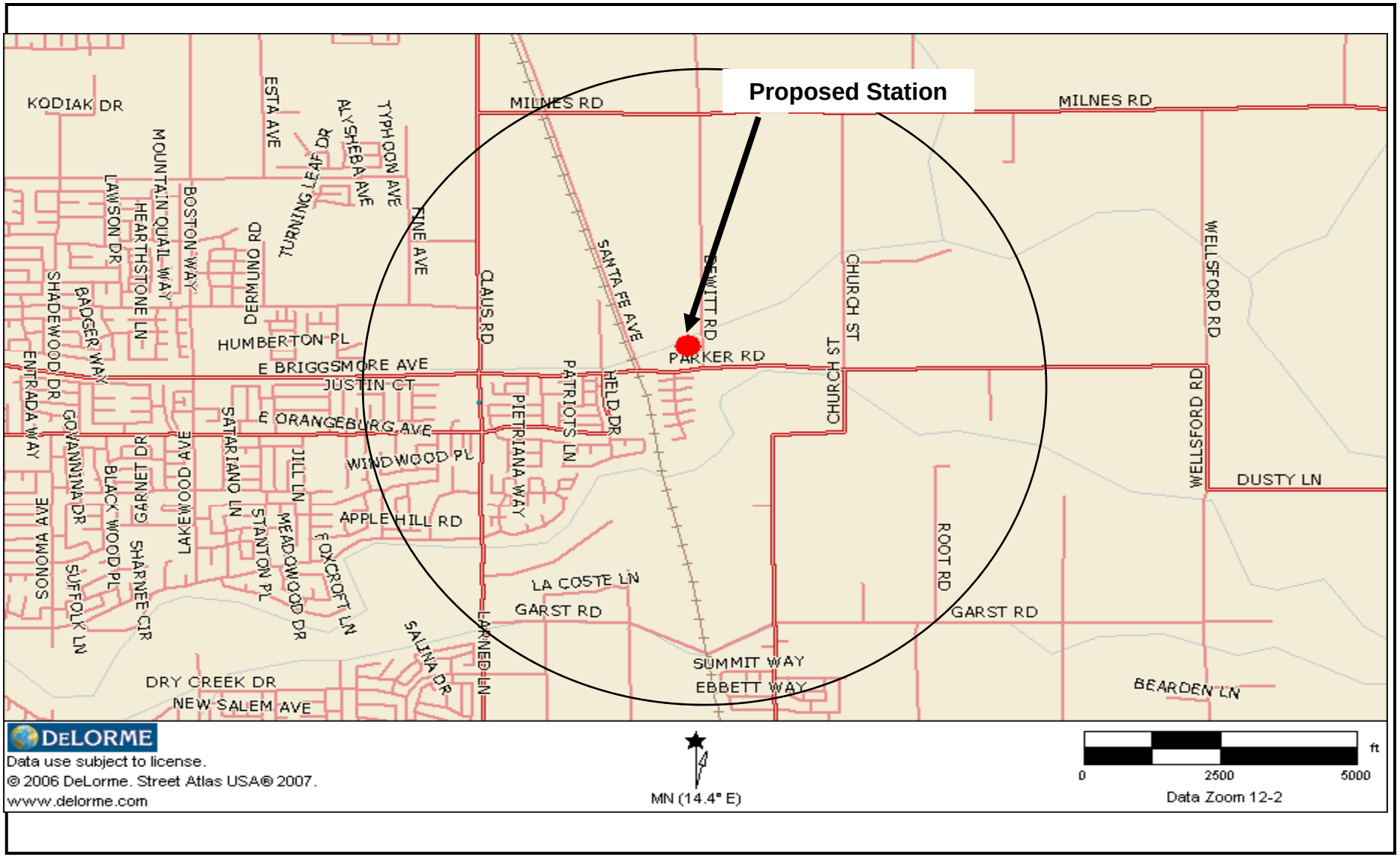
Federal Railroad
Administration

24. Amtrak Briggsmore (Modesto)



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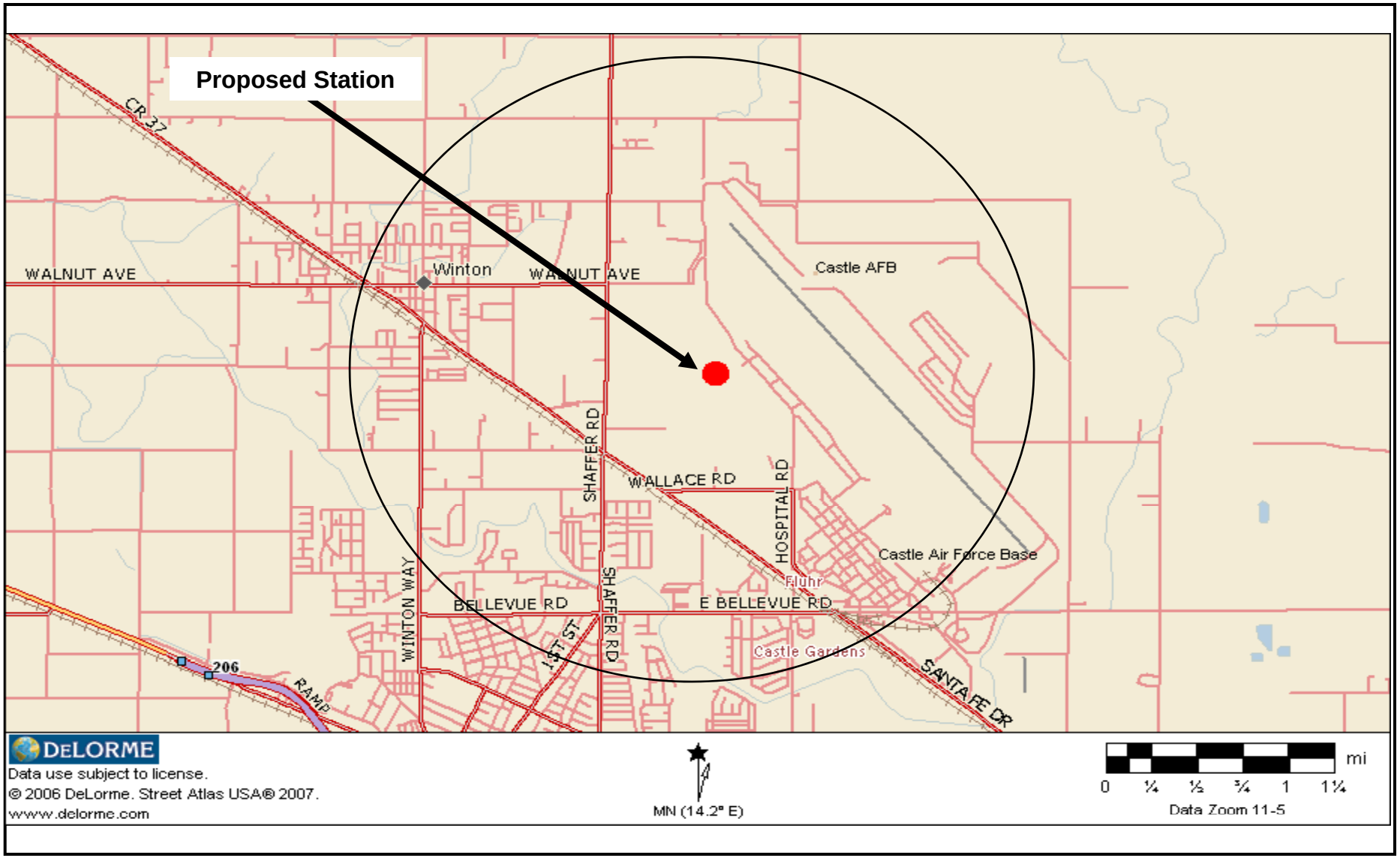
Federal Railroad Administration

25. Castle Air Force Base (Merced)



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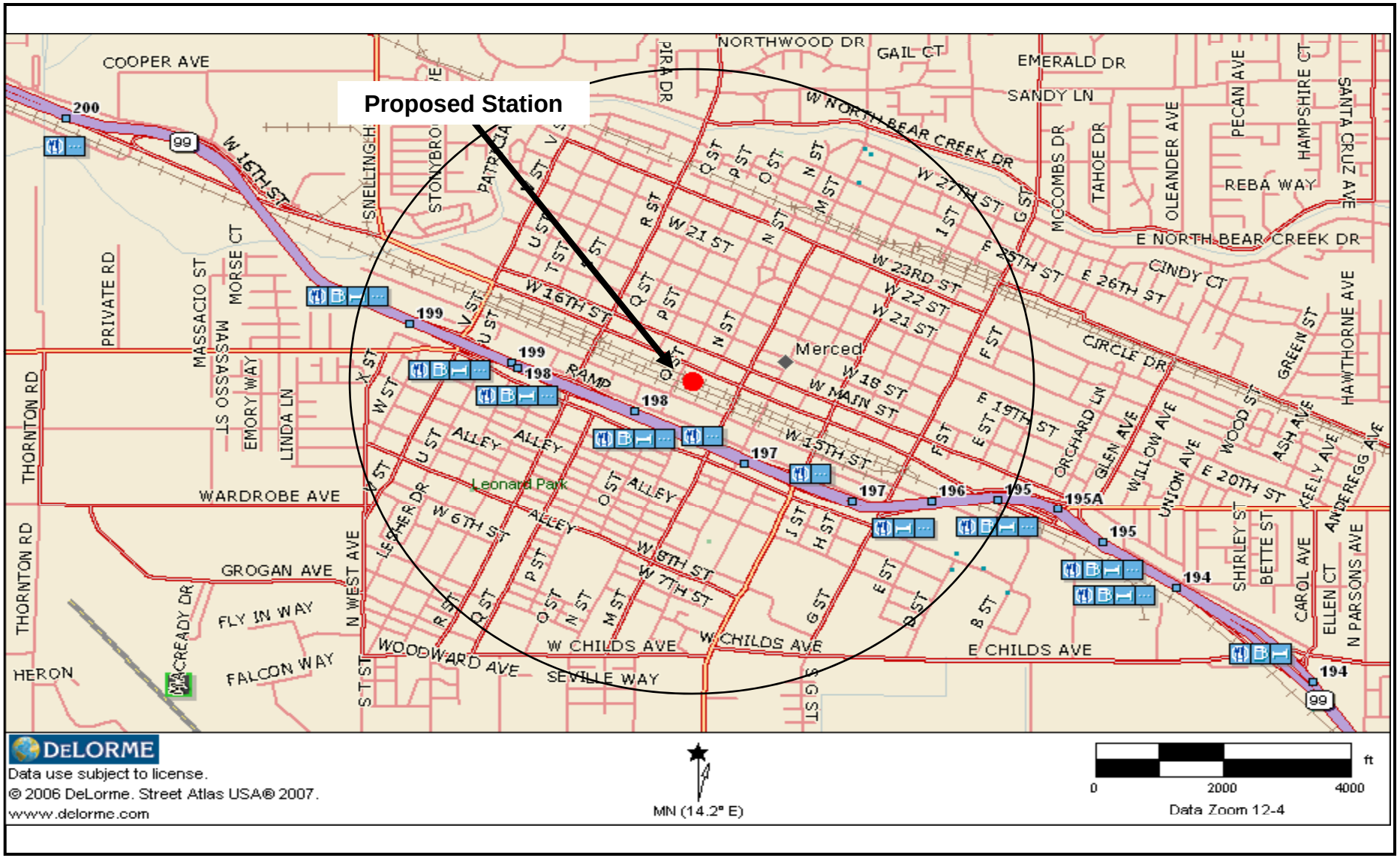
Federal Railroad
Administration

26. Merced Downtown



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Federal Railroad
Administration

APPENDIX 3.3-A

2030 NO BUILD SCENARIO VMT AND VHT

CALIFORNIA HIGH SPEED RAIL
2030 NO BUILD SCENARIO VMT AND VHT

Region	Intraregional Pea	Intraregional	Interregional	Interregional	Interregional	Intraregional Peak A	Intraregional Peak	Interregional Pe	Interregional Peak Com	Interregional Peak	Intraregional A	Intraregional	Interregional	Interregional	Interregional	Intraregional Offpe	Intraregional Offpe	Interregional C	Interregional C	Interregional O
1.00	386311.86	16617.66	14265.66	3012.1	73835.11	13799537.32	617382.58	645613.55	134202.37	3404480.79	312701.77	20158.04	22496.44	5669.23	23855.4	12895398.35	926073.88	1310791.16	328564.41	1390562.58
2.00	228335.63	6413.38	6180.3	1372.79	24736.51	8148821.26	257161.91	276328.75	61147.34	1062690.23	193693.3	8487.77	10271.29	2747.5	8384.16	7613582.69	385742.87	561031.09	149705.56	434056.57
3.00	116651.95	4366.85	1009.35	214.39	3204.28	3360435.71	123761.8	35103.95	7471.14	109547.32	101239.62	5996.34	1726.84	442.27	1104.87	3142972.85	185642.7	71271.65	18291.42	44744.68
4.00	193732.24	6155.46	1487.85	333.95	6479.63	7132784.51	249361.09	67193.56	15128.76	283734.7	165900.48	8149.53	2699.94	730.64	2348.37	6669550.89	374041.63	136423.28	37039.37	115891.64
5.00	442468.18	12985.36	12824.6	2978.53	63108.29	14751214.96	465077.39	559388.85	129828.81	2743033.15	373478.72	16837.74	21722.46	6068.86	21727.39	13776926.62	697616.08	1135728.87	317856.73	1120393.82
6.00	203378.09	0	17339.95	3416.55	105517.98	7042598.06	0	953662.1	185677.95	5638766.52	159609.23	0	30379.8	7235.13	37446.92	6500859.75	0	1936223.04	454590.84	2303158.15
7.00	47754.48	0	6335.47	1409.12	58577.75	2056259.5	0	298238.18	66148.93	2762611	37569.2	0	10183.15	2727.26	19386.42	1898085.68	0	605513.89	161950.83	1128390.41
8.00	58035.7	0	13147.71	2818.28	81650.86	2063651.15	0.25	641050.43	134926.68	3886412.43	43460.51	0.01	21993.79	5662.07	27572.66	1904908.87	0.38	1301526.64	330337.73	1587407.89
9.00	73725.56	0	11961.07	2610.41	65280.38	2325830.46	0.25	596297.14	127346.15	3238495.8	57051.91	0.01	21507.43	5671.4	23733.74	2146920.54	0.38	1210663.9	311778.52	1322765.89
10.00	89970.77	0.96	14902.36	3259.1	101934.05	3571580.12	58.72	828551.71	178902.73	5636964.44	74463.99	1.39	27906.93	7347.81	38512.71	3296875.23	88.07	1682211.05	438003.23	2302422.1
11.00	381471.9	66.59	12549.57	2890.17	81885.72	12122246.24	2101.89	526631.68	120885.99	3451835.57	265153	90.62	19452.06	5390.39	25207.92	11190274.41	3152.83	1069221.89	295962.26	1409904.67
12.00	471086.43	0	16923.41	4003.93	90185.56	15992536.49	0	763231.18	179606	3987843.82	325758.06	0	27191.5	7731.29	28632.99	14762343.18	0.01	1549590.57	439725.05	1628837.62
13.00	361166.86	18.6	34196.24	6896.75	193909.38	14886701.03	1072.63	1962477.67	391868.54	10987413.31	296945.71	27.76	64713.45	15756.95	74377.45	13741817.27	1608.95	3984424.37	959402.27	4487816.69
14.00	8973432.18	303998.21	95806.51	21955.14	336888.06	264458555.6	8888243.77	3429840.6	779287.85	12176383.44	6238855.91	335771.22	127489.8	35069.14	92057.31	248309903.9	13332365.65	6963615.77	1907911.63	4973452.39
15.00	1526677.11	267.11	38031.23	9321.16	110069.34	48201298.12	9689.31	1501331.86	368101.33	4338624.82	1016427.62	261.94	54217.17	16008.4	32196.65	44497222.55	14533.97	3048158.64	901213.59	1772114.37
16.00	1571367.52	29222.18	84627.41	19768.04	428026.15	60061491.06	999232.5	4119626.58	959043.02	20868377.47	1247618.64	36474.89	151634.03	42644.52	156213.06	55738916.79	1498848.75	8364090.32	2348001.88	8523703.48
	15,125,566	380,112	381,589	86,260	1,825,289	479,975,542	11,613,144	17,204,568	3,839,574	84,577,215	10,909,928	432,257	615,586	166,903	612,758	448,086,560	17,419,716	34,930,486	9,400,335	34,545,623

Values used in summary

	NB VMT - daily	VHT - daily	VkT - daily
SF Air Basin	112,280,333	2,967,721	180,697,680.54
SJ Air Basin	126,463,316	1,836,428	203,522,979.53
Statewide	1,141,592,762	30,536,249	1,837,215,461.98

Reg. Num.	Region Name		
1	Alameda County	SF	
2	Contra Costa County	SF	
3	San Francisco County	SF	
4	San Mateo County	SF	
5	Santa Clara County	SF	
6	Fresno County	SJ	
7	Madera County	SJ	
8	Merced County	SJ	
9	Stanislaus County	SJ	
10	San Joaquin County	SJ	
11	Sacramento County		
12	Southern Sacramento Valley (Placer, El Dorado, Yolo, Sutter and Yuba Counties)		
13	Southern San Joaquin Valley (Kern, Kings, and Tulare Counties)		SJ
14	Southern California (Los Angeles, Orange, Riverside and San Bernadino Counties)		
15	San Diego County		
16	Rest of California (all other counties)		

San Joaquin
San Francisco

CALIFORNIA HIGH SPEED RAIL
PACHECO SCENARIO VMT AND VHT

Region	Intraregional	Intraregion	Interregion	Interregion	Interregiona	Intraregional P	Intraregional Peak	Interregional Pea	Interregional Peak Con	Interregional	Intraregional	Intraregion	Interregional	Interregional	Interregional	Intraregional Offpe	Intraregional Off	Interregional Off	Interregional Of	Interregional Offp
1	195,877	14,001	9,711	2,024	58,682	8,199,998	618,348	525,291	108,856	3,183,776	175,935	19,722	17,979	4,509	21,986	7,692,136	927,523	1,066,501	266,509	1,300,416
2	122,212	5,763	4,585	1,012	19,700	5,050,238	255,925	238,273	52,416	972,650	111,280	8,345	8,761	2,330	7,627	4,732,853	383,888	483,767	128,328	397,280
3	60,976	4,004	724	154	2,579	1,932,525	122,599	29,009	6,179	100,139	56,093	5,869	1,398	358	1,005	1,817,618	183,898	58,896	15,127	40,902
4	91,620	5,418	1,158	258	5,437	3,800,698	246,873	57,493	12,857	264,990	84,608	7,960	2,308	621	2,182	3,563,469	370,309	116,727	31,478	108,235
5	206,462	11,429	10,215	2,376	53,440	7,896,434	463,707	503,404	117,167	2,614,131	187,786	16,451	19,313	5,410	20,479	7,382,730	695,561	1,022,062	286,856	1,067,744
6	202,363	-	11,701	2,312	86,512	7,048,372	-	670,620	129,286	4,803,873	159,551	-	21,878	5,195	32,307	6,506,190	-	1,361,562	316,529	1,962,145
7	47,103	-	5,312	1,203	52,192	2,043,908	-	257,616	58,213	2,529,055	37,307	-	8,800	2,400	17,631	1,886,684	-	523,039	142,521	1,032,994
8	56,825	0	10,232	2,227	70,431	2,059,391	0	506,522	107,754	3,445,150	43,221	0	17,721	4,619	24,553	1,900,977	1	1,028,393	263,810	1,407,174
9	73,345	0	9,603	2,135	56,739	2,327,816	0	479,343	103,524	2,866,879	57,031	0	17,882	4,779	21,304	2,148,754	1	973,211	253,456	1,170,979
10	89,575	1	12,592	2,770	93,205	3,584,076	45	699,311	151,702	5,198,853	74,593	1	23,908	6,331	35,704	3,308,417	68	1,419,814	371,409	2,123,475
11	377,848	64	11,271	2,604	75,676	12,086,949	2,114	478,486	110,138	3,244,147	263,920	91	17,710	4,921	23,677	11,157,663	3,171	971,471	269,647	1,325,074
12	462,965	-	16,003	3,787	86,273	15,882,528	-	726,359	170,950	3,840,891	322,994	-	25,852	7,353	27,572	14,660,797	-	1,474,730	418,533	1,568,814
13	357,790	18	25,116	5,090	162,291	14,881,375	1,067	1,460,178	291,749	9,321,095	296,557	28	49,016	11,969	63,755	13,736,893	1,601	2,964,605	714,281	3,807,208
14	8,898,898	302,239	73,513	16,928	281,989	263,560,650	8,883,126	2,679,435	612,168	10,354,684	6,192,504	334,832	99,488	27,530	77,862	247,472,715	13,324,689	5,440,066	1,498,755	4,229,378
15	1,470,592	293	28,443	6,997	87,226	47,510,144	11,333	1,198,261	294,624	3,697,278	996,871	304	42,751	12,669	26,901	43,860,538	16,999	2,432,832	721,320	1,510,156
16	1,427,537	28,281	76,719	17,937	400,205	55,698,978	1,001,092	3,844,596	895,414	19,904,429	1,131,750	36,333	141,374	39,790	148,985	51,684,299	1,501,639	7,805,695	2,192,219	8,129,978
	14141985.8	371512.1	306898.1	69814.82	1592578.7	453564081.2	11606230.54	14354198.13	3222994.13	76342020.2	10192003.7	429935.9	516136.92	140781.2	553529.42	423,512,732.36	17,409,345.84	29,143,371.92	7,890,778.74	31,181,951.95

Values used in summary

Reg. Num.	Region Name	
1	Alameda County	SF
2	Contra Costa County	SF
3	San Francisco County	SF
4	San Mateo County	SF
5	Santa Clara County	SF
6	Fresno County	SJ
7	Madera County	SJ
8	Merced County	SJ
9	Stanislaus County	SJ
10	San Joaquin County	SJ
11	Sacramento County	
12	Southern Sacramento Valley (Placer, El Dorado, Yolo, Sutter and Yuba Counties)	
13	Southern San Joaquin Valley (Kern, Kings, and Tulare Counties)	SJ
14	Southern California (Los Angeles, Orange, Riverside and San Bernadino Counties)	
15	San Diego County	
16	Rest of California (all other counties)	

	VMT - daily	VHT - daily	VkT - daily	VHT - daily	NB	Build		
SF Air Basin	71,514,786	1,680,135	115,091,892.39			37,373,975	34,140,812	71,514,786
SJ Air Basin	116,352,966	1,649,721	187,251,947.97					
Statewide	1,068,227,705	28,315,177	1,719,145,847.68					
	MILES							

San Joaquin
San Francisco

CALIFORNIA HIGH SPEED RAIL
ALTAMONT SCENARIO VMT AND VHT

Region	Intraregional Peak	Intraregional Pe	Interregional Pe	Interregional I	Interregional Pea	Intraregional Peak A	Intraregional Peak	Interregional Peak Busi	Interregional Peak Com	Interregional Pe	Intraregional Auto	Intraregional O	Interregional O	Interregional O	Interregional O	Intraregional Offpea	Intraregional Offpe	Interregional Offpe	Interregional Offp	Interregional Offpe
1	194,899	3,379	9,729	2,029	58,243	8,225,996	163,134	530,104	109,957	3,175,692	175,454	4,731	18,051	4,530	21,856	7,716,918	244,701	1,076,271	269,204	1,297,113
2	122,015	1,444	4,541	1,002	19,752	5,063,421	72,593	237,237	52,193	980,803	111,226	2,075	8,694	2,313	7,658	4,745,247	108,889	481,663	127,782	400,610
3	60,802	894	703	148	2,491	1,934,614	31,436	28,250	5,974	97,409	56,030	1,300	1,364	347	974	1,819,581	47,153	57,356	14,625	39,787
4	91,121	1,557	1,147	256	5,265	3,786,865	79,700	57,328	12,818	257,923	84,257	2,285	2,291	616	2,118	3,550,294	119,550	116,392	31,383	105,349
5	205,896	2,522	10,565	2,454	54,676	7,903,572	109,820	520,893	121,105	2,675,670	187,462	3,615	19,963	5,585	20,933	7,389,512	164,731	1,057,570	296,499	1,092,879
6	202,364	-	11,765	2,313	87,164	7,046,163	-	673,995	129,244	4,840,294	159,495	-	21,970	5,190	32,519	6,504,150	-	1,368,413	316,426	1,977,022
7	47,108	-	5,241	1,184	51,894	2,045,008	-	254,510	57,351	2,517,418	37,324	-	8,696	2,366	17,538	1,887,700	-	516,733	140,410	1,028,241
8	56,754	-	10,249	2,224	70,458	2,058,703	0	508,695	107,851	3,454,819	43,210	-	17,776	4,620	24,597	1,900,342	0	1,032,804	264,048	1,411,123
9	73,249	-	9,616	2,134	56,721	2,325,455	0	480,593	103,589	2,867,395	56,982	-	17,903	4,777	21,282	2,146,574	0	975,750	253,615	1,171,189
10	89,507	1	12,658	2,783	93,315	3,581,470	62	702,298	152,271	5,202,177	74,550	1	24,008	6,355	35,722	3,306,022	93	1,425,879	372,801	2,124,833
11	377,953	48	11,193	2,583	75,703	12,096,920	1,580	475,509	109,316	3,246,727	264,127	68	17,582	4,879	23,686	11,166,858	2,371	965,427	267,635	1,326,128
12	465,009	-	15,994	3,784	86,578	15,914,048	-	725,114	170,588	3,851,321	323,741	-	25,800	7,335	27,631	14,689,892	-	1,472,201	417,646	1,573,075
13	358,016	20	25,235	5,095	164,009	14,886,666	1,141	1,466,890	292,015	9,419,775	296,636	30	49,235	11,980	64,396	13,741,777	1,711	2,978,230	714,934	3,847,514
14	8,869,232	300,606	73,151	16,800	284,569	263,880,612	8,875,840	2,682,824	611,220	10,513,060	6,205,768	334,174	99,542	27,458	79,235	247,767,401	13,313,760	5,446,945	1,496,434	4,294,067
15	1,489,941	267	29,222	7,163	93,556	47,833,935	10,169	1,213,204	297,405	3,894,574	1,005,922	274	43,454	12,832	28,584	44,158,373	15,254	2,463,171	728,130	1,590,741
16	1,415,905	20,418	77,113	18,009	403,206	55,504,292	692,978	3,864,195	898,901	20,051,735	1,127,851	25,067	142,134	39,959	150,057	51,504,403	1,039,467	7,845,486	2,200,758	8,190,145
	14,119,768	331,155	308,122	69,964	1,607,599	454,087,739	10,038,453	14,421,636	3,231,798	77,046,792	10,210,036	373,620	518,462	141,141	558,787	423,995,042	15,057,679	29,280,292	7,912,332	31,469,817

Values used in summary

Reg. Num.	Region Name	
1	Alameda County	SF
2	Contra Costa County	SF
3	San Francisco County	SF
4	San Mateo County	SF
5	Santa Clara County	SF
6	Fresno County	SJ
7	Madera County	SJ
8	Merced County	SJ
9	Stanislaus County	SJ
10	San Joaquin County	SJ
11	Sacramento County	
12	Southern Sacramento Valley (Placer, El Dorado, Yolo, Sutter and Yuba Counties)	
13	Southern San Joaquin Valley (Kern, Kings, and Tulare Counties)	SJ
14	Southern California (Los Angeles, Orange, Riverside and San Bernadino Counties)	
15	San Diego County	
16	Rest of California (all other counties)	

	VMT - daily	VHT - daily	VkT - daily
SF Air Basin	68,605,564	1,603,257	110,409,952.08
SJ Air Basin	116,584,184	1,653,235	187,624,056.42
Statewide	1,066,541,579	28,238,654	1,716,432,291.28

San Joaquin
San Francisco

CALIFORNIA HIGH SPEED RAIL
SAN JOAQUIN COUNTY SUMMARY

Year	Category	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5
2005	Stationary	389.97	91.35	54.02	128.06	20.41	33.84	22.99	16.16
2005	Area	993.45	190.09	826.93	23.97	4.33	571.51	322.99	138.01
2005	Mobile On Road	91.79	83.93	874.42	195.68	1.74	6.29	6.21	4.44
2005	Aircraft	9.09	8.10	68.76	3.72	0.37	0.44	0.43	0.42
2005	Train	1.97	1.54	4.50	23.64	0.71	0.66	0.66	0.60
2005	Mobile Off Road	42.38	38.10	275.85	105.68	0.87	7.89	7.76	6.93
2005	**Total**	**1,528.65**	**413.11**	**2,104.48**	**480.75**	**28.43**	**620.63**	**361.04**	**166.56**

Year	Category	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5
2010	Stationary	416.71	94.53	54.95	123.74	21.51	34.70	23.61	16.79
2010	Area	1,061.84	195.55	824.51	23.49	4.31	539.40	306.86	133.03
2010	Mobile On Road	64.98	59.01	606.00	145.31	0.59	6.35	6.26	4.29
2010	Aircraft	9.30	8.29	71.52	3.94	0.40	0.45	0.44	0.43
2010	Train	1.85	1.54	4.87	20.04	0.07	0.59	0.59	0.54
2010	Mobile Off Road	34.12	30.85	255.17	84.64	0.62	6.81	6.67	5.90
2010	**Total**	**1,588.80**	**389.77**	**1,817.02**	**401.16**	**27.50**	**588.30**	**344.43**	**160.98**

Year	Category	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5
2015	Stationary	441.81	97.25	55.78	126.42	23.01	36.23	24.51	17.42
2015	Area	1,120.21	174.02	822.04	23.21	4.31	551.29	311.93	132.96
2015	Mobile On Road	47.13	42.54	415.80	97.52	0.70	6.49	6.38	4.21
2015	Aircraft	9.48	8.45	74.00	4.14	0.43	0.45	0.44	0.43
2015	Train	1.87	1.56	5.30	20.78	0.02	0.58	0.58	0.53
2015	Mobile Off Road	29.15	26.54	246.99	64.73	0.78	5.77	5.59	4.89
2015	**Total**	**1,649.65**	**350.36**	**1,619.91**	**336.80**	**29.25**	**600.81**	**349.43**	**160.44**

Year	Category	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5
2020	Stationary	467.51	100.24	57.93	127.31	24.09	38.18	25.81	18.43
2020	Area	1,212.65	181.18	818.99	23.06	4.31	568.11	320.01	134.39
2020	Mobile On Road	36.67	32.91	297.28	68.28	0.77	6.88	6.78	4.36
2020	Aircraft	9.63	8.58	75.98	4.29	0.44	0.46	0.45	0.44
2020	Train	1.90	1.58	5.83	21.46	0.02	0.59	0.59	0.54
2020	Mobile Off Road	26.46	24.21	249.43	52.82	0.98	4.95	4.76	4.13
2020	**Total**	**1,754.82**	**348.70**	**1,505.44**	**297.22**	**30.61**	**619.17**	**358.40**	**162.29**

CALIFORNIA HIGH SPEED RAIL
SAN FRANCISCO COUNTY SUMMARY

Year	Category	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5
2005	Stationary	512.40	78.42	52.72	55.23	44.00	22.10	16.60	12.88
2005	Area	180.47	92.48	177.69	19.53	0.64	328.23	175.27	60.27
2005	Mobile On Road	165.88	151.73	1,495.79	285.82	2.33	9.68	9.57	6.51
2005	Aircraft	7.14	6.36	37.86	20.71	0.63	0.53	0.51	0.50
2005	Train	1.13	0.91	2.33	13.03	0.23	0.33	0.31	0.27
2005	Mobile Off Road	63.83	56.96	446.47	154.33	5.25	11.52	11.23	10.05
2005	**Total**	**930.85**	**386.86**	**2,212.86**	**548.65**	**53.08**	**372.39**	**213.49**	**90.48**

Year	Category	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5
2010	Stationary	530.62	78.62	54.41	56.74	46.91	23.29	17.59	13.66
2010	Area	187.59	94.92	181.81	20.27	0.64	350.37	186.70	63.58
2010	Mobile On Road	124.43	112.54	1,105.26	217.12	1.07	10.50	10.34	6.94
2010	Aircraft	8.01	7.14	45.65	25.85	0.68	0.55	0.54	0.53
2010	Train	1.07	0.87	2.51	10.68	0.03	0.30	0.28	0.24
2010	Mobile Off Road	48.67	43.68	402.30	135.07	6.71	10.72	10.41	9.27
2010	**Total**	**900.39**	**337.77**	**1,791.94**	**465.73**	**56.04**	**395.73**	**225.86**	**94.22**

Year	Category	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5
2015	Stationary	550.14	81.83	56.86	58.85	50.03	24.36	18.38	14.30
2015	Area	195.90	98.07	188.15	20.84	0.64	373.04	198.61	67.42
2015	Mobile On Road	88.76	79.83	751.99	146.00	1.13	10.62	10.45	6.93
2015	Aircraft	9.09	8.10	50.82	28.36	0.72	0.58	0.57	0.55
2015	Train	1.09	0.88	2.78	12.35	0.01	0.30	0.28	0.24
2015	Mobile Off Road	43.24	38.97	405.46	125.45	8.61	10.47	10.13	9.00
2015	**Total**	**888.22**	**307.68**	**1,456.06**	**391.85**	**61.14**	**419.37**	**238.42**	**98.44**

Year	Category	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5
2020	Stationary	566.39	84.91	59.47	61.20	53.36	25.30	19.13	14.87
2020	Area	204.01	101.05	194.10	21.38	0.64	395.34	210.29	71.14
2020	Mobile On Road	66.81	59.92	522.14	101.30	1.20	10.91	10.72	7.07
2020	Aircraft	10.05	8.96	56.58	31.07	0.79	0.62	0.60	0.58
2020	Train	1.11	0.90	3.10	13.01	0.01	0.30	0.29	0.25
2020	Mobile Off Road	41.03	36.92	421.87	127.95	11.01	10.55	10.15	9.04
2020	**Total**	**889.40**	**292.66**	**1,257.26**	**355.91**	**67.01**	**443.02**	**251.18**	**102.95**

CALIFORNIA HIGH SPEED RAIL
STATE SUMMARY

Year	Category	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5
2005	Stationary	2,193.92	472.88	372.32	420.31	112.28	234.25	135.67	90.63
2005	Area	2,334.58	750.47	2,719.14	111.66	11.05	3,506.72	1,938.04	658.52
2005	Mobile On Road	838.90	770.01	7,629.14	1,518.31	12.38	50.65	49.94	34.31
2005	Aircraft	41.92	37.44	267.06	54.63	2.87	7.74	7.56	7.46
2005	Train	14.61	12.15	33.05	157.56	7.53	4.76	4.74	4.33
2005	Mobile Off Road	432.43	390.42	2,744.89	952.81	146.31	78.32	75.75	68.34
2005	**Total**	**5,856.36**	**2,433.37**	**13,765.60**	**3,215.28**	**292.42**	**3,882.44**	**2,211.70**	**863.59**

Year	Category	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5
2010	Stationary	2,329.75	499.44	389.72	426.67	118.93	249.01	144.13	96.59
2010	Area	2,370.79	749.13	2,759.08	107.55	10.95	3,566.53	1,971.16	668.75
2010	Mobile On Road	607.65	554.02	5,397.14	1,126.69	5.23	51.73	50.94	34.09
2010	Aircraft	43.10	38.49	283.93	63.21	3.08	7.67	7.48	7.39
2010	Train	14.10	11.73	36.97	116.36	0.85	4.30	4.26	3.88
2010	Mobile Off Road	350.34	317.76	2,542.02	886.77	179.42	78.43	75.52	68.21
2010	**Total**	**5,715.73**	**2,170.57**	**11,408.86**	**2,727.25**	**318.46**	**3,957.67**	**2,253.49**	**878.91**

Year	Category	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5
2015	Stationary	2,472.09	530.03	402.36	437.19	125.74	265.72	152.83	102.11
2015	Area	2,490.80	776.70	2,772.80	106.52	10.90	3,682.12	2,030.90	684.10
2015	Mobile On Road	445.36	403.70	3,743.82	757.44	5.69	53.13	52.25	34.23
2015	Aircraft	45.25	40.40	298.07	68.88	3.28	7.78	7.59	7.50
2015	Train	14.54	12.10	41.29	128.32	0.12	4.35	4.30	3.93
2015	Mobile Off Road	315.05	286.72	2,526.21	855.93	224.12	80.97	77.60	70.19
2015	**Total**	**5,783.09**	**2,049.65**	**9,784.55**	**2,354.28**	**369.85**	**4,094.07**	**2,325.47**	**902.06**

Year	Category	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5
2020	Stationary	2,609.63	561.48	416.64	447.46	132.22	282.50	162.00	108.01
2020	Area	2,614.86	806.70	2,791.36	107.92	10.89	3,809.14	2,097.88	702.44
2020	Mobile On Road	344.36	310.63	2,661.34	531.74	6.08	55.07	54.14	34.93
2020	Aircraft	47.19	42.14	311.79	74.40	3.49	7.88	7.69	7.60
2020	Train	15.09	12.56	46.53	138.64	0.13	4.48	4.44	4.06
2020	Mobile Off Road	302.12	274.80	2,603.62	904.83	288.70	87.07	83.20	75.73
2020	**Total**	**5,933.25**	**2,008.31**	**8,831.28**	**2,204.99**	**441.51**	**4,246.14**	**2,409.35**	**932.77**

CALIFORNIA HIGH SPEED RAIL
TOG EMISSION BURDEN 2030

Air Basin	TOG - On-Road Mobile (tons/day)		On-Road TOG Increment	TOG - Planes (tons/day)		Plane TOG Increment	TOG - Trains (tons/day)		Train - TOG Increment	TOG - Electric (tons/day)		Electric - TOG Increment	TOTAL TOG (On-Road, Planes, Trains, Electric) (Tons/day)		Total - TOG Increment	Total % Change from No Build
	No Build	HSR Pacheco	HSR Pacheco	No Build	HSR Pacheco	HSR Pacheco	No Build	HSR Pacheco	HSR Pacheco	No Build	HSR Pacheco	HSR Pacheco	No Build	HSR Pacheco	HSR Pacheco	HSR Pacheco
San Francisco Bay	35.97	22.91	(13.06)	12.72	12.31	(0.41)	12.85	12.85	0.00	0.00	0.00	0.00	61.54	48.06	(13.47)	-21.89%
San Joaquin Valley	19.32	17.78	(1.54)	10.03	10.00	(0.02)	19.62	19.62	0.00	0.00	0.00	0.00	48.97	47.40	(1.57)	-3.20%
State Total	186.21	174.25	(11.97)	51.05	49.97	(1.08)	121.58	121.58	0.00	44.48	45.01	0.52	403.33	390.81	(12.52)	-3.10%

Air Basin	TOG - On-Road Mobile (tons/day)		On-Road TOG Increment	TOG - Planes (tons/day)		Plane TOG Increment	TOG - Trains (tons/day)		Train - TOG Increment	TOG - Electric (tons/day)		Electric - TOG Increment	TOTAL TOG (On-Road, Planes, Trains, Electric) (Tons/day)		Total - TOG Increment	Total % Change from No Build
	No Build	HSR Altamont	HSR Altamont	No Build	HSR Altamont	HSR Altamont	No Build	HSR Altamont	HSR Altamont	No Build	HSR Altamont	HSR Altamont	No Build	HSR Altamont	HSR Altamont	HSR Altamont
San Francisco Bay	35.97	21.98	(13.99)	12.72	12.33	(0.39)	12.85	12.85	0.00	0.00	0.00	0.00	61.54	47.15	(14.38)	-23.37%
San Joaquin Valley	19.32	17.81	(1.51)	10.03	10.00	(0.02)	19.62	19.62	0.00	0.00	0.00	0.00	48.97	47.43	(1.53)	-3.13%
State Total	186.21	173.97	(12.24)	51.05	50.03	(1.02)	121.58	121.58	0.00	44.48	45.01	0.52	403.33	390.59	(12.74)	-3.16%

CALIFORNIA HIGH SPEED RAIL
TOG ON-ROAD MOBILE CALCULATIONS

Air Basin	No Build Base Case		Pacheco			TOG (tons/day)		TOG Increment		TOG (metric tons/day)		TOG Increment
	VMT	VHT	VMT	VHT	% of NB VMT	No Build	Build	Pacheco	%	No Build	Build	Pacheco
San Francisco Bay	112,280,333	2,967,721	71,514,786	1,680,135	63.7%	35.97	22.91	(13.06)	-36.31%	32.63	20.78	(11.85)
San Joaquin Valley	126,463,316	1,836,428	116,352,966	1,649,721	92.0%	19.32	17.78	(1.54)	-7.99%	17.53	16.13	(1.40)
State Total	1,141,592,762	30,536,249	1,068,227,705	28,315,177	93.6%	186.21	174.25	(11.97)	-6.43%	168.93	158.08	(10.86)

Air Basin	No Build Base Case		Altamonte			TOG (tons/day)		TOG Increment		TOG (metric tons/day)		TOG Increment
	VMT	VHT	VMT	VHT	% of NB VMT	No Build	Build	Altamonte		No Build	Build	Altamonte
San Francisco Bay	112,280,333	2,967,721	68,605,564	1,603,257	61.1%	35.97	21.98	(13.99)	-38.90%	32.63	19.94	(12.69)
San Joaquin Valley	126,463,316	1,836,428	116,584,184	1,653,235	92.2%	19.32	17.81	(1.51)	-7.81%	17.53	16.16	(1.37)
State Total	1,141,592,762	30,536,249	1,066,541,579	28,238,654	93.4%	186.21	173.97	(12.24)	-6.57%	168.93	157.83	(11.11)

CALIFORNIA HIGH SPEED RAIL
PM10 EMISSION BURDEN 2030

Air Basin	PM10 - On-Road Mobile (tons/day)		On-Road PM10 Increment	PM10 - Planes (tons/day)		Plane PM10 Increment	PM10 - Trains (tons/day)		Train - PM10 Increment	PM10 - Electric (tons/day)		Electric - PM10 Increment	TOTAL PM10 (On-Road, Planes, Trains, Electric) (Tons/day)		Total - PM10 Increment	Total % Change from No Build
	No Build	HSR Pacheco	HSR Pacheco	No Build	HSR Pacheco	HSR Pacheco	No Build	HSR Pacheco	HSR Pacheco	No Build	HSR Pacheco	HSR Pacheco	No Build	HSR Pacheco	HSR Pacheco	HSR Pacheco
San Francisco Bay	11.60	7.39	(4.21)	0.67	0.65	(0.02)	0.27	0.27	0.00	0.00	0.00	0.00	12.54	8.30	(4.23)	-33.77%
San Joaquin Valley	7.07	6.50	(0.57)	0.46	0.46	(0.00)	0.53	0.53	0.00	0.00	0.00	0.00	8.06	7.50	(0.57)	-7.02%
State Total	56.88	53.22	(3.66)	7.76	7.70	(0.06)	4.15	4.15	0.00	9.34	9.45	0.11	78.13	74.53	(3.60)	-4.61%

TOTAL PM10 (On-Road, Planes, Trains, Electric) (Tons/day)		Total - PM10 Increment	Total % Change from No Build
No Build	HSR Pacheco	HSR Pacheco	HSR Pacheco
11.37	7.53	(3.84)	-1.03%
7.32	6.80	(0.51)	-4.87%
70.88	67.61	(3.27)	-1.33%

Air Basin	PM10 - On-Road Mobile (tons/day)		On-Road PM10 Increment	PM10 - Planes (tons/day)		Plane PM10 Increment	PM10 - Trains (tons/day)		Train - PM10 Increment	PM10 - Electric (tons/day)		Electric - PM10 Increment	TOTAL PM10 (On-Road, Planes, Trains, Electric) (Tons/day)		Total - PM10 Increment	Total % Change from No Build
	No Build	HSR Altamont	HSR Altamont	No Build	HSR Altamont	HSR Altamont	No Build	HSR Altamont	HSR Altamont	No Build	HSR Altamont	HSR Altamont	No Build	HSR Altamont	HSR Altamont	HSR Altamont
San Francisco Bay	11.60	7.09	(4.51)	0.67	0.65	(0.02)	0.27	0.27	0.00	0.00	0.00	0.00	12.54	8.00	(4.53)	-36.16%
San Joaquin Valley	7.07	6.52	(0.55)	0.46	0.46	(0.00)	0.53	0.53	0.00	0.00	0.00	0.00	8.06	7.51	(0.55)	-6.86%
State Total	56.88	53.14	(3.74)	7.76	7.70	(0.05)	4.15	4.15	0.00	9.34	9.45	0.11	78.13	74.45	(3.68)	-4.71%

TOTAL PM10 (On-Road, Planes, Trains, Electric) (Metric Tons/day)		Total - PM10 Increment	Total % Change from No Build
No Build	HSR Altamont	HSR Altamont	HSR Altamont
11.37	7.26	(4.11)	-1.03%
7.32	6.81	(0.50)	-4.87%
70.88	67.54	(3.34)	-1.33%

CALIFORNIA HIGH SPEED RAIL
PM10 ON-ROAD MOBILE CALCULATIONS

Air Basin	No Build Case		Pacheco			PM10 (tons/day)		PM10 Increment		PM10 (metric tons/day)		PM10 Increment
	VMT	VHT	VMT	VHT	% of NB VMT	No Build	Build	Pacheco	%	No Build	Build	Pacheco
San Francisco Bay	112,280,333	2,967,721	71,514,786	1,680,135	63.7%	11.60	7.39	(4.21)	-36.31%	10.53	6.70	(3.82)
San Joaquin Valley	126,463,316	1,836,428	116,352,966	1,649,721	92.0%	7.07	6.50	(0.57)	-7.99%	6.41	5.90	(0.51)
State Total	1,141,592,762	30,536,249	1,068,227,705	28,315,177	93.6%	56.88	53.22	(3.66)	-6.43%	51.60	48.29	(3.32)

Air Basin	No Build Case		Altamonte			PM10 (tons/day)		PM10 Increment		PM10 (metric tons/day)		PM10 Increment
	VMT	VHT	VMT	VHT	% of NB VMT	No Build	Build	Altamonte		No Build	Build	Altamonte
San Francisco Bay	112,280,333	2,967,721	68,605,564	1,603,257	61.1%	11.60	7.09	(4.51)	-38.90%	10.53	6.43	(4.09)
San Joaquin Valley	126,463,316	1,836,428	116,584,184	1,653,235	92.2%	7.07	6.52	(0.55)	-7.81%	6.41	5.91	(0.50)
State Total	1,141,592,762	30,536,249	1,066,541,579	28,238,654	93.4%	56.88	53.14	(3.74)	-6.57%	51.60	48.21	(3.39)

CALIFORNIA HIGH SPEED RAIL
PM2.5 EMISSION BURDEN 2030

Air Basin	PM2.5 - On-Road Mobile (tons/day)		On-Road PM2.5 Increment	PM2.5 - Planes (tons/day)		Plane PM2.5 Increment	PM2.5 - Trains (tons/day)		Train - PM2.5 Increment	PM2.5 - Electric (tons/day)		Electric - PM2.5 Increment	TOTAL PM2.5 (On-Road, Planes, Trains, Electric) (Tons/day)		Total - PM2.5 Increment	Total % Change from No Build
	No Build	HSR Pacheco	HSR Pacheco	No Build	HSR Pacheco	HSR Pacheco	No Build	HSR Pacheco	HSR Pacheco	No Build	HSR Pacheco	HSR Pacheco	No Build	HSR Pacheco	HSR Pacheco	HSR Pacheco
San Francisco Bay	7.48	4.76	(2.71)	0.64	0.62	(0.02)	0.23	0.23	0.00	0.00	0.00	0.00	8.35	5.61	(2.74)	-32.77%
San Joaquin Valley	4.21	3.88	(0.34)	0.45	0.45	(0.00)	0.49	0.49	0.00	0.00	0.00	0.00	5.16	4.82	(0.34)	-6.56%
State Total	35.09	32.84	(2.26)	7.67	7.62	(0.06)	3.79	3.79	0.00	9.00	9.11	0.11	55.56	53.36	(2.21)	-3.97%

TOTAL PM25 (On-Road, Planes, Trains, Electric) (Tons/day)		Total - PM2.5 Increment	Total % Change from No Build
No Build	HSR Pacheco Low	HSR Pacheco Low	HSR Pacheco Low
7.57	5.09	(2.48)	-1.03%
4.68	4.37	(0.31)	-4.87%
50.41	48.41	(2.00)	-1.33%

Air Basin	PM2.5 - On-Road Mobile (tons/day)		On-Road PM2.5 Increment	PM2.5 - Planes (tons/day)		Plane PM2.5 Increment	PM2.5 - Trains (tons/day)		Train - PM2.5 Increment	PM2.5 - Electric (tons/day)		Electric - PM2.5 Increment	TOTAL PM2.5 (On-Road, Planes, Trains, Electric) (Tons/day)		Total - PM2.5 Increment	Total % Change from No Build
	No Build	HSR Altamont	HSR Altamont	No Build	HSR Altamont	HSR Altamont	No Build	HSR Altamont	HSR Altamont	No Build	HSR Altamont	HSR Altamont	No Build	HSR Altamont	HSR Altamont	HSR Altamont
San Francisco Bay	7.48	4.57	(2.91)	0.64	0.62	(0.02)	0.23	0.23	0.00	0.00	0.00	0.00	8.35	5.42	(2.93)	-35.08%
San Joaquin Valley	4.21	3.89	(0.33)	0.45	0.45	(0.00)	0.49	0.49	0.00	0.00	0.00	0.00	5.16	4.83	(0.33)	-6.41%
State Total	35.09	32.78	(2.31)	7.67	7.62	(0.05)	3.79	3.79	0.00	9.00	9.11	0.11	55.56	53.31	(2.25)	-4.06%

TOTAL PM2.5 (On-Road, Planes, Trains, Electric) (Metric Tons/day)		Total - PM2.5 Increment	Total % Change from No Build
No Build	HSR Altamont Low	HSR Altamont Low	HSR Altamont Low
7.57	4.92	(2.66)	-1.03%
4.68	4.38	(0.30)	-4.87%
50.41	48.36	(2.05)	-1.33%

CALIFORNIA HIGH SPEED RAIL
PM10 ON-ROAD MOBILE CALCULATIONS

Air Basin	No Build		Pacheco			PM10 (tons/day)		PM10 Increment		PM10 (metric tons/day)		PM10 Increment
	VMT	VHT	VMT	VHT	% of NB VMT	No Build	Build	Pacheco	%	No Build	Build	Pacheco
San Francisco Bay	112,280,333	2,967,721	71,514,786	1,680,135	63.7%	11.60	7.39	(4.21)	-36.31%	10.53	6.70	(3.82)
San Joaquin Valley	126,463,316	1,836,428	116,352,966	1,649,721	92.0%	7.07	6.50	(0.57)	-7.99%	6.41	5.90	(0.51)
State Total	1,141,592,762	30,536,249	1,068,227,705	28,315,177	93.6%	56.88	53.22	(3.66)	-6.43%	51.60	48.29	(3.32)

Air Basin	No Build		Altamont			PM10 (tons/day)		PM10 Increment		PM10 (metric tons/day)		PM10 Increment
	VMT	VHT	VMT	VHT	% of NB VMT	No Build	Build	Altamont		No Build	Build	Altamont
San Francisco Bay	112,280,333	2,967,721	68,605,564	1,603,257	61.1%	11.60	7.09	(4.51)	-38.90%	10.53	6.43	(4.09)
San Joaquin Valley	126,463,316	1,836,428	116,584,184	1,653,235	92.2%	7.07	6.52	(0.55)	-7.81%	6.41	5.91	(0.50)
State Total	1,141,592,762	30,536,249	1,066,541,579	28,238,654	93.4%	56.88	53.14	(3.74)	-6.57%	51.60	48.21	(3.39)

CALIFORNIA HIGH SPEED RAIL
NOX EMISSION BURDEN 2030

Air Basin	NOx - On-Road Mobile (tons/day)		On-Road NOx Increment	NOx - Planes (tons/day)		Plane NOx Increment	NOx - Trains (tons/day)		Train - NOx Increment	NOx - Electric (tons/day)		Electric - NOx Increment	TOTAL NOx (On-Road, Planes, Trains, Electric) (Tons/day)		Total - NOx Increment	Total % Change from No Build	TOTAL PM25 (On-Road, Planes, Trains, Electric) (Tons/day)		Total - PM2.5 Increment	Total % Change from No Build
	No Build	HSR Pacheco	HSR Pacheco	No Build	HSR Pacheco	HSR Pacheco	No Build	HSR Pacheco	HSR Pacheco	No Build	HSR Pacheco	HSR Pacheco	No Build	HSR Pacheco	HSR Pacheco	HSR Pacheco	No Build	HSR Pacheco	HSR Pacheco	HSR Pacheco
San Francisco Bay	50.98	32.47	(18.51)	41.45	40.24	(1.20)	12.85	12.85	0.00	0.00	0.00	0.00	105.27	85.56	(19.71)	-18.72%	95.50	77.62	(17.88)	-1.03%
San Joaquin Valley	33.77	31.07	(2.70)	4.75	4.68	(0.07)	19.62	19.62	0.00	0.00	0.00	0.00	58.14	55.37	(2.77)	-4.76%	52.74	50.23	(2.51)	-4.87%
State Total	263.48	246.55	(16.93)	92.44	89.32	(3.13)	121.58	121.58	0.00	39.16	39.62	0.46	516.67	497.07	(19.60)	-3.79%	468.72	450.94	(17.78)	-1.33%

Air Basin	NOx - On-Road Mobile (tons/day)		On-Road NOx Increment	NOx - Planes (tons/day)		Plane NOx Increment	NOx - Trains (tons/day)		Train - NOx Increment	NOx - Electric (tons/day)		Electric - NOx Increment	TOTAL NOx (On-Road, Planes, Trains, Electric) (Tons/day)		Total - NOx Increment	Total % Change from No Build	TOTAL PM2.5 (On-Road, Planes, Trains, Electric) (Metric Tons/day)		Total - PM2.5 Increment	Total % Change from No Build
	No Build	HSR Altamont	HSR Altamont	No Build	HSR Altamont	HSR Altamont	No Build	HSR Altamont	HSR Altamont	No Build	HSR Altamont	HSR Altamont	No Build	HSR Altamont	HSR Altamont	HSR Altamont	No Build	HSR Altamont	HSR Altamont	HSR Altamont
San Francisco Bay	50.98	31.15	(19.83)	41.45	40.31	(1.14)	12.85	12.85	0.00	0.00	0.00	0.00	105.27	84.30	(20.97)	-19.92%	95.50	76.48	(19.02)	-1.03%
San Joaquin Valley	33.77	31.13	(2.64)	4.75	4.68	(0.07)	19.62	19.62	0.00	0.00	0.00	0.00	58.14	55.43	(2.70)	-4.65%	52.74	50.29	(2.45)	-4.87%
State Total	263.48	246.16	(17.32)	92.44	89.32	(3.13)	121.58	121.58	0.00	39.16	39.62	0.46	516.67	496.68	(19.99)	-3.87%	468.72	450.59	(18.13)	-1.33%

CALIFORNIA HIGH SPEED RAIL
NOX ON-ROAD MOBILE CALCULATIONS

Air Basin	No Build		Pacheco			NOx (tons/day)		NOx Increment		NOx (metric tons/day)		NOx Increment
	VMT	VHT	VMT	VHT	% of NB VMT	No Build	Build	Pacheco	%	No Build	Build	Pacheco
San Francisco Bay	112,280,333	2,967,721	71,514,786	1,680,135	63.7%	50.98	32.47	(18.51)	-36.31%	46.24	29.45	(16.79)
San Joaquin Valley	126,463,316	1,836,428	116,352,966	1,649,721	92.0%	33.77	31.07	(2.70)	-7.99%	30.64	28.19	(2.45)
State Total	1,141,592,762	30,536,249	1,068,227,705	28,315,177	93.6%	263.48	246.55	(16.93)	-6.43%	239.03	223.67	(15.36)

Air Basin	No Build		Altamont			NOx (tons/day)		NOx Increment		NOx (metric tons/day)		NOx Increment
	VMT	VHT	VMT	VHT	% of NB VMT	No Build	Build	Altamont		No Build	Build	Altamont
San Francisco Bay	112,280,333	2,967,721	68,605,564	1,603,257	61.1%	50.98	31.15	(19.83)	-38.90%	46.24	28.26	(17.99)
San Joaquin Valley	126,463,316	1,836,428	116,584,184	1,653,235	92.2%	33.77	31.13	(2.64)	-7.81%	30.64	28.25	(2.39)
State Total	1,141,592,762	30,536,249	1,066,541,579	28,238,654	93.4%	263.48	246.16	(17.32)	-6.57%	239.03	223.32	(15.71)

CALIFORNIA HIGH SPEED RAIL
CO EMISSION BURDEN 2030

Pacheco

Air Basin	CO - On-Road Mobile (tons/day)		On-Road CO Increment	CO - Planes (tons/day)		Plane CO Increment	CO - Trains (tons/day)		Train - CO Increment	CO - Electric (tons/day)		Electric - CO Increment	TOTAL CO (On-Road, Planes, Trains, Electric) (Tons/day)		Total - CO Increment	Total % Change from No Build
	No Build	HSR Pacheco	HSR Pacheco	No Build	HSR Pacheco	HSR Pacheco	No Build	HSR Pacheco	HSR Pacheco	No Build	HSR Pacheco	HSR Pacheco	No Build	HSR Pacheco	HSR Pacheco	HSR Pacheco
San Francisco Bay	259.78	165.46	(94.32)	74.75	73.00	(1.74)	3.73	3.73	0.00	0.00	0.00	0.00	338.26	242.20	(96.06)	-28.40%
San Joaquin Valley	142.83	131.41	(11.42)	81.50	81.40	(0.10)	6.90	6.90	0.00	0.00	0.00	0.00	231.22	219.70	(11.52)	-4.98%
State Total	1,310.46	1,226.24	(84.22)	346.74	342.21	(4.53)	58.28	58.28	0.00	60.08	60.78	0.71	1,775.55	1,687.51	(88.04)	-4.96%

Altamont

Air Basin	CO - On-Road Mobile (tons/day)		On-Road CO Increment	CO - Planes (tons/day)		Plane CO Increment	CO - Trains (tons/day)		Train - CO Increment	CO - Electric (tons/day)		Electric - CO Increment	TOTAL CO (On-Road, Planes, Trains, Electric) (Tons/day)		Total - CO Increment	Total % Change from No Build
	No Build	HSR Altamont	HSR Altamont	No Build	HSR Altamont	HSR Altamont	No Build	HSR Altamont	HSR Altamont	No Build	HSR Altamont	HSR Altamont	No Build	HSR Altamont	HSR Altamont	HSR Altamont
San Francisco Bay	259.78	158.73	(101.05)	74.75	73.10	(1.65)	3.73	3.73	0.00	0.00	0.00	0.00	338.26	235.56	(102.70)	-30.36%
San Joaquin Valley	142.83	131.67	(11.16)	81.50	81.40	(0.09)	6.90	6.90	0.00	0.00	0.00	0.00	231.22	219.97	(11.25)	-4.87%
State Total	1,310.46	1,224.30	(86.15)	346.74	342.44	(4.29)	58.28	58.28	0.00	60.08	60.78	0.71	1,775.55	1,685.81	(89.74)	-5.05%

CALIFORNIA HIGH SPEED RAIL
CO ON-ROAD MOBILE CALCULATIONS

Air Basin	No Build		Pacheco			CO (tons/day)		CO Increment		CO (metric tons/day)		CO Increment
	VMT	VHT	VMT	VHT	% of NB VMT	No Build	Build	Pacheco	%	No Build	Build	Pacheco
San Francisco Bay	112,280,333	2,967,721	71,514,786	1,680,135	63.7%	259.78	165.46	(94.32)	-36.31%	235.67	150.11	(85.57)
San Joaquin Valley	126,463,316	1,836,428	116,352,966	1,649,721	92.0%	142.83	131.41	(11.42)	-7.99%	129.58	119.22	(10.36)
State Total	1,141,592,762	30,536,249	1,068,227,705	28,315,177	93.6%	1,310.46	1,226.24	(84.22)	-6.43%	1,188.85	1,112.45	(76.40)
	73,365,057								0.00000115			

Air Basin	No Build		Altamont			CO (tons/day)		CO Increment		CO (tons/day)		CO Increment
	VMT	VHT	VMT	VHT	% of NB VMT	No Build	Build	Altamont		No Build	Build	Altamont
San Francisco Bay	112,280,333	2,967,721	68,605,564	1,603,257	61.1%	259.78	158.73	(101.05)	-38.90%	235.67	144.00	(91.67)
San Joaquin Valley	126,463,316	1,836,428	116,584,184	1,653,235	92.2%	142.83	131.67	(11.16)	-7.81%	129.58	119.45	(10.12)
State Total	1,141,592,762	30,536,249	1,066,541,579	28,238,654	93.4%	1,310.46	1,224.30	(86.15)	-6.57%	1,188.85	1,110.69	(78.16)
	75,051,183											

CALIFORNIA HIGH SPEED RAIL
CO2 EMISSION BURDEN

Air Basin	CO2 - On-Road Mobile (tons/day)			On-Road - CO2 Incremen		CO2 - Planes (tons/day)			Plane - CO2 Increment		CO2 - Trains (tons/day)	CO2 - Electric (tons/day)			Electric - CO2 Increment		TOTAL CO2 (On-Road, Planes, Trains, Electric) (Tons/day)			Total - CO2 Increment		Total % Change from No Build	
	No Build	Pacheco	Altamont	Pacheco	Altamont	No Build	Pacheco	Altamont	Pacheco	Altamont	No Build	No Build	Pacheco	Altamont	Pacheco	Altamont	No Build	Pacheco	Altamont	Pacheco	Altamont	Pacheco	Altamont
State Total	486,613.05	455,340.61	463,186.66	31,272.44	-23,426.39	113.86	63.41	66.03	-50.45	-47.83	uk	0.00	7,234.46	7,234.46	7,234.46	7,234.46	486,726.91	462,638.48	470,487.16	-24,088.43	-16,239.75	-5%	-3%

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CALIFORNIA HIGH SPEED RAIL
ELECTRIC ANALYSIS

Air Basin	2030 electric - No build (tons/day)					2030 additional burden - Pacheco					Total					% change from No Build				
	CO	PM10	pm2.5	NOx	TOG	CO	PM10	PM2.5	NOx	TOG	CO	PM10	PM2.5	NOx	TOG	CO	PM10	PM2.5	NOx	TOG
Statewide	60.08	9.34	9.00	39.16	44.48	0.706	0.110	0.106	0.460	0.523	60.8	9.4	9.1	39.6	45.0	1.18%	1.18%	1.18%	1.18%	1.18%

Air Basin	2030 electric - No build (tons/day)					2030 additional burden - Altamont					Total					% change from No Build				
	CO	PM10	pm2.5	NOx	TOG	CO	PM10	PM2.5	NOx	TOG	CO	PM10	PM2.5	NOx	TOG	CO	PM10	PM2.5	NOx	TOG
Statewide	60.08	9.34	9.00	39.16	44.48	0.706	0.110	0.106	0.460	0.523	60.8	9.4	9.1	39.6	45.0	1.2%	1.2%	1.2%	1.2%	1.2%

High Speed Train (San Francisco to Central Valley Analysis)

ANNUAL DIRECT ENERGY CONSUMPTION

	2000		2030		
ALTERNATIVE	**Existing (absolute)**	**No-Build (absolute, 5% elevated auto consumption**	**No-Build**	**Pacheco**	**Altamont**
Annual Auto VMT	354,877,531,460	437,515,426,040	416,681,358,134	389,903,112,325	396,621,604,355
Annual Airline VMT	75,752,623	131,934,237	131,934,237	73,473,300	76,513,845
Annual HST VMT	0	0	0	42,956,120	42,956,120
AUTOS					
Annual Auto BTU	1,977,377,605,296,230	2,437,835,953,896,736	2,321,748,527,520,700	2,172,540,141,874,900	2,209,975,579,467,170
Airline					
Annual Airline BTU	24,763,102,458,624	43,128,553,470,392	43,128,553,470,392	24,018,004,652,952	25,011,941,731,450
High Speed Train					
Annual High Speed Train BTU	0	0	0	39,707,950,030,080	39,707,950,030,080
SUMMARY					
Annual Autos BTU	1,977,377,605,296,230	2,437,835,953,896,736	2,321,748,527,520,700	2,172,540,141,874,900	2,209,975,579,467,170
Annual Airline BTU	24,763,102,458,624	43,128,553,470,392	43,128,553,470,392	24,018,004,652,952	25,011,941,731,450
Annual High Speed BTU	0	0	0	39,707,950,030,080	39,707,950,030,080
TOTAL DIRECT ENERGY (BTUs)	**2,002,140,707,754,860**	**2,480,964,507,367,120**	**2,364,877,080,991,090**	**2,236,266,096,557,930**	**2,274,695,471,228,700**
Change from Existing direct energy (BTU)		**478,823,799,612,266**	**362,736,373,236,231**	**234,125,388,803,074**	**272,554,763,473,844**
% Change in Existing direct energy (BTU)		**0.24**	**0.18**	**0.12**	**0.14**
Change from No-Build direct energy (BTU)				**-128,610,984,433,157**	**-90,181,609,762,386.50**
% Change in No-Build direct energy (BTU)				**-0.05**	**-0.04**
Change from No-Build direct energy 5 % inc. (BTU)				**-244,698,410,809,192**	**-206,269,036,138,421**
% Change in No-Build direct energy 5 % inc. (BTU)				**-0.0986**	**-0.0831**
TOTAL DIRECT ENERGY (BARRELS OF OIL)	**345,196,674**	**427,752,501**	**407,737,428**	**385,563,120**	**392,188,874**
Change from Existing direct energy (Barrels of Oil)		**82,555,828**	**62,540,754**	**40,366,446**	**46,992,201**
% Change in existing direct energy (Barrels of Oil)		**0.24**	**0.18**	**0.12**	**0.14**
Change from No-Build direct energy (Barrels of Oil)				**-22,174,308**	**-15,548,553**
% Change in No-Build direct energy (Barrels of Oil)				**-0.05**	**-0.04**
Change from No-Build direct energy 5 % inc. (BTU)				**-42,189,381**	**-35,563,627**
% Change in No-Build direct energy 5 % inc. (BTU)				**-0.0986**	**-0.0831**

CALIFORNIA HIGH SPEED RAIL
CO2 ENERGY ANALYSIS

HSR CO2 Only

	Annual BTUs (from energy report)	Million BTUs	CO2 (Tons CO2/Million Btu)*	CO2 Burden (tons/year)	CO2 Burden (Tons/day)	Difference from NB	% Dif. From NB
No Build	0	0	0.0665	0	0.00	-	-
Pacheco	39,707,950,030,080	39707950.03	0.0665	2,640,578.68	7,234.46	7,234.46	
Altamont Base	39,707,950,030,080	39707950.03	0.0665	2,640,578.68	7,234.46	7,234.46	
* From New Starts				lbs/vmt	122.94		

CO2 state wide burden

Year	MMT	Metric tons/day	Tons/Day
2010	467.80	1,281,643.84	1,412,742.33
2000	423.2	1,159,452.05	1,278,051.63
2001	429.6	1,176,986.30	1,297,379.45
2002	422.6	1,157,808.22	1,276,239.65
2005	423.92	1,161,416.37	1,280,216.88

AUTOS

	Annual BTUs (from energy report)	Million BTUs	CO2 (Tons CO2/Million Btu)*	CO2 Burden (tons/year)	CO2 Burden (Tons/day)	Difference from NB	% Dif. From NB
No Build	2,321,748,527,520,700	2,321,748,527.52	0.0765	177,613,762.36	486,613.05	-	-
Pacheco	2,172,540,141,874,900	2,172,540,141.87	0.0765	166,199,320.85	455,340.61	-31,272.44	-6%
Altamont Base	2,209,975,579,467,170	2,209,975,579.47	0.0765	169,063,131.83	463,186.66	-23,426.39	-5%

PLANES

	Annual Airline BTUs (from energy report)	Annual Airline VMT (from energy report)	CO2 (Tons/Mile)**	CO2 Burden (tons/year)	CO2 Burden (Tons/day)	Difference from NB	% Dif. From NB
No Build - Planes	43,128,553,470,392	131,934,237	0.000315	41,559.28	113.86	-	-
Pachecc - Planes	24,018,004,652,952	73,473,300	0.000315	23,144.09	63.41	-50.45	-44%
Altamont - Planes	25,011,941,731,450	76,513,845	0.000315	24,101.86	66.03	-47.83	-42%

320,547.95 people a day

HSR

				grams/kilowatt-hours					Burden (grams/day)					Burden (tons/day)				
	Annual BTUs (from energy report)	Conversion Factor KW to BTU (from Energy data source edition 22, table B.3)	Kwhr	CO	PM10	PM2.5	NOx	TOG	CO	PM10	PM2.5	NOx	TOG	CO	PM10	PM2.5	NOx	TOG
No Build - HSR	0	11765	0	0.07	0.01	0.01	0.05	0.05	-	-	-	-	-	-	-	-	-	-
Pachecc - HSR	39,707,950,030,080	11765	3,375,091,375.27	0.07	0.01	0.01	0.05	0.05	640,800.00	99,621.44	96,049.02	417,699.82	474,483.98	0.71	0.11	0.11	0.46	0.52
Altamont - HSR	39,707,950,030,080	11765	3,375,091,375.27	0.07	0.01	0.01	0.05	0.05	640,800.00	99,621.44	96,049.02	417,699.82	474,483.98	0.71	0.11	0.11	0.46	0.52
													lbs/mile	0.012001	0.00186566	0.001799	0.007822	0.008886

Note - for electric burden calculations, only the HSR contributes. There is no no build because HSR does not exist in No Build

CALIFORNIA HIGH SPEED RAIL
TRAINS

Air Basin	2030 trains - No build & build (tons/day)				
	CO	PM10	PM2.5	NOx	TOG
San Francisco	3.73	0.27	0.23	12.85	1.09
San Joaquin	6.90	0.53	0.49	19.62	1.83
Statewide	58.28	4.15	3.79	121.58	15.25

Air Basin	2005 trains - Existing (tons/day)				
	CO	PM10	PM2.5	NOx	TOG
San Francisco	2.33	0.31	0.27	13.03	1.13
San Joaquin	4.50	0.66	0.60	23.64	1.97
Statewide	33.05	4.74	4.33	157.56	14.61

CALIFORNIA HIGH SPEED RAIL
PLANES

Pacheco

Air Basin	2030 planes - No build (tons/day)					2030 burden per flight (tons/day) - as per EDMS Model*					# of flights not needed due to HSR (from Table 2.3-4 & 3.3-3)	2030 removed plane burden - HSR Alternative (tons/day)					2030 - plane burden HSR Alternative (tons/day)					2030 - HSR Alternative % plane burden decrease from No Build (tons/day)				
	CO	PM10	PM2.5	NOx	TOG	CO	PM10	PM2.5	NOx	TOG		CO	PM10	PM2.5	NOx	TOG	CO	PM10	PM2.5	NOx	TOG	CO	PM10	PM2.5	NOx	TOG
San Francisco	74.75	0.67	0.64	41.45	12.72	0.010	0.0001	0.0001	0.007	0.002	-167	-1.743	-0.022	-0.022	-1.203	-0.415	73.004	0.648	0.617	40.242	12.309	-2.3%	-3.2%	-3.4%	-2.9%	-3.3%
San Joaquin	81.50	0.46	0.45	4.75	10.03	0.010	0.0001	0.0001	0.007	0.002	-10	-0.100	-0.001	-0.001	-0.069	-0.024	81.396	0.460	0.450	4.678	10.002	-0.1%	-0.3%	-0.3%	-1.4%	-0.2%
Statewide	346.74	7.76	7.67	92.44	51.05	0.010	0.0001	0.0001	0.007	0.002	-433	-4.532	-0.056	-0.056	-3.128	-1.079	342.208	7.700	7.618	89.316	49.971	-1.3%	-0.7%	-0.7%	-3.4%	-2.1%
** Flight emission information is for default 737 and associated ground support*											480															
						0.043583	0.000542	0.000542	0.030083	0.010375																

Altamont

Air Basin	2030 planes - No build (tons/day)					2030 burden per flight (tons/day) - as per EDMS Model*					# of flights not needed due to HSR (from Table 2.3-4 & 3.3-3)	2030 removed plane burden - HSR Alternative (tons/day)					2030 - plane burden HSR Alternative (tons/day)					2030 - HSR Alternative % plane burden decrease from No Build (tons/day)				
	CO	PM10	PM2.5	NOx	TOG	CO	PM10	PM2.5	NOx	TOG		CO	PM10	PM2.5	NOx	TOG	CO	PM10	PM2.5	NOx	TOG	CO	PM10	PM2.5	NOx	TOG
San Francisco	74.75	0.67	0.64	41.45	12.72	0.010	0.0001	0.0001	0.007	0.002	-158	-1.652	-0.021	-0.021	-1.140	-0.393	73.095	0.649	0.618	40.305	12.331	-2.2%	-3.1%	-3.2%	-2.8%	-3.1%
San Joaquin	81.50	0.46	0.45	4.75	10.03	0.010	0.0001	0.0001	0.007	0.002	-9	-0.094	-0.001	-0.001	-0.065	-0.022	81.402	0.460	0.450	4.682	10.003	-0.1%	-0.3%	-0.3%	-1.4%	-0.2%
Statewide	346.74	7.76	7.67	92.44	51.05	0.010	0.0001	0.0001	0.007	0.002	-411	-4.295	-0.053	-0.053	-2.965	-1.022	342.445	7.703	7.621	89.479	50.027	-1.2%	-0.7%	-0.7%	-3.2%	-2.0%
** Flight emission information is for default 737 and associated ground support*																										

CALIFORNIA HIGH SPEED RAIL
PACHECO SUMMARY

ON ROAD MOBILE

MILES and TONS per DAY

Air Basin	2030 No Project VMT	2030 Pacheco VMT	2030 No Project Emission Burden Tons/Day						2030 Pacheco Low Emission Burden Tons/Day						Incremental Change from No Project					
			CO	PM10	PM2.5	NOx	TOG	CO_2	CO	PM10	PM2.5	NOx	TOG	CO_2	CO	PM10	PM2.5	NOx	TOG	CO_2
San Francisco Bay	112,280,333.2	71,514,786.4	259.8	11.6	7.5	51.0	36.0	NA	165.5	7.4	4.8	32.5	22.9	NA	-94.32	-4.21	-2.71	-18.51	-13.06	NA
San Joaquin Valley	126,463,316.4	116,352,966.2	142.8	7.1	4.2	33.8	19.3	NA	131.4	6.5	3.9	31.1	17.8	NA	-11.42	-0.57	-0.34	-2.70	-1.54	NA
State Total	1,141,592,762.0	1,068,227,705.0	1,310.5	56.9	35.1	263.5	186.2	486,613	1,226.2	53.2	32.5	246.5	174.2	455,341	-84.22	-3.66	-2.57	-16.93	-11.97	-31,272
	0.003244803		0.002296	1E-04	6E-05	0.000461602	0.0003262	0.852516												

KILOMETERS and METRIC TONS per DAY

Air Basin	2030 No Project VKT	2030 Pacheco VKT	2030 No Project Emission Burden Metric Tons/Day						2030 Pacheco Low Emission Burden Metric Tons/Day						Incremental Change from No Project					
			CO	PM10	PM2.5	NOx	TOG	CO_2	CO	PM10	PM2.5	NOx	TOG	CO_2	CO	PM10	PM2.5	NOx	TOG	CO_2
San Francisco Bay	180,697,680.5	115,091,892.4	235.7	10.5	6.8	46.2	32.6	NA	150.1	6.7	4.3	29.5	20.8	NA	-85.6	-3.8	-2.5	-16.8	-11.8	NA
San Joaquin Valley	203,522,979.5	187,251,948.0	129.6	6.4	3.8	30.6	17.5	NA	119.2	5.9	3.5	28.2	16.1	NA	-10.4	-0.5	-0.3	-2.4	-1.4	NA
State Total	1,837,215,462.0	1,719,145,847.7	1,188.8	51.6	31.8	239.0	168.9	441,457	1,112.4	48.3	29.5	223.7	158.1	413,086	-76.4	-3.3	-2.3	-15.4	-10.9	-28,370

Air Basin	% Change from No Project					
	CO	PM10	PM2.5	NOx	TOG	CO_2
San Francisco Bay	-36.3%	-36.3%	-36.3%	-36.3%	-36.3%	NA
San Joaquin Valley	-8.0%	-8.0%	-8.0%	-8.0%	-8.0%	NA
State Total	-6.4%	-6.4%	-7.3%	-6.4%	-6.4%	-6.4%

73,365,057.0

PLANES

TONS per DAY

Air Basin	2030 Projected No Project Airplane Emission Inventory (Tons/Day)						Flights removed due to project	2030 Emission Reductions due to Flights removed under Build Alternative (Tons/Day)						2030 Total Plane Emission Burden under Build Alternative (Tons/Day)					
	CO	PM10	PM2.5	NOx	TOG	CO_2		CO	PM10	PM2.5	NOx	TOG	CO_2	CO	PM10	PM2.5	NOx	TOG	CO_2
San Francisco Bay	74.75	0.67	0.64	41.45	12.72	NA	-167	-1.74	-0.02	-0.02	-1.20	-0.41	NA	73.00	0.65	0.62	40.24	12.31	NA
San Joaquin Valley	81.50	0.46	0.45	4.75	10.03	NA	-10	-0.10	0.00	0.00	-0.07	-0.02	NA	81.40	0.46	0.45	4.68	10.00	NA
State Total	346.74	7.76	7.67	92.44	51.05	114	-433	-4.53	-0.06	-0.06	-3.13	-1.08	-50.45	342.21	7.70	7.62	89.32	49.97	63.41

METRIC TONS per DAY

Air Basin	2030 Projected No Project Airplane Emission Inventory (Metric Tons/Day)						Flights removed due to project	2030 Emission Reductions due to Flights removed under Build Alternative (Metric Tons/Day)						2030 Total Plane Emission Burden under Build Alternative (Tons/Day)					
	CO	PM10	PM2.5	NOx	TOG	CO_2		CO	PM10	PM2.5	NOx	TOG	CO_2	CO	PM10	PM2.5	NOx	TOG	CO_2
San Francisco Bay	67.81	0.61	0.58	37.60	11.54	NA	-167	-1.58	-0.02	-0.02	-1.09	-0.38	NA	66.23	0.59	0.56	36.51	11.17	NA
San Joaquin Valley	73.93	0.42	0.41	4.31	9.10	NA	-10	-0.09	0.00	0.00	-0.06	-0.02	NA	73.84	0.42	0.41	4.24	9.07	NA
State Total	314.56	7.04	6.96	83.87	46.31	103.30	-433	-4.11	-0.05	-0.05	-2.84	-0.98	-45.77	310.45	6.99	6.91	81.03	45.33	57.52

Air Basin	% Change from No Project					
	CO	PM10	PM2.5	NOx	TOG	CO_2
San Francisco Bay	-2.3%	-3.2%	-3.4%	-2.9%	-3.3%	NA
San Joaquin Valley	-0.1%	-0.3%	-0.3%	-1.4%	-0.2%	NA
State Total	-1.3%	-0.7%	-0.7%	-3.4%	-2.1%	-44.3%

CALIFORNIA HIGH SPEED RAIL
PACHECO SUMMARY

ENERGY

TONS per DAY

Air Basin	2030 Projected No Project Energy Emission Inventory (Tons/Day)						2030 Emission changes due to HSR power demands under the Build Alternative (Tons/Day)						2030 Total Energy Emission Burden under Build Alternative (Tons/Day)					
	CO	PM10	PM2.5	NOx	TOG	CO_2*	CO	PM10	PM2.5	NOx	TOG	CO_2	CO	PM10	PM2.5	NOx	TOG	CO_2
Statewide	60.08	9.34	9.00	39.16	44.48	391,412	0.71	0.11	0.11	0.46	0.52	7,234	60.78	9.45	9.11	39.62	45.01	398,647
117688							0.0120006	0.0018657	0.001799	0.007822	0.00889	122.943072						

METRIC TONS per DAY

Air Basin	2030 Projected No Project Energy Emission Inventory (Metric Tons/Day)						2030 Emission changes due to HSR power demands under the Build Alternative (Metric Tons/Day)						2030 Total Energy Emission Burden under Build Alternative (Metric Tons/Day)					
	CO	PM10	PM2.5	NOx	TOG	CO_2	CO	PM10	PM2.5	NOx	TOG	CO_2	CO	PM10	PM2.5	NOx	TOG	CO_2
Statewide	54.50	8.47	8.17	35.53	40.36	355,090	0.64	0.10	0.10	0.42	0.47	6,563	55.14	8.57	8.27	35.94	40.83	361,653

** Assumes 22.2% of CO2 inventory is a result of electical production, as per Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004,*

Air Basin	% Change from No Project					
	CO	PM10	PM2.5	NOx	TOG	CO_2
Statewide	1.2%	1.2%	1.2%	1.2%	1.2%	1.8%

SUMMARY

TONS per DAY

Air Basin	2005 Existing Emission Inventory (Planes, Trains, On-Road Mobile, and Energy, CO2 all sources) (Tons/Day)						2030 Projected No Project Emission Inventory (Planes, Trains, On-Road Mobile, and Energy, CO2 all sources) (Tons/Day)						2030 Projected Build Emission Inventory (Planes, Trains, On-Road Mobile, and Energy, CO2 all sources) (Tons/Day)					
	CO	PM10	PM2.5	NOx	TOG	CO_2	CO	PM10	PM2.5	NOx	TOG	CO_2	CO	PM10	PM2.5	NOx	TOG	CO_2
San Francisco Bay	1536	10	7	318	174	NA	398	22	17	144	94	NA	303	18	15	125	81	NA
San Joaquin Valley	948	7	6	224	102	NA	231	8	5	58	31	NA	220	7	5	55	30	NA
State Total	7979	69	52	1759	932	1,280,217	1715	69	47	478	253	1,763,118	1627	65	44	457	239	1739034

METRIC TONS per DAY

Air Basin	2005 Existing Emission Inventory (Planes, Trains, On-Road Mobile, and Energy, CO2 all sources) (Metric Tons/Day)						2030 Projected No Project Emission Inventory (Planes, Trains, On-Road Mobile, and Energy, CO2 all sources) (Metric Tons/Day)						2030 Projected Build Emission Inventory (Planes, Trains, On-Road Mobile, and Energy, CO2 all sources) (Metric Tons/Day)					
	CO	PM10	PM2.5	NOx	TOG	CO_2	CO	PM10	PM2.5	NOx	TOG	CO_2	CO	PM10	PM2.5	NOx	TOG	CO_2
San Francisco Bay	1,393	9	7	288	157	NA	361	20	16	131	86	NA	275	16	13	114	74	NA
San Joaquin Valley	860	7	5	203	93	NA	210	7	5	53	28	NA	199	7	4	50	27	NA
State Total	7,239	63	48	1,596	846	1,161,416	1,556	62	42	433	229	1,599,505	1,476	59	40	415	217	1,577,657

Air Basin	% Change from No Project					
	CO	PM10	PM2.5	NOx	TOG	CO_2
San Francisco Bay	-23.9%	-18.9%	-15.2%	-13.3%	-13.7%	NA
San Joaquin Valley	-5.0%	-7.0%	-6.6%	-4.8%	-5.0%	NA
State Total	-5.2%	-5.4%	-5.6%	-4.2%	-5.2%	-1.4%

Air Basin	Change from No Project (tons/day)					
	CO	PM10	PM2.5	NOx	TOG	CO_2
San Franc	-95.36	-4.12	-2.63	-19.25	-12.95	na
San Joaqu	-11.52	-0.57	-0.34	-2.77	-1.57	na
State Total	-88.75	-3.71	-2.62	-20.06	-13.05	-24083.75

Air Basin	Impact Rating					
	CO	PM10	PM2.5	NOx	TOG	CO_2
San Francisco Bay	high	high	high	high	high	NA
San Joaquin Valley	medium	medium	medium	medium	medium	NA
State Total	medium	medium	medium	medium	medium	NA

Air Basin	Change from No Project (tons/year)					
	CO	PM10	PM2.5	NOx	TOG	CO_2
San Franc	-34805	-1505	-960	-7026	-4727	NA
San Joaqu	-4204	-207	-123	-1011	-573	NA
State Total	-32393	-1355	-957	-7322	-4762	-8790569

CALIFORNIA HIGH SPEED RAIL
ALTAMONT
SUMMARY

ON ROAD MOBILE

MILES and TONS per DAY

Air Basin	2030 No Project VMT	2030 Altamont VMT	2030 No Project Emission Burden Tons/Day						2030 Altamont Low Emission Burden Tons/Day						Incremental Change from No Project					
			CO	PM10	PM2.5	NOx	TOG	CO_2	CO	PM10	PM2.5	NOx	TOG	CO_2	CO	PM10	PM2.5	NOx	TOG	CO_2
San Francisco Bay	112,280,333.2	65,382,105.6	259.8	11.6	7.5	51.0	36.0	NA	158.7	7.1	4.6	31.1	22.0	NA	-101.05	-4.51	-2.91	-19.83	-13.99	NA
San Joaquin Valley	126,463,316.4	112,879,902.8	142.8	7.1	4.2	33.8	19.3	NA	131.7	6.5	3.9	31.1	17.8	NA	-11.16	-0.55	-0.33	-2.64	-1.51	NA
State Total	1,141,592,762.0	1,053,640,240.6	1,310.5	56.9	35.1	263.5	186.2	486,613	1,224.3	53.1	32.8	246.2	174.0	463,187	-86.15	-3.74	-2.31	-17.32	-12.24	-23,426

KILOMETERS and METRIC TONS per DAY

Air Basin	2030 No Project VKT	2030 Altamont VKT	2030 No Project Emission Burden Metric Tons/Day						2030 Altamont Low Emission Burden Metric Tons/Day						Incremental Change from No Project					
			CO	PM10	PM2.5	NOx	TOG	CO_2	CO	PM10	PM2.5	NOx	TOG	CO_2	CO	PM10	PM2.5	NOx	TOG	CO_2
San Francisco Bay	180,697,680.5	105,222,299.4	235.7	10.5	6.8	46.2	32.6	NA	144.0	6.4	4.1	28.3	19.9	NA	-91.67	-4.09	-2.64	-17.99	-12.69	NA
San Joaquin Valley	203,522,979.5	181,662,594.3	129.6	6.4	3.8	30.6	17.5	NA	119.5	5.9	3.5	28.2	16.2	NA	-10.12	-0.50	-0.30	-2.39	-1.37	NA
State Total	1,837,215,462.0	1,695,669,599.3	1,188.8	51.6	31.8	239.0	168.9	441,457	1,110.7	48.2	29.7	223.3	157.8	420,204	-78.16	-3.39	-2.09	-15.71	-11.11	-21,252

Air Basin	% Change from No Project					
	CO	PM10	PM2.5	NOx	TOG	CO_2
San Francisco Bay	-38.9%	-38.9%	-38.9%	-38.9%	-38.9%	NA
San Joaquin Valley	-7.8%	-7.8%	-7.8%	-7.8%	-7.8%	NA
State Total	-6.6%	-6.6%	-6.6%	-6.6%	-6.6%	-4.8%

PLANES

TONS per DAY

Air Basin	2030 Projected No Project Airplane Emission Inventory (Tons/Day)						Flights removed due to project	2030 Emission Reductions due to Flights removed under Build Alternative (Tons/Day)						2030 Total Plane Emission Burden under Build Alternative (Tons/Day)					
	CO	PM10	PM2.5	NOx	TOG	CO_2		CO	PM10	PM2.5	NOx	TOG	CO_2	CO	PM10	PM2.5	NOx	TOG	CO_2
San Francisco Bay	74.75	0.67	0.64	41.45	12.72	NA	-158	-1.65	-0.02	-0.02	-1.14	-0.39	NA	73.10	0.65	0.62	40.31	12.33	NA
San Joaquin Valley	81.50	0.46	0.45	4.75	10.03	NA	-9	-0.09	0.00	0.00	-0.07	-0.02	NA	81.40	0.46	0.45	4.68	10.00	NA
State Total	346.74	7.76	7.67	92.44	51.05	114	-411	-4.29	-0.05	-0.05	-2.96	-1.02	-47.83	342.44	7.70	7.62	89.48	50.03	66.03

METRIC TONS per DAY

Air Basin	2030 Projected No Project Airplane Emission Inventory (Metric Tons/Day)						Flights removed due to project	2030 Emission Reductions due to Flights removed under Build Alternative (Metric Tons/Day)						2030 Total Plane Emission Burden under Build Alternative (Tons/Day)					
	CO	PM10	PM2.5	NOx	TOG	CO_2		CO	PM10	PM2.5	NOx	TOG	CO_2	CO	PM10	PM2.5	NOx	TOG	CO_2
San Francisco Bay	67.81	0.61	0.58	37.60	11.54	NA	-158	-1.50	-0.02	-0.02	-1.03	-0.36	NA	66.31	0.59	0.56	36.57	11.19	NA
San Joaquin Valley	73.93	0.42	0.41	4.31	9.10	NA	-9	-0.09	0.00	0.00	-0.06	-0.02	NA	73.85	0.42	0.41	4.25	9.07	NA
State Total	314.56	7.04	6.96	83.87	46.31	103.30	-411	-3.90	-0.05	-0.05	-2.69	-0.93	-43.39	310.67	6.99	6.91	81.18	45.38	59.90

Air Basin	% Change from No Project					
	CO	PM10	PM2.5	NOx	TOG	CO_2
San Francisco Bay	-2.2%	-3.1%	-3.2%	-2.8%	-3.1%	NA
San Joaquin Valley	-0.1%	-0.3%	-0.3%	-1.4%	-0.2%	NA
State Total	-1.2%	-0.7%	-0.7%	-3.2%	-2.0%	-42.0%

CALIFORNIA HIGH SPEED RAIL
ALTAMONT
SUMMARY

ENERGY

TONS per DAY

Air Basin	2030 Projected No Project Energy Emission Inventory (Tons/Day)						2030 Emission changes due to HSR power demands under the Build Alternative (Tons/Day)						2030 Total Energy Emission Burden under Build Alternative (Tons/Day)					
	CO	PM10	PM2.5	NOx	TOG	CO_2	CO	PM10	PM2.5	NOx	TOG	CO_2	CO	PM10	PM2.5	NOx	TOG	CO_2
Statewide	60.08	9.34	9.00	39.16	44.48	391,412	0.71	0.11	0.11	0.46	0.52	7,234	60.78	9.45	9.11	39.62	45.01	398,647

** Assumes 22.2% of CO2 inventory is a result of electical production, as per Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004,*

METRIC TONS per DAY

Air Basin	2030 Projected No Project Energy Emission Inventory (Metric Tons/Day)						2030 Emission changes due to HSR power demands under the Build Alternative (Metric Tons/Day)						2030 Total Energy Emission Burden under Build Alternative (Metric Tons/Day)					
	CO	PM10	PM2.5	NOx	TOG	CO_2	CO	PM10	PM2.5	NOx	TOG	CO_2	CO	PM10	PM2.5	NOx	TOG	CO_2
Statewide	54.50	8.47	8.17	35.53	40.36	355,090	0.64	0.10	0.10	0.42	0.47	6,563	55.14	8.57	8.27	35.94	40.83	361,653

Air Basin	% Change from No Project					
	CO	PM10	PM2.5	NOx	TOG	CO_2
Statewide	1.2%	1.2%	1.2%	1.2%	1.2%	1.8%

SUMMARY

TONS per DAY

Air Basin	2005 Existing Emission Inventory (Planes, Trains, On-Road Mobile, and Energy, CO2 all sources) (Tons/Day)						2030 Projected No Project Emission Inventory (Planes, Trains, On-Road Mobile, and Energy, CO2 all sources) (Tons/Day)						2030 Projected Build Emission Inventory (Planes, Trains, On-Road Mobile, and Energy, CO2 all sources) (Tons/Day)					
	CO	PM10	PM2.5	NOx	TOG	CO_2	CO	PM10	PM2.5	NOx	TOG	CO_2	CO	PM10	PM2.5	NOx	TOG	CO_2
San Francisco Bay	1536	10	7	318	174	NA	398	22	17	144	94	NA	296	17	15	124	80	NA
San Joaquin Valley	948	7	6	224	102	NA	231	8	5	58	31	NA	220	8	5	55	30	NA
State Total	7979	69	52	1759	932	1,280,217	1715	69	47	478	253	1,763,118	1625	65	44	457	239	1746883

METRIC TONS per DAY

Air Basin	2005 Existing Emission Inventory (Planes, Trains, On-Road Mobile, and Energy, CO2 all sources) (Metric Tons/Day)						2030 Projected No Project Emission Inventory (Planes, Trains, On-Road Mobile, and Energy, CO2 all sources) (Metric Tons/Day)						2030 Projected Build Emission Inventory (Planes, Trains, On-Road Mobile, and Energy, CO2 all sources) (Metric Tons/Day)					
	CO	PM10	PM2.5	NOx	TOG	CO_2	CO	PM10	PM2.5	NOx	TOG	CO_2	CO	PM10	PM2.5	NOx	TOG	CO_2
San Francisco Bay	1393	9	7	288	157	NA	361	20	16	131	86	NA	269	16	13	112	73	NA
San Joaquin Valley	860	7	5	203	93	NA	210	7	5	53	28	NA	200	7	4	50	27	NA
State Total	7239	63	48	1596	846	1161416	1556	62	42	433	229	1,599,505	1474	59	40	415	217	1584777

Air Basin	% Change from No Project					
	CO	PM10	PM2.5	NOx	TOG	CO_2
San Francisco Bay	-25.6%	-20.2%	-16.3%	-14.2%	-14.7%	NA
San Joaquin Valley	-4.9%	-6.9%	-6.4%	-4.7%	-4.9%	NA
State Total	-5.3%	-5.5%	-5.1%	-4.2%	-5.3%	-0.9%

Air Basin	Change from No Project (tons/day)					
	CO	PM10	PM2.5	NOx	TOG	CO_2
San Francis	-102.00	-4.42	-2.82	-20.51	-13.86	na
San Joaquir	-11.25	-0.55	-0.33	-2.70	-1.53	na
State Total	-90.45	-3.79	-2.36	-20.29	-13.26	-16235.31

Air Basin	Impact Rating					
	CO	PM10	PM2.5	NOx	TOG	CO_2
San Francisco Bay	high	high	high	high	high	NA
San Joaquin Valley	medium	medium	medium	medium	medium	NA
State Total	medium	medium	medium	medium	medium	NA

Air Basin	Change from No Project (tons/year)					
	CO	PM10	PM2.5	NOx	TOG	CO_2
San Francis	-37228	-1615	-1030	-7486	-5059	NA
San Joaquir	-4107	-202	-121	-987	-559	NA
State Total	-33013	-1384	-862	-7405	-4842	-5925889

APPENDIX 3.4-A

DATA TABLE

Appendix 3.4-A. Noise and Vibration Impacts Data Table for Alignment Alternatives and Station Location Option Comparisons

Corridor	Possible Alignment Segments	Alignment	Segment	Total Segment (Miles)	Residential Population	Mixed Use Population	Parkland (Acres)	Hospitals	Schools	Noise Impact Rating	Vibration Impact Rating
San Francisco to San Jose: Caltrain	1 of 1	San Francisco to Dumbarton	Transbay Transit Center to 4th/Townsend	1.98	0	0	0	0	0	Low	Low
			4th/Townsend to Millbrae/SFO	13.81	1,640.55	16.6	0	0	0	Medium	Medium
			Millbrae/SFO to Redwood City	10.57	3,545.92	101.35	0	0	2	Medium	High
			Redwood City to Caltrain	2.48	322.83	22.17	0	0	0	Medium	Medium
	1 of 1	Dumbarton to San Jose	Caltrain Dumbarton Wye	1	580.33	12.4	0	0	0	Medium	High
			Dumbarton Wye to Palo Alto	3.28	1,314.66	22.01	5.27	0	0	Medium	High
			Palo Alto to Santa Clara	14.4	7,549.76	27.69	0	0	0	Medium	High
			Santa Clara to Diridon Station	2.93	11.51	0	0	0	0	Low	Medium
Station Location Options											
Transbay Transit Center		Ratings are based on alignment alternative that station is on—San Francisco to Dumbarton								Medium	Medium
4th and King (Caltrain)		Ratings are based on alignment alternative that station is on—San Francisco to Dumbarton								Medium	Medium
Millbrae/SFO		Ratings are based on alignment alternative that station is on—San Francisco to Dumbarton								Medium	Medium
Redwood City (Caltrain)		Ratings are based on alignment alternative that station is on—San Francisco to Dumbarton								Medium	Medium
Palo Alto (Caltrain)		Ratings are based on alignment alternative that station is on—Dumbarton to San Jose								Medium	High

Corridor	Possible Alignment Segments	Alignment	Segment	Total Segment (Miles)	Residential Population	Mixed Use Population	Parkland (Acres)	Hospitals	Schools	Noise Impact Rating	Vibration Impact Rating
Oakland to San Jose: Niles/I-880	1 of 2	West Oakland to Niles Junction	West Oakland to Jack London Square	4.85	399.87	0	0			Medium	Medium
			Jack London Square to Oakland Coliseum	3.58	164.97	0	0		1	Medium	Medium
			Oakland Coliseum to Union City (BART)	2.89	1,296.99	0	0			Medium	High
			Union City (BART) to Niles Junction	2.28	764.89	0	0			Medium	High
		12th Street/City Center to Niles Junction	12th Street/City Center to Jack London Square Niles /I-880-1B	4.81	409.65	0	0	0	0	Medium	High
			Jack London Square to Oakland Coliseum	3.58	164.97	0	0	0	1	Medium	Medium
			Oakland Coliseum to Union City (BART)	2.89	1,296.99	0	0	0	0	Medium	High
			Union City (BART) to Shinn	2.28	764.89	0	0	0	0	Medium	High
	1 of 2	Niles Junction to San Jose via	Niles Junction to Niles Wye (S)	5.99	1,713.75	84.51	39.28	0	1	Medium	High

Corridor	Possible Alignment Segments	Alignment	Segment	Total Segment (Miles)	Residential Population	Mixed Use Population	Parkland (Acres)	Hospitals	Schools	Noise Impact Rating	Vibration Impact Rating
		Trimble	Niles Wye (S) to Warm Springs	3.5	117.94	1.70	14.16	0	0	Low	Low
			Warm Springs to Trimble Rd.	3.6	117.94	1.65	14	0	0	Low	Low
			Trimble Rd. Option	4.06	5.91	0	0	0	0	Low	Low
			Santa Clara to Diridon Station	2.93	11.51	0	0	0	0	Low	Medium
		Niles Junction to San Jose via I-880	Niles Junction to Niles Wye (S)	5.99	1,713.75	84.51	39.28	0	1	Medium	High
			Niles Wye (S) to Warm Springs	3.5	117.94	1.70	14.16	0	0	Low	Low
			Warm Springs to Trimble Rd.	3.6	117.94	1.65	14	0	0	Low	Low
			I-880 – Trimble Rd. to Diridon	5.47	65.8	7.49	0	0	0	Low	Low
Station Location Options											
West Oakland/7th Street		Ratings are based on alignment alternative that station is on—West Oakland to Niles Junction								Medium	High
12th Street/City Center		Ratings are based on alignment alternative that station is on—12th Street/City Center to Niles Junction								Medium	High
Coliseum/Airport		Ratings are based on alignment alternative that station is on—West Oakland to Niles Junction								Medium	High
Union City (BART)		Ratings are based on alignment alternative that station is on—Niles Junction to San Jose Via Trimble								Medium	Medium
Fremont (Warm Springs)		Ratings are based on alignment alternative that station is on—Niles Junction to San Jose Via Trimble								Medium	Medium

Corridor	Possible Alignment Segments	Alignment	Segment	Total Segment (Miles)	Residential Population	Mixed Use Population	Parkland (Acres)	Hospitals	Schools	Noise Impact Rating	Vibration Impact Rating
San Jose to Central Valley: Pacheco Pass	1 of 1	Pacheco	Diridon to Morgan Hill	32.68	4,756.74	11.58	131.16	0	2	Medium	Medium
			Morgan Hill to Gilroy	9.7	2,071.4	36.85	0	0	2	Medium	Medium
			Gilroy to San Luis Reservoir	28.19	1,201.08	0	604.8	0	0	Low	Low
	1 of 3	Henry Miller (UPRR Connection)	San Luis Reservoir to Valley Floor	8.06	0	0	1,307.3	0	0	Low	Low
			Western Valley to Henry Miller UP Wye	37.54	0.55	0.55	129.98	0	1	Low	Low
			Henry Miller UP North Wye to UP South Wye	5.05	0	0	0	0	0	Low	Low
			Henry Miller Wye North to UPRR	6.98	0	0	0	0	0	Low	Low
			Henry Miller Wye South to UPRR	4.96	0	0	0	0	0	Low	Low
		Henry Miller (BNSF Connection)	San Luis Reservoir to Valley Floor	8.06	0	0	1,307.3	0	0	Low	Low
			Western Valley to Henry Miller UP Wye	37.54	0.55	0.55	129.98	0	1	Low	Low
			Henry Miller UP North Wye to UP South Wye	5.05	0	0	0	0	0	Low	Low

Corridor	Possible Alignment Segments	Alignment	Segment	Total Segment (Miles)	Residential Population	Mixed Use Population	Parkland (Acres)	Hospitals	Schools	Noise Impact Rating	Vibration Impact Rating
			Henry Miller UP South Wye to BNSF Wyes	2.81	0	0	0	0	0	Low	Low
			Henry Miller Wye North to BNSF	5.39	0	0	0	0	0	Low	Low
			Henry Miller Wye South to BNSF	6.04	0	0	0	0	0	Low	Low
		GEA North	San Luis Reservoir to Atwater Wye	35.15	1,344.38	0.18	825.92	0	0	Low	Low
			GEA Atwater Wye North to BNSF	7.72	152.16	1,209.39	0	0	1	Medium	Medium
			GEA Atwater Wye South to Merced UP	8.18	0	125.16	0	0	0	Low	Low
Station Location Options											
San Jose (Diridon)		Ratings are based on alignment alternative that station is on—Pacheco								Medium	Medium
Morgan Hill (Caltrain)		Ratings are based on alignment alternative that station is on—Pacheco								Medium	Medium
Gilroy (Caltrain)		Ratings are based on alignment alternative that station is on—Pacheco								Medium	Medium

Corridor	Possible Alignment Segments	Alignment	Segment	Total Segment (Miles)	Residential Population	Mixed Use Population	Parkland (Acres)	Hospitals	Schools	Noise Impact Rating	Vibration Impact Rating
East Bay to Central Valley: Altamont Pass	1 of 4	I-680/ 580/UPRR	Niles Canyon to Sunol	4.08	0	0	0	0	0	Low	Low
			Sunol to Dublin/Pleasanton BART	6.57	682.35	0	87.98	0	0	Medium	Medium
			Dublin/Pleasanton BART to El Charo Road	3.15	291.80	0	6.53	0	0	Medium	Medium
			El Charo Road to Livermore (I-580)	3.16	50.75	0	0	0	0	Low	Low
			Livermore (I-580) to Greenville	5.33	85.15	0.59	0	0	1	Low	Low
			Greenville to Altamont Pass	5.16	0	0	0	0	0	Low	Low
			Altamont Pass to County Line	2.54	0	0	0	0	0	Low	Low
		I-580/ UPRR	Niles Canyon to Sunol	4.08	0	0	0	0	0	Low	Low
			Sunol to Pleasanton	2.02	111.93	0	11.61	0	0	Low	Low
			Pleasanton to El Charo	1.73	646.37	0	0	0	1	Medium	High
			UPRR to I-580 connector	2.52	0	0	0	1	0	Low	Low
			El Charo Road to Livermore (I-580)	3.16	50.75	0	0	0	0	Low	Low
			Livermore (I-580) to Greenville	5.33	85.15	0.59	0	0	1	Low	Low

Corridor	Possible Alignment Segments	Alignment	Segment	Total Segment (Miles)	Residential Population	Mixed Use Population	Parkland (Acres)	Hospitals	Schools	Noise Impact Rating	Vibration Impact Rating
			Greenville to Altamont Pass	5.16	0	0	0	0	0	Low	Low
			Altamont Pass to County Line	2.54	0	0	0	0	0	Low	Low
		Patterson Pass/UPRR	Niles Canyon to Sunol	4.08	0	0	0	0	0	Low	Low
			Sunol to Pleasanton	2.02	111.93	0	11.61	0	0	Low	Low
			Pleasanton to El Charo	1.73	646.37	0	0	0	1	Medium	High
			El Charo to Livermore	4.07	591.07	0	8.79	0	0	Low	Medium
			Livermore to Patterson Pass cut off	2.23	753.25	0	0	0	1	Medium	High
			Patterson Pass	11.49	304.91	0	0	0	0	Low	Low
		UPRR	Niles Canyon to Sunol	4.08	0	0	0	0	0	Low	Low
			Sunol to Pleasanton	2.02	111.93	0	11.61	0	0	Low	Low
			Pleasanton to El Charo	1.73	646.37	0	0	0	1	Medium	High
			El Charo to Livermore	4.07	591.07	0	8.79	0	0	Low	Medium
			Livermore to Patterson Pass cut off	2.23	753.25	0	0	0	1	Medium	High

Corridor	Possible Alignment Segments	Alignment	Segment	Total Segment (Miles)	Residential Population	Mixed Use Population	Parkland (Acres)	Hospitals	Schools	Noise Impact Rating	Vibration Impact Rating
			Patterson Pass cut off to Greenville	3.58	106.23	0	0	0	0	Low	Low
			Greenville to Altamont Pass	4.90	0	0	0	0	0	Low	Low
			Altamont Pass to County Line	2.54	0	0	0	0	0	Low	Low
	1 of 4	Tracy Downtown (BNSF Connection)	County Line to Tracy Downtown	7.87	1,277.49	0	0	0	0	Medium	Low
			Tracy Downtown to I-205	3.92	341.92	0	0	0	0	Medium	Low
			I-205 to S. UPRR	5.20	0	0	0	0	0	Low	Low
			I-205 to Lathrop – northern	7.92	0	0	54.68	0	1	Low	Low
			Southwestern Manteca	1.91	284.03	0	0	0	0	Medium	Low
			Southeastern Manteca	1.05	617.39	0	0	0	0	High	High
			Northern Escaton Wye to BNSF	4.81	59.64	0	0	0	0	Low	Low
			Southern Escaton Wye to BNSF (part 1)	9.41	16.47	0	0	0	0	Low	Low
			Southern Escaton Wye to BNSF (part 2)	8.09	0	0	0	0	0	Low	Low
		Tracy ACE Station (BNSF	County Line to South of Tracy	1.12	0	0	0	0	0	Low	Low

Corridor	Possible Alignment Segments	Alignment	Segment	Total Segment (Miles)	Residential Population	Mixed Use Population	Parkland (Acres)	Hospitals	Schools	Noise Impact Rating	Vibration Impact Rating
		Connection)	South of Tracy to Tracy ACE Station	9.67	25.57	0	96.64	0	1	Low	Low
			Tracy ACE Station to I-205	4.71	0	0	71.05	0	0	Low	Low
			I-205 to Southeast of Manteca	3.28	0	0	0	0	0	Low	Low
			I-205 to Lathrop – Southern	6.36	2.73	0	32.16	0	0	Low	Low
			Southwestern Manteca	1.91	284.03	0	0	0	0	Medium	Low
			Southeastern Manteca	1.05	617.39	0	0	0	0	High	High
			Northern Escaton Wye to BNSF	4.81	59.64	0	0	0	0	Low	Low
			Southern Escaton Wye to BNSF (part 1)	9.41	16.47	0	0	0	0	Low	Low
			Southern Escaton Wye to BNSF (part 2)	8.09	0	0	0	0	0	Low	Low
		Tracy ACE Station (UPRR Connection)	County Line to South of Tracy	1.12	0	0	0	0	0	Low	Low
			South of Tracy to Tracy ACE Station	9.67	25.57	0	96.64	0	1	Low	Low
			Tracy ACE Station to I-205	4.71	0	0	71.05	0	0	Low	Low

Corridor	Possible Alignment Segments	Alignment	Segment	Total Segment (Miles)	Residential Population	Mixed Use Population	Parkland (Acres)	Hospitals	Schools	Noise Impact Rating	Vibration Impact Rating
			I-205 to Southeast of Manteca	3.28	0	0	0	0	0	Low	Low
			Southwestern Manteca	1.91	284.03	0	0	0	0	Medium	Low
			Southeastern Manteca	1.05	617.39	0	0	0	0	High	High
			Eastern Manteca UPRR South to BNSF	5.27	1,737.80	0	0	0	0	Medium	Medium
			Manteca to Escaton Wye	2.54	29.12	0	0	0	0	Low	Low
		Tracy Downtown (UPRR Connection)	County Line to Tracy Downtown	7.87	1,277.49	0	0	0	0	Medium	Low
			Tracy Downtown to I-205	3.92	341.92	0	0	0	0	Medium	Low
			I-205 to S. UPRR	5.20	0	0	0	0	0	Low	Low
			I-205 to Lathrop – northern	7.92	0	0	54.68	0	1	Low	Low
			Southwestern Manteca	1.91	284.03	0	0	0	0	Medium	Low
			Southeastern Manteca	1.05	617.39	0	0	0	0	High	High
			Eastern Manteca UPRR South to BNSF	5.27	1,737.80	0	0	0	0	Medium	Medium
			Manteca to Escaton Wye	2.54	29.12	0	0	0	0	Low	Low

Corridor	Possible Alignment Segments	Alignment	Segment	Total Segment (Miles)	Residential Population	Mixed Use Population	Parkland (Acres)	Hospitals	Schools	Noise Impact Rating	Vibration Impact Rating
	2 of 2	East Bay Connections	Niles to Union City – Niles Wye (E) to Niles Wye (N)	1.17	680.59	4.41	0	0	0	High	Low
			Niles to Fremont – Niles Wye (E) to Niles Wye (S)	0.60	773.15	0.09	0	0	0	High	High
Station Location Options											
Pleasanton (I-680/Bernal Rd)		Ratings are based on alignment alternative that station is on—Patterson Pass/UPRR								Medium	Medium
Pleasanton (BART)		Ratings are based on alignment alternative that station is on— I-680/ 580/UPRR								Low	Low
Livermore (Downtown)		Ratings are based on alignment alternative that station is on—Patterson Pass/UPRR								Medium	Medium
Livermore (I-580)		Ratings are based on alignment alternative that station is on— I-680/ 580/UPRR								Low	Low
Livermore (Greenville Road/UPRR)		Ratings are based on alignment alternative that station is on—Patterson Pass/UPRR								Medium	Medium
Livermore (Greenville Road/I-580)		Ratings are based on alignment alternative that station is on—I-680/ 580/UPRR								Low	Low
Tracy (Downtown)		Ratings are based on alignment alternative that station is on—Tracy Downtown (UPRR Connection)								Medium	Low
Tracy (ACE)		Ratings are based on alignment alternative that station is on—Tracy ACE Station (UPRR Connection)								Medium	Low
San Francisco Bay Crossings	1 of 2	Trans Bay Crossing – Transbay Transit Center	Transbay Transit Center tube to SF Bay	1.89	0	0	0	0	0	Low	Low
			SF Bay to West Oakland	4.87	0	0	0	0	0	Low	Low

Corridor	Possible Alignment Segments	Alignment	Segment	Total Segment (Miles)	Residential Population	Mixed Use Population	Parkland (Acres)	Hospitals	Schools	Noise Impact Rating	Vibration Impact Rating
		Trans Bay Crossing – 4th & King	4th/Townsend tube to SF Bay	1.63	0	0	0	0	0	Low	Low
			SF Bay to West Oakland	4.87	0	0	0	0	0	Low	Low
	1 of 6	Dumbarton (High Bridge)	Dumbarton Wye North to Caltrain	1.17	680.59	4.41	0	0	0	Medium	High
			Dumbarton Wye South to Caltrain	0.60	773.15	0.09	0	0	0	High	High
			Dumbarton Bay Crossing to Don Edwards	7.61	1,580.53	4.35	214.42	0	2	High	High
			Don Edwards to Shinn (Centerville Line)	6.82	3,187.07	0	70.95	0	2	High	Medium
			Shinn to Niles Wye (E)	2.37	626.29	0	80.71	0	0	High	High
		Dumbarton (Low Bridge)	Dumbarton Wye North to Caltrain	1.17	680.59	4.41	0	0	0	Medium	High
			Dumbarton Wye South to Caltrain	0.60	773.15	0.09	0	0	0	High	High
			Dumbarton Bay Crossing to Don Edwards	7.61	1,580.53	4.35	214.42	0	2	High	High
			Don Edwards to Shinn (Centerville Line)	6.82	3,187.07	0	70.95	0	2	High	Medium
			Shinn to Niles Wye (E)	2.37	626.29	0	80.71	0	0	High	High

Corridor	Possible Alignment Segments	Alignment	Segment	Total Segment (Miles)	Residential Population	Mixed Use Population	Parkland (Acres)	Hospitals	Schools	Noise Impact Rating	Vibration Impact Rating
		Dumbarton (Tube)	Dumbarton Wye North to Caltrain	1.17	680.59	4.41	0	0	0	Medium	High
			Dumbarton Wye South to Caltrain	0.60	773.15	0.09	0	0	0	High	High
			Dumbarton Bay Crossing to Don Edwards	7.61	1,580.53	4.35	214.42	0	2	High	High
			Don Edwards to Shinn (Centerville Line)	6.82	3,187.07	0	70.95	0	2	High	Medium
			Shinn to Niles Wye (E)	2.37	626.29	0	80.71	0	0	High	High
		Fremont Central Park (High Bridge)	Dumbarton Wye North to Caltrain	1.17	680.59	4.41	0	0	0	Medium	High
			Dumbarton Wye South to Caltrain	0.60	773.15	0.09	0	0		High	High
			Dumbarton Bay Crossing to Don Edwards	7.61	1,580.53	4.35	214.42	0	2	High	High
			Don Edwards to Niles (E) via Fremont Central Park	12.91	1,245.64	0	358.16	0	1	Medium	Medium
		Fremont Central Park (Low Bridge)	Dumbarton Wye North to Caltrain	1.17	680.59	4.41	0	0	0	Medium	High
			Dumbarton Wye South to Caltrain	0.60	773.15	0.09	0	0	0	High	High

Corridor	Possible Alignment Segments	Alignment	Segment	Total Segment (Miles)	Residential Population	Mixed Use Population	Parkland (Acres)	Hospitals	Schools	Noise Impact Rating	Vibration Impact Rating
			Dumbarton Bay Crossing to Don Edwards	7.61	1,580.53	4.35	214.42	0	2	High	High
			Don Edwards to Niles Wye (E) via Fremont Central Park	12.91	1,245.64	0	358.16	0	1	Medium	Medium
		Fremont Central Park (Tube)	Dumbarton Wye North to Caltrain	1.17	680.59	4.41	0	0	0	Medium	High
			Dumbarton Wye South to Caltrain	0.60	773.15	0.09	0	0	0	High	High
			Dumbarton Bay Crossing to Don Edwards	7.61	1,580.53	4.35	214.42	0	2	High	High
			Don Edwards to Niles Wye (E) via Fremont Central Park	12.91	1,245.64	0	358.16	0	1	Medium	Medium
Station Location Options											
Union City (Shinn)	Ratings are based on alignment alternative that station is on—Niles Junction to San Jose Via Trimble									Medium	Medium
Central Valley	1 of 6	BNSF – UPRR	North Stockton South to UPRR Connection	9.19	0.92	0	0	0	0	Low	Low
			BNSF Parallel to UPRR tracks	1.82	0	0	0	0	0	Low	Low
			Parallel tracks South through Escaton	8.29	587.32	0	0	0	0	Low	Low

Corridor	Possible Alignment Segments	Alignment	Segment	Total Segment (Miles)	Residential Population	Mixed Use Population	Parkland (Acres)	Hospitals	Schools	Noise Impact Rating	Vibration Impact Rating
			Escaton South to Amtak Briggsmore	6.44	0	0.27	0	0	2	Low	Low
			Amtrak Briggsmore to UPRR/BNSF Connection	23.59	874.91	51.70	0	0	1	Low	Low
			UPRR/BNSF Connection to Atwater	6.36	1,150.80	591.02	40.37	0	1	Medium	Low
			Atwater to Downtown Merced	4.68	197.62	143.55	83.56	0	0	Low	Low
			Merced South to BNSF Connection	4	975.75	108.95	0	1	0	Medium	Low
			BNSF Connection South to Henry Miller Wye	11	212.84	0	0	0	0	Low	Low
			BNSF Henry Miller Wye	10.89	0	0	0	0	0	Low	Low
		BNSF	North Stockton South to UPRR Connection	9.19	0.92	0	0	0	0	Low	Low
			BNSF Parallel to UPRR tracks	1.82	0	0	0	0	0	Low	Low
			Parallel tracks South through Escaton	8.29	587.32	0	0	0	0	Low	Low

Corridor	Possible Alignment Segments	Alignment	Segment	Total Segment (Miles)	Residential Population	Mixed Use Population	Parkland (Acres)	Hospitals	Schools	Noise Impact Rating	Vibration Impact Rating
			Escaton South to Amtak Briggsmore	6.44	0	0.27	0	0	2	Low	Low
			Amtrak Briggsmore to UPRR/BNSF Connection	23.59	874.91	51.70	0	0	1	Low	Low
			UPRR/BNSF Connection to Atwater	6.36	1,150.80	591.02	40.37	0	1	Medium	Low
			Atwater to Downtown Merced	4.68	197.62	143.55	83.56	0	0	Low	Low
			Merced South to UPRR Connection	4.58	1,202.53	111.30	0	0	0	Medium	Low
			UPRR Connection East to Castle Connection	11.23	419.04	0	1.64	0	0	Low	Low
			Castle Connection to Henry Miller Wye	8.44	154.31	154.31	0	0	0	Low	Low
			Henry Miller Wye	6.67	0	0	0	0	0	Low	Low
		UPRR	French Camp to Lathrop	5.59	267.94	0	149.78	0	0	Low	Low
			Lathrop through Manteca	6.08	3,730.12	0	24.85	0	1	Medium	High
			Manteca South to BNSF/UPRR	3.46	127.06	0	0	0	0	Low	Low

Corridor	Possible Alignment Segments	Alignment	Segment	Total Segment (Miles)	Residential Population	Mixed Use Population	Parkland (Acres)	Hospitals	Schools	Noise Impact Rating	Vibration Impact Rating
			BNSF/UPRR South to Modesto	9.81	373.50	196.61	0	0	0	Low	Low
			UPRR Modesto South – Western Option	2.64	315.18	37.06	0	0	0	Medium	Low
			South Modesto to BNSF Connection	13.08	412.73	261.5	0	1	1	Low	Low
			BNSF Connection South to Merced	20.18	986.73	261.5	0	0	0	Low	Low
			Merced South to BNSF Connection	4.35	975.75	108.95	0	1	0	Medium	Low
			BNSF Connection South to Henry Miller Wye	11.17	212.84	0	0	0	0	Low	Low
			BNSF Henry Miller Wye	10.89	0	0	0	0	0	Low	Low
		BNSF Castle	North Stockton South to UPRR Connection	9.19	0.92	0	0	0	0	Low	Low
			BNSF Parallel to UPRR tracks	1.82	0	0	0	0	0	Low	Low
			Parallel tracks South through Escaton	8.29	587.32	0	0	0	0	Low	Low
			Escaton South to Amtak Briggsmore	6.44	0	0.27	0	0	2	Low	Low

Corridor	Possible Alignment Segments	Alignment	Segment	Total Segment (Miles)	Residential Population	Mixed Use Population	Parkland (Acres)	Hospitals	Schools	Noise Impact Rating	Vibration Impact Rating
			Amtrak Briggsmore to UPRR/BNSF Connection	23.59	874.91	51.70	0	0	1	Low	Low
			From BNSF southeast to Castle AFB	6.14	3.09	3.09	114.69	0	0	Low	Low
			Castle AFB South to BNSF connect	4.10	68.07	67.94	374.77	0	0	Low	Low
			BNSF South of Castle to UPRR Connect	16.80	5,909.88	1,559.8	4.87	0	4	Medium	Medium
			Castle Connection to Henry Miller Wye	8.44	154.31	154.31	0	0	0	Low	Low
			Henry Miller Wye	6.67	0	0	0	0	0	Low	Low
		UPRR – BNSF Castle	French Camp to Lathrop	5.59	267.94	0	149.78	0	0	Low	Low
			Lathrop through Manteca	6.08	3,730.12	0	24.85	0	1	Medium	High
			Manteca South to BNSF/UPRR	3.46	127.06	0	0	0	0	Low	Low
			BNSF/UPRR South to Modesto	9.81	373.50	196.6	0	0	0	Low	Low
			UPRR Modesto South – Western Option	2.64	315.18	37.06	0	0	0	Medium	Low
			South Modesto to BNSF Connection	13.08	412.73	261.5	0	1	1	Low	Low

Corridor	Possible Alignment Segments	Alignment	Segment	Total Segment (Miles)	Residential Population	Mixed Use Population	Parkland (Acres)	Hospitals	Schools	Noise Impact Rating	Vibration Impact Rating
			North South Connection East of Stockton (South Portion)	9.51	1.40	2.78	0	0	0	Low	Low
			From BNSF southeast to Castle AFB	6.14	3.09	3.09	114.69	0	0	Low	Low
			Castle AFB South to BNSF Connection	4.10	68.07	67.94	374.77	0	0	Low	Low
			BNSF South of Castle to UPRR Connection	16.80	5,909.88	1,560	4.87	0	4	Medium	Medium
			Castle Connection to Henry Miller Wye	8.44	154.31	154.3	0	0	0	Low	Low
			Henry Miller Wye	6.67	0	0	0	0	0	Low	Low
		UPRR – BNSF	French Camp to Lathrop	5.59	267.94	0	149.78	0	0	Low	Low
			Lathrop through Manteca	6.08	3,730.12	0	24.85	0	1	Medium	High
			Manteca South to BNSF/UPRR	3.46	127.06	0	0	0	0	Low	Low
			BNSF/UPRR South to Modesto	9.81	373.50	196.6	0	0	0	Low	Low
			UPRR Modesto South – Western Option	2.64	315.18	37.06	0	0	0	Medium	Low

Corridor	Possible Alignment Segments	Alignment	Segment	Total Segment (Miles)	Residential Population	Mixed Use Population	Parkland (Acres)	Hospitals	Schools	Noise Impact Rating	Vibration Impact Rating
			South Modesto to BNSF Connection	13.08	412.73	261.5	0	1	1	Low	Low
			BNSF crossing to UPRR – Southeast of Turlock	9.51	1.40	2.78	0	0	0	Low	Low
			UPRR/BNSF Connection to Atwater	6.36	1,150.80	591.0	40.37	0	1	Medium	Low
			Atwater to Downtown Merced	4.68	197.62	143.6	83.56	0	0	Low	Low
			Merced South to BNSF Connection	4.35	975.75	108.9	0	1	0	Medium	Low
			BNSF Connection South to Henry Miller Wye	11.17	212.84	0	0	0	0	Low	Low
			BNSF Henry Miller Wye	10.89	0	0	0	0	0	Low	Low
Station Location Options											
Modesto (Downtown)		Ratings are based on alignment alternative that station is on—UPRR N/S								Medium	Low
Briggsmore (Amtrak)		Ratings are based on alignment alternative that station is on—BNSF								Low	Low
Merced (Downtown)		Ratings are based on alignment alternative that station is on—UPRR-BNSF Castle								Medium	Low
Castle AFB		Ratings are based on alignment alternative that station is on—BNSF Castle								Medium	Low

APPENDIX 3.7-A

DATA TABLE

Appendix 3.7-A. Land Use and Planning Data Table for Alignment Alternatives and Station Location Option Comparisons

Corridor	Possible Alignment	Alignment Alternative	Segment	Land Use Compatibility (H,M,L)	Community Cohesion Impacts (Y/N)	Potential for Property Impacts	Environmental Justice Impacts (H,M,L)
San Francisco to San Jose: Caltrain	1 of 1	San Francisco to Dumbarton	Transbay Transit Center to 4th/Townsend	H	N	M–H	N
			4th/Townsend to Millbrae/SFO	H	N	H	M
			Millbrae/SFO to Redwood City	H	N	L	M
			Redwood City to Caltrain	H	N	L	M
	1 of 1	Dumbarton to San Jose	Caltrain Dumbarton Wye	H	N	L	M
			Dumbarton Wye to Palo Alto	H	N	L	M
			Palo Alto to Santa Clara	H	N	L	M
			Santa Clara to Diridon Station	H	N	L	M
Station Location Options							
Transbay Transit Center				H	N	L	L
4th and King (Caltrain)				H	N	L	L
Millbrae/SFO				H	N	L	L
Redwood City (Caltrain)				H	N	L	L
Palo Alto (Caltrain)				H	N	L	L
Oakland to San Jose: Niles/ I-880	1 of 2	West Oakland to Niles Junction	West Oakland to Jack London Square	H	N	L	M
			Jack London Square to Oakland Coliseum	H	N	L	M
			Oakland Coliseum to Union City (BART)	H	N	L	M
			Union City (BART) to Niles Junction	H	N	L	M

Corridor	Possible Alignment	Alignment Alternative	Segment	Land Use Compatibility (H,M,L)	Community Cohesion Impacts (Y/N)	Potential for Property Impacts	Environmental Justice Impacts (H,M,L)
		12th Street/City Center to Niles Junction	12th Street/City Center to Jack London Square Niles /I-880-1B	H	N	L	M
			Jack London Square to Oakland Coliseum	H	N	L	M
			Oakland Coliseum to Union City (BART)	H	N	L	M
			Union City (BART) to Niles Junction	H	N	L	M
	1 of 2	Niles Junction to San Jose via Trimble	Niles Junction to Niles Wye (S)	H	N	L	M
			Niles Wye (S) to Warm Springs	H	N	L	M
			Warm Springs to Trimble Rd.	H	N	L	M
			Trimble Rd. Option	H	N	L	M
			Santa Clara to Diridon Station	H	N	L	M
		Niles Junction to San Jose via I-880	Niles Junction to Niles Wye (S)	H	N	L	M
			Niles Wye (S) to Warm Springs	H	N	L	M
			Warm Springs to Trimble Rd.	H	N	L	M
			I-880 – Trimble Rd. to Diridon	H	N	L	M
Station Location Options							
West Oakland/7th Street				H	N	L	M
12th Street/City Center				H	N	L	M

Corridor	Possible Alignment	Alignment Alternative	Segment	Land Use Compatibility (H,M,L)	Community Cohesion Impacts (Y/N)	Potential for Property Impacts	Environmental Justice Impacts (H,M,L)
Coliseum/Airport				H	N	L	M
Union City (BART)				H	N	L	M
Fremont (Warm Springs)				H	N	L	H
San Jose to Central Valley: Pacheco Pass	1 of 1	Pacheco	Diridon to Morgan Hill	H	N	L	M
			Morgan Hill to Gilroy	H	N	L	M
			Gilroy to San Luis Reservoir	H	N	L	H
	1 of 3	Henry Miller (UPRR Connection)	San Luis Reservoir to Valley Floor	H	N	L	L
			Western Valley to Henry Miller UP Wye	H	N	L	L
			Henry Miller UP North Wye to UP South Wye	L	N	H	L
			Henry Miller Wye North to UPRR	L	N	L	L
			Henry Miller Wye South to UPRR	L	N	H	L
		Henry Miller (BNSF Connection)	San Luis Reservoir to Valley Floor	L	N	L	L
			Western Valley to Henry Miller UP Wye	L	N	L	L
			Henry Miller UP North Wye to UP South Wye	L	N	L	L
			Henry Miller UP South Wye to BNSF Wyes	L	N	L	L
			Henry Miller Wye North to BNSF	L	N	L	L
			Henry Miller Wye South to BNSF	L	N	L	L
		GEA North	San Luis Reservoir to Atwater Wye	L	N	L	L

Corridor	Possible Alignment	Alignment Alternative	Segment	Land Use Compatibility (H,M,L)	Community Cohesion Impacts (Y/N)	Potential for Property Impacts	Environmental Justice Impacts (H,M,L)
			GEA Atwater Wye North to BNSF	L	N	M	L
			GEA Atwater Wye South to Merced UP	L	N	M	L
Station Location Options							
San Jose (Diridon)				H	N	L	L
Morgan Hill (Caltrain)				H	N	L	L
Gilroy (Caltrain)				M	N	L	M
East Bay to Central Valley: Altamont Pass	1 of 4	I-680/ 580/UPRR	Niles Canyon to Sunol	H	N	H	L
			Sunol to Dublin/Pleasanton BART	H	N	H	L
			Dublin/Pleasanton BART to El Charo Road	H	N	H	L
			El Charo Road to Livermore (I-580)	H	N	L	L
			Livermore (I-580) to Greenville	H	N	M–H	L
			Greenville to Altamont Pass	H	N	L	L
			Altamont Pass to County Line	H	N	L	L
		I-580/ UPRR	Niles Canyon to Sunol	H	N	M	L
			Sunol to Pleasanton	H	N	M	L
			Pleasanton to El Charo	H	N	M	L
			UPRR to I-580 connector	H	N	M	L
			El Charo Road to Livermore (I-580)	H	N	M	L
			Livermore (I-580) to Greenville	H	N	M	L
			Greenville to Altamont Pass	M	N	M	L

Corridor	Possible Alignment	Alignment Alternative	Segment	Land Use Compatibility (H,M,L)	Community Cohesion Impacts (Y/N)	Potential for Property Impacts	Environmental Justice Impacts (H,M,L)
			Altamont Pass to County Line	M	N	M	L
		Patterson Pass/UPRR	Niles Canyon to Sunol	H	N	M	L
			Sunol to Pleasanton	H	N	M	L
			Pleasonton to El Charo	H	N	M	L
			El Charo to Livermore	H	N	L	L
			Livermore to Patterson Pass cut off	H	N	M	L
			Patterson Pass	L	N	L	L
		UPRR	Niles Canyon to Sunol	H	N	M	L
			Sunol to Pleasanton	H	N	M	L
			Pleasonton to El Charo	H	N	M	L
			El Charo to Livermore	H	N	L	L
			Livermore to Patterson Pass cut off	H	N	M	L
			Patterson Pass cut off to Greenville	L	N	M	L
			Greenville to Altamont Pass	L	N	L	L
			Altamont Pass to County Line	L	N	L	L
	1 of 4	Tracy Downtown (BNSF Connection)	County Line to Tracy Downtown	H	N	M	L
			Tracy Downtown to I-205	H	N	M	L
			I-205 to S. UPRR	H	N	M	L
			I-205 to Lathrop – northern	H	N	M	L
			Southwestern Manteca	M	N	M	L
			Southeastern Manteca	M	N	M	L
			Northern Escaton Wye to BNSF	M	N	M	L

Corridor	Possible Alignment	Alignment Alternative	Segment	Land Use Compatibility (H,M,L)	Community Cohesion Impacts (Y/N)	Potential for Property Impacts	Environmental Justice Impacts (H,M,L)
			Southern Escaton Wye to BNSF (part 1)	M	N	M	L
			Southern Escaton Wye to BNSF (part 2)	M	N	M	L
		Tracy ACE Station (BNSF Connection)	County Line to South of Tracy	H	N	L–M	L
			South of Tracy to Tracy ACE Station	M	N	L	L
			Tracy ACE Station to I-205	M	N	L	L
			I-205 to Southeast of Manteca	M	N	L–M	L
			I-205 to Lathrop – Southern	H	N	L–M	L
			Southwestern Manteca	M	N	M	L
			Southeastern Manteca	M	N	M	L
			Northern Escaton Wye to BNSF	M	N	M	L
			Southern Escaton Wye to BNSF (part 1)	M	N	M	L
			Southern Escaton Wye to BNSF (part 2)	M	N	M	L
		Tracy ACE Station (UPRR Connection)	County Line to South of Tracy	H	N	L–M	L
			South of Tracy to Tracy ACE Station	M	N	L	L
			Tracy ACE Station to I-205	M	N	L	L
			I-205 to Southeast of Manteca	M	N	L–M	L
			Southwestern Manteca	M	N	M	L
			Southeastern Manteca	M	N	M	L
			Eastern Manteca UPRR South to BNSF	M	N	M	L

Corridor	Possible Alignment	Alignment Alternative	Segment	Land Use Compatibility (H,M,L)	Community Cohesion Impacts (Y/N)	Potential for Property Impacts	Environmental Justice Impacts (H,M,L)
			Manteca to Escaton Wye	M	N	H	L
		Tracy Downtown (UPRR Connection)	County Line to Tracy Downtown	H	N	M	L
			Tracy Downtown to I-205	H	N	M	L
			I-205 to S. UPRR	H	N	M	L
			I-205 to Lathrop – northern	H	N	M	L
			Southwestern Manteca	M	N	M	L
			Southeastern Manteca	M	N	M	L
			Eastern Manteca UPRR South to BNSF	M	N	M	L
			Manteca to Escaton Wye	M	N	H	L
	2 of 2	East Bay Connections	Niles to Union City – Niles Wye (E) to Niles Wye (N)	H	N	L	M
			Niles to Fremont – Niles Wye (E) to Niles Wye (S)	H	N	L	M
Station Location Options							
Pleasanton (I-680/Bernal Rd)				L–M	N	L	L
Pleasanton (BART)				H	N	L	L
Livermore (Downtown)				H	N	L	L
Livermore (I-580)				H	N	L	L
Livermore (Greenville Road/UPRR)				M	N	L–M	L
Livermore (Greenville Road/I-580)				M	N	L	L
Tracy (Downtown)				H	N	L	L
Tracy (ACE)				M	N	M	L

Corridor	Possible Alignment	Alignment Alternative	Segment	Land Use Compatibility (H,M,L)	Community Cohesion Impacts (Y/N)	Potential for Property Impacts	Environmental Justice Impacts (H,M,L)
San Francisco Bay Crossings	1 of 2	Trans Bay Crossing – Transbay Transit Center	Transbay Transit Center tube to SF Bay	H	N	M–H	M
			SF Bay to West Oakland	H	N	M–H	M
		Trans Bay Crossing – 4th & King	4th/Townsend tube to SF Bay	H	N	M–H	M
			SF Bay to West Oakland	H	N	M–H	M
	1 of 6	Dumbarton (High Bridge)	Dumbarton Wye North to Caltrain	H	N	M	M
			Dumbarton Wye South to Caltrain	H	N	M	M
			Dumbarton Bay Crossing to Don Edwards	M	N	M	M
			Don Edwards to Shinn (Centerville Line)	M	N	M	M
			Shinn to Niles Wye (E)	M	N	M	M
		Dumbarton (Low Bridge)	Dumbarton Wye North to Caltrain	H	N	M	M
			Dumbarton Wye South to Caltrain	H	N	M	M
			Dumbarton Bay Crossing to Don Edwards	M	N	M	M
			Don Edwards to Shinn (Centerville Line)	M	N	M	M
			Shinn to Niles Wye (E)	M	N	M	M
		Dumbarton (Tube)	Dumbarton Wye North to Caltrain	H	N	M	M
			Dumbarton Wye South to Caltrain	H	N	M	M
			Dumbarton Bay Crossing to Don Edwards	M	N	M	M

Corridor	Possible Alignment	Alignment Alternative	Segment	Land Use Compatibility (H,M,L)	Community Cohesion Impacts (Y/N)	Potential for Property Impacts	Environmental Justice Impacts (H,M,L)
			Don Edwards to Shinn (Centerville Line)	M	N	M	M
			Shinn to Niles Wye (E)	M	N	M	M
		Fremont Central Park (High Bridge)	Dumbarton Wye North to Caltrain	H	N	M	M
			Dumbarton Wye South to Caltrain	H	N	M	M
			Dumbarton Bay Crossing to Don Edwards	M	N	M	M
			Don Edwards to Niles (E) via Fremont Central Park	L	N	H	M
		Fremont Central Park (Low Bridge)	Dumbarton Wye North to Caltrain	H	N	M	M
			Dumbarton Wye South to Caltrain	H	N	M	M
			Dumbarton Bay Crossing to Don Edwards	M	N	M	M
			Don Edwards to Niles Wye (E) via Fremont Central Park	L	N	H	M
		Fremont Central Park (Tube)	Dumbarton Wye North to Caltrain	H	N	M	M
			Dumbarton Wye South to Caltrain	H	N	M	M
			Dumbarton Bay Crossing to Don Edwards	M	N	M	M
			Don Edwards to Niles Wye (E) via Fremont Central Park	L	N	H	M

Corridor	Possible Alignment	Alignment Alternative	Segment	Land Use Compatibility (H,M,L)	Community Cohesion Impacts (Y/N)	Potential for Property Impacts	Environmental Justice Impacts (H,M,L)
Station Location Options							
Union City (Shinn)				M	N	M	H
Central Valley	1 of 6	BNSF – UPRR	North Stockton South to UPRR Connection	M	N	L	M
			BNSF Parallel to UPRR tracks	M	N	L	M
			Parallel tracks South through Escaton	M	N	L	M
			Escaton South to Amtak Briggsmore	M	N	L–M	L
			Amtrak Briggsmore to UPRR/BNSF Connection	M	N	L–M	L
			UPRR/BNSF Connection to Atwater	M	N	L	L
			Atwater to Downtown Merced	M	N	L	M
			Merced South to BNSF Connection	M	N	L	M
			BNSF Connection South to Henry Miller Wye	M	N	L	M
			BNSF Henry Miller Wye UPRR N/S-10	M	N	L	M
		BNSF	North Stockton South to UPRR Connection	M	N	L	M
			BNSF Parallel to UPRR tracks	M	N	L	M
			Parallel tracks South through Escaton	M	N	L	M
			Escaton South to Amtak Briggsmore	M	N	L–M	L
			Amtrak Briggsmore to UPRR/BNSF Connection	M	N	L–M	L

Corridor	Possible Alignment	Alignment Alternative	Segment	Land Use Compatibility (H,M,L)	Community Cohesion Impacts (Y/N)	Potential for Property Impacts	Environmental Justice Impacts (H,M,L)
			UPRR/BNSF Connection to Atwater	M	N	L	L
			Atwater to Downtown Merced	M	N	L	M
			Merced South to UPRR Connection	M	N	L	M
			UPRR Connection East to Castle Connection	M	N	L	M
			Castle Connection to Henry Miller Wye	M	N	L	M
			Henry Miller Wye	M	N	L	M
		UPRR N/S	French Camp to Lathrop	M	N	L–M	M
			Lathrop through Manteca	M	N	L–M	L
			Manteca South to BNSF/UPRR	H	N	M	L
			BNSF/UPRR South to Modesto	H	N	M	L
			UPRR Modesto South – Western Option	M	N	M	M
			South Modesto to BNSF Connection	M	N	L–M	M
			BNSF Connection South to Merced	M	N	L–M	M
			Merced South to BNSF Connection	M	N	M	M
			BNSF Connection South to Henry Miller Wye	H	N	L	M
			BNSF Henry Miller Wy	H	N	L	M
		BNSF Castle	North Stockton South to UPRR Connection	M	N	L	M
			BNSF Parallel to UPRR tracks	M	N	L	M

Corridor	Possible Alignment	Alignment Alternative	Segment	Land Use Compatibility (H,M,L)	Community Cohesion Impacts (Y/N)	Potential for Property Impacts	Environmental Justice Impacts (H,M,L)
			Parallel tracks South through Escaton	M	N	L	M
			Escaton South to Amtak Briggsmore	M	N	L–M	L
			Amtrak Briggsmore to UPRR/BNSF Connection	M	N	L–M	L
			From BNSF southeast to Castle AFB	M	N	L–M	H
			Castle AFB South to BNSF connect	M	N	L–M	H
			BNSF South of Castle to UPRR Connect	M	N	L–M	H
			Castle Connection to Henry Miller Wye	M	N	L	M
			Henry Miller Wye	M	N	L	M
		UPRR – BNSF Castle	French Camp to Lathrop	M	N	L–M	M
			Lathrop through Manteca	M	N	L–M	L
			Manteca South to BNSF/UPRR	H	N	M	L
			BNSF/UPRR South to Modesto	H	N	M	L
			UPRR Modesto South – Western Option	M	N	M	M
			South Modesto to BNSF Connection	M	N	L–M	M
			North South Connection East of Stockton (South Portion)	M	N	M	L
			From BNSF southeast to Castle AFB	M	N	L–M	H
			Castle AFB South to BNSF Connection	M	N	L–M	H

Corridor	Possible Alignment	Alignment Alternative	Segment	Land Use Compatibility (H,M,L)	Community Cohesion Impacts (Y/N)	Potential for Property Impacts	Environmental Justice Impacts (H,M,L)
			BNSF South of Castle to UPRR Connection	M	N	L–M	H
			Castle Connection to Henry Miller Wye	M	N	L	M
			Henry Miller Wye	M	N	L	M
		UPRR – BNSF	French Camp to Lathrop	M	N	L–M	M
			Lathrop through Manteca	M	N	L–M	L
			Manteca South to BNSF/UPRR	H	N	M	L
			BNSF/UPRR South to Modesto	H	N	M	L
			UPRR Modesto South – Western Option	M	N	M	M
			South Modesto to BNSF Connection	M	N	L–M	M
			BNSF crossing to UPRR – Southeast of Turlock	M	N	M	L
			UPRR/BNSF Connection to Atwater	M	N	L	L
			Atwater to Downtown Merced	M	N	L	M
			Merced South to BNSF Connection	M	N	L	M
			BNSF Connection South to Henry Miller Wye	M	N	L	M
			BNSF Henry Miller Wye	M	N	M	M

Corridor	Possible Alignment	Alignment Alternative	Segment	Land Use Compatibility (H,M,L)	Community Cohesion Impacts (Y/N)	Potential for Property Impacts	Environmental Justice Impacts (H,M,L)
Station Location Options							
Modesto (Downtown)				H	N	M	L
Briggsmore (Amtrak)				L	N	L	L
Merced (Downtown)				M	N	M	H
Castle ARB				M	N	L	H

APPENDIX 3.8-A

DATA TABLE

Appendix 3.8-A. Farmland Data Table for Alignment Alternatives and Station Location Option Comparisons

Corridor	Possible Alignment	Alignment Alternative	Segment	Prime Farmland (acres)	Farmland of Statewide Importance (acres)	Unique Farmland (acres)	Farmland of Local Importance (acres)	Total Acres
San Francisco to San Jose: Caltrain	1 of 1	San Francisco to Dumbarton	Transbay Transit Center to 4th/Townsend	0	0	0	0	0
			4th/Townsend to Millbrae/SFO	0	0	0	0	0
			Millbrae/SFO to Redwood City	0	0	0	0	0
			Redwood City to Caltrain	0	0	0	0	0
	1 of 1	Dumbarton to San Jose	Caltrain Dumbarton Wye	0	0	0	0	0
			Dumbarton Wye to Palo Alto	0	0	0	0	0
			Palo Alto to Santa Clara	0	0	0	0	0
			Santa Clara to Diridon Station	0	0	0	0	0
Station Location Options								
Transbay Transit Center				0	0	0	0	0
4th and King (Caltrain)				0	0	0	0	0
Millbrae/SFO				0	0	0	0	0
Redwood City (Caltrain)				0	0	0	0	0
Palo Alto (Caltrain)				0	0	0	0	0
Oakland to San Jose: Niles/I-880	1 of 2	West Oakland to Niles Junction	West Oakland to Jack London Square	0	0	0	0	0
			Jack London Square to Oakland Coliseum	0	0	0	0	0
			Oakland Coliseum to Union City (BART)	0	0	0	0	0

Corridor	Possible Alignment	Alignment Alternative	Segment	Prime Farmland (acres)	Farmland of Statewide Importance (acres)	Unique Farmland (acres)	Farmland of Local Importance (acres)	Total Acres
			Union City (BART) to Niles Junction	0	0	0	0	0
		12th Street/City Center to Niles Junction	12th Street/City Center to Jack London Square	0	0	0	0	0
			Jack London Square to Oakland Coliseum	0	0	0	0	0
			Oakland Coliseum to Union City (BART)	0	0	0	0	0
			Union City (BART) to Niles Junction	0	0	0	0	0
	1 of 2	Niles Junction to San Jose via Trimble	Niles Junction to Niles Wye (S)	0	0	0	0	0
			Niles Wye (S) to Warm Springs	6.42	0	0	0	6.42
			Trimble Rd. Option	0	0	0	0	0
			Santa Clara to Diridon Station	0	0	0	0	0
		Niles Junction to San Jose via I-880	Niles Junction to Niles Wye (S)	0	0	0	0	0
			Niles Wye (S) to Warm Springs	6.42	0	0	0	6.42
			I-880—Trimble Rd. to Diridon	0	0	0	0	0
Station Location Options								
West Oakland/7th Street				0	0	0	0	0
12th Street/City Center				0	0	0	0	0
Coliseum/Airport				0	0	0	0	0

Corridor	Possible Alignment	Alignment Alternative	Segment	Prime Farmland (acres)	Farmland of Statewide Importance (acres)	Unique Farmland (acres)	Farmland of Local Importance (acres)	Total Acres
Union City (BART)				0	0	0	0	0
Fremont (Warm Springs)				0	0	0	0	0
San Jose to Central Valley: Pacheco Pass	1 of 1	Pacheco	Diridon to Morgan Hill	92.11	3.17	0	0	95.28
			Morgan Hill to Gilroy	31.03	15.77	0	2.38	49.18
			Gilroy to San Luis Reservoir	52.88	37.26	0	6.39	96.53
	1 of 3	Henry Miller (UPRR Connection)	San Luis Reservoir to Valley Floor	15.25	0	0	5.81	21.06
			Western Valley to Henry Miller UP Wye	102.00	39.59	21.28	14.95	177.82
			Henry Miller UP North Wye to UP South Wye	2.75	33.02	20.73	0	56.51
			Henry Miller Wye North to UPRR	29.41	35.11	15.38	0	79.89
			Henry Miller Wye South to UPRR	5.03	3.75	0.01	8.30	17.10
		Henry Miller (BNSF Connection)	San Luis Reservoir to Valley Floor	15.25	0	0	5.81	21.06
			Western Valley to Henry Miller UP Wye	102.00	39.59	21.28	14.95	177.82
			Henry Miller UP North Wye to UP South Wye	2.75	33.02	20.73	0	56.51
			Henry Miller UP South Wye to BNSF Wyes	3.39	3.96	11.25	0.40	19.00
			Henry Miller Wye North to BNSF	19.81	0	31.85	12.33	63.99
			Henry Miller Wye South to BNSF	13.56	0	48.42	10.23	72.21

Corridor	Possible Alignment	Alignment Alternative	Segment	Prime Farmland (acres)	Farmland of Statewide Importance (acres)	Unique Farmland (acres)	Farmland of Local Importance (acres)	Total Acres
		GEA North	San Luis Reservoir to GEA Wye	45.21	38.45	6.49	14.46	104.62
			GEA Wye to Atwater	8.75	24.17	3.53	0	36.45
			Atwater to BNSF	14.89	11.54	1.09	1.87	29.40
			GEA Wye to Arena (SR-99)	27.65	17.60	0.32	0	45.57
			Arena (SR-99) to Ballico West	18.92	6.51	0.73	0	26.16
			Arena (SR-99) to Ballico North	21.43	7.29	0	0	28.72
Station Location Options								
San Jose (Diridon)				0	0	0	0	0
Morgan Hill (Caltrain)				0	0	0	0	0
Gilroy (Caltrain)				0	0	0	0	0
East Bay to Central Valley: Altamont Pass	1 of 4	I-680/ 580/UPRR	Niles Canyon to Sunol	0	0	0	0	0
			Sunol to Dublin/Pleasanton BART	11.68	1.89	0	0	13.57
			Dublin/Pleasanton BART to El Charo Road	0	0	0	0	0
			El Charo Road to Livermore (I-580)	0	0	0	0	0
			Livermore (I-580) to Greenville	0	0	0	0	0
			Greenville to Altamont Pass	0	0	0	0	0
			Altamont Pass to County Line	0	0	0	0	0
		I-580/ UPRR	Niles Canyon to Sunol	0	0	0	0	0
			Sunol to Pleasanton	7.05	0	0	0	7.05

Corridor	Possible Alignment	Alignment Alternative	Segment	Prime Farmland (acres)	Farmland of Statewide Importance (acres)	Unique Farmland (acres)	Farmland of Local Importance (acres)	Total Acres
			Pleasanton to El Charo	0	0	0	0	0
			UPRR to I-580 connector	5.09	0	0	0	5.09
			El Charo Road to Livermore (I-580)	0	0	0	0	0
			Livermore (I-580) to Greenville	0	0	0	0	0
			Greenville to Altamont Pass	0	0	0	0	0
			Altamont Pass to County Line	0	0	0	0	0
		Patterson Pass/UPRR	Niles Canyon to Sunol	0	0	0	0	0
			Sunol to Pleasanton	7.05	0	0	0	7.05
			Pleasonton to El Charo	0	0	0	0	0
			El Charo to Livermore	0	0	0	0	0
			Livermore to Patterson Pass cut off	0	0	0	0	0
			Patterson Pass	0	0	0	2.47	2.47
		UPRR	Niles Canyon to Sunol	0	0	0	0	0
			Sunol to Pleasanton	7.05	0	0	0	7.05
			Pleasonton to El Charo	0	0	0	0	0
			El Charo to Livermore	0	0	0	0	0
			Livermore to Patterson Pass cut off	0	0	0	0	0
			Patterson Pass cut off to Greenville	0	0	0	0	0
			Greenville to Altamont Pass UPRR-8	0	0	0	0	0

Corridor	Possible Alignment	Alignment Alternative	Segment	Prime Farmland (acres)	Farmland of Statewide Importance (acres)	Unique Farmland (acres)	Farmland of Local Importance (acres)	Total Acres
			Altamont Pass to County Line UPRR-9	0	0	0	0	0
	1 of 4	Tracy Downtown (BNSF Connection)	County Line to Tracy Downtown	25.21	0	0	9.07	34.28
			Tracy Downtown to I-205	17.30	0	7.99	0	25.29
			I-205 to S. UPRR	47.31	6.68	0	0	53.99
			I-205 to Lathrop—northern	47.26	8.95	0.09	4.71	61.01
			Southwestern Manteca	6.29	9.14	0	0	15.43
			Southeastern Manteca	0	0	0	0	0
			Northern Escaton Wye to BNSF	0.28	45.01	0	0	45.29
			Southern Escaton Wye to BNSF (part 1)	22.46	89.22	0	0.83	112.51
			Southern Escaton Wye to BNSF (part 2)	37.57	40.81	17.20	2.51	98.09
		Tracy ACE Station (BNSF Connection)	County Line to South of Tracy	0	0	0	2.89	2.89
			South of Tracy to Tracy ACE Station	9.91	0	0	25.64	35.55
			Tracy ACE Station to I-205	48.76	0	0	0	48.76
			I-205 to Southeast of Manteca	13.78	6.97	0	5.77	26.52
			I-205 to Lathrop—Southern	23.02	15.67	0	17.81	56.49
			Southwestern Manteca	6.29	9.14	0	0	15.43
			Southeastern Manteca	0	0	0	0	0

Corridor	Possible Alignment	Alignment Alternative	Segment	Prime Farmland (acres)	Farmland of Statewide Importance (acres)	Unique Farmland (acres)	Farmland of Local Importance (acres)	Total Acres
			Northern Escaton Wye to BNSF	0.28	45.01	0	0	45.29
			Southern Escaton Wye to BNSF (part 1)	22.46	89.22	0	0.83	112.51
			Southern Escaton Wye to BNSF (part 2)	37.57	40.81	17.20	2.51	98.09
		Tracy ACE Station (UPRR Connection)	County Line to South of Tracy	0	0	0	2.89	2.89
			South of Tracy to Tracy ACE Station	9.91	0	0	25.64	35.55
			Tracy ACE Station to I-205	48.76	0	0	0	48.76
			I-205 to Southeast of Manteca	13.78	6.97	0	5.77	26.52
			Southwestern Manteca	6.29	9.14	0	0	15.43
			Southeastern Manteca	0	0	0	0	0
			Eastern Manteca UPRR South to BNSF	7.28	20.69	0	0.87	28.84
			Manteca to Escaton Wye	1.03	22.67	0	0	23.70
		Tracy Downtown (UPRR Connection)	County Line to Tracy Downtown	25.21	0	0	9.07	34.28
			Tracy Downtown to I-205	17.30	0	7.99	0	25.29
			I-205 to S. UPRR	47.31	6.68	0	0	53.99
			I-205 to Lathrop—northern	47.26	8.95	0.09	4.71	61.01
			Southwestern Manteca	6.29	9.14	0	0	15.43
			Southeastern Manteca	0	0	0	0	0

Corridor	Possible Alignment	Alignment Alternative	Segment	Prime Farmland (acres)	Farmland of Statewide Importance (acres)	Unique Farmland (acres)	Farmland of Local Importance (acres)	Total Acres
			Eastern Manteca UPRR South to BNSF	7.28	20.69	0	0.87	28.84
			Manteca to Escaton Wye	1.03	22.67	0	0	23.70
	2 of 2	East Bay Connections	Niles to Union City—Niles Wye (E) to Niles Wye (N)	0	0	0	0	0
			Niles to Fremont—Niles Wye (E) to Niles Wye (S)	0	0	0	0	0
Station Location Options								
Pleasanton (I-680/Bernal Rd)				0	0	0	0	0
Pleasanton (BART)				0	0	0	0	0
Livermore (Downtown)				0	0	0	0	0
Livermore (I-580)				0	0	0	0	0
Livermore (Greenville Road/UPRR)				0	0	0	0	0
Livermore (Greenville Road/I-580)				0	0	0	0	0
Tracy (Downtown)				0	0	0	0	0
Tracy (ACE)				0	0	0	0	0
San Francisco Bay Crossings	1 of 2	Trans Bay Crossing—Transbay Center	Transbay Transit Center tube to SF Bay	0	0	0	0	0
			SF Bay to West Oakland	0	0	0	0	0
		Trans Bay Crossing—4th & King	4th/Townsend tube to SF Bay	0	0	0	0	0
			SF Bay to West Oakland	0	0	0	0	0
	1 of 6	Dumbarton (High Bridge)	Dumbarton Wye North to Caltrain	0	0	0	0	0
			Dumbarton Wye South to Caltrain	0	0	0	0	0

Corridor	Possible Alignment	Alignment Alternative	Segment	Prime Farmland (acres)	Farmland of Statewide Importance (acres)	Unique Farmland (acres)	Farmland of Local Importance (acres)	Total Acres
			Dumbarton Bay Crossing to Don Edwards	0	0	0	0	0
			Don Edwards to Shinn (Centerville Line)	2.33	0	0	0	2.33
			Shinn to Niles Wye (E)	0	0	0	0	0
		Dumbarton (Low Bridge)	Dumbarton Wye North to Caltrain	0	0	0	0	0
			Dumbarton Wye South to Caltrain	0	0	0	0	0
			Dumbarton Bay Crossing to Don Edwards	0	0	0	0	0
			Don Edwards to Shinn (Centerville Line)	2.33	0	0	0	2.33
			Shinn to Niles Wye (E)	0	0	0	0	0
		Dumbarton (Tube)	Dumbarton Wye North to Caltrain	0	0	0	0	0
			Dumbarton Wye South to Caltrain	0	0	0	0	0
			Dumbarton Bay Crossing to Don Edwards	0	0	0	0	0
			Don Edwards to Shinn (Centerville Line)	2.33	0	0	0	2.33
			Shinn to Niles Wye (E)	0	0	0	0	0
		Fremont Central Park (High Bridge)	Dumbarton Wye North to Caltrain	0	0	0	0	0
			Dumbarton Wye South to Caltrain	0	0	0	0	0
			Dumbarton Bay Crossing to Don Edwards	0	0	0	0	0

Corridor	Possible Alignment	Alignment Alternative	Segment	Prime Farmland (acres)	Farmland of Statewide Importance (acres)	Unique Farmland (acres)	Farmland of Local Importance (acres)	Total Acres
			Don Edwards to Niles (E) via Fremont Central Park	0	0	0	0	0
		Fremont Central Park (Low Bridge)	Dumbarton Wye North to Caltrain	0	0	0	0	0
			Dumbarton Wye South to Caltrain	0	0	0	0	0
			Dumbarton Bay Crossing to Don Edwards	0	0	0	0	0
			Don Edwards to Niles (E) via Fremont Central Park	0	0	0	0	0
		Fremont Central Park (Tube)	Dumbarton Wye North to Caltrain	0	0	0	0	0
			Dumbarton Wye South to Caltrain	0	0	0	0	0
			Dumbarton Bay Crossing to Don Edwards	0	0	0	0	0
			Don Edwards to Niles (E) via Fremont Central Park	0	0	0	0	0
Station Location Option								
Union City (Shinn)				0	0	0	0	0
Central Valley	1 of 6	BNSF—UPRR	North Stockton South to UPRR Connection	41.43	62.12	0	5.64	109.19
			BNSF Parallel to UPRR tracks	1.65	18.30	0	1.34	21.28
			Parallel tracks South through Escalon	10.55	22.02	31.96	20.67	85.19
			Escalon South to Amtrak Briggsmore	13.13	5.75	9.6	15.41	43.89
			Amtrak Briggsmore to UPRR/BNSF Connection	125.35	30.08	9.64	51.17	216.24

Corridor	Possible Alignment	Alignment Alternative	Segment	Prime Farmland (acres)	Farmland of Statewide Importance (acres)	Unique Farmland (acres)	Farmland of Local Importance (acres)	Total Acres
			UPRR/BNSF Connection to Atwater	45.14	0	0	13.03	58.17
			Atwater to Downtown Merced	20.87	5.80	0	13.01	39.68
			Merced South to BNSF Connection	2.51	0	0	0.30	2.81
			BNSF Connection South to Henry Miller Wye	35.30	36.49	36.10	13.53	121.51
			BNSF Henry Miller Wye UPRR	30.06	12.12	26.55	9.30	78.04
		BNSF	North Stockton South to UPRR Connection	41.43	62.12	0	5.64	109.19
			BNSF Parallel to UPRR tracks	1.65	18.30	0	1.34	21.28
			Parallel tracks South through Escalon	10.55	22.02	31.96	20.67	85.19
			Escalon South to Amtrak Briggsmore	13.13	5.75	9.6	15.41	43.89
			Amtrak Briggsmore to UPRR/BNSF Connection	125.35	30.08	9.64	51.17	216.24
			UPRR/BNSF Connection to Atwater	45.14	0	0	13.03	58.17
			Atwater to Downtown Merced	45.14	0	0	13.03	58.17
			Merced South to UPRR Connection	20.87	5.80	0	13.01	39.68
			UPRR Connection East to Castle Connection	2.51	0	0	0.30	2.81
			Castle Connection to Henry Miller Wye	100.15	19.93	4.03	2.26	126.38

Corridor	Possible Alignment	Alignment Alternative	Segment	Prime Farmland (acres)	Farmland of Statewide Importance (acres)	Unique Farmland (acres)	Farmland of Local Importance (acres)	Total Acres
			Henry Miller Wye	1.34	0	46.32	29.11	76.77
		UPRR	French Camp to Lathrop	22.67	4.43	0	12.41	39.50
			Lathrop through Manteca	6.46	20.60	0	0.37	27.43
			Manteca South to BNSF/UPRR	3.70	28.40	0	0	32.11
			BNSF/UPRR South to Modesto	49.34	0	0	1.52	50.86
			UPRR Modesto South—Western Option	0	0	0	0	0
			South Modesto to BNSF Connection	38.29	0.36	2.40	0	41.06
			BNSF Connection South to Merced	73.68	58.63	0	0.31	132.62
			Merced South to BNSF Connection	9.38	0	2.20	0	11.58
			BNSF Connection South to Henry Miller Wye	35.30	36.49	36.10	13.53	121.51
			BNSF Henry Miller Wye	30.06	12.12	26.55	9.30	78.04
		BNSF Castle	North Stockton South to UPRR Connection	41.43	62.12	0	5.64	109.19
			BNSF Parallel to UPRR tracks	1.65	18.30	0	1.34	21.28
			Parallel tracks South through Escalon	10.55	22.02	31.96	20.67	85.19
			Escalon South to Amtrak Briggsmore	13.13	5.75	9.6	15.41	43.89
			Amtrak Briggsmore to UPRR/BNSF Connection	125.35	30.08	9.64	51.17	216.24
			From BNSF southeast to Castle AFB	68.32	0	0	0	68.32

Corridor	Possible Alignment	Alignment Alternative	Segment	Prime Farmland (acres)	Farmland of Statewide Importance (acres)	Unique Farmland (acres)	Farmland of Local Importance (acres)	Total Acres
			Castle AFB South to BNSF connect	16.01	3.30	0	3.79	23.10
			BNSF South of Castle to UPRR Connect	88.32	1.39	25.36	10.36	125.43
			Castle Connection to Henry Miller Wye	19.63	6.21	17.81	4.20	47.85
			Henry Miller Wye	1.34	0	46.32	29.11	76.77
		UPRR—BNSF Castle	French Camp to Lathrop	22.67	4.43	0	12.41	39.50
			Lathrop through Manteca	6.46	20.60	0	0.37	27.43
			Manteca South to BNSF/UPRR	3.70	28.40	0	0	32.11
			BNSF/UPRR South to Modesto	49.34	0	0	1.52	50.86
			UPRR Modesto South—Western Option	0	0	0	0	0
			South Modesto to BNSF Connection	38.29	0.36	2.40	0	41.06
			North South Connection East of Stockton (South Portion)	17.30	52.59	0	19.74	89.63
			From BNSF southeast to Castle AFB	68.32	0	0	0	68.32
			Castle AFB South to BNSF connect	16.01	3.30	0	3.79	23.10
			BNSF South of Castle to UPRR Connect	88.32	1.39	25.36	10.36	125.43
			Castle Connection to Henry Miller Wye	19.63	6.21	17.81	4.20	47.85
			Henry Miller Wye	1.34	0	46.32	29.11	76.77
		UPRR—BNSF	French Camp to Lathrop	22.67	4.43	0	12.41	39.50

Corridor	Possible Alignment	Alignment Alternative	Segment	Prime Farmland (acres)	Farmland of Statewide Importance (acres)	Unique Farmland (acres)	Farmland of Local Importance (acres)	Total Acres
			Lathrop through Manteca	6.46	20.60	0	0.37	27.43
			Manteca South to BNSF/UPRR	3.70	28.40	0	0	32.11
			BNSF/UPRR South to Modesto	49.34	0	0	1.52	50.86
			UPRR Modesto South—Western Option	0	0	0	0	0
			South Modesto to BNSF Connection	38.29	0.36	2.40	0	41.06
			BNSF crossing to UPRR—Southeast of Turlock	57.03	52.63	0	0.82	110.48
			UPRR/BNSF Connection to Atwater	45.14	0	0	13.03	58.17
			Atwater to Downtown Merced	20.87	5.80	0	13.01	39.68
			Merced South to BNSF Connection	9.38	0	2.20	0	11.58
			BNSF Connection South to Henry Miller Wye	35.30	36.49	36.10	13.53	121.51
			BNSF Henry Miller Wye	30.06	12.12	26.55	9.30	78.04
Station Location Options								
Modesto (Downtown)				0	0	0	0	0
Briggsmore (Amtrak)				0	0	0	0	0
Merced (Downtown)				0	0	0	0	0
Castle AFB				11.99	0	0	0	11.99

APPENDIX 3.9-A

DATA TABLE

Appendix 3.9-A. Visual Impacts Data Table for Alignment Alternatives and Station Location Option Comparisons

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	Visual Impact	Impact Level
San Francisco to San Jose: Caltrain	1 of 1	San Francisco to Dumbarton	Transbay Transit Center to 4th/Townsend	None	None
			4th/Townsend to Millbrae/SFO	Two additional tracks	Low
				Pedestrian undercrossings at stations	Low
				Raised right-of-way	Low
			Millbrae/SFO to Redwood City	Two additional tracks	Low
				Pedestrian undercrossings at stations	Low
				Raised right-of-way	Low
			Redwood City to Dumbarton Wye	Two additional tracks	Low
	1 of 1	Dumbarton to San Jose	Caltrain Dumbarton Wye	None	None
			Dumbarton Wye to Palo Alto	Two additional tracks	Low
				Pedestrian undercrossings at stations	Low
				Raised right-of-way	Low
				New bridge adjacent to San Francisquito Creek truss bridge	Low
				Two additional tracks at El Palo Alto Redwood	Low
			Palo Alto to Santa Clara	Two additional tracks	Low
				Pedestrian undercrossings at stations	Low
				Pedestrian overcrossings at stations	Medium
				Raised right-of-way	Low
			Santa Clara to Diridon Station	Elevated facilities approaching Diridon Station	Medium
Transbay Transit Center				None	None
4th and King (Caltrain)				None	None

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	Visual Impact	Impact Level
Millbrae/SFO				Additional two tracks west of existing station	None
Redwood City (Caltrain)				Elevated four-track station	Low
Palo Alto (Caltrain)				Additional track between existing tracks, one track to the east of existing tracks, pedestrian underpass	Low
Oakland to San Jose: Niles/I-880	1 of 2	West Oakland to Niles Junction	West Oakland to Jack London Square	None	None
			Jack London Square to Oakland Coliseum	Highway grade separations	Low
			Oakland Coliseum to Union City (BART)	Highway grade separations	Low
				Elevated alignment	Medium w/ Shadowing Impacts
			Union City (BART) to Niles Junction	Elevated alignment	Medium w/ Shadowing Impacts
		12th Street/City Center to Niles Junction	12th Street/City Center to Oakland Coliseum	Highway grade separations	Low
			Oakland Coliseum to Union City (BART)	Highway grade separations	Low
				Elevated alignment	Medium w/ Shadowing Impacts
			Union City (BART) to Shinn	None	None
	1 of 2	Niles Junction to San Jose via Trimble	Niles Junction to Niles Wye (S)	Elevated alignment at Wye	Medium w/ Shadowing Impacts
			Niles Wye (S) to Warm Springs	Elevated alignment at Wye	Medium w/ Shadowing Impacts

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	Visual Impact	Impact Level
			Warm Springs to Trimble Rd.	Elevated alignment along I-880	Low
			Trimble Rd. Option	Elevated alignment along Montague / Trimble	Low
			Santa Clara to Diridon Station	Elevated alignment near historic Santa Clara Depot and Tower	Medium
				Elevated facilities approaching Diridon Station	Medium
		Niles Junction to San Jose via I-880	Niles Junction to Niles Wye (S)	Elevated alignment at Wye	Medium w/ Shadowing Impacts
			Niles Wye (S) to Warm Springs	Elevated alignment at Wye	Medium w/ Shadowing Impacts
			Warm Springs to Trimble Rd.	Elevated alignment along I-880	Low
			I-880 – Trimble Rd. to Diridon	Elevated alignment along I-880	Low
				Elevated facilities approaching Diridon Station	Medium
West Oakland/7th Street				Station Entrance	Low
12th Street/City Center				Station Entrance	Low
Coliseum/Airport				At-Grade Station	Low
Union City (BART)				At-Grade Station	Low
Fremont (Warm Springs)				Elevated Station	Low
San Jose to Central Valley: Pacheco Pass	1 of 1	Pacheco	Diridon to Morgan Hill	Elevated facilities approaching Diridon Station	Low
				Highway grade separations	Low
				Expansion of existing railway corridor along Monterey Highway	Medium
			Morgan Hill to Gilroy	Highway grade separations	Low
			Gilroy to San Luis Reservoir	New transportation corridor between Gilroy and Pacheco Valley	Medium

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	Visual Impact	Impact Level
				Highway grade separations	Low
				Cut and fill sections over Pacheco Pass	Medium
	1 of 3	Henry Miller (UPRR Connection)	San Luis Reservoir to Valley Floor	New at-grade transportation corridor	Low
			Western Valley to Henry Miller UP Wye	Elevated crossing of I-5	Low
				Wetlands crossing	Medium
			Henry Miller UP North Wye to UP South Wye	None	None
			Henry Miller Wye North to UPRR	None	None
			Henry Miller Wye South to UPRR	None	None
		Henry Miller (BNSF Connection)	San Luis Reservoir to Valley Floor	New at-grade transportation corridor	Low
			Western Valley to Henry Miller UP Wye	Elevated crossing of I-5	Low
				Wetlands crossing	Medium
			Henry Miller UP North Wye to UP South Wye	None	None
			Henry Miller UP South Wye to BNSF Wyes	None	None
			Henry Miller Wye North to BNSF	None	None
			Henry Miller Wye South to BNSF	None	None
		GEA North	San Luis Reservoir to Atwater Wye	New transportation corridor between Pacheco Pass and Gustine	Medium
				Elevated crossing of I-5	High
				Wetlands crossings	Medium
			GEA Atwater Wye North to BNSF	New transportation corridor across Atwater	High
			GEA Atwater Wye South to Merced UP	None	None
San Jose (Diridon)				Elevated concourse and platforms	Medium
Morgan Hill (Caltrain)				Elevated Station	Medium

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	Visual Impact	Impact Level
Gilroy (Caltrain)				Elevated Station	Medium
East Bay to Central Valley: Altamont Pass	1 of 4	I-680/ 580/UPRR	Niles Canyon to Sunol	None	None
			Sunol to Dublin/Pleasanton BART	Trench alignment from tunnel portal to I-680	Low
				Elevated alignment along I-680	Medium
				Elevated alignment through I-680/I-580 interchange	Medium
				Elevated approaches to Dublin Station	High
			Dublin/Pleasanton BART to El Charo Road	Elevated approaches to Dublin Station	High
				Elevated alignment along I-580	Medium
			El Charo Road to Livermore (I-580)	Elevated alignment along I-580	Medium
				Elevated approaches to Livermore Station	High
			Livermore (I-580) to Greenville	Elevated approaches to Livermore Station	High
				Elevated alignment along I-580	Medium
			Greenville to Altamont Pass	Elevated alignment along I-580	Medium
				Elevated crossing of I-580	Medium
			Altamont Pass to County Line	Cut and fill sections over Altamont Pass	Low
		I-580/ UPRR	Niles Canyon to Sunol	None	None
			Sunol to Pleasanton	Trench alignment from tunnel portal to I-680	Low
			Pleasanton to El Charo	Aerial alignment	Medium
			UPRR to I-580 connector	None	None
			El Charo Road to Livermore (I-580)	New transportation corridor	Low
			Livermore (I-580) to Greenville	Elevated approaches to Livermore Station	High

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	Visual Impact	Impact Level
				Elevated alignment along I-580	Medium
			Greenville to Altamont Pass	Elevated alignment along I-580	Medium
				Elevated crossing of I-580	Medium
			Altamont Pass to County Line	Cut and fill sections over Altamont Pass	Low
		Patterson Pass/UPRR	Niles Canyon to Sunol	None	None
			Sunol to Pleasanton	Trench alignment from tunnel portal to I-680	Medium
			Pleasanton to El Charo	Aerial alignment	Medium
			El Charo to Livermore	Widened railway corridor (At-Grade option)	Low
			Livermore to Patterson Pass cut off	Widened railway corridor (At-Grade option)	Low
			Patterson Pass	Cut and fill sections over Patterson Pass	Medium
		UPRR	Niles Canyon to Sunol	None	None
			Sunol to Pleasanton	Trench alignment from tunnel portal to I-680	Low
			Pleasanton to El Charo	Aerial alignment	Medium
			El Charo to Livermore	Widened railway corridor (At-Grade option)	Low

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	Visual Impact	Impact Level
			Livermore to Patterson Pass cut off	Widened railway corridor (At-Grade option)	Low
			Patterson Pass cut off to Greenville	None	None
			Greenville to Altamont Pass	Deep cut near Altamont Summit	Medium
			Altamont Pass to County Line	Cut and fill sections	Medium
	1 of 4	Tracy Downtown (BNSF Connection)	County Line to Tracy Downtown	Elevated crossing of I-580	Medium
				At-grade alignment through Tracy	Low
			Tracy Downtown to I-205	None	None
			I-205 to S. UPRR	None	None
			I-205 to Lathrop – northern	New at-grade connection from SR 99 to BNSF	Low
			Southwestern Manteca	New alignment from UPRR to SR 120	Low
			Southeastern Manteca	New alignment in median of SR 120	Low
			Northern Escaton Wye to BNSF	New alignment in future SR 120 corridor	Low
			Southern Escaton Wye to BNSF (part 1)	New alignment in future SR 120 corridor	Low
			Southern Escaton Wye to BNSF (part 2)	New transportation corridor arcing across agricultural land	Low
		Tracy ACE Station (BNSF Connection)	County Line to South of Tracy	New at-grade corridor from County Line to UPRR	Low
			South of Tracy to Tracy ACE Station	Elevated crossing of I-580	Low
				New alignment from foothills to valley	Low
			Tracy ACE Station to I-205	None	None
			I-205 to Southeast of Manteca	New alignment in median of SR 120	Low
			I-205 to Lathrop – Southern	None	None

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	Visual Impact	Impact Level
			Southwestern Manteca	New alignment in median of SR 120	Low
			Southeastern Manteca	New alignment in median of SR 120	Low
			Northern Escaton Wye to BNSF	New alignment in future SR 120 corridor	Low
			Southern Escaton Wye to BNSF (part 1)	New alignment in future SR 120 corridor	Low
			Southern Escaton Wye to BNSF (part 2)	New transportation corridor arcing across agricultural land	Low
		Tracy ACE Station (UPRR Connection)	County Line to South of Tracy	New at-grade corridor from County Line to UPRR	Low
			South of Tracy to Tracy ACE Station	Elevated crossing of I-580	Low
				New alignment from foothills to valley	Low
			Tracy ACE Station to I-205	None	None
			I-205 to Southeast of Manteca	New alignment in median of SR 120	Low
			Southwestern Manteca	New alignment in median of SR 120	Low
			Southeastern Manteca	New alignment in median of SR 120	Low
			Eastern Manteca UPRR South to BNSF	New transportation corridor arcing across Manteca	High
			Manteca to Escaton Wye	None	None
		Tracy Downtown (UPRR Connection)	County Line to Tracy Downtown	Elevated crossing of I-580	Medium
				At-grade alignment through Tracy	Low
			Tracy Downtown to I-205	None	None
			I-205 to S. UPRR	None	None
			I-205 to Lathrop – northern	None	None
			Southwestern Manteca	New alignment from UPRR to SR 120	Low
			Southeastern Manteca	New alignment in median of SR 120	Low

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	Visual Impact	Impact Level
			Eastern Manteca UPRR South to BNSF	New transportation corridor arcing across Manteca	Medium
			Manteca to Escaton Wye	None	None
	2 of 2	East Bay Connections	Niles to Union City – Niles Wye (E) to Niles Wye (N)	Aerial across Niles Canyon Road and Alameda Creek	Medium
			Niles to Fremont – Niles Wye (E) to Niles Wye (S)	None	None
Pleasanton (I-680/Bernal Rd)				Elevated Station	Medium
Pleasanton (BART)				Elevated Station	High
Livermore (Downtown)				At-Grade Station	Low
Livermore (I-580)				Elevated Station	High
Livermore (Greenville Road/UPRR)				At-Grade Station	Low
Livermore (Greenville Road/I-580)				Elevated Station	High
Tracy (Downtown)				Elevated Station	Medium
Tracy (ACE)				Elevated Station	Medium
San Francisco Bay Crossings	1 of 2	Trans Bay Crossing – Transbay Transit Center	Transbay Transit Center tube to SF Bay	None	None
			SF Bay to West Oakland	None	None
		Trans Bay Crossing – 4th & King	4th/Townsend tube to SF Bay	None	None
			SF Bay to West Oakland	None	None
	1 of 6	Dumbarton (High Bridge)	Dumbarton Wye North to Caltrain	None	None
			Dumbarton Bay Crossing to Don Edwards	High level bridge	Medium
			Don Edwards to Shinn (Centerville Line)	Elevated alignment	Medium
				Curve re-alignment in Newark	Medium
			Shinn to Niles Wye (E)	Elevated alignment	Medium

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	Visual Impact	Impact Level
		Dumbarton (Low Bridge)	Dumbarton Wye North to Caltrain	None	None
			Dumbarton Bay Crossing to Don Edwards	Low level bridge	Low
			Don Edwards to Shinn (Centerville Line)	Elevated alignment	Medium
				Curve re-alignment in Newark	Medium
			Shinn to Niles Wye (E)	Elevated alignment	Medium
		Dumbarton (Tube)	Dumbarton Wye North to Caltrain	None	None
			Dumbarton Bay Crossing to Don Edwards	None	None
			Don Edwards to Shinn (Centerville Line)	Elevated alignment	Medium
				Curve re-alignment in Newark	Medium
			Shinn to Niles Wye (E)	Elevated alignment	Medium
		Fremont Central Park (High Bridge)	Dumbarton Wye North to Caltrain	None	None
			Dumbarton Bay Crossing to Don Edwards	High level bridge	Medium
			Don Edwards to Niles (E) via Fremont Central Park	New alignment across salt ponds	Medium
				Elevated alignment in Newark	Medium
				Elevated crossing of I-880	Low
		Fremont Central Park (Low Bridge)	Dumbarton Wye North to Caltrain	None	None
			Dumbarton Bay Crossing to Don Edwards	Low level bridge	Low

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	Visual Impact	Impact Level
			Don Edwards to Niles Wye (E) via Fremont Central Park	New alignment across salt ponds	Medium
				Elevated alignment in Newark	Medium
				Elevated crossing of I-880	Low
		Fremont Central Park (Tube)	Dumbarton Wye North to Caltrain	None	None
			Dumbarton Bay Crossing to Don Edwards	None	None
			Don Edwards to Niles Wye (E) via Fremont Central Park	New alignment across salt ponds	Medium
				Elevated alignment in Newark	Medium
				Elevated crossing of I-880	Low
Station Location Options					
Union City (Shinn)				At-grade station adjacent to residential area	Medium
Central Valley	1 of 6	BNSF – UPRR	North Stockton South to UPRR Connection	New alignment south of Lodi	Low
			BNSF Parallel to UPRR tracks	None	None
			Parallel tracks South through Escaton	Elevated alignment through Escalon	Low
			Escaton South to Amtak Briggsmore	Elevated alignment through Riverbank	Low
			Amtrak Briggsmore to UPRR/BNSF Connection	Curve realignment at Tuolumne River	High
				Curve realignment at Merced River	Low
			UPRR/BNSF Connection to Atwater	None	None
			Atwater to Downtown Merced	New alignment between BNSF and UPRR	Low

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	Visual Impact	Impact Level
			Merced South to BNSF Connection	New alignment between UPRR and BNSF	Low
			BNSF Connection South to Henry Miller Wye	Curve realignment at Chowchilla River	Low
			BNSF Henry Miller Wye	None	None
		BNSF	North Stockton South to UPRR Connection	New alignment south of Lodi	Low
			BNSF Parallel to UPRR tracks	None	None
			Parallel tracks South through Escaton	Elevated alignment through Escalon	Low
			Escaton South to Amtak Briggsmore	Elevated alignment through Riverbank	Low
			Amtrak Briggsmore to UPRR/BNSF Connection	Curve realignment at Tuolumne River	High
				Curve realignment at Merced River	Low
			UPRR/BNSF Connection to Atwater	None	None
			Atwater to Downtown Merced	None	None
			Merced South to UPRR Connection	None	None
			UPRR Connection East to Castle Connection	New alignment between UPRR and BNSF	Low
			Castle Connection to Henry Miller Wye	Curve realignment at Chowchilla River	Low
			Henry Miller Wye	None	None
		UPRR N/S	French Camp to Lathrop	None	None
			Lathrop through Manteca	Elevated alignment through Manteca	Low
			Manteca South to BNSF/UPRR	None	None
			BNSF/UPRR South to Modesto	None	None

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	Visual Impact	Impact Level
			UPRR Modesto South – Western Option	Curve realignment south of Modesto	Low
			South Modesto to BNSF Connection	Elevated alignment through Turlock	Low
			BNSF Connection South to Merced	None	None
			Merced South to BNSF Connection	None	None
			BNSF Connection South to Henry Miller Wye	Elevated alignment through Chowchilla	Mininal
			BNSF Henry Miller Wye	None	None
		BNSF Castle	North Stockton South to UPRR Connection	New alignment south of Lodi	Low
			BNSF Parallel to UPRR tracks	None	None
			Parallel tracks South through Escaton	Elevated alignment through Escalon	Low
			Escaton South to Amtak Briggsmore	Elevated alignment through Riverbank	Low
			Amtrak Briggsmore to UPRR/BNSF Connection	Curve realignment at Tuolumne River	High
				Curve realignment at Merced River	Low
			From BNSF southeast to Castle AFB	New alignment into Castle AFB	Medium
			Castle AFB South to BNSF connect	New alignment through Castle	Low
			BNSF South of Castle to UPRR Connect	None	None
			Castle Connection to Henry Miller Wye	Curve realignment at Chowchilla River	Low
			Henry Miller Wye	None	None
		UPRR – BNSF Castle	French Camp to Lathrop	None	None
			Lathrop through Manteca	Elevated alignment through Manteca	Low

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	Visual Impact	Impact Level
			Manteca South to BNSF/UPRR	None	None
			BNSF/UPRR South to Modesto	None	None
			UPRR Modesto South – Western Option	Curve realignment south of Modesto	Low
			South Modesto to BNSF Connection	Elevated alignment through Turlock	Low
			North South Connection East of Stockton (South Portion)	New alignment east of Manteca	Medium
			From BNSF southeast to Castle AFB	New alignment into Castle AFB	Medium
			Castle AFB South to BNSF Connection	New alignment through Castle	Low
			BNSF South of Castle to UPRR Connection	Curve realignment at SR 140	Medium
			Castle Connection to Henry Miller Wye	Curve realignment at Chowchilla River	Low
			Henry Miller Wye	None	None
		UPRR – BNSF	French Camp to Lathrop	None	None
			Lathrop through Manteca	Elevated alignment through Manteca	Low
			Manteca South to BNSF/UPRR	None	None
			BNSF/UPRR South to Modesto	None	None
			UPRR Modesto South – Western Option	Curve realignment south of Modesto	Low
			South Modesto to BNSF Connection	Elevated alignment through Turlock	Low
			BNSF crossing to UPRR – Southeast of Turlock	New alignment UPRR-BNSF	Low
			UPRR/BNSF Connection to Atwater	None	None

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	Visual Impact	Impact Level
			Atwater to Downtown Merced	New alignment between BNSF and UPRR	Low
			Merced South to BNSF Connection	New alignment between UPRR and BNSF	Low
			BNSF Connection South to Henry Miller Wye	Curve realignment at Chowchilla River	Low
			BNSF Henry Miller Wye	None	None
Modesto (Downtown)				At Grade Station	None
Briggsmore (Amtrak)				At Grade Station	None
Merced (Downtown)				At Grade Station	Low
Castle AFB				At Grade Station	None

APPENDIX 3.10-A

REGIONAL UTILITY PROVIDERS

REGIONAL UTILITY PROVIDERS

3.10-A-1.1 Bay Area to Central Valley

3.10-A-1.1.1 Electricity

In the region, electrical service is provided by Pacific Gas & Electric Company (PG&E), Silicon Valley Power, and the City of Palo Alto Utilities (CPAU). There are two power-generating facilities in the region: the Santa Clara Power Plant and the Gilroy Cogen Plant LP.

3.10-A-1.1.2 Natural Gas

Natural gas is provided by PG&E, except in the City of Palo Alto where gas is purchased by the CPAU from gas commodity suppliers. The gas is transported via PG&E's gas transportation system to CPAU's distribution system.

3.10-A-1.1.3 Wastewater Treatment and Water Service

Wastewater treatment and water service in the vicinity of the study area are provided by cities and special districts. City providers include the Cities of Los Banos, Gilroy, Morgan Hill, San Jose, Palo Alto, Redwood City, San Mateo, Burlingame, Millbrae, San Bruno, South San Francisco, Brisbane, San Francisco, Milpitas, Hayward, San Leandro, Pleasanton, Livermore, Richmond, Pinole, Vallejo, Fairfield, Vacaville, Dixon, Davis, and West Sacramento. Special district providers include the Santa Clara Valley Water District, South Bayside System Authority, West Bay Sanitary District, California Water Service, Alameda County Water District, Union Sanitary District, Oro Loma Sanitary District, East Bay Municipal Utility District, Castro Valley Sanitary District, East Bay Dischargers Authority, Livermore-Amador Valley Water Management Agency, Dublin San Ramon Services District, Zone 7 Water Agency, Stege Sanitary District, West County Wastewater District, Rodeo Sanitary District, Crockett-Valona Sanitary District, and Vallejo Sanitation and Flood Control District.

3.10-A-1.2 Central Valley

3.10-A-1.2.1 Electricity

PG&E is the primary supplier of electrical power in the region.

3.10-A-1.2.2 Natural Gas

PG&E is also the primary supplier of natural gas in the region.

3.10-A-1.2.3 Wastewater Treatment

There are three wastewater treatment facilities located in the vicinity of the project: the Atwater Wastewater Treatment Plant, which is adjacent to State Route 99, the Ceres Water Reclamation Facility, and the Cross Valley Canal Treatment Plant.

APPENDIX 3.10-B

DATA TABLE

Appendix 3.10-B
Public Utilities Data Table for
Alignment Alternatives and Station Location Option Comparisons

Corridor	Possible Alignment	Alignment Alternative	Segment	Number of Electrical Transmission Lines	Number of Electrical Substations or Power Stations	Number of Natural Gas Pipelines
San Francisco to San Jose: Caltrain	1 of 1	San Francisco to Dumbarton	Transbay Transit Center to 4th/Townsend	0	0	2
			4th/Townsend to Millbrae/SFO	0	0	15
			Millbrae/SFO to Redwood City	0	0	4
			Redwood City to Caltrain	0	0	1
	1 of 1	Dumbarton to San Jose	Caltrain Dumbarton Wye	0	0	1
			Dumbarton Wye to Palo Alto	0	0	0
			Palo Alto to Santa Clara	0	0	5
			Santa Clara to Diridon Station	0	0	2
Station Location Options						
Transbay Transit Center				0	0	0
4th and King (Caltrain)				0	0	0
Millbrae/SFO				0	0	0
Redwood City (Caltrain)				0	0	0
Palo Alto (Caltrain)				0	0	0
Oakland to San Jose: Niles/I-880	1 of 2	West Oakland to Niles Junction	West Oakland to Jack London Square	0	0	2
			Jack London Square to Oakland Coliseum	0	0	0
			Oakland Coliseum to Union City (BART)	0	0	9

Corridor	Possible Alignment	Alignment Alternative	Segment	Number of Electrical Transmission Lines	Number of Electrical Substations or Power Stations	Number of Natural Gas Pipelines
			Union City (BART) to Niles Junction	0	0	1
		12th Street/City Center to Niles Junction	12th Street/City Center to Jack London Square Niles /I-880-1B	0	0	3
			Jack London Square to Oakland Coliseum	0	0	0
			Oakland Coliseum to Union City (BART)	0	0	9
			Union City (BART) to Niles Junction	0	0	1
	1 of 2	Niles Junction to San Jose via Trimble	Niles Junction to Niles Wye (S)	0	0	0
			Niles Wye (S) to Warm Springs	0	0	1
			Warm Springs to Trimble Rd.	0	0	9
			Trimble Rd. Option	0	0	2
			Santa Clara to Diridon Station	0	0	2
		Niles Junction to San Jose via I-880	Niles Junction to Niles Wye (S)	0	0	0
			Niles Wye (S) to Warm Springs	0	0	1
			Warm Springs to Trimble Rd.	0	0	9
			I-880 – Trimble Rd. to Diridon	0	1	1
Station Location Options						
West Oakland/7th Street				0	0	0
12th Street/City Center				0	0	0
Coliseum/Airport				0	0	0

Corridor	Possible Alignment	Alignment Alternative	Segment	Number of Electrical Transmission Lines	Number of Electrical Substations or Power Stations	Number of Natural Gas Pipelines
Union City (BART)				0	0	0
Fremont (Warm Springs)				0	0	0
San Jose to Central Valley: Pacheco Pass	1 of 1	Pacheco	Diridon to Morgan Hill	2	0	6
			Morgan Hill to Gilroy	0	0	3
			Gilroy to San Luis Reservoir	0	0	5
	1 of 3	Henry Miller (UPRR Connection)	San Luis Reservoir to Valley Floor	1	0	0
			Western Valley to Henry Miller UP Wye	0	0	4
			Henry Miller UP North Wye to UP South Wye	0	0	2
			Henry Miller Wye North to UPRR	0	0	2
			Henry Miller Wye South to UPRR	0	0	0
		Henry Miller (BNSF Connection)	San Luis Reservoir to Valley Floor	1	0	0
			Western Valley to Henry Miller UP Wye	0	0	4
			Henry Miller UP North Wye to UP South Wye	0	0	2
			Henry Miller UP South Wye to BNSF Wyes	0	0	0
			Henry Miller Wye North to BNSF	1	0	0
			Henry Miller Wye South to BNSF	0	0	0

Corridor	Possible Alignment	Alignment Alternative	Segment	Number of Electrical Transmission Lines	Number of Electrical Substations or Power Stations	Number of Natural Gas Pipelines
		GEA North	San Luis Reservoir to Atwater Wye	1	0	7
			GEA Atwater Wye North to BNSF	0	0	4
			GEA Atwater Wye South to Merced UP	0	0	3
Station Location Options						
San Jose (Diridon)				0	0	0
Morgan Hill (Caltrain)				0	0	0
Gilroy (Caltrain)				0	0	0
East Bay to Central Valley: Altamont Pass	1 of 4	I-680/ 580/UPRR	Niles Canyon to Sunol	0	0	0
			Sunol to Dublin/Pleasant on BART	0	0	0
			Dublin/Pleasant on BART to El Charo Road	0	0	2
			El Charo Road to Livermore (I-580)	0	1	0
			Livermore (I-580) to Greenville	0	0	2
			Greenville to Altamont Pass	0	0	1
			Altamont Pass to County Line	1	0	1
		I-580/ UPRR	Niles Canyon to Sunol	0	0	0
			Sunol to Pleasanton	0	0	0
			Pleasanton to El Charo	0	0	2
			UPRR to I-580 connector	0	0	1
			El Charo Road to Livermore (I-580)	0	1	0

Corridor	Possible Alignment	Alignment Alternative	Segment	Number of Electrical Transmission Lines	Number of Electrical Substations or Power Stations	Number of Natural Gas Pipelines
			Livermore (I-580) to Greenville	0	0	2
			Greenville to Altamont Pass	0	0	1
			Altamont Pass to County Line	1	0	1
		Patterson Pass/ UPRR	Niles Canyon to Sunol	0	0	0
			Sunol to Pleasanton	0	0	0
			Pleasonton to El Charo	0	0	2
			El Charo to Livermore	0	0	1
			Livermore to Patterson Pass cut off	0	0	0
			Patterson Pass	1	0	3
		UPRR	Niles Canyon to Sunol	0	0	0
			Sunol to Pleasanton	0	0	0
			Pleasonton to El Charo	0	0	2
			El Charo to Livermore	0	0	1
			Livermore to Patterson Pass cut off	0	0	0
			Patterson Pass cut off to Greenville	0	0	1
			Greenville to Altamont Pass	0	0	1
			Altamont Pass to County Line	1	0	1
	1 of 4	Tracy Downtown (BNSF	County Line to Tracy Downtown	1	0	5

Corridor	Possible Alignment	Alignment Alternative	Segment	Number of Electrical Transmission Lines	Number of Electrical Substations or Power Stations	Number of Natural Gas Pipelines
		Connection)	Tracy Downtown to I-205	0	0	4
			I-205 to S. UPRR	0	0	0
			I-205 to Lathrop – northern	0	0	0
			Southwestern Manteca	0	0	1
			Southeastern Manteca	0	0	1
			Northern Escaton Wye to BNSF	0	0	1
			Southern Escaton Wye to BNSF (part 1)	0	0	1
			Southern Escaton Wye to BNSF (part 2)	0	0	0
		Tracy ACE Station (BNSF Connection)	County Line to South of Tracy	0	0	0
			South of Tracy to Tracy ACE Station	1	0	5
			Tracy ACE Station to I-205	0	1	1
			I-205 to Southeast of Manteca	0	0	0
			I-205 to Lathrop – Southern	0	0	2
			Southwestern Manteca	0	0	1
			Southeastern Manteca	0	0	1
			Northern Escaton Wye to BNSF	0	0	1
			Southern Escaton Wye to BNSF (part 1)	0	0	1

Corridor	Possible Alignment	Alignment Alternative	Segment	Number of Electrical Transmission Lines	Number of Electrical Substations or Power Stations	Number of Natural Gas Pipelines
			Southern Escaton Wye to BNSF (part 2)	0	0	0
		Tracy ACE Station (UPRR Connection)	County Line to South of Tracy	0	0	0
			South of Tracy to Tracy ACE Station	1	0	5
			Tracy ACE Station to I-205	0	1	1
			I-205 to Southeast of Manteca	0	0	0
			Southwestern Manteca	0	0	1
			Southeastern Manteca	0	0	1
			Eastern Manteca UPRR South to BNSF	0	0	3
			Manteca to Escaton Wye	0	0	1
		Tracy Downtown (UPRR Connection)	County Line to Tracy Downtown	1	0	5
			Tracy Downtown to I-205	0	0	4
			I-205 to S. UPRR	0	0	0
			I-205 to Lathrop – northern	0	0	0
			Southwestern Manteca	0	0	1
			Southeastern Manteca	0	0	1
			Eastern Manteca UPRR South to BNSF	0	0	3
			Manteca to Escaton Wye	0	0	1

Corridor	Possible Alignment	Alignment Alternative	Segment	Number of Electrical Transmission Lines	Number of Electrical Substations or Power Stations	Number of Natural Gas Pipelines
	2 of 2	East Bay Connection	Niles to Union City – Niles Wye (E) to Niles Wye (N)	0	0	0
			Niles to Fremont – Niles Wye (E) to Niles Wye (S)	0	0	0
Station Location Options						
Pleasanton (I-680/Bernal Rd)				0	0	0
Pleasanton (BART)				0	0	0
Livermore (Downtown)				0	0	0
Livermore (I-580)				0	0	0
Livermore (Greenville Road/UPRR)				0	0	0
Livermore (Greenville Road/I-580)				0	0	0
Tracy (Downtown)				0	0	0
Tracy (ACE)				0	0	0
San Francisco Bay Crossings	1 of 2	Trans Bay Crossing – Transbay Transit Center	Transbay Transit Center tube to SF Bay	0	0	0
			SF Bay to West Oakland	0	0	1
		Trans Bay Crossing – 4th & King	4th/Townsend tube to SF Bay	0	0	2
			SF Bay to West Oakland	0	0	1
	1 of 6	Dumbarton (High Bridge)	Dumbarton Wye North to Caltrain	0	0	0
			Dumbarton Wye South to Caltrain	0	0	0
			Dumbarton Bay Crossing to Don Edwards	0	0	1
			Don Edwards to Shinn (Centerville Line)			
			Shinn to Niles Wye (E)	0	0	0

Corridor	Possible Alignment	Alignment Alternative	Segment	Number of Electrical Transmission Lines	Number of Electrical Substations or Power Stations	Number of Natural Gas Pipelines
		Dumbarton (Low Bridge)	Dumbarton Wye North to Caltrain	0	0	0
			Dumbarton Wye South to Caltrain	0	0	0
			Dumbarton Bay Crossing to Don Edwards	0	0	1
			Don Edwards to Shinn (Centerville Line)			
			Shinn to Niles Wye (E)	0	0	0
		Dumbarton (Tube)	Dumbarton Wye North to Caltrain	0	0	0
			Dumbarton Wye South to Caltrain	0	0	0
			Dumbarton Bay Crossing to Don Edwards	0	0	1
			Don Edwards to Shinn (Centerville Line)			
			Shinn to Niles Canyon Wye (E)	0	0	0
		Fremont Central Park (High Bridge)	Dumbarton Wye North to Caltrain	0	0	0
			Dumbarton Wye South to Caltrain	0	0	0
			Dumbarton Bay Crossing to Don Edwards	0	0	1
			Don Edwards to Niles (E) via Fremont Central Park	0	0	4

Corridor	Possible Alignment	Alignment Alternative	Segment	Number of Electrical Transmission Lines	Number of Electrical Substations or Power Stations	Number of Natural Gas Pipelines
		Fremont Central Park (Low Bridge)	Dumbarton Wye North to Caltrain	0	0	0
			Dumbarton Wye South to Caltrain	0	0	0
			Dumbarton Bay Crossing to Don Edwards	0	0	1
			Don Edwards to Niles (E) via Fremont Central Park	0	0	4
		Fremont Central Park (Tube)	Dumbarton Wye North to Caltrain	0	0	0
			Dumbarton Wye South to Caltrain	0	0	0
			Dumbarton Bay Crossing to Don Edwards	0	0	1
			Don Edwards to Niles (E) via Fremont Central Park	0	0	4
Station Location Options						
Union City (Shinn)				0	0	0
Central Valley	1 of 6	BNSF – UPRR	North Stockton South to UPRR Connection	0	0	0
			BNSF Parallel to UPRR tracks	0	0	0
			Parallel tracks South through Escaton	0	0	1
			Escaton South to Amtrak Briggsmore	0	0	1
			Amtrak Briggsmore to UPRR/BNSF Connection	0	1	4

Corridor	Possible Alignment	Alignment Alternative	Segment	Number of Electrical Transmission Lines	Number of Electrical Substations or Power Stations	Number of Natural Gas Pipelines
			UPRR/BNSF Connection to Atwater	0	0	0
			Atwater to Downtown Merced	0	0	0
			Merced South to BNSF Connection	0	0	0
			BNSF Connection South to Henry Miller Wye	0	0	1
			BNSF Henry Miller Wye	0	0	0
		BNSF	North Stockton South to UPRR Connection	0	0	0
			BNSF Parallel to UPRR tracks	0	0	0
			Parallel tracks South through Escaton	0	0	1
			Escaton South to Amtrak Briggsmore	0	0	1
			Amtrak Briggsmore to UPRR/BNSF Connection	0	1	4
			UPRR/BNSF Connection to Atwater	0	0	0
			Atwater to Downtown Merced	0	0	0
			Merced South to UPRR Connection	0	0	0
			UPRR Connection East to Castle Connection	1	0	1

Corridor	Possible Alignment	Alignment Alternative	Segment	Number of Electrical Transmission Lines	Number of Electrical Substations or Power Stations	Number of Natural Gas Pipelines
			Castle Connection to Henry Miller Wye	0	0	0
			Henry Miller Wye	1	0	0
		UPRR N/S	French Camp to Lathrop	0	0	3
			Lathrop through Manteca	0	0	6
			Manteca South to BNSF/UPRR	0	0	0
			BNSF/UPRR South to Modesto	0	0	2
			UPRR Modesto South – Western Option	0	0	1
			South Modesto to BNSF Connection	0	1	5
			BNSF Connection South to Merced	0	0	5
			Merced South to BNSF Connection	0	0	0
			BNSF Connection South to Henry Miller Wye	0	0	1
			BNSF Henry Miller Wy	0	0	0
		BNSF Castle	North Stockton South to UPRR Connection	0	0	0
			BNSF Parallel to UPRR tracks	0	0	0
			Parallel tracks South through Escaton	0	0	1

Corridor	Possible Alignment	Alignment Alternative	Segment	Number of Electrical Transmission Lines	Number of Electrical Substations or Power Stations	Number of Natural Gas Pipelines
			Escaton South to Amtak Briggsmore	0	0	1
			Amtrak Briggsmore to UPRR/BNSF Connection	0	1	4
			From BNSF southeast to Castle AFB	0	0	0
			Castle AFB South to BNSF connect	0	0	1
			BNSF South of Castle to UPRR Connect	2	0	0
			Castle Connection to Henry Miller Wye	0	0	0
			Henry Miller Wye	1	0	0
		UPRR – BNSF Castle	French Camp to Lathrop	0	0	3
			Lathrop through Manteca	0	0	6
			Manteca South to BNSF/UPRR	0	0	0
			BNSF/UPRR South to Modesto	0	0	2
			UPRR Modesto South – Western Option	0	0	1
			South Modesto to BNSF Connection	0	1	5
			North South Connection East of Stockton (South Portion)	0	0	0
			From BNSF southeast to Castle AFB	0	0	0

Corridor	Possible Alignment	Alignment Alternative	Segment	Number of Electrical Transmission Lines	Number of Electrical Substations or Power Stations	Number of Natural Gas Pipelines
			Castle AFB South to BNSF Connection	0	0	1
			BNSF South of Castle to UPRR Connection	2	0	0
			Castle Connection to Henry Miller Wye	0	0	0
			Henry Miller Wye	1	0	0
		UPRR – BNSF	French Camp to Lathrop	0	0	3
			Lathrop through Manteca	0	0	6
			Manteca South to BNSF/UPRR	0	0	0
			BNSF/UPRR South to Modesto	0	0	2
			UPRR Modesto South – Western Option	0	0	1
			South Modesto to BNSF Connection	0	1	5
			BNSF crossing to UPRR – Southeast of Turlock	0	0	0
			UPRR/BNSF Connection to Atwater	0	0	0
			Atwater to Downtown Merced	0	0	0
			Merced South to BNSF Connection	0	0	0
			BNSF Connection South to Henry Miller Wye	0	0	1

Corridor	Possible Alignment	Alignment Alternative	Segment	Number of Electrical Transmission Lines	Number of Electrical Substations or Power Stations	Number of Natural Gas Pipelines
			BNSF Henry Miller Wye	0	0	0
Station Location Options						
Modesto (Downtown)				0	0	0
Briggsmore (Amtrak)				0	0	0
Merced (Downtown)				0	0	0
Castle ARB				0	0	0

Notes: It is not possible to quantify the utility impacts associated with the No Project Alternative. The existing conditions are assumed to be representative of the future No Project Alternative.

For Bay Area to Merced and Sacramento to Bakersfield regions, the total number of potential wastewater pipeline conflicts was not provided.

APPENDIX 3.11-A

DATA TABLE

Appendix 3.11-A. Hazardous Materials/Waste Sites Data Table for Alignment Alternatives and Station Location Option Comparisons

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	NPL/Superfund Listings	SPL Listings	SWLF Listings
San Francisco to San Jose: Caltrain	1 of 1	San Francisco to Dumbarton	Transbay Transit Center to 4th/Townsend			
			4th/Townsend to Millbrae/SFO			**San Francisco Household Hazardous Waste Facility** 501 Tunnel Ave San Francisco, CA 94134 **San Bruno Transfer Station** 1271 Montgomery Ave, San Bruno, CA
			Millbrae/SFO to Redwood City			
			Redwood City to Caltrain			
	1 of 1	Dumbarton to San Jose	Caltrain Dumbarton Wye			
			Dumbarton Wye to Palo Alto			
				Northrop Grumman Marine System 401 E. Hendy Ave Sunnyvale, CA 94086		
			Palo Alto to Santa Clara	**Westinghouse Electric Corporation, (Sunnyvale Plant)** Hendy Ave. & Fair Oaks Ave. Sunnyvale, CA 94087 **Jasco Chemical Co.** 1710 Villa Street Mountain View, CA. 94043		

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	NPL/Superfund Listings	SPL Listings	SWLF Listings
			Santa Clara to Diridon Station			
Station Location Options						
Transbay Transit Center						
4th and King (Caltrain)						
Millbrae/SFO						
Redwood City (Caltrain)						
Palo Alto (Caltrain)						
Oakland to San Jose: Niles/I-880	1 of 2	West Oakland to Niles Junction	West Oakland to Jack London Square		**Cole Brothers Auto Wreckers (CHP)** 1797 12th Street Oakland, CA 94621	
			Jack London Square to Oakland Coliseum		**Aero Quality Plating** 710 73rd St Oakland, CA 94621 **Union Pacific Oakland Coliseum** 700 73rd St Oakland, CA 94621	
			Oakland Coliseum to Union City (BART)		**K&L Plating Pearman** 10319/10323 Pearman St Oakland, CA 94603	
			Union City (BART) to Niles Junction			

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	NPL / Superfund Listings	SPL Listings	SWLF Listings
		12th Street/City Center to Niles Junction	12th Street/City Center to Jack London Square Niles /I-880-1B		**Aero Quality Plating** 710 73rd St Oakland, CA 94621 **Union Pacific Oakland Coliseum** 700 73rd St Oakland, CA 94621	
			Jack London Square to Oakland Coliseum		**Aero Quality Plating** 710 73rd St Oakland, CA 94621 **Union Pacific Oakland Coliseum** 700 73rd St Oakland, CA 94621	
			Oakland Coliseum to Union City (BART)		**K&L Plating Pearman** 10319/10323 Pearman St Oakland, CA 94603	
			Union City (BART) to Niles Junction			
	1 of 2	Niles Junction to San Jose via Trimble	Niles Junction to Niles Wye (S)			
			Niles Wye (S) to Warm Springs			
			Warm Springs to Trimble Rd.			
			Trimble Rd. Option			
			Santa Clara to Diridon Station			
		Niles Junction to San Jose via I-880	Niles Junction to Niles Wye (S)			
			Niles Wye (S) to Warm Springs			
			Warm Springs to Trimble Rd.			
			I-880 – Trimble Rd. to Diridon			

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	NPL / Superfund Listings	SPL Listings	SWLF Listings
Station Location Options						
West Oakland/7th Street						
12th Street/City Center						
Coliseum/Airport					**Union Pacific Oakland Coliseum** 700 73rd St Oakland, CA 94621 **Aero Quality Plating** 710 73rd St Oakland, CA 94621	
Union City (BART)						
Fremont (Warm Springs)						
San Jose to Central Valley: Pacheco Pass	1 of 1	Pacheco	Diridon to Morgan Hill			
			Morgan Hill to Gilroy			
			Gilroy to San Luis Reservoir			
	1 of 3	Henry Miller (UPRR Connection)	San Luis Reservoir to Valley Floor			
			Western Valley to Henry Miller UP Wye			
			Henry Miller UP North Wye to UP South Wye			
			Henry Miller Wye North to UPRR			
			Henry Miller Wye South to UPRR			
		Henry Miller (BNSF Connection)	San Luis Reservoir to Valley Floor			
			Western Valley to Henry Miller UP Wye			

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	NPL/Superfund Listings	SPL Listings	SWLF Listings
			Henry Miller UP North Wye to UP South Wye			
			Henry Miller UP South Wye to BNSF Wyes			
			Henry Miller Wye North to BNSF			
			Henry Miller Wye South to BNSF			
		GEA North	San Luis Reservoir to Atwater Wye			
			GEA Atwater Wye North to BNSF			WINTON TIRE AND AUTOMOTIVE CENTER 6478 Santa Fe Winton CA 95388
			GEA Atwater Wye South to Merced UP			
Station Location Options						
San Jose (Diridon)						
Morgan Hill (Caltrain)						
Gilroy (Caltrain)						
East Bay to Central Valley: Altamont Pass	1 of 4	I-680/ 580/UPRR	Niles Canyon to Sunol			
			Sunol to Dublin/Pleasanton BART			
			Dublin/Pleasanton BART to El Charo Road			
			El Charo Road to Livermore (I-580)			
			Livermore (I-580) to Greenville			
			Greenville to Altamont Pass			
			Altamont Pass to County Line			
		I-580/ UPRR	Niles Canyon to Sunol			
			Sunol to Pleasanton			
			Pleasanton to El Charo			
			UPRR to I-580 Connector			

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	NPL/Superfund Listings	SPL Listings	SWLF Listings
			El Charo Road to Livermore (I-580)			
			Livermore (I-580) to Greenville			
			Greenville to Altamont Pass			
			Altamont Pass to County Line			
		Patterson Pass/UPRR	Niles Canyon to Sunol			
			Sunol to Pleasanton			
			Pleasanton to El Charo			
			El Charo to Livermore			
			Livermore to Patterson Pass cut off			
			Patterson Pass			
		UPRR	Niles Canyon to Sunol			
			Sunol to Pleasanton			
			Pleasanton to El Charo			
			El Charo to Livermore			
			Livermore to Patterson Pass cut off			
			Patterson Pass cut off to Greenville			
			Greenville to Altamont Pass			
			Altamont Pass to County Line			
	1 of 4	Tracy Downtown (BNSF Connection)	County Line to Tracy Downtown			
			Tracy Downtown to I-205			
			I-205 to S. UPRR			
			I-205 to Lathrop – northern			
			Southwestern Manteca			
			Southeastern Manteca			
			Northern Escaton Wye to BNSF			

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	NPL / Superfund Listings	SPL Listings	SWLF Listings
			Southern Escaton Wye to BNSF (part 1)			
			Southern Escaton Wye to BNSF (part 2)			
		Tracy ACE Station (BNSF Connection)	County Line to South of Tracy			
			South of Tracy to Tracy ACE Station			
			Tracy ACE Station to I-205			
			I-205 to Southeast of Manteca			
			I-205 to Lathrop – Southern			
			Southwestern Manteca			
			Southeastern Manteca			
			Northern Escaton Wye to BNSF			
			Southern Escaton Wye to BNSF (part 1)			
			Southern Escaton Wye to BNSF (part 2)			
		Tracy ACE Station (UPRR Connection)	County Line to South of Tracy			
			South of Tracy to Tracy ACE Station			
			Tracy ACE Station to I-205			
			I-205 to Southeast of Manteca			
			Southwestern Manteca			
			Southeastern Manteca			
			Eastern Manteca UPRR South to BNSF			
			Manteca to Escaton Wye			
		Tracy Downtown (UPRR Connection)	County Line to Tracy Downtown			
			Tracy Downtown to I-205			
			I-205 to S. UPRR			

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	NPL/Superfund Listings	SPL Listings	SWLF Listings
			I-205 to Lathrop – northern			
			Southwestern Manteca			
			Southeastern Manteca			
			Eastern Manteca UPRR South to BNSF			
			Manteca to Escaton Wye			
	2 of 2	East Bay Connections	Niles to Union City – Niles Wye (E) to Niles Wye (N)			
			Niles to Fremont – Niles Wye (E) to Niles Wye (S)			
Station Location Options						
Pleasanton (I-680/Bernal Rd)						
Pleasanton (BART)						
Livermore (Downtown)						
Livermore (I-580)						
Livermore (Greenville Road/UPRR)						
Livermore (Greenville Road/I-580)						
Tracy (Downtown)						
Tracy (ACE)						

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	NPL / Superfund Listings	SPL Listings	SWLF Listings
San Francisco Bay Crossings	1 of 2	Trans Bay Crossing – Transbay Transit Center	Transbay Transit Center tube to SF Bay			
			SF Bay to West Oakland			
		Trans Bay Crossing – 4th & King	4th/Townsend tube to SF Bay			
			SF Bay to West Oakland			
	1 of 6	Dumbarton (High Bridge)	Dumbarton Wye North to Caltrain			
			Dumbarton Wye South to Caltrain			
			Dumbarton Bay Crossing to Don Edwards			
			Don Edwards to Shinn (Centerville Line)			
			Shinn to Niles Wye (E)			
		Dumbarton (Low Bridge)	Dumbarton Wye North to Caltrain			
			Dumbarton Wye South to Caltrain			
			Dumbarton Bay Crossing to Don Edwards			
			Don Edwards to Shinn (Centerville Line)			
			Shinn to Niles Wye (E)			
		Dumbarton (Tube)	Dumbarton Wye North to Caltrain			
			Dumbarton Wye South to Caltrain			
			Dumbarton Bay Crossing to Don Edwards			
			Don Edwards to Shinn (Centerville Line)			
			Shinn to Niles Wye (E)			
		Fremont Central Park	Dumbarton Wye North to Caltrain			
			Dumbarton Wye South to Caltrain			

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	NPL / Superfund Listings	SPL Listings	SWLF Listings
		(High Bridge)	Dumbarton Bay Crossing to Don Edwards			
			Don Edwards to Niles (E) via Fremont Central Park			
		Fremont Central Park (Low Bridge)	Dumbarton Wye North to Caltrain			
			Dumbarton Wye South to Caltrain			
			Dumbarton Bay Crossing to Don Edwards			
			Don Edwards to Niles (E) via Fremont Central Park			
		Fremont Central Park (Tube)	Dumbarton Wye North to Caltrain			
			Dumbarton Wye South to Caltrain			
			Dumbarton Bay Crossing to Don Edwards			
			Don Edwards to Niles (E) via Fremont Central Park			
Station Location Options						
Union City (Shinn)						
Central Valley	1 of 6	BNSF – UPRR	North Stockton South to UPRR Connection			
			BNSF Parallel to UPRR tracks			
			Parallel tracks South through Escaton			
			Escaton South to Amtrak Briggsmore			
			Amtrak Briggsmore to UPRR/BNSF Connection			
			UPRR/BNSF Connection to Atwater			
			Atwater to Downtown Merced			
			Merced South to BNSF Connection			

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	NPL / Superfund Listings	SPL Listings	SWLF Listings
			BNSF Connection South to Henry Miller Wye			
			BNSF Henry Miller Wye			
		BNSF	North Stockton South to UPRR Connection			
			BNSF Parallel to UPRR tracks			
			Parallel tracks South through Escaton			
			Escaton South to Amtrak Briggsmore			
			Amtrak Briggsmore to UPRR/BNSF Connection			
			UPRR/BNSF Connection to Atwater	**Castle Air Force Base** Atwater, CA	---	WINTON TIRE AND AUTOMOTIVE CENTER 6478 Santa Fe Winton CA 95388
			Atwater to Downtown Merced	**Castle Air Force Base** Atwater, CA		
			Merced South to UPRR Connection			
			UPRR Connection East to Castle Connection			
			Castle Connection to Henry Miller Wye			
			Henry Miller Wye			
		UPRR	French Camp to Lathrop			
			Lathrop through Manteca			
			Manteca South to BNSF/UPRR			
			BNSF/UPRR South to Modesto			G & S TIRES 301 Kansa Ave. Modesto, CA 95354

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	NPL / Superfund Listings	SPL Listings	SWLF Listings
			UPRR Modesto South – Western Option			SOUTHWEST TIRE SHOP 513 Crows Landing Modesto, CA 95351 **Larry's Tire Mart** 1453 South 7th Street Modesto, CA 95351
			South Modesto to BNSF Connection	VALLEY WOOD PRESERVING, INC. 2237 S Golden State Blvd. Turlock, CA 95380	---	LARRY'S TIRE MART 1453 South 7th Street Modesto, CA 95351 **Golden State Auto Wrecking** 1565 Paulson Rd. Turlock, CA 95380 **Mercer Property (CHP Site)** 2024 South Daubenberger Turlock, CA 95380
			BNSF Connection South to Merced			MERCER PROPERTY (CHP SITE) 2024 South Daubenberger Turlock, CA 95380
			Merced South to BNSF Connection			
			BNSF Connection South to Henry Miller Wye			
			BNSF Henry Miller Wye			
		BNSF Castle	North Stockton South to UPRR Connection			
			BNSF Parallel to UPRR tracks			
			Parallel tracks South through Escaton			

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	NPL / Superfund Listings	SPL Listings	SWLF Listings
			Escaton South to Amtrak Briggsmore			
			Amtrak Briggsmore to UPRR/BNSF Connection			
			From BNSF southeast to Castle AFB	**Castle Air Force Base** Atwater, CA		
			Castle AFB South to BNSF connect	**Castle Air Force Base** Atwater, CA		
			BNSF South of Castle to UPRR Connect			
			Castle Connection to Henry Miller Wye			
			Henry Miller Wye			
		UPRR – BNSF Castle	French Camp to Lathrop			
			Lathrop through Manteca			
			Manteca South to BNSF/UPRR			
			BNSF/UPRR South to Modesto			G & S TIRES 301 Kansa Ave. Modesto, CA 95354
			UPRR Modesto South – Western Option			SOUTHWEST TIRE SHOP 513 Crows Landing Modesto, CA 95351 **Larry's Tire Mart** 1453 South 7th Street Modesto, CA 95351

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	NPL / Superfund Listings	SPL Listings	SWLF Listings
			South Modesto to BNSF Connection	VALLEY WOOD PRESERVING, INC. 2237 S Golden State Blvd. Turlock, CA 95380	---	LARRY'S TIRE MART 1453 South 7th Street Modesto, CA 95351 **Golden State Auto Wrecking** 1565 Paulson Rd. Turlock, CA 95380 **Mercer Property (CHP Site)** 2024 South Daubenberger Turlock, CA 95380
			North South Connection East of Stockton (South Portion)			**Mercer Property (CHP Site)** 2024 South Daubenberger Turlock, CA 95380
			From BNSF southeast to Castle AFB	**Castle Air Force Base** Atwater, CA		
			Castle AFB South to BNSF Connection	**Castle Air Force Base** Atwater, CA		
			BNSF South of Castle to UPRR Connection			
			Castle Connection to Henry Miller Wye			
			Henry Miller Wye			
		UPRR – BNSF	French Camp to Lathrop			
			Lathrop through Manteca			
			Manteca South to BNSF/UPRR			
			BNSF/UPRR South to Modesto			G & S TIRES 301 Kansa Ave. Modesto, CA 95354

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	NPL / Superfund Listings	SPL Listings	SWLF Listings
			UPRR Modesto South – Western Option			SOUTHWEST TIRE SHOP 513 Crows Landing Modesto, CA 95351 **Larry's Tire Mart** 1453 South 7th Street Modesto, CA 95351
			South Modesto to BNSF Connection	VALLEY WOOD PRESERVING, INC. 2237 S Golden State Blvd. Turlock, CA 95380	---	LARRY'S TIRE MART 1453 South 7th Street Modesto, CA 95351 **Golden State Auto Wrecking** 1565 Paulson Rd. Turlock, CA 95380 **Mercer Property (CHP Site)** 2024 South Daubenberger Turlock, CA 95380
			BNSF crossing to UPRR – Southeast of Turlock			MERCER PROPERTY (CHP SITE) 2024 South Daubenberger Turlock, CA 95380
			UPRR/BNSF Connection to Atwater	**Castle Air Force Base** Atwater, CA	---	WINTON TIRE AND AUTOMOTIVE CENTER 6478 Santa Fe Winton CA 95388
			Atwater to Downtown Merced	**Castle Air Force Base** Atwater, CA		
			Merced South to BNSF Connection			
			BNSF Connection South to Henry Miller Wye			

Corridor	Possible Alignment Segments	Alignment Alternative	Segment	NPL / Superfund Listings	SPL Listings	SWLF Listings
			BNSF Henry Miller Wye			
Station Location Options						
Modesto (Downtown)						
Briggsmore (Amtrak)						
Merced (Downtown)						
Castle AFB				**Castle Air Force Base** Atwater, CA		

APPENDIX 3.12-A

DATA TABLE

Appendix 3.12-A. Cultural Resources Data Table for Alignment Alternatives and Station Location Option Comparisons

Corridor	Possible Alignment Segments	Alignment	Segment	Historic Architectural Resources	Known Archaeological Resources in APE[1]	Known Historic Architectural Resources in APE[1]	Cultural Resource Ranking (High, Medium, Low)	Paleontological. Sensitivity[2] (High, Low)
[3]San Francisco to San Jose: Caltrain	1 of 1	San Francisco to Dumbarton	Transbay Transit Center to 4th/Townsend	Extends through numerous historic districts, including the 2nd Street District, the Aronson District, and the Rincon Point/South Beach District. This portion of the alignment also includes the 1925 Army-Navy YMCA building, the 1950 Sailors Union of the Pacific building, the 1910 Commercial Block Building, the 1937 Metropolitan Electric building, and the World War II era 3rd Street Retail Office Building. This portion also includes the China Basin Warehouse (circa [ca.] 1922), the Coal Gasification Facility (ca. 1900), and the Burlingame Commercial Building (ca. 1920s).	6	12	High	Low
			4th/Townsend to Millbrae/SFO		8	15	High	Low
			Millbrae/SFO to Redwood City		2	2	Medium	Low
			Redwood City to Caltrain		0	6	Medium	Low
	1 of 1	Dumbarton to San Jose	Caltrain Dumbarton Wye	City of Mountain View adobe (ca. 1933), the FMC complex in San Jose (ca. 1948), the Union Pacific Rail yard Complex (ca. 1925), and residential buildings dated from the 1880s to the 1940s.	0	0	Low	Low
			Dumbarton Wye to Palo Alto		1	0	Low	Low
			Palo Alto to Santa Clara		8	18	High	Low
			Santa Clara to Diridon Station		1	6	High (Burials, Mission)	Low

[1] APE=area of potential effects. Based on archival records searches for a distance of 500 feet on either side of the centerline of the HST alignment segments in nonurban areas and 100 feet from the centerline in urban areas. Where stations or other HST facilities are proposed, the APE was 500 feet around the facility.

[2] Based on review of USGS Geologic Maps and the *Bay Area to Merced Segment Paleontologic Resources Technical Evaluation* (January 2004, prepared by Parsons, Inc.) and *Sacramento to Bakersfield Paleontologic Resources Technical Evaluation* (January 2004, prepared by EIP Associates).

Corridor	Possible Alignment Segments	Alignment	Segment	Historic Architectural Resources	Known Archaeological Resources in APE[1]	Known Historic Architectural Resources in APE[1]	Cultural Resource Ranking (High, Medium, Low)	Paleontological. Sensitivity[2] (High, Low)
Station Location Options								
Transbay Transit Center				Transbay Terminal and Transbay Terminal Loop Ramp, this location is in an area of high sensitivity for historic resources.	0	2	High	Low
4th and King (Caltrain)				None identified;however, this location is in an area of high sensitivity for historic resources.	0	0	High	Low
Millbrae/SFO				Original station was built in 1907 and is now a museum 200 feet away from modern station.	0	1	High	Low
Redwood City (Caltrain)				None identified.	0	0	Low	Low
Palo Alto (Caltrain)				Built in 1941 and added to National Register of Historic Places in 1996.	0	1	Medium	Low
Oakland to San Jose: Niles/I-880	1 of 2	West Oakland to Niles Junction	West Oakland to Jack London Square	1924 Clorox Chemical Building, the 1926 PG&E Gas Compressor House, industrial complexes dating from the 1920s and 1940s, and residential properties dating from the 1880s to the 1940s.	6	12	High	Low
			Jack London Square to Oakland Coliseum		0	4	Medium	Low
			Oakland Coliseum to Union City (BART)		0	2	Low	High
			Union City (BART) to Niles Junction		0	0	Low	High
		12th Street/City Center to Niles Junction	12th Street/City Center to Jack London Square	White Brothers hardwood Store (ca. 1927); the Weld-Rite Company Building (ca. 1925 the Art Moderne Sales Office building (ca. 1938) and residential properties dating from the 1880s to the 1920s.	11	15	High	Low
			Jack London Square to Oakland Coliseum		0	4	Medium	Low
			Oakland Coliseum to Union City (BART)		0	2	Low	High
			Union City (BART) to Shinn		0	0	Low	High

Corridor	Possible Alignment Segments	Alignment	Segment	Historic Architectural Resources	Known Archaeological Resources in APE[1]	Known Historic Architectural Resources in APE[1]	Cultural Resource Ranking (High, Medium, Low)	Paleontological. Sensitivity[2] (High, Low)
	1 of 2	Niles Junction to San Jose via Trimble	Niles Junction to Niles Wye (S)	Kraft Foods plant (ca.1950), the Moderne Factory building (ca. 1940), and residential properties.	0	0	Low	Low
			Niles Wye (S) to Warm Springs		0	0	Low	High
			Warm Springs to Trimble Rd.		2	2	Medium	High
			Trimble Rd. Option		0	0	Low	High
			Santa Clara to Diridon Station		1	6	High (Burials, Mission)	Low
		Niles Junction to San Jose via I-880	Niles Junction to Niles Wye (S)	Architectural resources dating from 1928 and 1945.	0	0	Low	Low
			Niles Wye (S) to Warm Springs		0	0	Low	High
			Warm Springs to Trimble Rd.		2	2	Medium	High
			I-880 – Trimble Rd. to Diridon		0	0	Low	High
Station Location Options								
West Oakland/7th Street				None identified—station underground.	0	0	Low	Low
12th Street/City Center				None identified; however, this location is in an area of moderate sensitivity for historic resources.	0	0	Medium	Low
Coliseum/Airport				None identified.	0	0	Low	Low
Union City (BART)				None identified.	0	0	Low	High
Fremont (Warm Springs)				None identified.	0	0	Low	High
San Jose to Central Valley: Pacheco Pass	1 of 1	Pacheco	Diridon to Morgan Hill	Historic resources in small towns of Santa Clara Valley, including Morgan Hill and Gilroy.	1	3	Medium	Low
			Morgan Hill to Gilroy		3	0	Medium	Low
			Gilroy to San Luis Reservoir		3	1	Medium	High

Corridor	Possible Alignment Segments	Alignment	Segment	Historic Architectural Resources	Known Archaeological Resources in APE[1]	Known Historic Architectural Resources in APE[1]	Cultural Resource Ranking (High, Medium, Low)	Paleontological. Sensitivity[2] (High, Low)
	1 of 3	Henry Miller (UPRR Connection)	San Luis Reservoir to Valley Floor	Residential	0	2	Low	High
			Western Valley to Henry Miller UP Wye		1	2	Low	Low
			Henry Miller UP North Wye to UP South Wye		0	0	Low	Low
			Henry Miller Wye North to UPRR		0	0	Low	Low
			Henry Miller Wye South to UPRR		0	0	Low	Low
		Henry Miller (BNSF Connection)	San Luis Reservoir to Valley Floor	Residential	0	2	Low	High
			Western Valley to Henry Miller UP Wye		1	2	Low	Low
			Henry Miller UP North Wye to UP South Wye		0	0	Low	Low
			Henry Miller UP South Wye to BNSF Wyes		0	0	Low	Low
			Henry Miller Wye North to BNSF		0	0	Low	Low
			Henry Miller Wye South to BNSF		0	0	Low	Low
		GEA North	San Luis Reservoir to Atwater Wye	Residential	4	4	Medium	High
			GEA Atwater Wye North to BNSF		0	0	Medium	Low
			GEA Atwater Wye South to Merced UP		0	1	Medium (Burials)	Low
			San Luis Reservoir to Atwater Wye		0	0	Medium	Low
			San Luis Reservoir to Atwater Wye		0	0	Medium	Low

Corridor	Possible Alignment Segments	Alignment	Segment	Historic Architectural Resources	Known Archaeological Resources in APE[1]	Known Historic Architectural Resources in APE[1]	Cultural Resource Ranking (High, Medium, Low)	Paleontological. Sensitivity[2] (High, Low)
			San Luis Reservoir to Atwater Wye		0	0	Medium	Low
Station Location Options								
San Jose (Diridon)				Diridon (Cahill) Station and surrounding area.	0	1	Medium	Low
Morgan Hill (Caltrain)				None identified.	0	0	Low	Low
Gilroy (Caltrain)				None identified.	0	0	Low	Low
East Bay to Central Valley: Altamont Pass	1 of 4	I-680/ 580/UPRR	Niles Canyon to Sunol	Western Pacific Railroad Buildings (ca. 1909), the Kennedy Ranch (ca. 1890), and residential (mainly craftsman) properties dating from 1910 to 1940.	0	0	Low	Low
			Sunol to Dublin/Pleasanton BART		5	1	Medium	High
			Dublin/Pleasanton BART to El Charo Road		0	0	Low	Low
			El Charo Road to Livermore (I-580)		3	3	Low	High
			Livermore (I-580) to Greenville		0	7	Low	High
			Greenville to Altamont Pass		0	1	Low	High
			Altamont Pass to County Line		0	0	Low	High
		I-580/ UPRR	Niles Canyon to Sunol	1947 industrial warehouse, the Quonset Warehouse (ca. 1950s), the West Altamont Underpass (ca. 1909), and residential properties dating between 1890 and 1930s.	0	0	Low	Low
			Sunol to Pleasanton		0	0	Low	Low
			Pleasanton to El Charo		1	0	Low	Low
			UPRR to I-580 connector		2	0	Medium (Burials)	Low
			El Charo Road to Livermore (I-580)		3	3	Low	High
			Livermore (I-580) to Greenville		0	7	Low	High

Corridor	Possible Alignment Segments	Alignment	Segment	Historic Architectural Resources	Known Archaeological Resources in APE[1]	Known Historic Architectural Resources in APE[1]	Cultural Resource Ranking (High, Medium, Low)	Paleontological. Sensitivity[2] (High, Low)
			Greenville to Altamont Pass		0	1	Low	High
			Altamont Pass to County Line		0	0	Low	High
		Patterson Pass/UPRR	Niles Canyon to Sunol	Residential	0	0	Low	Low
			Sunol to Pleasanton		0	0	Low	Low
			Pleasanton to El Charo		1	0	Low	Low
			El Charo to Livermore		1	0	Low	Low
			Livermore to Patterson Pass cut off		1	1	Medium	High
			Patterson Pass		0	2	Low	High
		UPRR	Niles Canyon to Sunol	Residential	0	0	Low	Low
			Sunol to Pleasanton		0	0	Low	Low
			Pleasanton to El Charo		1	0	Low	Low
			El Charo to Livermore		1	0	Low	Low
			Livermore to Patterson Pass cut off		1	1	Medium	High
			Patterson Pass cut off to Greenville		2	0	Low	High
			Greenville to Altamont Pass		0	0	Low	High
			Altamont Pass to County Line		0	0	Low	High
	1 of 4	Tracy Downtown (BNSF Connection)	County Line to Tracy Downtown	Residential	2	0	Low	High
			Tracy Downtown to I-205		0	0	Low	Low
			I-205 to S. UPRR		4	5	Medium	Low
			I-205 to Lathrop – northern		2	2	Low	Low

Corridor	Possible Alignment Segments	Alignment	Segment	Historic Architectural Resources	Known Archaeological Resources in APE[1]	Known Historic Architectural Resources in APE[1]	Cultural Resource Ranking (High, Medium, Low)	Paleontological. Sensitivity[2] (High, Low)
			Southwestern Manteca		0	0	Low	Low
			Southeastern Manteca		0	0	Low	Low
			Northern Escalon Wye to BNSF		0	3	Low	Low
			Southern Escalon Wye to BNSF (part 1)		0	0	Low	Low
			Southern Escalon Wye to BNSF (part 2)		0	0	Low	Low
		Tracy ACE Station (BNSF Connection)	County Line to South of Tracy	8 World War II era warehouses, a 1952 U.S. Army Depot Flag Pole, and U.S. Army Depot buildings from the 1950s.	2	0	Medium	High
			South of Tracy to Tracy ACE Station		0	9	Low	High
			Tracy ACE Station to I-205		0	1	Low	Low
			I-205 to Southeast of Manteca		0	0	Low	Low
			I-205 to Lathrop – Southern		0	0	Low	Low
			Southwestern Manteca		0	0	Low	Low
			Southeastern Manteca		0	0	Low	Low
			Northern Escalon Wye to BNSF		0	3	Low	Low
			Southern Escalon Wye to BNSF (part 1)		0	0	Low	Low
			Southern Escalon Wye to BNSF (part 2)		0	0	Low	Low
		Tracy ACE Station (UPRR Connection)	County Line to South of Tracy	Residential	2	0	Medium	High
			South of Tracy to Tracy ACE Station		0	9	Low	High

Corridor	Possible Alignment Segments	Alignment	Segment	Historic Architectural Resources	Known Archaeological Resources in APE[1]	Known Historic Architectural Resources in APE[1]	Cultural Resource Ranking (High, Medium, Low)	Paleontological. Sensitivity[2] (High, Low)
			Tracy ACE Station to I-205		0	1	Low	Low
			I-205 to Southeast of Manteca		0	0	Low	Low
			Southwestern Manteca		0	0	Low	Low
			Southeastern Manteca		0	0	Low	Low
			Eastern Manteca UPRR South to BNSF		0	0	Low	Low
			Manteca to Escalon Wye		0	0	Low	Low
		Tracy Downtown (UPRR Connection)	County Line to Tracy Downtown	An undated wooden Western Pacific Railroad trestle, 2 industrial warehouses from the 1950s, residential properties from the 1940s, and an undated farmstead property.	2	0	Low	High
			Tracy Downtown to I-205		0	0	Low	Low
			I-205 to S. UPRR		4	5	Medium	Low
			I-205 to Lathrop – northern		2	2	Low	Low
			Southwestern Manteca		0	0	Low	Low
			Southeastern Manteca		0	0	Low	Low
			Eastern Manteca UPRR South to BNSF		0	0	Low	Low
			Manteca to Escalon Wye		0	0	Low	Low
	2 of 2	East Bay Connections	Niles to Union City – Niles Wye (E) to Niles Wye (N)	None identified.	0	0	Low	High
			Niles to Fremont – Niles Wye (E) to Niles Wye (S)	None identified.	0	0	Low	High

Corridor	Possible Alignment Segments	Alignment	Segment	Historic Architectural Resources	Known Archaeological Resources in APE[1]	Known Historic Architectural Resources in APE[1]	Cultural Resource Ranking (High, Medium, Low)	Paleontological. Sensitivity[2] (High, Low)
Station Location Options								
Pleasanton (I-680/Bernal Rd)				None identified.	0	0	Low	Low
Pleasanton (BART)				None identified.	0	0	Low	Low
Livermore (Downtown)				None identified.	0	0	Low	Low
Livermore (I-580)				None identified.	0	0	Low	High
Livermore (Greenville Road/UPRR)				None identified.	0	0	Low	Low
Livermore (Greenville Road/I-580)				None identified.	0	0	Low	High
Tracy (Downtown)				None identified.	0	0	Low	Low
Tracy (ACE)				None identified.	0	0	Low	Low
San Francisco Bay Crossings	1 of 2	Trans Bay Crossing – Transbay Transit Center	Transbay Transit Center tube to SF Bay	Ferry Building and Embarcadero Piers Historic District	1	2	High*	Low
			SF Bay to West Oakland	None identified; however, the Oakland area is high in sensitivity for historic resources.	0	0	High*	Low
		Trans Bay Crossing – 4th & King	4th/Townsend tube to SF Bay	None identified; however, this is in an area of high sensitivity for historic resources.	0	0	High*	Low
			SF Bay to West Oakland	None identified; however, the Oakland area is high in sensitivity for historic resources.	0	0	High*	Low
	1 of 6	Dumbarton (High Bridge)	Dumbarton Wye North to Caltrain	None identified.	0	0	Low	Low
			Dumbarton Wye South to Caltrain		0	0	Low	Low
			Dumbarton Bay Crossing to Don Edwards		0	0	Low	Low
			Don Edwards to Shinn (Centerville Line)		0	0	Low	Low
			Shinn to Niles Wye (E)		4	0	Medium	High
		Dumbarton (Low Bridge)	Dumbarton Wye North to Caltrain	None identified.	0	0	Low	Low
			Dumbarton Wye South to Caltrain		0	0	Low	Low

Corridor	Possible Alignment Segments	Alignment	Segment	Historic Architectural Resources	Known Archaeological Resources in APE[1]	Known Historic Architectural Resources in APE[1]	Cultural Resource Ranking (High, Medium, Low)	Paleontological. Sensitivity[2] (High, Low)
			Dumbarton Bay Crossing to Don Edwards		0	0	Low	Low
			Don Edwards to Shinn (Centerville Line)		0	0	Low	Low
			Shinn to Niles Wye (E)		4	0	Medium	High
		Dumbarton (Tube)	Dumbarton Wye North to Caltrain	None identified.	0	0	Low	Low
			Dumbarton Wye South to Caltrain		0	0	Low	Low
			Dumbarton Bay Crossing to Don Edwards		0	0	Low	Low
			Don Edwards to Shinn (Centerville Line)		0	0	Low	Low
			Shinn to Niles Wye (E)		4	0	Medium	High
		Fremont Central Park (High Bridge)	Dumbarton Wye North to Caltrain	None identified.	0	0	Low	Low
			Dumbarton Wye South to Caltrain		0	0	Low	Low
			Dumbarton Bay Crossing to Don Edwards		0	0	Low	Low
			Don Edwards to Niles (E) via Fremont Central Park		0	0	Low	High
		Fremont Central Park (Low Bridge)	Dumbarton Wye North to Caltrain	None identified.	0	0	Low	Low
			Dumbarton Wye South to Caltrain		0	0	Low	Low
			Dumbarton Bay Crossing to Don Edwards		0	0	Low	Low

Corridor	Possible Alignment Segments	Alignment	Segment	Historic Architectural Resources	Known Archaeological Resources in APE[1]	Known Historic Architectural Resources in APE[1]	Cultural Resource Ranking (High, Medium, Low)	Paleontological. Sensitivity[2] (High, Low)
			Don Edwards to Niles Wye (E) via Fremont Central Park		0	0	Low	High
		Fremont Central Park (Tube)	Dumbarton Wye North to Caltrain	None identified.	0	0	Low	Low
			Dumbarton Wye South to Caltrain		0	0	Low	Low
			Dumbarton Bay Crossing to Don Edwards		0	0	Low	Low
			Don Edwards to Niles Wye (E) via Fremont Central Park		0	0	Low	High
Station Location Options								
Union City (Shinn)				None identified.	0	0	Low	Low
Central Valley	1 of 6	BNSF – UPRR	North Stockton South to UPRR Connection	1947 railroad trestle, 1950 flatcar railroad bridge, Robertson Boulevard (ca. 1913), Redrock Winery (ca. 1920), Le Grand Canal (ca. 1910), and residential properties dating between 1920 and 1940s.	0	0	Low	Low
			BNSF Parallel to UPRR tracks		0	1	Low	Low
			Parallel tracks South through Escalon		0	10	Low	Low
			Escalon South to Amtrak Briggsmore		1	2	Low	Low
			Amtrak Briggsmore to UPRR/BNSF Connection		0	3	Low	Low
			UPRR/BNSF Connection to Atwater		0	0	Low	Low
			Atwater to Downtown Merced		0	0	Low	Low
			Merced South to BNSF Connection		0	2	Low	Low

Corridor	Possible Alignment Segments	Alignment	Segment	Historic Architectural Resources	Known Archaeological Resources in APE[1]	Known Historic Architectural Resources in APE[1]	Cultural Resource Ranking (High, Medium, Low)	Paleontological. Sensitivity[2] (High, Low)
			BNSF Connection South to Henry Miller Wye		0	1	Low	Low
			BNSF Henry Miller Wye		0	8	Low	Low
		BNSF	North Stockton South to UPRR Connection	1912 Escalon Water and Auxiliary Water Systems, 1935 Escalon Sanitary Sewer System, portions of the 1895 Atchison, Topeka and Santa Fe Railroad, Bud's Frosties (ca. 1946), Farmer Bill's Produce (ca. 1940), and residential properties dating between 1910 and 1940s.	0	0	Low	Low
			BNSF Parallel to UPRR tracks		0	1	Low	Low
			Parallel tracks South through Escalon		0	10	Low	Low
			Escalon South to Amtrak Briggsmore		1	2	Low	Low
			Amtrak Briggsmore to UPRR/BNSF Connection		0	3	Low	Low
			UPRR/BNSF Connection to Atwater		0	0	Low	Low
			Atwater to Downtown Merced		0	0	Low	Low
			Merced South to UPRR Connection		0	0	Low	Low
			UPRR Connection East to Castle Connection		0	0	Low	Low
			Castle Connection to Henry Miller Wye		0	0	Low	Low
			Henry Miller Wye		0	0	Low	Low
		UPRR N/S	French Camp to Lathrop	Ashe Lateral (ca. 1890s), Fairfield Canal (ca. 1910), 1920 Arena Canal and other unnamed canals dating to ca. 1900. There are also freeway bridges dating	2	4	Medium	Low
			Lathrop through Manteca		0	2	Low	Low

Corridor	Possible Alignment Segments	Alignment	Segment	Historic Architectural Resources	Known Archaeological Resources in APE[1]	Known Historic Architectural Resources in APE[1]	Cultural Resource Ranking (High, Medium, Low)	Paleontological. Sensitivity[2] (High, Low)
			Manteca South to BNSF/UPRR	from the 1940s. This portion includes la Fuentes Market (ca.1940) and A.V. Produce (ca. 1925), as well as residential properties dating from the 1890s to 1950s	0	0	Low	Low
			BNSF/UPRR South to Modesto		1	3	Low	Low
			UPRR Modesto South – Western Option		0	4	Low	Low
			South Modesto to BNSF Connection		1	3	Low	Low
			BNSF Connection South to Merced		0	36	Medium	Low
			Merced South to BNSF Connection		0	2	Low	Low
			BNSF Connection South to Henry Miller Wye		0	1	Low	Low
			BNSF Henry Miller Wye		0	8	Low	Low
		BNSF Castle	North Stockton South to UPRR Connection	Escalon Motel (ca. 1940s), a 1926 Texaco Station, and Wright's Petroleum (ca.1918) features associated with the railroad, such as a 1909 wooden railroad trestle, and portions of the Tidewater Southern Railroad dating from 1912.	0	0	Low	Low
			BNSF Parallel to UPRR tracks		0	1	Low	Low
			Parallel tracks South through Escalon		0	10	Low	Low
			Escalon South to Amtrak Briggsmore		1	2	Low	Low
			Amtrak Briggsmore to UPRR/BNSF Connection		0	3	Low	Low
			From BNSF southeast to Castle AFB		0	0	Low	Low
			Castle AFB South to BNSF connect		0	0	Low	Low

Corridor	Possible Alignment Segments	Alignment	Segment	Historic Architectural Resources	Known Archaeological Resources in APE[1]	Known Historic Architectural Resources in APE[1]	Cultural Resource Ranking (High, Medium, Low)	Paleontological. Sensitivity[2] (High, Low)
			BNSF South of Castle to UPRR Connect		0	4	Low	Low
			Castle Connection to Henry Miller Wye		0	0	Low	Low
			Henry Miller Wye		0	0	Low	Low
		UPRR – BNSF Castle	French Camp to Lathrop	Riverbank Library (ca. 1899), irrigation canals (ca. 1900), a 1904 railroad bridge, 1910 farmstead, and numerous residential properties dating between 1900 and 1950; segments of the 1895 Atchison, Topeka, and Santa Fe Railroad.	2	4	Medium	Low
			Lathrop through Manteca		0	2	Low	Low
			Manteca South to BNSF/UPRR		0	0	Low	Low
			BNSF/UPRR South to Modesto		1	3	Low	Low
			UPRR Modesto South – Western Option		0	4	Low	Low
			South Modesto to BNSF Connection		1	3	Low	Low
			North South Connection East of Stockton (South Portion)		0	0	Low	Low
			From BNSF southeast to Castle AFB		0	0	Low	Low
			Castle AFB South to BNSF Connection		0	0	Low	Low
			BNSF South of Castle to UPRR Connection		0	4	Low	Low
			Castle Connection to Henry Miller Wye		0	0	Low	Low
			Henry Miller Wye		0	0	Low	Low
		UPRR – BNSF	French Camp to Lathrop	3 ca. 1940 highway bridges, abandoned segments of State Route 99 that are	2	4	Medium	Low

Corridor	Possible Alignment Segments	Alignment	Segment	Historic Architectural Resources	Known Archaeological Resources in APE[1]	Known Historic Architectural Resources in APE[1]	Cultural Resource Ranking (High, Medium, Low)	Paleontological. Sensitivity[2] (High, Low)
			Lathrop through Manteca	potentially historic, 1940s farms and associated structures, and numerous residential properties dating between ca. 1900 and 1950.	0	2	Low	Low
			Manteca South to BNSF/UPRR		0	0	Low	Low
			BNSF/UPRR South to Modesto		1	3	Low	Low
			UPRR Modesto South – Western Option		0	4	Low	Low
			South Modesto to BNSF Connection		1	3	Low	Low
			BNSF crossing to UPRR – Southeast of Turlock		0	0	Low	Low
			UPRR/BNSF Connection to Atwater		0	0	Low	Low
			Atwater to Downtown Merced		0	0	Low	Low
			Merced South to BNSF Connection		0	2	Low	Low
			BNSF Connection South to Henry Miller Wye		0	1	Low	Low
			BNSF Henry Miller Wye		0	8	Low	Low
Station Location Options								
Modesto (Downtown)				None identified.	0	0	Medium/ High	Low
Briggsmore (Amtrak)				None identified.	0	0	Low	Low
Merced (Downtown)				None identified.	0	0	Low/ Medium	Low
Castle AFB				None identified.	0	0	Low	Low

APPENDIX 3.13-A

DATA TABLE

Appendix 3.13-A. Geology and Soils Data Table for Alignment Alternatives and Station Location Option Comparisons

Corridor	Possible Alignment Segments	Alignment	Segment	Seismic Hazards	Active Fault Crossings	Slope Instability	Difficult Excavation	Oil And Gas Fields	Mineral Resources
San Francisco to San Jose: Caltrain	1 of 1	San Francisco to Dumbarton	Transbay Transit Center to 4th/Townsend	H	L	L	L	L	L
			4th/Townsend to Millbrae/SFO	H	M	L	L	L	L
			Millbrae/SFO to Redwood City	H	L	L	L	L	L
			Redwood City to Caltrain	H	L	L	L	L	L
	1 of 1	Dumbarton to San Jose	Caltrain Dumbarton Wye	H	L	L	L	L	L
			Dumbarton Wye to Palo Alto	H	L	L	L	L	L
			Palo Alto to Santa Clara	H	M	L	L	L	L
			Santa Clara to Diridon Station	H	L	L	L	L	L
Station Location Options									
Transbay Transit Center				H	L	L	L	L	L
4th and King (Caltrain)				H	L	L	L	L	L
Millbrae/SFO				H	L	L	L	L	L
Redwood City (Caltrain)				H	L	L	L	L	L
Palo Alto (Caltrain)				H	L	L	L	L	L

Corridor	Possible Alignment Segments	Alignment	Segment	Seismic Hazards	Active Fault Crossings	Slope Instability	Difficult Excavation	Oil And Gas Fields	Mineral Resources
Oakland to San Jose: Niles/I-880	1 of 2	West Oakland to Niles Junction	West Oakland to Jack London Square	**H**	**L**	**L**	**L**	**L**	**L**
			Jack London Square to Oakland Coliseum	**H**	**L**	**L**	**L**	**L**	**L**
			Oakland Coliseum to Union City (BART)	**H**	**L**	**L**	**L**	**L**	**L**
			Union City (BART) to Niles Junction	**H**	**M**	**L**	**L**	**L**	**L**
		12th Street/City Center to Niles Junction	12th Street/City Center to Jack London Square Niles /I-880-1B	**H**	**L**	**L**	**L**	**L**	**L**
			Jack London Square to Oakland Coliseum	**H**	**L**	**L**	**L**	**L**	**L**
			Oakland Coliseum to Union City (BART)	**H**	**L**	**L**	**L**	**L**	**L**
			Union City (BART) to Niles Junction	**H**	**M**	**L**	**L**	**L**	**L**
	1 of 2	Niles Junction to San Jose via Trimble	Niles Junction to Niles Wye	**H**	**M**	**L**	**L**	**L**	**L**
			Niles Wye to Warm Springs	**H**	**L**	**L**	**L**	**L**	**L**

Corridor	Possible Alignment Segments	Alignment	Segment	Seismic Hazards	Active Fault Crossings	Slope Instability	Difficult Excavation	Oil And Gas Fields	Mineral Resources
			Warm Springs to Trimble Rd.	**H**	**L**	**L**	**L**	**L**	**L**
			Trimble Rd. Option	**H**	**M**	**L**	**L**	**L**	**L**
			Santa Clara to Diridon Station	H	L	L	L	L	L
		Niles Junction to San Jose via I-880	Niles Junction to Niles Wye	**H**	**M**	**L**	**L**	**L**	**L**
			Niles Wye to Warm Springs	**H**	**L**	**L**	**L**	**L**	**L**
			Warm Springs to Trimble Rd.	**H**	**L**	**L**	**L**	**L**	**L**
			I-880—Trimble Rd. to Diridon	**H**	**M**	**L**	**L**	**L**	**L**
Station Location Options									
West Oakland/7th Street				**H**	**L**	**L**	**L**	**L**	**L**
12th Street/City Center				**H**	**L**	**L**	**L**	**L**	**L**
Coliseum/Airport				**H**	**L**	**L**	**L**	**L**	**L**
Union City (BART)				**H**	**L**	**L**	**L**	**L**	**L**
Fremont (Warm Springs)				**H**	**L**	**L**	**L**	**L**	**L**

Corridor	Possible Alignment Segments	Alignment	Segment	Seismic Hazards	Active Fault Crossings	Slope Instability	Difficult Excavation	Oil And Gas Fields	Mineral Resources
San Jose to Central Valley: Pacheco Pass	1 of 1	Pacheco	Diridon to Morgan Hill	**H**	**M**	**L**	**L**	**L**	**L**
			Morgan Hill to Gilroy	**H**	**L**	**L**	**L**	**L**	**L**
			Gilroy to San Luis Reservoir	**H**	**M**	**M**	**H**	**L**	**L**
	1 of 3	Henry Miller (UPRR Connection)	San Luis Reservoir to Valley Floor	**H**	**M**	**M**	**H**	**L**	**L**
			Western Valley to Henry Miller UP Wye	**M**	**L**	**L**	**L**	**L**	**L**
			Henry Miller UP North Wye to UP South Wye	**L**	**L**	**L**	**L**	**L**	**L**
			Henry Miller Wye North to UPRR	**L**	**L**	**L**	**L**	**L**	**L**
			Henry Miller Wye South to UPRR	**L**	**L**	**L**	**L**	**L**	**L**
		Henry Miller (BNSF Connection)	San Luis Reservoir to Valley Floor	**H**	**M**	**M**	**H**	**L**	**L**
			Western Valley to Henry Miller UP Wye	**M**	**L**	**L**	**L**	**L**	**L**
			Henry Miller UP North Wye to UP South Wye	**L**	**L**	**L**	**L**	**L**	**L**

Corridor	Possible Alignment Segments	Alignment	Segment	Seismic Hazards	Active Fault Crossings	Slope Instability	Difficult Excavation	Oil And Gas Fields	Mineral Resources
			Henry Miller UP South Wye to BNSF Wyes	**L**	**L**	**L**	**L**	**L**	**L**
			Henry Miller Wye North to BNSF	**L**	**L**	**L**	**L**	**L**	**L**
			Henry Miller Wye South to BNSF	**L**	**L**	**L**	**L**	**L**	**L**
		GEA North	San Luis Reservoir to Atwater Wye	**M**	**M**	**L**	**L**	**L**	**L**
			GEA Atwater Wye North to BNSF	**L**	**L**	**L**	**L**	**L**	**L**
			GEA Atwater Wye South to Merced UP	**L**	**L**	**L**	**L**	**L**	**L**
Station Location Options									
San Jose (Diridon)				**H**	**L**	**L**	**L**	**L**	**L**
Morgan Hill (Caltrain)				**H**	**L**	**L**	**L**	**L**	**L**
Gilroy (Caltrain)				**H**	**L**	**L**	**L**	**L**	**L**
East Bay to Central Valley: Altamont Pass	1 of 4	I-680/ 580/UPRR	Niles Canyon to Sunol	**H**	**L**	**L**	**H**	**L**	**L**
			Sunol to Dublin/Pleasanton BART	**H**	**M**	L	L	L	L
			Dublin/Pleasanton BART to El Charo Road	**H**	**M**	L	L	L	L

Corridor	Possible Alignment Segments	Alignment	Segment	Seismic Hazards	Active Fault Crossings	Slope Instability	Difficult Excavation	Oil And Gas Fields	Mineral Resources
			El Charo Road to Livermore (I-580)	H	M	L	L	L	L
			Livermore (I-580) to Greenville	H	L	L	L	L	L
			Greenville to Altamont Pass	H	M	H	H	L	L
			Altamont Pass to County Line	H	L	M	M	L	L
		I-580/ UPRR	Niles Canyon to Sunol	**H**	**L**	**L**	**H**	**L**	**L**
			Sunol to Pleasanton	**H**	**M**	**L**	**L**	**L**	**L**
			Pleasanton to El Charo	**H**	**L**	**L**	**L**	**L**	**L**
			UPRR to I-580 connector	H	L	L	L	L	L
			El Charo Road to Livermore (I-580)	H	M	L	L	L	L
			Livermore (I-580) to Greenville	H	L	L	L	L	L
			Greenville to Altamont Pass	H	M	H	H	L	L
			Altamont Pass to County Line	H	L	M	M	L	L
		Patterson Pass/UPRR	Niles Canyon to Sunol	**H**	**L**	**L**	**H**	**L**	**L**

Corridor	Possible Alignment Segments	Alignment	Segment	Seismic Hazards	Active Fault Crossings	Slope Instability	Difficult Excavation	Oil And Gas Fields	Mineral Resources
			Sunol to Pleasanton	**H**	**M**	**L**	**L**	**L**	**L**
			Pleasanton to El Charo	**H**	**L**	**L**	**L**	**L**	**L**
			El Charo to Livermore	**H**	**M**	**L**	**L**	**L**	**L**
			Livermore to Patterson Pass cut off	H	L	**L**	**L**	**L**	**L**
			Patterson Pass	H	H	H	H	L	L
		UPRR	Niles Canyon to Sunol	**H**	**L**	**L**	**H**	**L**	**L**
			Sunol to Pleasanton	**H**	**M**	**L**	**L**	**L**	**L**
			Pleasanton to El Charo	**H**	**L**	**L**	**L**	**L**	**L**
			El Charo to Livermore	**H**	**M**	**L**	**L**	**L**	**L**
			Livermore to Patterson Pass cut off	H	**L**	**L**	**L**	**L**	**L**
			Patterson Pass cut off to Greenville	**H**	**M**	**L**	**L**	**L**	**L**
			Greenville to Altamont Pass	**H**	**M**	**H**	**H**	**L**	**L**
			Altamont Pass to County Line	**H**	**L**	**M**	**M**	**L**	**L**

Corridor	Possible Alignment Segments	Alignment	Segment	Seismic Hazards	Active Fault Crossings	Slope Instability	Difficult Excavation	Oil And Gas Fields	Mineral Resources
	1 of 4	Tracy Downtown (BNSF Connection)	County Line to Tracy Downtown	**H**	**L**	**L**	**L**	**L**	**L**
			Tracy Downtown to I-205	**M**	**M**	**L**	**L**	**L**	**L**
			I-205 to S. UPRR	**L**	**L**	**L**	**L**	**L**	**L**
			I-205 to Lathrop—northern	**L**	**L**	**L**	**L**	**L**	**L**
			Southwestern Manteca	**L**	**L**	**L**	**L**	**L**	**L**
			Southeastern Manteca	**L**	**L**	**L**	**L**	**L**	**L**
			Northern Escaton Wye to BNSF	**L**	**L**	**L**	**L**	**L**	**L**
			Southern Escaton Wye to BNSF (part 1)	**L**	**L**	**L**	**L**	**L**	**L**
			Southern Escaton Wye to BNSF (part 2)	**L**	**L**	**L**	**L**	**L**	**L**
		Tracy ACE Station (BNSF Connection)	County Line to South of Tracy	**H**	**M**	**M**	**M**	**L**	**L**
			South of Tracy to Tracy ACE Station	**H**	**L**	**L**	**L**	**L**	**L**
			Tracy ACE Station to I-205	**M**	**M**	**L**	**L**	**L**	**L**
			I-205 to Southeast of Manteca	**L**	**L**	**L**	**L**	**L**	**L**

Corridor	Possible Alignment Segments	Alignment	Segment	Seismic Hazards	Active Fault Crossings	Slope Instability	Difficult Excavation	Oil And Gas Fields	Mineral Resources
			I-205 to Lathrop—Southern	**L**	**L**	**L**	**L**	**L**	**L**
			Southwestern Manteca	**L**	**L**	**L**	**L**	**L**	**L**
			Southeastern Manteca	**L**	**L**	**L**	**L**	**L**	**L**
			Northern Escaton Wye to BNSF	**L**	**L**	**L**	**L**	**L**	**L**
			Southern Escaton Wye to BNSF (part 1)	**L**	**L**	**L**	**L**	**L**	**L**
			Southern Escaton Wye to BNSF (part 2)	**L**	**L**	**L**	**L**	**L**	**L**
		Tracy ACE Station (UPRR Connection)	County Line to South of Tracy	**H**	**M**	**M**	**M**	**L**	**L**
			South of Tracy to Tracy ACE Station	**H**	**L**	**L**	**L**	**L**	**L**
			Tracy ACE Station to I-205	**M**	**M**	**L**	**L**	**L**	**L**
			I-205 to Southeast of Manteca	**L**	**L**	**L**	**L**	**L**	**L**
			Southwestern Manteca	**L**	**L**	**L**	**L**	**L**	**L**
			Southeastern Manteca	**L**	**L**	**L**	**L**	**L**	**L**

Corridor	Possible Alignment Segments	Alignment	Segment	Seismic Hazards	Active Fault Crossings	Slope Instability	Difficult Excavation	Oil And Gas Fields	Mineral Resources
			Eastern Manteca UPRR South to BNSF	**L**	**L**	**L**	**L**	**L**	**L**
			Manteca to Escaton Wye	**L**	**L**	**L**	**L**	**L**	**L**
		Tracy Downtown (UPRR Connection)	County Line to Tracy Downtown	**H**	**L**	**L**	**L**	**L**	**L**
			Tracy Downtown to I-205	**M**	**M**	**L**	**L**	**L**	**L**
			I-205 to S. UPRR	**L**	**L**	**L**	**L**	**L**	**L**
			I-205 to Lathrop—northern	**L**	**L**	**L**	**L**	**L**	**L**
			Southwestern Manteca	**L**	**L**	**L**	**L**	**L**	**L**
			Southeastern Manteca	**L**	**L**	**L**	**L**	**L**	**L**
			Eastern Manteca UPRR South to BNSF	**L**	**L**	**L**	**L**	**L**	**L**
			Manteca to Escaton Wye	**L**	**L**	**L**	**L**	**L**	**L**
	2 of 2	East Bay Connections	WPRR to UPRR	H	H	L	L	L	L
			UP to UPRR	H	M	L	L	L	L
Station Location Options									
Pleasanton (I-680/Bernal Rd)				**H**	**L**	**L**	**L**	**L**	**L**
Pleasanton (BART)				**H**	**L**	**L**	**L**	**L**	**L**

Corridor	Possible Alignment Segments	Alignment	Segment	Seismic Hazards	Active Fault Crossings	Slope Instability	Difficult Excavation	Oil And Gas Fields	Mineral Resources
Livermore (Downtown)				**H**	**L**	**L**	**L**	**L**	**L**
Livermore (I-580)				**H**	**L**	**L**	**L**	**L**	**L**
Livermore (Greenville Road/UPRR)				**H**	**L**	**L**	**L**	**L**	**L**
Livermore (Greenville Road/I-580)				**H**	**L**	**L**	**L**	**L**	**L**
Tracy (Downtown)				**H**	**L**	**L**	**L**	**L**	**L**
Tracy (ACE)				**H**	**L**	**L**	**L**	**L**	**L**
San Francisco Bay Crossings	1 of 2	Trans Bay Crossing—Transbay Transit Center	Transbay Transit Center tube to SF Bay	**H**	**L**	**L**	**L**	**L**	**L**
			SF Bay to West Oakland	**H**	**L**	**L**	**L**	**L**	**L**
		Trans Bay Crossing—4th & King	4th/Townsend tube to SF Bay	**H**	**L**	**L**	**L**	**L**	**L**
			SF Bay to West Oakland	**H**	**L**	**L**	**L**	**L**	**L**
	1 of 6	Dumbarton (High Bridge)	Dumbarton Wye North to Caltrain	**H**	**L**	**L**	**L**	**L**	**L**
			Dumbarton Wye South to Caltrain	**H**	**L**	**L**	**L**	**L**	**L**
			Dumbarton Bay Crossing to Don Edwards	**H**	**M**	**L**	**L**	**L**	**L**
			Don Edwards to Shinn (Centerville Line)	**H**	**L**	**L**	**L**	**L**	**L**
			Shinn to Niles Wye	H	M	L	L	L	L

Corridor	Possible Alignment Segments	Alignment	Segment	Seismic Hazards	Active Fault Crossings	Slope Instability	Difficult Excavation	Oil And Gas Fields	Mineral Resources
		Dumbarton (Low Bridge)	Dumbarton Wye North to Caltrain	**H**	**L**	**L**	**L**	**L**	**L**
			Dumbarton Wye South to Caltrain	**H**	**L**	**L**	**L**	**L**	**L**
			Dumbarton Bay Crossing to Don Edwards	**H**	**M**	**L**	**L**	**L**	**L**
			Don Edwards to Shinn (Centerville Line)	**H**	**L**	**L**	**L**	**L**	**L**
			Shinn to Niles Wye	**H**	**M**	**L**	**L**	**L**	**L**
		Dumbarton (Tube)	Dumbarton Wye North to Caltrain	**H**	**L**	**L**	**L**	**L**	**L**
			Dumbarton Wye South to Caltrain	**H**	**L**	**L**	**L**	**L**	**L**
			Dumbarton Bay Crossing to Don Edwards	**H**	**M**	**L**	**L**	**L**	**L**
			Don Edwards to Shinn (Centerville Line)	**H**	**L**	**L**	**L**	**L**	**L**
			Shinn to Niles Wye	**H**	**H**	**L**	**L**	**L**	**L**
		Fremont Central Park (High Bridge)	Dumbarton Wye North to Caltrain	**H**	**L**	**L**	**L**	**L**	**L**
			Dumbarton Wye South to Caltrain	**H**	**L**	**L**	**L**	**L**	**L**

Corridor	Possible Alignment Segments	Alignment	Segment	Seismic Hazards	Active Fault Crossings	Slope Instability	Difficult Excavation	Oil And Gas Fields	Mineral Resources
			Dumbarton Bay Crossing to Don Edwards	**H**	**M**	**L**	**L**	**L**	**L**
			Don Edwards to Niles Wye (E) via Fremont Central Park	**H**	**H**	**L**	**L**	**L**	**L**
		Fremont Central Park (Low Bridge)	Dumbarton Wye North to Caltrain	**H**	**L**	**L**	**L**	**L**	**L**
			Dumbarton Wye South to Caltrain	**H**	**L**	**L**	**L**	**L**	**L**
			Dumbarton Bay Crossing to Don Edwards	**H**	**M**	**L**	**L**	**L**	**L**
			Don Edwards to Niles Wye (E) via Fremont Central Park	**H**	**H**	**L**	**L**	**L**	**L**
		Fremont Central Park (Tube)	Dumbarton Wye North to Caltrain	**H**	**L**	**L**	**L**	**L**	**L**
			Dumbarton Wye South to Caltrain	**H**	**L**	**L**	**L**	**L**	**L**
			Dumbarton Bay Crossing to Don Edwards	**H**	**M**	**L**	**L**	**L**	**L**
			Don Edwards to Niles Wye (E) via Fremont Central Park	**H**	**H**	**L**	**L**	**L**	**L**

Corridor	Possible Alignment Segments	Alignment	Segment	Seismic Hazards	Active Fault Crossings	Slope Instability	Difficult Excavation	Oil And Gas Fields	Mineral Resources
Station Location Options									
Union City (Shinn)				**H**	**H**	**L**	**L**	**L**	**L**
Central Valley	1 of 6	BNSF—UPRR	North Stockton South to UPRR Connection	**L**	**L**	**L**	**L**	**L**	**L**
			BNSF Parallel to UPRR tracks	**L**	**L**	**L**	**L**	**L**	**L**
			Parallel tracks South through Escaton	**L**	**L**	**L**	**L**	**L**	**L**
			Escaton South to Amtrak Briggsmore	**L**	**L**	**L**	**L**	**L**	**L**
			Amtrak Briggsmore to UPRR/BNSF Connection	**L**	**L**	**L**	**L**	**L**	**L**
			UPRR/BNSF Connection to Atwater	**L**	**L**	**L**	**L**	**L**	**L**
			Atwater to Downtown Merced	**L**	**L**	**L**	**L**	**L**	**L**
			Merced South to BNSF Connection	**L**	**L**	**L**	**L**	**L**	**L**
			BNSF Connection South to Henry Miller Wye	**L**	**L**	**L**	**L**	**L**	**L**

Corridor	Possible Alignment Segments	Alignment	Segment	Seismic Hazards	Active Fault Crossings	Slope Instability	Difficult Excavation	Oil And Gas Fields	Mineral Resources
			BNSF Henry Miller Wye	L	L	L	L	L	L
		BNSF	North Stockton South to UPRR Connection	L	L	L	L	L	L
			BNSF Parallel to UPRR tracks	L	L	L	L	L	L
			Parallel tracks South through Escaton	L	L	L	L	L	L
			Escaton South to Amtrak Briggsmore	L	L	L	L	L	L
			Amtrak Briggsmore to UPRR/BNSF Connection	L	L	L	L	L	L
			UPRR/BNSF Connection to Atwater	L	L	L	L	L	L
			Atwater to Downtown Merced	L	L	L	L	L	L
			Merced South to UPRR Connection	L	L	L	L	L	L
			UPRR Connection East to Castle Connection	L	L	L	L	L	L

Corridor	Possible Alignment Segments	Alignment	Segment	Seismic Hazards	Active Fault Crossings	Slope Instability	Difficult Excavation	Oil And Gas Fields	Mineral Resources
			Castle Connection to Henry Miller Wye	L	L	L	L	L	L
			Henry Miller Wye	L	L	L	L	L	L
		UPRR N/S	French Camp to Lathrop	L	L	L	L	L	L
			Lathrop through Manteca	L	L	L	L	L	L
			Manteca South to BNSF/UPRR	L	L	L	L	L	L
			BNSF/UPRR South to Modesto	L	L	L	L	L	L
			UPRR Modesto South—Western Option	L	L	L	L	L	L
			South Modesto to BNSF Connection	L	L	L	L	L	L
			BNSF Connection South to Merced	L	L	L	L	L	L
			Merced South to BNSF Connection	L	L	L	L	L	L
			BNSF Connection South to Henry Miller Wye	L	L	L	L	L	L
			BNSF Henry Miller Wye	L	L	L	L	L	L

Corridor	Possible Alignment Segments	Alignment	Segment	Seismic Hazards	Active Fault Crossings	Slope Instability	Difficult Excavation	Oil And Gas Fields	Mineral Resources
		BNSF Castle	North Stockton South to UPRR Connection	L	L	L	L	L	L
			BNSF Parallel to UPRR tracks	L	L	L	L	L	L
			Parallel tracks South through Escaton	L	L	L	L	L	L
			Escaton South to Amtrak Briggsmore	L	L	L	L	L	L
			Amtrak Briggsmore to UPRR/BNSF Connection	L	L	L	L	L	L
			From BNSF southeast to Castle AFB	L	L	L	L	L	L
			Castle AFB South to BNSF connect	L	L	L	L	L	L
			BNSF South of Castle to UPRR Connect	L	L	L	L	L	L
			Castle Connection to Henry Miller Wye	L	L	L	L	L	L
			Henry Miller Wye	L	L	L	L	L	L
		UPRR—BNSF Castle	French Camp to Lathrop	L	L	L	L	L	L

Corridor	Possible Alignment Segments	Alignment	Segment	Seismic Hazards	Active Fault Crossings	Slope Instability	Difficult Excavation	Oil And Gas Fields	Mineral Resources
			Lathrop through Manteca	**L**	**L**	**L**	**L**	**L**	**L**
			Manteca South to BNSF/UPRR	**L**	**L**	**L**	**L**	**L**	**L**
			BNSF/UPRR South to Modesto	**L**	**L**	**L**	**L**	**L**	**L**
			UPRR Modesto South—Western Option	**L**	**L**	**L**	**L**	**L**	**L**
			South Modesto to BNSF Connection	**L**	**L**	**L**	**L**	**L**	**L**
			North South Connection East of Stockton (South Portion)	L	L	L	L	L	L
			From BNSF southeast to Castle AFB	**L**	**L**	**L**	**L**	**L**	**L**
			Castle AFB South to BNSF Connection	**L**	**L**	**L**	**L**	**L**	**L**
			BNSF South of Castle to UPRR Connection	**L**	**L**	**L**	**L**	**L**	**L**
			Castle Connection to Henry Miller Wye	**L**	**L**	**L**	**L**	**L**	**L**
			Henry Miller Wye	**L**	**L**	**L**	**L**	**L**	**L**

Corridor	Possible Alignment Segments	Alignment	Segment	Seismic Hazards	Active Fault Crossings	Slope Instability	Difficult Excavation	Oil And Gas Fields	Mineral Resources
		UPRR—BNSF	French Camp to Lathrop	L	L	L	L	L	L
			Lathrop through Manteca	L	L	L	L	L	L
			Manteca South to BNSF/UPRR	L	L	L	L	L	L
			BNSF/UPRR South to Modesto	L	L	L	L	L	L
			UPRR Modesto South—Western Option	L	L	L	L	L	L
			South Modesto to BNSF Connection	L	L	L	L	L	L
			BNSF crossing to UPRR—Southeast of Turlock	L	L	L	L	L	L
			UPRR/BNSF Connection to Atwater	L	L	L	L	L	L
			Atwater to Downtown Merced	L	L	L	L	L	L
			Merced South to BNSF Connection	L	L	L	L	L	L
			BNSF Connection South to Henry Miller Wye	L	L	L	L	L	L
			BNSF Henry Miller Wye	L	L	L	L	L	L

Corridor	Possible Alignment Segments	Alignment	Segment	Seismic Hazards	Active Fault Crossings	Slope Instability	Difficult Excavation	Oil And Gas Fields	Mineral Resources
Station Location Options									
Modesto (Downtown)				L	L	L	L	L	L
Briggsmore (Amtrak)				L	L	L	L	L	L
Merced (Downtown)				L	L	L	L	L	L
Castle AFB				L	L	L	L	L	L

APPENDIX 3.14-A

DATA TABLES

Appendix 3.14-A-1. Direct Water Resource Impacts Data Table for Alignment Alternatives and Station Location Option Comparisons

Corridor	Possible Alignment Segments	Alignment	Segment	Named and Unnamed Water Resources	Streams in Linear Feet	Lakes/ Bay[1] in Acres	Floodplain in Acres	Erosion in Acres
San Francisco to San Jose: Caltrain	1 of 1	San Francisco to Dumbarton	Transbay Transit Center to 4th/Townsend	None	0	0	0	0
			4th/Townsend to Millbrae/SFO	Visitacion Valley Guadalupe Valley Oyster Point Channel San Bruno Cannel San Bruno Canal Colma Creek San Francisco Bay	100.01	0	10.74	8.51
			Millbrae/SFO to Redwood City	Mills Creek Easton Creek Sanchez Creek San Mateo Creek Laural Creek	619.05	0	35.32	0
			Redwood City to Caltrain	Belmont Creek Pulgas Creek Arroyo Ojo De Agua	458.78	0	3.27	0
	1 of 1	Dumbarton to San Jose	Caltrain Dumbarton Wye	Hetch Hetchy Aqueduct	126.00	0	0	0
			Dumbarton Wye to Palo Alto	San Francisquito/ Los Trancos Creek	104.05	0	0.23	0
			Palo Alto to Santa Clara	Matadero Creek/Canal Barron Creek Adobe Creek Permanente Creek Stevens Creek Calabazas Creek Saratoga Creek	1205.01	0	46.30	0
			Santa Clara to Diridon Station	None	0	0	0	0
Station Location Options								
Transbay Transit Center				None	0	0	0	0
4th and King (Caltrain)				None	0	0	0	0
Millbrae/SFO				None	0	0	0	0
Redwood City (Caltrain)				None	0	0	0	0
Palo Alto (Caltrain)				None	0	0	0	0
Oakland to San Jose: Niles/I-880	1 of 2	West Oakland to Niles Junction	West Oakland to Jack London Square	None	0	0	0	0

[1] Includes San Francisco Bay.

Corridor	Possible Alignment Segments	Alignment	Segment	Named and Unnamed Water Resources	Streams in Linear Feet	Lakes/ Bay[1] in Acres	Floodplain in Acres	Erosion in Acres
			Jack London Square to Oakland Coliseum	Arroyo Viejo Arroyo Viejo Section Lion Creek	201.41	0	0.36	0
			Oakland Coliseum to Union City (BART)	Unnamed Tributary to Airport Channel/Arrowhead Marsh Dry Creek San Leandro Creek Unnamed Canal West of Hesperian Blvd. San Lorenzo Creek Ward Creek Unnamed Canal South of Industrial Blvd. Unnamed Canal South of Whippel St. Unnamed intermittent tributary to Alameda Creek	514.57	0	1.51	0
			Union City (BART) to Niles Junction	Niles Canyon/Alameda Creek Gravel Pits	319.23	0	2.47	12.61
		12th Street/City Center to Niles Junction	12th Street/City Center to Jack London Square	None	0	0	0	0
			Jack London Square to Oakland Coliseum	Arroyo Viejo Arroyo Viejo Section Lion Creek	201.41	0	0.36	0
			Oakland Coliseum to Union City (BART)	Unnamed Tributary to Airport Channel/Arrowhead Marsh Dry Creek San Leandro Creek Unnamed Canal West of Hesperian Blvd. San Lorenzo Creek Unnamed Canal South of Industrial Blvd. Unnamed Canal South of Whippel St. Unnamed intermittent tributary to Alameda Creek	514.57	0	1.51	0
			Union City (BART) to Niles Junction	Niles Canyon/ Alameda Creek Gravel Pits	319.23	0	2.47	12.61
	1 of 2	Niles Junction to San Jose	Niles Junction to Niles Wye	Mission Creek	356.67	0.66	7.97	22.50

Corridor	Possible Alignment Segments	Alignment	Segment	Named and Unnamed Water Resources	Streams in Linear Feet	Lakes/ Bay[1] in Acres	Floodplain in Acres	Erosion in Acres
		via Trimble	(S)	Alameda Creek The Lagoon/Elizabeth Lake Unnamed intermittent stream emptying into Elizabeth Lake				
			Niles Wye (S) to Warm Springs	(2) Unnamed intermittent streams at Warm Springs Station	501.31	0	0	0
			Warm Springs to Trimble Rd.	Unnamed Canal at 262 And 880 Interchange Penitencia Creek Scott Creek/Ravine Coyote Creek/Mud Slough	154.83	0	27.67	0
			Trimble Rd. Option	None	0	0	0.71	0
			Santa Clara to Diridon Station	None	0	0	0	0
		Niles Junction to San Jose via I-880	Niles Junction to Niles Wye (S)	Mission Creek Alameda creek The Lagoon/Elizabeth Lake Unnamed intermittent stream emptying into Elizabeth Lake	356.67	0.66	7.97	22.50
			Niles Wye (S) to Warm Springs	(2) Unnamed intermittent streams at Warm Springs Station	501.31	0	0	0
			Warm Springs to Trimble Rd.	Unnamed Canal at 262 And 880 Interchange Penitencia Creek Scott Creek/Ravine Coyote Creek/Mud Slough	154.83	0	27.67	0
			I-880 – Trimble Rd. to Diridon	Coyote Creek Guadalupe River	121.72	0	9.86	0
Station Location Options								
West Oakland/7th Street				None	0	0	0	0
12th Street/City Center				None	0	0	0	0
Coliseum/Airport				Lion Creek	1,682.68	0	1.61	0
Union City (BART)				Unnamed intermittent tributary to Alameda Creek	272.5	0	1.12	0
Union City (Shinn)				None	0	0	0	0
Fremont (Warm Springs)				None	0	0	0	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and Unnamed Water Resources	Streams in Linear Feet	Lakes/ Bay[1] in Acres	Floodplain in Acres	Erosion in Acres
San Jose to Central Valley: Pacheco Pass	1 of 1	Pacheco	Diridon to Morgan Hill	Los Gatos Creek (tributary of Guadalupe River) Guadalupe River	409.37	0	16.51	12.32
			Morgan Hill to Gilroy	Little Llagas Creek Llagas Creek	317.49	0	21.07	0
			Gilroy to San Luis Reservoir	Miller Slough Pajaro River Tequisquita Slough South Fork Pacheco Creek Elephant Head Creek Cottonwood Creek Ceder Creek Pacheco Creek Hurricane Canyon	1947.35	0	65.79	29.47
	1 of 3	Henry Miller (UPRR Connection)	San Luis Reservoir to Valley Floor	Cottonwood Creek Tule Lake Ramero Creek San Louis Creek California Aqueduct Mendota Canal	603.45	0.83	49.01	22.15
			Western Valley to Henry Miller UP Wye	Belmont Drain Boundary Drain Chowchilla River Delta Canal Devon Drain East Delta Canal Eastside Bypass Diversion Canal Escano Branch No.1 Ditch Justin Canal Los Banos Creek Los Banos Wildlife Area Main Canal Mariposa Slough Mud Slough Outside Canal Poso Drain San Joaquin River San Juan Canal San Juan Drain San Juan River San Luis Drain San Luis Canal San Luis Wasteway San Pedro Canal Sanjon De Santa Rita Marsh	4662.14	1.50	74.11	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and Unnamed Water Resources	Streams in Linear Feet	Lakes/ Bay[1] in Acres	Floodplain in Acres	Erosion in Acres
				Santa Fe Canal Santa Rita Ditch Santa Rita Drain Santa Rita Canal Santa Rita River Santa Rita Slough/Salt Slough Unnamed Canal draining from Chowchilla River Unnamed Canal/Ditch at Mexican Lane Unnamed Canal/Ditch parallel to Poso Drain Unnamed Perennial Stream/River emptying into Mud Slough Unnamed Perennial Stream/River emptying into Devon Drain Unnamed pond draining into San Luis Wasteway Unnamed Canal/Ditch emptying into Devon Drain Unnamed canal through Riverside Canal West Delta Canal West San Juan Drain West San Juan Drain No.1 West Santa Rita Drain Wood Slough				
			Henry Miller UP North Wye to UP South Wye	Ash Slough/Ash Slough Bypass Bethel Canal Eastman Lateral Sewage Disposal	225.04	0	0.34	0
			Henry Miller Wye North to UPRR	Ash Slough/Ash Slough Bypass Chowchilla River	297.42	0	1.73	0
			Henry Miller Wye South to UPRR	(2) Berenda Slough Califa Lateral Unnamed Canal/Ditch crossing at 23 ½ Ave	909.42	0	1.22	0
		Henry Miller (BNSF Connection)	San Luis Reservoir to Valley Floor	Cottonwood Creek Tule Lake Ramero Creek San Louis Creek California Aqueduct	603.45	0.83	49.01	22.15

Corridor	Possible Alignment Segments	Alignment	Segment	Named and Unnamed Water Resources	Streams in Linear Feet	Lakes/ Bay[1] in Acres	Floodplain in Acres	Erosion in Acres
				Mendota Canal				
			Western Valley to Henry Miller UP Wye	Belmont Drain Boundary Drain Chowchilla River Delta Canal Devon Drain East Delta Canal Eastside Bypass Diversion Canal Escano Branch No.1 Ditch Justin Canal Los Banos Creek Los Banos Wildlife Area Main Canal Mariposa Slough Mud Slough Outside Canal Poso Drain San Joaquin River San Juan Canal San Juan Drain San Juan River San Luis Drain San Luis Canal San Luis Wasteway San Pedro Canal Sanjon De Santa Rita Marsh Santa Fe Canal Santa Rita Ditch Santa Rita Drain Santa Rita Canal Santa Rita River Santa Rita Slough/Salt Slough Unnamed Canal draining from Chowchilla River Unnamed Canal/Ditch at Mexican Lane Unnamed Canal/Ditch parallel to Poso Drain Unnamed Perennial Stream/River emptying into Mud Slough Unnamed Perennial Stream/River emptying into Devon Drain Unnamed pond draining into San Luis	4662.14	1.50	74.11	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and Unnamed Water Resources	Streams in Linear Feet	Lakes/ Bay[1] in Acres	Floodplain in Acres	Erosion in Acres
				Wasteway Unnamed Canal/Ditch emptying into Devon Drain Unnamed canal through Riverside Canal West Delta Canal West San Juan Drain West San Juan Drain No.1 West Santa Rita Drain Wood Slough				
			Henry Miller UP North Wye to UP South Wye	Ash Slough/Ash Slough Bypass Bethel Canal Eastman Lateral Sewage Disposal	225.04	0	0.34	0
			Henry Miller UP South Wye to BNSF Wyes	Berenda Slough	558.78	0	0.78	0
			Henry Miller Wye North to BNSF	Berenda Slough/Reservoir Ash Slough	100.49	0.15	1.11	0
			Henry Miller Wye South to BNSF	Califa Canal	115.73	0	5.09	0
		GEA North	San Luis Reservoir to GEA Wye	California Aqueduct Cottonwood Creek Delta Mendota Canal East Side Canal Garzas Creek (2) Livingston Drain Los Banos Creek McGilvray Lateral Canal/Ditch Main Canal Middle Dallas Lateral Mud Slough Outside Canal Quinto Creek Romero Creek San Joaquin River Sullivan Extension Unnamed Intermittent Stream/River tributary to Cottonwood Creek Unnamed Intermittent Stream/River tributary to Delta Mendota Canal Unnamed Intermittent Stream/River tributary to Quinto Creek	1,797.92	1.00	22.97	35.99

Corridor	Possible Alignment Segments	Alignment	Segment	Named and Unnamed Water Resources	Streams in Linear Feet	Lakes/ Bay[1] in Acres	Floodplain in Acres	Erosion in Acres
				(3) Unnamed Intermittent Unnamed Perennial Lakes/Ponds northwest of Los Banos Creek 2) Unnamed Perennial Streams/Rivers, tributaries to Los Banos Creek (2) Unnamed Canals/Ditches draining into East Side Canal Unnamed Canal/Ditch draining into Middle Dallas Lateral Unnamed Stream/River tributary to Romero Creek Unnamed Duck Ponds				
			GEA Wye to Atwater	Atwater Canal Atwater Drain Livingston Canal Tin Flume Lateral Canal	3,260.55	1.29	0	0
			Atwater to BNSF	Atwater Drain Canal Creek Tin Flume Lateral Canal Unnamed Canal/Ditch draining from Black Rascal Creek	301.43	0	27.94	0
			GEA Wye to Arena (SR-99)	Middle Dallas Lateral Livingston Drain Unnamed Canals	1,089.66	0	0	0
			Arena (SR-99) to Ballico West	Merced River Livingston Canal	170.72	0	1.60	0
			Arena (SR-99) to Ballico North	Merced River Livingston Canal	151.12	0	0.58	0
Station Location Options								
San Jose (Diridon)				None	0	0	0	0
Morgan Hill (Caltrain)				None	0	0	0	0
Gilroy (Caltrain)				None	0	0	0	0
East Bay to Central Valley: Altamont Pass	1 of 4	I-680/ 580/UPRR	Niles Canyon to Sunol	None	0	0	0	0
			Sunol to Dublin/Pleasant on BART	South San Ramon Creek/ Alamo Creek/ Dublin Creek Laurel Creek Gold Creek Arroyo Valle Arroyo De La Laguna	995.94	0	3.54	1.42

Corridor	Possible Alignment Segments	Alignment	Segment	Named and Unnamed Water Resources	Streams in Linear Feet	Lakes/ Bay[1] in Acres	Floodplain in Acres	Erosion in Acres
			Dublin/Pleasanton BART to El Charo Road	Tassajara Creek Arroyo	113.72	0	0.13	
			El Charo Road to Livermore (I-580)	Arroyo Las Possitas (Western Section) Arroyo Las Possitas (Eastern Section) Cottonwood Creek Unnamed Stream in Collier Canyon, tributary to Arroyo Las Positas	224.32	0	0.01	0.56
			Livermore (I-580) to Greenville	Arroyo Las Positas/ Cayetano Creek Arroyo Seco South Bay Aqueduct	159.10	0	0.03	6.29
			Greenville to Altamont Pass	Arroyo Las Positas	542.10	0	0	23.48
			Altamont Pass to County Line	Patterson Run (Canal) (2) Unnamed Intermittent Stream/Rivers to Patterson Run (3) Unnamed Intermittent Stream/Rivers drain into Delta Mendota Canal	547.94	0	0	30.79
		I-580/ UPRR	Niles Canyon to Sunol	None	0	0	0	0
			Sunol to Pleasanton	Unnamed Creek East of 680 Arroyo De La Laguna	589.65	0	0.39	0.37
			Pleasanton to El Charo	Arroyo Valle	105.81	0	0.20	0
			UPRR to I-580 connector	Arroyo Gravel Pits/ Arroyo Mocho	111.33	2.06	7.52	0
			El Charo Road to Livermore (I-580)	Arroyo Las Possitas (Western Section) Arroyo Las Possitas (Eastern Section) Cottonwood Creek Unnamed Stream in Collier Canyon, tributary to Arroyo Las Positas	224.32	0	0.01	0.56
			Livermore (I-580) to Greenville	Arroyo Las Positas/ Cayetano Creek Arroyo Seco South Bay Aqueduct	159.10	0	0.03	6.29
			Greenville to Altamont Pass	Arroyo Las Positas	542.10	0	0	23.48
			Altamont Pass to County Line	Patterson Run (Canal) (2) Unnamed	547.94	0	0	30.79

Corridor	Possible Alignment Segments	Alignment	Segment	Named and Unnamed Water Resources	Streams in Linear Feet	Lakes/ Bay[1] in Acres	Floodplain in Acres	Erosion in Acres
				Intermittent Stream/Rivers to Patterson Run (3) Unnamed Intermittent Stream/Rivers drain into Delta Mendota Canal				
		Patterson Pass/UPRR	Niles Canyon to Sunol	None	0	0	0	0
			Sunol to Pleasanton	Unnamed Creek East of 680 Arroyo De La Laguna	589.65	0	0.39	0.37
			Pleasanton to El Charo	Arroyo Valle	105.81	0	0.20	0
			El Charo to Livermore	Arroyo Mocho Arroyo Gravel Pits/ Arroyo Mocho	264.40	0	6.17	0
			Livermore to Patterson Pass cut off	None	0	0	0	0
			Patterson Pass	Arroyo Seco South Bay Aqueduct Patterson Run (Canal)	900.86	0	2.61	46.27
		UPRR	Niles Canyon to Sunol	Alameda Creek Arroyo De La Laguna	0	0	0	0
			Sunol to Pleasanton	Unnamed Creek East of 680 Arroyo De La Laguna	589.65	0	0.39	0.37
			Pleasanton to El Charo	Arroyo Valle	105.81	0	0.20	0
			El Charo to Livermore	Arroyo Mocho Arroyo Gravel Pits/ Arroyo Mocho	264.40	0	6.17	0
			Livermore to Patterson Pass cut off	None	0	0	0	0
			Patterson Pass cut off to Greenville	South Bay Aqueduct Arroyo Seco	157.16	0	0.19	3.25
			Greenville to Altamont Pass	Arroyo Las Positas Unnamed Tributaries of Mountain house Creek/ Mountain House Creek	292.03	0	0	23.48
			Altamont Pass to County Line	Patterson Run (Canal) (2) Unnamed Intermittent Stream/Rivers to Patterson Run (3) Unnamed Intermittent Stream/Rivers drain into Delta Mendota	547.94	0	0	30.79

Corridor	Possible Alignment Segments	Alignment	Segment	Named and Unnamed Water Resources	Streams in Linear Feet	Lakes/ Bay[1] in Acres	Floodplain in Acres	Erosion in Acres
				Canal				
	1 of 4	Tracy Downtown (BNSF Connection)	County Line to Tracy Downtown	California Aqueduct Delta Mendota Canal Upper Main Canal (3) Unnamed Intermittent Streams/Rivers	432.58	0	0	15.81
			Tracy Downtown to I-205	Unnamed Canal/Ditch draining from Tom Paine Slough	203.73	0	3.98	0
			I-205 to S. UPRR	San Joaquin River Paradise Cut Tom Paine Slough Unnamed Tributary to Tom Paine Slough	533.85	0.37	16.34	0
			I-205 to Lathrop – northern	San Joaquin River Paradise Cut Tom Paine Slough Unnamed Tributary to Tom Paine Slough	1361.02	1.92	11.68	0
			Southwestern Manteca	(2) Unnamed Canals/Ditches east and west of Durham Ferry Rd	1636.64	0	0	0
			Southeastern Manteca	None	0	0	0	0
			Northern Escalon Wye to BNSF	Unnamed Canal/Ditch crossing near Spreckels Rd Unnamed Canal/Ditch crossing near Jack Tone Rd Unnamed Canal/Ditch crossing near North Ripon Rd	168.43	0	0	0
			Southern Escalon Wye to BNSF (part 1)	Unnamed Canal/Ditch crossing near North Ripon Rd Unnamed Canal/Ditch crossing near Wagner Rd	1609.93	0	0	0
			Southern Escalon Wye to BNSF (part 2)	Main District Canal Lone Tree Creek Avena Drain/ Unnamed Tributary of Lone Tree Creek	282.05	0	9.37	0
		Tracy ACE Station (BNSF Connection)	County Line to South of Tracy	(3) Unnamed Intermittent Stream/Rivers drain into Delta Mendota Canal	216.24	0	0	6.85
			South of Tracy to Tracy ACE Station	California Aqueduct Delta Mendota Canal Upper Main Canal	520.34	0	0.01	10.36

Corridor	Possible Alignment Segments	Alignment	Segment	Named and Unnamed Water Resources	Streams in Linear Feet	Lakes/ Bay[1] in Acres	Floodplain in Acres	Erosion in Acres
				(6) Unnamed Intermittent Stream/Rivers drain into Delta Mendota Canal				
			Tracy ACE Station to I-205	Tom Paine Slough Unnamed Tributary of Tom Paine Slough	1469.71	0	19.32	0
			I-205 to Southeast of Manteca	Paradise Cut San Joaquin River	374.02	2.08	9.96	0
			I-205 to Lathrop – Southern	Paradise Cut (2) San Joaquin River South San Joaquin Irrigation District Canal Unnamed Canal/Ditch drains from South San Joaquin Irrigation District Canal	1112.47	0.96	10.22	0
			Southwestern Manteca	(2) Unnamed Intermittent Canals/Ditches east and west of Durham Ferry Rd	1636.64	0	0	0
			Southeastern Manteca	None	0	0	0	0
			Northern Escalon Wye to BNSF	Unnamed Canal/Ditch crossing near Spreckels Rd Unnamed Canal/Ditch crossing near Jack Tone Rd Unnamed Canal/Ditch crossing near North Ripon Rd	168.43	0	0	0
			Southern Escalon Wye to BNSF (part 1)	Unnamed Canal/Ditch crossing near North Ripon Rd Unnamed Canal/Ditch crossing near Wagner Rd	1609.93	0	0	0
			Southern Escalon Wye to BNSF (part 2)	Main District Canal Lone Tree Creek Avena Drain/ Unnamed Tributary of Lone Tree Creek	282.05	0	9.37	0
		Tracy ACE Station (UPRR Connection)	County Line to South of Tracy	(3) Unnamed Intermittent Stream/Rivers drain into Delta Mendota Canal	216.24	0	0	6.85
			South of Tracy to Tracy ACE Station	California Aqueduct Delta Mendota Canal Upper Main Canal (6) Unnamed	520.34	0	0.01	10.36

Corridor	Possible Alignment Segments	Alignment	Segment	Named and Unnamed Water Resources	Streams in Linear Feet	Lakes/ Bay[1] in Acres	Floodplain in Acres	Erosion in Acres
				Intermittent Stream/Rivers drain into Delta Mendota Canal				
			Tracy ACE Station to I-205	Tom Paine Slough Unnamed Tributary of Tom Paine Slough	1469.71	0	19.32	0
			I-205 to Southeast of Manteca	Paradise Cut San Joaquin River	374.02	2.08	9.96	0
			Southwestern Manteca	(2) Unnamed Intermittent Canals/Ditches east and west of Durham Ferry Rd	1636.64	0	0	0
			Southeastern Manteca	None	0	0	0	0
			Eastern Manteca UPRR South to BNSF	Unnamed Canal/Ditch crossing near Manteca Road (3) Unnamed Canals/Ditches crossing near Spreckels Road	277.30	0	0	0
			Manteca to Escalon Wye	Unnamed Canal/Ditch crossing near Spreckels Road	938.77	0	0	0
		Tracy Downtown (UPRR Connection)	County Line to Tracy Downtown	California Aqueduct Delta Mendota Canal Upper Main Canal (3) Unnamed Intermittent Streams/Rivers	432.58	0	0	15.81
			Tracy Downtown to I-205	Unnamed Canal/Ditch draining from Tom Paine Slough	203.73	0	3.98	0
			I-205 to S. UPRR	San Joaquin River Paradise Cut Tom Paine Slough Unnamed Tributary to Tom Paine Slough	533.85	0.37	16.34	0
			I-205 to Lathrop – northern	San Joaquin River Paradise Cut Tom Paine Slough Unnamed Tributary to Tom Paine Slough	1361.02	1.92	11.68	0
			Southwestern Manteca	(2) Unnamed Intermittent Canals/Ditches east and west of Durham Ferry Rd	1636.64	0	0	0
			Southeastern Manteca	None	0	0	0	0
			Eastern	Unnamed Canal/Ditch	277.30	0	0	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and Unnamed Water Resources	Streams in Linear Feet	Lakes/ Bay[1] in Acres	Floodplain in Acres	Erosion in Acres
			Manteca UPRR South to BNSF	crossing near Manteca Road (3) Unnamed Canals/Ditches crossing near Spreckels Road				
			Manteca to Escalon Wye	Unnamed Canal/Ditch crossing near Spreckels Road	938.77	0	0	0
	2 of 2	East Bay Connections	Niles to Union City – Niles Wye (E) to Niles Wye (N)	Alameda Creek Sunol Aqueduct	60.72	0	0.17	9.21
			Niles to Fremont – Niles Wye (E) to Niles Wye (S)	Hetch Hetchy Aqueduct Unnamed Intermittent Stream/River crossing near Hetch Hetchy Aqueduct Unnamed Intermittent Stream/River crossing near junction with Niles/I-880 5A Unnamed Intermittent Stream/River terminating at Niles Reservoir Unnamed intermittent stream emptying into Elizabeth Lake	260.93	0	0.40	21.13
Station Location Options								
Pleasanton (I-680/Bernal Rd)				None	0	0	0	0
Pleasanton (BART)				Chabot Canal	437.82	0	2.42	0
Livermore (Downtown)				None	0	0	0	0
Livermore (I-580)				Arroyo Las Positas	174.06	0	1.72	8.33
Livermore (Greenville Road/UPRR)				None	0	0	0	0
Livermore (Greenville Road/I-580)				None	0	0	0	8.17
Tracy (Downtown)				None	0	0	0	0
Tracy (ACE)				None	0	0	0	0
San Francisco Bay Crossings	1 of 2	Trans Bay Crossing – Transbay Transit Center	Transbay Transit Center tube to SF Bay	SF Bay	0	8.42	0	0
			SF Bay to West Oakland	SF Bay Oakland Inner Harbor	0	28.08	0	0
		Trans Bay Crossing – 4th & King	4th/Townsend tube to SF Bay	SF Bay	0	7.34	0	0
			SF Bay to West Oakland	SF Bay Oakland Inner Harbor	0	28.08	0	0
	1 of 6	Dumbarton (High Bridge)	Dumbarton Wye North to Caltrain	None	0	0	0	0
			Dumbarton	Hetch Hetchy	51.33	0	0	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and Unnamed Water Resources	Streams in Linear Feet	Lakes/ Bay[1] in Acres	Floodplain in Acres	Erosion in Acres
			Wye South to Caltrain	Aqueduct				
			Dumbarton Bay Crossing to Don Edwards	Tidal Flats San Francisco Bay Newark Slough/ Salt evaporating Ponds	250.59	30.39	38.82	0
			Don Edwards to Shinn (Centerville Line)	Newark Slough/ Salt evaporating Ponds	178.33	5.73	8.56	0
			Shinn to Niles Wye (E)	Alameda Creek Quarries	547.44	1.20	0	9.97
		Dumbarton (Low Bridge)	Dumbarton Wye North to Caltrain	None	0	0	0	0
			Dumbarton Wye South to Caltrain	Hetch Hetchy Aqueduct	51.33	0	0	0
			Dumbarton Bay Crossing to Don Edwards	Tidal Flats San Francisco Bay Newark Slough/ Salt Evaporating Ponds	250.59	30.39	38.82	0
			Don Edwards to Shinn (Centerville Line)	Newark Slough/ Salt evaporating Ponds	178.33	5.73	8.56	0
			Shinn to Niles Wye (E)	Alameda Creek Quarries	547.44	1.20	0	9.97
		Dumbarton (Tube)	Dumbarton Wye North to Caltrain	None	0	0	0	0
			Dumbarton Wye South to Caltrain	Hetch Hetchy Aqueduct	51.33	0	0	0
			Dumbarton Bay Crossing to Don Edwards	Tidal Flats San Francisco Bay Newark Slough/ Salt Evaporating Ponds	250.59	30.39	38.82	0
			Don Edwards to Shinn (Centerville Line)	Newark Slough/ Salt evaporating Ponds	178.33	5.73	8.56	0
			Shinn to Niles Wye (E)	Alameda Creek Quarries	547.44	1.20	0	9.97
		Fremont Central Park (High Bridge)	Dumbarton Wye North to Caltrain	None	0	0	0	0
			Dumbarton Wye South to Caltrain	Hetch Hetchy Aqueduct	51.33	0	0	0
			Dumbarton Bay Crossing to Don Edwards	Tidal Flats San Francisco Bay Newark Slough/ Salt	250.59	30.39	38.82	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and Unnamed Water Resources	Streams in Linear Feet	Lakes/ Bay[1] in Acres	Floodplain in Acres	Erosion in Acres
				Evaporating Ponds				
			Don Edwards to Niles (E) via Fremont Central Park	The Lagoon/ Lake Elizabeth Mowry Slough/ Mud Slough/ Salt Evaporating Ponds	1738.79	15.89	32.83	0
		Fremont Central Park (Low Bridge)	Dumbarton Wye North to Caltrain	None	0	0	0	0
			Dumbarton Wye South to Caltrain	Hetch Hetchy Aqueduct	51.33	0	0	0
			Dumbarton Bay Crossing to Don Edwards	Tidal Flats San Francisco Bay Newark Slough/ Salt Evaporating Ponds	250.59	30.39	38.82	0
			Don Edwards to Niles Wye (E) via Fremont Central Park	The Lagoon/ Lake Elizabeth Mowry Slough/ Mud Slough/ Salt Evaporating Ponds	1738.79	15.89	32.83	0
		Fremont Central Park (Tube)	Dumbarton Wye North to Caltrain	None	0	0	0	0
			Dumbarton Wye South to Caltrain	Hetch Hetchy Aqueduct	51.33	0	0	0
			Dumbarton Bay Crossing to Don Edwards	Tidal Flats San Francisco Bay Newark Slough/ Salt Evaporating Ponds	250.59	30.39	38.82	0
			Don Edwards to Niles Wye (E) via Fremont Central Park	The Lagoon/ Lake Elizabeth Mowry Slough/ Mud Slough/ Salt Evaporating Ponds	1738.79	15.89	32.83	0
Central Valley	1 of 6	BNSF – UPRR	North Stockton South to UPRR Connection	Mormon Slough/ Stockton Diverting Canal Duck Creek Littlejohns Creek Unnamed Tributary to Littlejohns Creek Avena Drain/ Unnamed Tributary of Lone Tree Creek	538.89	0	34.02	0
			BNSF Parallel to UPRR tracks	None	0	0	11.08	0
			Parallel tracks South through Escalon	Lone Tree Creek	695.16	0	21.58	0
			Escalon South to Amtrak Briggsmore	Hetch Hetchy Aqueduct Lateral No. 6/	1095.87	1.35	0.37	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and Unnamed Water Resources	Streams in Linear Feet	Lakes/ Bay[1] in Acres	Floodplain in Acres	Erosion in Acres
				Modesto Main Canal Main District Canal Modesto Main Canal Snedigar Lateral Stanislaus River (2) Unnamed Canals/Ditches crossing near Plainview Road				
			Amtrak Briggsmore to UPRR/BNSF Connection	Lateral No. 3 Dry Creek Lateral No. 2 Modesto Lateral Tuolumne River Lateral No. 1/ Ceres Main Canal Upper Lateral No. 2 ½ Upper Lateral No. 3 Turlock Main Canal High Line Canal Merced River	3114.64	0.14	3.86	0
			UPRR/BNSF Connection to Atwater	North Bloom Lateral South Bloom Lateral	1599.32	0	0	0
			Atwater to Downtown Merced	Livingston Canal Canal Creek Main Ash Lateral Trinidad Drain Black Rascal Creek/Hesse Lateral/ Meadowbrook Lateral	170.76	0	15.68	0
			Merced South to BNSF Connection	Merced Lateral/ Bear Creek/ Black Rascal	242.26	0	33.68	0
			BNSF Connection South to Henry Miller Wye	Farmdale Lateral Miles Creek Owens Creek Knoff Lateral Givens Lateral North Slough/ Mariposa Creek El Nido South Slough Deadman Creek Dutchman Creek	417.10	0	61.66	0
			BNSF Henry Miller Wye	Chowchilla River Ash Slough/ Ash Slough Bypass Berenda Slough	417.22	0	1.56	0
		BNSF	North Stockton South to UPRR	Mormon Slough/ Stockton Diverting	538.89	0	34.02	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and Unnamed Water Resources	Streams in Linear Feet	Lakes/ Bay[1] in Acres	Floodplain in Acres	Erosion in Acres
			Connection	Canal Duck Creek Littlejohns Creek Unnamed Tributary to Littlejohns Crek Avena Drain/ Unnamed Tributary of Lone Tree Creek				
			BNSF Parallel to UPRR tracks	None	0	0	11.08	0
			Parallel tracks South through Escalon	Lone Tree Creek	695.16	0	21.58	0
			Escalon South to Amtrak Briggsmore	Hetch Hetchy Aqueduct Lateral No. 6/ Modesto Main Canal Main District Canal Modesto Main Canal Snedigar Lateral Stanislaus River (2) Unnamed Canals/Ditches crossing near Plainview Road	1095.87	1.35	0.37	0
			Amtrak Briggsmore to UPRR/BNSF Connection	Lateral No. 3 Dry Creek Lateral No. 2 Modesto Lateral Tuolumne River Lateral No. 1/ Ceres Main Canal Upper Lateral No. 2 ½ Upper Lateral No. 3 Turlock Main Canal High Line Canal Merced River	3114.64	0.14	3.86	0
			UPRR/BNSF Connection to Atwater	North Bloom Lateral South Bloom Lateral	1599.32	0	0	0
			Atwater to Downtown Merced	Livingston Canal Canal Creek Main Ash Lateral Trinidad Drain Black Rascal Creek/Hesse Lateral/ Meadowbrook Lateral	170.76	0	15.68	0
			Merced South to UPRR Connection	Bear Creek/ Black Rascal	213.87	0	20.66	0
			UPRR Connection East to Castle	Miles Creek Owens Creek	381.97	0	67.69	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and Unnamed Water Resources	Streams in Linear Feet	Lakes/ Bay[1] in Acres	Floodplain in Acres	Erosion in Acres
			Connection	Knoff Lateral Hadley Lateral/ Givens Lateral Hadley Lateral (Second segment crossed) Duck Creek Le Grand Canal				
			Castle Connection to Henry Miller Wye	Mariposa Creek/ Duck Slough Deadman Creek (North Section) Deadman Creek (South Section) Dutchman Creek Chowchilla River	430.36	0	9.26	0
			Henry Miller Wye	Ash Slough/ Ash Bypass Canal Berenda Slough Berenda Creek	157.57	0.12	6.93	0
		UPRR	French Camp to Lathrop	French Camp Slough/ Littlejohns Creek	418.82	0	7.36	0
			Lathrop through Manteca	(2) Unnamed Canals/Ditches draining from South San Joaquin Irrigation District Canal Unnamed Canal/Ditch crossing west of Union Road	4389.14	0	0	0
			Manteca South to BNSF/UPRR	Unnamed Canal/Ditch crossing between Jack Tone Rd and Warren Rd	55.47	0	0	0
			BNSF/UPRR South to Modesto	Stanislaus River Lateral No. 8 Canal Lateral No. 6 Canal Lateral No. 7 Canal Lateral No. 3 Canal Lateral No. 4 Canal Hetch Hetchy Aqueduct	378.54	0	1.72	0
			UPRR Modesto South – Western Option	Tuolumne River	50.00	0	0.90	0
			South Modesto to BNSF Connection	Lateral No. 1 Lower Lateral No. 2 Ceres Main Canal/ Lateral 2 ½ Upper/ Lower Lateral No. 3	420.52	0	0	0
			BNSF Connection South to	TID Lateral No. 5 Lateral No. 6/ Turlock Main Canal	758.05	0	16.55	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and Unnamed Water Resources	Streams in Linear Feet	Lakes/ Bay[1] in Acres	Floodplain in Acres	Erosion in Acres
			Merced	High Line Canal Merced River Stoddard Lateral Arena Canal Atwater Canal Canal Creek Bear Creek/ Black Rascal/ Hesse Lateral				
			Merced South to BNSF Connection	Merced Lateral/ Bear Creek/ Black Rascal	242.26	0	33.68	0
			BNSF Connection South to Henry Miller Wye	Farmdale Lateral Miles Creek Owens Creek Knoff Lateral Givens Lateral North Slough/ Mariposa Creek El Nido South Slough Deadman Creek Dutchman Creek	417.10	0	61.66	0
			BNSF Henry Miller Wye	Chowchilla River Ash Slough/ Ash Slough Bypass Berenda Slough	417.22	0	1.56	0
		BNSF Castle	North Stockton South to UPRR Connection	Mormon Slough/ Stockton Diverting Canal Duck Creek Littlejohns Creek Unnamed Tributary to Littlejohns Creek Avena drain/ Unnamed Tributary of Lone Tree Creek	538.89	0	34.02	0
			BNSF Parallel to UPRR tracks	None	0	0	11.08	0
			Parallel tracks South through Escalon	Lone Tree Creek	695.16	0	21.58	0
			Escalon South to Amtrak Briggsmore	Hetch Hetchy Aqueduct Lateral No. 6/ Modesto Main Canal Main District Canal Modesto Main Canal Snedigar Lateral Stanislaus River (2) Unnamed Canals/Ditches crossing near Plainview Road	1095.87	1.35	0.37	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and Unnamed Water Resources	Streams in Linear Feet	Lakes/ Bay[1] in Acres	Floodplain in Acres	Erosion in Acres
			Amtrak Briggsmore to UPRR/BNSF Connection	Lateral No. 3 Dry Creek Lateral No. 2 Modesto Lateral Tuolumne River Lateral No. 1/ Ceres Main Canal Upper Lateral No. 2 ½ Upper Lateral No. 3 Turlock Main Canal High Line Canal Merced River	3114.64	0.14	3.86	0
			From BNSF southeast to Castle AFB	Cressey Lateral/ Livingston Canal North Bloom Lateral Gertude Lateral Casad Canal	250367	0	0	0
			Castle AFB South to BNSF connect	Canal Creek/ Livingston Canal	195.16	0	10.52	0
			BNSF South of Castle to UPRR Connect	Fahrens Creek Bear Creek/ Black Rascal Creek Doane Canal Fairfield Canal Miles Creek Planada Canal Owens Creek Le Grand Canal	486.97	0	60.53	0
			Castle Connection to Henry Miller Wye	Mariposa Creek/ Duck Slough Deadman Creek (North Section) Deadman Creek (South Section) Dutchman Creek Chowchilla River	430.36	0	9.26	0
			Henry Miller Wye	Ash Slough/ Ash Bypass Canal Berenda Slough Berenda Creek	157.57	0.12	6.93	0
		UPRR – BNSF Castle	French Camp to Lathrop	French Camp Slough/ Littlejohns Creek	418.82	0	7.36	0
			Lathrop through Manteca	(2) Unnamed Canals/Ditches draining from South San Joaquin Irrigation District Canal Unnamed Canal/Ditch crossing west of Union Road	4389.14	0	0	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and Unnamed Water Resources	Streams in Linear Feet	Lakes/ Bay[1] in Acres	Floodplain in Acres	Erosion in Acres
			Manteca South to BNSF/UPRR	Unnamed Canal/Ditch crossing between Jack Tone Rd and Warren Rd	55.47	0	0	0
			BNSF/UPRR South to Modesto	Stanislaus River Lateral No. 8 Canal Lateral No. 6 Canal Lateral No. 7 Canal Lateral No. 3 Canal Lateral No. 4 Canal Hetch Hetchy Aqueduct	378.54	0	1.72	0
			UPRR Modesto South – Western Option	Tuolumne River	50.00	0	0.90	0
			South Modesto to BNSF Connection	Lateral No. 1 Lower Lateral No. 2 Ceres Main Canal/ Lateral 2 ½ Upper/ Lower Lateral No. 3	420.52	0	0	0
			North South Connection East of Stockton (South Portion)	(3) Cross Ditch No. 2 Highline Canal Lateral No. 5 Lateral No. 6 Merced River	501.07	0	0.51	0
			From BNSF southeast to Castle AFB	Cressey Lateral/ Livingston Canal North Bloom Lateral Gertude Lateral Casad Canal	250.67	0	0	0
			Castle AFB South to BNSF Connection	Canal Creek/ Livingston Canal	195.16	0	10.52	0
			BNSF South of Castle to UPRR Connection	Fahrens Creek Bear Creek/ Black Rascal Creek Doane Canal Fairfield Canal Miles creek Planada Canal Owens Creek Le Grand Canal	486.97	0	60.53	0
			Castle Connection to Henry Miller Wye	Mariposa Creek/ Duck Slough Deadman Creek (North Section) Deadman Creek (South Section) Dutchman Creek Chowchilla River	430.36	0	9.26	0
			Henry Miller	Ash Slough/ Ash	157.57	0.12	6.93	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and Unnamed Water Resources	Streams in Linear Feet	Lakes/ Bay[1] in Acres	Floodplain in Acres	Erosion in Acres
			Wye	Bypass Canal Berenda Slough Berenda Creek				
		UPRR – BNSF	French Camp to Lathrop	French Camp Slough/ Littlejohns Creek	418.82	0	7.36	0
			Lathrop through Manteca	(2) Unnamed Canals/Ditches draining from South San Joaquin Irrigation District Canal Unnamed Canal/Ditch crossing west of Union Road	4389.14	0	0	0
			Manteca South to BNSF/UPRR	Unnamed Canal/Ditch crossing between Jack Tone Rd and Warren Rd	55.47	0	0	0
			BNSF/UPRR South to Modesto	Stanislaus River Lateral No. 8 Canal Lateral No. 6 Canal Lateral No. 7 Canal Lateral No. 3 Canal Lateral No. 4 Canal Hetch Hetchy Aqueduct	378.54	0	1.72	0
			UPRR Modesto South – Western Option	Tuolumne River	50.00	0	0.90	0
			South Modesto to BNSF Connection	Lateral No. 1 Lower Lateral No. 2 Ceres Main Canal/ Lateral 2 ½ Upper/ Lower Lateral No. 3	420.52	0	0	0
			BNSF crossing to UPRR – Southeast of Turlock	(3) Cross Ditch No. 2 Highline Canal Lateral No. 5 Lateral No. 6 Merced River	501.07	0	0.51	0
			UPRR/BNSF Connection to Atwater	North Bloom Lateral South Bloom Lateral	1599.32	0	0	0
			Atwater to Downtown Merced	Livingston Canal Canal Creek Main Ash Lateral Trinidad Drain Black Rascal Creek/ Hesse Lateral/ Meadowbrook Lateral	170.76	0	15.68	0
			Merced South to BNSF Connection	Merced Lateral/ Bear Creek/ Black Rascal	242.26	0	33.68	0
			BNSF	Farmdale Lateral	417.10	0	61.66	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and Unnamed Water Resources	Streams in Linear Feet	Lakes/ Bay[1] in Acres	Floodplain in Acres	Erosion in Acres
			Connection South to Henry Miller Wye	Miles Creek Owens Creek Knoff Alteral Givens Lateral North Slough/ Mariposa Creek El Nido South Slough Deadman Creek Dutchman Creek				
			BNSF Henry Miller Wye	Chowchilla River Ash Slough/ Ash Slough Bypass Berenda Slough	417.22	0	1.56	0
Station Location Options								
Modesto (Downtown)				None	0	0	0	0
Briggsmore (Amtrak)				None	0	0	0	0
Merced (Downtown)				None	0	0	11.65	0
Castle AFB				Casad Lateral	415.91	0	0	0

Appendix 3.14-A-2. Indirect Water Resource Impacts Data Table for Alignment Alternatives and Station Location Option Comparisons

Corridor	Possible Alignment Segments	Alignment	Segment	Named and un-named water resources	Streams in Linear Feet	Lakes/ Bay in Acres	Flood-plain in Acres	Erosion in Acres
San Francisco to San Jose: Caltrain	1 of 1	San Francisco to Dumbarton	Transbay Transit Center to 4th/Townsend	None	0	0	0	0
			4th/Townsend to Millbrae/SFO	Visitacion Valley Guadalupe Valley Oyster Point Channel San Bruno Cannel San Bruno Canal Colma Creek San Francisco Bay	200.01	3.38	21.33	17.74
			Millbrae/SFO to Redwood City	Mills Creek Easton Creek Sanchez Creek San Mateo Creek Laural Creek	1499.32	0	70.50	0
			Redwood City to Caltrain	Belmont Creek Pulgas Creek Arroyo Ojo De Agua	917.72	0	9.36	0
	1 of 1	Dumbarton to San Jose	Caltrain Dumbarton Wye	Hetch Hetchy Aqueduct	262.18	0		0
			Dumbarton Wye to Palo Alto	San Francisquito/ Los Trancos Creek	223.05	0	.046	0
			Palo Alto to Santa Clara	Matadero Creek/Canal Barron Creek Adobe Creek Permanente Creek Stevens Creek Calabazas Creek Saratogoa Creek	2164.00	0	74.12	0
			Santa Clara to Diridon Station	None	0	0	0	0
Station Location Options								
Transbay Transit Center				None	0	0	0	0
4th and King (Caltrain)				None	0	0	0	0
Millbrae/SFO				None	0	0	0.05	0
Redwood City (Caltrain)				None	0	0	0	0
Palo Alto (Caltrain)				None	0	0	0	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and un-named water resources	Streams in Linear Feet	Lakes/ Bay in Acres	Flood-plain in Acres	Erosion in Acres
Oakland to San Jose: Niles/I-880	1 of 2	West Oakland to Niles Junction	West Oakland to Jack London Square	None	0	0	0	0
			Jack London Square to Oakland Coliseum	Arroyo Viejo Section Lion Creek	402.82	0	0.72	0
			Oakland Coliseum to Union City (BART)	Unnamed Tributary to Airport Channel/ Arrowhead Marsh Dry Creek San Leandro Creek Unnamed Canal West of Hesperian Blvd. San Lorenzo Creek Ward Creek Unnamed Canal South of Industrial Blvd. Unnamed Canal South of Whippel St. Unnamed intermittent tributary to Alameda Creek	6116.30	0	3.28	0
			Union City (BART) to Niles Junction	Niles Canyon/Alameda Creek Gravel Pits	2308.72	0	5.52	25.39
		12th Street/City Center to Niles Junction	12th Street/City Center to Jack London Square	None	0	0	0	0
			Jack London Square to Oakland Coliseum	Arroyo Viejo Arroyo Viejo Section Lion Creek	402.82	0	0.72	0
			Oakland Coliseum to Union City (BART)	Unnamed Tributary to Airport Channel/ Arrowhead Marsh Dry Creek San Leandro Creek Unnamed Canal West of Hesperian Blvd. San Lorenzo Creek Ward Creek Unnamed Canal	6116.30	0	3.28	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and un-named water resources	Streams in Linear Feet	Lakes/ Bay in Acres	Flood-plain in Acres	Erosion in Acres
				South of Industrial Blvd. Unnamed Canal South of Whippel St. Unnamed intermittent tributary to Alameda Creek				
			Union City (BART) to Shinn	Niles Canyon/ Alameda Creek Gravel Pits	2308.72	0	5.52	25.39
	1 of 2	Niles Junction to San Jose via Trimble	Niles Junction to Niles Wye (S)	Mission Creek Alameda Creek The Lagoon/Elizabeth Lake Unnamed intermittent stream emptying into Elizabeth Lake	821.51	1.31	16.29	45.20
			Niles Wye (S) to Warm Springs	(2) Unnamed intermittent streams at Warm Springs Station	995.40	0	0	0
			Warm Springs to Trimble Rd.	Unnamed Canal at 262 And 880 Interchange Penitencia Creek Scott Creek/Ravine Coyote Creek/Mud Slough	403.30	0	110.37	0
			Trimble Rd. Option	None	0	0	3.09	0
			Santa Clara to Diridon Station	None	0	0	0	0
		Niles Junction to San Jose via I-880	Niles Junction to Niles Wye (S)	Mission Creek Alameda Creek The Lagoon/Elizabeth Lake Unnamed intermittent stream emptying into Elizabeth Lake	821.51	1.31	16.29	45.20
			Niles Wye (S) to Warm Springs	(2) Unnamed intermittent streams at Warm Springs Station	995.40	0	0	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and un-named water resources	Streams in Linear Feet	Lakes/ Bay in Acres	Flood-plain in Acres	Erosion in Acres
			Warm Springs to Trimble Rd.	Unnamed Canal at 262 And 880 Interchange Penitencia Creek Scott Creek/Ravine Coyote Creek/Mud Slough	403.30	0	110.37	0
			I-880 – Trimble Rd. to Diridon	Coyote Creek Guadalupe River	486.71	0	40.30	0
Station Location Options								
West Oakland/7th Street				None	0	0	0	0
12th Street/City Center				None	0	0	0	0
Coliseum/Airport				Lion Creek	1733.75	0	2.78	0
Union City (BART)				Unnamed intermittent tributary to Alameda Creek	831.34	0	1.41	0
Union City (Shinn)				None	0	0	0	0
Fremont (Warm Springs)				None	0	0	0	0
San Jose to Central Valley: Pacheco Pass San Jose to Central Valley: Pacheco Pass San Jose to Central Valley: Pacheco Pass San Jose to Central Valley: Pacheco Pass	1 of 1	Pacheco	Diridon to Morgan Hill	Los Gatos Creek (tributary of Guadalupe River) Guadalupe River	811.12	0	32.80	24.11
			Morgan Hill to Gilroy	Little Llagas Creek Llagas Creek	629.17	0	38.95	0
			Gilroy to San Luis Reservoir	Miller Slough Pajaro River Tequisquita Slough South Fork Pacheco Creek Elephant Head Creek Cottonwood Creek Cedar Creek Pacheco Creek Hurricane Canyon	7774.80	0	231.76	122.18
	1 of 3 1 of 1 1 of 1 1 of 1	Henry Miller (UPRR Connection)	San Luis Reservoir to Valley Floor	Cottonwood Creek Tule Lake Ramero Creek San Louis Creek California Aqueduct Mendota Canal	2609.82	3.69	196.10	88.87
			Western Valley to Henry Miller UP Wye	Belmont Drain Boundary Drain Chowchilla River	32849.47	6.00	260.83	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and un-named water resources	Streams in Linear Feet	Lakes/ Bay in Acres	Flood-plain in Acres	Erosion in Acres
				Delta Canal Devon Drain East Delta Canal Eastside Bypass Diversion Canal Escano Branch No.1 Ditch Justin Canal Los Banos Creek Los Banos Wildlife Area Main Canal Mariposa Slough Mud Slough Outside Canal Poso Drain San Joaquin River San Juan Canal San Juan Drain San Juan River San Luis Drain San Luis Canal San Luis Wasteway San Pedro Canal Sanjon De Santa Rita Marsh Santa Fe Canal Santa Rita Ditch Santa Rita Drain Santa Rita Canal Santa Rita River Santa Rita Slough/Salt Slough Unnamed Canal draining from Chowchilla River Unnamed Canal/Ditch at Mexican Lane Unnamed Canal/Ditch parallel to Poso Drain Unnamed Perennial Stream/River emptying into Mud Slough Unnamed Perennial Stream/River emptying into Devon Drain				

Corridor	Possible Alignment Segments	Alignment	Segment	Named and un-named water resources	Streams in Linear Feet	Lakes/ Bay in Acres	Flood-plain in Acres	Erosion in Acres
				Unnamed pond draining into San Luis Wasteway Unnamed Canal/Ditch emptying into Devon Drain Unnamed canal through Riverside Canal West Delta Canal West San Juan Drain West San Juan Drain No.1 West Santa Rita Drain Wood Slough				
			Henry Miller UP North Wye to UP South Wye	Ash Slough/Ash Slough Bypass Bethel Canal Eastman Lateral Sewage Disposal	3207.86	0.31	1.36	0
			Henry Miller Wye North to UPRR	Ash Slough/Ash Slough Bypass Chowchilla River	1192.08	0	6.89	0
			Henry Miller Wye South to UPRR	(2) Berenda Slough Califa Lateral Unnamed Canal/Ditch crossing at 23 ½ Ave	4599.24	0	4.32	0
		Henry Miller (BNSF Connection)	San Luis Reservoir to Valley Floor	Cottonwood Creek Tule Lake Ramero Creek San Louis Creek California Aqueduct Mendota Canal	2609.82	3.69	196.10	88.87
			Western Valley to Henry Miller UP Wye	Belmont Drain Boundary Drain Chowchilla River Delta Canal Devon Drain East Delta Canal Eastside Bypass Diversion Canal Escano Branch No.1 Ditch Justin Canal	32849.47	6.00	260.83	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and un-named water resources	Streams in Linear Feet	Lakes/ Bay in Acres	Flood-plain in Acres	Erosion in Acres
				Los Banos Creek Los Banos Wildlife Area Main Canal Mariposa Slough Mud Slough Outside Canal Poso Drain San Joaquin River San Juan Canal, Drain, RIver San Luis Drain and Canal San Luis Wasteway San Pedro Canal Sanjon De Santa Rita Marsh Santa Fe Canal Santa Rita Ditch, Drain, Canal, River Santa Rita Slough/Salt Slough Unnamed Canal draining from Chowchilla River Unnamed Canal/Ditch at Mexican Lane Unnamed Canal/Ditch parallel to Poso Drain Unnamed Perennial Stream/River emptying into Mud Slough Unnamed Perennial Stream/River emptying into Devon Drain Unnamed pond draining into San Luis Wasteway Unnamed Canal/Ditch emptying into Devon Drain Unnamed canal through Riverside Canal West Delta Canal West San Juan				

Corridor	Possible Alignment Segments	Alignment	Segment	Named and un-named water resources	Streams in Linear Feet	Lakes/ Bay in Acres	Flood-plain in Acres	Erosion in Acres
				Drain West San Juan Drain No.1 West Santa Rita Drain Wood Slough				
			Henry Miller UP North Wye to UP South Wye	Ash Slough/Ash Slough Bypass Bethel Canal Eastman Lateral Sewage Disposal	3207.86	0.31	1.36	0
			Henry Miller UP South Wye to BNSF Wyes	Berenda Slough	3887.93	0	4.19	0
			Henry Miller Wye North to BNSF	Berenda Slough/Reservoir Ash Slough	402.26	0.59	4.55	0
			Henry Miller Wye South to BNSF	Califa Canal	462.47	0	20.25	0
		GEA North	San Luis Reservoir to GEA Wye	California Aqueduct Cottonwood Creek Delta Mendota Canal East Side Canal Garzas Creek (2) Livingston Drain Los Banos Creek McGilvray Lateral Canal/Ditch Main Canal Middle Dallas Lateral Mud Slough Outside Canal Quinto Creek Romero Creek San Joaquin River Sullivan Extension Unnamed Intermittent Stream/River tributary to Cottonwood Creek Unnamed Intermittent Stream/River tributary to Delta Mendota Canal Unnamed	8002.79	3.32	94.16	144.23

Corridor	Possible Alignment Segments	Alignment	Segment	Named and un-named water resources	Streams in Linear Feet	Lakes/ Bay in Acres	Flood-plain in Acres	Erosion in Acres
				Intermittent Stream/River tributary to Quinto Creek (3) Unnamed Intermittent Unnamed Perennial Lakes/Ponds northwest of Los Banos Creek 2) Unnamed Perennial Streams/Rivers, tributaries to Los Banos Creek (2) Unnamed Canals/Ditches draining into East Side Canal Unnamed Canal/Ditch draining into Middle Dallas Lateral Unnamed Stream/River tributary to Romero Creek Unnamed Duck Ponds				
			GEA Wye to Atwater	Atwater Canal Atwater Drain Livingston Canal Tin Flume Lateral Canal	6373.46	5.05	0	0
			Atwater to BNSF	Atwater Drain Canal Creek Tin Flume Lateral Canal Unnamed Canal/Ditch draining from Black Rascal Creek	997.69	0	55.06	0
			GEA Wye to Arena (SR-99)	Middle Dallas Lateral Livingston Drain Unnamed Canals	3675.15	0	0	0
			Arena (SR-99) to Ballico West	Merced River Livingston Canal	778.20	0	6.38	0
			Arena (SR-99) to Ballico North	Merced River	608.96	0	2.64	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and un-named water resources	Streams in Linear Feet	Lakes/ Bay in Acres	Flood-plain in Acres	Erosion in Acres
				Livingston Canal				
Station Location Options								
San Jose (Diridon)				None	0	0	0	0
Morgan Hill (Caltrain)				None	0	0	0	0
Gilroy (Caltrain)				None	0	0	0	0
East Bay to Central Valley: Altamont Pass	1 of 4	I-680/ 580/UPRR	Niles Canyon to Sunol	None	0	0	0	0
			Sunol to Dublin/Pleasanto n BART	South San Ramon Creek/ Alamo Creek/ Dublin Creek Laurel Creek Gold Creek Arroyo Valle Arroyo De La Laguna	3560.24	0	15.56	24.67
			Dublin/Pleasanto n BART to El Charo Road	Tassajara Creek Arroyo	2899.00	0	2.47	0
			El Charo Road to Livermore (I-580)	Arroyo Las Possitas (Western Section) Arroyo Las Possitas (Eastern Section) Cottonwood Creek Unnamed Stream in Collier Canyon, tributary to Arroyo Las Positas	2900.62	0	0.16	2.50
			Livermore (I-580) to Greenville	Arroyo Las Positas/ Cayetano Creek Arroyo Seco South Bay Aqueduct	648.97	0	0.60	25.71
			Greenville to Altamont Pass	Arroyo Las Positas	2202.07	0	0	95.01
			Altamont Pass to County Line	Patterson Run (Canal) (2) Unnamed Intermittent Stream/Rivers to Patterson Run (3) Unnamed Intermittent Stream/Rivers drain into Delta Mendota Canal	1098.90	0	0	62.19
		I-580/ UPRR	Niles Canyon to Sunol	Alameda Creek Arroyo De La Laguna	0	0	0	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and un-named water resources	Streams in Linear Feet	Lakes/ Bay in Acres	Flood-plain in Acres	Erosion in Acres
			Sunol to Pleasanton	Unnamed Creek East of 680 Arroyo De La Laguna	1742.35	0	2.64	0.91
			Pleasanton to El Charo	Arroyo Valle	212.00	0	0.39	0
			UPRR to I-580 connector	Arroyo Gravel Pits/ Arroyo Mocho	437.90	7.48	29.87	0
			El Charo Road to Livermore (I-580)	Arroyo Las Possitas (Western Section) Arroyo Las Possitas (Eastern Section) Cottonwood Creek Unnamed Stream in Collier Canyon, tributary to Arroyo Las Positas	2900.62	0	0.16	2.50
			Livermore (I-580) to Greenville	Arroyo Las Positas/ Cayetano Creek Arroyo Seco South Bay Aqueduct	648.97	0	0.60	25.71
			Greenville to Altamont Pass	Arroyo Las Positas	2202.07	0	0	95.01
			Altamont Pass to County Line	Patterson Run (Canal) (2) Unnamed Intermittent Stream/Rivers to Patterson Run (3) Unnamed Intermittent Stream/Rivers drain into Delta Mendota Canal	1098.90	0	0	62.19
		Patterson Pass/UPRR	Niles Canyon to Sunol	Alameda Creek Arroyo De La Laguna	0	0	0	0
			Sunol to Pleasanton	Unnamed Creek East of 680 Arroyo De La Laguna	1742.35	0	2.64	0.91
			Pleasanton to El Charo	Arroyo Valle	212.00	0	0.39	0
			El Charo to Livermore	Arroyo Mocho Arroyo Gravel Pits/ Arroyo Mocho	620.28	0.03	12.82	0
			Livermore to Patterson Pass	None	0	0	0	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and un-named water resources	Streams in Linear Feet	Lakes/ Bay in Acres	Flood-plain in Acres	Erosion in Acres
			cut off					
			Patterson Pass	Arroyo Seco South Bay Aqueduct Patterson Run (Canal)	3678.10	0	4.74	196.85
		UPRR	Niles Canyon to Sunol	Alameda Creek Arroyo De La Laguna	0	0	0	0
			Sunol to Pleasanton	Unnamed Creek East of 680 Arroyo De La Laguna	1742.35	0	2.64	0.91
			Pleasanton to El Charo	Arroyo Valle	212.00	0	0.39	0
			El Charo to Livermore	Arroyo Mocho Arroyo Gravel Pits/ Arroyo Mocho	620.28	0.03	12.82	0
			Livermore to Patterson Pass cut off	None	0	0	0	0
			Patterson Pass cut off to Greenville	South Bay Aqueduct Arroyo Seco	417.21	0	0.39	13.26
			Greenville to Altamont Pass	Arroyo Las Positas Unnamed Tributaries of Mountain house Creek/ Mountain House Creek	2104.58	0	0	119.47
			Altamont Pass to County Line	Patterson Run (Canal) (2) Unnamed Intermittent Stream/Rivers to Patterson Run (3) Unnamed Intermittent Stream/Rivers drain into Delta Mendota Canal	1098.90	0	0	62.19
	1 of 4	Tracy Downtown (BNSF Connection)	County Line to Tracy Downtown	California Aqueduct Delta Mendota Canal Upper Main Canal (3) Unnamed Intermittent Streams/Rivers	1422.74	0	0	63.49
			Tracy Downtown	Unnamed	407.50	0	8.28	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and un-named water resources	Streams in Linear Feet	Lakes/ Bay in Acres	Flood-plain in Acres	Erosion in Acres
			to I-205	Canal/Ditch draining from Tom Paine Slough				
			I-205 to S. UPRR	San Joaquin River Paradise Cut Tom Paine Slough Unnamed Tributary to Tom Paine Slough	1743.71	1.46	60.03	0
			I-205 to Lathrop – northern	San Joaquin River Paradise Cut Tom Paine Slough Unnamed Tributary to Tom Paine Slough	6186.22	6.12	31.25	0
			Southwestern Manteca	(2) Unnamed Canals/Ditches east and west of Durham Ferry Rd	3508.28	0	0	0
			Southeastern Manteca	None	0	0	0	0
			Northern Escalon Wye to BNSF	Unnamed Canal/Ditch crossing near Spreckels Rd Unnamed Canal/Ditch crossing near Jack Tone Rd Unnamed Canal/Ditch crossing near North Ripon Rd	674.12	0	0	0
			Southern Escalon Wye to BNSF (part 1)	Unnamed Canal/Ditch crossing near North Ripon Rd Unnamed Canal/Ditch crossing near Wagner Rd	4091.11	0	0	0
			Southern Escalon Wye to BNSF (part 2)	Main District Canal Lone Tree Creek Avena Drain/ Unnamed Tributary of Lone Tree Creek	1222.82	0	36.43	0
		Tracy ACE Station (BNSF Connection)	County Line to South of Tracy	(3) Unnamed Intermittent Stream/Rivers drain into Delta Mendota	1708.33	0	0	27.96

Corridor	Possible Alignment Segments	Alignment	Segment	Named and un-named water resources	Streams in Linear Feet	Lakes/ Bay in Acres	Flood-plain in Acres	Erosion in Acres
				Canal				
			South of Tracy to Tracy ACE Station	California Aqueduct Delta Mendota Canal Upper Main Canal (6) Unnamed Intermittent Stream/Rivers drain into Delta Mendota Canal	1729.93	0	0.33	42.06
			Tracy ACE Station to I-205	Tom Paine Slough Unnamed Tributary of Tom Paine Slough	2550.85	0	36.43	0
			I-205 to Southeast of Manteca	Paradise Cut San Joaquin River	1326.74	9.18	39.99	0
			I-205 to Lathrop – Southern	Paradise Cut (2) San Joaquin River South San Joaquin Irrigation District Canal Unnamed Canal/Ditch drains from South San Joaquin Irrigation District Canal	7656.23	3.79	41.32	0
			Southwestern Manteca	(2) Unnamed Intermittent Canals/Ditches east and west of Durham Ferry Rd	3508.28	0	0	0
			Southeastern Manteca	None	0	0	0	0
			Northern Escalon Wye to BNSF	Unnamed Canal/Ditch crossing near Spreckels Rd Unnamed Canal/Ditch crossing near Jack Tone Rd Unnamed Canal/Ditch crossing near North Ripon Rd	674.12	0	0	0
			Southern Escalon Wye to BNSF (part 1)	Unnamed Canal/Ditch crossing near North	4091.11	0	0	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and un-named water resources	Streams in Linear Feet	Lakes/ Bay in Acres	Flood-plain in Acres	Erosion in Acres
				Ripon Rd Unnamed Canal/Ditch crossing near Wagner Rd				
			Southern Escalon Wye to BNSF (part 2)	Main District Canal Lone Tree Creek Avena Drain/ Unnamed Tributary of Lone Tree Creek	1222.82	0	36.43	0
		Tracy ACE Station (UPRR Connection)	County Line to South of Tracy	(3) Unnamed Intermittent Stream/Rivers drain into Delta Mendota Canal	1708.33	0	0	27.96
			South of Tracy to Tracy ACE Station	California Aqueduct Delta Mendota Canal Upper Main Canal (6) Unnamed Intermittent Stream/Rivers drain into Delta Mendota Canal	1729.93	0	0.33	42.06
			Tracy ACE Station to I-205	Tom Paine Slough Unnamed Tributary of Tom Paine Slough	2550.85	0	36.46	0
			I-205 to Southeast of Manteca	Paradise Cut San Joaquin River	1326.74	9.18	39.99	0
			Southwestern Manteca	(2) Unnamed Intermittent Canals/Ditches east and west of Durham Ferry Rd	3508.28	0	0	0
			Southeastern Manteca	None	0	0	0	0
			Eastern Manteca UPRR South to BNSF	Unnamed Canal/Ditch crossing near Manteca Road (3) Unnamed Canals/Ditches crossing near Spreckels Road	1101.74	0	0	0
			Manteca to Escalon Wye	Unnamed Canal/Ditch crossing near Spreckels Road	1234.79	0	0	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and un-named water resources	Streams in Linear Feet	Lakes/ Bay in Acres	Flood-plain in Acres	Erosion in Acres
		Tracy Downtown (UPRR Connection)	County Line to Tracy Downtown	California Aqueduct Delta Mendota Canal Upper Main Canal (3) Unnamed Intermittent Streams/Rivers	1422.74	0	0	63.49
			Tracy Downtown to I-205	Unnamed Canal	407.50	0	8.28	0
			I-205 to S. UPRR	San Joaquin River Paradise Cut Tom Paine Slough Unnamed Tributary to Tom Paine Slough	1743.71	1.46	60.03	0
			I-205 to Lathrop – northern	San Joaquin River Paradise Cut Tom Paine Slough Unnamed Tributary to Tom Paine Slough	6186.22	6.12	31.25	0
			Southwestern Manteca	(2) Unnamed Intermittent Canals/Ditches east and west of Durham Ferry Rd	3508.28	0	0	0
			Southeastern Manteca	None	0	0	0	0
			Eastern Manteca UPRR South to BNSF	Unnamed Canal/Ditch crossing near Manteca Road (3) Unnamed Canals/Ditches crossing near Spreckels Road	1101.74	0	0	0
			Manteca to Escalon Wye	Unnamed Canal/Ditch crossing near Spreckels Road	1234.79	0	0	0
	2 of 2	East Bay Connections	Niles to Union City – Niles Wye (E) to Niles Wye (N)	Alameda Creek	237.69	0	0.67	37.39
			Niles to Fremont – Niles Wye (E) to Niles Wye (S)	Hetch Hetchy Aqueduct Unnamed Intermittent Stream/River crossing near Hetch	1567.79	0	1.59	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and un-named water resources	Streams in Linear Feet	Lakes/ Bay in Acres	Flood-plain in Acres	Erosion in Acres
				Hetchy Aqueduct Unnamed Intermittent Stream/River crossing near junction with Niles/I-880 5A Unnamed Intermittent Stream/River terminating at Niles Reservoir Unnamed intermittent stream emptying into Elizabeth Lake				
Station Location Options								
Pleasanton (I-680/Bernal Rd)				None	0	0	0	0
Pleasanton (BART)				Chabot Canal Hewlett Canal	537.82	0	3.33	0
Livermore (Downtown)				None	0	0	0	0
Livermore (I-580)				Arroyo Las Positas	276.16	0	2.66	11.71
Livermore (Greenville Road/UPRR)				None	0	0	0	0
Livermore (Greenville Road/I-580)				None	0	0	0	11.61
Tracy (Downtown)				None	0	0	0	0
Tracy (ACE)				None	0	0	0	0
San Francisco Bay Crossings	1 of 2	Trans Bay Crossing – Transbay Transit Center	Transbay Transit Center tube to SF Bay	SF bay	0	66.94	0	0
			SF Bay to West Oakland	SF Bay Oakland Inner Harbor	0	168.54	0	0
		Trans Bay Crossing – 4th & King	4th/Townsend tube to SF Bay	SF Bay	0	59.46	0	0
			SF Bay to West Oakland	SF Bay Oakland Inner Harbor	0	168.54	0	0
	1 of 6	Dumbarton (High Bridge)	Dumbarton Wye North to Caltrain	None	0	0	0	0
			Dumbarton Wye South to Caltrain	Hetch Hetchy Aqueduct	198.37	0	0	0
			Dumbarton Bay Crossing to Don Edwards	Tidal Flats San Francisco Bay Newark Slough/ Salt evaporating Ponds	942.58	115.64	126.70	0
			Don Edwards to	Newark Slough/	802.08	23.53	35.35	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and un-named water resources	Streams in Linear Feet	Lakes/ Bay in Acres	Flood-plain in Acres	Erosion in Acres
			Shinn (Centerville Line)	Salt evaporating Ponds Hetch Hetchy Aqueduct				
			Shinn to Niles Wye (E)	Alameda Creek Quarries	1684.28	4.71	0	40.14
		Dumbarton (Low Bridge)	Dumbarton Wye North to Caltrain	None	0	0	0	0
			Dumbarton Wye South to Caltrain	Hetch Hetchy Aqueduct	198.37	0	0	0
			Dumbarton Bay Crossing to Don Edwards	Tidal Flats San Francisco Bay Newark Slough/ Salt Evaporating Ponds	942.58	115.64	126.70	0
			Don Edwards to Shinn (Centerville Line)	Newark Slough/ Salt evaporating Ponds Hetch Hetchy Aqueduct	802.08	23.53	35.35	0
			Shinn to Niles Wye (E)	Alameda Creek Quarries	1684.28	4.71	0	40.14
		Dumbarton (Tube)	Dumbarton Wye North to Caltrain	None	0	0	0	0
			Dumbarton Wye South to Caltrain	Hetch Hetchy Aqueduct	198.37	0	0	0
			Dumbarton Bay Crossing to Don Edwards	Tidal Flats San Francisco Bay Newark Slough/ Salt Evaporating Ponds	942.58	115.64	126.70	0
			Don Edwards to Shinn (Centerville Line)	Newark Slough/ Salt evaporating Ponds Hetch Hetchy Aqueduct	802.08	23.53	35.35	0
			Shinn to Niles Wye (E)	Alameda Creek Quarries	1684.28	4.71	0	40.14
		Fremont Central Park (High Bridge)	Dumbarton Wye North to Caltrain	None	0	0	0	0
			Dumbarton Wye South to Caltrain	Hetch Hetchy Aqueduct	198.37	0	0	0
			Dumbarton Bay Crossing to Don Edwards	Tidal Flats San Francisco Bay Newark Slough/ Salt Evaporating Ponds	942.58	115.64	126.70	0
			Don Edwards to	The Lagoon/ Lake	7160.49	63.54	131.99	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and un-named water resources	Streams in Linear Feet	Lakes/ Bay in Acres	Flood-plain in Acres	Erosion in Acres
			Niles (E) via Fremont Central Park	Elizabeth Mowry Slough/ Mud Slough/ Salt Evaporating Ponds				
		Fremont Central Park (Low Bridge)	Dumbarton Wye North to Caltrain	None	0	0	0	0
			Dumbarton Wye South to Caltrain	Hetch Hetchy Aqueduct	198.37	0	0	0
			Dumbarton Bay Crossing to Don Edwards	Tidal Flats San Francisco Bay Newark Slough/ Salt Evaporating Ponds	942.58	115.64	126.70	0
			Don Edwards to Niles Wye (E) via Fremont Central Park	The Lagoon/ Lake Elizabeth Mowry Slough/ Mud Slough/ Salt Evaporating Ponds	7160.49	63.54	131.99	0
		Fremont Central Park (Tube)	Dumbarton Wye North to Caltrain	None	0	0	0	0
			Dumbarton Wye South to Caltrain	Hetch Hetchy Aqueduct	198.37	0	0	0
			Dumbarton Bay Crossing to Don Edwards	Tidal Flats San Francisco Bay Newark Slough/ Salt Evaporating Ponds	942.58	115.64	126.70	0
			Don Edwards to Niles Wye (E) via Fremont Central Park	The Lagoon/ Lake Elizabeth Mowry Slough/ Mud Slough/ Salt Evaporating Ponds	7160.49	63.54	131.99	0
Central Valley	1 of 6	BNSF – UPRR	North Stockton South to UPRR Connection	Mormon Slough/ Stockton Diverting Canal Duck Creek Littlejohns Creek Unnamed Tributary to Littlejohns Creek Avena Drain/ Unnamed Tributary of Lone Tree Creek	2322.47	0	135.70	0
			BNSF Parallel to UPRR tracks	Unnamed Canal/Ditch runs parallel to alignment south of Dodds Road	1478.27	0	44.13	0
			Parallel tracks South through	Lone Tree Creek	8756.07	0	86.36	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and un-named water resources	Streams in Linear Feet	Lakes/ Bay in Acres	Flood-plain in Acres	Erosion in Acres
			Escalon					
			Escalon South to Amtrak Briggsmore	Hetch Hetchy Aqueduct Lateral No. 6/ Modesto Main Canal Main District Canal Modesto Main Canal Snedigar Lateral Stanislaus River (2) Unnamed Canals/Ditches crossing near Plainview Road	2298.32	5.40	1.49	0
			Amtrak Briggsmore to UPRR/BNSF Connection	Lateral No. 3 Dry Creek Lateral No. 2 Modesto Lateral Tuolumne River Lateral No. 1/ Ceres Main Canal Upper Lateral No. 2 ½ Upper Lateral No. 3 Turlock Main Canal High Line Canal Merced River	9303.68	0.92	12.11	0
			UPRR/BNSF Connection to Atwater	North Bloom Lateral South Bloom Lateral	2810.48	0	0	0
			Atwater to Downtown Merced	Livingston Canal Canal Creek Main Ash Lateral Trinidad Drain Black Rascal Creek/Hesse Lateral/ Meadowbrook Lateral	706.92	0	63.42	0
			Merced South to BNSF Connection	Merced Lateral/ Bear Creek/ Black Rascal	684.56	0	74.30	0
			BNSF Connection South to Henry Miller Wye	Farmdale Lateral Miles Creek Owens Creek Knoff Lateral Givens Lateral North Slough/ Mariposa Creek	1770.63	0	246.76	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and un-named water resources	Streams in Linear Feet	Lakes/ Bay in Acres	Flood-plain in Acres	Erosion in Acres
				El Nido South Slough Deadman Creek Dutchman Creek				
			BNSF Henry Miller Wye	Chowchilla River Ash Slough/ Ash Slough Bypass Berenda Slough	1500.99	0	5.22	0
		BNSF	North Stockton South to UPRR Connection	Mormon Slough/ Stockton Diverting Canal Duck Creek Littlejohns Creek Unnamed Tributary to Littlejohns Crek Avena Drain/ Unnamed Tributary of Lone Tree Creek	2322.47	0	135.70	0
			BNSF Parallel to UPRR tracks	Unnamed Canal/Ditch runs parallel to alignment south of Dodds Road	1478.27	0	44.13	0
			Parallel tracks South through Escalon	Lone Tree Creek	8756.07	0	86.36	0
			Escalon South to Amtrak Briggsmore	Hetch Hetchy Aqueduct Lateral No. 6/ Modesto Main Canal Main District Canal Modesto Main Canal Snedigar Lateral Stanislaus River (2) Unnamed Canals/Ditches crossing near Plainview Road	2298.32	5.40	1.49	0
			Amtrak Briggsmore to UPRR/BNSF Connection	Lateral No. 3 Dry Creek Lateral No. 2 Modesto Lateral Tuolumne River Lateral No. 1/ Ceres Main Canal Upper Lateral No. 2 ½ Upper Lateral No. 3 Turlock Main Canal	9303.68	0.92	12.11	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and un-named water resources	Streams in Linear Feet	Lakes/ Bay in Acres	Flood-plain in Acres	Erosion in Acres
				High Line Canal Merced River				
			UPRR/BNSF Connection to Atwater	North Bloom Lateral South Bloom Lateral	2810.48	0	0	0
			Atwater to Downtown Merced	Livingston Canal Canal Creek Main Ash Lateral Trinidad Drain Black Rascal Creek/Hesse Lateral/ Meadowbrook Lateral	706.92	0	63.42	0
			Merced South to UPRR Connection	Bear Creek/ Black Rascal	852.75	0	82.05	0
			UPRR Connection East to Castle Connection	Miles Creek Owens Creek Knoff Lateral Hadley Lateral/ Givens Lateral Hadley Lateral (Second segment crossed) Duck Creek Le Grand Canal	1639.49	0	269.73	0
			Castle Connection to Henry Miller Wye	Mariposa Creek/ Duck Slough Deadman Creek (North Section) Deadman Creek (South Section) Dutchman Creek Chowchilla River	1774.16	0	37.16	0
			Henry Miller Wye	Ash Slough/ Ash Bypass Canal Berenda Slough Berenda Creek	651.15	0.41	27.02	0
		UPRR	French Camp to Lathrop	French Camp Slough/ Littlejohns Creek	21326.18	0	26.44	0
			Lathrop through Manteca	(2) Unnamed Canals/Ditches draining from South San Joaquin Irrigation District Canal Unnamed Canal/Ditch	7369.93	0	0	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and un-named water resources	Streams in Linear Feet	Lakes/ Bay in Acres	Flood-plain in Acres	Erosion in Acres
				crossing west of Union Road				
			Manteca South to BNSF/UPRR	Unnamed Canal/Ditch crossing between Jack Tone Rd and Warren Rd	3158.45	0	0	0
			BNSF/UPRR South to Modesto	Stanislaus River Lateral No. 8 Canal Lateral No. 6 Canal Lateral No. 7 Canal Lateral No. 3 Canal Lateral No. 4 Canal Hetch Hetchy Aqueduct	1310.11	0	6.84	0
			UPRR Modesto South – Western Option	Tuolumne River	382.16	0	3.60	0
			South Modesto to BNSF Connection	Lateral No. 1 Lower Lateral No. 2 Ceres Main Canal/ Lateral 2 ½ Upper/ Lower Lateral No. 3	1218.89	0	0	0
			BNSF Connection South to Merced	TID Lateral No. 5 Lateral No. 6/ Turlock Main Canal High Line Canal Merced River Stoddard Lateral Arena Canal Atwater Canal Canal Creek Bear Creek/ Black Rascal/ Hesse Lateral	2400.23	0	59.54	0
			Merced South to BNSF Connection	Merced Lateral/ Bear Creek/ Black Rascal	684.56	0	74.30	0
			BNSF Connection South to Henry Miller Wye	Farmdale Lateral Miles Creek Owens Creek Knoff Lateral Givens Lateral North Slough/ Mariposa Creek El Nido South Slough	1770.63	0	246.76	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and un-named water resources	Streams in Linear Feet	Lakes/ Bay in Acres	Flood-plain in Acres	Erosion in Acres
				Deadman Creek Dutchman Creek				
			BNSF Henry Miller Wye	Chowchilla River Ash Slough/ Ash Slough Bypass Berenda Slough	1500.99	0	5.22	0
		BNSF Castle	North Stockton South to UPRR Connection	Mormon Slough/ Stockton Diverting Canal Duck Creek Littlejohns Creek Unnamed Tributary to Littlejohns Creek Avena drain/ Unnamed Tributary of Lone Tree Creek	2322.47	0	135.70	0
			BNSF Parallel to UPRR tracks	Unnamed Canal/Ditch runs parallel to alignment south of Dodds Road	1478.27	0	44.13	0
			Parallel tracks South through Escalon	Lone Tree Creek	8756.07	0	86.36	0
			Escalon South to Amtrak Briggsmore	Hetch Hetchy Aqueduct Lateral No. 6/ Modesto Main Canal Main District Canal Modesto Main Canal Snedigar Lateral Stanislaus River (2) Unnamed Canals/Ditches crossing near Plainview Road	2298.32	5.40	1.49	0
			Amtrak Briggsmore to UPRR/BNSF Connection	Lateral No. 3 Dry Creek Lateral No. 2 Modesto Lateral Tuolumne River Lateral No. 1/ Ceres Main Canal Upper Lateral No. 2 ½ Upper Lateral No. 3 Turlock Main Canal High Line Canal Merced River	9303.68	0.92	12.11	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and un-named water resources	Streams in Linear Feet	Lakes/ Bay in Acres	Flood-plain in Acres	Erosion in Acres
			From BNSF southeast to Castle AFB	Cressey Lateral/ Livingston Canal North Bloom Lateral Gertude Lateral Casad Canal	968.93	0	0	0
			Castle AFB South to BNSF connect	Canal Creek/ Livingston Canal	801.36	0	33.95	0
			BNSF South of Castle to UPRR Connect	Fahrens Creek Bear Creek/ Black Rascal Creek Doane Canal Fairfield Canal Miles Creek Planada Canal Owens Creek Le Grand Canal	2016.30	0	250.89	0
			Castle Connection to Henry Miller Wye	Mariposa Creek/ Duck Slough Deadman Creek (North Section) Deadman Creek (South Section) Dutchman Creek Chowchilla River	1774.16	0	37.16	0
			Henry Miller Wye	Ash Slough/ Ash Bypass Canal Berenda Slough Berenda Creek	651.15	0.41	27.02	0
		UPRR – BNSF Castle	French Camp to Lathrop	French Camp Slough/ Littlejohns Creek	21326.18	0	26.44	0
			Lathrop through Manteca	(2) Unnamed Canals/Ditches draining from South San Joaquin Irrigation District Canal Unnamed Canal/Ditch crossing west of Union Road	7369.93	0	0	0
			Manteca South to BNSF/UPRR	Unnamed Canal/Ditch crossing between Jack Tone Rd and Warren Rd	3158.45	0	0	0
			BNSF/UPRR South to Modesto	Stanislaus River Lateral No. 8 Canal Lateral No. 6 Canal	1310.11	0	6.84	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and un-named water resources	Streams in Linear Feet	Lakes/ Bay in Acres	Flood-plain in Acres	Erosion in Acres
				Lateral No. 7 Canal Lateral No. 3 Canal Lateral No. 4 Canal Hetch Hetchy Aqueduct				
			UPRR Modesto South – Western Option	Tuolumne River	382.16	0	3.60	0
			South Modesto to BNSF Connection	Lateral No. 1 Lower Lateral No. 2 Ceres Main Canal/ Lateral 2 ½ Upper/ Lower Lateral No. 3	1218.89	0	0	0
			North South Connection East of Stockton (South Portion)	(3) Cross Ditch No. 2 Highline Canal Lateral No. 5 Lateral No. 6 Merced River	2298.83	0	2.07	0
			From BNSF southeast to Castle AFB	Cressey Lateral/ Livingston Canal North Bloom Lateral Gertude Lateral Casad Canal	968.93	0	0	0
			Castle AFB South to BNSF Connection	Canal Creek/ Livingston Canal	801.36	0	33.95	0
			BNSF South of Castle to UPRR Connection	Fahrens Creek Bear Creek/ Black Rascal Creek Doane Canal Fairfield Canal Miles creek Planada Canal Owens Creek Le Grand Canal	2016.30	0	250.89	0
			Castle Connection to Henry Miller Wye	Mariposa Creek/ Duck Slough Deadman Creek (North Section) Deadman Creek (South Section) Dutchman Creek Chowchilla River	1774.16	0	37.16	0
			Henry Miller Wye	Ash Slough/ Ash Bypass Canal Berenda Slough	651.16	0.41	27.02	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and un-named water resources	Streams in Linear Feet	Lakes/ Bay in Acres	Flood-plain in Acres	Erosion in Acres
				Berenda Creek				
		UPRR – BNSF	French Camp to Lathrop	French Camp Slough/ Littlejohns Creek	21326.18	0	26.44	0
			Lathrop through Manteca	(2) Unnamed Canals/Ditches draining from South San Joaquin Irrigation District Canal Unnamed Canal/Ditch crossing west of Union Road	7369.93	0	0	0
			Manteca South to BNSF/UPRR	Unnamed Canal/Ditch crossing between Jack Tone Rd and Warren Rd	3158.45	0	0	0
			BNSF/UPRR South to Modesto	Stanislaus River Lateral No. 8 Canal Lateral No. 6 Canal Lateral No. 7 Canal Lateral No. 3 Canal Lateral No. 4 Canal Hetch Hetchy Aqueduct	1310.11	0	6.84	0
			UPRR Modesto South – Western Option	Tuolumne River	382.16	0	3.60	0
			South Modesto to BNSF Connection	Lateral No. 1 Lower Lateral No. 2 Ceres Main Canal/ Lateral 2 ½ Upper/ Lower Lateral No. 3	1218.89	0	0	0
			BNSF crossing to UPRR – Southeast of Turlock	Turlock Main Canal Lateral No. 6 Canal Cross Ditch No. 2 (Upper Section) Cross Ditch No. 2 (Middle Section) Cross Ditch No. 2 (Lower Section) High Line Canal Merced River (McConnell) Livingston canal	2298.83	0	2.07	0
			UPRR/BNSF Connection to	North Bloom Lateral South Bloom	2810.48	0	0	0

Corridor	Possible Alignment Segments	Alignment	Segment	Named and un-named water resources	Streams in Linear Feet	Lakes/ Bay in Acres	Flood-plain in Acres	Erosion in Acres
			Atwater	Lateral				
			Atwater to Downtown Merced	Livingston Canal Canal Creek Main Ash Lateral Trinidad Drain Black Rascal Creek/ Hesse Lateral/ Meadowbrook Lateral	706.92	0	63.42	0
			Merced South to BNSF Connection	Merced Lateral/ Bear Creek/ Black Rascal	684.56	0	74.30	0
			BNSF Connection South to Henry Miller Wye	Farmdale Lateral Miles Creek Owens Creek Knoff Alteral Givens Lateral North Slough/ Mariposa Creek El Nido South Slough Deadman Creek Dutchman Creek	1770.63	0	246.76	0
			BNSF Henry Miller Wye	Chowchilla River Ash Slough/ Ash Slough Bypass Berenda Slough	1500.99	0	5.22	0
Station Location Options								
Modesto (Downtown)				None	0	0	0	0
Briggsmore (Amtrak)				None	0	0	0	0
Merced (Downtown)				None	0	0	15.30	0
Castle AFB				Casad Lateral	516.39	0	0	0

Appendix 3.14-A-3. Direct Groundwater Data Table for Alignment Alternatives and Station Location Option Comparisons

Corridor	Possible Alignment Segments	Alignment	Segment	Groundwater Basin Name	Groundwater Sub-Basin Name	Groundwater in Acres
San Francisco to San Jose: Caltrain	1 of 1	San Francisco to Dumbarton	Transbay Transit Center to 4th/Townsend	San Francisco Sand Dune Area	None	11.66
			4th/Townsend to Millbrae/SFO	Islais Valley San Francisco San Dune Area Santa Clara Valley Visitation Valley	None	14.15 6.89 73.44 15.14
			Millbrae/SFO to Redwood City	Santa Clara Valley	None	166.55
			Redwood City to Caltrain	Santa Clara Valley	None	30.16
	1 of 1	Dumbarton to San Jose	Caltrain Dumbarton Wye	Santa Clara Valley	San Mateo Basin	12.39
			Dumbarton Wye to Palo Alto	Santa Clara Valley	San Mateo Basin Santa Clara Basin	31.17 10.05
			Palo Alto to Santa Clara	Santa Clara Valley	Santa Clara Basin	164.49
			Santa Clara to Diridon Station	Santa Clara Valley	Santa Clara Basin	20.72
Station Location Options						
Transbay Transit Center				San Francisco Sand Dune Area	None	9.07
4th and King (Caltrain)				San Francisco Sand Dune Area	None	40.63
Millbrae/SFO				Santa Clara Valley	San Mateo Basin	11.04
Redwood City (Caltrain)				Santa Clara Valley	San Mateo Basin	6.19
Palo Alto (Caltrain)				Santa Clara Valley	Santa Clara Basin	20.67
Oakland to San Jose: Niles/I-880	1 of 2	West Oakland to Niles Junction	West Oakland to Jack London Square	Santa Clara Valley	Alameda East Bay Santa Clara Basin	29.67 0.35
			Jack London Square to Oakland Coliseum	Santa Clara Valley	Alameda East Bay	43.25
			Oakland Coliseum to Union City (BART)	Santa Clara Valley	Alameda East Bay Niles Cone	4.11 31.14

Corridor	Possible Alignment Segments	Alignment	Segment	Groundwater Basin Name	Groundwater Sub-Basin Name	Groundwater in Acres
			Union City (BART) to Niles Junction	Santa Clara Valley	Niles Cone	24.68
		12th Street/City Center to Niles Junction	12th Street/City Center to Jack London Square	Santa Clara Valley	Alameda Easy Bay	29.16
			Jack London Square to Oakland Coliseum	Santa Clara Valley	Alameda East Bay	43.25
			Oakland Coliseum to Union City (BART)	Santa Clara Valley	Alameda East Bay Niles Cone	3.86 31.14
			Union City (BART) to Shinn	Santa Clara Valley	Niles Cone	24.68
	1 of 2	Niles Junction to San Jose via Trimble	Niles Junction to Niles Wye (S)	Santa Clara Valley	Niles Cone	43.23
			Niles Wye (S) to Warm Springs	Santa Clara Valley	Niles Cone	11.40
			Warm Springs to Trimble Rd.	Santa Clara Valley	Niles Cone Santa Clara Basin	18.86
			Trimble Rd. Option	Santa Clara Valley	Santa Clara Basin	24.23
			Santa Clara to Diridon Station	Santa Clara Valley	Santa Clara Basin	20.72
		Niles Junction to San Jose via I-880	Niles Junction to Niles Wye (S)	Santa Clara Valley	Niles Cone	43.23
			Niles Wye (S) to Warm Springs	Santa Clara Valley	Niles Cone	11.40
			Warm Springs to Trimble Rd.	Santa Clara Valley	Niles Cone Santa Clara Basin	18.86 24.23
			I-880 – Trimble Rd. to Diridon	Santa Clara Valley	Santa Clara Basin	36.90
Station Location Options						
West Oakland/7th Street				Santa Clara Valley	Alameda East Bay	5.13
12th Street/City Center				Santa Clara Valley	Alameda East Bay	4.76
Coliseum/Airport				Santa Clara Valley	Alameda East Bay	15.09
Union City (BART)				Santa Clara Valley	Niles Cone	56.01
Union City (Shinn)				Santa Clara Valley	Niles Cone	81.32
Fremont (Warm Springs)				Santa Clara Valley	Niles Cone	450.97

Corridor	Possible Alignment Segments	Alignment	Segment	Groundwater Basin Name	Groundwater Sub-Basin Name	Groundwater in Acres
San Jose to Central Valley: Pacheco Pass	1 of 1	Pacheco	Diridon to Morgan Hill	Gilroy-Hollister Valley Santa Clara Valley	Llagas Area Santa Clara Valley	6.52 233.60
			Morgan Hill to Gilroy	Gilroy-Hollister Valley	Llagas Area	117.22
			Gilroy to San Luis Reservoir	Gilroy-Hollister Valley	Bolsa Area Hollister Area Llagas Area	19.87 27.78 45.98
	1 of 3	Henry Miller (UPRR Connection)	San Luis Reservoir to Valley Floor	San Joaquin Valley	Delta-Mendota	21.74
			Western Valley to Henry Miller UP Wye	San Joaquin Valley	Chowchilla Delta-Mendota	76.64 150.91
			Henry Miller UP North Wye to UP South Wye	San Joaquin Valley	Chowchilla	30.68
			Henry Miller Wye North to UPRR	San Joaquin Valley	Chowchilla	45.35
			Henry Miller Wye South to UPRR	San Joaquin Valley	Chowchilla Madera	23.08 7.02
		Henry Miller (BNSF Connection)	San Luis Reservoir to Valley Floor	San Joaquin Valley	Delta-Mendota	21.74
			Western Valley to Henry Miller UP Wye	San Joaquin Valley	Chowchilla Delta-Mendota	76.64 150.91
			Henry Miller UP North Wye to UP South Wye	San Joaquin Valley	Chowchilla	30.68
			Henry Miller UP South Wye to BNSF Wyes	San Joaquin Valley	Chowchilla	17.06
			Henry Miller Wye North to BNSF	San Joaquin Valley	Chowchilla Madera	14.97 17.66
			Henry Miller Wye South to BNSF	San Joaquin Valley	Chowchilla Madera	8.60 28.06
		GEA North	San Luis Reservoir to GEA Wye	San Joaquin Valley	Delta-Mendota Merced	78.28 59.23
			GEA Wye to Atwater	San Joaquin Valley	Merced	42.50
			Atwater to BNSF	San Joaquin Valley	Merced	42.50

Corridor	Possible Alignment Segments	Alignment	Segment	Groundwater Basin Name	Groundwater Sub-Basin Name	Groundwater in Acres
			GEA Wye to Arena (SR-99)	San Joaquin Valley	Merced	46.37
			Arena (SR-99) to Ballico West	San Joaquin Valley	Merced Turlock	13.60 12.94
			Arena (SR-99) to Ballico North	San Joaquin Valley	Merced Turlock	14.77 15.85
Station Location Options						
San Jose (Diridon)				Santa Clara Valley	Santa Clara Basin	18.78
Morgan Hill (Caltrain)				Gilroy-Hollister Valley	Llagas Area	10.97
Gilroy (Caltrain)				Gilroy-Hollister Valley	Llagas Area	40.10
East Bay to Central Valley: Altamont Pass	1 of 4	I-680/ 580/UPRR	Niles Canyon to Sunol	None	None	-
			Sunol to Dublin/Pleasanto n BART	Livermore Valley Sunol Valley	None	37.78 0.12
			Dublin/Pleasanto n BART to El Charo Road	Livermore Valley	None	19.11
			El Charo Road to Livermore (I-580)	Livermore Valley	None	19.22
			Livermore (I-580) to Greenville	Livermore Valley	None	29.39
			Greenville to Altamont Pass	None	None	-
			Altamont Pass to County Line	None	None	-
		I-580/ UPRR	Niles Canyon to Sunol	None	None	-
			Sunol to Pleasanton	Livermore Valley Sunol Valley	None	18.63 0.10
			Pleasanton to El Charo	Livermore Valley	None	21.08
			UPRR to I-580 connector	Livermore Valley	None	15.39
			El Charo Road to Livermore (I-580)	Livermore Valley	None	19.22
			Livermore (I-580) to Greenville	Livermore Valley	None	29.39

Corridor	Possible Alignment Segments	Alignment	Segment	Groundwater Basin Name	Groundwater Sub-Basin Name	Groundwater in Acres
			Greenville to Altamont Pass	None	None	-
			Altamont Pass to County Line	None	None	-
		Patterson Pass/UPRR	Niles Canyon to Sunol	None	None	-
			Sunol to Pleasanton	Livermore Valley Sunol Valley	None	18.63 0.10
			Pleasanton to El Charo	Livermore Valley	None	21.08
			El Charo to Livermore	Livermore Valley	None	49.31
			Livermore to Patterson Pass cut off	Livermore Valley	None	26.85
			Patterson Pass	Livermore Valley	None	36.27
		UPRR	Niles Canyon to Sunol	None	None	-
			Sunol to Pleasanton	Livermore Valley Sunol Valley	None	18.63 0.10
			Pleasanton to El Charo	Livermore Valley	None	21.08
			El Charo to Livermore	Livermore Valley	None	49.31
			Livermore to Patterson Pass cut off	Livermore Valley	None	26.85
			Patterson Pass cut off to Greenville	Livermore Valley	None	36.10
			Greenville to Altamont Pass	None	None	-
			Altamont Pass to County Line	None	None	-
	1 of 4	Tracy Downtown (BNSF Connection)	County Line to Tracy Downtown	San Joaquin Valley	Tracy	32.97
			Tracy Downtown to I-205	San Joaquin Valley	Tracy	29.96
			I-205 to S. UPRR	San Joaquin Valley	Eastern San Joaquin Tracy	10.17 29.06
			I-205 to Lathrop – northern	San Joaquin Valley	Eastern San Joaquin Tracy	31.40 42.17

Corridor	Possible Alignment Segments	Alignment	Segment	Groundwater Basin Name	Groundwater Sub-Basin Name	Groundwater in Acres
			Southwestern Manteca	San Joaquin Valley	Eastern San Joaquin	11.67
			Southeastern Manteca	San Joaquin Valley	Eastern San Joaquin	6.43
			Northern Escalon Wye to BNSF	San Joaquin Valley	Eastern San Joaquin	29.23
			Southern Escalon Wye to BNSF (part 1)	San Joaquin Valley	Eastern San Joaquin	57.10
			Southern Escalon Wye to BNSF (part 2)	San Joaquin Valley	Eastern San Joaquin	49.09
		Tracy ACE Station (BNSF Connection)	County Line to South of Tracy	None	None	-
			South of Tracy to Tracy ACE Station	San Joaquin Valley	Tracy	62.79
			Tracy ACE Station to I-205	San Joaquin Valley	Tracy	57.15
			I-205 to Southeast of Manteca	San Joaquin Valley	Eastern San Joaquin Tracy	9.48 10.33
			I-205 to Lathrop – Southern	San Joaquin Valley	Eastern San Joaquin Tracy	28.14 10.48
			Southwestern Manteca	San Joaquin Valley	Eastern San Joaquin	11.67
			Southeastern Manteca	San Joaquin Valley	Eastern San Joaquin	6.43
			Northern Escalon Wye to BNSF	San Joaquin Valley	Eastern San Joaquin	29.23
			Southern Escalon Wye to BNSF (part 1)	San Joaquin Valley	Eastern San Joaquin	57.10
			Southern Escalon Wye to BNSF (part 2)	San Joaquin Valley	Eastern San Joaquin	49.09
		Tracy ACE Station (UPRR Connection)	County Line to South of Tracy	None	None	-
			South of Tracy to Tracy ACE Station	San Joaquin Valley	Tracy	62.79
			Tracy ACE Station to I-205	San Joaquin Valley	Tracy	57.15

Corridor	Possible Alignment Segments	Alignment	Segment	Groundwater Basin Name	Groundwater Sub-Basin Name	Groundwater in Acres
			I-205 to Southeast of Manteca	San Joaquin Valley	Eastern San Joaquin Tracy	9.48 10.33
			Southwestern Manteca	San Joaquin Valley	Eastern San Joaquin	11.67
			Southeastern Manteca	San Joaquin Valley	Eastern San Joaquin	6.43
			Eastern Manteca UPRR South to BNSF	San Joaquin Valley	Eastern San Joaquin	31.94
			Manteca to Escalon Wye	San Joaquin Valley	Eastern San Joaquin	15.42
		Tracy Downtown (UPRR Connection)	County Line to Tracy Downtown	San Joaquin Valley	Tracy	32.97
			Tracy Downtown to I-205	San Joaquin Valley	Tracy	29.96
			I-205 to S. UPRR	San Joaquin Valley	Eastern San Joaquin Tracy	10.17 29.06
			I-205 to Lathrop – northern	San Joaquin Valley	Eastern San Joaquin Tracy	31.40 42.17
			Southwestern Manteca	San Joaquin Valley	Eastern San Joaquin	11.67
			Southeastern Manteca	San Joaquin Valley	Eastern San Joaquin	6.43
			Eastern Manteca UPRR South to BNSF	San Joaquin Valley	Eastern San Joaquin	31.94
			Manteca to Escalon Wye	San Joaquin Valley	Eastern San Joaquin	15.42
	2 of 2	East Bay Connections	Niles to Union City – Niles Wye (E) to Niles Wye (N)	Santa Clara Valley	Niles Cone	2.18
			Niles to Fremont – Niles Wye (E) to Niles Wye (S)	Santa Clara Valley	Niles Cone	16.70
Station Location Options						
Pleasanton (I-680/Bernal Rd)				Livermore Valley	None	10.88
Pleasanton (BART)				Livermore Valley	None	16.21
Livermore (Downtown)				Livermore Valley	None	13.30
Livermore (I-580)				Livermore Valley	None	15.89
Livermore (Greenville Road/UPRR)				Livermore Valley	None	12.91

Corridor	Possible Alignment Segments	Alignment	Segment	Groundwater Basin Name	Groundwater Sub-Basin Name	Groundwater in Acres
Livermore (Greenville Road/I-580)				Livermore Valley	None	13.82
Tracy (Downtown)				San Joaquin Valley	Tracy	11.75
Tracy (ACE)				San Joaquin Valley	Tracy	15.00
San Francisco Bay Crossings	1 of 2	Trans Bay Crossing – Transbay Transit Center	Transbay Transit Center tube to SF Bay	San Francisco Sand Dune Area	None	3.11
			SF Bay to West Oakland	Santa Clara Valley	Alameda East Bay	12.45
		Trans Bay Crossing – 4th & King	4th/Townsend tube to SF Bay	San Francisco Sand Dune Area		2.63
			SF Bay to West Oakland	Santa Clara Valley	Alameda East Bay	12.45
	1 of 6	Dumbarton (High Bridge)	Dumbarton Wye North to Caltrain	Santa Clara Valley	San Mateo Basin	7.16
			Dumbarton Wye South to Caltrain	Santa Clara Valley	San Mateo Basin	3.66
			Dumbarton Bay Crossing to Don Edwards	Santa Clara Valley	Niles Cone San Mateo Basin	10.55 40.94
			Don Edwards to Shinn (Centerville Line)	Santa Clara Valley	Niles Cone	60.79
			Shinn to Niles Wye (E)	Santa Clara Valley	Niles Cone	10.64
		Dumbarton (Low Bridge)	Dumbarton Wye North to Caltrain	Santa Clara Valley	San Mateo Basin	7.16
			Dumbarton Wye South to Caltrain	Santa Clara Valley	San Mateo Basin	3.66
			Dumbarton Bay Crossing to Don Edwards	Santa Clara Valley	Niles Cone San Mateo Basin	10.55 40.94
			Don Edwards to Shinn (Centerville Line)	Santa Clara Valley	Niles Cone	60.79
			Shinn to Niles Wye (E)	Santa Clara Valley	Niles Cone	10.64
		Dumbarton (Tube)	Dumbarton Wye North to Caltrain	Santa Clara Valley	San Mateo Basin	7.16
			Dumbarton Wye South to Caltrain	Santa Clara Valley	San Mateo Basin	3.66
			Dumbarton Bay Crossing to Don Edwards	Santa Clara Valley	Niles Cone San Mateo Basin	10.55 40.94

Corridor	Possible Alignment Segments	Alignment	Segment	Groundwater Basin Name	Groundwater Sub-Basin Name	Groundwater in Acres
			Don Edwards to Shinn (Centerville Line)	Santa Clara Valley	Niles Cone	60.79
			Shinn to Niles Wye (E)	Santa Clara Valley	Niles Cone	10.64
		Fremont Central Park (High Bridge)	Dumbarton Wye North to Caltrain	Santa Clara Valley	San Mateo Basin	7.16
			Dumbarton Wye South to Caltrain	Santa Clara Valley	San Mateo Basin	3.66
			Dumbarton Bay Crossing to Don Edwards	Santa Clara Valley	Niles Cone San Mateo Basin	10.55 40.94
			Don Edwards to Niles (E) via Fremont Central Park	Santa Clara Valley	Niles Cone	65.34
		Fremont Central Park (Low Bridge)	Dumbarton Wye North to Caltrain	Santa Clara Valley	San Mateo Basin	7.16
			Dumbarton Wye South to Caltrain	Santa Clara Valley	San Mateo Basin	3.66
			Dumbarton Bay Crossing to Don Edwards	Santa Clara Valley	Niles Cone San Mateo Basin	10.55 40.94
			Don Edwards to Niles Wye (E) via Fremont Central Park	Santa Clara Valley	Niles Cone	65.34
		Fremont Central Park (Tube)	Dumbarton Wye North to Caltrain	Santa Clara Valley	San Mateo Basin	7.16
			Dumbarton Wye South to Caltrain	Santa Clara Valley	San Mateo Basin	3.66
			Dumbarton Bay Crossing to Don Edwards	Santa Clara Valley	Niles Cone San Mateo Basin	10.55 40.94
			Don Edwards to Niles Wye (E) via Fremont Central Park	Santa Clara Valley	Niles Cone	65.34
Central Valley	1 of 6	BNSF – UPRR	North Stockton South to UPRR Connection	San Joaquin Valley	Eastern San Joaquin	55.73
			BNSF Parallel to UPRR tracks	San Joaquin Valley	Eastern San Joaquin	11.08
			Parallel tracks South through Escalon	San Joaquin Valley	Eastern San Joaquin	56.12

Corridor	Possible Alignment Segments	Alignment	Segment	Groundwater Basin Name	Groundwater Sub-Basin Name	Groundwater in Acres
			Escalon South to Amtrak Briggsmore	San Joaquin Valley	Eastern San Joaquin Modesto	14.71 32.11
			Amtrak Briggsmore to UPRR/BNSF Connection	San Joaquin Valley	Merced Modesto Turlock	4.96 41.12 113.94
			UPRR/BNSF Connection to Atwater	San Joaquin Valley	Merced	38.61
			Atwater to Downtown Merced	San Joaquin Valley	Merced	27.94
			Merced South to BNSF Connection	San Joaquin Valley	Merced	43.58
			BNSF Connection South to Henry Miller Wye	San Joaquin Valley	Chowchilla Merced	0.61 67.14
			BNSF Henry Miller Wye	San Joaquin Valley	Chowchilla Madera	55.11 13.31
		BNSF	North Stockton South to UPRR Connection	San Joaquin Valley	Eastern San Joaquin	55.73
			BNSF Parallel to UPRR tracks	San Joaquin Valley	Eastern San Joaquin	11.08
			Parallel tracks South through Amtrak	San Joaquin Valley	Eastern San Joaquin	56.12
			Escalon South to Amtrak Briggsmore	San Joaquin Valley	Eastern San Joaquin Modesto	14.71 32.11
			Amtrak Briggsmore to UPRR/BNSF Connection	San Joaquin Valley	Merced Modesto Turlock	4.96 41.12 113.94
			UPRR/BNSF Connection to Atwater	San Joaquin Valley	Merced	38.61
			Atwater to Downtown Merced	San Joaquin Valley	Merced	27.94
			Merced South to UPRR Connection	San Joaquin Valley	Merced	27.89
			UPRR Connection East to Castle Connection	San Joaquin Valley	Merced	68.08

Corridor	Possible Alignment Segments	Alignment	Segment	Groundwater Basin Name	Groundwater Sub-Basin Name	Groundwater in Acres
			Castle Connection to Henry Miller Wye	San Joaquin Valley	Chowchilla Merced	6.87 44.44
			Henry Miller Wye	San Joaquin Valley	Chowchilla Madera	3.47 36.98
		UPRR	French Camp to Lathrop	San Joaquin Valley	Eastern San Joaquin	37.26
			Lathrop through Manteca	San Joaquin Valley	Eastern San Joaquin	36.92
			Manteca South to BNSF/UPRR	San Joaquin Valley	Eastern San Joaquin	21.01
			BNSF/UPRR South to Modesto	San Joaquin Valley	Eastern San Joaquin Modesto	8.59 56.55
			UPRR Modesto South – Western Option	San Joaquin Valley	Modesto Turlock	12.99 7.79
			South Modesto to BNSF Connection	San Joaquin Valley	Turlock	97.85
			BNSF Connection South to Merced	San Joaquin Valley	Merced Turlock	96.88 50.91
			Merced South to BNSF Connection	San Joaquin Valley	Merced	43.58
			BNSF Connection South to Henry Miller Wye	San Joaquin Valley	Chowchilla Merced	0.61 67.14
			BNSF Henry Miller Wye	San Joaquin Valley	Chowchilla Madera	55.11 13.31
		BNSF Castle	North Stockton South to UPRR Connection	San Joaquin Valley	Eastern San Joaquin	55.73
			BNSF Parallel to UPRR tracks	San Joaquin Valley	Eastern San Joaquin	11.08
			Parallel tracks South through Escalon	San Joaquin Valley	Eastern San Joaquin	56.12
			Escalon South to Amtrak Briggsmore	San Joaquin Valley	Eastern San Joaquin Modesto	14.71 32.11
			Amtrak Briggsmore to UPRR/BNSF Connection	San Joaquin Valley	Merced Modesto Turlock	4.96 41.12 113.94

Corridor	Possible Alignment Segments	Alignment	Segment	Groundwater Basin Name	Groundwater Sub-Basin Name	Groundwater in Acres
			From BNSF southeast to Castle AFB	San Joaquin Valley	Merced	37.28
			Castle AFB South to BNSF connect	San Joaquin Valley	Merced	27.04
			BNSF South of Castle to UPRR Connect	San Joaquin Valley	Merced	101.00
			Castle Connection to Henry Miller Wye	San Joaquin Valley	Chowchilla Merced	6.87 44.44
			Henry Miller Wye	San Joaquin Valley	Chowchilla Madera	3.47 36.98
		UPRR – BNSF Castle	French Camp to Lathrop	San Joaquin Valley	Eastern San Joaquin	37.26
			Lathrop through Manteca	San Joaquin Valley	Eastern San Joaquin	36.92
			Manteca South to BNSF/UPRR	San Joaquin Valley	Eastern San Joaquin	21.01
			BNSF/UPRR South to Modesto	San Joaquin Valley	Eastern San Joaquin Modesto	8.59 56.55
			UPRR Modesto South – Western Option	San Joaquin Valley	Modesto Turlock	12.99 7.79
			South Modesto to BNSF Connection	San Joaquin Valley	Turlock	97.85
			North South Connection East of Stockton (South Portion)	San Joaquin Valley	Merced Turlock	5.78 51.88
			From BNSF southeast to Castle AFB	San Joaquin Valley	Merced	37.28
			Castle AFB South to BNSF Connection	San Joaquin Valley	Merced	27.04
			BNSF South of Castle to UPRR Connection	San Joaquin Valley	Merced	101.00
			Castle Connection to Henry Miller Wye	San Joaquin Valley	Chowchilla Merced	6.87 44.44
			Henry Miller Wye	San Joaquin Valley	Chowchilla Madera	3.47 36.98

Corridor	Possible Alignment Segments	Alignment	Segment	Groundwater Basin Name	Groundwater Sub-Basin Name	Groundwater in Acres
		UPRR – BNSF	French Camp to Lathrop	San Joaquin Valley	Eastern San Joaquin	37.26
			Lathrop through Manteca	San Joaquin Valley	Eastern San Joaquin	36.92
			Manteca South to BNSF/UPRR	San Joaquin Valley	Eastern San Joaquin	21.01
			BNSF/UPRR South to Modesto	San Joaquin Valley	Eastern San Joaquin Modesto	8.59 56.55
			UPRR Modesto South – Western Option	San Joaquin Valley	Modesto Turlock	12.99 7.79
			South Modesto to BNSF Connection	San Joaquin Valley	Merced	97.85
			BNSF crossing to UPRR – Southeast of Turlock	San Joaquin Valley	Merced Turlock	5.78 51.88
			UPRR/BNSF Connection to Atwater	San Joaquin Valley	Merced	38.61
			Atwater to Downtown Merced	San Joaquin Valley	Merced	27.94
			Merced South to BNSF Connection	San Joaquin Valley	Merced	43.58
			BNSF Connection South to Henry Miller Wye	San Joaquin Valley	Chowchilla Merced	0.61 67.14
			BNSF Henry Miller Wye	San Joaquin Valley	Chowchilla Madera	55.11 13.31
Station Location Options						
Modesto (Downtown)				San Joaquin Valley	Modesto	8.49
Briggsmore (Amtrak)				San Joaquin Valley	Modesto	14.23
Merced (Downtown)				San Joaquin Valley	Merced	11.67
Castle AFB				San Joaquin Valley	Merced	17.96

Appendix 3.14-A-4. Indirect Groundwater Data Table for Alignment Alternatives and Station Location Option Comparisons

Corridor	Possible Alignment Segments	Alignment	Segment	Groundwater Basin Name	Groundwater Sub-Basin Name	Groundwater in Acres
San Francisco to San Jose: Caltrain	1 of 1	San Francisco to Dumbarton	Transbay Transit Center to 4th/Townsend	San Francisco Sand Dune Area	None	45.72
			4th/Townsend to Millbrae/SFO	Islais Valley San Francisco Sand Dune Area Santa Clara Valley Visitation Valley	San Mateo Basin	34.43 27.76 147.04 30.10
			Millbrae/SFO to Redwood City	Santa Clara Valley	San Mateo Basin	233.45
			Redwood City to Caltrain	Santa Clara Valley	San Mateo Basin	60.68
	1 of 1	Dumbarton to San Jose	Caltrain Dumbarton Wye	Santa Clara Valley	San Mateo Basin	25.13
			Dumbarton Wye to Palo Alto	Santa Clara Valley	San Mateo Basin Santa Clara Basin	62.53 20.27
			Palo Alto to Santa Clara	Santa Clara Valley	Santa Clara Basin	337.17
			Santa Clara to Diridon Station	Santa Clara Valley	Santa Clara Basin	72.81
Station Location Options						
Transbay Transit Center				San Francisco Sand Dune Area	None	12.72
4th and King (Caltrain)				San Francisco Sand Dune Area	None	48.84
Millbrae/SFO				Santa Clara Valley	San Mateo Basin	15.22
Redwood City (Caltrain)				Santa Clara Valley	San Mateo Basin	9.53
Palo Alto (Caltrain)				Santa Clara Valley	Santa Clara Basin	27.44
Oakland to San Jose: Niles/I-880	1 of 2	West Oakland to Niles Junction	West Oakland to Jack London Square	Santa Clara Valley	Alameda East Bay Santa Clara Basin	120.29 1.06
			Jack London Square to Oakland Coliseum	Santa Clara Valley	Alameda East Bay	88.23
			Oakland Coliseum to Union City (BART)	Santa Clara Valley	Alameda East Bay Niles Cone	8.39 62.46
			Union City (BART) to Niles Junction	Santa Clara Valley	Niles Cone	49.40
		12th Street/City Center to	12th Street/City Center to Jack London Square	Santa Clara Valley	Alameda East Bay	117.59

Corridor	Possible Alignment Segments	Alignment	Segment	Groundwater Basin Name	Groundwater Sub-Basin Name	Groundwater in Acres
		Niles Junction	Jack London Square to Oakland Coliseum	Santa Clara Valley	Alameda East Bay	88.23
			Oakland Coliseum to Union City (BART)	Santa Clara Valley	Alameda East Bay Niles Cone	8.39 62.46
			Union City (BART) to Shinn	Santa Clara Valley	Niles Cone	49.40
	1 of 2	Niles Junction to San Jose via Trimble	Niles Junction to Niles Wye (S)	Santa Clara Valley	Niles Cone	92.87
			Niles Wye (S) to Warm Springs	Santa Clara Valley	Niles Cone	46.15
			Warm Springs to Trimble Rd.	Santa Clara Valley	Niles Cone Santa Clara Basin	75.70 97.18
			Trimble Rd. Option	Santa Clara Valley	Santa Clara Basin	101.05
			Santa Clara to Diridon Station	Santa Clara Valley	Santa Clara Basin	72.81
		Niles Junction to San Jose via I-880	Niles Junction to Niles Wye (S)	Santa Clara Valley	Niles Cone	92.87
			Niles Wye (S) to Warm Springs	Santa Clara Valley	Niles Cone	46.15
			Warm Springs to Trimble Rd.	Santa Clara Valley	Niles Cone Santa Clara Basin	75.70 97.18
			I-880 – Trimble Rd. to Diridon	Santa Clara Valley	Santa Clara Basin	135.12
Station Location Options						
West Oakland/7th Street				Santa Clara Valley	Alameda East Bay	8.01
12th Street/City Center				Santa Clara Valley	Alameda East Bay	7.92
Coliseum/Airport				Santa Clara Valley	Alameda East Bay	20.05
Union City (BART)				Santa Clara Valley	Niles Cone	63.76
Union City (Shinn)				Santa Clara Valley	Niles Cone	91.84
Fremont (Warm Springs)				Santa Clara Valley	Niles Cone	8.01
San Jose to Central Valley: Pacheco Pass	1 of 1	Pacheco	Diridon to Morgan Hill	Gilroy-Hollister Valley Santa Clara Valley	Llagas Area Santa Clara Basin	13.22 467.38
			Morgan Hill to Gilroy	Gilroy-Hollister Valley	Llagas Area	234.80
			Gilroy to San Luis Reservoir	Gilroy-Hollister Valley	Bolsa Area Hollister Area Llagas Area	79.49 112.23 123.94
	1 of 3	Henry Miller (UPRR Connection)	San Luis Reservoir to Valley Floor	San Joaquin Valley	Delta-Mendota	87.23

Corridor	Possible Alignment Segments	Alignment	Segment	Groundwater Basin Name	Groundwater Sub-Basin Name	Groundwater in Acres
			Western Valley to Henry Miller UP Wye	San Joaquin Valley	Chowchilla Delta-Mendota	306.84 603.94
			Henry Miller UP North Wye to UP South Wye	San Joaquin Valley	Chowchilla	123.61
			Henry Miller Wye North to UPRR	San Joaquin Valley	Chowchilla	170.26
			Henry Miller Wye South to UPRR	San Joaquin Valley	Chowchilla Madera	92.60 28.33
		Henry Miller (BNSF Connection)	San Luis Reservoir to Valley Floor	San Joaquin Valley	Delta-Mendota	87.23
			Western Valley to Henry Miller UP Wye	San Joaquin Valley	Chowchilla Delta-Mendota	306.84 603.94
			Henry Miller UP North Wye to UP South Wye	San Joaquin Valley	Chowchilla	123.26
			Henry Miller UP South Wye to BNSF Wyes	San Joaquin Valley	Chowchilla	68.80
			Henry Miller Wye North to BNSF	San Joaquin Valley	Chowchilla Madera	60.67 70.39
			Henry Miller Wye South to BNSF	San Joaquin Valley	Chowchilla Madera	34.69 112.50
		GEA North	San Luis Reservoir to GEA Wye	San Joaquin Valley	Delta-Mendota Merced	313.10 237.10
			GEA Wye to Atwater	San Joaquin Valley	Merced	170.55
			Atwater to BNSF	San Joaquin Valley	Merced	170.55
			GEA Wye to Arena (SR-99)	San Joaquin Valley	Merced	186.01
			Arena (SR-99) to Ballico West	San Joaquin Valley	Merced Turlock	54.72 51.91
			Arena (SR-99) to Ballico North	San Joaquin Valley	Merced Turlock	59.34 63.68
Station Location Options						
San Jose (Diridon)				Santa Clara Valley	Santa Clara Basin	24.62
Morgan Hill (Caltrain)				Gilroy-Hollister Valley	Llagas Area	15.64
Gilroy (Caltrain)				Gilroy-Hollister Valley	Llagas Area	46.71
East Bay to Central Valley: Altamont Pass	1 of 4	I-680/ 580/UPRR	Niles Canyon to Sunol	None	None	-
			Sunol to Dublin/Pleasanto n BART	Livermore valley Sunol Valley	None	151.38 0.48

Corridor	Possible Alignment Segments	Alignment	Segment	Groundwater Basin Name	Groundwater Sub-Basin Name	Groundwater in Acres
			Dublin/Pleasanto n BART to El Charo Road	Livermore Valley	None	76.97
			El Charo Road to Livermore (I-580)	Livermore Valley	None	77.40
			Livermore (I-580) to Greenville	Livermore Valley	None	117.82
			Greenville to Altamont Pass	None	None	-
			Altamont Pass to County Line	None	None	-
		I-580/ UPRR	Niles Canyon to Sunol	None	None	-
			Sunol to Pleasanton	Livermore Valley Sunol Valley	None	41.69 0.42
			Pleasanton to El Charo	Livermore Valley	None	42.53
			UPRR to I-580 connector	Livermore Valley	None	62.10
			El Charo Road to Livermore (I-580)	Livermore Valley	None	77.40
			Livermore (I-580) to Greenville	Livermore Valley	None	117.82
			Greenville to Altamont Pass	None	None	-
			Altamont Pass to County Line	None	None	-
		Patterson Pass/UPRR	Niles Canyon to Sunol	None	None	-
			Sunol to Pleasanton	Livermore Valley Sunol Valley	None	41.69 0.42
			Pleasanton to El Charo	Livermore Valley	None	42.53
			El Charo to Livermore	Livermore Valley	None	98.98
			Livermore to Patterson Pass cut off	Livermore Valley	None	54.05
			Patterson Pass	Livermore Valley	None	77.09
		UPRR	Niles Canyon to Sunol	None	None	-
			Sunol to Pleasanton	Livermore Valley Sunol Valley	None	41.69 0.42
			Pleasanton to El Charo	Livermore Valley	None	42.53

Corridor	Possible Alignment Segments	Alignment	Segment	Groundwater Basin Name	Groundwater Sub-Basin Name	Groundwater in Acres
			El Charo to Livermore	Livermore Valley	None	98.98
			Livermore to Patterson Pass cut off	Livermore Valley	None	54.05
			Patterson Pass cut off to Greenville	Livermore Valley	None	81.05
			Greenville to Altamont Pass	None	None	-
			Altamont Pass to County Line	None	None	-
	1 of 4	Tracy Downtown (BNSF Connection)	County Line to Tracy Downtown	San Joaquin Valley	Tracy	132.16
			Tracy Downtown to I-205	San Joaquin Valley	Tracy	95.66
			I-205 to S. UPRR	None	None	-
			I-205 to Lathrop – northern	None	None	-
			Southwestern Manteca	San Joaquin Valley	Eastern San Joaquin	47.23
			Southeastern Manteca	San Joaquin Valley	Eastern San Joaquin	26.25
			Northern Escalon Wye to BNSF	San Joaquin Valley	Eastern San Joaquin	117.48
			Southern Escalon Wye to BNSF (part 1)	San Joaquin Valley	Eastern San Joaquin	228.95
			Southern Escalon Wye to BNSF (part 2)	San Joaquin Valley	Eastern San Joaquin	196.89
		Tracy ACE Station (BNSF Connection)	County Line to South of Tracy	None	None	-
			South of Tracy to Tracy ACE Station	San Joaquin Valley	Tracy	170.68
			Tracy ACE Station to I-205	San Joaquin Valley	Tracy	114.67
			I-205 to Southeast of Manteca	San Joaquin Valley	Eastern San Joaquin Tracy	38.21 41.59
			I-205 to Lathrop – Southern	San Joaquin Valley	Eastern San Joaquin Tracy	112.83 42.20
			Southwestern Manteca	San Joaquin Valley	Eastern San Joaquin	47.23
			Southeastern Manteca	San Joaquin Valley	Eastern San Joaquin	26.25
			Northern Escalon Wye to BNSF	San Joaquin Valley	Eastern San Joaquin	117.48

Corridor	Possible Alignment Segments	Alignment	Segment	Groundwater Basin Name	Groundwater Sub-Basin Name	Groundwater in Acres
			Southern Escalon Wye to BNSF (part 1)	San Joaquin Valley	Eastern San Joaquin	228.95
			Southern Escalon Wye to BNSF (part 2)	San Joaquin Valley	Eastern San Joaquin	196.89
		Tracy ACE Station (UPRR Connection)	County Line to South of Tracy	None	None	-
			South of Tracy to Tracy ACE Station	San Joaquin Valley	Tracy	170.68
			Tracy ACE Station to I-205	San Joaquin Valley	Tracy	114.67
			I-205 to Southeast of Manteca	San Joaquin Valley	Eastern San Joaquin Tracy	38.21 41.59
			Southwestern Manteca	San Joaquin Valley	Eastern San Joaquin	47.23
			Southeastern Manteca	San Joaquin Valley	Eastern San Joaquin	26.25
			Eastern Manteca UPRR South to BNSF	San Joaquin Valley	Eastern San Joaquin	128.30
			Manteca to Escalon Wye	San Joaquin Valley	Eastern San Joaquin	62.23
		Tracy Downtown (UPRR Connection)	County Line to Tracy Downtown	San Joaquin Valley	Tracy	132.16
			Tracy Downtown to I-205	San Joaquin Valley	Tracy	95.66
			I-205 to S. UPRR	San Joaquin Valley	Eastern San Joaquin Tracy	40.96 85.91
			I-205 to Lathrop – northern	San Joaquin Valley	Eastern San Joaquin Tracy	109.40 84.51
			Southwestern Manteca	San Joaquin Valley	Eastern San Joaquin	47.23
			Southeastern Manteca	San Joaquin Valley	Eastern San Joaquin	26.25
			Eastern Manteca UPRR South to BNSF	San Joaquin Valley	Eastern San Joaquin	128.30
			Manteca to Escalon Wye	San Joaquin Valley	Eastern San Joaquin	62.23
	2 of 2	East Bay Connections	Niles to Union City – Niles Wye (E) to Niles Wye (N)	Santa Clara Valley	Niles Cone	8.63
			Niles to Fremont – Niles Wye (E) to Niles Wye (S)	Santa Clara Valley	Niles Cone	67.17

Corridor	Possible Alignment Segments	Alignment	Segment	Groundwater Basin Name	Groundwater Sub-Basin Name	Groundwater in Acres
Station Location Options						
Pleasanton (I-680/Bernal Rd)				Livermore Valley	None	15.63
Pleasanton (BART)				Livermore Valley	None	21.11
Livermore (Downtown)				Livermore Valley	None	17.22
Livermore (I-580)				Livermore Valley	None	23.10
Livermore (Greenville Road/UPRR)				Livermore Valley	None	21.91
Livermore (Greenville Road/I-580)				Livermore Valley	None	19.80
Tracy (Downtown)				San Joaquin Valley	Tracy	16.32
Tracy (ACE)				San Joaquin Valley	Tracy	20.30
San Francisco Bay Crossings	1 of 2	Trans Bay Crossing – Transbay Transit Center	Transbay Transit Center tube to SF Bay	San Francisco San Dune Area	None	13.10
			SF Bay to West Oakland	Santa Clara Valley	Alameda East Bay	50.06
		Trans Bay Crossing – 4th & King	4th/Townsend tube to SF Bay	San Francisco San Dune Area	None	10.60
			SF Bay to West Oakland	Santa Clara Valley	Alameda East Bay	50.06
	1 of 6	Dumbarton (High Bridge)	Dumbarton Wye North to Caltrain	Santa Clara Valley	San Mateo Basin	29.19
			Dumbarton Wye South to Caltrain	Santa Clara Valley	San Mateo Basin	15.18
			Dumbarton Bay Crossing to Don Edwards	Santa Clara Valley	Niles Cone San Mateo Basin	42.49 109.92
			Don Edwards to Shinn (Centerville Line)	Santa Clara Valley	Niles Cone	166.31
			Shinn to Niles Wye (E)	Santa Clara Valley	Niles Cone	42.83
		Dumbarton (Low Bridge)	Dumbarton Wye North to Caltrain	Santa Clara Valley	San Mateo Basin	29.19
			Dumbarton Wye South to Caltrain	Santa Clara Valley	San Mateo Basin	15.18
			Dumbarton Bay Crossing to Don Edwards	Santa Clara Valley	Niles Cone San Mateo Basin	42.49 109.92
			Don Edwards to Shinn (Centerville Line)	Santa Clara Valley	Niles Cone	166.31
			Shinn to Niles Wye (E)	Santa Clara Valley	Niles Cone	42.83
		Dumbarton (Tube)	Dumbarton Wye North to Caltrain	Santa Clara Valley	San Mateo Basin	29.19
			Dumbarton Wye South to Caltrain	Santa Clara Valley	San Mateo Basin	15.18

Corridor	Possible Alignment Segments	Alignment	Segment	Groundwater Basin Name	Groundwater Sub-Basin Name	Groundwater in Acres
			Dumbarton Bay Crossing to Don Edwards	Santa Clara Valley	Niles Cone San Mateo Basin	42.49 109.92
			Don Edwards to Shinn (Centerville Line)	Santa Clara Valley	Niles Cone	166.31
			Shinn to Niles Wye (E)	Santa Clara Valley	Niles Cone	42.83
		Fremont Central Park (High Bridge)	Dumbarton Wye North to Caltrain	Santa Clara Valley	San Mateo Basin	29.19
			Dumbarton Wye South to Caltrain	Santa Clara Valley	San Mateo Basin	15.18
			Dumbarton Bay Crossing to Don Edwards	Santa Clara Valley	Niles Cone San Mateo Basin	42.49 109.92
			Don Edwards to Niles (E) via Fremont Central Park	Santa Clara Valley	Niles Cone	253.79
		Fremont Central Park (Low Bridge)	Dumbarton Wye North to Caltrain	Santa Clara Valley	San Mateo Basin	29.19
			Dumbarton Wye South to Caltrain	Santa Clara Valley	San Mateo Basin	15.18
			Dumbarton Bay Crossing to Don Edwards	Santa Clara Valley	Niles Cone San Mateo Basin	42.49 109.92
			Don Edwards to Niles Wye (E) via Fremont Central Park	Santa Clara Valley	Niles Cone	253.79
		Fremont Central Park (Tube)	Dumbarton Wye North to Caltrain	Santa Clara Valley	San Mateo Basin	29.19
			Dumbarton Wye South to Caltrain	Santa Clara Valley	San Mateo Basin	15.18
			Dumbarton Bay Crossing to Don Edwards	Santa Clara Valley	Niles Cone San Mateo Basin	42.49 109.92
			Don Edwards to Niles Wye (E) via Fremont Central Park	Santa Clara Valley	Niles Cone	253.79
Central Valley	1 of 6	BNSF – UPRR	North Stockton South to UPRR Connection	San Joaquin Valley	Eastern San Joaquin	223.45
			BNSF Parallel to UPRR tracks	San Joaquin Valley	Eastern San Joaquin	44.88
			Parallel tracks South through Escalon	San Joaquin Valley	Eastern San Joaquin	201.61

Corridor	Possible Alignment Segments	Alignment	Segment	Groundwater Basin Name	Groundwater Sub-Basin Name	Groundwater in Acres
			Escalon South to Amtrak Briggsmore	San Joaquin Valley	Eastern San Joaquin Modesto	59.13 97.39
			Amtrak Briggsmore to UPRR/BNSF Connection	San Joaquin Valley	Merced Modesto Turlock	19.93 113.83 438.27
			UPRR/BNSF Connection to Atwater	San Joaquin Valley	Merced	154.98
			Atwater to Downtown Merced	San Joaquin Valley	Merced	112.31
			Merced South to BNSF Connection	San Joaquin Valley	Merced	106.17
			BNSF Connection South to Henry Miller Wye	San Joaquin Valley	Chowchilla Merced	2.73 268.84
			BNSF Henry Miller Wye	San Joaquin Valley	Chowchilla Merced	211.11 53.53
		BNSF	North Stockton South to UPRR Connection	San Joaquin Valley	Eastern San Joaquin	223.45
			BNSF Parallel to UPRR tracks	San Joaquin Valley	Eastern San Joaquin	44.88
			Parallel tracks South through Escalon	San Joaquin Valley	Eastern San Joaquin	201.61
			Escalon South to Amtrak Briggsmore	San Joaquin Valley	Eastern San Joaquin Modesto	59.13 97.39
			Amtrak Briggsmore to UPRR/BNSF Connection	San Joaquin Valley	Merced Modesto Turlock	19.93 113.83 438.27
			UPRR/BNSF Connection to Atwater	San Joaquin Valley	Merced	154.98
			Atwater to Downtown Merced	San Joaquin Valley	Merced	112.31
			Merced South to UPRR Connection	San Joaquin Valley	Merced	112.10
			UPRR Connection East to Castle Connection	San Joaquin Valley	Merced	272.85
			Castle Connection to Henry Miller Wye	San Joaquin Valley	Chowchilla Merced	27.77 178.02

Corridor	Possible Alignment Segments	Alignment	Segment	Groundwater Basin Name	Groundwater Sub-Basin Name	Groundwater in Acres
			Henry Miller Wye	San Joaquin Valley	Chowchilla Madera	14.16 148.18
		UPRR	French Camp to Lathrop	San Joaquin Valley	Eastern San Joaquin	136.29
			Lathrop through Manteca	San Joaquin Valley	Eastern San Joaquin	148.20
			Manteca South to BNSF/UPRR	San Joaquin Valley	Eastern San Joaquin	84.59
			BNSF/UPRR South to Modesto	San Joaquin Valley	Eastern San Joaquin Modesto	34.62 204.13
			UPRR Modesto South – Western Option	San Joaquin Valley	Modesto Turlock	33.32 31.45
			South Modesto to BNSF Connection	San Joaquin Valley	Turlock	317.53
			BNSF Connection South to Merced	San Joaquin Valley	Merced Turlock	324.89 165.39
			Merced South to BNSF Connection	San Joaquin Valley	Merced	106.17
			BNSF Connection South to Henry Miller Wye	San Joaquin Valley	Chowchilla Merced	2.73 268.84
			BNSF Henry Miller Wye	San Joaquin Valley	Chowchilla Merced	211.11 53.53
		BNSF Castle	North Stockton South to UPRR Connection	San Joaquin Valley	Eastern San Joaquin	223.45
			BNSF Parallel to UPRR tracks	San Joaquin Valley	Eastern San Joaquin	44.88
			Parallel tracks South through Escalon	San Joaquin Valley	Eastern San Joaquin	201.61
			Escalon South to Amtrak Briggsmore	San Joaquin Valley	Eastern San Joaquin Modesto	59.13 97.39
			Amtrak Briggsmore to UPRR/BNSF Connection	San Joaquin Valley	Merced Modesto Turlock	19.93 113.83 438.27
			From BNSF southeast to Castle AFB	San Joaquin Valley	Merced	149.65
			Castle AFB South to BNSF connect	San Joaquin Valley	Merced	99.79
			BNSF South of Castle to UPRR Connect	San Joaquin Valley	Merced	404.52

Corridor	Possible Alignment Segments	Alignment	Segment	Groundwater Basin Name	Groundwater Sub-Basin Name	Groundwater in Acres
			Castle Connection to Henry Miller Wye	San Joaquin Valley	Chowchilla Merced	27.77 178.02
			Henry Miller Wye	San Joaquin Valley	Chowchilla Madera	14.16 148.18
		UPRR – BNSF Castle	French Camp to Lathrop	San Joaquin Valley	Eastern San Joaquin	136.29
			Lathrop through Manteca	San Joaquin Valley	Eastern San Joaquin	148.20
			Manteca South to BNSF/UPRR	San Joaquin Valley	Eastern San Joaquin	84.59
			BNSF/UPRR South to Modesto	San Joaquin Valley	Eastern San Joaquin Modesto	34.62 204.13
			UPRR Modesto South – Western Option	San Joaquin Valley	Modesto Turlock	33.32 31.45
			South Modesto to BNSF Connection	San Joaquin Valley	Turlock	317.53
			North South Connection East of Stockton (South Portion)	San Joaquin Valley	Merced Turlock	23.11 208.07
			From BNSF southeast to Castle AFB	San Joaquin Valley	Merced	149.65
			Castle AFB South to BNSF Connection	San Joaquin Valley	Merced	99.79
			BNSF South of Castle to UPRR Connection	San Joaquin Valley	Merced	404.52
			Castle Connection to Henry Miller Wye	San Joaquin Valley	Chowchilla Merced	27.77 178.02
			Henry Miller Wye	San Joaquin Valley	Chowchilla Madera	14.16 148.18
		UPRR – BNSF	French Camp to Lathrop	San Joaquin Valley	Eastern San Joaquin	136.29
			Lathrop through Manteca	San Joaquin Valley	Eastern San Joaquin	148.20
			Manteca South to BNSF/UPRR	San Joaquin Valley	Eastern San Joaquin	84.59
			BNSF/UPRR South to Modesto	San Joaquin Valley	Eastern San Joaquin Modesto	34.62 204.13
			UPRR Modesto South – Western Option	San Joaquin Valley	Modesto Turlock	33.32 31.45

Corridor	Possible Alignment Segments	Alignment	Segment	Groundwater Basin Name	Groundwater Sub-Basin Name	Groundwater in Acres
			South Modesto to BNSF Connection	San Joaquin Valley	Turlock	317.53
			BNSF crossing to UPRR – Southeast of Turlock	San Joaquin Valley	Merced Turlock	23.11 208.07
			UPRR/BNSF Connection to Atwater	San Joaquin Valley	Merced	154.98
			Atwater to Downtown Merced	San Joaquin Valley	Merced	112.31
			Merced South to BNSF Connection	San Joaquin Valley	Merced	106.17
			BNSF Connection South to Henry Miller Wye	San Joaquin Valley	Chowchilla Merced	2.73 268.84
			BNSF Henry Miller Wye	San Joaquin Valley	Chowchilla Madera	211.11 53.53
Station Location Options						
Modesto (Downtown)				San Joaquin Valley	Modesto	12.62
Briggsmore (Amtrak)				San Joaquin Valley	Modesto	18.88
Merced (Downtown)				San Joaquin Valley	Merced	15.33
Castle AFB				San Joaquin Valley	Merced	23.54

Appendix 3.14-A-5. 303(d) Impaired Water Resources Impact Data Table for Alignment Alternatives and Station Location Option Comparisons

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
San Francisco to San Jose: Caltrain	1 of 1	San Francisco to Dumbarton	Transbay Transit Center to 4th/Townsend	None	N/A	N/A	N/A	N/A
			4th/Townsend to Millbrae/SFO	None	N/A	N/A	N/A	N/A
			Millbrae/SFO to Redwood City	San Mateo Creek	Diazinon	11 miles	Train sub-segment crosses through San Mateo Creek	Construction and operation of the HST is not a likely source of these contaminants.
			Redwood City to Caltrain	None	N/A	N/A	N/A	N/A
	1 of 1	Dumbarton to San Jose	Caltrain Dumbarton Wye	None	N/A	N/A	N/A	N/A
			Dumbarton Wye to Palo Alto	San Francisquito	Diazinon, Sediment & Siltation	12 miles	Train sub-segment crosses the impaired section	A likely impact to sediment and siltation from construction and operation.
			Palo Alto to Santa Clara	Matadero Creek	Diazinon	7.3 miles	Train sub-segment crosses the impaired section	Construction and operation of the HST is not a likely source of these contaminants.
				Permanente Creek	Diazinon	13 miles	Train sub-segment crosses the impaired section	Construction and operation of the HST is not a likely source of these contaminants.

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
				Calabazas Creek	Diazinon	4.7 miles	Train sub-segment crosses the impaired section	Construction and operation of the HST is not a likely source of these contaminants.
				Saratoga Creek	Diazinon	18 miles	Train sub-segment crosses the impaired section	Construction and operation of the HST is not a likely source of these contaminants.
				Stevens Creek	Diazinon, Toxicity	20 miles	Train sub-segment crosses the impaired section	Construction and operation of the HST is not a likely source of these contaminants.
			Santa Clara to Diridon Station	None	N/A	N/A	N/A	N/A
Oakland to San Jose: Niles/I-880	1 of 2	West Oakland to Niles Junction	West Oakland to Jack London Square	None	N/A	N/A	N/A	N/A
			Jack London Square to Oakland Coliseum	None	N/A	N/A	N/A	N/A
			Oakland Coliseum to Union City (BART)	San Leandro Creek	Diazinon	9.3 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants.

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
				San Lorenzo Creek	Diazinon	11 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants.
			Union City (BART) to Niles Junction	Alameda Creek	Diazinon	51 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants.
		12th Street/City Center to Niles Junction	12th Street/City Center to Jack London Square	None	N/A	N/A	N/A	N/A
			Jack London Square to Oakland Coliseum	None	N/A	N/A	N/A	N/A
			Oakland Coliseum to Union City (BART)	San Leandro Creek	Diazinon	9.3 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants.
				San Lorenzo Creek	Diazinon	11 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants.
			Union City (BART) to Shinn	Alameda Creek	Diazinon	51 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants.

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
	1 of 2	Niles Junction to San Jose via Trimble	Niles Junction to Niles Wye (S)	Mission Creek	Ammonia, Clordane (sediment), Dieldrin (sediment), Hydrogen Sulfide, Lead (sediment), Mercury (sediment), PAHs, PCBs, Silver (sediment), Zinc (sediment)	8.5 acres	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants. However, sediment transport from construction may impact lead, mercury, silver and zinc concentrations.
			Niles Wye (S) to Warm Springs	None	N/A	N/A	N/A	N/A
			Warm Springs to Trimble Rd.	Coyote Creek	Diazinon	55 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants.
			Trimble Rd. Option	Coyote Creek	Diazinon	55 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants.
				Guadalupe (Creek) River	Diazinon	8.1 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants.
			Santa Clara to Diridon Station	None	N/A	N/A	N/A	N/A

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
		Niles Junction to San Jose via I-880	Niles Junction to Niles Wye (S)	Mission Creek	Ammonia, Clordane (sediment), Dieldrin (sediment), Hydrogen Sulfide, Lead (sediment), Mercury (sediment), PAHs, PCBs, Silver (sediment), Zinc (sediment)	8.5 acres	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants. However, sediment transport from construction may impact lead, mercury, silver and zinc concentrations.
			Niles Wye (S) to Warm Springs	None	N/A	N/A	N/A	N/A
			Warm Springs to Trimble Rd.	Coyote Creek	Diazinon	55 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants.
			I-880 – Trimble Rd. to Diridon	Coyote Creek	Diazinon	55 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants.
				Guadalupe (Creek) River	Diazinon	8.1 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants.
San Jose to Central Valley: Pacheco Pass	1 of 1	Pacheco	Diridon to Morgan Hill	Lost Gatos Creek	Diazinon	19 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants.

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
				Guadalupe (Creek) River	Mercury	8.1 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants.
			Morgan Hill to Gilroy	Llagas Creek	Chloride, fecal coliform, Low Dissolved Oxygen, Nitrate as Nitrate (NO3), pH, Total Dissolved Solids	16 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants. However, the creek is impaired for TSD, and any sediment increase associated with construction and operation could impact the TDS in the Creek.
			Gilroy to San Luis Reservoir	Pajaro River	Boron and Fecal Coliform	32 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants.
				Tequisquita Slough (Tributary to Pajaro River)	Fecal Coliform	7.2 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants.
	1 of 3	Henry Miller (UPRR Connection)	San Luis Reservoir to Valley Floor	None	N/A	N/A	N/A	N/A

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			Western Valley to Henry Miller UP Wye	Mud Slough	Boron, Electrical Conductivity, Pesticides, and Unknown toxicity	13 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants; however, the Central Valley has a long history of heavy pesticide use, and depending on the binding properties of the pesticides to soil, any sediment run off from construction could potentially mobilize and ultimately release additional pesticides into this water resource impacting the already impaired categories of pesticides and unknown toxicity.

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
				San Joaquin River (Mendota Pool to Bear Creek)	Boron, DDT, Electrical Conductivity, Unknown Toxicity, and Group A Pesticides (including: aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor expoxide, hexachlorocyclohexane – including lindane – endosulfan, and toxaphene)	88 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants; however, the Central Valley has a long history of heavy pesticide use, and depending on the binding properties of the pesticides to soil, any sediment run off from construction could potentially mobilize and ultimately release additional pesticides into this water resource impacting the already impaired categories of pesticides and unknown toxicity.

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
				Santa Rita Slough/Salt Slough (upstream from confluence w/ San Joaquin River)	Boron, Chlorpyrifos, Diazinon, Electrical Conductivity, and Unknown Toxicity	17 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants; however, the Central Valley has a long history of heavy pesticide use, and depending on the binding properties of the pesticides to soil, any sediment run off from construction could potentially mobilize and ultimately release additional pesticides into this water resource impacting the already impaired categories of pesticides and unknown toxicity.
			Henry Miller UP North Wye to UP South Wye	None	N/A	N/A	N/A	N/A
			Henry Miller Wye North to UPRR	None	N/A	N/A	N/A	N/A
			Henry Miller Wye South to UPRR	None	N/A	N/A	N/A	N/A

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
		Henry Miller (BNSF Connection)	San Luis Reservoir to Valley Floor	None	N/A	N/A	N/A	N/A
			Western Valley to Henry Miller UP Wye	Mud Slough	Boron, Electrical Conductivity, Pesticides, and Unknown toxicity.	13 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants; however, the Central Valley has a long history of heavy pesticide use, and depending on the binding properties of the pesticides to soil, any sediment run off from construction could potentially mobilize and ultimately release additional pesticides into this water resource impacting the already impaired categories of pesticides and unknown toxicity.

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
				San Joaquin River (Mendota Pool to Bear Creek)	Boron, DDT, Electrical Conductivity, Unknown Toxicity, and Group A Pesticides (including: aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor expoxide, hexachlorocyclohexane – including lindane – endosulfan, and toxaphene).	88 miles	Train sub-segment crosses impaired segment.	Construction and operation of the HST is not a likely source of these contaminants; however, the Central Valley has a long history of heavy pesticide use, and depending on the binding properties of the pesticides to soil, any sediment run off from construction could potentially mobilize and ultimately release additional pesticides into this water resource impacting the already impaired categories of pesticides and unknown toxicity.

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
				Santa Rita Slough/Salt Slough (upstream from confluence with San Joaquin River)	Boron, Chlorpyrifos, Diazinon, Electrical Conductivity, and Unknown Toxicity	17 miles	Train sub-segment crosses impaired segment.	Construction and operation of the HST is not a likely source of these contaminants; however, the Central Valley has a long history of heavy pesticide use, and depending on the binding properties of the pesticides to soil, any sediment run off from construction could potentially mobilize and ultimately release additional pesticides into this water resource impacting the already impaired categories of pesticides and unknown toxicity.
			Henry Miller UP North Wye to UP South Wye	None	N/A	N/A	N/A	N/A
			Henry Miller UP South Wye to BNSF Wyes	None	N/A	N/A	N/A	N/A
			Henry Miller Wye North to BNSF	None	N/A	N/A	N/A	N/A

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			Henry Miller Wye South to BNSF	None	N/A	N/A	N/A	N/A
		GEA North	San Luis Reservoir to GEA Wye	San Joaquin River (Bear Creek to Mud Slough)	Boron, DDT, Electrical Conductivity, Unknown Toxicity, and Group A Pesticides (including: aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor expoxide hexachlorocyclohexa ne – including lindane – endosulfan, and toxaphene).	14 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants; however, the Central Valley has a long history of heavy pesticide use, and depending on the binding properties of the pesticides to soil, any sediment run off from construction could potentially mobilize and ultimately release additional pesticides into this water resource impacting the already impaired categories of pesticides and unknown toxicity.
			GEA Wye to Atwater	None	N/A	N/A	N/A	N/A
			Atwater to BNSF	None	N/A	N/A	N/A	N/A
			GEA Wye to Arena (SR-99)	None	N/A	N/A	N/A	N/A

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			Arena (SR-99) to Ballico West	Merced River, Lower (McSwain Reservoir to San Joaquin River)	Chlorphrifos, Diazinon, Group A Pesticides (including: aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor expoxide, hexachlorocyclohexane – including lindane – endosulfan, and toxaphene), and Mercury	50 miles	Train sub-segment crosses impaired section	Construction and operation of the HST is not a likely source of these contaminants; however, the Central Valley has a long history of heavy pesticide use, and depending on the binding properties of the pesticides to soil, any sediment run off from construction could potentially mobilize and ultimately release additional pesticides into this water resource impacting the already impaired categories of pesticides and unknown toxicity.

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			Arena (SR-99) to Ballico North	Merced River, Lower (McSwain Reservoir to San Joaquin River)	Chlorphrifos, Diazinon, Group A Pesticides (including: aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor expoxide, hexachlorocyclohexane – including lindane – endosulfan, and toxaphene), and Mercury	50 miles	Train sub-segment crosses impaired section	Construction and operation of the HST is not a likely source of these contaminants; however, the Central Valley has a long history of heavy pesticide use, and depending on the binding properties of the pesticides to soil, any sediment run off from construction could potentially mobilize and ultimately release additional pesticides into this water resource impacting the already impaired categories of pesticides and unknown toxicity.
East Bay to Central Valley: Altamont Pass	1 of 4	I-680/ 580/UPRR	Niles Canyon to Sunol	Arroyo De La Laguna	Diazinon	7.4 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
				Alameda Creek	Diazinon	51 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			Sunol to Dublin/Pleasant on BART	Arroyo De La Laguna	Diazinon	7.4 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
			Dublin/Pleasant on BART to El Charo Road	None	N/A	N/A	N/A	N/A
			El Charo Road to Livermore (I-580)	Arroyo Las Positas	Diazinon	14 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
			Livermore (I-580) to Greenville	Arroyo Las Positas	Diazinon	14 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
			Greenville to Altamont Pass	Arroyo Las Positas	Diazinon	14 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
			Altamont Pass to County Line	None	N/A	N/A	N/A	N/A
		I-580/ UPRR	Niles Canyon to Sunol	Arroyo De La Laguna	Diazinon	7.4 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
				Alameda Creek	Diazinon	51 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
			Sunol to Pleasanton	Arroyo De La Laguna	Diazinon	7.4 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
			Pleasanton to El Charo	Arroyo Del Valle	Diazinon	31 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
			UPRR to I-580 connector	Arroyo Los Positas	Diazinon	14 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
				Arroyo Mocho	Diazinon	34 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
			El Charo Road to Livermore (I-580)	Arroyo Los Positas	Diazinon	14 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
				Arroyo Los Positas	Diazinon	14 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
			Livermore (I-580) to Greenville	Arroyo Los Positas	Diazinon	14 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
			Greenville to Altamont Pass	Arroyo Los Positas	Diazinon	14 mile	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
			Altamont Pass to County Line	None	N/A	N/A	N/A	N/A
		Patterson Pass/UPRR	Niles Canyon to Sunol	Arroyo De La Laguna	Diazinon	7.4 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
				Alameda Creek	Diazinon	51 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
			Sunol to Pleasanton	Arroyo De La Laguna	Diazinon	7.4 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			Pleasanton to El Charo	Arroyo Del Valle	Diazinon	31 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
			El Charo to Livermore	Arroyo Mocho	Diazinon	34 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
			Livermore to Patterson Pass cut off	None	N/A	N/A	N/A	N/A
			Patterson Pass	None	N/A	N/A	N/A	N/A
		UPRR	Niles Canyon to Sunol	Arroyo De La Laguna	Diazinon	7.4 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
				Alameda Creek	Diazinon	51 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
			Sunol to Pleasanton	Arroyo De La Laguna	Diazinon	7.4 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
			Pleasanton to El Charo	Arroyo Del Valle	Diazinon	31 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			El Charo to Livermore	Arroyo Mocho	Diazinon	34 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
			Livermore to Patterson Pass cut off	None	N/A	N/A	N/A	N/A
			Patterson Pass cut off to Greenville	None	N/A	N/A	N/A	N/A
			Greenville to Altamont Pass	Arroyo Las Positas	Diazinon	14 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
			Altamont Pass to County Line	None	N/A	N/A	N/A	N/A
	1 of 4	Tracy Downtown (BNSF Connection)	County Line to Tracy Downtown	None	N/A	N/A	N/A	N/A
			Tracy Downtown to I-205	None	N/A	N/A	N/A	N/A

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			I-205 to S. UPRR	San Joaquin River (Stanislaus River to Delta Boundary)	Boron, DDT, Electrical Conductivity, Unknown Toxicity, Toxaphene, Mercury, and Group A Pesticides (including: aldrin, dieldrin, chlorane, endrin, heptachlor, heptachlor expoxide, hexachlorocyclohexane – including lindane – endosulfan, and toxaphene).	3 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
			I-205 to Lathrop – northern	San Joaquin River (Stanislaus River to Delta Boundary)	Boron, DDT, Electrical Conductivity, Unknown Toxicity, Toxaphene, Mercury, and Group A Pesticides (including: aldrin, dieldrin, chlorane, endrin, heptachlor, heptachlor expoxide, hexachlorocyclohexane – including lindane – endosulfan, and toxaphene).	3 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
			Southwestern Manteca	None	N/A	N/A	N/A	N/A

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			Southeastern Manteca	None	N/A	N/A	N/A	N/A
			Northern Escalon Wye to BNSF	None	N/A	N/A	N/A	N/A
			Southern Escalon Wye to BNSF (part 1)	None	N/A	N/A	N/A	N/A
			Southern Escalon Wye to BNSF (part 2)	Lone Tree Creek	Ammonia, Biochemical Oxygen Demand (BOD), Electrical Conductivity	15 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
		Tracy ACE Station (BNSF Connection)	County Line to South of Tracy	None	N/A	N/A	N/A	N/A
			South of Tracy to Tracy ACE Station	None	N/A	N/A	N/A	N/A
			Tracy ACE Station to I-205	None	N/A	N/A	N/A	N/A

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			I-205 to Southeast of Manteca	San Joaquin River (Stanislaus River to Delta Boundary)	Boron, DDT, Electrical Conductivity, Unknown Toxicity, Toxaphene, Mercury, and Group A Pesticides (including: aldrin, dieldrin, chlorane, endrin, heptachlor, heptachlor expoxide, hexachlorocyclohexane – including lindane – endosulfan, and toxaphene).	3 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
			I-205 to Lathrop – Southern	San Joaquin River (Stanislaus River to Delta Boundary)	Boron, DDT, Electrical Conductivity, Unknown Toxicity, Toxaphene, Mercury, and Group A Pesticides (including: aldrin, dieldrin, chlorane, endrin, heptachlor, heptachlor expoxide, hexachlorocyclohexane – including lindane – endosulfan, and toxaphene).	3 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
			Southwestern Manteca	None	N/A	N/A	N/A	N/A

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			Southeastern Manteca	None	N/A	N/A	N/A	N/A
			Northern Escalon Wye to BNSF	None	N/A	N/A	N/A	N/A
			Southern Escalon Wye to BNSF (part 1)	None	N/A	N/A	N/A	N/A
			Southern Escalon Wye to BNSF (part 2)	Lone Tree Creek	Ammonia, Biochemical Oxygen Demand (BOD), Electrical Conductivity	15 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
		Tracy ACE Station (UPRR Connection)	County Line to South of Tracy	None	N/A	N/A	N/A	N/A
			South of Tracy to Tracy ACE Station	None	N/A	N/A	N/A	N/A
			Tracy ACE Station to I-205	None	N/A	N/A	N/A	N/A

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			I-205 to Southeast of Manteca	San Joaquin River (Stanislaus River to Delta Boundary)	Boron, DDT, Electrical Conductivity, Unknown Toxicity, Toxaphene, Mercury, and Group A Pesticides (including: aldrin, dieldrin, chlorane, endrin, heptachlor, heptachlor expoxide, hexachlorocyclohexane – including lindane – endosulfan, and toxaphene).	3 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
			Southwestern Manteca	None	N/A	N/A	N/A	N/A
			Southeastern Manteca	None	N/A	N/A	N/A	N/A
			Eastern Manteca UPRR South to BNSF	None	N/A	N/A	N/A	N/A
			Manteca to Escalon Wye	None	N/A	N/A	N/A	N/A
		Tracy Downtown (UPRR Connection)	County Line to Tracy Downtown	None	N/A	N/A	N/A	N/A
			Tracy Downtown to I-205	None	N/A	N/A	N/A	N/A

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			I-205 to S. UPRR	San Joaquin River (Stanislaus River to Delta Boundary)	Boron, DDT, Electrical Conductivity, Unknown Toxicity, Toxaphene, Mercury, and Group A Pesticides (including: aldrin, dieldrin, chlorane, endrin, heptachlor, heptachlor expoxide, hexachlorocyclohexane – including lindane – endosulfan, and toxaphene).	3 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
			I-205 to Lathrop – northern	San Joaquin River (Stanislaus River to Delta Boundary)	Boron, DDT, Electrical Conductivity, Unknown Toxicity, Toxaphene, Mercury, and Group A Pesticides (including: aldrin, dieldrin, chlorane, endrin, heptachlor, heptachlor expoxide, hexachlorocyclohexane – including lindane – endosulfan, and toxaphene).	3 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants
			Southwestern Manteca	None	N/A	N/A	N/A	N/A

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			Southeastern Manteca	None	N/A	N/A	N/A	N/A
			Eastern Manteca UPRR South to BNSF	None	N/A	N/A	N/A	N/A
			Manteca to Escalon Wye	None	N/A	N/A	N/A	N/A
	2 of 2	East Bay Connections	Niles to Union City – Niles Wye (E) to Niles Wye (N)	Alameda Creek	Diazinon	51 miles	Train sub-segment crosses impaired segment	Construction and operation of the HST is not a likely source of these contaminants.
			Niles to Fremont – Niles Wye (E) to Niles Wye (S)	0	N/A	N/A	N/A	N/A
San Francisco Bay Crossings	1 of 2	Trans Bay Crossing – Transbay Transit Center	Transbay Transit Center tube to SF Bay	San Francisco Bay Central	Chlordane, DDT, Dieldrin, Dioxin Compounds (including 2, 3, 7, -TCDD), Exotic Species, Furan Compounds, Mercury, PCBs, PCBs (Dioxin Like), and Selenium	70,992 acres	Train sub-segment crosses San Francisco Bay Central	If the construction on the HST includes expansion of the current transbay tube or the construction of a brand new transbay tube, this type of construction is likely to disrupt Bay sediment and may disrupt any contaminants trapped in the sediment.

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
				Central Basin, San Francisco (part of SF Bay, Central)	Chlordane, DDT, Diazinon, Dieldrin, Dioxin Compounds, Exotic Species, Furan Compounds, Mercury, Mercury (sediment), PAHs (sediment), PCBs, PCBs (Dioxin Like), and Selenium	40 acres	Train sub-segment crosses San Francisco Bay Central	If the construction on the HST includes expansion of the current transbay tube or the construction of a brand new transbay tube, this type of construction is likely to disrupt Bay sediment and may disrupt any contaminants trapped in the sediment.
			SF Bay to West Oakland	San Francisco Bay Central	Chlordane, DDT, Dieldrin, Dioxin Compounds (including 2, 3, 7, -TCDD), Exotic Species, Furan Compounds, Mercury, PCBs, PCBs (Dioxin Like), and Selenium	70,992 acres	Train sub-segment crosses San Francisco Bay Central	If the construction on the HST includes expansion of the current transbay tube or the construction of a brand new transbay tube, this type of construction is likely to disrupt Bay sediment and may disrupt any contaminants trapped in the sediment.

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
				Central Basin, San Francisco (part of SF Bay, Central)	Chlordane, DDT, Diazinon, Dieldrin, Dioxin Compounds, Exotic Species, Furan Compounds, Mercury, Mercury (sediment), PAHs (sediment), PCBs, PCBs (Dioxin Like), and Selenium	40 acres	Train sub-segment crosses San Francisco Bay Central	If the construction on the HST includes expansion of the current transbay tube or the construction of a brand new transbay tube, this type of construction is likely to disrupt Bay sediment and may disrupt any contaminants trapped in the sediment.
				Oakland Inner Harbor (pacific Dry-doc Yard 1 Site, part of SF Bay Central)	Chlordane, Chlordane (sediment), Copper (sediment), DDT, Dieldrin, Dieldrin (sediment), Dioxin Compounds (2, 3, 7, 8 – TCDD), Exotic Species, Furan Compounds, Lead (sediment), Mercury, Mercury (sediment), PAHs (sediment), PCBs, PCBs (Dioxin-like), PCBs (sediment), and Selenium	1.8 acres	Train sub-segment crosses Oakland Inner Harbor	If the construction on the HST includes expansion of the current transbay tube or the construction of a brand new transbay tube, this type of construction is likely to disrupt Bay sediment and may disrupt any contaminants trapped in the sediment.

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
		Trans Bay Crossing – 4th & King	4th/Townsend tube to SF Bay	San Francisco Bay Central	Chlordane, DDT, Dieldrin, Dioxin Compounds (including: 2, 3, 7, 8 –TCDD), Exotic Species, Furan Compounds, Mercury, PCBs, PCBs (Dioxin Like), and Selenium	70992 acres	Train sub-segment crosses San Francisco Bay Central	If the construction on the HST includes expansion of the current transbay tube or the construction of a brand new transbay tube, this type of construction is likely to disrupt Bay sediment and may disrupt any contaminants trapped in the sediment.
			SF Bay to West Oakland	San Francisco Bay Central	Chlordane, DDT, Dieldrin, Dioxin Compounds (including: 2, 3, 7, 8 –TCDD), Exotic Species, Furan Compounds, Mercury, PCBs, PCBs (Dioxin Like), and Selenium	70992 acres	Train sub-segment crosses San Francisco Bay Central	If the construction on the HST includes expansion of the current transbay tube or the construction of a brand new transbay tube, this type of construction is likely to disrupt Bay sediment and may disrupt any contaminants trapped in the sediment.

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
				Oakland Inner Harbor (pacific Dry-doc Yard 1 Site, part of SF Bay Central)	Chlordane, Chlordane (sediment), Copper (sediment), DDT, Dieldrin, Dieldrin (sediment), Dioxin Compounds (2, 3, 7, 8 – TCDD), Exotic Species, Furan Compounds, Lead (sediment), Mercury, Mercury (sediment), PAHs (sediment), PCBs, PCBs (Dioxin-like), PCBs (sediment), and Selenium	1.8 acres	Train sub-segment crosses Oakland Inner Harbor	If the construction on the HST includes expansion of the current transbay tube or the construction of a brand new transbay tube, this type of construction is likely to disrupt Bay sediment and may disrupt any contaminants trapped in the sediment.
	1 of 6	Dumbarton (High Bridge)	Dumbarton Wye North to Caltrain	None	N/A	N/A	N/A	N/A
			Dumbarton Wye South to Caltrain	None	N/A	N/A	N/A	N/A
			Dumbarton Bay Crossing to Don Edwards	San Francisco Bay South	Chlordane, DDT, Dieldrin, Dioxin Compounds (including 2, 3, 7, 8 – TCDD), Exotic Species, Furan Compounds, Mercury, PCBs, PCBs (Dioxin Like), Selenium	9,204 acres	Train sub-segment crosses of San Francisco Bay South	Construction and operation of the HST is not a likely source of these contaminants

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			Don Edwards to Shinn (Centerville Line)	None	N/A	N/A	N/A	N/A
			Shinn to Niles Wye (E)	None	N/A	N/A	N/A	N/A
		Dumbarton (Low Bridge)	Dumbarton Wye North to Caltrain	None	N/A	N/A	N/A	N/A
			Dumbarton Wye South to Caltrain	None	N/A	N/A	N/A	N/A
			Dumbarton Bay Crossing to Don Edwards	San Francisco Bay South	Chlordane, DDT, Dieldrin, Dioxin Compounds (including 2, 3, 7, 8 – TCDD), Exotic Species, Furan Compounds, Mercury, PCBs, PCBs (Dioxin Like), Selenium	9,204 acres	Train sub-segment crosses of San Francisco Bay South	Construction and operation of the HST is not a likely source of these contaminants
			Don Edwards to Shinn (Centerville Line)	None	N/A	N/A	N/A	N/A
			Shinn to Niles Wye (E)	None	N/A	N/A	N/A	N/A
		Dumbarton (Tube)	Dumbarton Wye North to Caltrain	None	N/A	N/A	N/A	N/A
			Dumbarton Wye South to Caltrain	None	N/A	N/A	N/A	N/A

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			Dumbarton Bay Crossing to Don Edwards	San Francisco Bay South	Chlordane, DDT, Dieldrin, Dioxin Compounds (including 2, 3, 7, 8 – TCDD), Exotic Species, Furan Compounds, Mercury, PCBs, PCBs (Dioxin Like), Selenium	9,204 acres	Train sub-segment crosses of San Francisco Bay South	Construction and operation of the HST is not a likely source of these contaminants
			Don Edwards to Shinn (Centerville Line)	None	N/A	N/A	N/A	N/A
			Shinn to Niles Wye (E)	None	N/A	N/A	N/A	N/A
		Fremont Central Park (High Bridge)	Dumbarton Wye North to Caltrain	None	N/A	N/A	N/A	N/A
			Dumbarton Wye South to Caltrain	None	N/A	N/A	N/A	N/A
			Dumbarton Bay Crossing to Don Edwards	San Francisco Bay South	Chlordane, DDT, Dieldrin, Dioxin Compounds (including 2, 3, 7, 8 – TCDD), Exotic Species, Furan Compounds, Mercury, PCBs, PCBs (Dioxin Like), Selenium	9,204 acres	Train sub-segment crosses of San Francisco Bay South	Construction and operation of the HST is not a likely source of these contaminants

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			Don Edwards to Niles (E) via Fremont Central Park	None	N/A	N/A	N/A	N/A
		Fremont Central Park (Low Bridge)	Dumbarton Wye North to Caltrain	None	N/A	N/A	N/A	N/A
			Dumbarton Wye South to Caltrain	None	N/A	N/A	N/A	N/A
			Dumbarton Bay Crossing to Don Edwards	San Francisco Bay South	Chlordane, DDT, Dieldrin, Dioxin Compounds (including 2, 3, 7, 8 – TCDD), Exotic Species, Furan Compounds, Mercury, PCBs, PCBs (Dioxin Like), Selenium	9,204 acres	Train sub-segment crosses of San Francisco Bay South	Construction and operation of the HST is not a likely source of these contaminants
			Don Edwards to Niles Wye (E) via Fremont Central Park	None	N/A	N/A	N/A	N/A
		Fremont Central Park (Tube)	Dumbarton Wye North to Caltrain	None	N/A	N/A	N/A	N/A
			Dumbarton Wye South to Caltrain	None	N/A	N/A	N/A	N/A

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			Dumbarton Bay Crossing to Don Edwards	San Francisco Bay South	Chlordane, DDT, Dieldrin, Dioxin Compounds (including 2, 3, 7, 8 – TCDD), Exotic Species, Furan Compounds, Mercury, PCBs, PCBs (Dioxin Like), Selenium	9,204 acres	Train sub-segment crosses of San Francisco Bay South	Construction and operation of the HST is not a likely source of these contaminants
			Don Edwards to Niles Wye (E) via Fremont Central Park	None	N/A	N/A	N/A	N/A
Central Valley	1 of 6	BNSF – UPRR	North Stockton South to UPRR Connection	Morman Slough (Section from Commerce Street to Stockton Diverting Channel and Section from Stockton Diverting Canal to Commerce Street)	Organic Enrichment, Low Dissolved Oxygen, Pathogens	5.98 miles	Train sub-segment is upstream the impaired section	Construction and operation of the HST is not a likely source of these contaminants
				Avena Drain (unnamed tributary to lone tree creek)	Ammonia, Pathogens	6.4 miles	Train sub-segment crosses impaired section	Construction and operation of the HST is not a likely source of these contaminants
			BNSF Parallel to UPRR tracks	None	N/A	N/A	N/A	N/A

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			Parallel tracks South through Escalon	Lone Tree Creek	Ammonia, Biochemical Oxygen Demand (BOD), Electrical Conductivity	15 miles	train sub-segment crosses impaired section	Construction and operation of the HST is not a likely source of these contaminants
			Escalon South to Amtrak Briggsmore	Stanislaus River, Lower	Diazinon, Group A Pesticides (including: aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor expoxide, hexachlorocyclohexane – including lindane – endosulfan, and toxaphene), Mercury, Unknown toxicity	59 miles	Train sub-segment crosses impaired section	Construction and operation of the HST is not a likely source of these contaminants; however, the Central Valley has a long history of heavy pesticide use, and depending on the binding properties of the pesticides to soil, any sediment run off from construction could potentially mobilize and ultimately release additional pesticides into this water resource impacting the already impaired categories of pesticides and unknown toxicity.

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			Amtrak Briggsmore to UPRR/BNSF Connection	Tuolumne River, Lower (Don Pedro Reservoir to San Joaquin River)	Diazinon, Group A Pesticides (including: aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor expoxide, hexachlorocyclohexane – including lindane – endosulfan, and toxaphene), Mercury, Unknown toxicity	60 miles	Train sub-segment crosses impaired section	Construction and operation of the HST is not a likely source of these contaminants; however, the Central Valley has a long history of heavy pesticide use, and depending on the binding properties of the pesticides to soil, any sediment run off from construction could potentially mobilize and ultimately release additional pesticides into this water resource impacting the already impaired categories of pesticides and unknown toxicity.

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
				Merced River, Lower (McSwain Reservoir to San Joaquin River)	Chlorphrifos, Diazinon, Group A Pesticides (including: aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor expoxide, hexachlorocyclohexane – including lindane – endosulfan, and toxaphene), and Mercury	50 miles	Train sub-segment crosses impaired section	Construction and operation of the HST is not a likely source of these contaminants; however, the Central Valley has a long history of heavy pesticide use, and depending on the binding properties of the pesticides to soil, any sediment run off from construction could potentially mobilize and ultimately release additional pesticides into this water resource impacting the already impaired categories of pesticides and unknown toxicity.
			UPRR/BNSF Connection to Atwater	None	N/A	N/A	N/A	N/A
			Atwater to Downtown Merced	None	N/A	N/A	N/A	N/A
			Merced South to BNSF Connection	None	N/A	N/A	N/A	N/A

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			BNSF Connection South to Henry Miller Wye	None	N/A	N/A	N/A	N/A
			BNSF Henry Miller Wye	None	N/A	N/A	N/A	N/A
		BNSF	North Stockton South to UPRR Connection	Morman Slough (Section from Commerce Street to Stockton Diverting Channel and Section from Stockton Diverting Canal to Commerce Street)	Organic Enrichment, Low Dissolved Oxygen, Pathogens	5.98 miles	Train sub-segment is upstream the impaired section	Construction and operation of the HST is not a likely source of these contaminants
				Avena Drain (unnamed tributary to lone tree creek)	Ammonia, Pathogens	6.4 miles	Train sub-segment crosses impaired section	Construction and operation of the HST is not a likely source of these contaminants
			BNSF Parallel to UPRR tracks	None	N/A	N/A	N/A	N/A
			Parallel tracks South through Escalon	Lone Tree Creek	Ammonia, Biochemical Oxygen Demand (BOD), Electrical Conductivity	15 miles	train sub-segment crosses impaired section	Construction and operation of the HST is not a likely source of these contaminants

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			Escalon South to Amtrak Briggsmore	Stanislaus River, Lower	Diazinon, Group A Pesticides (including: aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor expoxide, hexachlorocyclohexane – including lindane – endosulfan, and toxaphene), Mercury, Unknown toxicity	59 miles	Train sub-segment crosses impaired section	Construction and operation of the HST is not a likely source of these contaminants; however, the Central Valley has a long history of heavy pesticide use, and depending on the binding properties of the pesticides to soil, any sediment run off from construction could potentially mobilize and ultimately release additional pesticides into this water resource impacting the already impaired categories of pesticides and unknown toxicity.

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			Amtrak Briggsmore to UPRR/BNSF Connection	Tuolumne River, Lower (Don Pedro Reservoir to San Joaquin River)	Diazinon, Group A Pesticides (including: aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor expoxide, hexachlorocyclohexane – including lindane – endosulfan, and toxaphene), Mercury, Unknown toxicity	60 miles	Train sub-segment crosses impaired section	Construction and operation of the HST is not a likely source of these contaminants; however, the Central Valley has a long history of heavy pesticide use, and depending on the binding properties of the pesticides to soil, any sediment run off from construction could potentially mobilize and ultimately release additional pesticides into this water resource impacting the already impaired categories of pesticides and unknown toxicity.

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
				Merced River, Lower (McSwain Reservoir to San Joaquin River)	Chlorphrifos, Diazinon, Group A Pesticides (including: aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor expoxide, hexachlorocyclohexane – including lindane – endosulfan, and toxaphene), and Mercury	50 miles	Train sub-segment crosses impaired section	Construction and operation of the HST is not a likely source of these contaminants; however, the Central Valley has a long history of heavy pesticide use, and depending on the binding properties of the pesticides to soil, any sediment run off from construction could potentially mobilize and ultimately release additional pesticides into this water resource impacting the already impaired categories of pesticides and unknown toxicity.
			UPRR/BNSF Connection to Atwater	None	N/A	N/A	N/A	N/A
			Atwater to Downtown Merced	None	N/A	N/A	N/A	N/A
			Merced South to UPRR Connection	None	N/A	N/A	N/A	N/A

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			UPRR Connection East to Castle Connection	None	N/A	N/A	N/A	N/A
			Castle Connection to Henry Miller Wye	None	N/A	N/A	N/A	N/A
			Henry Miller Wye	None	N/A	N/A	N/A	N/A
		UPRR	French Camp to Lathrop	None	N/A	N/A	N/A	N/A
			Lathrop through Manteca	None	N/A	N/A	N/A	N/A
			Manteca South to BNSF/UPRR	None	N/A	N/A	N/A	N/A

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			BNSF/UPRR South to Modesto	Stanislaus River, Lower	Diazinon, Group A Pesticides (including: aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor expoxide, hexachlorocyclohexane – including lindane – endosulfan, and toxaphene), Mercury, Unknown toxicity	59 miles	Train sub-segment crosses impaired section	Construction and operation of the HST is not a likely source of these contaminants; however, the Central Valley has a long history of heavy pesticide use, and depending on the binding properties of the pesticides to soil, any sediment run off from construction could potentially mobilize and ultimately release additional pesticides into this water resource impacting the already impaired categories of pesticides and unknown toxicity.

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			UPRR Modesto South – Western Option	Tuolumne River, Lower (Don Pedro Reservoir to San Joaquin River)	Diazinon, Group A Pesticides (including: aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor expoxide, hexachlorocyclohexane – including lindane – endosulfan, and toxaphene), Mercury, Unknown toxicity	60 miles	Train sub-segment crosses impaired section	Construction and operation of the HST is not a likely source of these contaminants; however, the Central Valley has a long history of heavy pesticide use, and depending on the binding properties of the pesticides to soil, any sediment run off from construction could potentially mobilize and ultimately release additional pesticides into this water resource impacting the already impaired categories of pesticides and unknown toxicity.
			South Modesto to BNSF Connection	None	N/A	N/A	N/A	N/A

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			BNSF Connection South to Merced	Merced River, Lower (McSwain Reservoir to San Joaquin River)	Chlorphrifos, Diazinon, Group A Pesticides (including: aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor expoxide, hexachlorocyclohexane – including lindane – endosulfan, and toxaphene), and Mercury	50 miles	Train sub-segment crosses impaired section	Construction and operation of the HST is not a likely source of these contaminants; however, the Central Valley has a long history of heavy pesticide use, and depending on the binding properties of the pesticides to soil, any sediment run off from construction could potentially mobilize and ultimately release additional pesticides into this water resource impacting the already impaired categories of pesticides and unknown toxicity.
			Merced South to BNSF Connection	None	N/A	N/A	N/A	N/A
			BNSF Connection South to Henry Miller Wye	None	N/A	N/A	N/A	N/A
			BNSF Henry Miller Wye	None	N/A	N/A	N/A	N/A

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
		BNSF Castle	North Stockton South to UPRR Connection	Morman Slough (Section from Commerce Street to Stockton Diverting Channel and Section from Stockton Diverting Canal to Commerce Street)	Organic Enrichment, Low Dissolved Oxygen, Pathogens	5.98 miles	Train sub-segment is upstream the impaired section	Construction and operation of the HST is not a likely source of these contaminants
				Avena Drain (unnamed tributary to lone tree creek)	Ammonia, Pathogens	6.4 miles	Train sub-segment crosses impaired section	Construction and operation of the HST is not a likely source of these contaminants
			BNSF Parallel to UPRR tracks	None	N/A	N/A	N/A	N/A
			Parallel tracks South through Escalon	Lone Tree Creek	Ammonia, Biochemical Oxygen Demand (BOD), Electrical Conductivity	15 miles	train sub-segment crosses impaired section	Construction and operation of the HST is not a likely source of these contaminants

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			Escalon South to Amtrak Briggsmore	Stanislaus River, Lower	Diazinon, Group A Pesticides (including: aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor expoxide, hexachlorocyclohexane – including lindane – endosulfan, and toxaphene), Mercury, Unknown toxicity	59 miles	Train sub-segment crosses impaired section	Construction and operation of the HST is not a likely source of these contaminants; however, the Central Valley has a long history of heavy pesticide use, and depending on the binding properties of the pesticides to soil, any sediment run off from construction could potentially mobilize and ultimately release additional pesticides into this water resource impacting the already impaired categories of pesticides and unknown toxicity.

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			Amtrak Briggsmore to UPRR/BNSF Connection	Merced River, Lower (McSwain Reservoir to San Joaquin River)	Chlorphrifos, Diazinon, Group A Pesticides (including: aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor expoxide, hexachlorocyclohexane – including lindane – endosulfan, and toxaphene), and Mercury	50 miles	Train sub-segment crosses impaired section	Construction and operation of the HST is not a likely source of these contaminants; however, the Central Valley has a long history of heavy pesticide use, and depending on the binding properties of the pesticides to soil, any sediment run off from construction could potentially mobilize and ultimately release additional pesticides into this water resource impacting the already impaired categories of pesticides and unknown toxicity.

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
				Tuolumne River, Lower (Don Pedro Reservoir to San Joaquin River)	Diazinon, Group A Pesticides (including: aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor expoxide, hexachlorocyclohexane – including lindane – endosulfan, and toxaphene), Mercury, Unknown toxicity	60 miles	Train sub-segment crosses impaired section	Construction and operation of the HST is not a likely source of these contaminants; however, the Central Valley has a long history of heavy pesticide use, and depending on the binding properties of the pesticides to soil, any sediment run off from construction could potentially mobilize and ultimately release additional pesticides into this water resource impacting the already impaired categories of pesticides and unknown toxicity.
			From BNSF southeast to Castle AFB	None	N/A	N/A	N/A	N/A
			Castle AFB South to BNSF connect	None	N/A	N/A	N/A	N/A
			BNSF South of Castle to UPRR Connect	None	N/A	N/A	N/A	N/A

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			Castle Connection to Henry Miller Wye	None	N/A	N/A	N/A	N/A
			Henry Miller Wye	None	N/A	N/A	N/A	N/A
		UPRR – BNSF Castle	French Camp to Lathrop	None	N/A	N/A	N/A	N/A
			Lathrop through Manteca	None	N/A	N/A	N/A	N/A
			Manteca South to BNSF/UPRR	None	N/A	N/A	N/A	N/A

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			BNSF/UPRR South to Modesto	Stanislaus River, Lower	Diazinon, Group A Pesticides (including: aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor expoxide, hexachlorocyclohexane – including lindane – endosulfan, and toxaphene), Mercury, Unknown toxicity	59 miles	Train sub-segment crosses impaired section	Construction and operation of the HST is not a likely source of these contaminants; however, the Central Valley has a long history of heavy pesticide use, and depending on the binding properties of the pesticides to soil, any sediment run off from construction could potentially mobilize and ultimately release additional pesticides into this water resource impacting the already impaired categories of pesticides and unknown toxicity.

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			UPRR Modesto South – Western Option	Tuolumne River, Lower (Don Pedro Reservoir to San Joaquin River)	Diazinon, Group A Pesticides (including: aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor expoxide, hexachlorocyclohexane – including lindane – endosulfan, and toxaphene), Mercury, Unknown toxicity	60 miles	Train sub-segment crosses impaired section	Construction and operation of the HST is not a likely source of these contaminants; however, the Central Valley has a long history of heavy pesticide use, and depending on the binding properties of the pesticides to soil, any sediment run off from construction could potentially mobilize and ultimately release additional pesticides into this water resource impacting the already impaired categories of pesticides and unknown toxicity.
			South Modesto to BNSF Connection	None	N/A	N/A	N/A	N/A
			North South Connection East of Stockton (South Portion)	None	N/A	N/A	N/A	N/A
			From BNSF southeast to Castle AFB	None	N/A	N/A	N/A	N/A

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			Castle AFB South to BNSF Connection	None	N/A	N/A	N/A	N/A
			BNSF South of Castle to UPRR Connection	None	N/A	N/A	N/A	N/A
			Castle Connection to Henry Miller Wye	None	N/A	N/A	N/A	N/A
			Henry Miller Wye	None	N/A	N/A	N/A	N/A
		UPRR – BNSF	French Camp to Lathrop	None	N/A	N/A	N/A	N/A
			Lathrop through Manteca	None	N/A	N/A	N/A	N/A
			Manteca South to BNSF/UPRR	None	N/A	N/A	N/A	N/A

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			BNSF/UPRR South to Modesto	Stanislaus River, Lower	Diazinon, Group A Pesticides (including: aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor expoxide, hexachlorocyclohexane – including lindane – endosulfan, and toxaphene), Mercury, Unknown toxicity	59 miles	Train sub-segment crosses impaired section	Construction and operation of the HST is not a likely source of these contaminants; however, the Central Valley has a long history of heavy pesticide use, and depending on the binding properties of the pesticides to soil, any sediment run off from construction could potentially mobilize and ultimately release additional pesticides into this water resource impacting the already impaired categories of pesticides and unknown toxicity.

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			UPRR Modesto South – Western Option	Tuolumne River, Lower (Don Pedro Reservoir to San Joaquin River)	Diazinon, Group A Pesticides (including: aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor expoxide, hexachlorocyclohexane – including lindane – endosulfan, and toxaphene), Mercury, Unknown toxicity	60 miles	Train sub-segment crosses impaired section	Construction and operation of the HST is not a likely source of these contaminants; however, the Central Valley has a long history of heavy pesticide use, and depending on the binding properties of the pesticides to soil, any sediment run off from construction could potentially mobilize and ultimately release additional pesticides into this water resource impacting the already impaired categories of pesticides and unknown toxicity.
			South Modesto to BNSF Connection	None	N/A	N/A	N/A	N/A

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			BNSF crossing to UPRR – Southeast of Turlock	Merced River, Lower (McSwain Reservoir to San Joaquin River)	Chlorphrifos, Diazinon, Group A Pesticides (including: aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor expoxide, hexachlorocyclohexa ne – including lindane – endosulfan, and toxaphene), and Mercury	50 miles	Train sub-segment crosses impaired section	Construction and operation of the HST is not a likely source of these contaminants; however, the Central Valley has a long history of heavy pesticide use, and depending on the binding properties of the pesticides to soil, any sediment run off from construction could potentially mobilize and ultimately release additional pesticides into this water resource impacting the already impaired categories of pesticides and unknown toxicity.
			UPRR/BNSF Connection to Atwater	None	N/A	N/A	N/A	N/A
			Atwater to Downtown Merced	None	N/A	N/A	N/A	N/A
			Merced South to BNSF Connection	None	N/A	N/A	N/A	N/A

Corridor	Possible Alignment Segments	Alignment	Segment	Water Resources Identified on the California State 2006 303(d) List	Pollutants Identified for 2006 303(d) Water Resources	Length of Polluted Segment of 2006 303(d) Water Resources	Location of Train Sub-segment Relative to 2002 303(d) List	Affect or Impact on identified 2006 303(d) Water Resources
			BNSF Connection South to Henry Miller Wye	None	N/A	N/A	N/A	N/A
			BNSF Henry Miller Wye	None	N/A	N/A	N/A	N/A

APPENDIX 3.14-B

REGIONAL WATER QUALITY CONTROL BOARDS AND LOCAL PERMITTING AGENCIES/WATER DISTRICTS

REGIONAL WATER QUALITY CONTROL BOARDS AND LOCAL PERMITTING AGENCIES/WATER DISTRICTS

3.14-B.1.1 Regional Water Quality Control Boards

3.14-B.1.1.1 Central Coast Regional Water Quality Control Board

One of nine Regional Water Quality Control Boards (RWQCBs) in California, the Central Coast RWQCB (Region 3) has jurisdiction over a 300-mile-long by 40-mile-wide section of the state's central coast, including the Pajaro River watershed. Headquartered in San Luis Obispo, the Central Coast RWQCB's geographic area encompasses all of Santa Cruz, San Benito, Monterey, San Luis Obispo, and Santa Barbara Counties, as well as the southern one-third of Santa Clara County and small portions of San Mateo, Kern, and Ventura Counties. Included in the region are urban areas, such as the Monterey Peninsula and the Santa Barbara coastal plain; prime agricultural lands such as the Salinas, Santa Maria, and Lompoc Valleys; national forest lands; extremely wet areas like the Santa Cruz mountains; and arid areas like the Carrizo Plain.

The Central Coast RWQCB implements a basin plan by issuing and enforcing waste discharge requirements to individuals, communities, or businesses whose waste discharges can affect water quality. These requirements can be either State Waste Discharge Requirements for discharges to land, or federally delegated National Pollutant Discharge Elimination System (NPDES) permits for discharges to surface water. Methods of treatment are not specified. Water quality is controlled when such discharges are managed so that (1) they meet these requirements (2) water quality objectives are met, and (3) beneficial uses are protected.

3.14-B.1.1.2 Central Valley Regional Water Quality Control Board

The Central Valley RWQCB (CVRWQCB) (Region 5) is the state's largest, encompassing 60,000 square miles, or about 40% of the state's total area. Thirty-eight of California's 58 counties are either completely or partially in the CVRWQCB's boundaries, formed by the crests of the Sierra Nevada on the east, the Coast Ranges and Klamath Mountains on the west, the Oregon border on the north, and the Tehachapi Mountains on the south. Included are 11,350 miles of streams, 579,110 acres (ac) (234,354.4 hectares [ha]) of lakes, and the largest contiguous groundwater basin in California. The Sacramento and San Joaquin Rivers, along with their tributaries, drain the major part of this large area through the Sacramento–San Joaquin River Delta (Delta), an inland delta, prior to emptying into San Francisco Bay. The Delta is the focal point of the state's two largest water conveyance projects, the State Water Project and the federal Central Valley Project. Together, the Sacramento and San Joaquin Rivers and the Delta furnish over half of the state's water supply. The southern third of the Central Valley contains the Tulare Lake Basin, a closed hydrographic unit except during extremely wet years. The Central Valley is one of the most important agricultural centers of the world. Its largest city is Sacramento, the state capital. The CVRWQCB's headquarters is in Sacramento, with branch offices in Redding and Fresno. This office also provides administrative, technical and information technology support, fosters programmatic consistency, and coordinates enforcement activities for the entire region.

The Fresno branch office has program responsibilities in the Upper San Joaquin River watershed and the Tulare Lake Basin (Fresno, Kings, Madera, Mariposa, Merced, and Tulare Counties and the portions of Kern, Los Angeles, San Benito, San Luis Obispo, and Ventura Counties that are in the Central Valley).

Major programs focus on agricultural regulatory, above-ground tanks (AGT), basin planning, CALFED, confined animal facilities, Department of Defense and Department of Energy, landfills and mining, nonpoint source (NPS), spills, leaks, investigations, and cleanups (SLIC), stormwater, total maximum

daily load (TMDL), underground storage tanks (UST), wastewater discharges to land, wastewater discharges to surface waters (National Pollutant Discharge Elimination System [NPDES]), water quality certification, and watershed management.

Basin plans (one for the Tulare Basin and one for the Sacramento River and San Joaquin River Basins) and the planning process associated with them are required by both federal and state law. The basin plans are the framework for the CVRWQCB's activities. They include designation of beneficial uses of waters, water quality objectives to meet those uses, and description of programs and actions that need to be implemented to achieve the objectives. For surface waters, these components are water quality standards under federal law. Every 3 years, a comprehensive review of the basin plan is conducted to determine whether revisions are needed. The CVRWQCB has determined that the following issues are high priority: regulatory guidance to address waterbodies dominated by NPDES discharges; regulatory guidance for salinity and boron discharges to the San Joaquin River; organophosphate pesticide control efforts; groundwater quality issues in the Tulare Basin; policies for maintaining drinking water quality in the Delta; mercury load reduction program; dissolved oxygen problems in the San Joaquin River near Stockton; and regulatory policies for selenium in the San Joaquin River.

3.14-B.1.1.3 San Francisco Bay Regional Water Quality Control Board

The San Francisco Bay RWQCB (SFRWQCB) regulates surface water and groundwater quality in San Francisco Bay region. The primary responsibility of the SFRWQCB is to protect the quality of the surface and groundwater in the region for beneficial uses. The duty is carried out by formulating and adopting water quality plans for specific groundwater or surface water bodies, by prescribing and enforcing requirements on domestic and industrial waste dischargers, and by requiring cleanup of water contamination and pollution. Specific responsibilities and procedures of the SFRWQCB are outlined in the Porter-Cologne Water Quality Control Act. The SFRWQCB addresses issues of general policy, allowable discharges, cleanups, and enforcement actions.

The SFRWQCB‘s jurisdiction includes San Francisco, San Pablo, Suisun, and Tomales Bays; all streams and rivers that flow into them (beginning at a point just west of Antioch); ocean waters; and groundwater. The SFRWQCB’s mission is to address regionwide water quality concerns through the creation and update of its basin plan. The basin plan is the master policy document that contains descriptions of the legal, technical, and programmatic bases of water quality regulation in the San Francisco Bay region.

Major programs include implementation of the basin plan, watershed management planning, and the San Francisco Estuary Project (Estuary Project). The Estuary Project is a cooperative program aimed at promoting effective, environmentally sound management of the San Francisco Bay Estuary, while protecting and restoring its natural resources. In 1993, the Estuary Project reached its goal of developing a Comprehensive Conservation and Management Plan (CCMP). The CCMP addresses five critical concerns: decline of biological resources, increased pollutants, freshwater diversion and altered flow regime, dredging and waterway modification, and intensified land use.

3.14-B.1.2 Local Permitting Agencies/Water Districts

3.14-B.1.2.1 Alameda County Flood Control and Water Conservation District

The County of Alameda Public Works Agency, acting in its capacity as the Alameda County Flood Control and Water Conservation District (ACFWCD), is responsible for most major flood control operations of Alameda County from Emeryville and Oakland south to Fremont. The agency works in collaboration with the cities throughout the county. The ACFWCD is divided into 10 flood control zones, each of which is located within a drainage basin that collects stormwater runoff and transports it to the Bay. The agency requires a permit for work in any of its channels.

3.14-B.1.2.2 Alameda County Water District

The Alameda County Water District (ACWD) provides drinking water to the cities of Hayward, Fremont, and Newark. Sources of water include the Central Valley Project, Hetch Hetchy System, and Alameda Creek and associated aquifers. Inflatable rubber dams capture water from Alameda Creek and divert it into several abandoned gravel quarry ponds adjacent to one of the proposed project alignments.

3.14-B.1.2.3 Central California Irrigation District

The Central California Irrigation District is a purveyor of irrigation water in western Merced and Stanislaus counties. Several of the district's facilities may be affected by the project. The district may be contacted through the San Luis–Delta Mendota Water Authority.

3.14-B.1.2.4 Del Puerto Water District

The Del Puerto Water District furnishes irrigation water to users in western Merced and Stanislaus Counties. District's facilities may be affected by the project. The Del Puerto Water District may be contacted through the San Luis–Delta Mendota Water Authority.

3.14-B.1.2.5 Grassland Water District

The Grassland Water District is a purveyor of irrigation water and manager of wetlands in western Merced County. Several of the district's facilities and the Grassland State Wildlife Area may be affected by the project. The district is a California water district formed under Section 34000 of the State Water Code. The district is approximately 51,537 ac (20,856.37 ha) in size, with the majority of this land in wetland habitat. The district's primary function is the delivery of water to the landowners in its boundaries. The canal system for carrying out water deliveries is approximately 110 miles long and is operated and maintained by the district.

3.14-B.1.2.6 Merced Irrigation District

The Merced Irrigation District (MID) regulates irrigation water in eastern Merced County. There are more than 140,000 ac (56,656.22 ha) of farmland located in MID's boundaries, of which approximately 70% are irrigated with MID water. MID serves nearly 2,000 Merced County growers, who produce over 25 different crops each year, including almonds, corn, alfalfa, and cotton. In 1919, when MID was officially formed, about 40,000 ac (16,187.49 ha) were irrigated. Today, that figure stands at more than 110,000 ac (44,515.6 ha), using about 320,000 acre-feet of water, including sphere-of-influence sales to the El Nido Irrigation District, Le Grand-Athlone Water District, and individual growers around the perimeter of the district. The water is stored behind the New Exchequer and McSwain Dams. More than 750 miles of canals bring the water to MID customers. Any work around the canals in eastern Merced County, such as the Livingston Canal, would require coordination with MID.

3.14-B.1.2.7 San Benito County Water District

Since irrigation pumping began in the Hollister Valley in 1878, water levels have declined as much as 180 feet. To compensate, groundwater recharge and surface deliveries have been implemented by the San Benito County Water District (SBCWD), a water conservation and flood control district, using imported water from the U.S. Bureau of Reclamation's Central Valley Project. The mission of the SBCWD is to preserve the economic and environmental wealth and well-being of San Benito County through the control, management, and conservation of waters and the provision of water services in a practical, cost-effective, and responsible manner. The SBCWD regulates activities in the ditches and streams of San Benito County, including Tequisquita Creek and the ditches in the Bolsa. The Bolsa is a low-lying basin that drains into the Pajaro River. The southern Gilroy option would impact ditches and streams on the floor of the Bolsa. It will be important for the project to contact the district regarding any work in these waterways.

3.14-B.1.2.8 San Joaquin River Group Authority

The San Joaquin River Group Authority (SJRGA) is a consortium of water purveyors and governmental agencies that administers the San Joaquin Agreement. The San Joaquin River Group Authority (SJRGA) includes these member agencies: Modesto Irrigation District, Turlock Irrigation District, Merced Irrigation District, South San Joaquin Irrigation District, and Oakdale Irrigation District; the San Joaquin River Exchange Contractors Water Authority and its member agencies (Central California Irrigation District, San Luis Canal Company, Firebaugh Canal Water District and Columbia Canal Company); the Friant Water Users Authority on behalf of its member agencies; and the City and County of San Francisco. The San Joaquin River Agreement proposes, among other things, a San Joaquin River flow and State Water Project export study during the April-May Pulse Flow Period and a mechanism by which the State Water Resources Control Board can issue an order to implement the San Joaquin River Portion of the 1995 Water Quality Control Plan for the San Francisco Bay and Sacramento–San Joaquin River Delta Estuary system.

3.14-B.1.2.9 San Francisco Public Utilities Commission

The San Francisco Public Utilities Commission (SFPUC) is the purveyor of Hetch Hetchy water to several communities in the South San Francisco Bay region and the City and County of San Francisco. The proposed project would affect several of the SFPUC's facilities, including the Hetch Hetchy Aqueduct, which directs water from the watershed of the Tuolumne River in the Sierra Nevada to Crystal Springs Reservoir on the San Mateo Peninsula.

3.14-B.1.2.10 San Luis and Delta-Mendota Water Authority

The San Luis and Delta-Mendota Water Authority (SLDMWA) was established in January of 1992 and consists of 32 water agencies representing approximately 2,100,000 ac (849,843.2 ha) of federal and exchange water service contractors in the western San Joaquin Valley, San Benito and Santa Clara Counties. One of the primary purposes of establishing the SLDMWA was to assume the operation and maintenance responsibilities of certain U.S. Bureau of Reclamation Central Valley Project facilities. In addition, the SLDMWA serves the information and representation needs of member water districts by developing, providing, and disseminating information to legislative, administrative, and judicial bodies concerning a variety of issues, such as Delta exports, water supply, water quality, water development, conservation, distribution, drainage, contractual rights, surface and groundwater management, and other common interest of the member agencies.

3.14-B.1.2.11 San Mateo County Department of Public Works

The San Mateo County Department of Public Works provides efficient, economical, and responsive transportation; infrastructure systems and maintenance; facilities engineering, design, and development; and utilities services to residents of San Mateo County and for county government agencies. Services are provided in a manner ensuring safe, cost-effective, convenient, and attractive facilities for use by employees and the general public. A permit would be required for any work in or adjacent to streams in San Mateo County.

3.14-B.1.2.12 Santa Clara Valley Water District

The Santa Clara Valley Water District (SCVWD) is the primary water resources agency for Santa Clara County. It acts not only as the county's water wholesaler but also as its flood protection agency and is the steward for its streams and creeks, underground aquifers, and district-built reservoirs. Any work around the streams in Santa Clara County in connection with the project would require an encroachment permit from SCVWD. District Ordinance 82-3 requires a project review and permitting process to minimize impacts to watercourses resulting from development or community activities. Anyone who plans a project within 50-feet of a creek or waterway, or within 50-feet of district property or a district easement, must first obtain a permit from the district's Community Projects Review Unit.

A. THE SANTA CLARA VALLEY URBAN RUNOFF POLLUTION PREVENTION PROGRAM

The Santa Clara Valley Urban Runoff Pollution Prevention Program is an association of thirteen cities and towns in the Santa Clara Valley, who work together with Santa Clara County and the Santa Clara Valley Water District. Program participants share a common permit to discharge stormwater to South San Francisco Bay, California. The Program incorporates regulatory, monitoring and outreach measures aimed at improving the water quality of South San Francisco Bay and the streams of the Santa Clara Valley. The Program concentrates its efforts on identifying pollution sources and implementing pollution prevention measures that are within the authority and ability of its co-permittees.

APPENDIX 3.15-A

SPECIES TABLES

Appendix 3.15-A-1. Special-Status Plant Species with Potential to Occur in High Speed Train Corridors

Species	Legal Status[a] Federal/ State/ CNPS	Geographic Distribution	Habitat Requirements	Blooming Period	High Speed Train Corridors					
					San Francisco to San Jose	Oakland to San Jose	San Jose to Central Valley	East Bay to Central Valley	San Francisco Bay Crossings	Central Valley
San Mateo thorn-mint *Acanthomintha duttonii*	E/E/1B	San Mateo	Chaparral, valley and foothill grassland/ serpentinite	April–June	X				X	
Franciscan onion *Allium peninsulare* var. *franciscanum*	--/--/1B	Santa Clara, San Mateo, Sonoma	Cismontane woodland, valley and foothill grassland/ clay, often serpentinite	May–June	X		X		X	
Bent-flowered fiddleneck *Amsinckia lunaris*	–/–/1B	Alameda, Contra Costa, Colusa, Lake, Marin, Napa, Santa Clara, Santa Cruz, Shasta, San Mateo, Sonoma	Coastal bluff scrub, cismontane woodland, valley and foothill grassland	March–June	X	X	X	X	X	
Suisun Marsh aster *Aster lentus*	--/--/1B	Contra Costa, Napa, Sacramento, San Joaquin, Solano	Marshes and swamps (brackish and fresh water)	May–Nov				X		
Coastal marsh milk-vetch *Astralagus pycnostachyus* var. *pycnostachyus*	--/--/1B	Humboldt, Marin, San Mateo	Coastal dunes (mesic), marshes and swamps (coastal salt, streamsides)	April–Oct					X	
Alkali milk-vetch *Astragalus tener* var. *tener*	–/–/1B	Alameda, Contra Costa, Merced, Monterey, Napa, San Benito, Santa Clara, San Francisco, San Joaquin, Solano, Sonoma, Stanislaus, Yolo	Playas, valley and foothill grassland (adobe, clay), vernal pools/alkaline	March–June	X	X	X	X	X	X
Heartscale *Atriplex cordulata*	–/–/1B	Alameda, Contra Costa, Butte, Fresno, Glenn, Kings, Kern, Madera, Merced, San Joaquin, Solano, Stanislaus, Tulare, Yolo	Chenopod scrub, meadows and seeps, valley and foothill grassland (sandy)/saline or alkaline	April–Oct			X	X		X
Brittlescale *Aptriplex depressa*	--/--/1B	Alameda, Butte, Contra Costa, Colusa, Fresno, Glenn, Kern, Madera, Merced, Solano, Stanislaus, Tulare, Yolo	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland, vernal pools/alkaline, clay	May–Oct			X	X		X

Species	Legal Status[a] Federal/ State/ CNPS	Geographic Distribution	Habitat Requirements	Blooming Period	High Speed Train Corridors					
					San Francisco to San Jose	Oakland to San Jose	San Jose to Central Valley	East Bay to Central Valley	San Francisco Bay Crossings	Central Valley
San Joaquin spearscale *Atriplex joaquiniana*	--/--/1B	Alameda, Contra Costa, Colusa, Glenn, Merced, Monterey, Napa, Sacramento, San Benito, Santa Clara, San Joaquin, Solano, Tulare, Yolo	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland/ alkaline	April–Oct			X	X		X
Lesser saltscale *Atriplex minuscule*	--/--/1B	Alameda, Butte, Fresno, Madera, Merced, Stanislaus, Tulare	Chenopod scrub, playas, valley and foothill grassland/ alkaline, sandy	May–Oct			X	X		X
Vernal pool smallscale *Atriplex persistens*	--/--/1B	Glenn, Madera, Merced, Solano, Stanislaus, Tulare	Vernal pools (alkaline)	July–Oct			X			X
Subtle orache *Atriplex subtllis*	--/--/1B	Butte, Fresno, Kings, Kern, Madera, Merced, Tulare	Valley and foothill grassland	Aug–Oct			X			X
Big-scale balsamroot *Balsamorhiza macrolepis* var. *macrolepis*	--/--/1B	Alameda, Butte, Colusa, Lake, Mariposa, Napa, Placer, Santa Clara, Solano, Sonoma, Tehama	Chaparral, cismontane woodland, valley and foothill grassland/ sometimes serpentine	March–June	X	X		X		
Big tarplant *Blepharizonia plumose*	--/--/1B	Alameda, Contra Costa, San Joaquin, Stanislaus, Solano	Valley and foothill grassland	July–Oct		X		X	X	X
Bristly sedge *Carex comosa*	--/--/1B	Contra Costa, Lake, Mendocino, San Bernardino, Santa Cruz, San Francisco, Shasta, San Joaquin, Sonoma; Idaho, Oregon, Washington, and elsewhere	Coastal prairie, marshes and swamps (lake margin), valley and foothill grassland	May–Sept	X				X	
Tiburon Indian paintbrush *Castilleja affinis* ssp. *neglecta*	E/T/1B	Marin, Napa, Santa Clara	Valley and foothill grassland (serpentinite)	April–June	X	X	X			
Succulent owl's-clover *Castilleja campestris* ssp. *succulenta*	T/E/1B	Fresno, Madera, Merced, Mariposa, San Joaquin, Stanislaus	Vernal pools (often acidic)	April–May			X			X

Species	Legal Status[a] Federal/ State/ CNPS	Geographic Distribution	Habitat Requirements	Blooming Period	High Speed Train Corridors					
					San Francisco to San Jose	Oakland to San Jose	San Jose to Central Valley	East Bay to Central Valley	San Francisco Bay Crossings	Central Valley
Pink creamsacs *Castilleja rubicundula* ssp. *rubicundula*	--/--/1B	Butte, Colusa, Lake, Napa, San Benito, Santa Clara	Chaparral (openings), cismontane woodland, meadows and seeps, valley and foothill grassland/ serpentine	April–June			X			
Lemmon's jewelflower *Caulanthus coulteri* var. *lemmonii*	--/--/1B	Alameda, Fresno, Kings, Kern, Merced, Monterey, Santa Barbara, San Benito, San Joaquin, San Luis Obispo, Stanislaus, Ventura	Pinyon and juniper woodland, valley and foothill grassland	March–May			X			
Coyote ceanothus *Ceanothus ferrisiae*	E/--/1B	Santa Clara	Chaparral, coastal scrub, valley and foothill grassland/ serpentinite	Jan–May			X			
Congdon's tarplant *Centromadia parryi* ssp. *congdonii*	--/--/1B	Alameda, Contra Costa, Monterey, Santa Clara, Santa Cruz, San Luis Obispo, San Mateo Solano	Valley and foothill grasslands (alkaline)	June–Nov	X	X	X	X	X	
Hoover's spurge *Chamaesyce hooveri*	T/--/1B	Butte, Glenn, Merced, Stanislaus, Tehama, Tulare	Vernal pools	July–Aug			X			X
Robust spineflower *Chorizanthe robusta* var. *robusta*	E/--/1B	Alameda, Monterey, San Francisco, Santa Clara, Santa Cruz, San Mateo	Cismontane woodland (openings), coastal dunes, coastal scrub/ sandy or gravelly	April–Sept					X	
Slough thistle *Cirsium crassicaule*	--/--/1B	Kings, Kern, San Joaquin	Chenopod scrub, marshes and swamps (sloughs), riparian scrub	May–Aug				X		
Mt. Hamilton thistle *Cirsium fontinale* var. *campylon*	--/--/1B	Alameda, Santa Clara, Stanislaus	Chaparral, cismontane woodland, valley and foothill grassland/ serpentine seeps	Feb–Oct				X		
Presidio clarkia *Clarkia franciscana*	E/E/1B	Alameda, San Francisco	Coastal scrub, valley and foothill grassland (serpentine)	May–July		X				
San Francisco collinsia *Collinsia multicolor*	--/--/1B	Monterey, Santa Clara, Santa Cruz, San Francisco, San Mateo	Closed-cone coniferous forest, coastal scrub/ sometimes serpentine	March–May	X		X		X	

Species	Legal Status[a] Federal/ State/ CNPS	Geographic Distribution	Habitat Requirements	Blooming Period	High Speed Train Corridors					
					San Francisco to San Jose	Oakland to San Jose	San Jose to Central Valley	East Bay to Central Valley	San Francisco Bay Crossings	Central Valley
Point Reyes bird's-beak *Cordylanthus maritimus* ssp. *palustris*	--/--/1B	Alameda, Humboldt, Marin, Santa Clara, San Mateo, Sonoma, Oregon	Marshes and swamps (coastal salt)	June–Oct	X				X	
Hispid bird's-beak *Cordylanthus mollis* ssp. *hispidus*	--/--/1B	Alameda, Kern, Merced, Placer, Solano	Meadows and seeps, playas, valley and foothill grassland/ alkaline	June–Sept			X	X		X
Palmate-bracted bird's beak *Cordylanthus palmatus*	E/E/1B	Alameda, Colusa, Fresno, Madera, San Joaquin, Yolo	Chenopod scrub, valley and foothill grassland (alkaline)	May–Oct				X		X
Hoover's cryptantha *Cryptantha hooveri*	--/--/1A	Alameda, Contra Costa, Madera, Merced, San Joaquin, Stanislaus	Valley and foothill grassland (sandy)	April–May			X			X
Livermore tarplant *Deinandra bacigalupii*	--/--/1B	Alameda	Meadows and seeps (alkaline)	June–Oct				X		
Hospital Canyon larkspur *Delphinium californicum* ssp.*iInterius*	--/--/1B	Alameda, Contra Costa, Merced, San Benito, Santa Clara, San Joaquin, San Luis Obispo, Stanislaus	Chaparral (openings), oak woodland (mesic)	April–June			X	X		
Recurved larkspur *Delphinium recurvatum*	--/--/1B	Alameda, Contra Costa, Fresno, Kings, Kern, Madera, Merced, Monterey, San Joaquin, San Luis Obispo, Solano, Tulare	Chenopod scrub, cismontane woodland, valley and foothill grassland/ alkaline	March–May			X	X		X
Dwarf downingia *Downingia pusilla*	--/--/2	Merced, Mariposa, Napa, Placer, Sacramento, San Joaquin, Solano, Sonoma, Stanislaus, Tehama, Yuba; South America	Valley and foothill grassland (mesic), vernal pools	March–May			X			X
Santa Clara Valley dudleya *Dudleya setchellii*	E/--/1B	Santa Clara	Cismontane woodland, valley and foothill grassland/ serpentinite, rocky	April–June			X			
Four-angled spikerush *Eleocharis quadrangulata*	--/--/2	Butte, Merced, Shasta, Tehama, and elsewhere	Marshes and swamps (freshwater)	May–Sept			X			X
San Mateo woolly sunflower *Eriophyllum latilobum*	E/E/1B	San Mateo	Cismontane woodland (serpentinite, often on roadcuts)	May–June					X	

Species	Legal Status[a] Federal/ State/ CNPS	Geographic Distribution	Habitat Requirements	Blooming Period	High Speed Train Corridors					
					San Francisco to San Jose	Oakland to San Jose	San Jose to Central Valley	East Bay to Central Valley	San Francisco Bay Crossings	Central Valley
Round-leaved filaree *Erodium macrophyllum*	--/--/2	Alameda, Butte, Contra Costa, Colusa, Fresno, Glenn, Kings, Kern, Lake, Lassen, Los Angeles, Merced, Monterey, Napa, Riverside, Santa Barbara, San Benito, Santa Cruz Island, San Diego, San Joaquin, San Luis Obispo, San Mateo, Solano, Sonoma, Stanislaus	Cismontane woodland, valley and foothill grassland/ clay	March–May			X	X		
Hoover's button-celery *Eryngium aristulatum* var. *hooveri*	--/--/1B	Alameda, San Benito, Santa Clara, San Luis Obispo, San Mateo	Vernal pools	July	X	X	X		X	
Delta button-celery *Eryngium racemosum*	--/E/1B	Merced, San Joaquin, Stanislaus	Riparian scrub (vernally mesic clay depressions)	June–Aug			X	X		X
Diamong-petaled California poppy *Eschscholzia rhombipetala*	--/--/1B	Alameda, Contra Costa, Colusa, San Joaquin, San Luis Obispo, Stanislaus	Valley and foothill grassland (alkaline, clay)	March–April			X	X		
Hillsborough chocolate lily *Fritillaria biflora var. ineziana*	--/--/1B	San Mateo	Cismontane woodland, valley and foothill grassland/ serpentinite	March–April	X				X	
Fragrant frilillary *Fritillaria lillacea*	--/--/1B	Alameda, Contra Costa, Monterey, Marin, San Benito, Santa Clara, San Francisco, San Mateo, Solano, Sonoma	Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland/ often serpentine	Feb–April			X			
Boggs Lake hedge-hyssop *Gratiola heterosepala*	--/E/1B	Fresno, Lake, Lassen, Madera, Merced, Modoc, Placer, Sacramento, Shasta, Siskiyou, San Joaquin, Solano, Tehama, Oregon	Marshes and swamps (lake margins), vernal pools/ clay	April–Aug						X

Species	Legal Status[a] Federal/ State/ CNPS	Geographic Distribution	Habitat Requirements	Blooming Period	High Speed Train Corridors					
					San Francisco to San Jose	Oakland to San Jose	San Jose to Central Valley	East Bay to Central Valley	San Francisco Bay Crossings	Central Valley
San Francisco gumplant *Grindelia hirsutula* var. *maritime*	--/--/1B	Monterey, Marin, Santa Cruz, San Francisco, San Luis Obispo, San Mateo	Coastal bluff scrub, coastal scrub, valley and foothill grassland/ sandy or serpentinite	Aug–Sept	X				X	
Diablo helianthella *Helianthella castanea*	--/--/1B	Alameda, Contra Costa, Marin, San Francisco, San Mateo	Broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland	April–June				X		
Rose-mallow *Hibiscus lasiocarpus*	--/--/2	Butte, Contra Costa, Colusa, Glenn, Sacramento, San Joaquin, Solano, Sutter, Yolo; and elsewhere	Marshes and swamps (freshwater)	June–Sept				X		X
Loma Prieta hoita *Hoita strobilina*	--/--/1B	Alameda, Contra Costa, San Benito, Santa Clara, Santa Cruz	Chaparral, cismontane woodland, riparian woodland/ usually serpentine	May–Oct			X			
Contra Costa goldfields *Lasthenia conjugens*	E/--/1B	Alameda, Contra Costa, Mendocino, Monterey, Napa, Santa Barbara, Santa Clara, Solano	Cismontane woodland, playas (alkaline), valley and foothill grassland, vernal pools/mesic	March–June	X	X	X			
Legenere *Legenere limnosa*	--/--/1B	Alameda, Lake, Napa, Placer, Sacramento, Shasta, San Joaquin, San Mateo, Santa Clara, Solano, Sonoma, Stanislaus, Tehama	Vernal pools	April–June				X		X
Crystal Springs lessingia *Lessingia arachnoidea*	--/--/1B	San Mateo, Sonoma	Cismontane woodland, coastal scrub, valley and foothill grassland/ serpentinite, often roadsides	July–Oct	X				X	
Smooth lessingia *Lessingia micradenia var. glabrata*	--/--/1B	Santa Clara	Chaparral, cismontane woodland/ serpentinite, often roadsides	July–Nov			X			

Species	Legal Status[a] Federal/ State/ CNPS	Geographic Distribution	Habitat Requirements	Blooming Period	High Speed Train Corridors					
					San Francisco to San Jose	Oakland to San Jose	San Jose to Central Valley	East Bay to Central Valley	San Francisco Bay Crossings	Central Valley
Showy madia *Madia radiate*	--/--/1B	Contra Costa, Fresno, Kings, Kern, Monterey, Santa Barbara, San Benito, San Joaquin, San Luis Obispo, Stanislaus	Cismontane woodland, valley and foothill grassland	March–May				X		
Marsh microseris *Microseris paludosa*	--/--/1B	Mendocino, Monterey, Marin, Santa Cruz, San Francisco, San Luis Obispo, San Mateo, Sonoma	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland	April–June	X					
Robust monardella *Monardella villosa* ssp. *globosa*	--/--/1B	Alameda, Contra Costa, Humboldt, Lake, Mendocino, Napa, San Mateo, Santa Clara, Sonoma	Chaparral (openings), cismontane woodland, coastal scrub	June–July			X	X		
Shining navarretia *Navarretia nigelliformis* ssp. *radians*	--/--/1B	Fresno, Merced, Monterey, San Benito, San Luis Obispo	Cismontane woodland, valley and foothill grassland, vernal pools	May–July			X			X
Prostrate navarretia *Navarretia prostrate*	--/--/1B	Alameda, Los Angeles, Merced, Monterey, Orange, Riverside San Bernardino, San Diego	Coastal scrub, valley and foothill grassland (alkaline), vernal pools	April–July			X	X		X
Colusa grass *Neostapfia colusana*	T/E/1B	Colusa, Merced, Solano, Stanislaus, Yolo	Vernal pools (adobe)	May–Aug			X			X
San Joaquin Valley orcutt grass *Orcuttia inaequalis*	T/E/1B	Fresno, Madera, Merced, Stanislaus, Tulare	Vernal pools	April–Sept			X			X
Hairy orcutt grass *Orcuttia pilosa*	E/E/1B	Butte, Glenn, Madera, Merced, Stanislaus, Tehama	Vernal pools	May–Sept			X			X
White-rayed pentachaeta *Pentachaeta bellidiflora*	E/E/1B	Marin, Santa Cruz, San Mateo	Valley and foothill grassland (often serpentinite)	March–May	X				X	
Hairless popcorn flower *Plagiobothrys glaber*	--/--/1A	Alameda, Merced, Marin, San Benito, Santa Clara	Meadows and seeps (alkaline), marshes and swamps (coastal salt)	March–May		X		X		

Species	Legal Status[a] Federal/ State/ CNPS	Geographic Distribution	Habitat Requirements	Blooming Period	High Speed Train Corridors					
					San Francisco to San Jose	Oakland to San Jose	San Jose to Central Valley	East Bay to Central Valley	San Francisco Bay Crossings	Central Valley
Slender-leaved pondweed *Potamogeton filiformis*	--/--/2	Contra Costa, Lassen, Merced, Mono, Santa Clara, San Mateo, Sierra; Arizona, Nevada, Oregon, Washington, and elsewhere	Marshes and swamps (assorted shallow fresh water)	May–July	X	X	X			
San Francisco campion *Silene verecunda* ssp. *verecunda*	--/--/1B	Santa Cruz, San Francisco, San Mateo	Coastal bluff scrub, chaparral, coastal prairie, coastal scrub, valley and foothill grassland/ sandy	March–August	X				X	
Santa Cruz microseris *Stebbinsoseris decipiens*	--/--/1B	Monterey, Marin, San Francisco, San Mateo, Santa Cruz	Broadleaved upland forest, closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, valley and foothill grassland/ open areas, sometimes serpentinite	April–May	X				X	
Metcalf Canyon jewel-flower *Streptanthus albidus* ssp. *albidus*	E/--/1B	Santa Clara	Valley and foothill grassland (serpentinite)	April–July			X			
Most beautiful jewel-flower *Streptanthus albidus* ssp. *peramoenus*	--/--/1B	Alameda, Contra Costa, Monterey, Santa Clara, San Benito	Chaparral, cismontane woodland, valley and foothill grassland/ serpentine	April–June			X	X		
California seablite *Suaeda californica*	E/--/1B	Alameda, Santa Clara, San Luis Obispo	Marshes and swamps (coastal salt)	July–Oct				X	X	
Showy Indian clover *Trifolium amoenum*	E/--/1B	Alameda, Mendocino, Marin, Napa, Santa Clara, San Benito, Solano, Sonoma	Coastal bluff scrub, balley and foothill grassland (sometimes serpentine)	April–June			X			
Saline clover *Trifolium depauperatum* var. *hydrophilum*	--/--/1B	Alameda, Colusa, Monterey, Napa, San Benito, Santa Clara, San Luis Obispo, San Mateo, Solano, Sonoma	Marshes and swamps, valley and foothill grassland (mesic, alkaline), vernal pools	April–June	X		X	X	X	

Species	Legal Status[a] Federal/ State/ CNPS	Geographic Distribution	Habitat Requirements	Blooming Period	High Speed Train Corridors					
					San Francisco to San Jose	Oakland to San Jose	San Jose to Central Valley	East Bay to Central Valley	San Francisco Bay Crossings	Central Valley
Caper-fruited tropidocarpum *Tropidocarpum capparideum*	--/--/1B	Alameda, Contra Costa, Glenn, Monterey, Santa Clara, San Joaquin, San Mateo	Valley and foothill grassland (alkaline hills)	March–April			X	X		
Greene's tuctoria *Tuctoria greenei*	E/R/1B	Butte, Fresno, Glenn, Madera, Merced, Shasta, San Joaquin, Stanislaus, Tehama, Tulare	Vernal pools	May–Sept			X	X		X

Appendix 3.15-A-2. Associations for Plant Special-Status Species in the San Francisco to San Jose Corridor per Alignment Alternative[a]

	Legal Status[b]			Alignment	
Common and Scientific Name	**Federal**	**State**	**CNPS**	**San Francisco to Dumbarton**	**Dumbarton to San Jose**
San Mateo thorn-mint *Acanthomintha duttonii*	E	E	1B	X	
Franciscan onion *Allium peninsulare* var. *franciscanum*	--	--	1B	X	
Bent-flowered fiddleneck *Amsinckia lunaris*	--	--	1B	X	
Alkali milk-vetch *Astragalus tener* var. *tener*	--	--	1B	X	X
Big-scale balsamroot *Balsamorhiza macrolepis* var. *macrolepis*	--	--	1B	X	X
Tiburon Indian paintbrush *Castilleja affinis* ssp. *Neglecta*	E	T	1B	X	
Congdon's tarplant *Centromadia parryi* ssp. *Congdonii*	--	--	1B	X	
San Francisco collinsia *Collinsia multicolor*	--	--	1B	X	X
Hoover's button-celery *Eryngium aristulatum* var. *hooveri*	--	--	1B	X	X
San Francisco gumplant *Grindelia hirsutula* var. *maritime*	--	--	1B	X	
Marin western flax *Hersperolinon congestum*	T	T	1B	X	
Contra Costa goldfields *Lasthenia conjugens*	E	--	1B	X	X
Crystal Springs lessingia *Lessingia arachnoidea*	--	--	1B	X	
Marsh microseris *Microseris paludosa*	--	--	1B		
White-rayed pentachaeta *Pentachaeta bellidiflora*	E	E	1B	X	
Slender-leaved pondweed *Potamogeton filiformis*	--	--	2	X	
San Francisco campion *Silene verecunda* ssp. *Verecunda*	--	--	1B	X	
Santa Cruz microseris *Stebbinsoseris decipiens*	--	--	1B	X	

	Legal Status[b]			Alignment	
Common and Scientific Name	**Federal**	**State**	**CNPS**	**San Francisco to Dumbarton**	**Dumbarton to San Jose**
Saline clover *Trifolium depauperatum* var. *hydrophilum*	--	--	1B	X	
San Francisco owl's-clover *Triphysaria floribunda*	--	--	1B	X	

[a] Sources of information for county distribution include the following:

California Department of Fish and Games Natural Diversity Database (CNDDB 2002);

USFWS 1998. Recovery Plan for Upland Species of the San Joaquin Valley, California;

CNPS 2001. Inventory of rare and endangered plants of California; and

CalFlora: Information on California plants for education, research and conservation. [web application]. 2002. Berkeley, California: The CalFlora Database [a nonprofit organization]. Available: http://www.calflora.org/

[b] Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act.

T = listed as threatened under the federal Endangered Species Act.

-- = no status.

State

E = listed as endangered under the California Endangered Species Act.

T = listed as threatened under the California Endangered Species Act.

R = listed as rare under the California Native Plant Protection Act. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.

-- = no status.

California Native Plant Society

1A = List 1A species: plants presumed extinct in California.

1B = List 1B species: rare, threatened, or endangered in California and elsewhere.

Appendix 3.15-A-3. Associations for Plant Covered Species in the Oakland to San Jose Corridor per Alignment Alternative[a]

Common and Scientific Name	Legal Status[b]			Alignment			
	Federal	State	CNPS	W. Oakland to Niles Junction	12th St./City Center to Niles Junction	Niles Junction to San Jose via Trimble	Niles Junction to San Jose via I-880
Bent-flowered fiddleneck *Amsinckia lunaris*	--	--	1B		X		
Alkali milk-vetch *Astragalus tener* var. *tener*	--	--	1B	X	X	X	X
Big-scale balsamroot *Balsamorhiza macrolepis* var. *macrolepis*	--	--	1B	X	X	X	
Tiburon Indian paintbrush *Castilleja affinis* ssp. *Neglecta*	E	T	1B				
Congdon's tarplant *Centromadia parryi* ssp. *Congdonii*	--	--	1B	X	X	X	X
Presidio clarkia *Clarkia franciscana*	E	E	1B	X	X		
Hoover's button-celery *Eryngium aristulatum* var. *hooveri*	--	--	1B			X	X
Contra Costa goldfields *Lasthenia conjugens*	E	--	1B			X	X
Hairless popcorn flower *Plagiobothrys glaber*	--	--	1A			X	X
Slender-leaved pondweed *Potamogeton filiformis*	--	--	2	X	X		

[a] Sources of information for county distribution include the following:

California Department of Fish and Games Natural Diversity Database (CNDDB 2002);

USFWS 1998. Recovery Plan for Upland Species of the San Joaquin Valley, California;

CNPS 2001. Inventory of rare and endangered plants of California; and

CalFlora: Information on California plants for education, research and conservation. [web application]. 2002. Berkeley, California: The CalFlora Database [a nonprofit organization]. Available: http://www.calflora.org/

[b] Status explanations:

Federal

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-- = no status.

State

E = listed as endangered under the California Endangered Species Act.

T = listed as threatened under the California Endangered Species Act.

R = listed as rare under the California Native Plant Protection Act. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.

-- = no status.

California Native Plant Society

1A = List 1A species: plants presumed extinct in California.

1B = List 1B species: rare, threatened, or endangered in California and elsewhere.

Appendix 3.15-A-4. Associations for Plant Special-Status Species in the San Jose to Central Valley Corridor per Alignment Alternative[a]

Common and Scientific Name	Legal Status[b]			Alignment			
	Federal	State	CNPS	Pacheco	Henry Miller (UPRR Connection)	Henry Miller (BNSF Connection)	GEA North
Bent-flowered fiddleneck *Amsinckia lunaris*	--	--	1B	X			
Alkali milk-vetch *Astragalus tener* var. *tener*	--	--	1B	X	X	X	X
Heartscale *Atriplex cordulata*	--	--	1B		X	X	X
Brittlescale *Aptriplex depressa*	--	--	1B		X	X	X
San Joaquin spearscale *Atriplex joaquiniana*	--	--	1B	X			X
Lesser saltscale *Atriplex minuscula*	--	--	1B		X	X	X
Vernal pool smallscale *Atriplex persistens*	--	--	1B		X	X	X
Subtle orache *Atriplex subtilis*	--	--	1B		X	X	
Tiburon Indian paintbrush *Castilleja affinis* ssp. *neglecta*	E	T	1B	X			
Succulent owl's-clover *Castilleja campestris* ssp. *succulenta*	T	E	1B		X	X	X
Pink creamsacs *Castilleja rubicundula* ssp. *rubicundula*	--	--	1B	X			
Lemmon's jewelflower *Caulanthus coulteri* var. *lemmonii*	--	--	1B		X	X	
Coyote ceanothus *Ceanothus ferrisiae*	E	--	1B	X			
Congdon's tarplant *Centromadia parryi* ssp. *congdonii*	--	--	1B	X			
Hoover's spurge *Chamaesyce hooveri*	T	--	1B		X	X	X
San Francisco collinsia *Collinsia multicolor*	--	--	1B	X			

Common and Scientific Name	Legal Status[b]			Alignment			
	Federal	State	CNPS	Pacheco	Henry Miller (UPRR Connection)	Henry Miller (BNSF Connection)	GEA North
Hispid bird's-beak *Cordylanthus mollis* ssp. *hispidus*	--	--	1B		X	X	X
Hoover's cryptantha *Cryptantha hooveri*	--	--	1A		X	X	
Hospital Canyon larkspur *Delphinium californicum* ssp. *interius*	--	--	1B	X	X	X	X
Recurved larkspur *Delphinium recurvatum*	--	--	1B		X	X	X
Dwarf downingia *Downingia pusilla*	--	--	2		X	X	X
Santa Clara Valley dudleya *Dudleya setchellii*	E	--	1B	X			
Four-angled spikerush *Eleocharis quadrangulata*	--	--	2		X	X	X
Round-leaved filaree *Erodium macrophyllum*	--	--	2	X	X	X	X
Hoover's button-celery *Eryngium aristulatum* var. *hooveri*	--	--	1B	X			
Delta button-celery *Eryngium racemosum*	--	--	1B		X	X	X
Fragrant fritillary *Fritillaria lillacea*	--	--	1B	X			
Loma Prieta hoita *Hoita strobilina*	--	--	1B	X			
Contra Costa goldfields *Lasthenia conjugens*	E	--	1B	X			
Smooth lessingia *Lessingia micradenia* var. *glabrata*	--	--	1B	X			
Robust monardella *Monardella villosa* ssp. *globosa*	--	--	1B	X			
Shining navarretia *Navarretia nigelliformis* ssp. *radians*	--	--	1B	X	X	X	X

Common and Scientific Name	Legal Status[b]			Alignment			
	Federal	State	CNPS	Pacheco	Henry Miller (UPRR Connection)	Henry Miller (BNSF Connection)	GEA North
Prostrate navarretia *Navarretia prostrate*	--	--	1B		X	X	X
Colusa grass *Neostapfia colusana*	T	E	1B		X	X	X
San Joaquin Valley orcutt grass *Orcuttia inaequalis*	T	E	1B		X	X	X
Hairy orcutt grass *Orcuttia pilosa*	E	E	1B		X	X	X
Slender-leaved pondweed *Potamogeton filiformis*	--	--	2		X	X	X
Metcalf Canyon jewel-flower *Streptanthus albidus* ssp. *albidus*	E	--	1B	X			
Most beautiful jewel-flower *Streptanthus albidus* ssp. *peramoenus*	--	--	1B	X			
Showy Indian clover *Trifolium amoenum*	E	--	1B	X			
Saline clover *Trifolium depauperatum var. hydrophilum*	--	--	1B	X			
Caper-fruited tropidocarpum *Tropidocarpum capparideum*	--	--	1B	X	X	X	X
Greene's tuctoria *Tuctoria greenei*	E	R	1B		X	X	

[a] Sources of information for county distribution include the following:

California Department of Fish and Games Natural Diversity Database (CNDDB 2002);

USFWS 1998. Recovery Plan for Upland Species of the San Joaquin Valley, California;

CNPS 2001. Inventory of rare and endangered plants of California; and

CalFlora: Information on California plants for education, research and conservation. [web application]. 2002. Berkeley, California: The CalFlora Database [a nonprofit organization]. Available: http://www.calflora.org/

Common and Scientific Name	Legal Status[b]			Alignment			
	Federal	State	CNPS	Pacheco	Henry Miller (UPRR Connection)	Henry Miller (BNSF Connection)	GEA North

[b] Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act.

T = listed as threatened under the federal Endangered Species Act.

-- = no status.

State

E = listed as endangered under the California Endangered Species Act.

T = listed as threatened under the California Endangered Species Act.

R = listed as rare under the California Native Plant Protection Act. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.

-- = no status.

California Native Plant Society

1A = List 1A species: plants presumed extinct in California.

1B = List 1B species: rare, threatened, or endangered in California and elsewhere.

Appendix 3.15-A-5. Associations for Special-Status Plant Species in the East Bay to Central Valley Corridor per Alignment Alternative[a]

Common and Scientific Name	Legal Status[b]			Alignment Alternative							
	Federal	State	CNPS	I-680/ I-580/ UPRR	I-580/ UPRR	Patterson Pass/ UPRR	UPRR	Tracy ACE Station (BNSF Connection)	Tracy ACE Station (UPRR Connection)	Tracy Downtown (BNSF Connection)	Tracy Downtown (UPRR Connection)
Bent-flowered fiddleneck *Amsinckia lunaris*	--	--	1B	X	X	X					
Suisun Marsh aster *Aster lentus*	--	--	1B					X	X		X
Alkali milk-vetch *Astragalus tener* var. *tener*	--	--	1B	X	X	X	X	X	X	X	X
Heartscale *Atriplex cordulata*	--	--	1B	X	X	X	X	X	X	X	X
Brittlescale *Aptriplex depressa*	--	--	1B	X	X	X	X	X	X	X	X
San Joaquin spearscale *Atriplex joaquiniana*	--	--	1B	X	X	X	X	X	X	X	X
Lesser saltscale *Atriplex minuscule*	--	--	1B						X		X
Big-scale balsamroot *Balsamorhiza macrolepis* var. *macrolepis*	--	--	1B	X	X	X	X	X	X	X	X
Big tarplant *Blepharizonia plumose*	--	--	1B	X	X	X	X	X	X	X	X
Congdon's tarplant *Centromadia parryi* ssp. *Congdonii*	--	--	1B	X	X	X	X				
Slough thistle *Cirsium crassicaule*	--	--	1B					X	X	X	X
Mt. Hamilton thistle *Cirsium fontinale* var. *campylon*	--	--	1B	X	X		X	X	X	X	X

Common and Scientific Name	Legal Status[b]			Alignment Alternative							
	Federal	State	CNPS	I-680/ I-580/ UPRR	I-580/ UPRR	Patterson Pass/ UPRR	UPRR	Tracy ACE Station (BNSF Connection)	Tracy ACE Station (UPRR Connection)	Tracy Downtown (BNSF Connection)	Tracy Downtown (UPRR Connection)
Hispid bird's-beak *Cordylanthus mollis* ssp. *Hispidus*	--	--	1B	X	X	X	X				
Palmate-bracted bird's beak *Cordylanthus palmatus*	E	E	1B	X	X	X					
Livermore tarplant *Deinandra bacigalupii*	--	--	1B	X	X	X	X	X	X	X	X
Hospital Canyon larkspur *Delphinium californicum* ssp. *Interius*	--	--	1B	X	X	X	X	X	X	X	X
Recurved larkspur *Delphinium recurvatum*	--	--	1B	X	X		X	X	X	X	X
Round-leaved filaree *Erodium macrophyllum*	--	--	2	X	X	X	X	X	X	X	X
Delta button-celery *Eryngium racemosum*	--	--	1B					X	X	X	X
Diamond-petaled California poppy *Eschscholzia rhombipetala*	--	--	1B	X	X	X	X	X	X	X	X
Diablo helianthelia *Helianthella castanea*	--	--	1B	X	X	X	X				
Rose-mallow *Hibiscus lasiocarpus*	--	--	2	X	X		X	X	X	X	X
Legenere *Legenere limnosa*	--	--	1B					X			X
Showy madia *Madia radiate*	--	--	1B	X	X		X	X	X	X	X

Common and Scientific Name	Legal Status[b]			Alignment Alternative							
	Federal	State	CNPS	I-680/ I-580/ UPRR	I-580/ UPRR	Patterson Pass/ UPRR	UPRR	Tracy ACE Station (BNSF Connection)	Tracy ACE Station (UPRR Connection)	Tracy Downtown (BNSF Connection)	Tracy Downtown (UPRR Connection)
Robust monardella *Monardella villosa* ssp. *Globosa*	--	--	1B	X	X	X					
Prostrate navarretia *Navarretia prostrate*	--	--	1B								
Hairless popcorn flower *Plagiobothrys glaber*	--	--	1A	X	X	X	X	X	X	X	X
Most beautiful jewel-flower *Streptanthus albidus* ssp. *Peramoenus*	--	--	1B	X	X	X					
Saline clover *Trifolium depauperatum* var. *hydrophilum*	--	--	1B	X	X	X	X				
Caper-fruited tropidocarpum *Tropidocarpum capparideum*	--	--	1B	X	X	X	X	X	X	X	X
Greene's tuctoria *Tuctoria greenei*	E	R	1B					X			X

[a] Sources of information for county distribution include the following:

California Department of Fish and Games Natural Diversity Database (CNDDB 2002).

USFWS 1998. Recovery Plan for Upland Species of the San Joaquin Valley, California.

CNPS 2001. Inventory of rare and endangered plants of California.

CalFlora: Information on California plants for education, research and conservation. [web application]. 2002. Berkeley, California: The CalFlora Database [a nonprofit organization]. Available: http://www.calflora.org/.

Common and Scientific Name	Legal Status[b]			Alignment Alternative							
	Federal	State	CNPS	I-680/ I-580/ UPRR	I-580/ UPRR	Patterson Pass/ UPRR	UPRR	Tracy ACE Station (BNSF Connection)	Tracy ACE Station (UPRR Connection)	Tracy Downtown (BNSF Connection)	Tracy Downtown (UPRR Connection)

[b] Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act.

T = listed as threatened under the federal Endangered Species Act.

-- = no status.

State

E = listed as endangered under the California Endangered Species Act.

T = listed as threatened under the California Endangered Species Act.

R = listed as rare under the California Native Plant Protection Act. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.

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California Native Plant Society

1A = List 1A species: plants presumed extinct in California.

1B = List 1B species: rare, threatened, or endangered in California and elsewhere.

[c] This table includes land cover types that were identified in the county. The following land cover types are present but do not provide suitable habitat for special-status species in this corridor: Agricultural Fields; Urban/Other Developed; and Open Water.

Appendix 3.15-A-6. Associations for Covered Plant Species in the Central Valley Corridor per Alignment Alternative[a]

Common and Scientific Name	Legal Status[b]			Alignment Alternative					
	Federal	State	CNPS	BNSF-UPRR	BNSF	UPRR	BNSF Castle	UPRR-BNSF	UPRR-BNSF Castle
Suisun Marsh aster *Aster lentus*	--	--	1B			X		X	X
Alkali milk-vetch *Astragalus tener* var. *tener*	--	--	1B	X	X	X	X	X	X
Heartscale *Atriplex cordulata*	--	--	1B	X	X	X	X	X	X
Brittlescale *Atriplex depressa*	--	--	1B			X		X	X
San Joaquin spearscale *Atriplex joaquiniana*	--	--	1B	X	X			X	
Lesser saltscale *Atriplex minuscula*	--	--	1B	X	X	X	X	X	X
Vernal pool smallscale *Atriplex persistens*	--	--	1B	X	X	X	X	X	X
Subtle orache *Atriplex subtillis*	--	--	1B	X	X	X	X	X	X
Big tarplant *Blepharizonia plumose*	--	--	1B			X		X	X
Bristly sedge *Carex comosa*	--	--	1B			X		X	X
Succulent owl's-clover *Castilleja campestris* ssp. *succulenta*	T	E	1B	X	X	X	X	X	X
Hoover's spurge *Chamaesyce hooveri*	T	--	1B	X	X			X	
Hispid bird's-beak *Cordylanthus mollis* ssp. *hispidus*	--	--	1B	X	X	X	X		

Common and Scientific Name	Legal Status[b]			Alignment Alternative					
	Federal	State	CNPS	BNSF-UPRR	BNSF	UPRR	BNSF Castle	UPRR-BNSF	UPRR-BNSF Castle
Palmate-bracted bird's beak *Cordylanthus palmatus*	E	E	1B	X	X	X	X		
Hoover's cryptantha *Cryptantha hooveri*	--	--	1A	X		X		X	
Recurved larkspur *Delphinium recurvatum*	--	--	1B	X	X	X	X	X	X
Dwarf downingia *Downingia pusilla*	--	--	2	X	X	X	X	X	X
Four-angled spikerush *Eleocharis quadrangulata*	--	--	2	X	X		X	X	X
Delta button-celery *Eryngium racemosum*	--	--	1B	X	X	X		X	X
Boggs Lake hedge-hyssop *Gratiola heterosepala*	--	E	B		X		X	X	X
Rose-mallow *Hibiscus lasiocarpus*	--	--	2			X		X	X
Legenere *Legenere limnosa*	--	--	1B	X	X		X		
Shining navarretia *Navarretia nigelliformis* ssp. *radians*	--	--	1B	X	X	X	X	X	X
Prostrate navarretia *Navarretia prostrate*	--	--	1B	X	X		X	X	X
Colusa grass *Neostapfia colusana*	T	E	1B	X	X	X	X	X	X
San Joaquin Valley orcutt grass *Orcuttia inaequalis*	T	E	1B	X	X	X	X	X	X
Hairy orcutt grass *Orcuttia pilosa*	E	E	1B	X	X	X	X	X	X

Common and Scientific Name	Legal Status[b]			Alignment Alternative					
	Federal	State	CNPS	BNSF-UPRR	BNSF	UPRR	BNSF Castle	UPRR-BNSF	UPRR-BNSF Castle
Green's Tuctoria *Tuctoria greenei*	E	R	1B	X	X	X	X	X	X

[a] Sources of information for county distribution include the following:

California Department of Fish and Games Natural Diversity Database (CNDDB 2002).
USFWS 1998. Recovery Plan for Upland Species of the San Joaquin Valley, California.
CNPS 2001. Inventory of rare and endangered plants of California.
CalFlora: Information on California plants for education, research and conservation. [web application]. 2002. Berkeley, California: The CalFlora Database [a non-profit organization]. Available: http://www.calflora.org/.

[b] Status explanations:

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CNPS California Native Plant Society
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Appendix 3.15-A-7. Special-Status Wildlife Species with Potential to Occur in High-Speed Train Corridors

Common and Scientific Name	Status Federal / State	Geographic Distribution	Habitat Requirements	High-Speed Train Corridors					
				San Francisco to San Jose	Oakland to San Jose	San Jose to Central Valley	East Bay to Central Valley	San Francisco Bay Crossings	Central Valley
Invertebrates									
Bay checkerspot butterfly *Euphydryas editha bayensis*	T/--	Vicinity of San Francisco Bay, including San Francisco peninsula in San Mateo County and mountains near San Jose, Santa Clara County	Native grasslands on outcrops of serpentine soil; California plantain and owl's clover are host plants	X		X			
Callippe silverspot *Speyeria callippe callippe*	E/--	San Bruno Mountain, San Mateo County, and a single location in Alameda County	Open hillsides where wild pansy (*Viola pendunculata*) grows; larvae feed on Johnny jump-up plants, whereas adults feed on native mints and nonnative thistles	X		X			
Conservancy fairy shrimp *Branchinecta conservatio*	E/--	Disjunct occurrences in Solano, Merced, Tehama, Ventura, Butte, and Glenn Counties	Large, deep vernal pools in annual grasslands			X			X
Longhorn fairy shrimp *Branchinecta longiantenna*	E/--	Eastern margin of central Coast Ranges from Contra Costa County to San Luis Obispo County; disjunct population in Madera County	Small, clear pools in sandstone rock outcrops of clear to moderately turbid clay- or grass-bottomed pools			X	X		
Mission blue *Plebejus icarioides missionensis*	E/--	San Bruno Mountain, San Mateo County; Twin Peaks, San Francisco County	Hill and ridgetops, as well as slopes with south exposure with caterpillar food plants, *Lupinus* sp.	X					
San Bruno elfin butterfly *Callophrys mossii bayensis*	E/--	San Bruno Mountain, Montara Mountains, and northern end of Santa Cruz Mountains, San Mateo County	North-facing slopes and ridges facing Pacific Ocean from 600 to 1,100 feet (183 to 335 meters)	X					

Common and Scientific Name	Status Federal / State	Geographic Distribution	Habitat Requirements	High-Speed Train Corridors					
				San Francisco to San Jose	Oakland to San Jose	San Jose to Central Valley	East Bay to Central Valley	San Francisco Bay Crossings	Central Valley
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	T/--	Streamside habitats below 3,000 feet (914 meters) throughout Central Valley	Riparian and oak savanna habitats with elderberry shrubs; elderberries are host plant			X	X		X
Vernal pool fairy shrimp *Branchinecta lynchi*	T/--	Central Valley, central and south Coast Ranges from Tehama County to Santa Barbara County; isolated populations also in Riverside County	Common in vernal pools; also found in sandstone rock outcrop pools			X	X		X
Vernal pool tadpole shrimp *Lepidurus packardi*	E/--	Shasta County south to Merced County	Vernal pools and ephemeral stock ponds		X	X	X		X
Amphibians									
California red-legged frog *Rana aurora draytoni*	T/SSC	Found along the coast and coastal mountain ranges of California from Marin County to San Diego County and in the Sierra Nevada from Tehama County to Fresno County	Permanent and semi-permanent aquatic habitats, such as creeks and cold-water ponds, with emergent and submergent vegetation. May aestivate in rodent burrows or cracks during dry periods.	X	X	X	X		
California tiger salamander *Ambystoma californiense*	T/SSC	Central Valley, including Sierra Nevada foothills, up to approximately 1,000 feet (305 meters), and coastal region from Butte County south to northeastern San Luis Obispo County.	Small ponds, lakes, or vernal pools in grasslands and oak woodlands for larvae; rodent burrows, rock crevices, or fallen logs for cover for adults and for summer dormancy	X	X	X	X	X	X

Common and Scientific Name	Status Federal / State	Geographic Distribution	Habitat Requirements	High-Speed Train Corridors					
				San Francisco to San Jose	Oakland to San Jose	San Jose to Central Valley	East Bay to Central Valley	San Francisco Bay Crossings	Central Valley
Foothill yellow-legged frog *Rana boylii*	--/SSC	Klamath, Cascade, north Coast, south Coast, Transverse, and Sierra Nevada Ranges up to approximately 6,000 feet (1,829 meters)	Creeks or rivers in woodland, forest, mixed chaparral, and wet meadow habitats with rock and gravel substrate and low overhanging vegetation along edge; usually found near riffles with rocks and sunny banks nearby			X	X		
Western spadefoot *Scaphiopus hammondii*	--/SSC	Sierra Nevada foothills, Central Valley, Coast Ranges, coastal counties in southern California	Shallow streams with riffles and seasonal wetlands, such as vernal pools in annual grasslands and oak woodlands				X		X
Reptiles									
Alameda whipsnake *Masticophis lateralis euryxanthus*	T/T	Restricted to Alameda and Contra Costa Counties; fragmented into five disjunct populations throughout its range	Valleys, foothills, and low mountains associated with northern coastal scrub or chaparral habitat; requires rock outcrops for cover and foraging				X		
Blunt-nosed leopard lizard *Gambelia silus*	E/E	San Joaquin Valley from Stanislaus County through Kern County and along the eastern edges of San Luis Obispo and San Benito Counties	Open habitats with scattered low bushes on alkali flats, and low foothills, canyon floors, plains, washes, and arroyos; substrates may range from sandy or gravelly soils to hardpan			X			

Common and Scientific Name	Status Federal / State	Geographic Distribution	Habitat Requirements	High-Speed Train Corridors					
				San Francisco to San Jose	Oakland to San Jose	San Jose to Central Valley	East Bay to Central Valley	San Francisco Bay Crossings	Central Valley
California (Coast) horned lizard *Phrynosoma coronatum frontale*	--/SSC	Sacramento Valley, including foothills, south to southern California; Coast Ranges south of Sonoma County; below 4,000 feet (1,219 meters) in northern California	Grasslands, brushlands, woodlands, and open coniferous forest with sandy or loose soil; requires abundant ant colonies for foraging	X	X	X	X		
Giant garter snake *Thamnophis gigas*	T/T	Central Valley from the vicinity of Burrel in Fresno County north to near Chico in Butte County; extirpated from areas south of Fresno	Sloughs, canals, low gradient streams and freshwater marsh habitats where there is a prey base of small fish and amphibians; also found in irrigation ditches and rice fields; requires grassy banks and emergent vegetation for basking and areas of high ground protected from flooding during winter			X	X		X
Northwestern pond turtle *Clemmys marmorata marmorata*	--/SSC	Occurs from Oregon border of Del Norte and Siskiyou Counties south along the coast to San Francisco Bay, inland through the Sacramento Valley, and on the western slope of Sierra Nevada	Occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation in woodlands, grasslands, and open forests	X	X		X	X	
San Francisco garter snake *Thamnophis sirtalis tetrataenia*	E/E, FP	Northern San Mateo County southward along the coast and the eastern slope of the Santa Cruz Mountains to Santa Clara County line	Favors ponds, lakes, slow-moving streams, and marshy areas containing abundant vegetation, which it uses for cover; nearby upland habitat is important during fall and winter	X					

Common and Scientific Name	Status Federal / State	Geographic Distribution	Habitat Requirements	High-Speed Train Corridors					
				San Francisco to San Jose	Oakland to San Jose	San Jose to Central Valley	East Bay to Central Valley	San Francisco Bay Crossings	Central Valley
San Joaquin whipsnake *Masticophis flagellum ruddocki*	--/SSC	From Colusa County in the Sacramento Valley southward to the grapevine in the San Joaquin Valley and westward into the inner coast ranges; isolated population occurs at Sutter Buttes; known elevation range from 66 to 2,953 feet (20 to 900 meters)	Occurs in open, dry, vegetative associations with little or no tree cover; occurs in valley grassland and saltbush scrub associations; often occurs in association with mammal burrows			X	X		
Silvery legless lizard *Anniella pulchra pulchra*	--/SSC	Along the Coast, Transverse, and Peninsular Ranges from Contra Costa County to San Diego County, with spotty occurrences in the San Joaquin Valley	Habitats with loose soil for burrowing or thick duff or leaf litter; often forages in leaf litter at plant bases; may be found on beaches, sandy washes, and in woodland, chaparral, and riparian areas			X	X		
Southwestern pond turtle *Clemmys marmorata pallida*	--/SSC	Occurs along the central coast of California east to the Sierra Nevada and along the southern California coast inland to the Mojave and Sonora Deserts; range overlaps with that of the northwestern pond turtle throughout Delta and in Central Valley	Woodlands, grasslands, and open forests; aquatic habitats, such as ponds, marshes, or streams, with rocky or muddy bottoms and vegetation for cover and food			X			X
Birds									
Alameda (South Bay) song sparrow *Melospiza melodia pusillula*	--/SSC	Found only in marshes along southern portion of the San Francisco Bay	Brackish marshes associated with pickleweed; may nest in tall vegetation or among pickleweed	X	X			X	

Common and Scientific Name	Status Federal / State	Geographic Distribution	Habitat Requirements	High-Speed Train Corridors					
				San Francisco to San Jose	Oakland to San Jose	San Jose to Central Valley	East Bay to Central Valley	San Francisco Bay Crossings	Central Valley
American peregrine falcon *Falco peregrinus anatum*	--/E, FP	Permanent resident along the north and south Coast Ranges. May summer in the Cascade and Klamath Ranges and through the Sierra Nevada to Madera County; winters in Central Valley south through Transverse and Peninsular Ranges and plains east of Cascade Range	Nests and roosts on protected ledges of high cliffs, usually adjacent to lakes, rivers, or marshes that support large prey populations			X	X		
Bald eagle *Haliaeetus leucocephalus*	T/E, FP	Nests in Siskiyou, Modoc, Trinity, Shasta, Lassen, Plumas, Butte, Tehama, Lake, and Mendocino Counties and in the Lake Tahoe Basin; reintroduced into central coast; winter range includes the rest of California, except the southeastern deserts, very high altitudes in the Sierra Nevada, and east of the Sierra Nevada south of Mono County	In western North America, nests and roosts in coniferous forests within 1 mile of a lake, reservoir, stream, or the ocean						
Brown Pelican Peliecanus occidentalis	E/E	Breeds on islands off the coast of California	Found in estuarine, tidal, and pelagic waters along the California coast.	X	X			X	

Common and Scientific Name	Status Federal / State	Geographic Distribution	Habitat Requirements	High-Speed Train Corridors					
				San Francisco to San Jose	Oakland to San Jose	San Jose to Central Valley	East Bay to Central Valley	San Francisco Bay Crossings	Central Valley
California black rail *Laterallus jamaicensis coturniculus*	--/T, FP	Permanent resident in San Francisco Bay and eastward through Delta into Sacramento and San Joaquin Counties; small populations in Marin, Santa Cruz, San Luis Obispo, Orange, Riverside, and Imperial Counties	Tidal salt marshes associated with heavy growth of pickleweed; also occurs in brackish marshes or freshwater marshes at low elevations	X	X			X	
California clapper rail *Rallus longirostris obsoletus*	E/E, FP	Marshes around San Francisco Bay and east through Delta to Suisun Marsh	Restricted to salt marshes and tidal sloughs; usually associated with heavy growth of pickleweed; feeds on mollusks removed from the mud in sloughs	X	X			X	
California horned lark *Eremophila alpestris actia*	--/SSC	Found throughout much of the state, less common in mountainous areas of the north coast and in coniferous or chaparral habitats	Common to abundant resident in a variety of open habitats, usually where large trees and shrubs are absent; grasslands and deserts to dwarf shrub habitats above tree line	X		X	X		X
California least tern *Sterna antillarum browni* (nesting colony)	E/E, FP	Nests on beaches along San Francisco Bay and along southern California coast from southern San Luis Obispo County south to San Diego County	Nests on sandy, upper ocean beaches, and occasionally uses mudflats; forages on adjacent surf line, estuaries, or open ocean	X	X			X	

Common and Scientific Name	Status Federal / State	Geographic Distribution	Habitat Requirements	High-Speed Train Corridors					
				San Francisco to San Jose	Oakland to San Jose	San Jose to Central Valley	East Bay to Central Valley	San Francisco Bay Crossings	Central Valley
Cooper's hawk *Accipiter cooperii*	--/SSC	Throughout California except high altitudes in the Sierra Nevada; winters in Central Valley, southeastern desert regions, and plains east of Cascade Range	Nests in a wide variety of habitat types, from riparian woodlands and digger pine-oak woodlands through mixed conifer forests	X	X	X	X	X	X
Double-crested cormorant *Phalacrocorax auritus* (rookery site)	--/SSC	Winters along entire California coast and inland over Coast Ranges into Central Valley from Tehama County to Fresno County; permanent resident along the coast from Monterey County to San Diego County, along the Colorado River, Imperial, Riverside, Kern and King Counties, and the islands off San Francisco; breeds in Siskiyou, Modoc, Lassen, Shasta, Plumas, and Mon Counties; also breeds in the San Francisco Bay Area and in Yolo and Sacramento Counties	Rocky coastlines, beaches, inland ponds, and lakes; needs open water for foraging, and nests in riparian forests or on protected islands, usually in snags	X	X			X	
Golden eagle *Aquila chrysaetos*	--/SSC, FP	Foothills and mountains throughout California; uncommon nonbreeding visitor to lowlands such as Central Valley	Nest on cliffs and escarpments or in tall trees overlooking open country; forages in annual grasslands, chaparral, and oak woodlands with plentiful medium and large-sized mammals			X	X		

Common and Scientific Name	Status Federal / State	Geographic Distribution	Habitat Requirements	High-Speed Train Corridors					
				San Francisco to San Jose	Oakland to San Jose	San Jose to Central Valley	East Bay to Central Valley	San Francisco Bay Crossings	Central Valley
Least Bell's vireo *Vireo bellii pusillus*	E/E	Small populations remain in southern Inyo, southern San Bernardino, Riverside, San Diego, Orange, Los Angeles, Ventura, and Santa Barbara Counties	Riparian thickets either near water or in dry portions of river bottoms; nests along margins of bushes and forages low to the ground; may also be found using mesquite and arrow weed in desert canyons			X			
Loggerhead shrike *Lanius ludovicianus*	--/SSC	Resident and winter visitor in lowlands and foothills throughout California; rare on coastal slope north of Mendocino County, occurring only in winter	Prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches	X	X	X	X	X	X
Long-eared owl *Asio otus*	--/SSC	Permanent resident east of the Cascade Range from Placer County north to Oregon border, east of the Sierra Nevada from Alpine County to Inyo County; scattered breeding populations along the coast and in southeastern California; winters throughout Central Valley and southeastern California	Nests in abandoned crow, hawk, or magpie nests, usually in dense riparian stands of willows, cottonwoods, live oaks, or conifers	X	X	X	X	X	
Northern harrier *Circus cyaneus*	--/SSC	Occurs throughout lowland California; recorded in fall at high elevations	Grasslands, meadows, marshes, and seasonal and agricultural wetlands	X	X	X	X	X	X

Common and Scientific Name	Status Federal / State	Geographic Distribution	Habitat Requirements	High-Speed Train Corridors					
				San Francisco to San Jose	Oakland to San Jose	San Jose to Central Valley	East Bay to Central Valley	San Francisco Bay Crossings	Central Valley
Prairie falcon *Falco mexicanus*	--/SSC	Permanent resident in south Coast, Transverse, Peninsular, and northern Cascade Ranges; southeastern deserts, Inyo-White Mountains; foothills surrounding the Central Valley; and in Sierra Nevada in Modoc, Lassen, and Plumas Counties; winters in Central Valley, along the coast from Santa Barbara County to San Diego County, and in Marin, Sonoma, Humboldt, Del Norte, and Inyo Counties	Nests on cliffs or escarpments, usually overlooking dry, open terrain or uplands			X	X		
Saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	--/SSC	Found only in San Francisco Bay Area in Marin, Napa, Sonoma, Solano, San Francisco, San Mateo, Santa Clara, and Alameda Counties	Freshwater marshes in summer and salt or brackish marshes in fall and winter; requires tall grasses, tules, and willow thickets for nesting and cover	X	X			X	
Short-eared owl *Asio flammeus*	--/SSC	Permanent resident along coast from Del Norte County to Monterey County although very rare in summer north of San Francisco Bay, in Sierra Nevada north of Nevada County, in plains east of the Cascades, and in Mono County; small, isolated populations	Freshwater and salt marshes, lowland meadows, and irrigated alfalfa fields; needs dense tules or tall grass for nesting and daytime roosts	X	X	X	X	X	X

Common and Scientific Name	Status Federal / State	Geographic Distribution	Habitat Requirements	High-Speed Train Corridors					
				San Francisco to San Jose	Oakland to San Jose	San Jose to Central Valley	East Bay to Central Valley	San Francisco Bay Crossings	Central Valley
Swainson's hawk *Buteo swainsoni*	--/T	Lower Sacramento and San Joaquin Valleys, Klamath Basin, and Butte Valley; highest nesting densities occur near Davis and Woodland, Yolo County	Nests in oaks or cottonwoods in or near riparian habitats. Forages in grasslands, irrigated pastures, and grain fields			X	X		X
Tricolored blackbird *Agelaius tricolor*	--/SSC	Permanent resident in the Central Valley from Butte County to Kern County; breeds at scattered coastal locations from Marin County south to San Diego County and at scattered locations in Lake, Sonoma, and Solano Counties; rare nester in Siskiyou, Modoc, and Lassen Counties	Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grain fields; habitat must be large enough to support 50 pairs; probably requires water at or near the nesting colony			X	X		X
Western burrowing owl *Athene cunicularia*	--/SSC	Lowlands throughout California, including Central Valley, northeastern plateau, southeastern deserts, and coastal areas; rare along south coast	Level, open, dry, heavily grazed or low stature grassland or desert vegetation with available burrows	X	X	X	X	X	X
White-tailed kite *Elanus leucurus*	--/FP	Lowland areas west of Sierra Nevada from the head of the Sacramento Valley south, including coastal valleys and foothills to western San Diego County at the Mexico border	Low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands for foraging	X	X	X	X	X	X

Common and Scientific Name	Status Federal / State	Geographic Distribution	Habitat Requirements	High-Speed Train Corridors					
				San Francisco to San Jose	Oakland to San Jose	San Jose to Central Valley	East Bay to Central Valley	San Francisco Bay Crossings	Central Valley
Willow flycatcher *Empidonax traillii*	--/E	Summers along western Sierra Nevada from El Dorado to Madera County; in Cascade and northern Sierra Nevada in Trinity, Shasta, Tehama, Butte, and Plumas Counties; and along the eastern Sierra Nevada from Lassen to Inyo County	Riparian areas and large wet meadows with abundant willows; usually found in riparian habitats during migration			X			
Yellow-breasted chat *Icteria virens*	--/SSC	Nests locally in coastal mountains and Sierra Nevada foothills, east of the Cascades in northern California, along Colorado river, and very locally inland in southern California	Nests in dense riparian habitats dominated by willows, alders, Oregon ash, tall weeds, blackberry vines, and grapevines			X			
Yellow warbler *Dendroica petechia brewsteri*	--/SSC	Nests over all of California except Central Valley, Mojave Desert region, and high altitudes and eastern side of Sierra Nevada; winters along Colorado River and in parts of Imperial and Riverside Counties; two small permanent populations in San Diego and Santa Barbara Counties	Nests in riparian areas dominated by willows, cottonwoods, sycamores, or alders or in mature chaparral; may also use oaks, conifers, and urban areas near stream courses	X	X	X	X	X	

Common and Scientific Name	Status Federal / State	Geographic Distribution	Habitat Requirements	High-Speed Train Corridors					
				San Francisco to San Jose	Oakland to San Jose	San Jose to Central Valley	East Bay to Central Valley	San Francisco Bay Crossings	Central Valley
Mammals									
American badger *Taxidea taxius*	--/SSC	Found throughout most of California except in northern North Coast area; suitable habitat is characterized by herbaceous, shrub, and open stages of most habitats with dry, friable soils.	Dig burrows in friable soils for cover	X	X	X	X	X	X
Pallid bat *Antrozous pallidus*	--/SSC	Occurs throughout California except high Sierra from Shasta to Kern County and northwest coast, primarily at lower and mid elevations	Occurs in a variety of habitats from desert to coniferous forest; most closely associated with oak, yellow pine, redwood, and giant sequoia habitats in northern California and oak woodland, grassland, and desert scrub in southern California; relies heavily on trees for roosts	X	X	X	X	X	X
Riparian (San Joaquin Valley) woodrat *Neotoma fuscipes riparia*	E/SSC	Historical distribution along San Joaquin, Stanislaus, and Tuolumne Rivers, and Caswell State Park in San Joaquin, Stanislaus, and Merced Counties; presently limited to San Joaquin County at Caswell State Park and a possible second population near Vernalis	Riparian habitats with dense shrub cover, willow thickets, and an oak overstory				X		X

Common and Scientific Name	Status Federal / State	Geographic Distribution	Habitat Requirements	High-Speed Train Corridors					
				San Francisco to San Jose	Oakland to San Jose	San Jose to Central Valley	East Bay to Central Valley	San Francisco Bay Crossings	Central Valley
Riparian brush rabbit *Sylvilagus bachmani riparius*	E/E	Limited to San Joaquin County at Caswell State Park near the confluence of the Stanislaus and San Joaquin Rivers and Paradise Cut area on Union Pacific right-of-way lands	Native valley riparian habitats with large clumps of dense shrubs, low-growing vines, and some tall shrubs and trees				X		X
Salt marsh harvest mouse *Reithrodontomys raviventris*	E/E, FP	San Francisco, San Pablo, and Suisun Bays; the Delta	Salt marshes with a dense plant cover of pickle-weed and fat hen; adjacent to an upland site	X	X			X	
Salt marsh wandering shrew *Sorex vagrans halicoetes*	--/SSC	Restricted to southern and northwestern San Francisco Bay	Midelevation salt marsh habitats with dense growths of pickleweed; requires driftwood and other objects for nesting cover	X	X			X	
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	--/SSC	West side of Mount Diablo to coast and San Francisco Bay	Present in chaparral habitat and in forest habitats with a moderate understory	X	X			X	
San Joaquin kit fox *Vulpes macrotis mutica*	E/T	Principally occurs in San Joaquin Valley and adjacent open foothills to the west; recent records from 17 counties extending from Kern County north to Contra Costa County	Saltbush scrub, grassland, oak, savanna, and freshwater scrub			X	X		X

Common and Scientific Name	Status Federal / State	Geographic Distribution	Habitat Requirements	High-Speed Train Corridors					
				San Francisco to San Jose	Oakland to San Jose	San Jose to Central Valley	East Bay to Central Valley	San Francisco Bay Crossings	Central Valley
Townsend's big-eared bat Corynorhinus townsendii	--/SSC	Coastal regions from Del Norte County south to Santa Barbara County	Roosts in caves, tunnels, mines, and dark attics of abandoned buildings; very sensitive to disturbances and may abandon a roost after one onsite visit	X	X	X	X	X	X

Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act.

T = listed as threatened under the federal Endangered Species Act.

PT = proposed for federal listing as threatened under the federal Endangered Species Act.

C = species for which USFWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list, but issuance of the proposed rule is precluded.

– = no listing.

State

E = listed as endangered under the California Endangered Species Act.

T = listed as threatened under the California Endangered Species Act.

FP = fully protected under the California Fish and Game Code.

SSC = species of special concern in California.

– = no listing.

Appendix 3.15-A-8. Associations for Covered Wildlife Species in the San Francisco to San Jose Corridor per Alignment Alternative[a]

Common and Scientific Name	Legal Status[b]		Alignment Alternative	
	Federal	State	San Francisco to Dumbarton	Dumbarton to San Jose
Bay checkerspot butterfly *Euphydryas editha*	T	–	X	
Callippe silverspot *Speyeria callippe callippe*	E	--	X	
Mission blue *Plebejus icarioides missionensis*	E	–	X	
Myrtle's silverspot butterfly *Speyeria zerene myrtleae*	E	–	X	
San Bruno elfin *Callophrys mossii bayensis*	E	--	X	
California red-legged frog *Rana aurora draytoni*	T	SSC	X	X
California tiger salamander *Ambystoma californiense*	T	SSC		X
California (Coast) horned lizard *Phrynosoma coronatum frontale*	–	SSC	X	X
Northwestern pond turtle *Clemmys marmorata marmorata*	–	SSC	X	X
San Francisco garter snake *Thamnophis sirtalis tetrataenia*	E	E,FP	X	X
Alameda (South Bay) song sparrow *Melospiza melodia pusillula*	--	SSC	X	X
Brown Pelican *Peliecanus occidentalis*	E	E	X	
California black rail *Laterallus jamaicensis coturniculus*	--	T, FP	X	
California clapper rail *Rallus longirostris obsoletus*	E	E, FP	X	
California least tern S*terna antillarum browni*	E	E, FP	X	
Cooper's hawk *Accipiter cooperii*	--	SSC	X	X
Double-crested cormorant *Phalacrocorax auritus*	--	SSC	X	
Loggerhead shrike *Lanius ludovicianus*	--	SSC	X	X
Long-eared owl *Asio otus*	--	SSC	X	X

Common and Scientific Name	Legal Status[b]		Alignment Alternative	
	Federal	State	San Francisco to Dumbarton	Dumbarton to San Jose
Northern harrier *Circus cyaneus*	--	SSC	X	X
Saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	--	SSC	X	
Short-eared owl *Asio flammeus*	--	SSC	X	X
Western burrowing owl *Athene cunicularia hypugea*	--	SSC	X	X
White-tailed kite *Elanus leucurus*	--	FP	X	X
Yellow warbler *Dendroica petechia brewsteri*	--	SSC	X	X
American badger *Taxidea taxius*	--	SSC	X	X
Pallid bat *Antrozous pallidus*	--	SSC	X	X
Salt marsh harvest mouse *Reithrodontomys raviventris*	E	E, FP	X	
Salt marsh wandering shrew *Sorex vagrans halicoetes*	--	SSC	X	
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	--	SSC	X	X
Townsend's big-eared bat *Corynorhinus townsendii*	--	SSC	X	X

[a] Sources of information for alignment alternative distribution include the following:
California Natural Diversity Database (California Department of Fish and Game 2006).
www.dfg.ca.gov/whdab/html/cawildlife.html accessed on January 19, 2007.
Amphibian and Reptile Species of Special Concern in California (Jennings and Hayes 1994).
Recovery Plan for the California Red-Legged Frog (U.S. Fish and Wildlife Service 2002).

[b] Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act.
T = listed as threatened under the federal Endangered Species Act.
-- = no status.

Common and Scientific Name	Legal Status[b]		Alignment Alternative	
	Federal	State	San Francisco to Dumbarton	Dumbarton to San Jose

State

E = listed as endangered under the California Endangered Species Act.

T = listed as threatened under the California Endangered Species Act.

SSC = species designated as species of special concern by the California Department of Fish and Game.

FP = species designated as fully protected by the California Department of Fish and Game.

-- = no status.

Appendix 3.15-A-9. Associations for Covered Wildlife Species in the Oakland to San Jose Corridor per Alignment Alternative[a]

Common and Scientific Name	Legal Statusb		Alignment Alternative			
	Federal	State	West Oakland to Niles Junction	12th St./City Center to Niles Junction	Niles Junction to San Jose via Trimble	Niles Junction to San Jose via I-880
Vernal pool tadpole shrimp *Lepidurus packardi*	E	--			X	X
California red-legged frog *Rana aurora draytoni*	T	SSC	X	X	X	X
California tiger salamander *Ambystoma californiense*	T	SSC			X	X
California (Coast) horned lizard *Phrynosoma coronatum frontale*	–	SSC	X	X	X	X
Northwestern pond turtle *Clemmys marmorata marmorata*	–	SSC	X	X	X	X
Alameda (South Bay) song sparrow *Melospiza melodia pusillula*	--	SSC	X	X	X	X
Brown Pelican *Peliecanus occidentalis*	E	E	X	X	X	X
California black rail *Laterallus jamaicensis coturniculus*	--	T, FP	X	X	X	X
California clapper rail *Rallus longirostris obsoletus*	E	E, FP	X	X	X	X
California least tern S*terna antillarum browni*	E	E, FP	X	X	X	X
Double-crested cormorant *Phalacrocorax auritus*	--	SSC	X	X	X	X
Loggerhead shrike *Lanius ludovicianus*	--	SSC	X	X	X	X
Long-eared owl *Asio otus*	--	SSC	X	X	X	X
Northern harrier *Circus cyaneus*	--	SSC	X	X	X	X
Saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	--	SSC	X	X	X	X

Common and Scientific Name	Legal Statusb		Alignment Alternative			
	Federal	State	West Oakland to Niles Junction	12th St./City Center to Niles Junction	Niles Junction to San Jose via Trimble	Niles Junction to San Jose via I-880
Short-eared owl *Asio flammeus*	--	SSC	X	X	X	X
Tricolored blackbird *Agelaius tricolor*	--	SSC	X	X	X	X
Western burrowing owl *Athene cunicularia hypugea*	--	SSC	X	X	X	X
Yellow warbler *Dendroica petechia brewsteri*	--	SSC	X	X	X	X
American badger *Taxidea taxius*	--	SSC	X	X	X	X
Pallid bat *Antrozous pallidus*	--	SSC	X	X	X	X
Salt marsh harvest mouse *Reithrodontomys raviventris*	E	E, FP	X	X	X	X
Salt marsh wandering shrew *Sorex vagrans halicoetes*	--	SSC	X	X	X	X
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	--	SSC	X	X	X	X
Townsend's big-eared bat *Corynorhinus townsendii*	--	SSC	X	X	X	X

[a] Sources of information for alignment alternative distribution include the following:

California Natural Diversity Database (California Department of Fish and Game 2006).

www.dfg.ca.gov/whdab/html/cawildlife.html accessed on January 19, 2007.

Amphibian and Reptile Species of Special Concern in California (Jennings and Hayes 1994).

Recovery Plan for the California Red-Legged Frog (U.S. Fish and Wildlife Service 2002).

Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon (U.S. Fish and Wildlife Service 2005).

Common and Scientific Name	Legal Statusb		Alignment Alternative			
	Federal	State	West Oakland to Niles Junction	12th St./City Center to Niles Junction	Niles Junction to San Jose via Trimble	Niles Junction to San Jose via I-880

[b] Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act.

T = listed as threatened under the federal Endangered Species Act.

-- = no status.

State

E = listed as endangered under the California Endangered Species Act.

T = listed as threatened under the California Endangered Species Act.

R = listed as rare under the California Native Plant Protection Act. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.

-- = no status.

CNPS California Native Plant Society

1A = List 1A species: plants presumed extinct in California.

1B = List 1B species: rare, threatened, or endangered in California and elsewhere.

Appendix 3.15-A-10. Associations for Covered Wildlife Species in the San Jose to Central Valley Corridor per Alignment Alternative[a]

Common and Scientific Name	Legal Status[b]		Alignment Alternative			
	Federal	State	Pacheco	Henry Miller (UPRR Connection)	Henry Miller (BNSF Connection)	GEA North
Bay checkerspot butterfly *Euphydryas editha*	T	–	X			
Conservancy fairy shrimp *Branchinecta conservatio*	E	--				X
Longhorn fairy shrimp *Branchinecta longiantenna*	E	--				X
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	T	--		X	X	X
Vernal pool fairy shrimp *Branchinecta lynchi*	T	--		X	X	X
Vernal pool tadpole shrimp *Lepidurus packardi*	E	--		X	X	X
California red-legged frog *Rana aurora draytoni*	T	SSC	X	X	X	X
California tiger salamander *Ambystoma californiense*	T	SSC		X	X	X
Foothill yellow-legged frog *Rana boylii*	--	SSC	X	X	X	X
Western spadefoot *Scaphiopus hammondii*	--	SSC				X
Blunt-nosed leopard lizard *Gambelia sila*	E	E, FP		X	X	
California (Coast) horned lizard *Phrynosoma coronatum frontale*	–	SSC	X	X	X	X
Giant garter snake *Thamnophis gigas*	T	T		X	X	X
San Joaquin whipsnake *Masticophis flagellum ruddocki*	–	SSC	X	X	X	X
Silvery legless lizard *Anniella pulchra pulchra*	--	SSC	X	X	X	X
Southwestern pond turtle *Clemmys marmorata pallida*	--	SSC	X	X	X	X
American peregrine falcon *Falco peregrinus anatum*	--	E, FP	X			

Common and Scientific Name	Legal Status[b]		Alignment Alternative			
	Federal	State	Pacheco	Henry Miller (UPRR Connection)	Henry Miller (BNSF Connection)	GEA North
California horned lark *Eremophila alpestris actia*	--	SSC	X	X	X	X
Cooper's hawk *Accipiter cooperii*	--	SSC	X	X	X	X
Golden eagle *Aquila chrysaetos*	--	SSC, FP	X	X	X	X
Least Bell's vireo *Vireo bellii pusillus*	E	E		X	X	X
Loggerhead shrike *Lanius ludovicianus*	--	SSC	X	X	X	X
Long-eared owl *Asio otus*	--	SSC	X	X	X	X
Northern harrier *Circus cyaneus*	--	SSC	X	X	X	X
Prairie falcon *Falco mexicanus*	--	SSC	X			
Short-eared owl *Asio flammeus*	--	SSC	X	X	X	X
Swainson's hawk *Buteo swainsoni*	--	T		X	X	X
Tricolored blackbird *Agelaius tricolor*	--	SSC	X	X	X	X
Western burrowing owl *Athene cunicularia hypugea*	--	SSC	X	X	X	X
White-tailed kite *Elanus leucurus*	--	FP	X	X	X	X
Willow flycatcher *Empidonax traillii*	--	E		X	X	X
Yellow-breasted chat *Icteria virens*	--	SSC		X	X	X
Yellow warbler *Dendroica petechia brewsteri*	--	SSC	X	X	X	X
American badger *Taxidea taxius*	--	SSC	X	X	X	X
Pallid bat *Antrozous pallidus*	--	SSC	X	X	X	X

Common and Scientific Name	Legal Status[b]		Alignment Alternative			
	Federal	State	Pacheco	Henry Miller (UPRR Connection)	Henry Miller (BNSF Connection)	GEA North
Riparian (San Joaquin Valley) woodrat *Neotoma fuscipes riparia*	E	SSC		X	X	X
Riparian brush rabbit *Sylvilagus bachmani riparius*	E	E		X	X	X
San Joaquin kit fox *Vulpes macrotis mutica*	E	T	X	X	X	X
Townsend's big-eared bat *Corynorhinus townsendii*	--	SSC	X	X	X	X

[a] Sources of information for alignment alternative distribution include the following:

California Natural Diversity Database (California Department of Fish and Game 2006).

www.dfg.ca.gov/whdab/html/cawildlife.html accessed on January 19, 2007.

www.fws.gov/sacramento/ea/news_releases/2006%20News%20Releases/LBV_return_SJNWR_NR.htm accessed on January 19, 2007.

Amphibian and Reptile Species of Special Concern in California (Jennings and Hayes 1994).

Recovery Plan for Upland Species of the San Joaquin Valley, California (U.S. Fish and Wildlife Service 1998).

Recovery Plan for the California Red-legged Frog (U.S. Fish and Wildlife Service 2002).

Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon (U.S. Fish and Wildlife Service 2005).

[b] Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act.

T = listed as threatened under the federal Endangered Species Act.

-- = no status.

State

E = listed as endangered under the California Endangered Species Act.

T = listed as threatened under the California Endangered Species Act.

SSC = species designated as special concern by the California Department of Fish and Game.

FP = species designated as fully protected by the California Department of Fish and Game.

-- = no status.

Appendix 3.15-A-11. Associations for Covered Wildlife Species in the East Bay to Central Valley Corridor per Alignment Alternative[a]

Common and Scientific Name	Legal Statusb		Alignment Alternative							
	Federal	State	I-680/I-580/UPRR	I-580/UPRR	Patterson Pass/UPRR	UPRR	Tracy ACE Station (BNSF Connection)	Tracy ACE Station (UPRR Connection)	Tracy Downtown (BNSF Connection)	Tracy Downtown (UPRR Connection)
Longhorn fairy shrimp *Branchinecta longiantenna*	E	--	X	X						
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	T	--	X	X	X	X	X	X	X	X
Vernal pool fairy shrimp *Branchinecta lynchi*	T	--	X	X	X	X	X	X	X	X
Vernal pool tadpole shrimp *Lepidurus packardi*	E	--	X	X	X	X	X	X	X	X
California red-legged frog *Rana aurora draytoni*	T	SSC	X	X	X	X	X	X	X	X
California tiger salamander *Ambystoma californiense*	T	SSC	X	X	X	X	X	X	X	X
Foothill yellow-legged frog *Rana boylii*	--	SSC	X	X	X	X	X	X	X	X
Western spadefoot *Scaphiopus hammondii*	--	SSC	X	X	X	X	X	X	X	X
California (Coast) horned lizard *Phrynosoma coronatum frontale*	–	SSC	X	X	X	X	X	X	X	X
Giant garter snake *Thamnophis gigas*	T	T					X	X	X	X
San Joaquin whipsnake *Masticophis flagellum ruddocki*	–	SSC	X	X	X	X	X	X	X	X

Common and Scientific Name	Legal Statusb		Alignment Alternative							
	Federal	State	I-680/I-580/UPRR	I-580/UPRR	Patterson Pass/UPRR	UPRR	Tracy ACE Station (BNSF Connection)	Tracy ACE Station (UPRR Connection)	Tracy Downtown (BNSF Connection)	Tracy Downtown (UPRR Connection)
Silvery legless lizard *Anniella pulchra pulchra*	--	SSC	X	X	X	X	X	X	X	X
Northwestern pond turtle *Clemmys marmorata marmorata*	--	SSC	X	X	X	X	X	X	X	
American peregrine falcon *Falco peregrinus anatum*	--	E, FP	X	X	X	X				
California horned lark *Eremophila alpestris actia*	--	SSC	X	X	X	X	X	X	X	X
Cooper's hawk *Accipiter cooperii*	--	SSC	X	X	X	X	X	X	X	X
Golden eagle *Aquila chrysaetos*	--	SSC, FP	X	X	X	X				
Loggerhead shrike *Lanius ludovicianus*	--	SSC	X	X	X	X	X	X	X	X
Long-eared owl *Asio otus*	--	SSC	X	X	X	X	X	X	X	X
Northern harrier *Circus cyaneus*	--	SSC	X	X	X	X	X	X	X	X
Prairie falcon *Falco mexicanus*	--	SSC	X	X	X	X				
Short-eared owl *Asio flammeus*	--	SSC	X	X	X	X	X	X	X	X
Swainson's hawk *Buteo swainsoni*	--	T					X	X	X	X
Tricolored blackbird *Agelaius tricolor*	--	SSC	X	X	X	X	X	X	X	X

Common and Scientific Name	Legal Statusb		Alignment Alternative							
	Federal	State	I-680/I-580/UPRR	I-580/UPRR	Patterson Pass/UPRR	UPRR	Tracy ACE Station (BNSF Connection)	Tracy ACE Station (UPRR Connection)	Tracy Downtown (BNSF Connection)	Tracy Downtown (UPRR Connection)
Western burrowing owl *Athene cunicularia hypugea*	--	SSC	X	X	X	X	X	X	X	X
White-tailed kite *Elanus leucurus*	--	FP	X	X	X	X	X	X	X	X
Yellow warbler *Dendroica petechia brewsteri*	--	SSC	X	X	X	X	X	X	X	X
American badger *Taxidea taxius*	--	SSC	X	X	X	X	X	X	X	X
Pallid bat *Antrozous pallidus*	--	SSC	X	X	X	X	X	X	X	X
Riparian (San Joaquin Valley) woodrat *Neotoma fuscipes riparia*	E	SSC					X	X	X	X
Riparian brush rabbit *Sylvilagus bachmani riparius*	E	E					X	X	X	X
San Joaquin kit fox *Vulpes macrotis mutica*	E	T	X	X	X	X	X	X	X	X
Townsend's big-eared bat *Corynorhinus townsendii*	--	SSC	X	X	X	X	X	X	X	X

[a] Sources of information for alignment alternative distribution include the following:

California Natural Diversity Database (California Department of Fish and Game 2006).

www.dfg.ca.gov/whdab/html/cawildlife.html accessed on January 19, 2007.

Amphibian and Reptile Species of Special Concern in California (Jennings and Hayes 1994).

Recovery Plan for the California Red-legged Frog (U.S. Fish and Wildlife Service 2002).

Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon (U.S. Fish and Wildlife Service 2005).

Recovery Plan for Upland Species of the San Joaquin Valley, California (U.S. Fish and Wildlife Service 1998).

Common and Scientific Name	Legal Statusb		Alignment Alternative							
	Federal	State	I-680/I-580/UPRR	I-580/UPRR	Patterson Pass/UPRR	UPRR	Tracy ACE Station (BNSF Connection)	Tracy ACE Station (UPRR Connection)	Tracy Downtown (BNSF Connection)	Tracy Downtown (UPRR Connection)

[b] Status explanations:

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T = listed as threatened under the federal Endangered Species Act.

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FP = species designated as fully protected by the California Department of Fish and Game.

-- = no status.

Appendix 3.15-A-12. Associations for Covered Wildlife Species in the Central Valley Corridor per Alignment Alternative[a]

Common and Scientific Name	Legal Status[b]		Alignment Alternative					
	Federal	State	BNSF-UPRR	BNSF	UPRR	BNSF Castle	UPRR-BNSF	UPRR-BNSF Castle
Conservancy fairy shrimp *Branchinecta conservatio*	E	--	X	X	X	X	X	X
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	T	--	X	X	X	X	X	X
Vernal pool fairy shrimp *Branchinecta lynchi*	T	--	X	X	X	X	X	X
Vernal pool tadpole shrimp *Lepidurus packardi*	E	--	X	X	X	X	X	X
California tiger salamander *Ambystoma californiense*	T	SSC	X	X	X	X	X	X
Western spadefoot *Scaphiopus hammondii*	--	SSC	X	X	X	X	X	X
Giant garter snake *Thamnophis gigas*	T	T	X	X	X	X	X	X
Southwestern pond turtle *Clemmys marmorata pallida*	--	SSC	X	X	X	X	X	X
California horned lark *Eremophila alpestris actia*	--	SSC	X	X	X	X	X	X
Cooper's hawk *Accipiter cooperii*	--	SSC	X	X	X	X	X	X
Loggerhead shrike *Lanius ludovicianus*	--	SSC	X	X	X	X	X	X
Northern harrier *Circus cyaneus*	--	SSC	X	X	X	X	X	X
Short-eared owl *Asio flammeus*	--	SSC	X	X	X	X	X	X
Swainson's hawk *Buteo swainsoni*	--	T	X	X	X	X	X	X

Common and Scientific Name	Legal Status[b]		Alignment Alternative					
	Federal	State	BNSF-UPRR	BNSF	UPRR	BNSF Castle	UPRR-BNSF	UPRR-BNSF Castle
Tricolored blackbird *Agelaius tricolor*	--	SSC	X	X	X	X	X	X
Western burrowing owl *Athene cunicularia hypugea*	--	SSC	X	X	X	X	X	X
White-tailed kite *Elanus leucurus*	--	FP	X	X	X	X	X	X
American badger *Taxidea taxius*	--	SSC	X	X	X	X	X	X
Pallid bat *Antrozous pallidus*	--	SSC	X	X	X	X	X	X
Riparian (San Joaquin Valley) woodrat *Neotoma fuscipes riparia*	E	SSC	X	X	X	X	X	X
Riparian brush rabbit *Sylvilagus bachmani riparius*	E	E	X	X	X	X	X	X
San Joaquin kit fox *Vulpes macrotis mutica*	E	T	X	X		X	X	X
Townsend's big-eared bat *Corynorhinus townsendii*	--	SSC	X	X	X	X	X	X

[a] Sources of information for alignment alternative distribution include the following:

California Natural Diversity Database (California Department of Fish and Game 2006).

www.dfg.ca.gov/whdab/html/cawildlife.html accessed on January 19, 2007.

Amphibian and Reptile Species of Special Concern in California (Jennings and Hayes 1994).

Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon (U.S. Fish and Wildlife Service 2005).

Recovery Plan for Upland Species of the San Joaquin Valley, California (U.S. Fish and Wildlife Service 1998).

Common and Scientific Name	Legal Status[b]		Alignment Alternative					
	Federal	State	BNSF-UPRR	BNSF	UPRR	BNSF Castle	UPRR-BNSF	UPRR-BNSF Castle

[b] Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act.
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-- = no status.

State

E = listed as endangered under the California Endangered Species Act.
T = listed as threatened under the California Endangered Species Act.
SSC = species designated as species of special concern by the California Department of Fish and Game.
FP = species designated as fully protected by the California Department of Fish and Game.
-- = no status.

APPENDIX 3.16-A

DATA TABLE

Appendix 3.16-A. Section 4(f) + 6(f) Data Table for Alignment Alternatives and Station Location Option Comparisons

Corridor	Possible Alignments	Alignment Alternative	Segment	Proximity and Distance from Centerline	Potential for (Direct/ Constructive) Use	Probable Measures to Minimize Harm
San Francisco to San Jose: Caltrain	1 of 1	San Francisco to Dumbarton	Transbay Transit Center to 4th/Townsend	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			4th/Townsend to Millbrae/SFO	<150 feet: Herman Street Park	H	Visual/noise screening as appropriate
				<450 feet: Bayshore Circle Park, Forest Lane Park, Lions Field Park, Bayside Park	M	Visual/noise screening as appropriate
				<900 feet: Bayview Playground, Lomita Park, San Bruno Mountain State & County Park	L	None
			Millbrae/SFO to Redwood City	< 150 feet: Washington Park, Trinta Park, San Mateo County Fairgrounds	H	Visual/noise screening as appropriate
				< 450 feet: Village Park, Laguna Park, Alexander Park, Laureola Park	M	Visual/noise screening as appropriate
				< 900 feet: Martin Luther King Park, Central Park, Mezes Park	L	None
			Redwood City to Caltrain	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
	1 of 1	Dumbarton to San Jose	Caltrain Dumbarton Wye	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Dumbarton Wye to Palo Alto	< 150 feet: Holbrook Palmer Park, El Camino Park	H	Visual/noise screening as appropriate
				< 450 feet: Burgess Park	M	Visual/noise screening as appropriate
			Palo Alto to Santa Clara	< 150 feet: Peers Park, Bowden Park, Rengstorff Park, Bracher Park	H	Visual/noise screening as appropriate

Corridor	Possible Alignments	Alignment Alternative	Segment	Proximity and Distance from Centerline	Potential for (Direct/ Constructive) Use	Probable Measures to Minimize Harm
				< 450 feet: Robles Park, Rex Manor Park, Lafayette Park	M	Visual/noise screening as appropriate
				< 900 feet: Boulware Park	L	None
			Santa Clara to Diridon Station	< 900 feet: Guadalupe Gardens	L	None
Station Location Options						
Transbay Transit Center				No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
4th and King (Caltrain)				No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
Millbrae/SFO				No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
Redwood City (Caltrain)				No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
Palo Alto (Caltrain)				No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
Oakland to San Jose: Niles/I-880	1 of 2	West Oakland to Niles Junction	West Oakland to Jack London Square	< 450 feet: Estuary Park, Vantage Point Park	M	Visual/noise screening as appropriate
			Jack London Square to Oakland Coliseum	< 150 feet: Coliseum Gardens Park	H	Visual/noise screening as appropriate
				< 900 feet: Kennedy Tract Park	L	None
			Oakland Coliseum to Union City (BART)	< 150 feet: Stonehurst Recreation Area Park, Charles F. Kennedy Park	H	Visual/noise screening as appropriate
				< 450 feet: Siempre Verde Park, Lincoln Playground, Halycon Park, Meek Park, Eden Greenway	M	Visual/noise screening as appropriate
				< 900 feet: Edendale Park, Valle Vista Park, Bidwell Park	L	None

Corridor	Possible Alignments	Alignment Alternative	Segment	Proximity and Distance from Centerline	Potential for (Direct/ Constructive) Use	Probable Measures to Minimize Harm
			Union City (BART) to Niles Junction	< 150 feet: Quarry Lakes Regional Park, Rancho Arroyo Park, San Francisco Bay Trail	H	Visual/noise screening as appropriate
				< 450 feet: Pride Rock Park	M	Visual/noise screening as appropriate
		12th Street/City Center to Niles Junction	12th Street/City Center to Jack London Square Niles /I-880-1B	< 150 feet: Madison Park	H	Visual/noise screening as appropriate
				< 450 feet: Lincoln Square Recreation Center Park, Harrison Square	M	Visual/noise screening as appropriate
				< 900 feet: Peralta Park	L	None
			Jack London Square to Oakland Coliseum	< 150 feet: Coliseum Gardens Park	H	Visual/noise screening as appropriate
				< 900 feet: Kennedy Tract Park	L	None
			Oakland Coliseum to Union City (BART)	< 150 feet: Stonehurst Recreation Area Park, Charles F. Kennedy Park	H	Visual/noise screening as appropriate
				< 450 feet: Siempre Verde Park, Lincoln Playground, Halycon Park, Meek Park, Eden Greenway	M	Visual/noise screening as appropriate
				< 900 feet: Edendale Park, Valle Vista Park, Bidwell Park	L	None
			Union City (BART) to Niles Junction	< 150 feet: Quarry Lakes Regional Park, Rancho Arroyo Park, San Francisco Bay Trail	H	Visual/noise screening as appropriate
				< 450 feet: Pride Rock Park	M	Visual/noise screening as appropriate
	1 of 2	Niles Junction to San Jose via Trimble	Niles Junction to Niles Wye (S)	< 150 feet: Fremont Central Park, Grimmer Park	H	Visual/noise screening as appropriate
			Niles Wye (S) to Warm Springs	< 150 feet: Fremont Central Park, Grimmer Park	H	Visual/noise screening as appropriate

Corridor	Possible Alignments	Alignment Alternative	Segment	Proximity and Distance from Centerline	Potential for (Direct/ Constructive) Use	Probable Measures to Minimize Harm
			Warm Springs to Trimble Rd.	< 450 feet: Pinewood Park	M	Visual/noise screening as appropriate
				< 900 feet: Starlite Park	L	None
			Trimble Rd. Option	< 900 feet: Guadalupe Gardens	L	None
			Santa Clara to Diridon Station	< 900 feet: Guadalupe Gardens	L	None
		Niles Junction to San Jose via I-880	Niles Junction to Niles Wye (S)	< 150 feet: Fremont Central Park, Grimmer Park	H	Visual/noise screening as appropriate
			Niles Wye (S) to Warm Springs	< 150 feet: Fremont Central Park, Grimmer Park	H	Visual/noise screening as appropriate
			Warm Springs to Trimble Rd.	< 450 feet: Pinewood Park	M	Visual/noise screening as appropriate
				< 900 feet: Starlite Park	L	None
			I-880 – Trimble Rd. to Diridon	< 150 feet: Columbus Park, Heritage Rose Garden, Guadalupe Gardens	H	Visual/noise screening as appropriate
Station Location Options						
West Oakland/7th Street				No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
12th Street/City Center				No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
Coliseum/Airport				< 450 feet: Coliseum Gardens Park	M	Visual/noise screening as appropriate
Union City (BART)				< 900 feet Charles F. Kennedy Park	L	None

Corridor	Possible Alignments	Alignment Alternative	Segment	Proximity and Distance from Centerline	Potential for (Direct/ Constructive) Use	Probable Measures to Minimize Harm
Fremont (Warm Springs)				No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
San Jose to Central Valley: Pacheco Pass	1 of 1	Pacheco	Diridon to Morgan Hill	< 150 feet: Edenvale Garden Park, Coyote Creek Park	H	Visual/noise screening as appropriate
				< 450 feet: Biebrach Park	M	Visual/noise screening as appropriate
				< 900 feet: Danna Rock Park	L	None
			Morgan Hill to Gilroy	< 900 feet: Miller Park, Forest Street Park	L	None
			Gilroy to San Luis Reservoir	< 150 feet: Upper Cottonwood Wildlife Area	H	Visual/noise screening as appropriate
	1 of 3	Henry Miller (UPRR Connection)	San Luis Reservoir to Valley Floor	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Western Valley to Henry Miller UP Wye	< 150 feet: Los Banos Wildlife Area	H	Visual/noise screening as appropriate
			Henry Miller UP North Wye to UP South Wye	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Henry Miller Wye North to UPRR	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Henry Miller Wye South to UPRR	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
		Henry Miller (BNSF Connection)	San Luis Reservoir to Valley Floor	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Western Valley to Henry Miller UP Wye	< 150 feet: Los Banos Wildlife Area	H	Visual/noise screening as appropriate
			Henry Miller UP North Wye to UP South Wye	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Henry Miller UP South Wye to BNSF Wyes	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A

Corridor	Possible Alignments	Alignment Alternative	Segment	Proximity and Distance from Centerline	Potential for (Direct/ Constructive) Use	Probable Measures to Minimize Harm
			Henry Miller Wye North to BNSF	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Henry Miller Wye South to BNSF	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
		GEA North	San Luis Reservoir to Atwater Wye	< 150 feet: San Luis Wildlife Refuge, North Grasslands Wildlife Area, Great Valley Grasslands State Park	H	Visual/noise screening as appropriate
			GEA Atwater Wye North to BNSF	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			GEA Atwater Wye South to Merced UP	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
Station Location Options						
San Jose (Diridon)				No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
Morgan Hill (Caltrain)				No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
Gilroy (Caltrain)				No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
East Bay to Central Valley: Altamont Pass	1 of 4	I-680/ 580/UPRR	Niles Canyon to Sunol	< 150 feet: Augustin-Bernal Park, Pleasanton Ridge, Vargas Plateau, Bay Ridge Trail	H	Visual/noise screening as appropriate
			Sunol to Dublin/Pleasanton BART	< 150 feet: Muirwood Park, Dublin Sports Grounds Park	H	Visual/noise screening as appropriate
				< 450 feet: Meadowlark Park, Val Vista Park	M	Visual/noise screening as appropriate
				< 900 feet: Del Prado Park, Valley Trails Park, Oakhill Park	L	None

Corridor	Possible Alignments	Alignment Alternative	Segment	Proximity and Distance from Centerline	Potential for (Direct/ Constructive) Use	Probable Measures to Minimize Harm
			Dublin/Pleasanton BART to El Charo Road	< 150 feet: Iron Horse Trail	H	Visual/noise screening as appropriate
			El Charo Road to Livermore (I-580)	< 450 feet: Las Positas Golf Course	M	Visual/noise screening as appropriate
			Livermore (I-580) to Greenville	< 900 feet: Brushy Peak Regional Park	N/A	N/A
			Greenville to Altamont Pass	< 150 feet: San Joaquin County to Shadow Cliffs Trail	H	Visual/noise screening as appropriate
			Altamont Pass to County Line	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
		I-580/ UPRR	Niles Canyon to Sunol	< 150 feet: Augustin-Bernal Park, Pleasanton Ridge, Vargas Plateau, Bay Ridge Trail	H	Visual/noise screening as appropriate
			Sunol to Pleasanton	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Pleasanton to El Charo	< 150 feet: Shadow Cliffs to Morgan Territory Trail, San Joaquin County to Shadow Cliffs Trail	H	Visual/noise screening as appropriate
				< 450 feet: Fairways Golf Course (including Alameda County Fairgrounds), Shadow Cliffs Regional Recreation Area	M	Visual/noise screening as appropriate
			UPRR to I-580 connector	< 450 feet: Shadow Cliffs Regional Recreation Area	M	Visual/noise screening as appropriate
			El Charo Road to Livermore (I-580)	< 450 feet: Las Positas Golf Course	M	Visual/noise screening as appropriate
			Livermore (I-580) to Greenville	< 900 feet: Brushy Peak Regional Park	N/A	N/A
			Greenville to Altamont Pass	< 150 feet: San Joaquin County to Shadow Cliffs Trail	H	Visual/noise screening as appropriate

Corridor	Possible Alignments	Alignment Alternative	Segment	Proximity and Distance from Centerline	Potential for (Direct/ Constructive) Use	Probable Measures to Minimize Harm
			Altamont Pass to County Line	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
		Patterson Pass/UPRR	Niles Canyon to Sunol	< 150 feet: Augustin-Bernal Park, Pleasanton Ridge, Vargas Plateau, Bay Ridge Trail	H	Visual/noise screening as appropriate
			Sunol to Pleasanton	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Pleasanton to El Charo	< 150 feet: Shadow Cliffs to Morgan Territory Trail, San /Joaquin County to Shadow Cliffs Trail	H	Visual/noise screening as appropriate
				< 450 feet: Fairways Golf Course (including Alameda County Fairgrounds), Shadow Cliffs Regional Recreation Area	M	Visual/noise screening as appropriate
			El Charo to Livermore	< 150 feet: Shadow Cliffs to Morgan Territory Trail, San /Joaquin County to Shadow Cliffs Trail	H	Visual/noise screening as appropriate
				< 450 feet: Oak Knoll Pioneer Memorial Park,	M	Visual/noise screening as appropriate
				< 900 feet: Hagemann Park	L	None
			Livermore to Patterson Pass cut off	< 150 feet: San Joaquin County to Shadow Cliffs Trail	H	Visual/noise screening as appropriate
				< 450 feet: Doolan Park, Madiera Park	M	Visual/noise screening as appropriate
			Patterson Pass	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
		UPRR	Niles Canyon to Sunol	< 150 feet: Augustin-Bernal Park, Pleasanton Ridge, Vargas Plateau, Bay Ridge Trail	H	Visual/noise screening as appropriate

Corridor	Possible Alignments	Alignment Alternative	Segment	Proximity and Distance from Centerline	Potential for (Direct/ Constructive) Use	Probable Measures to Minimize Harm
			Sunol to Pleasanton	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Pleasanton to El Charo	< 150 feet: Shadow Cliffs to Morgan Territory Trail, San Joaquin County to Shadow Cliffs Trail	H	Visual/noise screening as appropriate
				< 450 feet: Fairways Golf Course (including Alameda County Fairgrounds), Shadow Cliffs Regional Recreation Area	M	Visual/noise screening as appropriate
			El Charo to Livermore	< 150 feet: Shadow Cliffs to Morgan Territory Trail, San Joaquin County to Shadow Cliffs Trail	H	Visual/noise screening as appropriate
				< 450 feet: Oak Knoll Pioneer Memorial Park,	M	Visual/noise screening as appropriate
				< 900 feet: Hagemann Park	L	None
			Livermore to Patterson Pass cut off	< 150 feet: San Joaquin County to Shadow Cliffs Trail	H	Visual/noise screening as appropriate
				< 450 feet: Doolan Park, Madiera Park	M	Visual/noise screening as appropriate
			Patterson Pass cut off to Greenville	< 150 feet: San Joaquin County to Shadow Cliffs Trail	H	Visual/noise screening as appropriate
			Greenville to Altamont Pass	< 150 feet: San Joaquin County to Shadow Cliffs Trail	H	Visual/noise screening as appropriate
			Altamont Pass to County Line	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
	1 of 4	Tracy Downtown (BNSF	County Line to Tracy Downtown	< 900 feet: Bailor-Hannan Park, South School Park, McDonald Park, Huck Park	L	None

Corridor	Possible Alignments	Alignment Alternative	Segment	Proximity and Distance from Centerline	Potential for (Direct/ Constructive) Use	Probable Measures to Minimize Harm
		Connection)	Tracy Downtown to I-205	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			I-205 to S. UPRR	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			I-205 to Lathrop – northern	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Southwestern Manteca	< 450 feet: Quail Ridge Park, Cotta Park	M	Visual/noise screening as appropriate
			Southeastern Manteca	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Northern Escaton Wye to BNSF	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Southern Escaton Wye to BNSF (part 1)	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Southern Escaton Wye to BNSF (part 2)	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
		Tracy ACE Station (BNSF Connection)	County Line to South of Tracy	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			South of Tracy to Tracy ACE Station	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Tracy ACE Station to I-205	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			I-205 to Southeast of Manteca	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			I-205 to Lathrop – Southern	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Southwestern Manteca	< 450 feet: Quail Ridge Park, Cotta Park	M	Visual/noise screening as appropriate
			Southeastern Manteca	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A

Corridor	Possible Alignments	Alignment Alternative	Segment	Proximity and Distance from Centerline	Potential for (Direct/ Constructive) Use	Probable Measures to Minimize Harm
			Northern Escaton Wye to BNSF	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Southern Escaton Wye to BNSF (part 1)	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Southern Escaton Wye to BNSF (part 2)	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
		Tracy ACE Station (UPRR Connection)	County Line to South of Tracy	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			South of Tracy to Tracy ACE Station	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Tracy ACE Station to I-205	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			I-205 to Southeast of Manteca	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Southwestern Manteca	< 450 feet: Quail Ridge Park, Cotta Park	M	Visual/noise screening as appropriate
			Southeastern Manteca	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Eastern Manteca UPRR South to BNSF	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Manteca to Escaton Wye	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
		Tracy Downtown (UPRR Connection)	County Line to Tracy Downtown	< 900 feet: Bailor-Hannan Park, South School Park, McDonald Park, Huck Park	L	None
			Tracy Downtown to I-205	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			I-205 to S. UPRR	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			I-205 to Lathrop – northern	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A

Corridor	Possible Alignments	Alignment Alternative	Segment	Proximity and Distance from Centerline	Potential for (Direct/ Constructive) Use	Probable Measures to Minimize Harm
			Southwestern Manteca	< 450 feet: Quail Ridge Park, Cotta Park	M	Visual/noise screening as appropriate
			Southeastern Manteca	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Eastern Manteca UPRR South to BNSF	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Manteca to Escaton Wye	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
	2 of 2	East Bay Connections	Niles to Union City – Niles Wye (E) to Niles Wye (N)	< 150 feet: Vallejo Memorial Historical Park	H	Visual/noise screening as appropriate
				< 450 feet: Bidwell Park, California Terrace Park	M	Visual/noise screening as appropriate
			Niles to Fremont – Niles Wye (E) to Niles Wye (S)	< 150 feet: Fremont Central Park, Gomes Park, Vallejo Mill Park	H	Visual/noise screening as appropriate
Station Location Options						
Pleasanton (I-680/Bernal Rd)				No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
Pleasanton (BART)				No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
Livermore (Downtown)				< 900 feet: Oak Knoll Pioneer Park	L	None
Livermore (I-580)				No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
Livermore (Greenville Road/UPRR)				No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
Livermore (Greenville Road/I-580)				No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
Tracy (Downtown)				No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A

Corridor	Possible Alignments	Alignment Alternative	Segment	Proximity and Distance from Centerline	Potential for (Direct/ Constructive) Use	Probable Measures to Minimize Harm
Tracy (ACE)				No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
San Francisco Bay Crossings	1 of 2	Trans Bay Crossing – Transbay Transit Centerl	Transbay Transit Center tube to SF Bay	< 150 feet: South Park	H	Visual/noise screening as appropriate
			SF Bay to West Oakland	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
		Trans Bay Crossing – 4th & King	4th/Townsend tube to SF Bay	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			SF Bay to West Oakland	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
	1 of 6	Dumbarton (High Bridge)	Dumbarton Wye North to Caltrain	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Dumbarton Wye South to Caltrain	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Dumbarton Bay Crossing to Don Edwards	< 150 feet: Kelly Park	H	Visual/noise screening as appropriate
				< 900 feet: Flood County Park	L	None
			Don Edwards to Shinn (Centerville Line)	< 150 feet: Don Edwards San Francisco Bay National Wildlife Refuge, Newark Civic Center Park, Alameda Creek Trail	H	Visual/noise screening as appropriate
				< 450 feet: Ash Street Park	M	Visual/noise screening as appropriate
				< 900 feet: Quarry Lakes Regional Park, San Francisco Bay Trail	L	None
			Shinn to Niles Wye (E)	< 150 feet: Vallejo Mill Historical Park, Alameda Creek Trail	H	Visual/noise screening as appropriate

Corridor	Possible Alignments	Alignment Alternative	Segment	Proximity and Distance from Centerline	Potential for (Direct/ Constructive) Use	Probable Measures to Minimize Harm
				< 450 feet: Shinn Memorial Park	M	Visual/noise screening as appropriate
		Dumbarton (Low Bridge)	Dumbarton Wye North to Caltrain	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Dumbarton Wye South to Caltrain	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Dumbarton Bay Crossing to Don Edwards	< 150 feet: Kelly Park	H	Visual/noise screening as appropriate
				< 900 feet: Flood County Park	L	None
			Don Edwards to Shinn (Centerville Line)	< 150 feet: Don Edwards San Francisco Bay National Wildlife Refuge, Newark Civic Center Park, Alameda Creek Trail	H	Visual/noise screening as appropriate
				< 450 feet: Ash Street Park	M	Visual/noise screening as appropriate
				< 900 feet: Quarry Lakes Regional Park, San Francisco Bay Trail	L	None
			Shinn to Niles Wye (E)	< 150 feet: Vallejo Mill Historical Park, Alameda Creek Trail	H	Visual/noise screening as appropriate
				< 450 feet: Shinn Memorial Park	M	Visual/noise screening as appropriate
		Dumbarton (Tube)	Dumbarton Wye North to Caltrain	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Dumbarton Wye South to Caltrain	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Dumbarton Bay Crossing to Don	< 150 feet: Kelly Park	H	Visual/noise screening as appropriate

Corridor	Possible Alignments	Alignment Alternative	Segment	Proximity and Distance from Centerline	Potential for (Direct/ Constructive) Use	Probable Measures to Minimize Harm
			Edwards	< 900 feet: Flood County Park	L	None
			Don Edwards to Shinn (Centerville Line)	< 150 feet: Don Edwards San Francisco Bay National Wildlife Refuge, Newark Civic Center Park, Alameda Creek Trail	H	Visual/noise screening as appropriate
				< 450 feet: Ash Street Park	M	Visual/noise screening as appropriate
				< 900 feet: Quarry Lakes Regional Park, San Francisco Bay Trail	L	None
			Shinn to Niles Wye (E)	< 150 feet: Vallejo Mill Historical Park, Alameda Creek Trail	H	Visual/noise screening as appropriate
				< 450 feet: Shinn Memorial Park	M	Visual/noise screening as appropriate
		Fremont Central Park (High Bridge)	Dumbarton Wye North to Caltrain	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Dumbarton Wye South to Caltrain	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Dumbarton Bay Crossing to Don Edwards	< 150 feet: Kelly Park	H	Visual/noise screening as appropriate
				< 900 feet: Flood County Park	L	None
			Don Edwards to Niles (E) via Fremont Central Park	< 150 feet: Don Edwards San Francisco Bay National Wildlife Refuge, Blacow Park, Fremont Central Park, Gomes Park, Vallejo Mill Park	H	Visual/noise screening as appropriate
				< 450 feet: Marshall Park	M	Visual/noise screening as appropriate

Corridor	Possible Alignments	Alignment Alternative	Segment	Proximity and Distance from Centerline	Potential for (Direct/ Constructive) Use	Probable Measures to Minimize Harm
		Fremont Central Park (Low Bridge)	Dumbarton Wye North to Caltrain	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Dumbarton Wye South to Caltrain	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Dumbarton Bay Crossing to Don Edwards	< 150 feet: Kelly Park	H	Visual/noise screening as appropriate
				< 900 feet: Flood County Park	L	None
			Don Edwards to Niles Wye (E) via Fremont Central Park	< 150 feet: Don Edwards San Francisco Bay National Wildlife Refuge, Blacow Park, Fremont Central Park, Gomes Park, Vallejo Mill Park	H	Visual/noise screening as appropriate
				< 450 feet: Marshall Park	M	Visual/noise screening as appropriate
		Fremont Central Park (Tube)	Dumbarton Wye North to Caltrain	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Dumbarton Wye South to Caltrain	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Dumbarton Bay Crossing to Don Edwards	< 150 feet: Kelly Park	H	Visual/noise screening as appropriate
				< 900 feet: Flood County Park	L	None
			Don Edwards to Niles Wye (E) via Fremont Central Park	< 150 feet: Don Edwards San Francisco Bay National Wildlife Refuge, Blacow Park, Fremont Central Park, Gomes Park, Vallejo Mill Park	H	Visual/noise screening as appropriate
				< 450 feet: Marshall Park	M	Visual/noise screening as appropriate

Corridor	Possible Alignments	Alignment Alternative	Segment	Proximity and Distance from Centerline	Potential for (Direct/ Constructive) Use	Probable Measures to Minimize Harm
Station Location Options						
Union City (Shinn)				< 450 feet: Shinn Memorial Park	M	Visual/noise screening as appropriate
Central Valley	1 of 6	BNSF – UPRR	North Stockton South to UPRR Connection	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			BNSF Parallel to UPRR tracks	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Parallel tracks South through Escaton	< 150 feet: Main Street Park	H	Visual/noise screening as appropriate
				< 900 feet: Walter Hogan Park, Latta Park	L	None
			Escaton South to Amtak Briggsmore	< 150 feet: Jacob Meyer Regional Park, Zerillo Park	H	Visual/noise screening as appropriate
				< 450 feet: Pioneer Park, Staley Park, Don Whorton Park	M	Visual/noise screening as appropriate
			Amtrak Briggsmore to UPRR/BNSF Connection	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			UPRR/BNSF Connection to Atwater	< 450 feet: Castle Park	M	Visual/noise screening as appropriate
				< 900 feet: Bloss Park, Ball Park	L	None
			Atwater to Downtown Merced	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Merced South to BNSF Connection	< 450 feet: Joe Herb Park	M	Visual/noise screening as appropriate
			BNSF Connection South to Henry Miller Wye	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			BNSF Henry Miller Wye	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A

Corridor	Possible Alignments	Alignment Alternative	Segment	Proximity and Distance from Centerline	Potential for (Direct/ Constructive) Use	Probable Measures to Minimize Harm
		BNSF	North Stockton South to UPRR Connection	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			BNSF Parallel to UPRR tracks	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Parallel tracks South through Escaton	< 150 feet: Main Street Park	H	Visual/noise screening as appropriate
				< 900 feet: Walter Hogan Park, Latta Park	L	None
			Escaton South to Amtak Briggsmore	< 150 feet: Jacob Meyer Regional Park, Zerillo Park	H	Visual/noise screening as appropriate
				< 450 feet: Pioneer Park, Staley Park, Don Whorton Park	M	Visual/noise screening as appropriate
			Amtrak Briggsmore to UPRR/BNSF Connection	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			UPRR/BNSF Connection to Atwater	< 450 feet: Castle Park	M	Visual/noise screening as appropriate
				< 900 feet: Bloss Park, Ball Park	L	None
			Atwater to Downtown Merced	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Merced South to UPRR Connection	< 450 feet: Joe Herb Park	M	Visual/noise screening as appropriate
			UPRR Connection East to Castle Connection	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Castle Connection to Henry Miller Wye	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Henry Miller Wye	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A

Corridor	Possible Alignments	Alignment Alternative	Segment	Proximity and Distance from Centerline	Potential for (Direct/ Constructive) Use	Probable Measures to Minimize Harm
		UPRR	French Camp to Lathrop	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Lathrop through Manteca	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Manteca South to BNSF/UPRR	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			BNSF/UPRR South to Modesto	< 150 feet: County Park	H	Visual/noise screening as appropriate
				< 450 feet: Highway Village Park, JM Pike Park	M	Visual/noise screening as appropriate
				< 900 feet: Salida Park	L	None
			UPRR Modesto South – Western Option	< 150 feet: Tuolumne River Regional Park	H	Visual/noise screening as appropriate
			South Modesto to BNSF Connection	< 150 feet: Stanislaus County Fairgrounds, Broadway Park, Central Park	H	Visual/noise screening as appropriate
				< 450 feet: Riverdale Fishing Access Park, Independence Park, Whitmore Park	M	Visual/noise screening as appropriate
				< 900 feet: Redwood Park	L	None
			BNSF Connection South to Merced	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Merced South to BNSF Connection	< 450 feet: Joe Herb Park	M	Visual/noise screening as appropriate
			BNSF Connection South to Henry Miller Wye	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			BNSF Henry Miller Wye	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A

Corridor	Possible Alignments	Alignment Alternative	Segment	Proximity and Distance from Centerline	Potential for (Direct/ Constructive) Use	Probable Measures to Minimize Harm
		BNSF Castle	North Stockton South to UPRR Connection	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			BNSF Parallel to UPRR tracks	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Parallel tracks South through Escaton	< 150 feet: Main Street Park	H	Visual/noise screening as appropriate
				< 900 feet: Walter Hogan Park, Latta Park	L	None
			Escaton South to Amtak Briggsmore	< 150 feet: Jacob Meyer Regional Park, Zerillo Park	H	Visual/noise screening as appropriate
				< 450 feet: Pioneer Park, Staley Park, Don Whorton Park	M	Visual/noise screening as appropriate
			Amtrak Briggsmore to UPRR/BNSF Connection	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			From BNSF southeast to Castle AFB	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Castle AFB South to BNSF connect	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			BNSF South of Castle to UPRR Connect	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Castle Connection to Henry Miller Wye	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Henry Miller Wye	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
		UPRR – BNSF Castle	French Camp to Lathrop	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Lathrop through Manteca	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A

Corridor	Possible Alignments	Alignment Alternative	Segment	Proximity and Distance from Centerline	Potential for (Direct/ Constructive) Use	Probable Measures to Minimize Harm
			Manteca South to BNSF/UPRR	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			BNSF/UPRR South to Modesto	< 150 feet: County Park	H	Visual/noise screening as appropriate
				< 450 feet: Highway Village Park, JM Pike Park	M	Visual/noise screening as appropriate
				< 900 feet: Salida Park	L	None
			UPRR Modesto South – Western Option	< 150 feet: Tuolumne River Regional Park	H	Visual/noise screening as appropriate
			South Modesto to BNSF Connection	< 150 feet: Stanislaus County Fairgrounds, Broadway Park, Central Park	H	Visual/noise screening as appropriate
				< 450 feet: Riverdale Fishing Access Park, Independence Park, Whitmore Park	M	Visual/noise screening as appropriate
				< 900 feet: Redwood Park	L	None
			North South Connection East of Stockton (South Portion)	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			From BNSF southeast to Castle AFB	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Castle AFB South to BNSF Connection	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			BNSF South of Castle to UPRR Connection	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Castle Connection to Henry Miller Wye	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A

Corridor	Possible Alignments	Alignment Alternative	Segment	Proximity and Distance from Centerline	Potential for (Direct/ Constructive) Use	Probable Measures to Minimize Harm
			Henry Miller Wye	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
		UPRR – BNSF	French Camp to Lathrop	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Lathrop through Manteca	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Manteca South to BNSF/UPRR	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			BNSF/UPRR South to Modesto	< 150 feet: County Park	H	Visual/noise screening as appropriate
				< 450 feet: Highway Village Park, JM Pike Park	M	Visual/noise screening as appropriate
				< 900 feet: Salida Park	L	None
			UPRR Modesto South – Western Option	< 150 feet: Tuolumne River Regional Park	H	Visual/noise screening as appropriate
			South Modesto to BNSF Connection	< 150 feet: Stanislaus County Fairgrounds, Broadway Park, Central Park	H	Visual/noise screening as appropriate
				< 450 feet: Riverdale Fishing Access Park, Independence Park, Whitmore Park	M	Visual/noise screening as appropriate
				< 900 feet: Redwood Park	L	None
			BNSF crossing to UPRR – Southeast of Turlock	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			UPRR/BNSF Connection to Atwater	< 450 feet: Castle Park	M	Visual/noise screening as appropriate
				< 900 feet: Bloss Park, Ball Park	L	None

Corridor	Possible Alignments	Alignment Alternative	Segment	Proximity and Distance from Centerline	Potential for (Direct/ Constructive) Use	Probable Measures to Minimize Harm
			Atwater to Downtown Merced	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			Merced South to BNSF Connection	< 450 feet: Joe Herb Park	M	Visual/noise screening as appropriate
			BNSF Connection South to Henry Miller Wye	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
			BNSF Henry Miller Wye	No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
Station Location Options						
Modesto (Downtown)				No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
Briggsmore (Amtrak)				No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
Merced (Downtown)				No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A
Castle AFB				No 4(f) or 6(f) resources within 900 feet of the segment.	N/A	N/A

APPENDIX 3.17-A

CUMULATIVE ANALYSIS

3.17-A.1 CUMULATIVE PROJECTS

The cumulative projects listed below have been included in the cumulative impacts analysis because of their proximity to the study area or their ability to affect regional resources. This information represents the most up-to-date and accurate information available as of the date of publication of this document. The *other projects* described below include projects that are not described in detail in an existing project-level environmental document but could affect the same resources in the same timeframe as the proposed project.

3.17-A.1.1 Related Programs and Studies

As noted in Chapter 2, *Alternatives*, the purpose of the proposed HST system includes interfaces between the HST system and major mass transit facilities, the highway network, and commercial airports. Planned transportation improvements in the study region described below are related and would connect to the proposed HST system. These plans and projects, in addition to the San Francisco Bay Area Regional Rail Plan being prepared by the MTC, BART, Caltrain, and the Authority discussed in Section 3.17, *Cumulative Impacts*, have been considered in the development of the HST Alignment Alternatives and station location options.

The types of potential impacts from the projects listed below, in combination with the HST Network Alternatives described in Chapter 7, are identified in Table 3.17-A-1.

A. SAN JOAQUIN VALLEY BLUEPRINT PLANNING PROCESS

The San Joaquin Valley (SJV) Blueprint Planning Process is funded by the Business, Transportation & Housing Agency through Caltrans, as well as the San Joaquin Valley Air Pollution District. The San Joaquin Valley is anticipated to grow substantially between 2000 and 2050. It is projected that the Valley will have almost 8 million people by 2050, affecting transportation, housing, land use, the economy, and the environment. The purpose of the SJV Blueprint Process is to develop a cohesive regional framework that defines and offers alternative solutions to growth-related issues for the Valley and to produce a preferred growth scenario to the year 2050 by integrating transportation, housing, land use, economic development, and the environment. The eight Metropolitan Planning Organizations in the San Joaquin Valley will work together to produce Blueprint products, and the Great Valley Center will act as a regional facilitator for the Valley-wide portion of the SJV Blueprint Process. Major SJV Blueprint Process products include a Vision Statement, Land Use Guiding Principles, SJV Blueprint Implementation Strategies, and Quantified and Measurable Objectives (to achieve the Vision and Guiding Principles).

The results of the SJV Blueprint Process will not supersede local jurisdiction's land use authority. Elected officials will determine how their jurisdiction will use the outcomes of this process. Other parties, including interest groups and the public, will be engaged throughout the process.

Products that come out of the SJV Blueprint Process may be used in major regional and interregional planning efforts, including regional transportation plans (RTPs), the California Partnership for the San Joaquin Valley, congestion management plans (CMPs), transit planning, general plans and future amendments, housing needs allocation, San Joaquin Partnership Recommendations, open space and

agriculture preservations, and interregional partnerships such as the Bay Area/Mountain Counties/Sacramento Area. (San Joaquin Valley Blueprint Planning Process 2007.)

B. CAPITOL CORRIDOR RAIL SERVICE

The Capitol Corridor, having recently completed track improvements between Oakland and San Jose that allowed an increase in service frequency, is planning to implement the next phase of capacity-increasing projects in the Oakland to San Jose corridor and a series of track improvements aimed at reliability in the Oakland to Sacramento corridor. A track capacity enhancement project is also planned for the Auburn to Sacramento corridor that would allow, in a phased project implementation approach, service frequency increases in this portion of the corridor. Projects previously programmed by the state include the Capitol Corridor Joint Powers Authority's (CCJPA's) contribution to the San Jose 4th Main Track project and the Bahia Track Improvement project.

With the recent passage of Proposition 1B, a series of projects that jointly benefit both freight and passenger rail are identified. The projects may include a revised Alameda Creek crossing in the Niles Junction area, which would allow transfer of freight rail traffic to and from the Altamont Pass from the Oakland Port in a more expeditious route than the current route running freight through Fremont. This improvement coupled with improvements at a junction point in South Hayward would allow passenger trains (Capitol Corridor and the planned Dumbarton Rail service) to avoid freight conflicts for a portion of the route between Oakland and San Jose. Double tracking is also planned north of the South Hayward point that would provide for additional track capacity for freight and passenger trains. Another future project planned for the route is to upgrade or replace the bridge crossing between Martinez and Benicia to avoid the conflicts created when waterborne vessels require the current bridge to be lifted. The anticipated increases in freight traffic coupled with passenger rail service are expected to result in delays for all forms of rail service.

C. CALTRAIN CORRIDOR COMMUTER RAIL SERVICE

The Caltrain Joint Powers Board (JPB) forecasts a strong increase in Caltrain ridership driven by population increase, work force increase, and convenience and economic influences.

The Caltrain capital program focuses on a program called the State of Good Repair. This program concentrates on optimizing the current system's performance. The activities in this program range from improvements to the signaling and communications systems to replacing old bridges, from improving the approach speeds and flexibility at the San Francisco terminus to eliminating the last of the hold-out stations. The product of this portion of the program is an optimal condition of the current system that would enable larger programs with minimal impact to performance.

D. ALTAMONT COMMUTER EXPRESS SERVICE

The San Joaquin Regional Rail Commission owns and operates the Altamont Commuter Express (ACE). The 86-mile ACE corridor directly serves three counties and eight cities between the Central Valley and Silicon Valley. ACE is working with the UPRR to complete a major signal upgrade project between Fremont and Stockton to improve reliability and speed on the route. Over the next 5-year period, ACE will be implementing capital projects that improve reliability and increase speeds in the Stockton to Fremont section of the corridor.

ACE is completing two planning/implementation studies:

- The *ACE Corridor Analysis Study* is focused on identifying improvements to ACE Service, which includes the potential purchase of a separate agency-owned corridor for the ACE service and short haul freight between the Port of Oakland and the Central Valley and providing a better connection to BART. The corridor analysis study is anticipated to be completed in summer 2007.

Table 3.17-A-1. Cumulative Projects and Potential Impacts

Cumulative Project Code	Cumulative Project	Traffic, Transit, Circulation, and Parking	Air Quality	Noise and Vibration	Energy	EMF/EMI	Land Use and Planning, Communities and Neighborhoods, Property, and Environmental Justice	Agricultural Lands	Aesthetics and Visual Res.	Public Utilities	Hazardous Materials and Wastes	Cultural and Paleontological Resources	Geology and Soils	Hydrology and Water Res.	Biological Res. and Wetlands	Section 4(f) /6(f) Resources (Public Parks and Rec.)
AA	San Francisco Bay Area Regional Rail Plan	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
A	South Hayward BART/Mission Blvd. Concept Design Plan	X	X	X	X		X		X	X	X	X	X	X	X	X
B	Hayward Cannery Area Development Plan	X	X	X	X		X		X	X	X	X	X	X	X	X
C	Avenue 64 Apartments Project	X	X	X	X		X		X	X	X	X	X	X	X	
D	Bay Street Site B	X	X	X	X		X		X	X	X	X	X	X	X	
E	Christie Park Towers	X	X	X	X		X		X	X	X	X	X	X	X	
F	Redevelopment of Amtrak Station in Emeryville	X	X	X	X		X		X	X	X	X	X	X	X	
G	Marketplace Expansion Project	X	X	X	X		X		X	X	X	X	X	X	X	
H	Powell Undercrossing Project	X	X	X	X		X		X	X	X	X	X	X	X	
I	Inter-Modal Station Passenger Rail Project	X	X	X	X		X		X	X	X	X	X	X	X	
J	UPRR Infrastructure Improvements - Madera	X	X	X	X		X		X	X	X	X	X	X	X	
K	Proposed Retail Center	X	X	X	X		X	X	X	X	X	X		X	X	
L	Proposed Retail Center (2)	X	X	X	X		X	X	X	X	X	X		X	X	
M	State Route 99/233 Interchange	X	X	X	X		X	X	X	X	X	X	X	X	X	
O	Chowchilla Other Projects	X	X	X	X		X	X	X	X	X	X	X	X	X	
P	El Rancho San Benito	X	X	X	X		X	X	X	X	X	X	X	X	X	
Q	Transbay Program-Transbay Transit Center	X	X	X	X		X	X	X	X	X	X	X	X	X	
R	Redevelopment Plan for the Transbay Redevelopment Project Area	X	X	X	X		X	X	X	X	X	X	X	X	X	

Table 3.17-A-1. Continued

Cumulative Project Code	Cumulative Project	Traffic, Transit, Circulation, and Parking	Air Quality	Noise and Vibration	Energy	EMF/EMI	Land Use and Planning, Communities and Neighborhoods, Property, and Environmental Justice	Agricultural Lands	Aesthetics and Visual Res.	Public Utilities	Hazardous Materials and Wastes	Cultural and Paleontological Resources	Geology and Soils	Hydrology and Water Res.	Biological Res. and Wetlands	Section 4(f) /6(f) Resources (Public Parks and Rec.)
S	Visitacion Valley/Schlage Lock Master Plan	X	X	X	X		X	X	X	X	X	X	X	X	X	
T	Redwood City Downtown Precise Plan	X	X	X	X		X	X	X	X	X	X	X	X	X	
U	Millbrae Station Area Specific Plan	X	X	X	X		X	X	X	X	X	X	X	X	X	
V	San Carlos	X	X	X	X		X	X	X	X	X	X	X	X	X	
W	San Bruno	X	X	X	X		X	X	X	X	X	X	X	X	X	
X	Central Core Redevelopment Project	X	X	X	X		X	X	X	X	X	X	X	X	X	
Y	Salida Community Plan	X	X	X	X		X	X	X	X	X	X	X	X	X	
Z	Modesto Redevelopment Area Master Plan	X	X	X	X		X		X	X	X	X	X	X	X	
1	Modesto Condominium Complex	X	X	X	X		X		X	X	X	X	X	X	X	
2	Turlock Northwest Triangle Specific Plan	X	X	X	X		X	X	X	X	X	X	X	X	X	
3	Turlock Southeast Area Feasibility Study	X	X	X	X		X	X	X	X	X	X	X	X	X	X
4	UC Merced	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	Campus Expressway	X	X	X	X		X	X	X	X	X	X	X	X	X	X
6	Capitol Corridor South Hayward Rail Improvements	X	X	X	X		X		X	X	X	X	X	X	X	X
7	Merced County University Community Plan	X	X	X	X		X	X	X	X	X	X	X	X	X	X
STP-1	Union City Intermodal Station	X	X	X	X		X		X	X	X	X	X	X	X	
STP-2	Emeryville Intermodal Transfer Station Parking	X	X	X	X		X		X	X	X	X	X	X	X	
STP-3	Madera Gateway & UPRR Bike/Pedestrian UC	X	X	X	X		X		X	X	X	X	X	X	X	X
STP-4	Caltrans Madera Amtrak Station Relocation	X	X	X	X		X	X	X	X	X	X	X	X	X	X

Table 3.17-A-1. Continued

Cumulative Project Code	Cumulative Project	Traffic, Transit, Circulation, and Parking	Air Quality	Noise and Vibration	Energy	EMF/EMI	Land Use and Planning, Communities and Neighborhoods, Property, and Environmental Justice	Agricultural Lands	Aesthetics and Visual Res.	Public Utilities	Hazardous Materials and Wastes	Cultural and Paleontological Resources	Geology and Soils	Hydrology and Water Res.	Biological Res. and Wetlands	Section 4(f) /6(f) Resources (Public Parks and Rec.)
STP-5	4th Street Widening, City of Madera	X	X	X	X		X	X	X	X	X	X	X	X	X	X
STP-6	Robertson Boulevard Improvements (Palm Parkway to 15th Street), Chowchilla	X	X	X	X		X		X	X	X	X	X	X	X	
STP-7	Caltrain Downtown Extension to Transbay Transit Center	X	X	X	X	X	X		X	X	X	X	X	X	X	
STP-8	BART Seismic Retrofit (Embarcadero, 16th St, SF station platforms)	X	X	X	X		X		X	X	X	X	X	X	X	
STP-9	US 101 Aux Lanes from 3rd Avenue San Mateo to Millbrae Avenue, Millbrae	X	X	X	X		X		X	X	X	X	X	X	X	X
STP-10	Capitol Corridor-San Jose-Santa Clara Fourth Main	X	X	X	X	X	X		X	X	X	X	X	X	X	X
STP-11	Sunnyvale - Borregas Avenue Bike/pedestrian Bridges	X	X	X	X		X		X	X	X	X	X	X	X	X
STP-12	Passing Lanes - Near Gilroy (State Route 152 Expressway)	X	X	X	X		X	X	X	X	X	X	X	X	X	X
STP-13	Truck Climbing Lanes - Near Gilroy (State Route 152 Expressway)	X	X	X	X		X	X	X	X	X	X	X	X	X	X
STP-14	State Route 152/SR-156 Interchange Improvements	X	X	X	X		X	X	X	X	X	X	X	X	X	X
STP-15	Sunol Grade Southbound HOV Lane Phase 3	X	X	X	X		X	X	X	X	X	X	X	X	X	X
STP-16	Tilton and Poplar Grade Separations in San Mateo	X	X	X	X		X		X	X	X	X	X	X		
STP-17	US 101/Willow Road Interchange Reconstruction	X	X	X	X		X		X	X	X	X	X	X		
STP-18	US 101 Auxiliary Lanes – Santa Clara Co. Line to San Mateo County	X	X	X	X		X		X	X	X	X	X	X	X	
STP-19	Stockton ACE Northwest Track Connection	X	X	X	X		X		X	X	X	X	X	X		

Table 3.17-A-1. Continued

Cumulative Project Code	Cumulative Project	Traffic, Transit, Circulation, and Parking	Air Quality	Noise and Vibration	Energy	EMF/EMI	Land Use and Planning, Communities and Neighborhoods, Property, and Environmental Justice	Agricultural Lands	Aesthetics and Visual Res.	Public Utilities	Hazardous Materials and Wastes	Cultural and Paleontological Resources	Geology and Soils	Hydrology and Water Res.	Biological Res. and Wetlands	Section 4(f) /6(f) Resources (Public Parks and Rec.)
STP-20	Tracy Downtown Multimodal Station	X	X	X	X		X	X	X	X	X	X	X	X		
STP-21	Lathrop Road Grade Separation with UPRR	X	X	X	X		X	X	X	X	X	X	X	X		
STP-22	San Joaquin Regional Rail Commission – Stockton Southern Pacific Depot Restoration	X	X	X	X		X		X	X	X	X	X	X		
STP-23	BART Oakland Airport Connector	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
STP-24	Virginia Corridor Rails to Trails in Modesto	X	X	X	X		X		X	X	X	X	X	X	X	
STP-25	State Route 132 Expressway	X	X	X	X		X	X	X	X	X	X	X	X		
STP-26	State Route 132 East Infill Project	X	X	X	X		X	X	X	X	X	X	X	X		
STP-27	State Route 152 Los Banos Bypass Project	X	X	X	X		X	X	X	X	X	X	X	X		

- The *Expansion Opportunities Analysis* is looking at the expansion opportunities for commuter rail service. This analysis is anticipated to be completed in fall 2007. Corridors that are being reviewed are:
  - Merced to Sacramento.
  - Stockton to Oakland (Delta Route).
  - Los Banos to Tracy.

E. ALAMEDA COUNTY

Hayward

Downtown Redevelopment
The City of Hayward Planning Department is undertaking several redevelopment projects in the middle of downtown Hayward, including new home construction. Some of the new homes will back up to the existing rail and BART tracks. This ongoing and future development is reported in the City of Hayward General Plan, Hayward Cannery Area Development Plan, and other city redevelopment and design plans (Camire pers. comm.).

South Hayward BART/Mission Boulevard Concept Design Plan (Mission Paradise Project)
The South Hayward BART/Mission Boulevard Concept Design Plan comprises an approximately 240-acre area along the Mission Boulevard corridor between Harder Road and Industrial Parkway. The area is bordered by BART tracks on the west (excluding the residential neighborhoods along and west of East 12th Street and also north of Sorenson Road), Industrial Parkway on the south (including the triangular area on the south side), Harder Road on the north, and Mission Boulevard on the east, also including properties along the east side of Mission Boulevard between Garin Avenue and Calhoun Street (City of Hayward 2006, 2007).

The proposed concept design plan would focus on the immediate area surrounding the South Hayward BART station and an expanded area extending both north and south along Mission Boulevard.

The areas surrounding the South Hayward BART station and along the major transit corridor of Mission Boulevard have many opportunities for transit-oriented development on vacant or underutilized lots, several of them within walking distance of the station (City of Hayward 2006, 2007). The first portion of this project up for approval by the City of Hayward Planning Commission is a mixed-use area including 21,017-square feet of retail space and a 92-unit residential development.

Hayward Cannery Area Development Plan
The Cannery Area Concept Plan is a long-range plan for transit-oriented development within a 120-acre area immediately to the west of the BART station (at 699 B Street, Hayward). The plan calls for up to 656 residential units, 67,000 square feet of live-work space, and the school and park expansions with a pedestrian overpass connecting Cannery Park with Centennial Park to the west of the railroad tracks. This plan is in the early stages of implementation; some new roads have been built and existing buildings are currently being demolished. The completion date for this project is not yet known (City of Hayward 2004; Camire pers. comm.).

Emeryville

Avenue 64 Apartments Project
The Avenue 64 Apartments Project (formerly The Pinnacle) consists of 224 units of rental apartment housing on Christie Avenue, one block away from and running adjacent to the railway corridor. The project permit was issued in May 2006, and the project is currently under construction as of March 2007. This is included in the city's general plan (City of Emeryville 2007e; Keena pers. comm.).

Bay Street Site B
This project is bounded by the Powell Street overpass on the north, Christie Avenue on the south, Shellmound Street on the west, and the UPRR tracks on the east.

The Bay Street Site B project includes a hotel with 200 rooms, a 337-unit residential development, and 130,000–170,000 square feet of commercial space. Site B is located to the north of the Bay Street mixed-use development project, adjacent to the railway corridor. This project, which is covered in the city's general plan, has not yet been approved but approval will likely happen within 2007 (City of Emeryville 2007b; Keena pers. comm.).

Bay Street Residential Project
The residential portion of the Bay Street project involves 3,879 residential units. The living units are located on separate air rights parcels above the retail and parking structures. A pedestrian friendly atmosphere of housing on top of retail was created when this portion of the project was completed. This is in the city's general plan and has just been completed (City of Emeryville 2007a; Keena pers. comm.).

Christie Park Towers
The Christie Park Towers project is located at 6150 Christie Avenue on a 26,613–square foot parcel. This project is under construction and comprises 60 living units, 17 of which are live-work and 43 are residential. Approximately 4,200 square feet of ground floor space will be flexible space, and could include live-work or commercial uses. This project is within 0.1 mile of the railway corridor and is in the city's general plan (City of Emeryville 2007c; Keena pers. comm.).

A Novartis Business
Novartis has a 30-year development agreement with the City of Emeryville that is covered in the city's general plan. They are constructing approximately one building every five years. Each building is about 230,000 square feet (Keena pers. comm.).

Redevelopment of Amtrak Station in Emeryville
The redevelopment of the Amtrak Station in Emeryville is in the preapplication stage and is anticipated to have a start date in 2010. This project would include 160 condos and 30,000 square feet of commercial real estate on top of the current parking lot and would be adjacent to the rail corridor (Keena pers. comm.).

Marketplace Expansion Project
The Marketplace Expansion Project is currently an office and retail project that comprises retail space in a rehabilitated brick warehouse, a movie theater, and an eight-story office building. The proposed expansion would be a phased project resulting in approximately 61,000 square feet of additional retail, 305–340 new dwelling units, and adequate structured parking to replace lost parking and service these new uses. If the Planning Commission approves this project, its anticipated start date is 2009 (City of Emeryville 2007d; Keena pers. comm.).

Powell Undercrossing Project
The Powell Undercrossing project is part of a plan to turn the Powell/Shellmound area into a pedestrian-oriented, cohesive district. The project will create an improved pedestrian connection alongside the Powell Street Bridge that crosses the railroad tracks and leads to the Bay Street shopping center. The City of Emeryville expects this project to be complete in 2009. This project is within 0.25 mile of the Amtrak station (City of Emeryville 2007f; Keena pers. comm.).

Alameda County STIP Projects

A total of 36 projects in Alameda County were programmed into the current 2006 State Transportation Improvement Plan (STIP). The following projects would occur within or adjacent to the HST Network Alternatives and are considered relevant to the cumulative scenario:

- Bay Area Rapid Transit District—BART Oakland Airport Connector (BART System): Coliseum station to Oakland Airport connector.
- City of Union City—Union City Intermodal Station: The Union City Intermodal Station Project is a two-phased transit project that would enhance the existing Union City BART station to accommodate a future commuter rail hub serving the Capitol Corridor, the future Dumbarton rail service, ACE, and BART. The project would also expand the existing station capacity for BART's planned extension to Santa Clara County and facilitate transit-oriented development on surrounding parcels. Union City's goal is to create a high-density, pedestrian-oriented area that is centered on a multimodal transit station, which includes the BART station, the proposed commuter rail station, and a bus transit facility (Alameda County Transportation Improvement Authority 2006).
- City of Emeryville—Emeryville Intermodal Transfer Station Parking: In Emeryville, at the Emeryville Amtrak Intercity Rail Station. Construct intermodal transfer parking garage.

F. MADERA COUNTY

City of Madera

Infrastructure Improvements

The City of Madera is currently in the preliminary stage of planning infrastructure improvements for an industrially zoned area on the east side of the existing UPRR (former Southern Pacific Railroad) tracks along South E Street, from East Olive Avenue to Clinton Street. This project may include an abandonment request for UPRR of a portion of their right-of-way to allow for a potential widening of South E Street. If abandonment occurs, this could limit ability for dedicated HST tracks adjacent to existing UPRR tracks to be developed in this area (Grier pers. comm.).

Proposed Retail Center

There are two retail centers proposed on the east side of the UPRR corridor at the intersection of Avenue 17 and SR-99. An approximately 800,000 square foot retail center has been approved for development on the north side of Avenue 17. The project's western boundary would be developed with retail center structures and parking immediately adjacent to the UPRR corridor. Depending on the width of the existing right-of-way, the ability for dedicated HST tracks adjacent to the UPRR may be limited.

A second retail center, approximately 500,000 square feet in size, has been proposed for development on the south side of Avenue 17. The EIR being prepared for this project has not yet been completed. This project's western boundary would also be developed with retail center structures and parking immediately adjacent to the UPRR corridor. Again, depending on the width of the existing right-of-way, the ability for dedicated HST tracks adjacent to the UPRR may be limited (Grier pers. comm.).

There may be concern in the community with regard to effects on agricultural lands in both the City and County of Madera. Specifically, if the railway corridor divides existing agricultural uses, there could be significant impacts to agricultural operations (Grier pers. comm.).

City of Chowchilla

State Route 99/233 Interchange
The City of Chowchilla has been coordinating with Caltrans to obtain approval of a plan to build a new interchange on the Robertson Boulevard (SR-233) exit off of SR-99. This plan may have some effect on the HST project because construction would be approximately 800 feet from the east side of the UPRR corridor. This project is covered in general plan. The city hopes to acquire right-of-way for this project within the next 1–2 years (James pers. comm.).

Chowchilla has two major transportation facilities that would influence the future connectivity of the collector street system: the UPRR, which bisects the community, and SR-99, which roughly parallels the railroad through the City. While the arterial system has developed around the rail line with four existing crossings (Robertson Boulevard, Kings Avenue, Avenue 24 ½, and Avenue 24), the railroad's policy of limiting the number of at-grade crossings would greatly affect the location and layout of arterial and collector streets. SR-99 is an expressway through Chowchilla. Long-range plans are to upgrade SR-99 to full freeway status. Standards limit the number and spacing of interchanges in an urban area to a mile separation. Although not limited by regulation, over-crossing spacing is basically limited to design. Therefore, SR-99 also represents an impediment to connectivity. The general plan update anticipates a future overcrossing (not an interchange) at S Fig Tree Blvd with the overpass extending across the UPRR tracks.

The City and Caltrans are cooperating in the reconstruction of the SR-99/233 interchange scheduled for construction beginning in 2008. This interchange is a key component to continued City growth in the short-term. Future improvements to other interchanges serving the City, such as SR-99/Avenue 24, SR-152/233, and SR-99/Minturn would be necessary for maintaining the long-term growth plans of the City (City of Chowchilla 2005.).

Other Projects
The City of Chowchilla Public Works facility and yard are located between North First Street and North Front Street. The City has been considering relocation of the facility and development of the site a multi-unit senior complex. This complex would be very close to the west side of the existing rail line. This project is not yet in the preapplication phase (James pers. comm.).

In approximately 15 to 20 years, the City plans to move the airport from its existing location (on approximately 32 acres just west of the UPRR in the city's industrial area to an area outside of the growth area of the community (City of Chowchilla 2005). The existing location would continue to be zoned for industrial use. The City's zoning will be primarily industrial, general, and service commercial along the railway (James pers. comm.).

Madera County STIP Projects

A total of 14 projects in Madera County were programmed into the current 2006 STIP. The following projects would occur within or adjacent to the HST Alignment Alternatives and are considered relevant to the cumulative scenario:

- City of Madera—Gateway & UPRR Bike/Pedestrian Undercrossing: In the City of Madera, at Gateway and UPRR, a bicycle and pedestrian undercrossing.
- Caltrans—Madera Amtrak Station Relocation: In Madera, on the west side of the Country Club Drive and the south side of the railroad tracks. Project involves a two-lane access road, parking lot, passenger loading platform, bus stop, and area lighting.
- City of Madera—4th Street Widening: In the City of Madera on 4th Street from K Street and UPRR at SR-99. Reconstruct and widen to four lanes and relocate and modify traffic signals.

- City of Chowchilla—Robertson Boulevard Improvements: In the City of Chowchilla on Robertson Boulevard (SR-233) from Palm Parkway to 15th Street. Construct widening, curb, gutter, and sidewalks.

G. MERCED COUNTY

Campus Parkway Project

The Merced County Department of Public Works, in cooperation with Caltrans and FHWA, are proposing to construct Campus Parkway, a four-lane limited-access expressway located on the east side of the City of Merced. Campus Parkway would extend from the planned Mission Interchange to Yosemite Avenue, a length of approximately 4.5 miles. At-grade intersections and a connection with SR-140 are proposed. Overpass bridge structures are proposed over SR-140 and the adjacent BNSF Railroad, as well as over Bear Creek and the adjacent Bear Creek Drives.

The preferred alignment would result in impacts on the existing community. Issues of concern included the number of people that would be affected by noise, air quality, visual impacts, and general quality-of-life impacts from the presence of a roadway close to homes. Mitigation including noise barriers and landscaping is proposed. Farmland impacts are also of concern. Merced County will require mitigation for the loss of productive agricultural lands through the use of conservation easements. The anticipated construction of the project is from 2007 to 2009. A Final EIR was completed in 2005, and a Final EIS was completed in 2006.

Merced County University Community Plan

The Merced County University Community Plan (UCP) is included as part of the Merced County General Plan, which provides for the development of an integrated community of housing, business, commercial, cultural, civic, and open space uses and infrastructures systems to support the successful development and growth of the adjacent UC Merced Campus. The University Community would include four residential villages with a mix of residential housing densities. Each village would integrate a mix of uses that constitute a complete neighborhood, including a mix of housing types at varying densities and a village center that includes a school, park, local retail, and/or other services or civic uses. The UCP calls for a mixed-use town center at the northernmost portion of the University Community area to serve as a transition into the campus and include a variety of land uses, including retail, office, research and development, entertainment, civic, cultural, and residential. The University Community would also include a system of open space amenities, including a centralized village green, parks, trails, and natural drainage corridors. An open space greenbelt would link the town center and residential village within the UCP area.

The proposed UCP would be adopted by resolution as a component of the County of Merced General Plan.

UC Merced Long Range Development Plan

An EIR was prepared for the UC Merced Long Range Development Plan (LRDP) in 2002. The EIR evaluates the potential for environmental impacts from the implementation of the UC Merced LRDP and from construction of Phase 1 of the UC Merced campus. The University of California proposed to establish a new major research university campus in the San Joaquin Valley for a student population of 25,000 full-time equivalent students. The proposed campus would be located approximately 2 miles (3.2 km) northeast of the Merced city limits. The site is immediately east of Lake Yosemite Regional Park and a portion of Lake Road.

The purpose of the proposed LRDP is to guide the physical planning and development to achieve the academic needs and goals of the new campus in Merced County. The core of the LRDP is a land use map that designates major land use areas to guide the siting of the future physical development of

the campus. There are three primary campus subareas addressed in the LRDP: the main campus, the campus land reserve, and the campus natural reserve. The main campus, which would comprise about 910 ac (368 ha), would include the academic core, support services, student and faculty housing, parking, circulation, recreation, and open space. The academic core, located at the center of the site, would accommodate the undergraduate teaching facilities in the center of the core, with less intensive research and graduate education facilities, professional schools, and institutes in more peripheral areas of the core. The campus land reserve would be a 340-ac (138-ha) area with no development. The campus natural reserve, a 750-ac (304-ha) area contiguous to the campus land reserve, would encompass a permanently undeveloped areas dedicated to environmental conservation, open space, and scientific research.

The campus layout has been developed in a manner that is sensitive to the adjacent land uses. The proposed campus layout is developed in a grid pattern. The campus core grid corridors traverse northeast to the southwest and southwest-northeast. The orientation takes advantage of views of the lake and the Sierras. To buffer the adjacent park, an open space is provided along the west edge of the campus. In addition, low-density uses are planned for the first row of campus blocks adjacent to the open space. Similarly, in planning campus land uses adjacent to the proposed university community, uses that complement the adjacent community are proposed. This proposed density of development is a result of a concerted effort on the part of the university to strike a balance between the need to minimize the footprint impacts of the campus and to develop a campus that is compatible with its rural settings.

SR-152 Los Banos Bypass Project

SR-152 is a major east-west route that begins at its junction with Highway 1 near Watsonville, in Santa Cruz County, and extends eastward through Gilroy, in Santa Clara County, and Los Banos, in Merced County, ending at SR-99 near Fairmead, in Madera County. The route serves as a major east-west link between the major north-south routes of SR-99, US 101 and I-5. The route also serves as a truck route, commuter corridor, and a recreational corridor linking the Central Valley to the Bay Area and to the Central Coast. SR-152 is a critical interregional route serving the increased traffic demands created by high population growth in the Central Valley and strong employment demand in the Bay Area.

The proposed route adoption for this segment of SR-152, to bypass the City of Los Banos, would reduce traffic congestion within the city and on SR-152, improve safety of SR-152, and improve interregional traffic by providing route continuity of SR-152 within Merced County. Expansion of the existing SR-152 through Los Banos to accommodate increasing traffic demands is not viable due to extensive commercial and business developments that exist on both sides of the highway.

Route studies to construct a bypass on SR-152 around the City of Los Banos were initiated in 1962. As a result of these studies, a southern bypass route was adopted by the California Highway Commission on April 28, 1965. Due to funding concerns, a portion of this adopted route (from Los Banos Creek to San Luis Canal) was rescinded in 1981. In 1987, as congestion and safety became a concern along SR-152, the bypass concept was reinitiated. In 1988, a Major Investment Study (MIS) was prepared by the Merced County Association of Governments (MCAG) with support from the County of Merced, City of Los Banos, Caltrans District 10, FHWA, and other agencies. Many alternatives were considered and rejected. On June 25, 2007, the environmental document was approved and the proposed northern bypass route alternative was selected. This alternative avoids wetlands, historic properties, the City's planned industrial park, and the proposed airport relocation site.

The proposed project is to construct a four-lane freeway bypass within an ultimate six-lane right of way for SR-152 around and through the city of Los Banos. The freeway would begin approximately at Post Mile 16.0, east of Volta Road, and end approximately at Post Mile 24.8, east of the Old Santa Fe

Grade Road. Three spread diamond type interchanges are proposed. The first interchange will be located just east of Ramos Road, the second interchange will be at the intersection of SR-152 with SR-165, and the third interchange will be located just west of Old Santa Fe Grade Road. Frontage roads would be constructed as needed to provide access to landlocked parcels.

Relinquishment of the existing SR-152 would occur after construction of the new bypass. Relinquishment would transfer the State's right of way, title, and interest of a section of SR-152 to the City of Los Banos and to Merced County.

The current estimated cost for construction and right of way is approximately $391 million. This project is programmed through the Plans, Specifications and Estimate phase in the current State Transportation Improvement Program (STIP). Funding for Right-of-Way and Construction phases is proposed to come from a combination of Merced County's Regional Transportation Improvement Program and the Statewide Interregional Transportation Improvement Program. It is expected that the R/W phase would be funded in the 2008 STIP cycle and the construction phase would be funded in the 2010 STIP cycle. On March 4, 2003, MCAG approved the resolution affirming that the Los Banos Bypass is the number one transportation priority project for MCAG. MCAG and the City of Los Banos are pursuing alternate sources of funding. If MCAG is able to get an approval for a Transportation Measure in the next three years, it is expected that some funds from this Transportation Measure would be used to fund Right-of-Way and Construction phases of this project.

Merced County STIP Projects

The following project in Merced County is programmed in the 2006 STIP and would occur within or adjacent to the HST Network Alternatives and is considered relevant to the cumulative scenario:

- Caltrans—Freeway Upgrade and Plainsburg Road I/C: Near Merced on SR-99 from north of the Madera County Line to Buchanan Hollow Road. Convert to six-lane freeway and construct interchange at Plainsburg Road.
- Caltrans—SR-152 Los Banos Project (see above).

H. SAN BENITO COUNTY

City of Hollister

The City of Hollister is currently in a building moratorium, as issued by the California Regional Water Quality Control Board, until March 2008. The City currently does not have any projects under construction or in the planning phase in the freight line corridor (Prado pers. comm.).

El Rancho San Benito

El Rancho San Benito (ERSB) is a 4,500-acre site adjacent to Highway 25 at the northern edge of San Benito County. DMB, the real estate developer that owns the ERSB site, is just beginning the initial community planning process. The community plan would most likely include a range of housing and commercial uses (El Rancho San Benito 2007).

I. SANTA CLARA COUNTY

Sunnyvale

Central Core Redevelopment Project

The City of Sunnyvale has only one redevelopment project, the 184-acre Central Core Redevelopment Project Area. The goal of the project is to rebuild downtown Sunnyvale as a traditional downtown, a pedestrian-friendly central place for shopping, working, living, and entertainment. The current focus

is on the large block bounded by Mathilda, Washington, Sunnyvale, and Iowa Avenues, commonly known as the Town Center Mall block (City of Sunnyvale 2007).

Santa Clara County STIP Projects

A total of 24 projects in Santa Clara County were programmed into the current 2006 STIP. The following projects would occur within or adjacent to the HST Network Alternatives and are considered relevant to the cumulative scenario:

- Caltrans—Capitol Corridor-San Jose-Santa Clara Fourth Main: Between San Jose and Santa Clara. Construct fourth main track (UPRR) and signal improvements; upgrade track and platform at Santa Clara and San Jose Diridon Stations.
- City of Sunnyvale—Borregas Avenue Bike/pedestrian Bridges: SR-101 and SR-237 at Borregas Avenue; construct bicycle/pedestrian bridges.
- Caltrans—Passing Lanes: Near Gilroy (SR-152 Expressway). Prunedale Avenue to SR-156 (various Capital Outlay locations).
- Caltrans—Truck Climbing Lanes: Near Gilroy, 0.2 km east of San Felipe Lane to 1.4 km west of SR-152/156 junction.
- Santa Clara Valley Transportation Authority—SR-152/SR-156 Interchange Improvements: Construct flyover plus other improvements at the interchange.
- Caltrans—Sunol Grade Southbound HOV Lane Phase 3: From SR-237 in Milpitas to SR-84 near Pleasanton, construct final southbound HOV lane.

J. SAN FRANCISCO COUNTY

City of San Francisco

Transbay Program—Transbay Transit Center
The City of San Francisco passed Proposition H in 1999, calling to extend Caltrain into a new regional intermodal transit center on the site of the existing Transbay Terminal at 1st and Mission Streets. In 2001, the Transbay Joint Powers Authority (TJPA) was created to design and maintain the new Transbay Transit Center (Alumbaugh pers. comm.).

The new Transbay Transit Center would accommodate over 45 million passengers annually and connect AC Transit, Golden Gate Transit, MUNI (including paratransit for seniors and the disabled), SamTrans, Greyhound, Caltrain, and future HST under one roof, with walking connections to BART and MUNI Metro, linking San Francisco to the rest of the region and State (Transbay Joint Powers Authority 2006).

The project would extend the Caltrain commuter rail lines 1.3 miles underground from the current terminus at 4th and Townsend Streets to the new downtown Transbay Transit Center site near the heart of the financial district, reducing commute times for Peninsula riders commuting to the City, closing the gap between East Bay and Peninsula transit services, and accommodating future HST service. The project would also increase bus and rail ridership by improving access and connectivity to public transportation, making the Transit Center not only a destination for efficient and reliable transit, but a center of activity with shopping, restaurants, and retail services (Transbay Joint Powers Authority 2006).

Redevelopment Plan for the Transbay Redevelopment Project Area
Adopted by the City of San Francisco in June 2005, the Transbay Redevelopment Plan will facilitate the development of nearly 3,400 new homes (35% of which will be designated as affordable housing); 1.2 million square feet of new office, hotel, and commercial space; and 60,000 square feet

of retail, not including retail in the Transit Center. The buildings will include townhouses, low- and mid-rise buildings, and slender high-rise towers spaced apart to provide sunlight to proposed new plazas, parks, and widened sidewalks (Transbay Joint Powers Authority 2006; San Francisco Redevelopment Agency 2005).

The project area is approximately 40 acres in size and is bounded by Mission Street to the north, Main Street to the east, Folsom Street to the south, and 2nd Street to the west. Folsom Street will be the center of this new neighborhood and will feature widened sidewalks with cafés, markets, and views of the San Francisco Bay (Transbay Joint Powers Authority 2006; San Francisco Redevelopment Agency 2005).

Visitacion Valley/Schlage Lock Master Plan
The Schlage Lock site in Vicitacion Valley is envisioned as an extension of the neighborhood and a model for sustainability, with housing, shops, well-designed streets and open space, and public services that are accessible to all members of the community. Most of the site is residential, with neighborhood-serving retail (including a supermarket). Currently the City is holding public workshops to design a master plan for the site (Alumbaugh pers. comm.; City of San Francisco 2007).

There are two major transit points in the Schlage Lock project area: the Caltrain Bayshore Station and the Southern terminus of the MUNI Third Street Light Rail system. The concept plan outlines the Schalge Lock master plan as transit-friendly (EDAW 2002).

San Francisco County STIP Projects

A total of 20 projects in San Francisco County were programmed into the current 2006 STIP. The following projects would occur within or adjacent to the HST Network Alternatives and are considered relevant to the cumulative scenario:

- Peninsula Joint Powers Board—Caltrain Downtown Extension to Transbay Terminal: In San Francisco, the Mass Transit downtown extension to a rebuilt Transbay Terminal Center.
- BART—Seismic Retrofit of various stations: Embarcadero, 16th Street, SF station platforms.

K. SAN MATEO COUNTY

Redwood City

Redwood City Downtown Precise Plan
The downtown precise plan area consists of approximately 193 acres within the City's historic center and is bounded on the north by Veteran's Boulevard, on the east by Maple Street and the western edge of the Kaiser Permanente Hospital campus, on the southwest by the properties lining the southwestern side of El Camino Real, and on the northwest by Brewster Avenue. The precise plan area is bisected by the railroad right-of-way owned and operated by the Peninsula Corridor Joint Powers Board, on which Caltrain commuter rail service is provided. The railroad tracks run through the district on a northwest-southeast axis, restricting pedestrian and vehicular access between the two sides (Redwood City 2006:9). The city wants to make a more pedestrian-friendly downtown area and are encouraging developers to build in the corridor of the rail line. The plan is under review and yet to be adopted (Bonte pers. comm.).

Redwood City 2025 Plan
The 2025 Plan outlines elevating the rail line to accommodate growth around the station and tracks. Elevating it is more cost-effective than lowering it into the ground. Additionally, the City would like to turn the two line tracks into four lines to accommodate many modes of transportation (Bonte pers. comm.).

Millbrae

Millbrae Station Area Specific Plan
In 1998, as part of a citywide general plan update, the City adopted the Millbrae Station Area Specific Plan (MSASP) to set a vision for redevelopment of the 116 acres around the BART/Caltrain station. The MSASP automatically confers special zoning upon that land for higher density housing, retail, restaurant, office, hotel, and entertainment in a mixed-use setting. The City and the redevelopment agency are facilitating new development within the MSASP area to create a high-quality image at the main gateway into the city to implement the pedestrian and transit orientation of the plan and to attract new revenue sources for the City and agency. Since Millbrae is a small city and almost completely built out, the MSASP area possesses the greatest potential for the future growth and development of the city (City of Millbrae 2007).

San Carlos

Future Residential Development
A project is proposed by the Joint Powers Transportation Authority and would consist of building several hundred new homes between the rail line and El Camino Hwy, adjacent to the rail line. This development is in the preapplication stage (Cullinan pers. comm.).

San Bruno

Future Transportation and Transit Improvements
A grade separation project has been proposed but is currently on hold. The proposal includes building a new station on San Bruno Avenue and Huntington and possibly building out to accommodate two more rail lines to accommodate for different modes of transit (Rozzi pers. comm.).

The city is currently updating their general plan to include a TOD zone around the proposed new grade separation project area to encourage new residential and high-density growth. The general plan will be approved in late 2007 (Rozzi pers. comm.).

San Mateo County STIP Projects

A total of 14 projects in San Mateo County were programmed into the current 2006 STIP. The following projects would occur within or adjacent to the HST Network Alternatives and are considered relevant to the cumulative scenario:

- San Mateo County Transportation Authority—Tilton and Poplar Grade Separations: In San Mateo, Caltrain corridor at Tilton Avenue and Poplar Avenue; reconstruct grade separations.
- Caltrans—US 101/Willow Road Interchange Reconstruction: Menlo Park; reconstruct and reconfigure interchange.
- Caltrans—US 101 Auxiliary Lanes - SCL Co. Line to San Mateo County: On US 101 from Santa Clara County Line to Capital Outlay Marsh Road; construct new auxiliary lanes.
- Caltrans—US 101 Auxiliary Lanes - San Mateo: From 3rd Avenue to Millbrae Avenue in Millbrae; auxiliary lanes, Capital Outlay reconstruct overcrossings, ramp meters.

L. SAN JOAQUIN COUNTY

A list of future foreseeable San Joaquin County projects could not be obtained through communications with the local planning staff. However, the following projects in San Joaquin County are programmed in the current 2006 State Transportation Improvement Plan and would occur within or adjacent to the HST Network Alternatives and are considered relevant to the cumulative scenario:

- Caltrans—Stockton ACE Northwest Track Connection: In Stockton at the Northwest Quadrant near the Stockton Interlock; construct track connection from UPRR to BNSF Railway.

- City of Tracy—Tracy Downtown Multimodal Station: In the city of Tracy at Sixth Street and Central Avenue adjacent to Mass Transit UPRR tracks; construct a multimodal station.
- City of Lathrop—Lathrop Road Grade Separation with UPRR: In the city of Lathrop, on Lathrop Road between 7th Street and McKinley Avenue; construct four-lane overpass over the railroad.
- San Joaquin Regional Rail Commission—Stockton Southern Pacific Depot Restoration: In downtown Stockton, between Weber Avenue and Miner Avenue; upgrade track, signals, switches, and platform area.

M. STANISLAUS COUNTY

Modesto

Salida Community Plan
The community of Salida is located along SR-99 immediately south of the Stanislaus River. The Salida Community Plan encompasses approximately 3,825 acres between the planned extension of Ladd Road on the north, Dale Road on the east, and Hammett Road on the west. West of SR-99, the community is bound on the south by Bacon Road/Murphy Road. East of SR-99, the community is bound on the south by the Modesto Irrigation District (Stanislaus County 2000).

The 4,472-acre Salida community plan area provides a land base to support a population of approximately 22,000 residents. To support the projected number citizens, the community plan encourages the development of commercial areas to the west and east of SR-99. The community plan also includes an extensive planned industrial area east of SR-99 dedicated to the development of a regional employment center for Stanislaus County (Stanislaus County 2000).

Redevelopment Area Master Plan
The redevelopment area master plan will include 75 senior housing units at 8th and I Streets close to the rail line. This project could be in the right-of-way of the Altamont corridor. This was anticipated to be approved in April 2007 (Van Empel pers. comm.).

Condominium Complex
There is a proposed plan now in the application process to build a condominium complex at 9th Street and G Street. This is being amended to the general plan in the first quarter of 2007 (Van Empel pers. comm.).

Turlock

Northwest Triangle Specific Plan
The Northwest Triangle Specific Plan will include the development of a 200-acre, commercially zoned area with mixed-use retail and heavy retail, which may include a car dealership. This would run adjacent to the rail line, slightly north of Monta Vista Avenue. This project will likely be completed in the next three years (Whitmore pers. comm.).

Southeast Area Feasibility Study
The southeast area feasibility study is underway to develop a master plan for the southeast area of town. The plan likely will not be approved for two more years. It would include 2,500 acres of mixed-use retail, industrial, and low- and medium-density residential that would include all unincorporated areas from East Avenue on the north to Verduga Road, and the county line to SR-99 and Golf Road (Whitmore pers. comm.).

Stanislaus County STIP Projects

A total of 14 projects in Stanislaus County were programmed into the current 2006 STIP. The following projects would occur within or adjacent to the HST Network Alternatives and are considered relevant to the cumulative scenario:

- City of Modesto—Virginia Corridor Rails to Trails: In the City of Modesto along the abandoned UPRR corridor from Bowen Avenue to Rumble Road. Construct a class I bike path and linear park.
- Caltrans—SR-132 Expressway: In Modesto on SR-132 from N. Dakota Avenue to SR-99. Construct four-lane expressway and improve SR-99 interchange.
- Caltrans—SR-132 East Infill Project: In the city of Modesto on SR-132 from Riverside Drive to Frazine/Codoni Roads in Empire. Widen to four lanes.

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