

CAPITAL COST: UNIT COST TABLE

CALTRAIN 1 AND 2							
COST ELEMENTS			QUANTITIES				
Alignment Cost		UNIT	UNIT PRICE (\$)	Transbay Transit Center to 4th/Townsend		4th/Townsend to Millbrae/SFO	
				CALTRAIN 1		CALTRAIN 2	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section-Total	km		0.00		16.55	
1	Double Track Section - At Grade	km	993,167	0.00	0	15.45	15,344,428
2	Double Track Section - On Structure	km	1,878,243	0.00	0	0.00	0
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	1.10	2,066,067
	Single Track Section - Total	km		2.50		6.03	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	5.00	4,695,606	12.06	11,325,803
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	3	22	773,238	6,883,074
3	Fill	m3	9	0	0	271,492	2,416,720
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	0.00	0	19.95	2,029,570
8	Special Drainage Facilities	5% of Earthwork			1		566,468
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	0.00	0
2	High Structure	km	16,480,720	0.00	0	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	6.03	334,451,147
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	2.50	240,618,204	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	1.10	54,635,446
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	2.50	4,828,405	6.03	11,646,114
17	Retaining Walls	km	4,399,945	0.00	0	2.60	11,439,858
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	8.00	143,443,305
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	0.00	0	0.00	0
7	Major Utility Relocation - Suburban	km	273,407	0.00	0	0.00	0
8	Major Utility Relocation - Undeveloped	km	13,988	0.00	0	0.00	0
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	0.00	0	0.00	0

CALTRAIN 1 AND 2							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Transbay Transit Center to 4th/Townsend		4th/Townsend to Millbrae/SFO	
				CALTRAIN 1		CALTRAIN 2	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Suburban	hectare	479,081	0.00	0	0.00	0
	Undeveloped	hectare	342,201	0.00	0	0.000	0
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			7,718,078		19,818,578
System Elements							
1	Signaling (ATC)	km	845,654	2.50	2,114,136	22.58	19,094,873
2	Communications (w/Fiber Optic Backbone)	km	699,413	2.50	1,748,533	22.58	15,792,752
3	Wayside Protection System	km	67,144	2.50	167,859	22.58	1,516,104
Electrification Items							
1	Traction Power Supply	km	432,365	2.50	1,080,911	22.58	9,762,792
2	Traction Power Distribution	km	806,233	2.50	2,015,582	22.58	18,204,736
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			67,571,771		173,511,647
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			66,246,835		170,109,458
Total Construction					257,269,261		660,619,255
Total Construction and Right of Way (Includes Environmental Mitigation)					264,987,338		680,437,832
Grand Total					398,805,944		1,024,058,938

CALTRAIN 3 AND 4							
COST ELEMENTS			QUANTITIES				
Alignment Cost	UNIT	UNIT PRICE (\$)	Millbrae/SFO to Redwood City		Redwood City to Caltrain		
			CALTRAIN 3		CALTRAIN 4		
			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)	
Track							
	Double Track Section-Total	km		18.75		0.75	
1	Double Track Section - At Grade	km	993,167	18.75	18,621,879	0.75	744,875
2	Double Track Section - On Structure	km	1,878,243	0.00	0	0.00	0
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	171,385	1,525,605	0	0
3	Fill	m3	9	1,109,803	9,879,049	78,315	697,131
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	18.75	1,907,491	0.75	76,300
8	Special Drainage Facilities		5% of Earthwork		665,607		38,672
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.000	0	0.000	0
2	High Structure	km	16,480,720	0.000	0	0.000	0
3	Long Span Structure	km	37,577,568	0.000	0	0.000	0
4	Waterway Crossing - Primary	km	28,876,734	0.000	0	0.000	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.000	0	0.000	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.000	0	0.000	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.000	0	0.000	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.000	0	0.000	0
9	Double Track Drill & Blast	km	83,740,573	0.000	0	0.000	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.000	0	0.000	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.000	0	0.000	0
12	Crossovers	ea	94,803,899	0.000	0	0.000	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.000	0	0.000	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.000	0	0.000	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.000	0	0.000	0
17	Retaining Walls	km	4,399,945	10.150	44,659,445	0.750	3,299,959
18	Containment Walls	km	1,500,559	0.000	0	0.000	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.000	0	0.000	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	18.00	322,747,436	2.00	35,860,826
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	0.00	0	0.00	0
7	Major Utility Relocation - Suburban	km	273,407	0.00	0	0.00	0
8	Major Utility Relocation - Undeveloped	km	13,988	0.00	0	0.00	0

CALTRAIN 3 AND 4								
COST ELEMENTS			UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost					Millbrae/SFO to Redwood City		Redwood City to Caltrain	
					CALTRAIN 3		CALTRAIN 4	
Track			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)		
Right-of-Way								
1	Right-of-Way Required for Each Segment							
	Urban	hectare	2,737,608	0.00	0	0.00	0	
	Suburban	hectare	479,081	0.00	0	0.00	0	
	Undeveloped	hectare	342,201	0.00	0	0.00	0	
Environmental Mitigation								
	Environmental Mitigation		3% of Line Cost			13,603,775	1,285,676	
System Elements								
1	Signaling (ATC)		km	845,654	18.75	15,856,017	0.75	634,241
2	Communications (w/Fiber Optic Backbone)		km	699,413	18.75	13,113,999	0.75	524,560
3	Wayside Protection System		km	67,144	18.75	1,258,944	0.75	50,358
Electrification Items								
1	Traction Power Supply		km	432,365	18.75	8,106,836	0.75	324,273
2	Traction Power Distribution		km	806,233	18.75	15,116,864	0.75	604,675
Program Implementation Costs (PER SCREENING)								
	Program Implementation Costs		25.5% of Total Cost & Procurement			119,101,051		11,256,094
Contingencies (PER SCREENING)								
	Contingencies		25% of Total Construction Cost			116,765,736		11,035,386
Total Construction						453,459,171		42,855,869
Total Construction and Right of Way (Includes Environmental Mitigation)						467,062,946		44,141,545
Grand Total						702,929,734		66,433,025

CALTRAIN 5 AND 6							
COST ELEMENTS			QUANTITIES				
Alignment Cost	UNIT	UNIT PRICE (\$)	Caltrain Dumbarton Wye		Dumbarton Wye to Palo Alto		
			CALTRAIN 5		CALTRAIN 6		
			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)	
Track							
	Double Track Section-Total	km		1.62		5.23	
1	Double Track Section - At Grade	km	993,167	1.62	1,609,923	5.23	5,193,269
2	Double Track Section - On Structure	km	1,878,243	0.00	0	0.00	0
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	32,915	292,997	27,240	242,480
3	Fill	m3	9	20,884	185,902	417,680	3,718,030
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	1.62	164,909	5.23	531,961
8	Special Drainage Facilities	5% of Earthwork			32,190		224,624
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.000	0	0.000	0
2	High Structure	km	16,480,720	0.000	0	0.000	0
3	Long Span Structure	km	37,577,568	0.000	0	0.000	0
4	Waterway Crossing - Primary	km	28,876,734	0.000	0	0.000	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.000	0	0.000	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.000	0	0.000	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.000	0	0.000	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.000	0	0.000	0
9	Double Track Drill & Blast	km	83,740,573	0.000	0	0.000	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.000	0	0.000	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.000	0	0.000	0
12	Crossovers	ea	94,803,899	0.000	0	0.000	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.000	0	0.000	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.000	0	0.000	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.000	0	0.000	0
17	Retaining Walls	km	4,399,945	0.200	879,989	4.000	17,599,781
18	Containment Walls	km	1,500,559	0.000	0	0.000	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.000	0	0.000	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	1.00	17,930,413	7.00	125,512,892
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	0.00	0	0.00	0
7	Major Utility Relocation - Suburban	km	273,407	0.00	0	0.00	0
8	Major Utility Relocation - Undeveloped	km	13,988	0.00	0	0.00	0

CALTRAIN 5 AND 6								
COST ELEMENTS			UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost					Caltrain Dumbarton Wye		Dumbarton Wye to Palo Alto	
					CALTRAIN 5		CALTRAIN 6	
Track			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)		
Right-of-Way								
1	Right-of-Way Required for Each Segment							
	Urban	hectare	2,737,608	0.00	0	0.00	0	
	Suburban	hectare	479,081	0.00	0	0.00	0	
	Undeveloped	hectare	342,201	0.00	0	0.00	0	
Environmental Mitigation								
	Environmental Mitigation		3% of Line Cost			771,525	5,037,897	
System Elements								
1	Signaling (ATC)		km	845,654	1.62	1,370,806	4,421,926	
2	Communications (w/Fiber Optic Backbone)		km	699,413	1.62	1,133,749	3,657,232	
3	Wayside Protection System		km	67,144	1.62	108,840	351,094	
Electrification Items								
1	Traction Power Supply		km	432,365	1.62	700,863	2,260,834	
2	Traction Power Distribution		km	806,233	1.62	1,306,903	4,215,791	
Program Implementation Costs (PER SCREENING)								
	Program Implementation Costs		25.5% of Total Cost & Procurement			6,754,697	44,106,792	
Contingencies (PER SCREENING)								
	Contingencies		25% of Total Construction Cost			6,622,252	43,241,953	
Total Construction						25,717,484	167,929,915	
Total Construction and Right of Way (Includes Environmental Mitigation)						26,489,009	172,967,813	
Grand Total						39,865,958	260,316,558	

CALTRAIN 7 AND 8							
COST ELEMENTS			QUANTITIES				
Alignment Cost	UNIT	UNIT PRICE (\$)	Palo Alto to Santa Clara		Santa Clara to Diridon Station		
			CALTRAIN 7		CALTRAIN 8		
			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)	
Track							
	Double Track Section-Total	km		22.55		5.00	
1	Double Track Section - At Grade	km	993,167	20.15	20,012,312	0.15	148,975
2	Double Track Section - On Structure	km	1,878,243	0.00	0	1.00	1,878,243
3	Double Track Section - In Tunnel or Subway	km	1,878,243	1.00	1,878,243	3.70	6,949,497
4	Double Track Section - In Trench	km	1,878,243	1.40	2,629,540	0.15	281,736
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	667,535	5,942,145	373,996	3,329,172
3	Fill	m3	9	626,633	5,578,051	1,143,150	10,175,891
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	21.55	2,192,343	1.35	137,339
8	Special Drainage Facilities	5% of Earthwork			685,627		682,120
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.000	0	0.000	0
2	High Structure	km	16,480,720	0.000	0	1.000	16,480,720
3	Long Span Structure	km	37,577,568	0.000	0	0.000	0
4	Waterway Crossing - Primary	km	28,876,734	0.000	0	0.000	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.000	0	0.000	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.000	0	0.000	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.000	0	0.000	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.000	0	0.000	0
9	Double Track Drill & Blast	km	83,740,573	0.000	0	0.000	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.000	0	0.000	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.000	0	0.000	0
12	Crossovers	ea	94,803,899	0.000	0	0.000	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	1.000	48,123,641	3.700	178,057,471
14	Trench Short	km	49,668,587	1.40	69,536,022	0.15	7,450,288
15	Trench Long	km	39,272,836	0.000	0	0.000	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	1.000	1,931,362	3.700	7,146,040
17	Retaining Walls	km	4,399,945	7.500	32,999,590	0.000	0
18	Containment Walls	km	1,500,559	0.000	0	0.000	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.000	0	0.000	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	3.00	51,502,250
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	7.00	125,512,892	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	0.00	0	0.00	0
7	Major Utility Relocation - Suburban	km	273,407	0.00	0	0.00	0
8	Major Utility Relocation - Undeveloped	km	13,988	0.00	0	0.00	0

CALTRAIN 7 AND 8								
COST ELEMENTS			UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost					Palo Alto to Santa Clara		Santa Clara to Diridon Station	
					CALTRAIN 7		CALTRAIN 8	
Track			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)		
Right-of-Way								
1	Right-of-Way Required for Each Segment							
	Urban	hectare	2,737,608	0.00	0	0.00	0	
	Suburban	hectare	479,081	0.00	0	0.00	0	
	Undeveloped	hectare	342,201	0.00	0	0.00	0	
Environmental Mitigation								
	Environmental Mitigation		3% of Line Cost			11,439,225	8,954,214	
System Elements								
1	Signaling (ATC)		km	845,654	22.55	19,069,503	5.00	
2	Communications (w/Fiber Optic Backbone)		km	699,413	22.55	15,771,769	5.00	
3	Wayside Protection System		km	67,144	22.55	1,514,090	5.00	
Electrification Items								
1	Traction Power Supply		km	432,365	22.55	9,749,821	5.00	
2	Traction Power Distribution		km	806,233	22.55	18,180,549	5.00	
Program Implementation Costs (PER SCREENING)								
	Program Implementation Costs		25.5% of Total Cost & Procurement			100,150,415	78,394,140	
Contingencies (PER SCREENING)								
	Contingencies		25% of Total Construction Cost			98,186,681	76,857,000	
Total Construction						381,307,499	298,473,786	
Total Construction and Right of Way (Includes Environmental Mitigation)						392,746,724	307,427,999	
Grand Total						591,083,820	462,679,139	

NILES/I-880 1A AND 1B							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				West Oakland to Jack London Square		12th Street/City Center to Jack London Square	
				Niles/I-880 1A		Niles/I-880 1B	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section-Total	km		2.67		4.40	
1	Double Track Section - At Grade	km	993,167	1.75	1,738,042	1.15	1,142,142
2	Double Track Section - On Structure	km	1,878,243	0.00	0	0.00	0
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.52	976,686	2.85	5,352,991
4	Double Track Section - In Trench	km	1,878,243	0.40	751,297	0.40	751,297
	Single Track Section - Total	km		4.05		0.70	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	8.10	7,606,882	1.40	1,314,770
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	0	0	0	0
3	Fill	m3	9	0	0	0	0
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	0.00	0	0.00	0
8	Special Drainage Facilities	5% of Earthwork			0		0
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	0.00	0
2	High Structure	km	16,480,720	0.00	0	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	4.05	224,631,368	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.70	67,373,097
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.52	25,024,293	2.85	137,152,376
14	Trench Short	km	49,668,587	0.40	19,867,435	0.40	19,867,435
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	4.57	8,826,325	3.55	6,856,336
17	Retaining Walls	km	4,399,945	0.00	0	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	5.22	3,551,366	4.08	2,775,781
7	Major Utility Relocation - Suburban	km	273,407	0.79	215,718	1.02	278,875
8	Major Utility Relocation - Undeveloped	km	13,988	0.06	849	0.00	0
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	7.94	21,736,609	6.20	16,973,171

NILES/I-880 1A AND 1B							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				West Oakland to Jack London Square		12th Street/City Center to Jack London Square	
				Niles/I-880 1A		Niles/I-880 1B	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Suburban	hectare	479,081	1.20	574,898	1.55	742,576
	Undeveloped	hectare	342,201	0.09	30,798	0.00	0
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			9,370,431		7,722,127
System Elements							
1	Signaling (ATC)	km	845,654	6.72	5,682,796	5.10	4,312,837
2	Communications (w/Fiber Optic Backbone)	km	699,413	6.72	4,700,057	5.10	3,567,008
3	Wayside Protection System	km	67,144	6.72	451,205	5.10	342,433
Electrification Items							
1	Traction Power Supply	km	432,365	6.72	2,905,490	5.10	2,205,059
2	Traction Power Distribution	km	806,233	6.72	5,417,884	5.10	4,111,787
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			87,735,410		72,124,735
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			86,015,108		70,710,524
Total Construction					312,347,695		257,404,223
Total Construction and Right of Way (Includes Environmental Mitigation)					344,060,431		282,842,097
Grand Total					517,810,948		425,677,356

NILES/I-880 2 AND 3A							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Jack London Square to Oakland Coliseum		Oakland Coliseum to Union City (BART)	
				Niles/I-880 2		Niles/I-880 3A	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section-Total	km		3.95		24.05	
1	Double Track Section - At Grade	km	993,167	3.95	3,923,009	23.55	23,389,079
2	Double Track Section - On Structure	km	1,878,243	0.00	0	0.50	939,121
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	0	0	155,297	1,382,395
3	Fill	m3	9	0	0	155,297	1,382,395
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	0.00	0	20.40	2,075,350
8	Special Drainage Facilities	5% of Earthwork			0		242,007
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	0.50	6,866,967
2	High Structure	km	16,480,720	0.00	0	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	0.00	0	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	6.00	107,582,479	18.00	322,747,436
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	3.67	2,496,842	18.28	12,436,585
7	Major Utility Relocation - Suburban	km	273,407	0.28	76,554	5.29	1,446,323
8	Major Utility Relocation - Undeveloped	km	13,988	0.00	0	0.48	6,714
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	5.58	15,284,067	27.78	76,050,757

NILES/I-880 2 AND 3A							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Jack London Square to Oakland Coliseum		Oakland Coliseum to Union City (BART)	
				Niles/I-880 2		Niles/I-880 3A	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Suburban	hectare	479,081	0.42	201,214	8.04	3,851,814
	Undeveloped	hectare	342,201	0.00	0	0.73	249,807
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			3,760,187		13,244,290
System Elements							
1	Signaling (ATC)	km	845,654	3.95	3,340,334	24.05	20,337,984
2	Communications (w/Fiber Optic Backbone)	km	699,413	3.95	2,762,682	24.05	16,820,889
3	Wayside Protection System	km	67,144	3.95	265,218	24.05	1,614,805
Electrification Items							
1	Traction Power Supply	km	432,365	3.95	1,707,840	24.05	10,398,368
2	Traction Power Distribution	km	806,233	3.95	3,184,619	24.05	19,389,898
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			36,869,187		136,392,611
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			36,146,261		133,718,247
Total Construction					125,339,577		441,476,319
Total Construction and Right of Way (Includes Environmental Mitigation)					144,585,045		534,872,986
Grand Total					217,600,493		804,983,844

NILES/I-880 4A AND 5A							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Union City (BART) to Niles Junction		Niles Junction to Niles Wye (\$)	
				Niles/I-880 4A		Niles/I-880 5A	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section-Total	km		3.33		7.31	
1	Double Track Section - At Grade	km	993,167	3.33	3,308,239	5.52	5,481,288
2	Double Track Section - On Structure	km	1,878,243	0.00	0	1.79	3,363,932
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	21,945	195,346	36,574	325,568
3	Fill	m3	9	21,945	195,346	36,574	325,568
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	3.30	335,718	5.50	559,531
8	Special Drainage Facilities	5% of Earthwork			36,321		60,533
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	1.79	24,597,475
2	High Structure	km	16,480,720	0.00	0	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	0.00	0	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	2.00	13,733,933	5.00	34,334,834
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	1.37	932,064	2.96	2,013,802
7	Major Utility Relocation - Suburban	km	273,407	1.96	535,878	3.44	940,520
8	Major Utility Relocation - Undeveloped	km	13,988	0.00	0	0.90	12,589
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	2.08	5,694,225	4.49	12,291,861

NILES/I-880 4A AND 5A							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Union City (BART) to Niles Junction		Niles Junction to Niles Wye (\$)	
				Niles/I-880 4A		Niles/I-880 5A	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Suburban	hectare	479,081	2.99	1,432,453	5.22	2,500,805
	Undeveloped	hectare	342,201	0.00	0	1.36	465,393
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			863,067		2,785,652
System Elements							
1	Signaling (ATC)	km	845,654	3.33	2,816,874	7.31	6,181,732
2	Communications (w/Fiber Optic Backbone)	km	699,413	3.33	2,329,746	7.31	5,112,711
3	Wayside Protection System	km	67,144	3.33	223,656	7.31	490,820
Electrification Items							
1	Traction Power Supply	km	432,365	3.33	1,440,206	7.31	3,160,585
2	Traction Power Distribution	km	806,233	3.33	2,685,561	7.31	5,893,561
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			9,373,451		28,279,184
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			9,189,658		27,724,690
Total Construction							28,768,888
Total Construction and Right of Way (Includes Environmental Mitigation)							36,758,633
Grand Total							55,321,742
							166,902,634

NILES/I-880 5B AND 6							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost	Track			Niles Wye (S) to Warm Springs		Warm Springs to Trimble Rd.	
				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
				Niles/I-880 5B		Niles/I-880 6	
				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section-Total	km		2.33		11.67	
1	Double Track Section - At Grade	km	993,167	0.00	0	0.00	0
2	Double Track Section - On Structure	km	1,878,243	2.33	4,378,183	11.67	21,917,212
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	0	0	0	0
3	Fill	m3	9	0	0	0	0
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	0.00	0	0.00	0
8	Special Drainage Facilities	5% of Earthwork			0		0
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	0.00	0
2	High Structure	km	16,480,720	2.33	38,416,559	11.67	192,313,523
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	0.00	0	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	2.00	35,860,826	2.00	35,860,826
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	0.94	639,518	7.43	5,054,914
7	Major Utility Relocation - Suburban	km	273,407	1.10	300,748	3.10	847,562
8	Major Utility Relocation - Undeveloped	km	13,988	0.29	4,057	1.15	16,087
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	1.44	3,942,156	11.30	30,934,973
	Suburban	hectare	479,081	1.66	795,275	4.71	2,256,473

NILES/I-880 5B AND 6							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Niles Wye (S) to Warm Springs		Warm Springs to Trimble Rd.	
				Niles/I-880 5B		Niles/I-880 6	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Undeveloped	hectare	342,201	0.43	147,146	1.75	598,852
Environmental Mitigation							
	Environmental Mitigation		3% of Line Cost		2,587,354		8,678,286
System Elements							
1	Signaling (ATC)	km	845,654	2.33	1,971,220	11.67	9,867,939
2	Communications (w/Fiber Optic Backbone)	km	699,413	2.33	1,630,332	11.67	8,161,454
3	Wayside Protection System	km	67,144	2.33	156,512	11.67	783,500
Electrification Items							
1	Traction Power Supply	km	432,365	2.33	1,007,842	11.67	5,045,262
2	Traction Power Distribution	km	806,233	2.33	1,879,329	11.67	9,407,930
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs		25.5% of Total Cost & Procurement		23,897,849		84,594,922
Contingencies (PER SCREENING)							
	Contingencies		25% of Total Construction Cost		23,429,264		82,936,198
Total Construction					86,245,125		289,276,209
Total Construction and Right of Way (Includes Environmental Mitigation)					93,717,056		331,744,793
Grand Total					141,044,170		499,275,914

NILES/I-880 7A AND 7B (OPTION A)							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				I-880 - Trimble Rd. to Diridon		Trimble Rd. Option (Structure)	
				Niles/I-880 7A		Niles/I-880 7B (Opt. A)	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section-Total	km		8.00		10.52	
1	Double Track Section - At Grade	km	993,167	0.50	496,583	0.65	645,558
2	Double Track Section - On Structure	km	1,878,243	6.10	11,457,280	6.68	12,550,417
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.70	1,314,770	2.62	4,911,604
4	Double Track Section - In Trench	km	1,878,243	0.70	1,314,770	0.58	1,079,989
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	0	0	21,780	193,877
3	Fill	m3	9	0	0	58,520	520,923
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	0.00	0	0.00	0
8	Special Drainage Facilities		5% of Earthwork		0		35,740
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	0.00	0
2	High Structure	km	16,480,720	6.10	100,532,393	6.68	110,091,211
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.70	33,686,549	2.62	126,083,939
14	Trench Short	km	49,668,587	0.70	34,768,011	0.58	28,559,438
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.70	1,351,953	2.62	5,060,169
17	Retaining Walls	km	4,399,945	0.00	0	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	2.00	34,334,834	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	1.00	17,930,413	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	7.72	5,252,212	9.36	6,369,872
7	Major Utility Relocation - Suburban	km	273,407	0.31	84,756	0.00	0
8	Major Utility Relocation - Undeveloped	km	13,988	0.00	0	1.16	16,187
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	11.74	32,139,521	14.23	38,956,165

NILES/I-880 7A AND 7B (OPTION A)								
COST ELEMENTS			UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost					I-880 - Trimble Rd. to Diridon		Trimble Rd. Option (Structure)	
					Niles/I-880 7A		Niles/I-880 7B (Opt. A)	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)	
	Suburban		hectare	479,081	0.47	225,168	0.00	0
	Undeveloped		hectare	342,201	0.00	0	1.76	602,274
Environmental Mitigation								
	Environmental Mitigation			3% of Line Cost		7,959,930		9,783,454
System Elements								
1	Signaling (ATC)		km	845,654	8.00	6,765,234	10.52	8,897,974
2	Communications (w/Fiber Optic Backbone)		km	699,413	8.00	5,595,306	10.52	7,359,227
3	Wayside Protection System		km	67,144	8.00	537,149	10.52	706,486
Electrification Items								
1	Traction Power Supply		km	432,365	8.00	3,458,917	10.52	4,549,340
2	Traction Power Distribution		km	806,233	8.00	6,449,862	10.52	8,483,181
Program Implementation Costs (PER SCREENING)								
	Program Implementation Costs			25.5% of Total Cost & Procurement		77,942,181		95,741,541
Contingencies (PER SCREENING)								
	Contingencies			25% of Total Construction Cost		76,413,903		93,864,256
Total Construction						265,330,992		326,115,132
Total Construction and Right of Way (Includes Environmental Mitigation)						305,655,610		375,457,025
Grand Total						460,011,694		565,062,822

NILES/I-880 7B (OPTION B)					
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES	
Alignment Cost				Trimble Rd. Option (Tunnel)	
				Niles/I-880 7B (Opt. B)	
Track				Quantities	Item Cost (\$)
	Double Track Section-Total	km		10.52	
1	Double Track Section - At Grade	km	993,167	0.34	332,711
2	Double Track Section - On Structure	km	1,878,243	4.92	9,235,319
3	Double Track Section - In Tunnel or Subway	km	1,878,243	4.92	9,231,562
4	Double Track Section - In Trench	km	1,878,243	0.36	666,776
	Single Track Section - Total	km		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0
Earthwork and Related Items					
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0
2	Cut	m3	9	4,230	37,654
3	Fill	m3	9	3,300	29,375
4	Borrow	m3	13.35	0.00	0
5	Spoil	m3	0.00	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	0.00	0
8	Special Drainage Facilities		5% of Earthwork		3,351
Structures/Tunnels/Walls					
1	Standard Structure	km	13,733,933	0.00	0
2	High Structure	km	16,480,720	4.92	81,085,143
3	Long Span Structure	km	37,577,568	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0
	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km		0.00	0
5	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0
6	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0
7	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0
8	Double Track Drill & Blast	km	83,740,573	0.00	0
9	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0
10	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0
11	Crossovers	ea	94,803,899	0.00	0
12	Cut & Cover Double Track Tunnel	km	48,123,641	4.92	236,768,313
13	Trench Short	km	49,668,587	0.36	17,632,348
14	Trench Long	km	39,272,836	0.00	0
15	Mechanical & Electrical for Tunnels	km	1,931,362	4.92	9,502,302
16	Retaining Walls	km	4,399,945	0.00	0
17	Containment Walls	km	1,500,559	0.00	0
18	Single Track Cut and Cover Subway	km	30,077,276	0.00	0
Grade Separations					
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0
Rail and Utility Relocation					
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0
3	Single Track Removal	km	63,372	0.00	0
4	Major Utility Relocation - Urban	km	680,338	9.36	6,367,967
5	Major Utility Relocation - Suburban	km	273,407	0.00	0
6	Major Utility Relocation - Undeveloped	km	13,988	1.16	16,226
Right-of-Way					
1	Right-of-Way Required for Each Segment				
	Urban	hectare	2,737,608	14.23	38,956,165

NILES/I-880 7B (OPTION B)						
COST ELEMENTS			UNIT	UNIT PRICE (\$)	QUANTITIES	
Alignment Cost					Trimble Rd. Option (Tunnel)	Niles/I-880 7B (Opt. B)
Track				Quantities	Item Cost (\$)	
	Suburban		hectare	479,081	0.00	0
	Undeveloped		hectare	342,201	1.76	602,274
Environmental Mitigation						
	Environmental Mitigation		3% of Line Cost			12,027,158
System Elements						
1	Signaling (ATC)		km	845,654	10.52	8,897,974
2	Communications (w/Fiber Optic Backbone)		km	699,413	10.52	7,359,227
3	Wayside Protection System		km	67,144	10.52	706,486
Electrification Items						
1	Traction Power Supply		km	432,365	10.52	4,549,340
2	Traction Power Distribution		km	806,233	10.52	8,483,181
Program Implementation Costs (PER SCREENING)						
	Program Implementation Costs		25.5% of Total Cost & Procurement			115,385,167
Contingencies (PER SCREENING)						
	Contingencies		25% of Total Construction Cost			113,122,713
Total Construction						400,905,255
Total Construction and Right of Way (Includes Environmental Mitigation)						452,490,852
Grand Total						680,998,732

PACHECO- 1 AND 2							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Diridon to Morgan Hill		Morgan Hill to Gilroy	
				Pacheco-1		Pacheco-2	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section-Total	km		32.50		16.00	
1	Double Track Section - At Grade	km	993,167	27.450	27,262,430	9.900	9,832,352
2	Double Track Section - On Structure	km	1,878,243	5.050	9,485,125	6.100	11,457,280
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.000	0	0.000	0
4	Double Track Section - In Trench	km	1,878,243	0.000	0	0.000	0
	Single Track Section - Total	km		0.000		0.000	
5	Single Track Section - At Grade	km	496,583	0.000	0	0.000	0
6	Single Track Section - On Structure	km	939,121	0.000	0	0.000	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.000	0	0.000	0
8	Single Track Section - In Trench	km	939,121	0.000	0	0.000	0
9	Freight Double Track - At Grade	km	993,167	0.000	0	0.000	0
10	Freight Single Track - At Grade	km	496,583	0.000	0	0.000	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	237,380	2,113,067	46,480	413,747
3	Fill	m3	9	0	0	141,345	1,258,196
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	27.55	2,802,740	9.90	1,007,155
8	Special Drainage Facilities	5% of Earthwork			245,790		133,955
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.95	13,047,237	6.10	83,776,994
2	High Structure	km	16,480,720	4.10	67,570,953	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	1.20	5,279,934	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	3.00	53,791,239	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	11.00	75,536,634	9.00	61,802,701
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	13.33	9,065,509	4.64	3,156,770
7	Major Utility Relocation - Suburban	km	273,407	9.43	2,576,861	4.00	1,093,628
8	Major Utility Relocation - Undeveloped	km	13,988	9.75	136,386	7.36	102,954
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	20.26	55,463,943	7.05	19,300,138

PACHECO- 1 AND 2								
COST ELEMENTS			UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost					Diridon to Morgan Hill		Morgan Hill to Gilroy	
					Pacheco-1		Pacheco-2	
Track			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)		
	Suburban	hectare	479,081	14.33	6,865,236	6.08	2,912,815	
	Undeveloped	hectare	342,201	14.82	5,071,418	11.19	3,829,229	
Environmental Mitigation								
	Environmental Mitigation	3% of Line Cost			10,846,955		6,589,460	
System Elements								
1	Signaling (ATC)	km	845,654	32.50	27,483,763	16.00	13,530,468	
2	Communications (w/Fiber Optic Backbone)	km	699,413	32.50	22,730,932	16.00	11,190,612	
3	Wayside Protection System	km	67,144	32.50	2,182,169	16.00	1,074,299	
Electrification Items								
1	Traction Power Supply	km	432,365	32.50	14,051,849	16.00	6,917,833	
2	Traction Power Distribution	km	806,233	32.50	26,202,565	16.00	12,899,724	
Program Implementation Costs (PER SCREENING)								
	Program Implementation Costs	25.5% of Total Cost & Procurement			112,152,247		64,331,479	
Contingencies (PER SCREENING)								
	Contingencies	25% of Total Construction Cost			109,953,184		63,070,077	
Total Construction					361,565,182		219,648,667	
Total Construction and Right of Way (Includes Environmental Mitigation)					439,812,734		252,280,309	
Grand Total					661,918,165		379,681,864	

PACHECO-3 AND 4							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Gilroy to San Luis Reservoir		San Luis Reservoir to Valley Floor	
				Pacheco-3		Pacheco-4	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section-Total	km		44.00		15.45	
1	Double Track Section - At Grade	km	993,167	24.350	24,183,613	15.450	15,344,428
2	Double Track Section - On Structure	km	1,878,243	3.500	6,573,849	0.000	0
3	Double Track Section - In Tunnel or Subway	km	1,878,243	16.150	30,333,617	0.000	0
4	Double Track Section - In Trench	km	1,878,243	0.000	0	0.000	0
	Single Track Section - Total	km		0.000		0.000	
5	Single Track Section - At Grade	km	496,583	0.000	0	0.000	0
6	Single Track Section - On Structure	km	939,121	0.000	0	0.000	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.000	0	0.000	0
8	Single Track Section - In Trench	km	939,121	0.000	0	0.000	0
9	Freight Double Track - At Grade	km	993,167	0.000	0	0.000	0
10	Freight Single Track - At Grade	km	496,583	0.000	0	0.000	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	30,335,213	270,032,642	16,308,730	145,174,178
3	Fill	m3	9	11,652,418	103,725,436	5,129,485	45,660,743
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	24.35	2,477,195	15.45	1,571,772
8	Special Drainage Facilities	5% of Earthwork			18,811,764		9,620,335
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.45	6,180,270	0.00	0
2	High Structure	km	16,480,720	3.05	50,266,196	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.10	2,887,673
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.10	2,311,923
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	16.15	895,752,244	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	16.15	31,191,498	0.00	0
17	Retaining Walls	km	4,399,945	0.00	0	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	4.00	27,467,867	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	6.00	6,943,266	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	4.84	3,292,838	0.00	0
7	Major Utility Relocation - Suburban	km	273,407	1.76	481,196	0.00	0
8	Major Utility Relocation - Undeveloped	km	13,988	37.40	523,161	15.45	216,119
Right-of-Way							
1	Right-of-Way Required for Each Segment						

PACHECO-3 AND 4								
COST ELEMENTS			UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost					Gilroy to San Luis Reservoir		San Luis Reservoir to Valley Floor	
			Pacheco-3		Pacheco-4			
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)	
	Urban		hectare	2,737,608	7.36	20,148,797	0.00	0
	Suburban		hectare	479,081	2.68	1,283,938	0.00	0
	Undeveloped		hectare	342,201	56.85	19,454,125	23.48	8,034,879
Environmental Mitigation								
	Environmental Mitigation		3% of Line Cost			48,110,167		8,004,965
System Elements								
1	Signaling (ATC)		km	845,654	44.00	37,208,786	15.45	13,065,358
2	Communications (w/Fiber Optic Backbone)		km	699,413	44.00	30,774,184	15.45	10,805,935
3	Wayside Protection System		km	67,144	44.00	2,954,322	15.45	1,037,370
Electrification Items								
1	Traction Power Supply		km	432,365	44.00	19,024,041	15.45	6,680,033
2	Traction Power Distribution		km	806,233	44.00	35,474,241	15.45	12,456,296
Program Implementation Costs (PER SCREENING)								
	Program Implementation Costs		25.5% of Total Cost & Procurement			431,630,660		72,132,362
Contingencies (PER SCREENING)								
	Contingencies		25% of Total Construction Cost			423,167,313		70,718,001
Total Construction						1,603,672,227		266,832,163
Total Construction and Right of Way (Includes Environmental Mitigation)						1,692,669,253		282,872,006
Grand Total						2,547,467,226		425,722,369

HM-1 AND 2							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Western Valley to Henry Miller UP Wye		Henry Miller UPR North Wye to UP South Wye	
				HM-1		HM-2	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section-Total	km		58.05		8.19	
1	Double Track Section - At Grade	km	993,167	52.90	52,534,554	7.99	7,934,410
2	Double Track Section - On Structure	km	1,878,243	5.15	9,672,949	0.20	375,649
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	1,192,739	10,617,314	150,980	1,343,964
3	Fill	m3	9	1,192,739	10,617,314	150,980	1,343,964
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	52.90	5,381,260	8.00	813,863
8	Special Drainage Facilities	5% of Earthwork			1,330,794		175,090
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	5.15	70,729,757	0.00	0
2	High Structure	km	16,480,720	0.00	0	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.60	17,326,041	0.20	5,775,347
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.05	1,155,961	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	0.00	0	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	1.00	6,866,967
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	25.00	28,930,276	6.00	6,943,266
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	0.72	489,844	0.00	0
7	Major Utility Relocation - Suburban	km	273,407	0.05	13,670	0.00	0
8	Major Utility Relocation - Undeveloped	km	13,988	57.47	803,906	8.19	114,564
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	1.09	2,983,993	0.00	0

HM-1 AND 2							
COST ELEMENTS			QUANTITIES				
Alignment Cost	UNIT	UNIT PRICE (\$)	Western Valley to Henry Miller UP Wye		Henry Miller UPR North Wye to UP South Wye		
			HM-1		HM-2		
			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)	
Track							
	Suburban	hectare	479,081	0.08	38,327	0.00	0
	Undeveloped	hectare	342,201	87.35	29,891,254	12.45	4,260,402
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			11,252,450		1,650,971
System Elements							
1	Signaling (ATC)	km	845,654	58.05	49,086,846	8.19	6,925,063
2	Communications (w/Fiber Optic Backbone)	km	699,413	58.05	40,598,143	8.19	5,727,495
3	Wayside Protection System	km	67,144	58.05	3,897,422	8.19	549,840
Electrification Items							
1	Traction Power Supply	km	432,365	58.05	25,097,034	8.19	3,540,633
2	Traction Power Distribution	km	806,233	58.05	46,798,587	8.19	6,602,240
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			106,908,163		15,540,650
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			104,811,924		15,235,931
Total Construction					375,081,673		55,032,353
Total Construction and Right of Way (Includes Environmental Mitigation)					419,247,697		60,943,726
Grand Total					630,967,784		91,720,307

HM-3 AND HM/BN-XN							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost	Track			Henry Miller UP South Wye to BNSF Wyes		Henry Miller Wye North to BNSF	
				HM-3		HM/BN-XN	
				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section-Total	km		4.62		8.70	
1	Double Track Section - At Grade	km	993,167	4.42	4,384,832	8.50	8,437,946
2	Double Track Section - On Structure	km	1,878,243	0.20	375,649	0.20	375,649
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	75,490	671,982	1,236,391	11,005,885
3	Fill	m3	9	75,490	671,982	1,236,391	11,005,885
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	4.42	449,150	8.50	864,322
8	Special Drainage Facilities	5% of Earthwork			89,656		1,143,805
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	0.00	0
2	High Structure	km	16,480,720	0.00	0	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.30	8,663,020	0.20	5,775,347
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	0.00	0	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	4.00	4,628,844	5.00	5,786,055
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	0.00	0	0.00	0
7	Major Utility Relocation - Suburban	km	273,407	0.00	0	0.00	0
8	Major Utility Relocation - Undeveloped	km	13,988	4.62	64,626	8.70	121,698
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	0.00	0	0.00	0

HM-3 AND HM/BN-XN							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Henry Miller UP South Wye to BNSF Wyes		Henry Miller Wye North to BNSF	
				HM-3		HM/BN-XN	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Suburban	hectare	479,081	0.00	0	0.00	0
	Undeveloped	hectare	342,201	7.02	2,402,251	13.22	4,523,897
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			994,687		2,079,217
System Elements							
1	Signaling (ATC)	km	845,654	4.62	3,902,694	8.70	7,353,809
2	Communications (w/Fiber Optic Backbone)	km	699,413	4.62	3,227,792	8.70	6,082,098
3	Wayside Protection System	km	67,144	4.62	309,868	8.70	583,881
Electrification Items							
1	Traction Power Supply	km	432,365	4.62	1,995,362	8.70	3,759,842
2	Traction Power Distribution	km	806,233	4.62	3,720,764	8.70	7,011,000
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			9,321,056		19,357,135
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			9,138,290		18,977,584
Total Construction						33,156,222	69,307,221
Total Construction and Right of Way (Includes Environmental Mitigation)						36,553,159	75,910,335
Grand Total						55,012,505	114,245,054

HM/BN-XS AND HM/UP-XS								
COST ELEMENTS			QUANTITIES					
Alignment Cost			UNIT	UNIT PRICE (\$)	Henry Miller Wye South to BNSF		Henry Miller Wye South to UPRR	
					HM/BN-XS		HM/UP-XS	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)	
	Double Track Section-Total	km		9.70		7.95		
1	Double Track Section - At Grade	km	993,167	9.70	9,633,718	7.75	7,697,043	
2	Double Track Section - On Structure	km	1,878,243	0.00	0	0.20	375,649	
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0	
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0	
	Single Track Section - Total	km		0.00		0.00		
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0	
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0	
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0	
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0	
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0	
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0	
Earthwork and Related Items								
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0	
2	Cut	m3	9	90,588	806,378	93,533	832,596	
3	Fill	m3	9	90,588	806,378	72,120	641,985	
4	Borrow	m3	13.35	0.00	0	0.00	0	
5	Spoil	m3	0.00	0.00	0	0.00	0	
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0	
7	Fencing (Both Sides of R/W)	km	101,733	9.70	986,809	7.55	768,083	
8	Special Drainage Facilities	5% of Earthwork			129,978		112,133	
Structures/Tunnels/Walls								
1	Standard Structure	km	13,733,933	0.00	0	0.00	0	
2	High Structure	km	16,480,720	0.00	0	0.00	0	
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0	
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.20	5,775,347	
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.00	0	
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0	
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0	
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0	
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0	
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0	
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0	
12	Crossovers	ea	94,803,899	0.00	0	0.00	0	
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0	
14	Trench Short	km	49,668,587	0.00	0	0.00	0	
15	Trench Long	km	39,272,836	0.00	0	0.00	0	
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0	
17	Retaining Walls	km	4,399,945	0.00	0	0.00	0	
18	Containment Walls	km	1,500,559	0.00	0	0.00	0	
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0	
Grade Separations								
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0	
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0	
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0	
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0	
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0	
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	4.00	4,628,844	7.00	8,100,477	
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0	
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0	
Rail and Utility Relocation								
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0	
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0	
3	Single Track Removal	km	63,372	0.00	0	0.00	0	
5	Major Utility Relocation - Urban	km	680,338	0.00	0	0.00	0	
7	Major Utility Relocation - Suburban	km	273,407	0.49	133,969	0.00	0	
8	Major Utility Relocation - Undeveloped	km	13,988	9.22	128,972	7.95	111,207	
Right-of-Way								
1	Right-of-Way Required for Each Segment							
	Urban	hectare	2,737,608	0.00	0	0.00	0	
	Suburban	hectare	479,081	0.74	354,520	0.00	0	

HM/BN-XS AND HM/UP-XS							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Henry Miller Wye South to BNSF		Henry Miller Wye South to UPRR	
				HM/BN-XS		HM/UP-XS	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Undeveloped	hectare	342,201	14.01	4,794,235	12.08	4,133,788
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			1,347,237		1,412,353
System Elements							
1	Signaling (ATC)	km	845,654	9.70	8,202,846	7.95	6,722,951
2	Communications (w/Fiber Optic Backbone)	km	699,413	9.70	6,784,309	7.95	5,560,336
3	Wayside Protection System	km	67,144	9.70	651,294	7.95	533,792
Electrification Items							
1	Traction Power Supply	km	432,365	9.70	4,193,936	7.95	3,437,298
2	Traction Power Distribution	km	806,233	9.70	7,820,458	7.95	6,409,550
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			13,107,990		13,419,270
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			12,850,971		13,156,147
Total Construction					44,907,890	47,078,447	
Total Construction and Right of Way (Includes Environmental Mitigation)					51,403,882	52,624,588	
Grand Total					77,362,843	79,200,005	

HM/UP-XN AND GEA-1							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Henry Miller Wye North to UPRR		San Luis Reservoir to Atwater Wye	
				HM/UP-XN		GEA-1	
Track			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)	
	Double Track Section-Total	km		11.25		57.00	
1	Double Track Section - At Grade	km	993,167	10.45	10,378,594	51.45	51,098,435
2	Double Track Section - On Structure	km	1,878,243	0.80	1,502,594	2.15	4,038,222
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	3.40	6,386,025
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	65,177	580,181	8,084,648	71,966,493
3	Fill	m3	9	99,970	889,895	3,942,381	35,093,591
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	10.45	1,063,108	1.70	172,946
8	Special Drainage Facilities	5% of Earthwork			126,659		5,361,652
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	1.40	19,227,507
2	High Structure	km	16,480,720	0.00	0	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.80	23,101,387	0.75	21,657,551
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.10	2,311,923
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	0.00	0	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	9.00	10,414,900	33.00	38,187,965
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	0.00	0	0.00	0
7	Major Utility Relocation - Suburban	km	273,407	0.00	0	0.00	0
8	Major Utility Relocation - Undeveloped	km	13,988	11.25	157,368	57.00	797,331
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	0.00	0	0.00	0

HM/UP-XN AND GEA-1							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Henry Miller Wye North to UPRR		San Luis Reservoir to Atwater Wye	
				HM/UP-XN		GEA-1	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Suburban	hectare	479,081	0.00	0	0.00	0
	Undeveloped	hectare	342,201	17.10	5,851,636	86.64	29,648,291
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			2,408,588		12,563,872
System Elements							
1	Signaling (ATC)	km	845,654	11.25	9,513,610	57.00	48,202,291
2	Communications (w/Fiber Optic Backbone)	km	699,413	11.25	7,868,399	57.00	39,866,557
3	Wayside Protection System	km	67,144	11.25	755,366	57.00	3,827,189
Electrification Items							
1	Traction Power Supply	km	432,365	11.25	4,864,101	57.00	24,644,781
2	Traction Power Distribution	km	806,233	11.25	9,070,119	57.00	45,955,267
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			22,579,359		117,557,011
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			22,136,627		115,251,972
Total Construction					80,286,282		418,795,724
Total Construction and Right of Way (Includes Environmental Mitigation)					88,546,507		461,007,887
Grand Total					133,262,493		693,816,870

GEA-BNSF XN AND GEA-UPRR XS							
COST ELEMENTS			QUANTITIES				
Alignment Cost	UNIT	UNIT PRICE (\$)	GEA Wye North to BNSF		GEA Wye South to BNSF		
			GEA-BNSF XN		GEA-UPRR XS		
			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)	
Track							
	Double Track Section-Total	km		11.10		12.15	
1	Double Track Section - At Grade	km	993,167	11.00	10,924,835	11.70	11,620,052
2	Double Track Section - On Structure	km	1,878,243	0.10	187,824	0.45	845,209
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	214,888	1,912,852	183,325	1,631,890
3	Fill	m3	9	72,389	644,380	143,805	1,280,098
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	3.85	391,671	1.65	167,859
8	Special Drainage Facilities	5% of Earthwork			147,445		153,992
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	0.00	0
2	High Structure	km	16,480,720	0.00	0	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.10	2,887,673	0.45	12,994,530
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	0.00	0	10.05	44,219,451
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	23.00	157,940,235	11.00	75,536,634
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	2.00	2,314,422	2.00	2,314,422
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	2.55	1,734,863	0.00	0
7	Major Utility Relocation - Suburban	km	273,407	1.44	393,706	5.92	1,618,569
8	Major Utility Relocation - Undeveloped	km	13,988	7.22	100,995	6.68	93,442
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	3.88	10,621,920	0.00	0

GEA-BNSF XN AND GEA-UPRR XS							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				GEA Wye North to BNSF		GEA Wye South to BNSF	
				GEA-BNSF XN		GEA-UPRR XS	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Suburban	hectare	479,081	2.19	1,049,188	8.99	4,306,941
	Undeveloped	hectare	342,201	10.97	3,753,945	10.16	3,476,762
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			6,336,746		5,613,404
System Elements							
1	Signaling (ATC)	km	845,654	11.10	9,386,762	12.15	10,274,699
2	Communications (w/Fiber Optic Backbone)	km	699,413	11.10	7,763,487	12.15	8,497,871
3	Wayside Protection System	km	67,144	11.10	745,295	12.15	815,796
Electrification Items							
1	Traction Power Supply	km	432,365	11.10	4,799,247	12.15	5,253,230
2	Traction Power Distribution	km	806,233	11.10	8,949,184	12.15	9,795,728
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			59,411,602		51,130,198
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			58,246,669		50,127,645
Total Construction					211,224,877		187,113,473
Total Construction and Right of Way (Includes Environmental Mitigation)					232,986,676		200,510,580
Grand Total					350,644,947		301,768,423

UPRR-1 AND 2A							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Shinn to Niles Canyon		Niles Canyon to Sunol	
				UPRR-1		UPRR-2A	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section-Total	km		4.50		0.52	
1	Double Track Section - At Grade	km	993,167	1.90	1,887,017	0.00	0
2	Double Track Section - On Structure	km	1,878,243	2.60	4,883,431	0.00	0
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.52	976,686
	Single Track Section - Total	km		0.00		0.70	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	1.40	1,314,770
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	1,333,260.00	11,868,179	463,412.00	4,125,119
3	Fill	m3	9	0.00	0	0.00	0
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	1.90	193,292	0.00	0
8	Special Drainage Facilities	5% of Earthwork			603,074		206,256
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	2.60	35,708,227	0.00	0
2	High Structure	km	16,480,720	0.00	0	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.70	67,373,097
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.70	1,351,953
17	Retaining Walls	km	4,399,945	0.00	0	1.04	4,575,943
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	0.45	306,152	0.00	0
7	Major Utility Relocation - Suburban	km	273,407	1.76	479,829	0.13	34,586
8	Major Utility Relocation - Undeveloped	km	13,988	1.85	25,808	1.02	14,317
Right-of-Way							

UPRR-1 AND 2A							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Shinn to Niles Canyon		Niles Canyon to Sunol	
				UPRR-1		UPRR-2A	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	0.69	1,877,452	0.00	0
	Suburban	hectare	479,081	3.02	1,445,867	0.19	92,463
	Undeveloped	hectare	342,201	3.16	1,079,644	1.56	533,833
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			2,063,509		2,503,521
System Elements							
1	Signaling (ATC)	km	845,654	4.500	3,805,444	1.220	1,031,698
2	Communications (w/Fiber Optic Backbone)	km	699,413	4.500	3,147,360	1.220	853,284
3	Wayside Protection System	km	67,144	4.500	302,147	1.220	81,915
Electrification Items							
1	Traction Power Supply	km	432,365	4.500	1,945,641	1.220	527,485
2	Traction Power Distribution	km	806,233	4.500	3,628,047	1.220	983,604
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			19,188,781		22,078,036
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			18,812,530		21,645,133
Total Construction					68,783,647		83,450,714
Total Construction and Right of Way (Includes Environmental Mitigation)					75,250,120		86,580,532
Grand Total					113,251,431		130,303,700

UPRR-2B AND 3							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Niles Canyon to Sunol		Sunol to Pleasanton	
				UPRR-2B		UPRR-3	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
Double Track Section-Total		km		0.00		2.70	
1	Double Track Section - At Grade	km	993,167	0.00	0	1.80	1,790,680
2	Double Track Section - On Structure	km	1,878,243	0.00	0	0.90	1,683,995
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
Single Track Section - Total		km		5.05		0.60	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	10.10	9,485,125	1.20	1,123,659
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	376,269.00	3,349,405	0.00	0
3	Fill	m3	9	0.00	0	0.00	0
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	0.00	0	0.00	0
8	Special Drainage Facilities	5% of Earthwork			167,470		0
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	0.77	10,528,159
2	High Structure	km	16,480,720	0.00	0	0.13	2,142,494
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	5.05	280,095,903	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.60	57,748,369
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	5.05	9,753,379	0.60	1,158,817
17	Retaining Walls	km	4,399,945	0.00	0	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	1.00	1,157,211
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	0.00	0	1.58	1,074,935
7	Major Utility Relocation - Suburban	km	273,407	0.26	71,086	0.73	199,587
8	Major Utility Relocation - Undeveloped	km	13,988	4.80	67,144	0.96	13,429
Right-of-Way							

UPRR-2B AND 3								
COST ELEMENTS			UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost					Niles Canyon to Sunol		Sunol to Pleasanton	
					UPRR-2B		UPRR-3	
Track			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)		
1	Right-of-Way Required for Each Segment							
	Urban			hectare	2,737,608	0.00	0	
	Suburban			hectare	479,081	0.40	191,633	
	Undeveloped			hectare	342,201	7.29	2,494,645	
Environmental Mitigation								
	Environmental Mitigation			3% of Line Cost			9,521,583	
System Elements								
1	Signaling (ATC)			km	845,654	5.050	4,270,554	
2	Communications (w/Fiber Optic Backbone)			km	699,413	5.050	3,532,037	
3	Wayside Protection System			km	67,144	5.050	339,076	
Electrification Items								
1	Traction Power Supply			km	432,365	5.050	2,183,441	
2	Traction Power Distribution			km	806,233	5.050	4,071,475	
Program Implementation Costs (PER SCREENING)								
	Program Implementation Costs			25.5% of Total Cost & Procurement			84,046,458	
Contingencies (PER SCREENING)								
	Contingencies			25% of Total Construction Cost			82,398,489	
Total Construction							317,386,094	
Total Construction and Right of Way (Includes Environmental Mitigation)							329,593,955	
Grand Total							496,038,902	

UPRR-4 AND 5							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Pleasanton		El Charo to Livermore	
				UPRR-4		UPRR-5	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section-Total	km		2.59		6.41	
1	Double Track Section - At Grade	km	993,167	0.67	669,951	6.41	6,361,671
2	Double Track Section - On Structure	km	1,878,243	1.92	3,606,226	0.00	0
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	0.00	0	0.00	0
3	Fill	m3	9	0.00	0	0.00	0
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	0.00	0	0.00	0
8	Special Drainage Facilities	5% of Earthwork			0		0
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	1.92	26,369,152	0.00	0
2	High Structure	km	16,480,720	0.00	0	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	0.00	0	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	1.00	1,157,211
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	0.99	673,535	0.13	88,444
7	Major Utility Relocation - Suburban	km	273,407	1.42	389,468	1.60	437,451
8	Major Utility Relocation - Undeveloped	km	13,988	0.18	2,536	4.68	65,465
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	1.50	4,106,412	0.19	520,146

UPRR-4 AND 5							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Pleasanton		El Charo to Livermore	
				UPRR-4		UPRR-5	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Suburban	hectare	479,081	2.17	1,040,086	2.44	1,168,958
	Undeveloped	hectare	342,201	0.28	94,447	7.11	2,433,049
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			1,173,224		791,128
System Elements							
1	Signaling (ATC)	km	845,654	2.595	2,194,101	6.405	5,416,787
2	Communications (w/Fiber Optic Backbone)	km	699,413	2.595	1,814,670	6.405	4,480,050
3	Wayside Protection System	km	67,144	2.595	174,208	6.405	430,085
Electrification Items							
1	Traction Power Supply	km	432,365	2.595	1,121,796	6.405	2,769,485
2	Traction Power Distribution	km	806,233	2.595	2,091,819	6.405	5,164,276
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			11,608,016		7,977,472
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			11,380,408		7,821,051
Total Construction					39,107,462		26,370,925
Total Construction and Right of Way (Includes Environmental Mitigation)					45,521,631		31,284,206
Grand Total					68,510,055		47,082,729

UPRR-6 AND 7							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Livermore to Patterson Pass cut off		Patterson Pass cut off to Greenville	
				UPRR-6		UPRR-7	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section-Total	km		3.55		2.99	
1	Double Track Section - At Grade	km	993,167	3.40	3,376,767	2.99	2,969,569
2	Double Track Section - On Structure	km	1,878,243	0.15	283,014	0.00	0
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	0.00	0	13,320.00	118,570
3	Fill	m3	9	0.00	0	0.00	0
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	0.00	0	1.80	183,119
8	Special Drainage Facilities	5% of Earthwork			0		15,084
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	0.00	0
2	High Structure	km	16,480,720	0.15	2,472,108	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	0.00	0	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	1.00	17,167,417
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	3.00	20,600,900	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	2.09	1,421,907	1.08	734,765
7	Major Utility Relocation - Suburban	km	273,407	1.07	292,545	0.39	106,629
8	Major Utility Relocation - Undeveloped	km	13,988	0.39	5,455	1.55	21,676
Right-of-Way							
1	Right-of-Way Required for Each Segment						

UPRR-6 AND 7							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Livermore to Patterson Pass cut off		Patterson Pass cut off to Greenville	
				UPRR-6		UPRR-7	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Urban	hectare	2,737,608	3.19	8,732,970	1.63	4,462,301
	Suburban	hectare	479,081	1.62	776,112	0.59	282,658
	Undeveloped	hectare	342,201	0.59	201,899	2.36	807,594
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			1,157,250		895,222
System Elements							
1	Signaling (ATC)	km	845,654	3.551	3,002,648	2.990	2,528,506
2	Communications (w/Fiber Optic Backbone)	km	699,413	3.551	2,483,393	2.990	2,091,246
3	Wayside Protection System	km	67,144	3.551	238,406	2.990	200,760
Electrification Items							
1	Traction Power Supply	km	432,365	3.551	1,535,188	2.990	1,292,770
2	Traction Power Distribution	km	806,233	3.551	2,862,675	2.990	2,410,636
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			12,608,025		9,253,573
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			12,360,809		9,072,131
Total Construction					38,575,006		29,840,747
Total Construction and Right of Way (Includes Environmental Mitigation)					49,443,237		36,288,523
Grand Total					74,412,071		54,614,227

UPRR-8 AND 9							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Greenville to Altamont Pass		Altamont Pass to County Line	
				UPRR-8		UPRR-9	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section-Total	km		11.25		5.26	
1	Double Track Section - At Grade	km	993,167	2.29	2,275,345	4.85	4,816,859
2	Double Track Section - On Structure	km	1,878,243	3.06	5,747,422	0.00	0
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	5.90	11,079,753	0.41	771,958
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	21,091,950.00	187,752,598	391,910.00	3,488,635
3	Fill	m3	9	3,552,290.00	31,621,148	485,180.00	4,318,890
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	8.19	833,192	2.85	289,939
8	Special Drainage Facilities	5% of Earthwork			11,010,347		404,873
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.98	13,459,255	0.00	0
2	High Structure	km	16,480,720	2.08	34,279,898	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	11.80	51,910,555	0.82	3,607,955
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	1.00	1,093,628	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	0.79	536,719	0.00	0
7	Major Utility Relocation - Suburban	km	273,407	0.00	0	0.00	0
8	Major Utility Relocation - Undeveloped	km	13,988	10.48	146,612	3.50	48,959
Right-of-Way							
1	Right-of-Way Required for Each Segment						

UPRR-8 AND 9							
COST ELEMENTS			QUANTITIES				
Alignment Cost	UNIT	UNIT PRICE (\$)	Greenville to Altamont Pass		Altamont Pass to County Line		
			UPRR-8		UPRR-9		
			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)	
Track							
Urban	hectare	2,737,608	1.20	3,290,605	0.00	0	
Suburban	hectare	479,081	0.00	0	0.00	0	
Undeveloped	hectare	342,201	15.97	5,465,976	5.33	1,825,300	
Environmental Mitigation							
Environmental Mitigation	3% of Line Cost			11,514,542		982,385	
System Elements							
1	Signaling (ATC)	km	845,654	11.250	9,513,610	5.261	4,448,987
2	Communications (w/Fiber Optic Backbone)	km	699,413	11.250	7,868,399	5.261	3,679,613
3	Wayside Protection System	km	67,144	11.250	755,366	5.261	353,243
Electrification Items							
1	Traction Power Supply	km	432,365	11.250	4,864,101	5.261	2,274,670
2	Traction Power Distribution	km	806,233	11.250	9,070,119	5.261	4,241,591
Program Implementation Costs (PER SCREENING)							
Program Implementation Costs	25.5% of Total Cost & Procurement			103,042,744		9,066,233	
Contingencies (PER SCREENING)							
Contingencies	25% of Total Construction Cost			101,022,298		8,888,464	
Total Construction				383,818,069		32,746,171	
Total Construction and Right of Way (Includes Environmental Mitigation)				404,089,192		35,553,856	
Grand Total				608,154,234		53,508,554	

UPRR-10 AND 11							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				County Line to Tracy Downtown		Tracy Downtown to I-205	
				UPRR-10		UPRR-11	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section-Total	km		12.84		7.34	
1	Double Track Section - At Grade	km	993,167	10.99	10,911,924	6.03	5,988,796
2	Double Track Section - On Structure	km	1,878,243	1.85	3,474,749	1.31	2,460,498
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	2,091,950.00	18,621,751	1,442,610.00	12,841,571
3	Fill	m3	9	2,668,260.00	23,751,846	197,600.00	1,758,961
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	10.99	1,117,739	6.03	613,449
8	Special Drainage Facilities	5% of Earthwork			2,174,567		760,699
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	1.15	15,794,023	1.31	17,991,453
2	High Structure	km	16,480,720	0.70	11,536,504	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	2.00	46,238,451	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	0.00	0	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	2.00	13,733,933	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	3.00	3,471,633	2.00	2,314,422
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	0.25	168,044	0.26	176,888
7	Major Utility Relocation - Suburban	km	273,407	4.82	1,316,865	5.01	1,369,769
8	Major Utility Relocation - Undeveloped	km	13,988	7.29	101,925	7.57	105,891
Right-of-Way							

UPRR-10 AND 11								
COST ELEMENTS			UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost					County Line to Tracy Downtown		Tracy Downtown to I-205	
					UPRR-10		UPRR-11	
Track			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)		
1	Right-of-Way Required for Each Segment							
	Urban		hectare	2,737,608	0.38	1,029,341	1,067,667	
	Suburban		hectare	479,081	7.34	3,516,457	3,645,809	
	Undeveloped		hectare	342,201	11.10	3,799,799	3,938,733	
Environmental Mitigation								
	Environmental Mitigation		3% of Line Cost			5,670,294	2,019,220	
System Elements								
1	Signaling (ATC)		km	845,654	12.837	10,855,663	6,207,102	
2	Communications (w/Fiber Optic Backbone)		km	699,413	12.837	8,978,368	5,133,693	
3	Wayside Protection System		km	67,144	12.837	861,923	492,835	
Electrification Items								
1	Traction Power Supply		km	432,365	12.837	5,550,264	3,173,556	
2	Traction Power Distribution		km	806,233	12.837	10,349,610	5,917,748	
Program Implementation Costs (PER SCREENING)								
	Program Implementation Costs		25.5% of Total Cost & Procurement			51,771,547	19,884,584	
Contingencies (PER SCREENING)								
	Contingencies		25% of Total Construction Cost			50,756,419	19,494,690	
Total Construction						189,009,784	67,307,332	
Total Construction and Right of Way (Includes Environmental Mitigation)						203,025,675	77,978,761	
Grand Total						305,553,641	117,358,035	

UPRR-12 AND 13								
COST ELEMENTS			QUANTITIES					
Alignment Cost			UNIT	UNIT PRICE (\$)	I-205 to S. UPRR		I-205 to Lathrop - Northern	
					UPRR-12		UPRR-13	
Track					Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section - Total		km		8.31		13.14	
1	Double Track Section - At Grade		km	993,167	8.01	7,955,267	12.84	12,752,262
2	Double Track Section - On Structure		km	1,878,243	0.30	563,473	0.30	563,473
3	Double Track Section - In Tunnel or Subway		km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench		km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total		km		0.00		0.00	
5	Single Track Section - At Grade		km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure		km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway		km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench		km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade		km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade		km	496,583	0.00	0	0.00	0
Earthwork and Related Items								
1	Site Preparation - Undeveloped		hectare	12,081	0.00	0	0.00	0
2	Cut		m3	9	0.00	0	0.00	0
3	Fill		m3	9	1,725,580.00	15,360,464	837,200.91	7,452,447
4	Borrow		m3	13.35	0.00	0	0.00	0
5	Spoil		m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)		hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)		km	101,733	8.01	814,880	12.84	1,306,250
8	Special Drainage Facilities			5% of Earthwork		808,767		437,935
Structures/Tunnels/Walls								
1	Standard Structure		km	13,733,933	0.00	0	0.00	0
2	High Structure		km	16,480,720	0.30	4,944,216	0.00	0
3	Long Span Structure		km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary		km	28,876,734	0.00	0	0.30	8,663,020
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)		km	23,119,226	0.00	0	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)		km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)		km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)		km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast		km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)		km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)		ea	94,803,899	0.00	0	0.00	0
12	Crossovers		ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel		km	48,123,641	0.00	0	0.00	0
14	Trench Short		km	49,668,587	0.00	0	0.00	0
15	Trench Long		km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels		km	1,931,362	0.00	0	0.00	0
17	Retaining Walls		km	4,399,945	1.40	6,159,923	0.00	0
18	Containment Walls		km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway		km	30,077,276	0.00	0	0.00	0
Grade Separations								
1	Street Overcrossing HSR - Urban		EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban		EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped		EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban		EA	17,930,413	0.00	0	3.00	53,791,239
5	Street Undercrossing HSR - Suburban		EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped		EA	1,157,211	5.00	5,786,055	0.00	0
7	Street Bridging HSR Trench		EA	0	0.00	0	0.00	0
8	Minor crossing closure		EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation								
1	Single Track Relocation (temporary)		km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)		km	1,271,661	0.00	0	0.00	0
3	Single Track Removal		km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban		km	680,338	2.32	1,578,385	5.78	3,933,444
7	Major Utility Relocation - Suburban		km	273,407	0.00	0	0.00	0
8	Major Utility Relocation - Undeveloped		km	13,988	5.98	83,650	7.36	102,931
Right-of-Way								
1	Right-of-Way Required for Each Segment							
	Urban		hectare	2,737,608	3.54	9,691,133	8.79	24,063,576

UPRR-12 AND 13							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				I-205 to S. UPRR		I-205 to Lathrop - Northern	
				UPRR-12		UPRR-13	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Suburban	hectare	479,081	0.00	0	0.00	0
	Undeveloped	hectare	342,201	9.09	3,110,607	11.18	3,825,807
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			2,032,359		3,793,879
System Elements							
1	Signaling (ATC)	km	845,654	8.310	7,027,387	13.140	11,111,897
2	Communications (w/Fiber Optic Backbone)	km	699,413	8.310	5,812,124	13.140	9,190,290
3	Wayside Protection System	km	67,144	8.310	557,964	13.140	882,268
Electrification Items							
1	Traction Power Supply	km	432,365	8.310	3,592,950	13.140	5,681,270
2	Traction Power Distribution	km	806,233	8.310	6,699,794	13.140	10,593,898
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			21,057,746		40,327,201
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			20,644,849		39,536,472
Total Construction					67,745,299		126,462,626
Total Construction and Right of Way (Includes Environmental Mitigation)					82,579,397		158,145,888
Grand Total					124,281,993		238,009,562

I-680/580/UPRR-1 AND 2							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Sunol to Dublin/Pleasanton BART		Dublin/Pleasanton BART to El Charo Road	
				I680/580/UPRR 1		I680/580/UPRR 2	
Track		Quantities	Item Cost (\$)	Quantities	Item Cost (\$)		
	Double Track Section-Total	km		11.27		4.09	
1	Double Track Section - At Grade	km	993,167	0.00	0	0.00	0
2	Double Track Section - On Structure	km	1,878,243	11.27	21,165,915	4.09	7,685,769
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.45		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.90	845,209	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	0.00	0	30,280.00	269,541
3	Fill	m3	9	0.00	0	0.00	0
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	0.00	0	0.00	0
8	Special Drainage Facilities	5% of Earthwork			0		13,477
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	0.00	0
2	High Structure	km	16,480,720	11.27	185,721,235	4.09	67,439,107
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.45	43,311,277	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.45	869,113	0.00	0
17	Retaining Walls	km	4,399,945	0.00	0	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	7.65	5,203,228	2.45	1,669,550
7	Major Utility Relocation - Suburban	km	273,407	3.11	849,476	0.98	268,376
8	Major Utility Relocation - Undeveloped	km	13,988	0.96	13,373	0.65	9,154
Right-of-Way							
1	Right-of-Way Required for Each Segment						

I-680/580/UPRR-1 AND 2							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Sunol to Dublin/Pleasanton BART		Dublin/Pleasanton BART to El Charo Road	
				I680/580/UPRR 1		I680/580/UPRR 2	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Urban	hectare	2,737,608	12.02	32,906,051	3.74	10,238,655
	Suburban	hectare	479,081	4.74	2,268,450	1.50	716,706
	Undeveloped	hectare	342,201	1.46	498,587	1.00	341,174
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			8,741,624		2,670,614
System Elements							
1	Signaling (ATC)	km	845,654	11.719	9,910,222	4.092	3,460,417
2	Communications (w/Fiber Optic Backbone)	km	699,413	11.719	8,196,424	4.092	2,861,999
3	Wayside Protection System	km	67,144	11.719	786,857	4.092	274,752
Electrification Items							
1	Traction Power Supply	km	432,365	11.719	5,066,880	4.092	1,769,236
2	Traction Power Distribution	km	806,233	11.719	9,448,242	4.092	3,299,104
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			85,629,551		26,261,846
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			83,950,541		25,746,908
Total Construction					291,387,451		89,020,483
Total Construction and Right of Way (Includes Environmental Mitigation)					335,802,162		102,987,632
Grand Total					505,382,254		154,996,386

I-680/580/UPRR-3 AND 4							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				El Charo road to Livermore (I-580)		Livermore (I-580) to Greenville	
				I680/580/UPRR-3		I680/580/UPRR-4	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section-Total	km		5.32		8.11	
1	Double Track Section - At Grade	km	993,167	0.00	0	0.00	0
2	Double Track Section - On Structure	km	1,878,243	5.32	9,992,250	8.11	15,232,547
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00	0	0.00	0
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	38,200.00	340,042	70,000.00	623,114
3	Fill	m3	9	15,000.00	133,524	114,150.00	1,016,120
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	0.00	0	0.00	0
8	Special Drainage Facilities	5% of Earthwork			23,678		81,962
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	0.95	13,047,237
2	High Structure	km	16,480,720	5.32	87,677,431	7.16	118,001,956
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	0.00	0	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	3.11	2,115,376	3.57	2,427,719
7	Major Utility Relocation - Suburban	km	273,407	0.53	144,085	1.05	288,253
8	Major Utility Relocation - Undeveloped	km	13,988	1.63	22,853	3.49	48,781
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	4.74	12,973,525	5.44	14,887,114

I-680/580/UPRR-3 AND 4							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				El Charo road to Livermore (I-580)		Livermore (I-580) to Greenville	
				I680/580/UPRR-3		I680/580/UPRR-4	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Suburban	hectare	479,081	0.80	384,798	1.61	769,884
	Undeveloped	hectare	342,201	2.49	852,080	5.32	1,818,798
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			3,468,466		5,216,632
System Elements							
1	Signaling (ATC)	km	845,654	5.320	4,498,881	8.110	6,858,256
2	Communications (w/Fiber Optic Backbone)	km	699,413	5.320	3,720,879	8.110	5,672,242
3	Wayside Protection System	km	67,144	5.320	357,204	8.110	544,535
Electrification Items							
1	Traction Power Supply	km	432,365	5.320	2,300,180	8.110	3,506,477
2	Traction Power Distribution	km	806,233	5.320	4,289,158	8.110	6,538,548
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			33,990,075		50,127,944
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			33,323,603		49,145,044
Total Construction					115,615,542		173,887,747
Total Construction and Right of Way (Includes Environmental Mitigation)					133,294,412		196,580,175
Grand Total					200,608,090		295,853,163

I-680/580/UPRR-5 AND PLEASANTON X							
COST ELEMENTS			QUANTITIES				
Alignment Cost	UNIT	UNIT PRICE (\$)	Greenville to Altamont Pass		UPRR to I-580 Connector		
			I680/580/UPRR-5		Pleasanton X		
			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)	
Track							
	Double Track Section-Total	km		6.44		4.45	
1	Double Track Section - At Grade	km	993,167	0.66	655,490	3.55	3,528,722
2	Double Track Section - On Structure	km	1,878,243	2.68	5,033,690	0.90	1,690,418
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.55	1,033,033	0.00	0
4	Double Track Section - In Trench	km	1,878,243	2.55	4,780,127	0.00	0
	Single Track Section - Total	km		2.22		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	4.44	4,169,698	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	6,296,630.00	56,050,230	5,100.00	45,398
3	Fill	m3	9	1,629,230.00	14,502,792	114,700.00	1,021,016
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	3.19	324,019	3.55	361,152
8	Special Drainage Facilities	5% of Earthwork			3,543,852		71,378
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.89	12,223,201	0.00	0
2	High Structure	km	16,480,720	1.19	19,612,057	0.50	8,240,360
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.60	17,326,041	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.40	9,247,690
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	2.22	123,131,268	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.55	26,468,002	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	2.77	5,349,873	0.00	0
17	Retaining Walls	km	4,399,945	5.09	22,395,722	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	3.00	3,471,633
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	0.00	0	0.68	464,331
7	Major Utility Relocation - Suburban	km	273,407	0.78	213,257	0.00	0
8	Major Utility Relocation - Undeveloped	km	13,988	7.91	110,647	3.87	54,100
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	0.00	0	1.04	2,847,113

I-680/580/UPRR-5 AND PLEASANTON X								
COST ELEMENTS			UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost					Greenville to Altamont Pass		UPRR to I-580 Connector	
					I680/580/UPRR-5		Pleasanton X	
Track			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)		
	Suburban		hectare	479,081	1.18	565,316	0.00	0
	Undeveloped		hectare	342,201	12.02	4,113,256	5.89	2,016,932
Environmental Mitigation								
	Environmental Mitigation		3% of Line Cost			10,247,902		1,226,725
System Elements								
1	Signaling (ATC)		km	845,654	8.655	7,319,137	4.453	3,765,698
2	Communications (w/Fiber Optic Backbone)		km	699,413	8.655	6,053,422	4.453	3,114,487
3	Wayside Protection System		km	67,144	8.655	581,129	4.453	298,991
Electrification Items								
1	Traction Power Supply		km	432,365	8.655	3,742,115	4.453	1,925,319
2	Traction Power Distribution		km	806,233	8.655	6,977,945	4.453	3,590,154
Program Implementation Costs (PER SCREENING)								
	Program Implementation Costs		25.5% of Total Cost & Procurement			90,913,422		11,980,313
Contingencies (PER SCREENING)								
	Contingencies		25% of Total Construction Cost			89,130,806		11,745,405
Total Construction						341,596,749		40,890,849
Total Construction and Right of Way (Includes Environmental Mitigation)						356,523,223		46,981,619
Grand Total						536,567,450		70,707,337

PATTERSON PASS AND S UPRR-1							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost	Track			Patterson Pass		County Line to South of Tracy	
				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section - Total	km		19.07		2.09	
1	Double Track Section - At Grade	km	993,167	12.53	12,448,353	2.09	2,072,739
2	Double Track Section - On Structure	km	1,878,243	1.60	3,005,188	0.00	0
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	4.94	9,278,518	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	24,522,780.00	218,292,556	100,650.00	895,948
3	Fill	m3	9	9,043,540.00	80,502,188	791,870.00	7,048,929
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	20.85	2,121,130	2.09	212,316
8	Special Drainage Facilities	5% of Earthwork			15,045,794		407,860
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	0.00	0
2	High Structure	km	16,480,720	1.60	26,369,152	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	9.88	43,471,460	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	1.00	1,093,628	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	3.00	3,471,633	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	2.29	1,556,886	0.00	0
7	Major Utility Relocation - Suburban	km	273,407	2.10	573,526	0.00	0
8	Major Utility Relocation - Undeveloped	km	13,988	14.68	205,402	2.09	29,235
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	3.49	9,548,778	0.00	0

PATTERSON PASS AND S UPRR-1							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Patterson Pass		County Line to South of Tracy	
				Patterson Pass		S UPRR-1	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Suburban	hectare	479,081	3.20	1,531,623	0.00	0
	Undeveloped	hectare	342,201	22.38	7,657,773	3.19	1,089,978
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			14,154,352		498,500
System Elements							
1	Signaling (ATC)	km	845,654	19.074	16,130,009	2.087	1,764,880
2	Communications (w/Fiber Optic Backbone)	km	699,413	19.074	13,340,609	2.087	1,459,676
3	Wayside Protection System	km	67,144	19.074	1,280,698	2.087	140,129
Electrification Items							
1	Traction Power Supply	km	432,365	19.074	8,246,922	2.087	902,345
2	Traction Power Distribution	km	806,233	19.074	15,378,084	2.087	1,682,608
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			128,699,587		4,642,312
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			126,176,066		4,551,286
Total Construction					471,811,737		16,616,665
Total Construction and Right of Way (Includes Environmental Mitigation)					504,704,263		18,205,144
Grand Total					759,579,915		27,398,741

S UPRR-2 AND 3						
COST ELEMENTS			QUANTITIES			
Alignment Cost	UNIT	UNIT PRICE (\$)	South of Tracy to Tracy ACE Station		Tracy ACE Station to I-205	
			S UPRR-2		S UPRR-3	
			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
Track						
	Double Track Section-Total	km		15.51		7.14
1	Double Track Section - At Grade	km	993,167	12.74	12,652,946	5.90
2	Double Track Section - On Structure	km	1,878,243	2.77	5,202,732	1.24
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00
	Single Track Section - Total	km		0.00		0.00
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00
Earthwork and Related Items						
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00
2	Cut	m3	9	8,458,540.00	75,294,739	85,480.00
3	Fill	m3	9	3,233,370.00	28,782,242	0.00
4	Borrow	m3	13.35	0.00	0	0.00
5	Spoil	m3	0.00	0.00	0	0.00
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00
7	Fencing (Both Sides of R/W)	km	101,733	12.74	1,296,076	5.90
8	Special Drainage Facilities	5% of Earthwork			5,268,653	
Structures/Tunnels/Walls						
1	Standard Structure	km	13,733,933	1.21	16,618,059	1.24
2	High Structure	km	16,480,720	1.46	24,061,851	0.00
3	Long Span Structure	km	37,577,568	0.00	0	0.00
4	Waterway Crossing - Primary	km	28,876,734	0.10	2,887,673	0.00
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.05	1,155,961	0.00
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00
12	Crossovers	ea	94,803,899	0.00	0	0.00
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00
14	Trench Short	km	49,668,587	0.00	0	0.00
15	Trench Long	km	39,272,836	0.00	0	0.00
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00
17	Retaining Walls	km	4,399,945	0.00	0	0.00
18	Containment Walls	km	1,500,559	0.00	0	0.00
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00
Grade Separations						
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00
5	Street Undercrossing HSR - Suburban	EA	6,866,967	4.00	27,467,867	0.00
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	3.00
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00
8	Minor crossing closure	EA	178,032	0.00	0	0.00
Rail and Utility Relocation						
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00
3	Single Track Removal	km	63,372	0.00	0	0.00
5	Major Utility Relocation - Urban	km	680,338	0.00	0	0.00
7	Major Utility Relocation - Suburban	km	273,407	4.65	1,271,343	0.81
8	Major Utility Relocation - Undeveloped	km	13,988	10.92	152,752	6.44
Right-of-Way						
1	Right-of-Way Required for Each Segment					
	Urban	hectare	2,737,608	0.00	0	0.00
	Suburban	hectare	479,081	7.07	3,387,105	1.24

S UPRR-2 AND 3						
COST ELEMENTS			QUANTITIES			
Alignment Cost	UNIT	UNIT PRICE (\$)	South of Tracy to Tracy ACE Station		Tracy ACE Station to I-205	
			S UPRR-2		S UPRR-3	
			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
Track						
Undeveloped	hectare	342,201	16.60	5,680,536	9.78	3,346,725
Environmental Mitigation						
Environmental Mitigation	3% of Line Cost			7,389,868		1,523,578
System Elements						
1 Signaling (ATC)	km	845,654	15.510	13,116,097	7.140	6,037,971
2 Communications (w/Fiber Optic Backbone)	km	699,413	15.510	10,847,900	7.140	4,993,811
3 Wayside Protection System	km	67,144	15.510	1,041,398	7.140	479,406
Electrification Items						
1 Traction Power Supply	km	432,365	15.510	6,705,975	7.140	3,087,083
2 Traction Power Distribution	km	806,233	15.510	12,504,670	7.140	5,756,502
Program Implementation Costs (PER SCREENING)						
Program Implementation Costs	25.5% of Total Cost & Procurement			67,010,543		14,343,823
Contingencies (PER SCREENING)						
Contingencies	25% of Total Construction Cost			65,696,611		14,062,572
Total Construction				246,328,935		50,785,924
Total Construction and Right of Way (Includes Environmental Mitigation)				262,786,444		56,250,288
Grand Total				395,493,599		84,656,684

S UPRR-4 AND 5							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				I-205 to Southeast of Manteca		I-205 to Lathrop - Southern	
				S UPRR-4		S UPRR-5	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section-Total	km		6.46		11.07	
1	Double Track Section - At Grade	km	993,167	5.95	5,909,343	10.37	10,302,120
2	Double Track Section - On Structure	km	1,878,243	0.51	961,660	0.70	1,314,770
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00	0	0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	0.00	0	0.00	0
3	Fill	m3	9	421,090.00	3,748,385	2,457,170.79	21,872,809
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	5.95	605,310	10.37	1,055,275
8	Special Drainage Facilities	5% of Earthwork			217,685		1,146,404
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	0.00	0
2	High Structure	km	16,480,720	0.21	3,460,951	0.10	1,648,072
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.60	17,326,041	0.30	8,663,020
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.30	6,935,768
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	1.00	4,399,945	7.00	30,799,617
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	2.00	35,860,826
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	3.00	3,471,633	2.00	2,314,422
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	0.00	0	5.87	3,991,613
7	Major Utility Relocation - Suburban	km	273,407	3.36	918,648	0.00	0
8	Major Utility Relocation - Undeveloped	km	13,988	3.55	49,658	5.20	72,780
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	0.00	0	8.94	24,476,955

S UPRR-4 AND 5							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				I-205 to Southeast of Manteca		I-205 to Lathrop - Southern	
				S UPRR-4		S UPRR-5	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Suburban	hectare	479,081	5.10	2,443,315	0.00	0
	Undeveloped	hectare	342,201	5.39	1,844,463	7.93	2,713,311
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			1,784,736		4,726,335
System Elements							
1	Signaling (ATC)	km	845,654	6.462	5,464,618	11.073	9,363,929
2	Communications (w/Fiber Optic Backbone)	km	699,413	6.462	4,519,609	11.073	7,744,603
3	Wayside Protection System	km	67,144	6.462	433,882	11.073	743,482
Electrification Items							
1	Traction Power Supply	km	432,365	6.462	2,793,940	11.073	4,787,573
2	Traction Power Distribution	km	806,233	6.462	5,209,876	11.073	8,927,415
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			16,718,743		48,312,581
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			16,390,924		47,365,275
Total Construction					59,491,184		157,544,499
Total Construction and Right of Way (Includes Environmental Mitigation)					65,563,697		189,461,101
Grand Total					98,673,364		285,138,957

NILES/DUMBARTON XN AND XS							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Niles to Union city - Niles Wye (E) to Niles Wye (N)		Niles to Fremont - Niles Wye (E) to Niles Wye (S)	
				Niles/Dumbarton XN		Niles/Dumbarton XS	
Track		Quantities	Item Cost (\$)	Quantities	Item Cost (\$)		
	Double Track Section-Total	km		4.25		5.38	
1	Double Track Section - At Grade	km	993,167	0.37	366,479	3.85	3,823,692
2	Double Track Section - On Structure	km	1,878,243	1.30	2,441,715	0.64	1,203,953
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	2.59	4,855,257	0.89	1,666,001
	Single Track Section - Total	km		0.00		3.50	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	7.00	6,573,849
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	667,327.00	5,940,294	651,171.00	5,796,479
3	Fill	m3	9	2,327.00	20,714	23,607.00	210,141
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	2.95	300,112	4.75	483,231
8	Special Drainage Facilities	5% of Earthwork			313,056		324,493
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	1.30	17,854,113	0.00	0
2	High Structure	km	16,480,720	0.00	0	0.64	10,564,142
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	3.50	194,125,873
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.15	7,450,288
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	3.50	6,759,767
17	Retaining Walls	km	4,399,945	2.59	11,395,858	1.47	6,485,519
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	2.00	34,334,834
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	2.00	35,860,826	3.00	53,791,239
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	0.47	319,759	1.69	1,149,772
7	Major Utility Relocation - Suburban	km	273,407	0.98	267,939	3.20	874,902
8	Major Utility Relocation - Undeveloped	km	13,988	2.81	39,307	4.00	55,953
Right-of-Way							

NILES/DUMBARTON XN AND XS							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Niles to Union city - Niles Wye (E) to Niles Wye (N)		Niles to Fremont - Niles Wye (E) to Niles Wye (S)	
				Niles/Dumbarton XN		Niles/Dumbarton XS	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	0.71	1,943,702	2.56	7,008,277
	Suburban	hectare	479,081	1.49	713,831	4.86	2,328,335
	Undeveloped	hectare	342,201	4.26	1,457,776	6.07	2,077,160
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			2,763,083		10,829,508
System Elements							
1	Signaling (ATC)	km	845,654	4.254	3,597,413	8.878	7,507,718
2	Communications (w/Fiber Optic Backbone)	km	699,413	4.254	2,975,304	8.878	6,209,391
3	Wayside Protection System	km	67,144	4.254	285,629	8.878	596,102
Electrification Items							
1	Traction Power Supply	km	432,365	4.254	1,839,279	8.878	3,838,533
2	Traction Power Distribution	km	806,233	4.254	3,429,714	8.878	7,157,734
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			25,240,196		97,722,856
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			24,745,290		95,806,722
Total Construction					92,102,769		360,983,607
Total Construction and Right of Way (Includes Environmental Mitigation)					98,981,161		383,226,888
Grand Total					148,966,648		576,756,466

TB-1 AND 2							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Transbay Transit Center tube to SF Bay		4th/Townsend tube to SF Bay	
				TB-1		TB-2	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section-Total	km		0.34		0.19	
1	Double Track Section - At Grade	km	993,167	0.00	0	0.00	0
2	Double Track Section - On Structure	km	1,878,243	0.00	0	0.00	0
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.34	638,602	0.19	356,866
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		1.11		0.61	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	2.22	2,084,849	1.22	1,145,728
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
11	Regional Rail Bay Crossing Estimate	Lump Sum		1.03	370,512,590	1.03	370,512,590
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	0	0	0	0
3	Fill	m3	9	0	0	0	0
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	0.00	0	0.00	0
8	Special Drainage Facilities	5% of Earthwork			0		0
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	0.00	0
2	High Structure	km	16,480,720	0.00	0	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	2.08	115,366,233	0.61	33,833,366
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.40	38,498,913	0.19	18,286,984
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	2.48	4,789,778	0.80	1,545,090
17	Retaining Walls	km	4,399,945	0.00	0	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	0.00	0	0.00	0
7	Major Utility Relocation - Suburban	km	273,407	0.00	0	0.00	0
8	Major Utility Relocation - Undeveloped	km	13,988	0.00	0	0.00	0
Right-of-Way							

TB-1 AND 2								
COST ELEMENTS			UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost					Transbay Transit Center tube to SF Bay		4th/Townsend tube to SF Bay	
					TB-1		TB-2	
Track			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)		
1	Right-of-Way Required for Each Segment							
	Urban		hectare	2,737,608	0.00	0	0.00	
	Suburban		hectare	479,081	0.00	0	0.00	
	Undeveloped		hectare	342,201	0.00	0	0.00	
Environmental Mitigation								
	Environmental Mitigation		3% of Line Cost			4,965,361	1,723,460	
System Elements								
1	Signaling (ATC)		km	845,654	1.45	1,226,199	676,523	
2	Communications (w/Fiber Optic Backbone)		km	699,413	1.45	1,014,149	559,531	
3	Wayside Protection System		km	67,144	1.45	97,358	53,715	
Electrification Items								
1	Traction Power Supply		km	432,365	1.45	626,929	345,892	
2	Traction Power Distribution		km	806,233	1.45	1,169,038	644,986	
Program Implementation Costs (PER SCREENING)								
	Program Implementation Costs		25.5% of Total Cost & Procurement			43,471,739	15,088,896	
Contingencies (PER SCREENING)								
	Contingencies		25% of Total Construction Cost			42,619,352	14,793,035	
Total Construction						165,512,048	57,448,681	
Total Construction and Right of Way (Includes Environmental Mitigation)						170,477,409	59,172,141	
Grand Total						627,081,091	459,566,662	

TB-3 AND DUMBARTON 1							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				SF Bay to West Oakland		Dumbarton Bay Crossing to Don Edwards	
				TB-3		DUMBARTON 1 (HIGH BRIDGE)	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section-Total	km		0.00		5.01	
1	Double Track Section - At Grade	km	993,167	0.00	0	2.20	2,184,967
2	Double Track Section - On Structure	km	1,878,243	0.00	0	2.81	5,274,105
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
11	Regional Rail Bay Crossing Estimate	Lump Sum		9.23	3,334,613,307	5.00	486,398,524
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	0	0	0	0
3	Fill	m3	9	0	0	0	0
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	0.00	0	5.90	600,224
8	Special Drainage Facilities	5% of Earthwork			0		30,011
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	0.00	0
2	High Structure	km	16,480,720	0.00	0	0.81	13,349,383
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	2.00	57,753,469
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	0.00	0	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	8.00	143,443,305
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	0.00	0	4.04	2,748,567
7	Major Utility Relocation - Suburban	km	273,407	0.00	0	1.52	414,212
8	Major Utility Relocation - Undeveloped	km	13,988	0.00	0	4.34	60,751
Right-of-Way							

TB-3 AND DUMBARTON 1								
COST ELEMENTS			UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost					SF Bay to West Oakland		Dumbarton Bay Crossing to Don Edwards	
					TB-3		DUMBARTON 1 (HIGH BRIDGE)	
Track			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)		
1	Right-of-Way Required for Each Segment							
	Urban		hectare	2,737,608	0.00	0	6.16 16,855,454	
	Suburban		hectare	479,081	0.00	0	2.31 1,106,199	
	Undeveloped		hectare	342,201	0.00	0	2.31 790,142	
Environmental Mitigation								
	Environmental Mitigation		3% of Line Cost			0	7,204,075	
System Elements								
1	Signaling (ATC)		km	845,654	0.00	0	5.01 4,235,036	
2	Communications (w/Fiber Optic Backbone)		km	699,413	0.00	0	5.01 3,502,662	
3	Wayside Protection System		km	67,144	0.00	0	5.01 336,256	
Electrification Items								
1	Traction Power Supply		km	432,365	0.00	0	5.01 2,165,282	
2	Traction Power Distribution		km	806,233	0.00	0	5.01 4,037,614	
Program Implementation Costs (PER SCREENING)								
	Program Implementation Costs		25.5% of Total Cost & Procurement			0	67,853,387	
Contingencies (PER SCREENING)								
	Contingencies		25% of Total Construction Cost			0	66,522,928	
Total Construction						0	240,135,843	
Total Construction and Right of Way (Includes Environmental Mitigation)						0	266,091,713	
Grand Total						3,334,613,307	886,866,552	

DUMBARTON 1 (LOW BRIDGE) AND (TUBE)							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Dumbarton Bay Crossing to Don Edwards		Dumbarton Bay Crossing to Don Edwards	
				DUMBARTON 1 (LOW BRIDGE)		DUMBARTON 1 (TUBE)	
Track		Quantities	Item Cost (\$)	Quantities	Item Cost (\$)		
	Double Track Section-Total	km		6.55		5.01	
1	Double Track Section - At Grade	km	993,167	6.55	6,505,243	5.01	4,973,780
2	Double Track Section - On Structure	km	1,878,243	0.00	0	0.00	0
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
11	Regional Rail Bay Crossing Estimate	Lump Sum		5.00	322,767,859	5.00	702,953,999
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	0	0	0	0
3	Fill	m3	9	0	0	0	0
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	6.55	666,350	5.90	600,224
8	Special Drainage Facilities	5% of Earthwork			33,318		30,011
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	0.00	0
2	High Structure	km	16,480,720	0.00	0	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	0.00	0	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	8.00	143,443,305	8.00	143,443,305
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	4.08	2,775,781	6.04	4,109,244
7	Major Utility Relocation - Suburban	km	273,407	1.53	418,313	2.27	619,267
8	Major Utility Relocation - Undeveloped	km	13,988	4.39	61,353	6.49	90,826
Right-of-Way							

DUMBARTON 1 (LOW BRIDGE) AND (TUBE)								
COST ELEMENTS			UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost					Dumbarton Bay Crossing to Don Edwards		Dumbarton Bay Crossing to Don Edwards	
					DUMBARTON 1 (LOW BRIDGE)		DUMBARTON 1 (TUBE)	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)	
1	Right-of-Way Required for Each Segment							
	Urban		hectare	2,737,608	6.22	17,022,448	9.21	25,199,684
	Suburban		hectare	479,081	2.33	1,117,218	3.45	1,653,789
	Undeveloped		hectare	342,201	2.33	798,013	3.45	1,181,278
Environmental Mitigation								
	Environmental Mitigation			3% of Line Cost		5,177,294		5,044,305
System Elements								
1	Signaling (ATC)		km	845,654	6.55	5,539,035	5.01	4,235,036
2	Communications (w/Fiber Optic Backbone)		km	699,413	6.55	4,581,157	5.01	3,502,662
3	Wayside Protection System		km	67,144	6.55	439,791	5.01	336,256
Electrification Items								
1	Traction Power Supply		km	432,365	6.55	2,831,988	5.01	2,165,282
2	Traction Power Distribution		km	806,233	6.55	5,280,825	5.01	4,037,614
Program Implementation Costs (PER SCREENING)								
	Program Implementation Costs			25.5% of Total Cost & Procurement		50,156,314		51,311,753
Contingencies (PER SCREENING)								
	Contingencies			25% of Total Construction Cost		49,172,857		50,305,640
Total Construction						172,576,457		168,143,505
Total Construction and Right of Way (Includes Environmental Mitigation)						196,691,429		201,222,560
Grand Total						618,788,460		1,005,793,953

DUMBARTON 2 (HIGH BRIDGE) AND DUMBARTON XN							
COST ELEMENTS			QUANTITIES				
Alignment Cost	UNIT	UNIT PRICE (\$)	Dumbarton Bay Crossing to Don Edwards		Dumbarton Wye North to Caltrain		
			DUMBARTON 2 (HIGH BRIDGE)		DUMBARTON XN		
Track			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)	
	Double Track Section-Total	km	8.00		2.20		
1	Double Track Section - At Grade	km	993,167	0.00	0	2,184,967	
2	Double Track Section - On Structure	km	1,878,243	8.00	15,025,941	0	
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0	
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0	
	Single Track Section - Total	km	0.00		0.00		
5	Single Track Section - At Grade	km	496,583	0.00	0	0	
6	Single Track Section - On Structure	km	939,121	0.00	0	0	
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0	
8	Single Track Section - In Trench	km	939,121	0.00	0	0	
9	Freight Double Track - At Grade	km	993,167	0.00	0	0	
10	Freight Single Track - At Grade	km	496,583	0.00	0	0	
11	Regional Rail Bay Crossing Estimate	Lump Sum		5.00	486,398,524	0	
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0	
2	Cut	m3	9	0	16,280	144,918	
3	Fill	m3	9	107,820	959,773	0	
4	Borrow	m3	13.35	0.00	0	0	
5	Spoil	m3	0.00	0.00	0	0	
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0	
7	Fencing (Both Sides of R/W)	km	101,733	0.00	2.20	223,812	
8	Special Drainage Facilities	5% of Earthwork		47,989		18,437	
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	0	
2	High Structure	km	16,480,720	8.00	131,845,761	0	
3	Long Span Structure	km	37,577,568	0.00	0	0	
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0	
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0	
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0	
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0	
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0	
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0	
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0	
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0	
12	Crossovers	ea	94,803,899	0.00	0	0	
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0	
14	Trench Short	km	49,668,587	0.00	0	0	
15	Trench Long	km	39,272,836	0.00	0	0	
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0	
17	Retaining Walls	km	4,399,945	0.00	0	0	
18	Containment Walls	km	1,500,559	0.00	0	0	
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0	
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0	
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0	
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0	
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	5.00	89,652,066	
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0	
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0	
7	Street Bridging HSR Trench	EA	0	0.00	0	0	
8	Minor crossing closure	EA	178,032	0.00	0	0	
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0	
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0	
3	Single Track Removal	km	63,372	0.00	0	0	
5	Major Utility Relocation - Urban	km	680,338	3.50	2,381,388	808,242	
7	Major Utility Relocation - Suburban	km	273,407	6.28	1,716,012	3,281	
8	Major Utility Relocation - Undeveloped	km	13,988	1.21	16,884	0	
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	5.33	14,602,402	4,941,383	

DUMBARTON 2 (HIGH BRIDGE) AND DUMBARTON XN							
COST ELEMENTS			QUANTITIES				
Alignment Cost	UNIT	UNIT PRICE (\$)	Dumbarton Bay Crossing to Don Edwards		Dumbarton Wye North to Caltrain		
			DUMBARTON 2 (HIGH BRIDGE)		DUMBARTON XN		
Track			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)	
Suburban	hectare	479,081	11.22	5,375,772	0.02	11,498	
Undeveloped	hectare	342,201	1.84	629,479	0.00	0	
Environmental Mitigation							
Environmental Mitigation	3% of Line Cost			5,244,006		2,979,225	
System Elements							
1	Signaling (ATC)	km	845,654	8.00	6,765,234	2.20	1,860,439
2	Communications (w/Fiber Optic Backbone)	km	699,413	8.00	5,595,306	2.20	1,538,709
3	Wayside Protection System	km	67,144	8.00	537,149	2.20	147,716
Electrification Items							
1	Traction Power Supply	km	432,365	8.00	3,458,917	2.20	951,202
2	Traction Power Distribution	km	806,233	8.00	6,449,862	2.20	1,773,712
Program Implementation Costs (PER SCREENING)							
Program Implementation Costs	25.5% of Total Cost & Procurement			51,166,228		27,346,100	
Contingencies (PER SCREENING)							
Contingencies	25% of Total Construction Cost			50,162,969		26,809,902	
Total Construction				174,800,215		99,307,501	
Total Construction and Right of Way (Includes Environmental Mitigation)				200,651,875		107,239,607	
Grand Total				788,379,595		161,395,609	

DUMBARTON XS AND FREMONT CP							
COST ELEMENTS	UNIT	UNIT PRICE (\$)	QUANTITIES				
			Dumbarton Wye South to Caltrain		Fremont Central Park		
			DUMBARTON XS		FREMONT CP (HIGH BRIDGE)		
Alignment Cost			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)	
Track							
	Double Track Section-Total	km	0.96		12.69		
1	Double Track Section - At Grade	km	993,167	0.96	953,440	1.18	1,171,937
2	Double Track Section - On Structure	km	1,878,243	0.00	0	6.04	11,344,585
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	4.69	8,808,958
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.78	1,465,029
	Single Track Section - Total	km		0.00		1.50	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	3.00	2,817,364
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
11	Regional Rail Bay Crossing Estimate	Lump Sum		0.00	0	5.00	486,398,524
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	5,920	52,698	0	0
3	Fill	m3	9	0	0	0	0
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	0.96	97,664	5.06	514,768
8	Special Drainage Facilities	5% of Earthwork			7,518		25,738
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	2.45	33,648,137
2	High Structure	km	16,480,720	0.00	0	3.49	57,517,713
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.10	2,311,923
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	1.50	83,196,803
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	4.69	225,699,876
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	6.19	11,955,132
17	Retaining Walls	km	4,399,945	0.00	0	1.16	5,103,937
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	4.00	68,669,667
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	9.00	161,373,718
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	0.88	600,875	5.90	4,013,656
7	Major Utility Relocation - Suburban	km	273,407	0.08	20,998	4.59	1,254,528
8	Major Utility Relocation - Undeveloped	km	13,988	0.00	0	5.46	76,411
Right-of-Way							

DUMBARTON XS AND FREMONT CP								
COST ELEMENTS			UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost					Dumbarton Wye South to Caltrain		Fremont Central Park	
					DUMBARTON XS		FREMONT CP (HIGH BRIDGE)	
Track			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)		
1	Right-of-Way Required for Each Segment							
	Urban		hectare	2,737,608	1.35	3,684,821	13.32 36,464,942	
	Suburban		hectare	479,081	0.12	56,053	9.32 4,466,954	
	Undeveloped		hectare	342,201	0.00	0	10.66 3,646,493	
Environmental Mitigation								
	Environmental Mitigation		3% of Line Cost			134,099	21,642,686	
System Elements								
1	Signaling (ATC)		km	845,654	0.96	811,828	14.19 11,999,834	
2	Communications (w/Fiber Optic Backbone)		km	699,413	0.96	671,437	14.19 9,924,674	
3	Wayside Protection System		km	67,144	0.96	64,458	14.19 952,769	
Electrification Items								
1	Traction Power Supply		km	432,365	0.96	415,070	14.19 6,135,253	
2	Traction Power Distribution		km	806,233	0.96	773,983	14.19 11,440,443	
Program Implementation Costs (PER SCREENING)								
	Program Implementation Costs		25.5% of Total Cost & Procurement			2,127,960	200,849,201	
Contingencies (PER SCREENING)								
	Contingencies		25% of Total Construction Cost			2,086,235	196,910,982	
Total Construction						4,469,968	721,422,852	
Total Construction and Right of Way (Includes Environmental Mitigation)						8,344,940	787,643,927	
Grand Total						12,559,135	1,671,802,634	

FREMONT CP (LOW BRIDGE) AND (TUBE)							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Fremont Central Park		Fremont Central Park	
				FREMONT CP (LOW BRIDGE)		FREMONT CP (TUBE)	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section-Total	km		13.73		15.27	
1	Double Track Section - At Grade	km	993,167	7.11	7,061,416	3.55	3,525,742
2	Double Track Section - On Structure	km	1,878,243	1.15	2,159,979	6.25	11,739,016
3	Double Track Section - In Tunnel or Subway	km	1,878,243	4.69	8,808,958	4.69	8,808,958
4	Double Track Section - In Trench	km	1,878,243	0.78	1,465,029	0.78	1,465,029
	Single Track Section - Total	km		1.50		1.50	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	3.00	2,817,364	3.00	2,817,364
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
11	Regional Rail Bay Crossing Estimate	Lump Sum		5.00	322,767,859	5.00	702,953,999
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	0	0	0	0
3	Fill	m3	9	0	0	0	0
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	8.41	855,573	5.06	514,768
8	Special Drainage Facilities	5% of Earthwork			42,779		25,738
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	1.05	14,420,630	2.55	35,021,530
2	High Structure	km	16,480,720	0.10	1,648,072	3.70	60,978,665
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.10	2,311,923	0.10	2,311,923
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	1.50	83,196,803	1.50	83,196,803
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	4.69	225,699,876	4.69	225,699,876
14	Trench Short	km	49,668,587	0.78	38,741,498	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	6.19	11,955,132	6.19	11,955,132
17	Retaining Walls	km	4,399,945	1.16	5,103,937	1.56	6,863,915
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	4.00	68,669,667	4.00	68,669,667
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	9.00	161,373,718	9.00	161,373,718
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	5.91	4,022,841	5.90	4,013,656
7	Major Utility Relocation - Suburban	km	273,407	4.60	1,257,399	4.59	1,254,528
8	Major Utility Relocation - Undeveloped	km	13,988	5.48	76,586	5.46	76,411
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	13.35	36,547,070	13.32	36,464,942

FREMONT CP (LOW BRIDGE) AND (TUBE)							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Fremont Central Park		Fremont Central Park	
				FREMONT CP (LOW BRIDGE)		FREMONT CP (TUBE)	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Suburban	hectare	479,081	9.35	4,477,015	9.32	4,466,954
	Undeveloped	hectare	342,201	10.68	3,654,706	10.66	3,646,493
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			20,553,210		22,143,615
System Elements							
1	Signaling (ATC)	km	845,654	15.23	12,879,314	16.77	14,181,622
2	Communications (w/Fiber Optic Backbone)	km	699,413	15.23	10,652,064	16.77	11,729,161
3	Wayside Protection System	km	67,144	15.23	1,022,598	16.77	1,125,999
Electrification Items							
1	Traction Power Supply	km	432,365	15.23	6,584,912	16.77	7,250,754
2	Traction Power Distribution	km	806,233	15.23	12,278,925	16.77	13,520,523
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			191,336,443		205,234,838
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			187,584,748		201,210,625
Total Construction					685,106,991		738,120,497
Total Construction and Right of Way (Includes Environmental Mitigation)					750,338,992		804,842,501
Grand Total					1,452,028,043		1,914,241,964

DUMBARTON 2 (LOW BRIDGE) AND (TUBE)							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Dumbarton Bay Crossing to Don Edwards		Dumbarton Bay Crossing to Don Edwards	
				DUMBARTON 2 (LOW BRIDGE)		DUMBARTON 2 (TUBE)	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section-Total	km		8.00		8.00	
1	Double Track Section - At Grade	km	993,167	0.00	0	0.52	516,447
2	Double Track Section - On Structure	km	1,878,243	8.00	15,025,941	6.65	12,490,313
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.83	1,558,941
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
11	Regional Rail Bay Crossing Estimate	Lump Sum		5.00	322,767,859	5.00	702,953,999
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	0	0	0	0
3	Fill	m3	9	107,820	959,773	137,820	1,226,822
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	0.00	0	1.30	132,253
8	Special Drainage Facilities	5% of Earthwork			47,989		67,954
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	1.20	16,480,720
2	High Structure	km	16,480,720	8.00	131,845,761	5.35	88,171,853
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.10	2,887,673
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.83	41,224,927
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	0.00	0	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	3.50	2,381,388	3.50	2,381,388
7	Major Utility Relocation - Suburban	km	273,407	6.28	1,716,012	6.28	1,716,012
8	Major Utility Relocation - Undeveloped	km	13,988	1.21	16,884	1.21	16,884
Right-of-Way							

DUMBARTON 2 (LOW BRIDGE) AND (TUBE)							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Dumbarton Bay Crossing to Don Edwards		Dumbarton Bay Crossing to Don Edwards	
				DUMBARTON 2 (LOW BRIDGE)		DUMBARTON 2 (TUBE)	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	5.33	14,602,402	5.33	14,602,402
	Suburban	hectare	479,081	11.22	5,375,772	11.22	5,375,772
	Undeveloped	hectare	342,201	1.84	629,479	1.84	629,479
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			5,244,006		5,750,360
System Elements							
1	Signaling (ATC)	km	845,654	8.00	6,765,234	8.00	6,765,234
2	Communications (w/Fiber Optic Backbone)	km	699,413	8.00	5,595,306	8.00	5,595,306
3	Wayside Protection System	km	67,144	8.00	537,149	8.00	537,149
Electrification Items							
1	Traction Power Supply	km	432,365	8.00	3,458,917	8.00	3,458,917
2	Traction Power Distribution	km	806,233	8.00	6,449,862	8.00	6,449,862
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			51,166,228		55,599,350
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			50,162,969		54,509,167
Total Construction					174,800,215		191,678,655
Total Construction and Right of Way (Includes Environmental Mitigation)					200,651,875		218,036,667
Grand Total					624,748,930		1,031,099,183

BNSF N/S-1 AND S-2							
COST ELEMENTS			QUANTITIES				
Alignment Cost	UNIT	UNIT PRICE (\$)	North Stockton South to UPRR Connection		BNSF Parallel to UPRR tracks		
			BNSF N/S - 1		BNSF N/S-2		
			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)	
Track							
	Double Track Section-Total	km		17.50		3.50	
1	Double Track Section - At Grade	km	993,167	17.50	17,380,420	3.50	3,476,084
2	Double Track Section - On Structure	km	1,878,243	0.00	0	0.00	0
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	232,750	2,071,853	46,550	414,371
3	Fill	m3	9	0	0	0	0
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	17.50	1,780,325	3.50	356,065
8	Special Drainage Facilities	5% of Earthwork			192,609		38,522
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	0.00	0
2	High Structure	km	16,480,720	0.00	0	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.10	2,887,673	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.15	3,467,884	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	0.00	0	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	7.00	7,655,396	2.00	2,187,256
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	0.00	0	0.00	0
7	Major Utility Relocation - Suburban	km	273,407	0.00	0	0.00	0
8	Major Utility Relocation - Undeveloped	km	13,988	17.50	244,795	3.50	48,959
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	0.00	0	0.00	0

BNSF N/S-1 AND S-2							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				North Stockton South to UPRR Connection		BNSF Parallel to UPRR tracks	
				BNSF N/S - 1		BNSF N/S - 2	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Suburban	hectare	479,081	0.00	0	0.00	0
	Undeveloped	hectare	342,201	26.60	9,102,546	5.32	1,820,509
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			2,567,103		494,973
System Elements							
1	Signaling (ATC)	km	845,654	17.50	14,798,949	3.500	2,959,790
2	Communications (w/Fiber Optic Backbone)	km	699,413	17.50	12,239,732	3.500	2,447,946
3	Wayside Protection System	km	67,144	17.50	1,175,014	3.500	235,003
Electrification Items							
1	Traction Power Supply	km	432,365	17.50	7,566,380	3.500	1,513,276
2	Traction Power Distribution	km	806,233	17.50	14,109,073	3.500	2,821,815
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			24,796,137		4,797,715
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			24,309,938		4,703,642
Total Construction					85,570,104		16,499,086
Total Construction and Right of Way (Includes Environmental Mitigation)					97,239,752		18,814,568
Grand Total					146,345,827		28,315,925

BNSF N/S-3 AND S-4							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Parallel tracks South through Escaton		Escaton South to Amtrak Briggsmore	
				BNSF N/S-3		BNSF N/S-4	
Track			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)	
	Double Track Section-Total	km		13.55		13.85	
1	Double Track Section - At Grade	km	993,167	12.00	11,918,002	11.85	11,769,027
2	Double Track Section - On Structure	km	1,878,243	1.55	2,911,276	2.00	3,756,485
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	135,660	1,207,594	102,084	908,713
3	Fill	m3	9	116,375	1,035,926	2,194,500	19,534,613
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	10.85	1,103,801	8.45	859,643
8	Special Drainage Facilities	5% of Earthwork			167,366		1,065,148
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	1.55	21,287,597	2.00	27,467,867
2	High Structure	km	16,480,720	0.00	0	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.10	2,887,673
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.05	1,155,961
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	1.15	5,059,937	1.20	5,279,934
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	1.00	17,167,417	2.00	34,334,834
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	8.00	8,749,024	3.00	3,280,884
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	1.08	737,487	2.22	1,510,351
7	Major Utility Relocation - Suburban	km	273,407	2.03	555,700	0.69	188,651
8	Major Utility Relocation - Undeveloped	km	13,988	10.43	145,947	10.94	153,032
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	1.65	4,511,578	3.37	9,225,740

BNSF N/S-3 AND S-4							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Parallel tracks South through Escaton		Escaton South to Amtrak Briggsmore	
				BNSF N/S-3		BNSF N/S-4	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Suburban	hectare	479,081	3.09	1,479,882	1.05	503,035
	Undeveloped	hectare	342,201	15.86	5,426,965	16.63	5,690,802
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			3,320,266		4,609,095
System Elements							
1	Signaling (ATC)	km	845,654	13.550	11,458,615	13.850	11,712,311
2	Communications (w/Fiber Optic Backbone)	km	699,413	13.550	9,477,050	13.850	9,686,874
3	Wayside Protection System	km	67,144	13.550	909,797	13.850	929,940
Electrification Items							
1	Traction Power Supply	km	432,365	13.550	5,858,540	13.850	5,988,249
2	Traction Power Distribution	km	806,233	13.550	10,924,454	13.850	11,166,324
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			31,980,626		44,284,623
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			31,353,555		43,416,297
Total Construction					110,675,530		153,636,515
Total Construction and Right of Way (Includes Environmental Mitigation)					125,414,222		173,665,187
Grand Total					188,748,403		261,366,107

BNSF N/S-5 AND S-6							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Amtrak Briggsmore to UPRR/BNSF Connection		UPRR/BNSF Connection to Atwater	
				BNSF N/S-5		BNSF N/S-6	
Track			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)	
	Double Track Section-Total	km		39.85		6.30	
1	Double Track Section - At Grade	km	993,167	37.45	37,194,099	6.30	6,256,951
2	Double Track Section - On Structure	km	1,878,243	2.40	4,507,782	0.00	0
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	443,778	3,950,345	83,790	745,867
3	Fill	m3	9	251,550	2,239,203	0	0
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	34.75	3,535,216	6.30	640,917
8	Special Drainage Facilities	5% of Earthwork			486,238		69,339
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	2.40	32,961,440	0.00	0
2	High Structure	km	16,480,720	0.00	0	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.20	5,775,347	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.25	5,779,806	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	0.00	0	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	9.00	154,506,751	2.00	34,334,834
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	13.00	14,217,164	2.00	2,187,256
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	0.00	0	0.00	0
7	Major Utility Relocation - Suburban	km	273,407	5.98	1,634,974	1.89	516,739
8	Major Utility Relocation - Undeveloped	km	13,988	33.87	473,783	4.41	61,688
Right-of-Way							
1	Right-of-Way Required for Each Segment						

BNSF N/S-5 AND S-6							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Amtrak Briggsmore to UPRR/BNSF Connection		UPRR/BNSF Connection to Atwater	
				BNSF N/S-5		BNSF N/S-6	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Urban	hectare	2,737,608	0.00	0	0.00	0
	Suburban	hectare	479,081	9.09	4,354,849	2.87	1,376,401
	Undeveloped	hectare	342,201	51.49	17,619,927	6.70	2,292,746
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			11,426,006		1,883,211
System Elements							
1	Signaling (ATC)	km	845,654	39.850	33,699,321	6.300	5,327,622
2	Communications (w/Fiber Optic Backbone)	km	699,413	39.850	27,871,619	6.300	4,406,304
3	Wayside Protection System	km	67,144	39.850	2,675,675	6.300	423,005
Electrification Items							
1	Traction Power Supply	km	432,365	39.850	17,229,728	6.300	2,723,897
2	Traction Power Distribution	km	806,233	39.850	32,128,375	6.300	5,079,266
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			105,638,251		17,423,141
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			103,566,913		17,081,511
Total Construction					380,866,869		62,773,685
Total Construction and Right of Way (Includes Environmental Mitigation)					414,267,652		68,326,043
Grand Total					623,472,816		102,830,695

BNSF N/S-7 AND S-8							
COST ELEMENTS			QUANTITIES				
Alignment Cost	UNIT	UNIT PRICE (\$)	Atwater to Downtown Merced		Merced South to UPRR Connection		
			BNSF N/S-7		BNSF N/S-8		
			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)	
Track							
	Double Track Section-Total	km		17.00		8.00	
1	Double Track Section - At Grade	km	993,167	17.00	16,883,837	8.00	7,945,335
2	Double Track Section - On Structure	km	1,878,243	0.00	0	0.00	0
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	217,324	1,934,536	162,810	1,449,273
3	Fill	m3	9	0	0	0	0
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	14.75	1,500,559	4.25	432,365
8	Special Drainage Facilities	5% of Earthwork			171,755		94,082
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	0.00	0
2	High Structure	km	16,480,720	0.00	0	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.15	3,467,884	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	0.00	0	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	11.00	188,841,585	7.00	120,171,918
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	3.00	3,280,884	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	2.04	1,387,890	2.24	1,523,958
7	Major Utility Relocation - Suburban	km	273,407	1.36	371,834	4.80	1,312,354
8	Major Utility Relocation - Undeveloped	km	13,988	11.39	159,326	0.96	13,429
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	3.10	8,486,586	3.40	9,307,868

BNSF N/S-7 AND S-8							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Atwater to Downtown Merced		Merced South to UPRR Connection	
				BNSF N/S-7		BNSF N/S-8	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Suburban	hectare	479,081	2.07	991,698	7.30	3,497,294
	Undeveloped	hectare	342,201	17.31	5,924,525	1.46	499,613
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			7,993,915		4,672,475
System Elements							
1	Signaling (ATC)	km	845,654	17.000	14,376,122	8.000	6,765,234
2	Communications (w/Fiber Optic Backbone)	km	699,413	17.000	11,890,026	8.000	5,595,306
3	Wayside Protection System	km	67,144	17.000	1,141,442	8.000	537,149
Electrification Items							
1	Traction Power Supply	km	432,365	17.000	7,350,198	8.000	3,458,917
2	Traction Power Distribution	km	806,233	17.000	13,705,957	8.000	6,449,862
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			73,914,443		44,300,240
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			72,465,140		43,431,608
Total Construction					266,463,835		155,749,181
Total Construction and Right of Way (Includes Environmental Mitigation)					289,860,559		173,726,431
Grand Total					436,240,142		261,458,279

BNSF N/S-9 AND S-10							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				UPRR Connection East to Castle Connection		Castle Connection to Henry Miller Wye	
				BNSF N/S-9		BNSF N/S-10	
Track			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)	
	Double Track Section-Total	km		17.66		13.44	
1	Double Track Section - At Grade	km	993,167	17.66	17,536,347	13.44	13,351,142
2	Double Track Section - On Structure	km	1,878,243	0.00	0	0.00	0
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	234,744	2,089,603	356,440	3,172,895
3	Fill	m3	9	0	0	0	0
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	17.65	1,795,585	13.44	1,367,595
8	Special Drainage Facilities	5% of Earthwork			194,259		227,024
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	0.00	0
2	High Structure	km	16,480,720	0.00	0	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.10	2,887,673
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.15	3,467,884	0.15	3,467,884
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	0.00	0	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	1.00	17,167,417	1.00	17,167,417
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	9.00	9,842,652	6.00	6,561,768
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	0.00	0	0.00	0
7	Major Utility Relocation - Suburban	km	273,407	0.71	193,135	1.08	295,280
8	Major Utility Relocation - Undeveloped	km	13,988	16.95	237,101	12.36	172,895
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	0.00	0	0.00	0

BNSF N/S-9 AND S-10							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				UPRR Connection East to Castle Connection		Castle Connection to Henry Miller Wye	
				BNSF N/S-9		BNSF N/S-10	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Suburban	hectare	479,081	1.07	514,533	1.63	780,903
	Undeveloped	hectare	342,201	25.77	8,818,519	18.79	6,429,956
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			3,085,821		2,609,850
System Elements							
1	Signaling (ATC)	km	845,654	17.657	14,931,717	13.443	11,368,130
2	Communications (w/Fiber Optic Backbone)	km	699,413	17.657	12,349,540	13.443	9,402,213
3	Wayside Protection System	km	67,144	17.657	1,185,556	13.443	902,612
Electrification Items							
1	Traction Power Supply	km	432,365	17.657	7,634,261	13.443	5,812,277
2	Traction Power Distribution	km	806,233	17.657	14,235,652	13.443	10,838,187
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			29,396,293		24,688,003
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			28,819,896		24,203,925
Total Construction					102,860,709		86,994,992
Total Construction and Right of Way (Includes Environmental Mitigation)					115,279,582		96,815,700
Grand Total					173,495,771		145,707,628

BNSF N/S-11 AND BNSF-UP X-1							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost	Track			Henry Miller Wye		Stockton to Manteca (BNSF-UPRR X-2, MC-3)	
				BNSF N/S-11		BNSF-UP X-1	
			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)	
	Double Track Section-Total	km		10.90		17.05	
1	Double Track Section - At Grade	km	993,167	10.90	10,825,519	16.40	16,287,936
2	Double Track Section - On Structure	km	1,878,243	0.00	0	0.65	1,220,858
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	145,634	1,296,379	179,224	1,595,385
3	Fill	m3	9	0	0	236,075	2,101,451
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	10.90	1,108,888	13.85	1,409,000
8	Special Drainage Facilities	5% of Earthwork			120,263		255,292
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	0.70	9,613,753
2	High Structure	km	16,480,720	0.00	0	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.10	2,887,673
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.15	3,467,884	0.30	6,935,768
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	0.00	0	2.95	12,979,839
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	3.00	3,280,884	6.00	6,561,768
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	0.00	0	3.41	2,319,954
7	Major Utility Relocation - Suburban	km	273,407	0.00	0	0.00	0
8	Major Utility Relocation - Undeveloped	km	13,988	10.90	152,472	13.64	190,800
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	0.00	0	5.18	14,189,023

BNSF N/S-11 AND BNSF-UP X-1							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Henry Miller Wye		Stockton to Manteca (BNSF-UPRR X-2, MC-3)	
				BNSF N/S-11		BNSF-UP X-1	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Suburban	hectare	479,081	0.00	0	0.00	0
	Undeveloped	hectare	342,201	16.57	5,670,270	20.73	7,094,852
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			1,539,783		3,388,973
System Elements							
1	Signaling (ATC)	km	845,654	10.900	9,217,631	17.050	14,418,405
2	Communications (w/Fiber Optic Backbone)	km	699,413	10.900	7,623,605	17.050	11,924,996
3	Wayside Protection System	km	67,144	10.900	731,866	17.050	1,144,800
Electrification Items							
1	Traction Power Supply	km	432,365	10.900	4,712,774	17.050	7,371,816
2	Traction Power Distribution	km	806,233	10.900	8,787,937	17.050	13,746,269
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			14,926,720		35,097,846
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			14,634,039		34,409,653
Total Construction						51,326,102	112,965,762
Total Construction and Right of Way (Includes Environmental Mitigation)						58,536,155	137,638,610
Grand Total						88,096,913	207,146,109

BNSF-UP X-2 AND BNSF CASTLE-1							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Manteca to Ripon		From BNSF southeast to Castle AFB	
				BNSF-UP X-2		BNSF Castle-1	
Track			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)	
	Double Track Section-Total	km		9.35		17.60	
1	Double Track Section - At Grade	km	993,167	8.85	8,789,527	17.60	17,479,737
2	Double Track Section - On Structure	km	1,878,243	0.50	939,121	0.00	0
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00	0	0.00	0
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	93,100	828,741	234,080	2,083,692
3	Fill	m3	9	118,050	1,050,837	0	0
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	7.00	712,130	8.00	813,863
8	Special Drainage Facilities	5% of Earthwork			129,585		144,878
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.50	6,866,967	0.00	0
2	High Structure	km	16,480,720	0.00	0	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.15	3,467,884
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	1.70	7,479,907	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	3.00	19,456,406	1.00	6,485,469
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	1.00	1,093,628	9.00	9,842,652
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	1.40	954,175	0.88	598,698
7	Major Utility Relocation - Suburban	km	273,407	3.18	869,161	0.00	0
8	Major Utility Relocation - Undeveloped	km	13,988	4.77	66,703	16.72	233,884
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	2.13	5,836,581	1.34	3,662,920

BNSF-UP X-2 AND BNSF CASTLE-1							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Manteca to Ripon		From BNSF southeast to Castle AFB	
				BNSF-UP X-2		BNSF Castle-1	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Suburban	hectare	479,081	4.83	2,314,921	0.00	0
	Undeveloped	hectare	342,201	7.25	2,480,273	25.41	8,696,695
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			2,276,758		2,739,750
System Elements							
1	Signaling (ATC)	km	845,654	9.350	7,906,867	17.600	14,883,515
2	Communications (w/Fiber Optic Backbone)	km	699,413	9.350	6,539,514	17.600	12,309,674
3	Wayside Protection System	km	67,144	9.350	627,793	17.600	1,181,729
Electrification Items							
1	Traction Power Supply	km	432,365	9.350	4,042,609	17.600	7,609,616
2	Traction Power Distribution	km	806,233	9.350	7,538,276	17.600	14,189,697
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			22,644,122		27,138,209
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			22,200,120		26,606,087
Total Construction							75,891,947
Total Construction and Right of Way (Includes Environmental Mitigation)							88,800,480
Grand Total							133,644,722
							160,168,647

BNSF CASTLE-2 AND 3							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Castle AFB South to BNSF Connect		BNSF South of Castle to UPRR Connect	
				BNSF Castle-2		BNSF Castle-3	
Track			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)	
	Double Track Section-Total	km		10.52		8.02	
1	Double Track Section - At Grade	km	993,167	0.00	0	0.00	0
2	Double Track Section - On Structure	km	1,878,243	6.68	12,550,417	4.94	9,271,005
3	Double Track Section - In Tunnel or Subway	km	1,878,243	2.63	4,932,265	2.41	4,532,199
4	Double Track Section - In Trench	km	1,878,243	1.21	2,280,186	0.67	1,264,057
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	64,504	574,190	508,725	4,528,478
3	Fill	m3	9	48,877	435,085	0	0
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spill	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	0.00	0	0.00	0
8	Special Drainage Facilities	5% of Earthwork			50,464		226,424
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.65	8,927,057	0.00	0
2	High Structure	km	16,480,720	0.00	0	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.05	1,155,961	0.05	1,155,961
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	2.42	10,647,868	1.34	5,895,927
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	4.00	68,669,667	1.00	17,167,417
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	11.00	71,340,154
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	2.00	2,187,256	8.00	8,749,024
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	1.58	1,073,574	1.76	1,200,389
7	Major Utility Relocation - Suburban	km	273,407	2.10	575,248	1.92	526,254
8	Major Utility Relocation - Undeveloped	km	13,988	6.84	95,652	4.33	60,580
Right-of-Way							

BNSF CASTLE-2 AND 3								
COST ELEMENTS			UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost					Castle AFB South to BNSF Connect		BNSF South of Castle to UPRR Connect	
					BNSF Castle-2		BNSF Castle-3	
Track			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)		
1	Right-of-Way Required for Each Segment							
	Urban		hectare	2,737,608	2.40	6,567,522	2.68	7,342,265
	Suburban		hectare	479,081	3.20	1,532,102	2.93	1,401,792
	Undeveloped		hectare	342,201	10.39	3,556,837	6.58	2,252,709
Environmental Mitigation								
	Environmental Mitigation		3% of Line Cost			4,324,533		4,463,612
System Elements								
1	Signaling (ATC)		km	845,654	10.522	8,897,974	8.022	6,783,838
2	Communications (w/Fiber Optic Backbone)		km	699,413	10.522	7,359,227	8.022	5,610,693
3	Wayside Protection System		km	67,144	10.522	706,486	8.022	538,627
Electrification Items								
1	Traction Power Supply		km	432,365	10.522	4,549,340	8.022	3,468,429
2	Traction Power Distribution		km	806,233	10.522	8,483,181	8.022	6,467,599
Program Implementation Costs (PER SCREENING)								
	Program Implementation Costs		25.5% of Total Cost & Procurement			40,833,683		41,883,096
Contingencies (PER SCREENING)								
	Contingencies		25% of Total Construction Cost			40,033,023		41,061,859
Total Construction						144,151,097		148,787,057
Total Construction and Right of Way (Includes Environmental Mitigation)						160,132,091		164,247,435
Grand Total						240,998,798		247,192,389

BN-BN CASTLE AND BNSF CASTLE-UP							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Castle Air Force Base Station to Avenue 1 (BNSF N/S-7)		Atwater to Beachwood Dr	
				BN-BN Castle		BNSF Castle-UP	
Track		Quantities	Item Cost (\$)	Quantities	Item Cost (\$)		
	Double Track Section-Total	km		10.69		8.02	
1	Double Track Section - At Grade	km	993,167	8.49	8,428,014	0.00	0
2	Double Track Section - On Structure	km	1,878,243	2.20	4,132,134	4.94	9,271,005
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	2.41	4,532,199
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.67	1,264,057
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583		0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	89,108	793,206	75,144	668,904
3	Fill	m3	9	107,730	958,972	0	0
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	0.00	0	0.00	0
8	Special Drainage Facilities	5% of Earthwork			87,609		33,445
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	1.10	15,107,327	0.00	0
2	High Structure	km	16,480,720	0.00	0	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.10	2,887,673	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.50	11,559,613
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	0.00	0	1.34	5,895,927
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	8.00	137,339,335	3.00	51,502,250
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	3.00	3,280,884	2.00	2,187,256
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	0.00	0	1.52	1,036,700
7	Major Utility Relocation - Suburban	km	273,407	0.00	0	0.00	0
8	Major Utility Relocation - Undeveloped	km	13,988	0.00	0	6.50	90,871
Right-of-Way							
1	Right-of-Way Required for Each Segment						

BN-BN CASTLE AND BNSF CASTLE-UP							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Castle Air Force Base Station to Avenue 1 (BNSF N/S-7)		Atwater to Beachwood Dr	
				BN-BN Castle		BNSF Castle-UP	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Urban	hectare	2,737,608	0.00	0	2.32	6,340,301
	Suburban	hectare	479,081	0.00	0	0.00	0
	Undeveloped	hectare	342,201	0.00	0	9.87	3,378,892
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			6,104,367		3,327,342
System Elements							
1	Signaling (ATC)	km	845,654	10.686	9,036,661	8.022	6,783,838
2	Communications (w/Fiber Optic Backbone)	km	699,413	10.686	7,473,930	8.022	5,610,693
3	Wayside Protection System	km	67,144	10.686	717,497	8.022	538,627
Electrification Items							
1	Traction Power Supply	km	432,365	10.686	4,620,248	8.022	3,468,429
2	Traction Power Distribution	km	806,233	10.686	8,615,403	8.022	6,467,599
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			53,443,731		31,609,277
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			52,395,815		30,989,487
Total Construction					203,478,893		110,911,413
Total Construction and Right of Way (Includes Environmental Mitigation)					209,583,260		123,957,948
Grand Total					315,422,806		186,556,712

UPRR N/S-1 AND S-2							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				French Camp to Lathrop		Lathrop through Manteca	
				UPRR N/S-1		UPRR N/S-2	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section-Total	km		8.00		8.70	
1	Double Track Section - At Grade	km	993,167	7.45	7,399,093	8.50	8,441,918
2	Double Track Section - On Structure	km	1,878,243	0.55	1,033,033	0.20	375,649
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	93,100	828,741	116,120	1,033,657
3	Fill	m3	9	29,925	266,381	60,010	534,186
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	7.10	722,303	7.95	808,776
8	Special Drainage Facilities	5% of Earthwork			90,871		118,831
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.55	7,553,663	0.00	0
2	High Structure	km	16,480,720	0.00	0	0.90	14,832,648
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.10	2,311,923	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	3.50	15,399,809	0.55	2,419,970
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	2.00	34,334,834
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	3.00	19,456,406
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	2.00	2,187,256	3.00	3,280,884
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Building Items							
1	Intermediate Stations	LS		0.00	0	0.00	0
2	Terminal Stations	LS		0.00	0	0.00	0
3	Parking requirements	space		0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	1.28	870,833	0.87	591,894
7	Major Utility Relocation - Suburban	km	273,407	0.40	109,363	2.73	746,401

UPRR N/S-1 AND S-2							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				French Camp to Lathrop		Lathrop through Manteca	
				UPRR N/S-1		UPRR N/S-2	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
8	Major Utility Relocation - Undeveloped	km	13,988	6.32	88,406	5.13	71,760
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	1.95	5,338,336	1.32	3,613,643
	Suburban	hectare	479,081	0.61	292,240	4.14	1,983,397
	Undeveloped	hectare	342,201	9.61	3,288,551	7.80	2,669,167
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			1,850,044		3,355,495
System Elements							
1	Signaling (ATC)	km	845,654	8.00	6,765,234	8.70	7,357,192
2	Communications (w/Fiber Optic Backbone)	km	699,413	8.00	5,595,306	8.70	6,084,896
3	Wayside Protection System	km	67,144	8.00	537,149	8.70	584,150
Electrification Items							
1	Traction Power Supply	km	432,365	8.00	3,458,917	8.70	3,761,572
2	Traction Power Distribution	km	806,233	8.00	6,449,862	8.70	7,014,225
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			18,471,515		31,485,245
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			18,109,329		30,867,888
Total Construction							61,668,144
Total Construction and Right of Way (Includes Environmental Mitigation)							72,437,315
Grand Total							109,018,159

UPRR N/S-3 AND S-4							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Manteca South to BNSF/UPRR		BNSF/UPRR South to Modesto	
				UPRR N/S-3		UPRR N/S-4	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section-Total	km		3.30		18.50	
1	Double Track Section - At Grade	km	993,167	3.30	3,277,451	18.50	18,373,587
2	Double Track Section - On Structure	km	1,878,243	0.00	0	0.00	0
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	72,480	645,190	314,600	2,800,451
3	Fill	m3	9	0	0	19,950	177,587
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	3.30	335,718	18.50	1,882,058
8	Special Drainage Facilities	5% of Earthwork			49,045		243,005
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	0.00	0
2	High Structure	km	16,480,720	0.00	0	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.10	2,887,673
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	0.00	0	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	4.00	68,669,667
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	1.00	6,485,469
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	1.00	1,093,628	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Building Items							
1	Intermediate Stations	LS		0.00	0	0.00	0
2	Terminal Stations	LS		0.00	0	0.00	0
3	Parking requirements	space		0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	0.00	0	4.81	3,272,428
7	Major Utility Relocation - Suburban	km	273,407	0.00	0	3.52	962,393

UPRR N/S-3 AND S-4							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Manteca South to BNSF/UPRR		BNSF/UPRR South to Modesto	
				UPRR N/S-3		UPRR N/S-4	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
8	Major Utility Relocation - Undeveloped	km	13,988	3.30	46,161	10.18	142,401
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	0.00	0	7.31	20,011,916
	Suburban	hectare	479,081	0.00	0	5.34	2,558,294
	Undeveloped	hectare	342,201	5.02	1,717,849	15.47	5,293,849
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			445,646		4,759,100
System Elements							
1	Signaling (ATC)	km	845,654	3.30	2,790,659	18.50	15,644,603
2	Communications (w/Fiber Optic Backbone)	km	699,413	3.30	2,308,064	18.50	12,939,146
3	Wayside Protection System	km	67,144	3.30	221,574	18.50	1,242,158
Electrification Items							
1	Traction Power Supply	km	432,365	3.30	1,426,803	18.50	7,998,745
2	Traction Power Distribution	km	806,233	3.30	2,660,568	18.50	14,915,306
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			4,339,681		48,771,258
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			4,254,589		47,814,959
Total Construction					14,854,861		158,636,675
Total Construction and Right of Way (Includes Environmental Mitigation)					17,018,356		191,259,835
Grand Total					25,612,626		287,846,051

UPRR N/S-5B AND S-6								
COST ELEMENTS			QUANTITIES					
Alignment Cost			UNIT	UNIT PRICE (\$)	UPRR Modesto South-Western Option		South Modesto to BNSF Connection	
Track					UPRR N/S-5b		UPRR N/S-6	
				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)	
	Double Track Section-Total	km		4.20		20.90		
1	Double Track Section - At Grade	km	993,167	4.20	4,171,301	16.15	16,039,645	
2	Double Track Section - On Structure	km	1,878,243	0.00	0	4.75	8,921,652	
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0	
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0	
	Single Track Section - Total	km		0.00		0.00		
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0	
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0	
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0	
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0	
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0	
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0	
Earthwork and Related Items								
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0	
2	Cut	m3	9	54,480	484,960	218,642	1,946,269	
3	Fill	m3	9	272,400	2,424,802	452,112	4,024,531	
4	Borrow	m3	13.35	0.00	0	0.00	0	
5	Spoil	m3	0.00	0.00	0	0.00	0	
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0	
7	Fencing (Both Sides of R/W)	km	101,733	4.20	427,278	14.55	1,480,213	
8	Special Drainage Facilities	5% of Earthwork			166,852		372,551	
Structures/Tunnels/Walls								
1	Standard Structure	km	13,733,933	0.00	0	3.20	43,948,587	
2	High Structure	km	16,480,720	0.00	0	1.55	25,545,116	
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0	
4	Waterway Crossing - Primary	km	28,876,734	0.15	4,331,510	0.00	0	
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.05	1,155,961	
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0	
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0	
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0	
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0	
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0	
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0	
12	Crossovers	ea	94,803,899	0.00	0	0.00	0	
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0	
14	Trench Short	km	49,668,587	0.00	0	0.00	0	
15	Trench Long	km	39,272,836	0.00	0	0.00	0	
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0	
17	Retaining Walls	km	4,399,945	0.00	0	1.60	7,039,913	
18	Containment Walls	km	1,500,559	0.00	0	0.00	0	
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0	
Grade Separations								
1	Street Overcrossing HSR - Urban	EA	17,167,417	11.00	188,841,585	4.00	68,669,667	
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	2.00	12,970,937	
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0	
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0	
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0	
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0	
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0	
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0	
Building Items								
1	Intermediate Stations	LS		0.00	0	0.00	0	
2	Terminal Stations	LS		0.00	0	0.00	0	
3	Parking requirements	space		0.00	0	0.00	0	
Rail and Utility Relocation								
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0	
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0	
3	Single Track Removal	km	63,372	0.00	0	0.00	0	
5	Major Utility Relocation - Urban	km	680,338	3.28	2,231,510	5.23	3,558,170	

UPRR N/S-5B AND S-6							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				UPRR Modesto South-Western Option		South Modesto to BNSF Connection	
				UPRR N/S-5b		UPRR N/S-6	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
7	Major Utility Relocation - Suburban	km	273,407	0.42	114,831	1.46	399,174
8	Major Utility Relocation - Undeveloped	km	13,988	0.50	6,994	14.21	198,773
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	5.00	13,688,041	7.94	21,736,609
	Suburban	hectare	479,081	0.64	306,612	2.22	1,063,561
	Undeveloped	hectare	342,201	0.77	263,495	21.60	7,391,541
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			6,455,251		7,675,592
System Elements							
1	Signaling (ATC)	km	845,654	4.20	3,551,748	20.90	17,674,174
2	Communications (w/Fiber Optic Backbone)	km	699,413	4.20	2,937,536	20.90	14,617,738
3	Wayside Protection System	km	67,144	4.20	282,003	20.90	1,403,303
Electrification Items							
1	Traction Power Supply	km	432,365	4.20	1,815,931	20.90	9,036,420
2	Traction Power Distribution	km	806,233	4.20	3,386,178	20.90	16,850,265
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			60,151,547		74,898,692
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			58,972,104		73,430,090
Total Construction					215,175,019		255,853,057
Total Construction and Right of Way (Includes Environmental Mitigation)					235,888,418		293,720,359
Grand Total					355,012,069		442,049,140

UPRR N/S-7 AND S-8							
COST ELEMENTS			QUANTITIES				
Alignment Cost	UNIT	UNIT PRICE (\$)	BNSF Connection South to Merced		Merced South to BNSF Connection		
			UPRR N/S-7		UPRR N/S-8		
			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)	
Track							
	Double Track Section-Total	km		33.25		4.75	
1	Double Track Section - At Grade	km	993,167	29.55	29,348,081	4.75	4,717,543
2	Double Track Section - On Structure	km	1,878,243	3.70	6,949,497	0.00	0
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	392,974	3,498,107	96,474	858,775
3	Fill	m3	9	81,462	725,144	0	0
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	28.30	2,879,039	4.75	483,231
8	Special Drainage Facilities	5% of Earthwork			355,115		67,100
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	4.05	55,622,430	0.00	0
2	High Structure	km	16,480,720	2.65	43,673,908	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.10	2,887,673	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.30	6,935,768	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	1.25	5,499,932	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	3.00	51,502,250	4.00	68,669,667
2	Street Overcrossing HSR - Suburban	EA	6,485,469	1.00	6,485,469	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	6.00	6,561,768	2.00	2,187,256
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Building Items							
1	Intermediate Stations	LS		0.00	0	0.00	0
2	Terminal Stations	LS		0.00	0	0.00	0
3	Parking requirements	space		0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	4.66	3,170,377	1.05	714,355
7	Major Utility Relocation - Suburban	km	273,407	2.00	546,814	2.52	688,986

UPRR N/S-7 AND S-8							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				BNSF Connection South to Merced		Merced South to BNSF Connection	
				UPRR N/S-7		UPRR N/S-8	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
8	Major Utility Relocation - Undeveloped	km	13,988	26.60	372,088	1.19	16,646
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	7.08	19,382,266	1.59	4,352,797
	Suburban	hectare	479,081	3.03	1,451,616	3.83	1,834,882
	Undeveloped	hectare	342,201	40.43	13,835,185	1.81	619,384
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			9,654,085		2,758,347
System Elements							
1	Signaling (ATC)	km	845,654	33.25	28,118,003	4.75	4,016,858
2	Communications (w/Fiber Optic Backbone)	km	699,413	33.25	23,255,491	4.75	3,322,213
3	Wayside Protection System	km	67,144	33.25	2,232,527	4.75	318,932
Electrification Items							
1	Traction Power Supply	km	432,365	33.25	14,376,122	4.75	2,053,732
2	Traction Power Distribution	km	806,233	33.25	26,807,239	4.75	3,829,606
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			93,362,129		25,885,129
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			91,531,499		25,377,577
Total Construction					321,802,843		91,944,900
Total Construction and Right of Way (Includes Environmental Mitigation)					366,125,996		101,510,309
Grand Total					551,019,624		152,773,015

UPRR N/S-9 AND S-10							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				BNSF Connection South to Henry Miller Wye		BNSF Henry Miller Wye	
				UPRR N/S-9		UPRR N/S-10	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section-Total	km		17.45		15.90	
1	Double Track Section - At Grade	km	993,167	17.45	17,330,762	15.25	15,145,795
2	Double Track Section - On Structure	km	1,878,243	0.00	0	0.65	1,220,858
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	279,084	2,484,301	203,490	1,811,391
3	Fill	m3	9	0	0	49,210	438,049
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	17.45	1,775,238	14.00	1,424,260
8	Special Drainage Facilities	5% of Earthwork			212,977		183,685
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	0.65	8,927,057
2	High Structure	km	16,480,720	0.00	0	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.15	4,331,510
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.30	6,935,768	0.10	2,311,923
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	0.00	0	12.50	54,999,317
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	2.00	34,334,834
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	6.00	6,561,768	5.00	5,468,140
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0

UPRR N/S-9 AND S-10							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				BNSF Connection South to Henry Miller Wye		BNSF Henry Miller Wye	
				UPRR N/S-9		UPRR N/S-10	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Building Items							
1	Intermediate Stations	LS		0.00	0	0.00	0
2	Terminal Stations	LS		0.00	0	0.00	0
3	Parking requirements	space		0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	0.87	591,894	0.00	0
7	Major Utility Relocation - Suburban	km	273,407	0.00	0	1.43	390,972
8	Major Utility Relocation - Undeveloped	km	13,988	16.58	231,925	14.47	202,410
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	1.33	3,641,019	0.00	0
	Suburban	hectare	479,081	0.00	0	2.18	1,044,397
	Undeveloped	hectare	342,201	25.20	8,623,464	21.99	7,524,999
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost				2,576,137	5,295,542
System Elements							
1	Signaling (ATC)	km	845,654	17.45	14,756,666	15.90	13,445,902
2	Communications (w/Fiber Optic Backbone)	km	699,413	17.45	12,204,762	15.90	11,120,671
3	Wayside Protection System	km	67,144	17.45	1,171,657	15.90	1,067,584
Electrification Items							
1	Traction Power Supply	km	432,365	17.45	7,544,762	15.90	6,874,597
2	Traction Power Distribution	km	806,233	17.45	14,068,762	15.90	12,819,101
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement				25,681,525	48,547,663
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost				25,177,966	47,595,748
Total Construction						85,871,242	176,518,055
Total Construction and Right of Way (Includes Environmental Mitigation)						100,711,862	190,382,993
Grand Total						151,571,352	286,526,405

UPRR-BNSF X-1 AND UPRR N/S-5A							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				French Camp to Five Corners (BNSF N/S-2 , BNSF N/S-3)		UPRR Modesto South - Western Option	
				UPRR-BNSF X-1		UPRR N/S-5a	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section-Total	km		20.20		4.20	
1	Double Track Section - At Grade	km	993,167	17.00	16,883,837	4.20	4,171,301
2	Double Track Section - On Structure	km	1,878,243	3.20	6,010,376	0.00	0
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	170,240	1,515,412	59,020	525,374
3	Fill	m3	9	1,024,097	9,116,126	181,600	1,616,535
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	13.80	1,403,913	4.20	427,278
8	Special Drainage Facilities	5% of Earthwork			601,773		128,459
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	2.05	28,154,564	0.00	0
2	High Structure	km	16,480,720	1.15	18,952,828	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.20	5,775,347
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.15	3,467,884	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	3.20	14,079,825	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	11.00	188,841,585
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	6.00	6,561,768	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Building Items							
1	Intermediate Stations	LS		0.00	0	0.00	0
2	Terminal Stations	LS		0.00	0	0.00	0
3	Parking requirements	space		0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	2.42	1,646,419	2.81	1,911,751
7	Major Utility Relocation - Suburban	km	273,407	1.41	385,504	1.01	276,141

UPRR-BNSF X-1 AND UPRR N/S-5A							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				French Camp to Five Corners (BNSF N/S-2 , BNSF N/S-3)		UPRR Modesto South - Western Option	
				UPRR-BNSF X-1		UPRR N/S-5a	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
8	Major Utility Relocation - Undeveloped	km	13,988	16.36	228,848	0.38	5,316
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	3.68	10,074,398	4.27	11,689,587
	Suburban	hectare	479,081	2.15	1,030,025	1.53	732,994
	Undeveloped	hectare	342,201	24.87	8,510,538	0.57	195,055
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			4,997,862		6,469,574
System Elements							
1	Signaling (ATC)	km	845,654	20.20	17,082,216	4.20	3,551,748
2	Communications (w/Fiber Optic Backbone)	km	699,413	20.20	14,128,148	4.20	2,937,536
3	Wayside Protection System	km	67,144	20.20	1,356,302	4.20	282,003
Electrification Items							
1	Traction Power Supply	km	432,365	20.20	8,733,764	4.20	1,815,931
2	Traction Power Distribution	km	806,233	20.20	16,285,902	4.20	3,386,178
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			48,758,099		59,858,622
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			47,802,058		58,684,923
Total Construction					166,595,409		215,652,482
Total Construction and Right of Way (Includes Environmental Mitigation)					191,208,232		234,739,692
Grand Total					287,768,389		353,283,237

UPRR-BNSF X-2 AND MC-1							
COST ELEMENTS			QUANTITIES				
Alignment Cost	UNIT	UNIT PRICE (\$)	BNSF crossing to UPRR - Southeast of Turlock		Southwester Manteca		
			UPRR-BNSF X-2		MC-1		
			Quantities	Item Cost (\$)	Quantities	Item Cost (\$)	
Track							
	Double Track Section-Total	km		15.15		1.46	
1	Double Track Section - At Grade	km	993,167	15.15	15,046,478	1.46	1,447,044
2	Double Track Section - On Structure	km	1,878,243	0.00	0	0.00	0
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	159,600	1,420,699	0	0
3	Fill	m3	9	435,575	3,877,325	169,010	1,504,463
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	15.15	1,541,253	1.46	148,225
8	Special Drainage Facilities	5% of Earthwork			341,964		82,634
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	0.00	0
2	High Structure	km	16,480,720	0.00	0	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.15	4,331,510	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.05	1,155,961	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	0.00	0	2.91	12,821,441
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	9.00	9,842,652	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	0.00	0	1.00	1,157,211
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Building Items							
1	Intermediate Stations	LS		0.00	0	0.00	0
2	Terminal Stations	LS		0.00	0	0.00	0
3	Parking requirements	space		0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	0.30	204,102	0.88	595,976
7	Major Utility Relocation - Suburban	km	273,407	0.00	0	0.58	159,670

UPRR-BNSF X-2 AND MC-1								
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES				
Alignment Cost				BNSF crossing to UPRR - Southeast of Turlock		Southwester Manteca		
				UPRR-BNSF X-2		MC-1		
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)	
8	Major Utility Relocation - Undeveloped	km	13,988	14.85	207,726	0.00	0	
Right-of-Way								
1	Right-of-Way Required for Each Segment							
	Urban	hectare	2,737,608	0.46	1,259,300	1.33	3,646,494	
	Suburban	hectare	479,081	0.00	0	0.89	425,424	
	Undeveloped	hectare	342,201	22.57	7,723,476	0.00	0	
Environmental Mitigation								
	Environmental Mitigation	3% of Line Cost			2,434,783		662,109	
System Elements								
1	Signaling (ATC)	km	845,654	15.15	12,811,662	1.46	1,232,118	
2	Communications (w/Fiber Optic Backbone)	km	699,413	15.15	10,596,111	1.46	1,019,045	
3	Wayside Protection System	km	67,144	15.15	1,017,227	1.46	97,828	
Electrification Items								
1	Traction Power Supply	km	432,365	15.15	6,550,323	1.46	629,955	
2	Traction Power Distribution	km	806,233	15.15	12,214,426	1.46	1,174,681	
Program Implementation Costs (PER SCREENING)								
	Program Implementation Costs	25.5% of Total Cost & Procurement			23,607,129		6,835,102	
Contingencies (PER SCREENING)								
	Contingencies	25% of Total Construction Cost			23,144,244		6,701,080	
Total Construction							81,159,418	22,070,293
Total Construction and Right of Way (Includes Environmental Mitigation)							92,576,976	26,804,320
Grand Total							139,328,349	40,340,501

MC-2 AND 3							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Southeastern Manteca		Eastern Manteca UPRR South to BNSF	
				MC-2		MC-3	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section-Total	km		1.83		9.17	
1	Double Track Section - At Grade	km	993,167	1.83	1,818,489	9.17	9,105,354
2	Double Track Section - On Structure	km	1,878,243	0.00	0	0.00	0
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	0	0	5,453	48,543
3	Fill	m3	9	212,400	1,890,705	1,064,923	9,479,540
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	1.83	186,273	9.17	932,687
8	Special Drainage Facilities	5% of Earthwork			103,849		523,038
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	0.00	0
2	High Structure	km	16,480,720	0.00	0	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	3.66	16,112,600	4.00	17,599,781
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	20.00	358,608,262
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	1.00	1,157,211	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Building Items							
1	Intermediate Stations	LS		0.00	0	0.00	0
2	Terminal Stations	LS		0.00	0	0.00	0
3	Parking requirements	space		0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	0.37	249,004	3.30	2,245,933
7	Major Utility Relocation - Suburban	km	273,407	1.46	400,268	4.95	1,353,857

MC-2 AND 3							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Southeastern Manteca		Eastern Manteca UPRR South to BNSF	
				MC-2		MC-3	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
8	Major Utility Relocation - Undeveloped	km	13,988	0.00	0	0.92	12,827
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	0.56	1,522,110	5.02	13,737,318
	Suburban	hectare	479,081	2.23	1,065,956	7.53	3,606,045
	Undeveloped	hectare	342,201	0.00	0	1.39	477,028
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			814,147		12,781,381
System Elements							
1	Signaling (ATC)	km	845,654	1.83	1,548,393	9.17	7,752,958
2	Communications (w/Fiber Optic Backbone)	km	699,413	1.83	1,280,626	9.17	6,412,221
3	Wayside Protection System	km	67,144	1.83	122,940	9.17	615,573
Electrification Items							
1	Traction Power Supply	km	432,365	1.83	791,660	9.17	3,963,918
2	Traction Power Distribution	km	806,233	1.83	1,476,212	9.17	7,391,542
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			7,787,812		116,445,191
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			7,635,110		114,161,952
Total Construction							27,138,228
Total Construction and Right of Way (Includes Environmental Mitigation)							426,046,035
							30,540,441
Grand Total							45,963,364
							687,254,951

MC-4 AND 5							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Manteca to Escaton Wye		Northern Escaton Wye to BNSF	
				MC-4		MC-5	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section-Total	km		4.28		4.30	
1	Double Track Section - At Grade	km	993,167	4.28	4,248,768	4.30	4,270,617
2	Double Track Section - On Structure	km	1,878,243	0.00	0	0.00	0
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	0	0	0	0
3	Fill	m3	9	183,960	1,637,543	92,410	822,599
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	4.28	435,213	4.30	437,451
8	Special Drainage Facilities	5% of Earthwork			103,638		63,003
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	0.00	0
2	High Structure	km	16,480,720	0.00	0	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	0.00	0	7.04	30,975,615
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	0.00	0
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	1.00	1,157,211	5.00	5,786,055
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Building Items							
1	Intermediate Stations	LS		0.00	0	0.00	0
2	Terminal Stations	LS		0.00	0	0.00	0
3	Parking requirements	space		0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	3.38	2,300,360	1.94	1,316,455
7	Major Utility Relocation - Suburban	km	273,407	0.00	0	0.00	0

MC-4 AND 5							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Manteca to Escaton Wye		Northern Escaton Wye to BNSF	
				MC-4		MC-5	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
8	Major Utility Relocation - Undeveloped	km	13,988	0.90	12,573	2.37	33,082
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	5.14	14,068,569	2.94	8,051,306
	Suburban	hectare	479,081	0.00	0	0.00	0
	Undeveloped	hectare	342,201	1.37	467,447	3.59	1,228,501
Environmental Mitigation							
	Environmental Mitigation	3% of Line Cost			662,732		1,678,901
System Elements							
1	Signaling (ATC)	km	845,654	4.28	3,617,709	4.30	3,636,313
2	Communications (w/Fiber Optic Backbone)	km	699,413	4.28	2,992,090	4.30	3,007,477
3	Wayside Protection System	km	67,144	4.28	287,241	4.30	288,718
Electrification Items							
1	Traction Power Supply	km	432,365	4.28	1,849,656	4.30	1,859,168
2	Traction Power Distribution	km	806,233	4.28	3,449,064	4.30	3,466,801
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs	25.5% of Total Cost & Procurement			9,508,902		17,065,126
Contingencies (PER SCREENING)							
	Contingencies	25% of Total Construction Cost			9,322,453		16,730,516
Total Construction							22,091,064
Total Construction and Right of Way (Includes Environmental Mitigation)							37,289,811
Grand Total							56,121,166

MC-6 AND 7							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Southern Escaton Wye to BNSF (Part 1)		Southern Escaton Wye to BNSF (Part 2)	
				MC-6		MC-7	
Track				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
	Double Track Section-Total	km		22.84		14.17	
1	Double Track Section - At Grade	km	993,167	22.84	22,685,917	14.17	14,070,195
2	Double Track Section - On Structure	km	1,878,243	0.00	0	0.00	0
3	Double Track Section - In Tunnel or Subway	km	1,878,243	0.00	0	0.00	0
4	Double Track Section - In Trench	km	1,878,243	0.00	0	0.00	0
	Single Track Section - Total	km		0.00		0.00	
5	Single Track Section - At Grade	km	496,583	0.00	0	0.00	0
6	Single Track Section - On Structure	km	939,121	0.00	0	0.00	0
7	Single Track Section - In Tunnel or Subway	km	939,121	0.00	0	0.00	0
8	Single Track Section - In Trench	km	939,121	0.00	0	0.00	0
9	Freight Double Track - At Grade	km	993,167	0.00	0	0.00	0
10	Freight Single Track - At Grade	km	496,583	0.00	0	0.00	0
Earthwork and Related Items							
1	Site Preparation - Undeveloped	hectare	12,081	0.00	0	0.00	0
2	Cut	m3	9	0	0	0	0
3	Fill	m3	9	365,470	3,253,276	565,316	5,032,226
4	Borrow	m3	13.35	0.00	0	0.00	0
5	Spoil	m3	0.00	0.00	0	0.00	0
6	Cut/Fill Slopes (Landscaping/Erosion Control)	hectare	8,075	0.00	0	0.00	0
7	Fencing (Both Sides of R/W)	km	101,733	22.84	2,323,782	14.17	1,441,249
8	Special Drainage Facilities	5% of Earthwork			278,853		323,674
Structures/Tunnels/Walls							
1	Standard Structure	km	13,733,933	0.00	0	0.00	0
2	High Structure	km	16,480,720	0.00	0	0.00	0
3	Long Span Structure	km	37,577,568	0.00	0	0.00	0
4	Waterway Crossing - Primary	km	28,876,734	0.00	0	0.00	0
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	23,119,226	0.00	0	0.00	0
6	Twin Single Track Drill & Blast (<6 Miles)	km	75,040,254	0.00	0	0.00	0
7	Twin Single Track TBM (<6 Miles)	km	55,464,535	0.00	0	0.00	0
8	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	78,846,643	0.00	0	0.00	0
9	Double Track Drill & Blast	km	83,740,573	0.00	0	0.00	0
10	Double Track Mined (Soft Soil)	km	96,247,282	0.00	0	0.00	0
11	Seismic Chamber (Drill & Blast/Mined)	ea	94,803,899	0.00	0	0.00	0
12	Crossovers	ea	94,803,899	0.00	0	0.00	0
13	Cut & Cover Double Track Tunnel	km	48,123,641	0.00	0	0.00	0
14	Trench Short	km	49,668,587	0.00	0	0.00	0
15	Trench Long	km	39,272,836	0.00	0	0.00	0
16	Mechanical & Electrical for Tunnels	km	1,931,362	0.00	0	0.00	0
17	Retaining Walls	km	4,399,945	0.00	0	0.00	0
18	Containment Walls	km	1,500,559	0.00	0	0.00	0
19	Single Track Cut and Cover Subway	km	30,077,276	0.00	0	0.00	0
Grade Separations							
1	Street Overcrossing HSR - Urban	EA	17,167,417	0.00	0	0.00	0
2	Street Overcrossing HSR - Suburban	EA	6,485,469	0.00	0	0.00	0
3	Street Overcrossing HSR - Undeveloped	EA	1,093,628	0.00	0	0.00	0
4	Street Undercrossing HSR - Urban	EA	17,930,413	0.00	0	9.00	161,373,718
5	Street Undercrossing HSR - Suburban	EA	6,866,967	0.00	0	0.00	0
6	Street Undercrossing HSR - Undeveloped	EA	1,157,211	18.00	20,829,799	0.00	0
7	Street Bridging HSR Trench	EA	0	0.00	0	0.00	0

MC-6 AND 7							
COST ELEMENTS		UNIT	UNIT PRICE (\$)	QUANTITIES			
Alignment Cost				Southern Escaton Wye to BNSF (Part 1)		Southern Escaton Wye to BNSF (Part 2)	
				MC-6		MC-7	
				Quantities	Item Cost (\$)	Quantities	Item Cost (\$)
Track							
8	Minor crossing closure	EA	178,032	0.00	0	0.00	0
Building Items							
1	Intermediate Stations	LS		0.00	0	0.00	0
2	Terminal Stations	LS		0.00	0	0.00	0
3	Parking requirements	space		0.00	0	0.00	0
Rail and Utility Relocation							
1	Single Track Relocation (temporary)	km	1,271,661	0.00	0	0.00	0
2	Single Track Relocation (permanent)	km	1,271,661	0.00	0	0.00	0
3	Single Track Removal	km	63,372	0.00	0	0.00	0
5	Major Utility Relocation - Urban	km	680,338	1.37	932,744	0.00	0
7	Major Utility Relocation - Suburban	km	273,407	0.23	62,474	0.00	0
8	Major Utility Relocation - Undeveloped	km	13,988	21.24	297,111	14.17	198,214
Right-of-Way							
1	Right-of-Way Required for Each Segment						
	Urban	hectare	2,737,608	2.08	5,705,176	0.00	0
	Suburban	hectare	479,081	0.35	166,241	0.00	0
	Undeveloped	hectare	342,201	32.29	11,049,669	21.54	7,370,324
Environmental Mitigation							
	Environmental Mitigation		3% of Line Cost		3,473,464		6,684,800
System Elements							
1	Signaling (ATC)	km	845,654	22.84	19,316,434	14.17	11,980,384
2	Communications (w/Fiber Optic Backbone)	km	699,413	22.84	15,975,998	14.17	9,908,588
3	Wayside Protection System	km	67,144	22.84	1,533,696	14.17	951,224
Electrification Items							
1	Traction Power Supply	km	432,365	22.84	9,876,072	14.17	6,125,309
2	Traction Power Distribution	km	806,233	22.84	18,415,969	14.17	11,421,900
Program Implementation Costs (PER SCREENING)							
	Program Implementation Costs		25.5% of Total Cost & Procurement		34,725,052		60,404,860
Contingencies (PER SCREENING)							
	Contingencies		25% of Total Construction Cost		34,044,168		59,220,451
Total Construction					115,782,124		222,826,680
Total Construction and Right of Way (Includes Environmental Mitigation)					136,176,673		236,881,804
Grand Total					204,945,893		356,507,116

APPENDIX 4-B

**CONCEPTUAL CONSTRUCTION COST ESTIMATE: STATION
LOCATION**

Appendix 4-B. Conceptual Construction Cost Estimate: Station Locations

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
Terminal Station							
S1—4th and King Station (Caltrain 1-2, Caltrain Urban Tunnel)							
	<u>Inspection Platform Side-By-Side with Passenger Platform</u>						
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	12.00	109,199	
	Site Demolition	HECT	800,000.00	945,443.68	12.00	11,345,324	
							11,454,523
2	Earthwork						
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86	—	0	
							0
3	Paving and Surfacing—excluded						0
4	Piped Utilities—excluded						0
5	Site Structural Work						
	Cut and Cover Structure—Incl. Earthwork, Support System, and Structure	HECT	26,206,000.00	30,970,371.38	12.00	371,644,457	
							371,644,457
6	Track work						
	Direct Fixation	M	800.23	945.72	8,000	7,565,724	
	Turnouts, No. 32.7 W. Conc. Ties	EA	365,000.00	431,358.68	4	1,725,435	
	Crossover, No. 32.7 w. Conc. Ties	EA	750,000.00	886,353.45	2	1,772,707	
	Bumping Posts	EA	50,000.00	59,090.23	6	354,541	
	Heavy Duty Rubber Grade Crossing						
							11,418,407
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						
							0
8	Traction Power						
	(Included in Overall Estimate)						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
							0
9	Train Control						
	(Included in Overall Estimate)						
							0
10	Station Platform and Inspection Facility						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	10,800	2,169,793	
	Pier Caps	SM	175.00	206.82	10,800	2,233,611	
	Platform Slab	SM	120.00	141.82	10,800	1,531,619	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	2,400	709,083	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	10,800	4,339,586	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	10,800	2,042,158	
	Station Lighting	SM	130.00	153.63	10,800	1,659,254	
	Signage	platform	5,000.00	5,909.02	3	17,727	
	Platform Furnishing	platform	45,000.00	53,181.21	3	159,544	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	12	283,633	
	Inspection Platforms:						
	Under Car/Component Inspection Area	SM	73.00	86.27	10,800	931,735	
	Lighting	SM	90.00	106.36	10,800	1,148,714	
	Inspection Pit	M	2,300.00	2,718.15	2,400	6,523,561	
	Inspection Pit Rail Support	M	945.00	1,116.81	2,400	2,680,333	
	Vehicle Floor Level Inspection Platform—Str. Steel	SM	405.00	478.63	10,800	5,169,213	
	Vehicle Floor Level Inspection Platform—Grating and Railing	SM	270.00	319.09	10,800	3,446,142	
	Lighting	SM	90.00	106.36	10,800	1,148,714	
	Vehicle Roof Level Inspection Platform—Str. Steel	SM	485.00	573.18	10,800	6,190,293	
	Vehicle Roof Level Inspection Platform—Grating and Railing	SM	270.00	319.09	10,800	3,446,142	
	Lighting Pole Mounted	SM	110.00	130.00	10,800	1,403,984	
	Maintenance Equipments and Tools	Platform	100,000.00	118,180.46	4	472,722	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00	1	7,942,000	
	Undercrossing	EA		10,900,000.00		0	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
4	Piped Utilities—excluded						
							0
5	Site Structural Work						
	Cut and Cover Structure—Incl. Earthwork, Support System and Structure	HECT	26,206,000.00	30,970,371.38	12.00	371,644,457	
							371,644,457
6	Track work						
	Direct Fixation	M	800.23	945.72	2,560	2,421,032	
	Turnouts, No. 26.5 W. Conc. Ties	EA	365,000.00	431,358.68	4	1,725,435	
	Crossover, No. 26.5 w. Conc. Ties	EA	750,000.00	886,353.45	4	3,545,414	
	Bumping Posts	EA	50,000.00	59,090.23	6	354,541	
	Heavy Duty Rubber Grade Crossing						
							8,046,422
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						
							0
8	Traction Power						
	(Included in Overall Estimate)						
							0
9	Train Control						
	(Included in Overall Estimate)						
							0
10	Station Platform and Inspection Facility						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	10,800	2,169,793	
	Pier Caps	SM	175.00	206.82	10,800	2,233,611	
	Platform Slab	SM	120.00	141.82	10,800	1,531,619	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	2,400	709,083	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	10,800	4,339,586	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	10,800	2,042,158	
	Station Lighting	SM	130.00	153.63	10,800	1,659,254	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Signage	platform	5,000.00	5,909.02	3	17,727	
	Platform Furnishing	platform	45,000.00	53,181.21	3	159,544	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	12	283,633	
	Inspection Platforms:						
	Under Car/Component Inspection Area	SM	73.00	86.27	10,800	931,735	
	Lighting	SM	90.00	106.36	10,800	1,148,714	
	Inspection Pit	M	2,300.00	2,718.15	2,400	6,523,561	
	Inspection Pit Rail Support	M	945.00	1,116.81	2,400	2,680,333	
	Vehicle Floor Level Inspection Platform—Str. Steel	SM	405.00	478.63	10,800	5,169,213	
	Vehicle Floor Level Inspection Platform—Grating and Railing	SM	270.00	319.09	10,800	3,446,142	
	Lighting	SM	90.00	106.36	10,800	1,148,714	
	Vehicle Roof Level Inspection Platform—Str. Steel	SM	485.00	573.18	10,800	6,190,293	
	Vehicle Roof Level Inspection Platform—Grating and Railing	SM	270.00	319.09	10,800	3,446,142	
	Lighting Pole Mounted	SM	110.00	130.00	10,800	1,403,984	
	Maintenance Equipments and Tools	Platform	100,000.00	118,180.46	4	472,722	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00	1	7,942,000	
	Undercrossing	EA		10,900,000.00		0	
							55,649,561
11	Station Building and Access to Platforms						
	Passenger Terminal (Station Category I)	SM	540.00	638.17	11,154	7,118,198	
	Ticketing (Enclosed)		3,200.00	3,781.77	100	378,177	
							7,496,376
	Subtotal						454,290,000
	Mobilization and Indirect Field Cost		15%				68,143,500
	Subtotal—Construction Cost—Base (year 2003 dollars)						522,433,500
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						130,608,375
	Subtotal—Construction Cost (Not Escalated)						653,041,875

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						133,220,543
	Total Estimated Project Cost						786,262,418
S3— West Oakland/7th Street Station (Niles/I-880 1A, Urban—Tunnel)							
	<u>Inspection Platform Behind Passenger Platform</u>						
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	9.00	81,899	
	Site Demolition	HECT	800,000.00	945,443.68	9.00	8,508,993	
							8,590,892
2	Earthwork						
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86	—	0	
							0
3	Paving and Surfacing—excluded						
							0
4	Piped Utilities—excluded						
							0
5	Site Structural Work						
	Cut and Cover Structure—Incl. Earthwork, Support System and Structure	HECT	26,206,000.00	30,970,371.38	9.00	278,733,342	
							278,733,342
6	Track work						
	Direct Fixation	M	800.23	945.72	7,000	6,620,008	
	Turnouts, No. 32.7 W. Conc. Ties	EA	365,000.00	431,358.68	2	862,717	
	Crossover, No. 32.7 w. Conc. Ties	EA	750,000.00	886,353.45	2	1,772,707	
	Bumping Posts	EA	50,000.00	59,090.23	4	236,361	
	Heavy Duty Rubber Grade Crossing						
							9,491,794

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						
							0
8	Traction Power						
	(Included in Overall Estimate)						
							0
9	Train Control						
	(Included in Overall Estimate)						
							0
10	Station Platform and Inspection Facility						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	7,200	1,446,529	
	Pier Caps	SM	175.00	206.82	7,200	1,489,074	
	Platform Slab	SM	120.00	141.82	7,200	1,021,079	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	1,600	472,722	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	7,200	2,893,058	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	7,200	1,361,439	
	Station Lighting	SM	130.00	153.63	7,200	1,106,169	
	Signage	platform	5,000.00	5,909.02	2	11,818	
	Platform Furnishing	platform	45,000.00	53,181.21	2	106,362	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	8	189,089	
	Inspection Platforms:						
	Under Car/Component Inspection Area	SM	73.00	86.27	11,400	983,498	
	Lighting	SM	90.00	106.36	11,400	1,212,532	
	Inspection Pit	M	2,300.00	2,718.15	1,600	4,349,041	
	Inspection Pit Rail Support	M	945.00	1,116.81	1,600	1,786,889	
	Vehicle Floor Level Inspection Platform—Str. Steel	SM	405.00	478.63	11,400	5,456,392	
	Vehicle Floor Level Inspection Platform—Grating and Railing	SM	270.00	319.09	11,400	3,637,595	
	Lighting	SM	90.00	106.36	11,400	1,212,532	
	Vehicle Roof Level Inspection Platform—Str. Steel	SM	485.00	573.18	11,400	6,534,198	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Vehicle Roof Level Inspection Platform—Grating and Railing	SM	270.00	319.09	11,400	3,637,595	
	Lighting Pole Mounted	SM	110.00	130.00	11,400	1,481,983	
	Maintenance Equipments and Tools	Platform	100,000.00	118,180.46	5	590,902	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00	1	7,942,000	
	Undercrossing	EA		10,900,000.00		0	
							48,922,493
11	Station Building and Access to Platforms						
	Passenger Terminal (300'x200' Foot Print)	SM	540.00	638.17	11,000	7,019,919	
	Ticketing (Enclosed)		3,200.00	3,781.77	100	378,177	
							7,398,097
	Subtotal						353,140,000
	Mobilization and Indirect Field Cost		15%				52,971,000
	Subtotal—Construction Cost—Base (year 2003 dollars)						406,111,000
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						101,527,750
	Subtotal—Construction Cost (Not Escalated)						507,638,750
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						103,558,305
	Total Estimated Project Cost						611,197,055
S4—12th Street/City Center Station (Niles/I-880 1B, Urban—Tunnel)							
	Inspection Platform Behind Passenger Platform						
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	9.00	81,899	
	Site Demolition	HECT	800,000.00	945,443.68	9.00	8,508,993	
							8,590,892

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
2	Earthwork						
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86	—	0	0
3	Paving and Surfacing—excluded						0
4	Piped Utilities—excluded						0
5	Site Structural Work						
	Cut and Cover Structure—Incl. Earthwork, Support System and Structure	HECT	26,206,000.00	30,970,371.38	9.00	278,733,342	278,733,342
6	Track work						
	Direct Fixation	M	800.23	945.72	7,000	6,620,008	
	Turnouts, No. 32.7 W. Conc. Ties	EA	365,000.00	431,358.68	2	862,717	
	Crossover, No. 32.7 w. Conc. Ties	EA	750,000.00	886,353.45	2	1,772,707	
	Bumping Posts	EA	50,000.00	59,090.23	4	236,361	
	Heavy Duty Rubber Grade Crossing						9,491,794
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						0
8	Traction Power						
	(Included in Overall Estimate)						0
9	Train Control						
	(Included in Overall Estimate)						0
10	Station Platform and Inspection Facility						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	7,200	1,446,529	
	Pier Caps	SM	175.00	206.82	7,200	1,489,074	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Platform Slab	SM	120.00	141.82	7,200	1,021,079	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	1,600	472,722	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	7,200	2,893,058	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	7,200	1,361,439	
	Station Lighting	SM	130.00	153.63	7,200	1,106,169	
	Signage	platform	5,000.00	5,909.02	2	11,818	
	Platform Furnishing	platform	45,000.00	53,181.21	2	106,362	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	8	189,089	
	Inspection Platforms:						
	Under Car/Component Inspection Area	SM	73.00	86.27	11,400	983,498	
	Lighting	SM	90.00	106.36	11,400	1,212,532	
	Inspection Pit	M	2,300.00	2,718.15	1,600	4,349,041	
	Inspection Pit Rail Support	M	945.00	1,116.81	1,600	1,786,889	
	Vehicle Floor Level Inspection Platform—Str. Steel	SM	405.00	478.63	11,400	5,456,392	
	Vehicle Floor Level Inspection Platform—Grating and Railing	SM	270.00	319.09	11,400	3,637,595	
	Lighting	SM	90.00	106.36	11,400	1,212,532	
	Vehicle Roof Level Inspection Platform—Str. Steel	SM	485.00	573.18	11,400	6,534,198	
	Vehicle Roof Level Inspection Platform—Grating and Railing	SM	270.00	319.09	11,400	3,637,595	
	Lighting Pole Mounted	SM	110.00	130.00	11,400	1,481,983	
	Maintenance Equipments and Tools	Platform	100,000.00	118,180.46	5	590,902	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00	1	7,942,000	
	Undercrossing	EA		10,900,000.00		0	
							48,922,493
11	Station Building and Access to Platforms						
	Passenger Terminal (300'x200' Foot Print)	SM	540.00	638.17	11,000	7,019,919	
	Ticketing (Enclosed)		3,200.00	3,781.77	100	378,177	
							7,398,097
	Subtotal						353,140,000
	Mobilization and Indirect Field Cost		15%				52,971,000
	Subtotal—Construction Cost—Base (year 2003 dollars)						406,111,000

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						101,527,750
	Subtotal—Construction Cost (Not Escalated)						507,638,750
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						103,558,305
	Total Estimated Project Cost						611,197,055
Intermediate Stations							
S5—San Jose Diridon Station (Caltrain 8-Pacheco 1, Urban—Aerial)							
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	—	0	
	Site Demolition	HECT	800,000.00	945,443.68	—	0	
							0
2	Earthwork						
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86	—	0	
							0
3	Paving and Surfacing—excluded						
							0
4	Piped Utilities—excluded						
							0
5	Site Structural Work						
	Aerial Structure	HECT	10,750,000.00	12,704,399.46	5.00	63,521,997	
							63,521,997
6	Track work						
	Direct Fixation	M	800.23	945.72	3,760	3,555,890	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Turnouts, No. 26.5 W. Conc. Ties	EA	365,000.00	431,358.68	2	862,717	
	Crossover, No. 26.5 w. Conc. Ties	EA	750,000.00	886,353.45	6	5,318,121	
	Crossover, No. 20 w. Conc. Ties	EA	400,000.00	472,721.84	6	2,836,331	
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						
							12,573,059
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						
							0
8	Traction Power						
	(Included in Overall Estimate)						
							0
9	Train Control						
	(Included in Overall Estimate)						
							0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170 .00	200.91	10,800	2,169,793	
	Pier Caps	SM	175.00	206.82	10,800	2,233,611	
	Platform Slab	SM	120.00	141.82	10,800	1,531,619	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	2,400	709,083	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	10,800	4,339,586	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	10,800	2,042,158	
	Station Lighting	SM	130.00	153.63	10,800	1,659,254	
	Signage	platform	5,000.00	5,909.02	3	17,727	
	Platform Furnishing	platform	45,000.00	53,181.21	3	159,544	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	12	283,633	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00		0	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
3	Paving and Surfacing—excluded						
							0
4	Piped Utilities—excluded						
							0
5	Site Structural Work						
	at grade						
							0
6	Track work						
	Ballasted Track Incl. Ballast and subballast	M	430.00	508.18		0	
	Turnouts, No. 32.7 W. Conc. Ties	EA	365,000.00	431,358.68		0	
	Crossover, No. 32.7 w. Conc. Ties	EA	750,000.00	886,353.45	4	3,545,414	
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						
							3,545,414
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						
							0
8	Traction Power						
	(Included in Overall Estimate)						
							0
9	Train Control						
	(Included in Overall Estimate)						
							0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	3,600	723,264	
	Pier Caps	SM	175.00	206.82	3,600	744,537	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Platform Slab	SM	120.00	141.82	3,600	510,540	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	400	118,180	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	3,600	1,446,529	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	3,600	680,719	
	Station Lighting	SM	130.00	153.63	3,600	553,085	
	Signage	platform	5,000.00	5,909.02	1	5,909	
	Platform Furnishing	platform	45,000.00	53,181.21	1	53,181	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	4	94,544	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00	1	7,942,000	
	Undercrossing	EA		10,900,000.00		0	
							12,872,489
11	Station Building and Access to Platforms						
	Passenger Terminal (300'x200' Foot Print)	SM	540.00	638.17	—	0	
	Ticketing (Enclosed)	SM	3,200.00	3,781.77	100	378,177	
							378,177
	Subtotal						16,800,000
	Mobilization and Indirect Field Cost		15%				2,520,000
	Subtotal—Construction Cost—Base (year 2006 dollars)						19,320,000
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						4,830,000
	Subtotal—Construction Cost (Not Escalated)						24,150,000
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						4,926,600
	Total Estimated Project Cost						29,076,600

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
9	Train Control						
	(Included in Overall Estimate)						
							0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	10,800	2,169,793	
	Pier Caps	SM	175.00	206.82	10,800	2,233,611	
	Platform Slab	SM	120.00	141.82	10,800	1,531,619	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	2,400	709,083	
	Platform Finish Work—excluded					0	
	Canopy—Str. Steel	SM	340.00	401.81	10,800	4,339,586	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	10,800	2,042,158	
	Station Lighting	SM	130.00	153.63	10,800	1,659,254	
	Signage	platform	5,000.00	5,909.02	3	17,727	
	Platform Furnishing	platform	45,000.00	53,181.21	3	159,544	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	12	283,633	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00		0	
	Undercrossing	EA		10,900,000.00	1	10,900,000	
							26,046,008
11	Station Building and Access to Platforms						
	Passenger Terminal (180'x65' Foot Print)	SM	540.00	638.17	2,100	1,340,166	
	Ticketing (Enclosed)	SM	3,200.00	3,781.77	100	378,177	
							1,718,344
	Subtotal						39,010,000
	Mobilization and Indirect Field Cost		15%				5,851,500
	Subtotal—Construction Cost—Base (year 2006 dollars)						44,861,500
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						11,215,375
	Subtotal—Construction Cost (Not Escalated)						56,076,875
	Project Conceptual and Preliminary Engineering						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						11,439,683
	Total Estimated Project Cost						67,516,558
S8—Palo Alto (Caltrain 6-7, Urban—At Grade)*							
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	4.00	36,400	
	Site Demolition	HECT	800,000.00	945,443.68	4.00	3,781,775	
							3,818,174
2	Earthwork						
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86	38,000.00	336,814	
							336,814
3	Paving and Surfacing—excluded						
							0
4	Piped Utilities—excluded						
							0
5	Site Structural Work						
	At Grade						0
6	Track work						
	Ballasted Track Incl. Ballast and subballast	M	430.00	508.18		0	
	Turnouts, No. 32.7 W. Conc. Ties	EA	700,000.00	827,263.22		0	
	Crossover, No. 32.7 w. Conc. Ties	EA	1,500,000.00	1,772,706.90	4	7,090,828	
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						
							7,090,828
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Lighting—See Item 10						0
8	Traction Power						
	(Included in Overall Estimate)						0
9	Train Control						
	(Included in Overall Estimate)						0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170 .00	200.91	10,800	2,169,793	
	Pier Caps	SM	175.00	206.82	10,800	2,233,611	
	Platform Slab	SM	120.00	141.82	10,800	1,531,619	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	,400	709,083	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	10,800	4,339,586	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	10,800	2,042,158	
	Station Lighting	SM	130.00	153.63	10,800	1,659,254	
	Signage	platform	5,000.00	5,909.02	3	17,727	
	Platform Furnishing	platform	45,000.00	53,181.21	3	159,544	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	12	283,633	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00		0	
	Undercrossing	EA		10,900,000.00	1	10,900,000	
							26,046,008
11	Station Building and Access to Platforms						
	Passenger Terminal (180'x65' Foot Print)	SM	540.00	638.17	2,100	1,340,166	
	Ticketing (Enclosed)	SM	3,200.00	3,781.77	100	378,177	
							1,718,344
	Subtotal						39,010,000
	Mobilization and Indirect Field Cost		15%				5,851,500

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Subtotal—Construction Cost—Base (year 2006 dollars)						44,861,500
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						11,215,375
	Subtotal—Construction Cost (Not Escalated)						56,076,875
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						11,439,683
	Total Estimated Project Cost						67,516,558
S9—Coliseum/Airport Station (Niles/I-880 2-3, Urban—At Grade)							
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	4.00	36,400	
	Site Demolition	HECT	800,000.00	945,443.68	4.00	3,781,775	
							3,818,174
2	Earthwork						
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86	105,000.00	930,671	
							930,671
3	Paving and Surfacing—excluded						
							0
4	Piped Utilities—excluded						
							0
5	Site Structural Work						
	At grade						
							0
6	Track work						
	Ballasted Track Incl. Ballast and subballast	M	430.00	508.18	7,000	3,557,232	
	Turnouts, No. 40.5 W. Conc. Ties	EA	400,000.00	472,721.84	4	1,890,887	
	Crossover, No. 40.5 w. Conc. Ties	EA	800,000.00	945,443.68	4	3,781,775	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						
							9,229,894
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						
							0
8	Traction Power						
	(Included in Overall Estimate)						
							0
9	Train Control						
	(Included in Overall Estimate)						
							0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	7,200	1,446,529	
	Pier Caps	SM	175.00	206.82	7,200	1,489,074	
	Platform Slab	SM	120.00	141.82	7,200	1,021,079	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	800	236,361	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	7,200	2,893,058	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	7,200	1,361,439	
	Station Lighting	SM	130.00	153.63	7,200	1,106,169	
	Signage	platform	5,000.00	5,909.02	2	11,818	
	Platform Furnishing	platform	45,000.00	53,181.21	2	106,362	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	8	189,089	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00	1	7,942,000	
	Undercrossing	EA		10,900,000.00		0	
							17,802,978

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
11	Station Building and Access to Platforms						
	Passenger Terminal (200'x150' Foot Print)	SM	540.00	638.17	5,500	3,509,960	
	Ticketing (Enclosed)	SM	3,200.00	3,781.77	100	378,177	
							3,888,137
	Subtotal						35,670,000
	Mobilization and Indirect Field Cost		15%				5,350,500
	Subtotal—Construction Cost—Base (year 2006 dollars)						41,020,500
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						10,255,125
	Subtotal—Construction Cost (Not Escalated)						51,275,625
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						10,460,228
	Total Estimated Project Cost						61,735,853
S10—Union City (BART) Station (Niles/I-880 3-4, Urban—Aerial)							
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	4.00	36,400	
	Site Demolition	HECT	800,000.00	945,443.68	4.00	3,781,775	
							3,818,174
2	Earthwork						
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86	73,000.00	647,038	
							647,038
3	Paving and Surfacing—excluded						
							0
4	Piped Utilities—excluded						
							0
5	Site Structural Work						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	at grade						
							0
6	Track work						
	Ballasted Track Incl. Ballast and subballast	M	430.00	508.18	4,860	2,469,735	
	Turnouts, No. 32.7 W. Conc. Ties	EA	365,000.00	431,358.68	4	1,725,435	
	Crossover, No. 32.7 w. Conc. Ties	EA	750,000.00	886,353.45	4	3,545,414	
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						
							7,740,584
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						
							0
8	Traction Power						
	(Included in Overall Estimate)						
							0
9	Train Control						
	(Included in Overall Estimate)						
							0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	7,200	1,446,529	
	Pier Caps	SM	175.00	206.82	7,200	1,489,074	
	Platform Slab	SM	120.00	141.82	7,200	1,021,079	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	800	236,361	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	7,200	2,893,058	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	7,200	1,361,439	
	Station Lighting	SM	130.00	153.63	7,200	1,106,169	
	Signage	platform	5,000.00	5,909.02	2	11,818	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Platform Furnishing	platform	45,000.00	53,181.21	2	106,362	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	8	189,089	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00		0	
	Undercrossing	EA		10,900,000.00	1	10,900,000	
							20,760,978
11	Station Building and Access to Platforms						
	Passenger Terminal (300'x200' Foot Print)	SM	540.00	638.17	11,000	7,019,919	
	Ticketing (Enclosed)	SM	3,200.00	3,781.77	100	378,177	
							7,398,097
	Subtotal						40,360,000
	Mobilization and Indirect Field Cost		15%				6,054,000
	Subtotal—Construction Cost—Base (year 2006 dollars)						46,414,000
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						11,603,500
	Subtotal—Construction Cost (Not Escalated)						58,017,500
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						11,835,570
	Total Estimated Project Cost						69,853,070
S11—Union City (Shinn) Station (Niles/I-880 4-5, Urban—Aerial)							
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	2.00	18,200	
	Site Demolition	HECT	800,000.00	945,443.68	2.00	1,890,887	
							1,909,087
2	Earthwork						
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86	—	0	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
							0
3	Paving and Surfacing—excluded						0
4	Piped Utilities—excluded						0
5	Site Structural Work						
	Aerial Structure	HECT	10,750,000.00	12,704,399.46	11.00	139,748,394	
							139,748,394
6	Track work						
	Direct Fixation	M	430.00	508.18	4,860	2,469,735	
	Turnouts, No. 32.7 W. Conc. Ties	EA	700,000.00	827,263.22	4	3,309,053	
	Crossover, No. 32.7 w. Conc. Ties	EA	1,500,000.00	1,772,706.90	4	7,090,828	
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						
							12,869,616
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						
							0
8	Traction Power						
	(Included in Overall Estimate)						
							0
9	Train Control						
	(Included in Overall Estimate)						
							0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	7,200	1,446,529	
	Pier Caps	SM	175.00	206.82	7,200	1,489,074	
	Platform Slab	SM	120.00	141.82	7,200	1,021,079	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	800	236,361	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	7,200	2,893,058	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	7,200	1,361,439	
	Station Lighting	SM	130.00	153.63	7,200	1,106,169	
	Signage	platform	5,000.00	5,909.02	2	11,818	
	Platform Furnishing	platform	45,000.00	53,181.21	2	106,362	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	8	189,089	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00		0	
	Undercrossing	EA		10,900,000.00	1	10,900,000	
							20,760,978
11	Station Building and Access to Platforms						
	Passenger Terminal (Station Category III)	SM	540.00	638.17	5,539	3,534,848	
	Ticketing (Enclosed)	SM	3,200.00	3,781.77	100	378,177	
							3,913,026
	Subtotal						179,200,000
	Mobilization and Indirect Field Cost		15%				26,880,000
	Subtotal—Construction Cost—Base (year 2006 dollars)						206,080,000
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						51,520,000
	Subtotal—Construction Cost (Not Escalated)						257,600,000
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						52,550,400
	Total Estimated Project Cost						310,150,400
S12—Fremont (Warm Springs) Station (Niles/I-880 5-6, Suburban—Aerial)							

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	—	0	
	Site Demolition	HECT	800,000.00	945,443.68	—	0	
							0
2	Earthwork						
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86	—	0	
							0
3	Paving and Surfacing—excluded						
							0
4	Piped Utilities—excluded						
							0
5	Site Structural Work						
	Aerial Structure	HECT	10,750,000.00	12,704,399.46	4.00	50,817,598	
							50,817,598
6	Track work						
	Direct Fixation	M	800.23	945.72	4,860	4,596,177	
	Turnouts, No. 32.7 W. Conc. Ties	EA	365,000.00	431,358.68	4	1,725,435	
	Crossover, No. 32.7 w. Conc. Ties	EA	750,000.00	886,353.45	4	3,545,414	
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						
							9,867,026
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						
							0
8	Traction Power						
	(Included in Overall Estimate)						
							0
9	Train Control						
	(Included in Overall Estimate)						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
							0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	10,800	2,169,793	
	Pier Caps	SM	175.00	206.82	10,800	2,233,611	
	Platform Slab	SM	120.00	141.82	10,800	1,531,619	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	2,400	709,083	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	10,800	4,339,586	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	10,800	2,042,158	
	Station Lighting	SM	130.00	153.63	10,800	1,659,254	
	Signage	platform	5,000.00	5,909.02	3	17,727	
	Platform Furnishing	platform	45,000.00	53,181.21	3	159,544	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	12	283,633	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00		0	
	Undercrossing	EA		10,900,000.00	1	10,900,000	
							26,046,008
11	Station Building and Access to Platforms						
	Passenger Terminal (Station Category III)	SM	540.00	638.17	5,539	3,534,848	
	Ticketing (Enclosed)	SM	3,200.00	3,781.77	100	378,177	
							3,913,026
	Subtotal						90,640,000
	Mobilization and Indirect Field Cost		15%				13,596,000
	Subtotal—Construction Cost—Base (year 2006 dollars)						104,236,000
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						26,059,000
	Subtotal—Construction Cost (Not Escalated)						130,295,000
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
8	Traction Power						
	(Included in Overall Estimate)						
							0
9	Train Control						
	(Included in Overall Estimate)						
							0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	7,200	1,446,529	
	Pier Caps	SM	175.00	206.82	7,200	1,489,074	
	Platform Slab	SM	120.00	141.82	7,200	1,021,079	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	800	236,361	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	7,200	2,893,058	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	7,200	1,361,439	
	Station Lighting	SM	130.00	153.63	7,200	1,106,169	
	Signage	platform	5,000.00	5,909.02	2	11,818	
	Platform Furnishing	platform	45,000.00	53,181.21	2	106,362	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	8	189,089	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00		0	
	Undercrossing	EA		10,900,000.00	1	10,900,000	
							20,760,978
11	Station Building and Access to Platforms						
	Passenger Terminal (Station Category III)	SM	540.00	638.17	5,539	3,534,848	
	Ticketing (Enclosed)	SM	3,200.00	3,781.77	100	378,177	
							3,913,026
	Subtotal						179,200,000
	Mobilization and Indirect Field Cost		15%				26,880,000
	Subtotal—Construction Cost—Base (year 2006 dollars)						206,080,000
	Escalation to Midpoint of Construction—not included						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						51,520,000
	Subtotal—Construction Cost (Not Escalated)						257,600,000
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						52,550,400
	Total Estimated Project Cost						310,150,400
S14—Pleasanton (BART) Station (I-680/580/UPRR 1-2, Suburban—Aerial)							
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	4.00	36,400	
	Site Demolition	HECT	800,000.00	945,443.68	4.00	3,781,775	
							3,818,174
2	Earthwork						
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86	—	0	
							0
3	Paving and Surfacing—excluded						
							0
4	Piped Utilities—excluded						
							0
5	Site Structural Work						
	Aerial Structure	HECT	10,750,000.00	12,704,399.46	11.00	139,748,394	
							139,748,394
6	Track work						
	Direct Fixation	M	800.23	945.72	10,000	9,457,155	
	Turnouts, No. 50 W. Conc. Ties	EA	365,000.00	431,358.68	4	1,725,435	
	Crossover, No. 50 w. Conc. Ties	EA	750,000.00	886,353.45	4	3,545,414	
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
							14,728,003
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						
							0
8	Traction Power						
	(Included in Overall Estimate)						
							0
9	Train Control						
	(Included in Overall Estimate)						
							0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	7,200	1,446,529	
	Pier Caps	SM	175.00	206.82	7,200	1,489,074	
	Platform Slab	SM	120.00	141.82	7,200	1,021,079	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	800	236,361	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	7,200	2,893,058	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	7,200	1,361,439	
	Station Lighting	SM	130.00	153.63	7,200	1,106,169	
	Signage	platform	5,000.00	5,909.02	2	11,818	
	Platform Furnishing	platform	45,000.00	53,181.21	2	106,362	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	8	189,089	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00		0	
	Undercrossing	EA		10,900,000.00	1	10,900,000	
							20,760,978
11	Station Building and Access to Platforms						
	Passenger Terminal (Station Category III)	SM	540.00	638.17	5,539	3,534,848	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
6	Track work						
	Ballasted Track Incl. Ballast and subballast	M	430.00	508.18	10,000	5,081,760	
	Turnouts, No. 50 W. Conc. Ties	EA	700,000.00	827,263.22	4	3,309,053	
	Crossover, No. 50 w. Conc. Ties	EA	1,500,000.00	1,772,706.90	4	7,090,828	
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						
							15,481,640
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						
							0
8	Traction Power						
	(Included in Overall Estimate)						
							0
9	Train Control						
	(Included in Overall Estimate)						
							0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	7,200	1,446,529	
	Pier Caps	SM	175.00	206.82	7,200	1,489,074	
	Platform Slab	SM	120.00	141.82	7,200	1,021,079	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	800	236,361	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	7,200	2,893,058	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	7,200	1,361,439	
	Station Lighting	SM	130.00	153.63	7,200	1,106,169	
	Signage	platform	5,000.00	5,909.02	2	11,818	
	Platform Furnishing	platform	45,000.00	53,181.21	2	106,362	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	8	189,089	
	Pedestrian Crossing						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
4	Piped Utilities—excluded						
							0
5	Site Structural Work						
	Aerial Structure	HECT	10,750,000.00	12,704,399.46	4.00	43,000,000	
							43,000,000
6	Track work						
	Direct Fixation	M	800.23	945.72	10,000	9,457,155	
	Turnouts, No. 50 W. Conc. Ties	EA	365,000.00	431,358.68	4	1,725,435	
	Crossover, No. 50 w. Conc. Ties	EA	750,000.00	886,353.45	4	3,545,414	
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						
							14,728,003
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						
							0
8	Traction Power						
	(Included in Overall Estimate)						
							0
9	Train Control						
	(Included in Overall Estimate)						
							0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	10,800	2,169,793	
	Pier Caps	SM	175.00	206.82	10,800	2,233,611	
	Platform Slab	SM	120.00	141.82	10,800	1,531,619	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	2,400	709,083	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	10,800	4,339,586	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	10,800	2,042,158	
	Station Lighting	SM	130.00	153.63	10,800	1,659,254	
	Signage	platform	5,000.00	5,909.02	3	17,727	
	Platform Furnishing	platform	45,000.00	53,181.21	3	159,544	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	12	283,633	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00		0	
	Undercrossing	EA		10,900,000.00	1	10,900,000	
							26,046,008
11	Station Building and Access to Platforms						
	Passenger Terminal (Station Category III)	SM	540.00	638.17	5,539	3,534,848	
	Ticketing (Enclosed)	SM	3,200.00	3,781.77	100	378,177	
							3,913,026
	Subtotal						87,690,000
	Mobilization and Indirect Field Cost		15%				13,153,500
	Subtotal—Construction Cost—Base (year 2006 dollars)						100,843,500
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						25,210,875
	Subtotal—Construction Cost (Not Escalated)						126,054,375
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						25,715,093
	Total Estimated Project Cost						151,769,468
S17—Livermore 2 (Downtown) Station (UPRR 5-6, Urban—At Grade)							
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	4.00	36,400	
	Site Demolition	HECT	800,000.00	945,443.68	4.00	3,781,775	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
							3,818,174
2	Earthwork						
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86	150,000.00	1,329,530	
							1,329,530
3	Paving and Surfacing—excluded						
							0
4	Piped Utilities—excluded						
							0
5	Site Structural Work						
	At grade						
							0
6	Track work						
	Ballasted Track Incl. Ballast and subballast	M	430.00	508.18	10,000	5,081,760	
	Turnouts, No. 50 W. Conc. Ties	EA	700,000.00	827,263.22	4	3,309,053	
	Crossover, No. 50 w. Conc. Ties	EA	1,500,000.00	1,772,706.90	4	7,090,828	
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						
							15,481,640
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						
							0
8	Traction Power						
	(Included in Overall Estimate)						
							0
9	Train Control						
	(Included in Overall Estimate)						
							0
10	Station Platform						
	Platforms:						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Foundation—Pier Caissons	SM	170.00	200.91	7,200	1,446,529	
	Pier Caps	SM	175.00	206.82	7,200	1,489,074	
	Platform Slab	SM	120.00	141.82	7,200	1,021,079	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	800	236,361	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	7,200	2,893,058	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	7,200	1,361,439	
	Station Lighting	SM	130.00	153.63	7,200	1,106,169	
	Signage	platform	5,000.00	5,909.02	2	11,818	
	Platform Furnishing	platform	45,000.00	53,181.21	2	106,362	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	8	189,089	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00	1	7,942,000	
	Undercrossing	EA		10,900,000.00		0	
							17,802,978
11	Station Building and Access to Platforms						
	Passenger Terminal (Station Category III)	SM	540.00	638.17	5,539	3,534,848	
	Ticketing (Enclosed)	SM	3,200.00	3,781.77	100	378,177	
							3,913,026
	Subtotal						42,350,000
	Mobilization and Indirect Field Cost		15%				6,352,500
	Subtotal—Construction Cost—Base (year 2006 dollars)						48,702,500
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						12,175,625
	Subtotal—Construction Cost (Not Escalated)						60,878,125
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and						12,419,138

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Procurement)						
	Total Estimated Project Cost						73,297,263
S18—Livermore 2 (Downtown) Station (UPRR 5-6, Urban—Aerial)							
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	2.00	18,200	
	Site Demolition	HECT	800,000.00	945,443.68	2.00	1,890,887	
							1,909,087
2	Earthwork						
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86	—	0	
							0
3	Paving and Surfacing—excluded						0
4	Piped Utilities—excluded						0
5	Site Structural Work						
	Aerial Structure	HECT	10,750,000.00	12,704,399.46	11.00	139,748,394	
							139,748,394
6	Track work						
	Direct Fixation	M	430.00	508.18	10,000	5,081,760	
	Turnouts, No. 50 W. Conc. Ties	EA	700,000.00	827,263.22	4	3,309,053	
	Crossover, No. 50 w. Conc. Ties	EA	1,500,000.00	1,772,706.90	4	7,090,828	
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						
							15,481,640
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						
							0
8	Traction Power						
	(Included in Overall Estimate)						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
							0
9	Train Control						
	(Included in Overall Estimate)						
							0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	7,200	1,446,529	
	Pier Caps	SM	175.00	206.82	7,200	1,489,074	
	Platform Slab	SM	120.00	141.82	7,200	1,021,079	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	800	236,361	
	Platform Finish Work—excluded					0	
	Canopy—Str. Steel	SM	340.00	401.81	7,200	2,893,058	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	7,200	1,361,439	
	Station Lighting	SM	130.00	153.63	7,200	1,106,169	
	Signage	platform	5,000.00	5,909.02	2	11,818	
	Platform Furnishing	platform	45,000.00	53,181.21	2	106,362	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	8	189,089	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00		0	
	Undercrossing	EA		10,900,000.00	1	10,900,000	
							20,760,978
11	Station Building and Access to Platforms						
	Passenger Terminal (Station Category III)	SM	540.00	638.17	5,539	3,534,848	
	Ticketing (Enclosed)	SM	3,200.00	3,781.77	100	378,177	
							3,913,026
	Subtotal						181,810,000
	Mobilization and Indirect Field Cost		15%				27,271,500
	Subtotal—Construction Cost—Base (year 2006 dollars)						209,081,500
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						52,270,375

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Subtotal—Construction Cost (Not Escalated)						261,351,875
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						53,315,783
	Total Estimated Project Cost						314,667,658
S19—Livermore (Greenville Road/I-580) Station (I-680/580/UPRR 4-5, Undeveloped—Aerial)							
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	—	0	
	Site Demolition	HECT	800,000.00	945,443.68	—	0	
							0
2	Earthwork						
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86		0	
							0
3	Paving and Surfacing—excluded						
							0
4	Piped Utilities—excluded						
							0
5	Site Structural Work						
	Aerial Structure	HECT	10,750,000.00	12,704,399.46	4.00	50,817,598	
							50,817,598
6	Track work						
	Direct Fixation	M	800.23	945.72	10,000	9,457,155	
	Turnouts, No. 50 W. Conc. Ties	EA	365,000.00	431,358.68	4	1,725,435	
	Crossover, No. 50 w. Conc. Ties	EA	750,000.00	886,353.45	4	3,545,414	
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						
							14,728,003
7	Station Electrical Work						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Subtotal						92,550,000
	Mobilization and Indirect Field Cost		15%				13,882,500
	Subtotal—Construction Cost—Base (year 2006 dollars)						106,432,500
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						26,608,125
	Subtotal—Construction Cost (Not Escalated)						133,040,625
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						27,140,288
	Total Estimated Project Cost						160,180,913
S20—Livermore (Greenville Road/UPRR) Station							
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	4.00	36,400	
	Site Demolition	HECT	800,000.00	945,443.68	4.00	3,781,775	
							3,818,174
2	Earthwork						
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86	150,000.00	1,329,530	
							1,329,530
3	Paving and Surfacing—excluded						
							0
4	Piped Utilities—excluded						
							0
5	Site Structural Work						
	At grade					0	
							0
6	Track work						
	Ballasted Track Incl. Ballast and subballast	M	430.00	508.18	10,000	5,081,760	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Turnouts, No. 50 W. Conc. Ties	EA	700,000.00	827,263.22	4	3,309,053	
	Crossover, No. 50 w. Conc. Ties	EA	1,500,000.00	1,772,706.90	4	7,090,828	
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						
							15,481,640
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						
							0
8	Traction Power						
	(Included in Overall Estimate)						
							0
9	Train Control						
	(Included in Overall Estimate)						
							0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	7,200	1,446,529	
	Pier Caps	SM	175.00	206.82	7,200	1,489,074	
	Platform Slab	SM	120.00	141.82	7,200	1,021,079	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	800	236,361	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	7,200	2,893,058	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	7,200	1,361,439	
	Station Lighting	SM	130.00	153.63	7,200	1,106,169	
	Signage	platform	5,000.00	5,909.02	2	11,818	
	Platform Furnishing	platform	45,000.00	53,181.21	2	106,362	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	8	189,089	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00	1	7,942,000	
	Undercrossing	EA		10,900,000.00		0	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
5	Site Structural Work						
	Aerial Structure	HECT	10,750,000.00	12,704,399.46	11.00	139,748,394	
							139,748,394
6	Track work						
	Direct Fixation	M	430.00	508.18	4,860	2,469,735	
	Turnouts, No. 32.7 W. Conc. Ties	EA	700,000.00	827,263.22	4	3,309,053	
	Crossover, No. 32.7 w. Conc. Ties	EA	1,500,000.00	1,772,706.90	4	7,090,828	
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						
							12,869,616
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						
							0
8	Traction Power						
	(Included in Overall Estimate)						
							0
9	Train Control						
	(Included in Overall Estimate)						
							0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	7,200	1,446,529	
	Pier Caps	SM	175.00	206.82	7,200	1,489,074	
	Platform Slab	SM	120.00	141.82	7,200	1,021,079	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	800	236,361	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	7,200	2,893,058	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	7,200	1,361,439	
	Station Lighting	SM	130.00	153.63	7,200	1,106,169	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Signage	platform	5,000.00	5,909.02	2	11,818	
	Platform Furnishing	platform	45,000.00	53,181.21	2	106,362	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	8	189,089	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00		0	
	Undercrossing	EA		10,900,000.00	1	10,900,000	
							20,760,978
11	Station Building and Access to Platforms						
	Passenger Terminal (Station Category III)	SM	540.00	638.17	5,539	3,534,848	
	Ticketing (Enclosed)	SM	3,200.00	3,781.77	100	378,177	
							3,913,026
	Subtotal						179,200,000
	Mobilization and Indirect Field Cost		15%				26,880,000
	Subtotal—Construction Cost—Base (year 2006 dollars)						206,080,000
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						51,520,000
	Subtotal—Construction Cost (Not Escalated)						257,600,000
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						52,550,400
	Total Estimated Project Cost						310,150,400
S22—Tracy 2 (Existing ACE) Station (SUPRR 2-3, Suburban—Aerial)							
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	2.00	18,200	
	Site Demolition	HECT	800,000.00	945,443.68	2.00	1,890,887	
							1,909,087
2	Earthwork						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86	—	0	0
3	Paving and Surfacing—excluded						0
4	Piped Utilities—excluded						0
5	Site Structural Work						
	Aerial Structure	HECT	10,750,000.00	12,704,399.46	11.00	139,748,394	139,748,394
6	Track work						
	Direct Fixation	M	430.00	508.18	10,000	5,081,760	
	Turnouts, No. 50 W. Conc. Ties	EA	700,000.00	827,263.22	4	3,309,053	
	Crossover, No. 50 w. Conc. Ties	EA	1,500,000.00	1,772,706.90	4	7,090,828	
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						15,481,640
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						0
8	Traction Power						
	(Included in Overall Estimate)						0
9	Train Control						
	(Included in Overall Estimate)						0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	7,200	1,446,529	
	Pier Caps	SM	175.00	206.82	7,200	1,489,074	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Platform Slab	SM	120.00	141.82	7,200	1,021,079	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	800	236,361	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	7,200	2,893,058	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	7,200	1,361,439	
	Station Lighting	SM	130.00	153.63	7,200	1,106,169	
	Signage	platform	5,000.00	5,909.02	2	11,818	
	Platform Furnishing	platform	45,000.00	53,181.21	2	106,362	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	8	189,089	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00		0	
	Undercrossing	EA		10,900,000.00	1	10,900,000	
							20,760,978
11	Station Building and Access to Platforms						
	Passenger Terminal (Station Category III)	SM	540.00	638.17	5,539	3,534,848	
	Ticketing (Enclosed)	SM	3,200.00	3,781.77	100	378,177	
							3,913,026
	Subtotal						181,810,000
	Mobilization and Indirect Field Cost		15%				27,271,500
	Subtotal—Construction Cost—Base (year 2006 dollars)						209,081,500
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						52,270,375
	Subtotal—Construction Cost (Not Escalated)						261,351,875
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						53,315,783
	Total Estimated Project Cost						314,667,658

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
S23—Gilroy (Caltrain) Station (Pacheco 2-3, Urban—Aerial)							
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	—	0	
	Site Demolition	HECT	800,000.00	945,443.68	—	0	
							0
2	Earthwork						
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86	—	0	
							0
3	Paving and Surfacing—excluded						
							0
4	Piped Utilities—excluded						
							0
5	Site Structural Work						
	Aerial Structure	HECT	10,750,000.00	12,704,399.46	4.00	50,817,598	
							50,817,598
6	Track work						
	Direct Fixation	M	800.23	945.72	3,760	3,555,890	
	Turnouts, No. 26.5 W. Conc. Ties	EA	365,000.00	431,358.68	4	1,725,435	
	Crossover, No. 26.5 w. Conc. Ties	EA	750,000.00	886,353.45	4	3,545,414	
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						
							8,826,739
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						
							0
8	Traction Power						
	(Included in Overall Estimate)						
							0
9	Train Control						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	(Included in Overall Estimate)						
							0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	10,800	2,169,793	
	Pier Caps	SM	175.00	206.82	10,800	2,233,611	
	Platform Slab	SM	120.00	141.82	10,800	1,531,619	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	2,400	709,083	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	10,800	4,339,586	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	10,800	2,042,158	
	Station Lighting	SM	130.00	153.63	10,800	1,659,254	
	Signage	platform	5,000.00	5,909.02	3	17,727	
	Platform Furnishing	platform	45,000.00	53,181.21	3	159,544	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	12	283,633	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00	1	7,942,000	
	Undercrossing	EA		10,900,000.00		0	
							23,088,008
11	Station Building and Access to Platforms						
	Passenger Terminal (185'x120' Foot Print)	SM	540.00	638.17	4,000	2,552,698	
	Ticketing (Enclosed)	SM	3,200.00	3,781.77	100	378,177	
							2,930,875
	Subtotal						85,660,000
	Mobilization and Indirect Field Cost		15%				12,849,000
	Subtotal—Construction Cost—Base (year 2006 dollars)						98,509,000
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						24,627,250
	Subtotal—Construction Cost (Not Escalated)						123,136,250
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						25,119,795
	Total Estimated Project Cost						148,256,045
S24—Morgan Hill (Caltrain) Station (Pacheco 1-2, Suburban—Aerial)							
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	4.00	36,400	
	Site Demolition	HECT	800,000.00	945,443.68	4.00	3,781,775	
							3,818,174
2	Earthwork						
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86	—	0	
							0
3	Paving and Surfacing—excluded						
							0
4	Piped Utilities—excluded						
							0
5	Site Structural Work						
	Aerial Structure	HECT	10,750,000.00	12,704,399.46	9.90	125,773,555	
							125,773,555
6	Track work						
	Direct Fixation	M	800.23	945.72	4,860	4,596,177	
	Turnouts, No. 32.7 W. Conc. Ties	EA	365,000.00	431,358.68	4	1,725,435	
	Crossover, No. 32.7 w. Conc. Ties	EA	750,000.00	886,353.45	4	3,545,414	
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						
							9,867,026
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
							0
8	Traction Power						
	(Included in Overall Estimate)						0
9	Train Control						
	(Included in Overall Estimate)						0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	7,200	1,446,529	
	Pier Caps	SM	175.00	206.82	7,200	1,489,074	
	Platform Slab	SM	120.00	141.82	7,200	1,021,079	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	800	236,361	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	7,200	2,893,058	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	7,200	1,361,439	
	Station Lighting	SM	130.00	153.63	7,200	1,106,169	
	Signage	platform	5,000.00	5,909.02	2	11,818	
	Platform Furnishing	platform	45,000.00	53,181.21	2	106,362	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	8	189,089	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00	1	7,942,000	
	Undercrossing	EA		10,900,000.00		0	
							17,802,978
11	Station Building and Access to Platforms						
	Passenger Terminal (300'x200' Foot Print)	SM	540.00	638.17	11,000	7,019,919	
	Ticketing (Enclosed)	SM	3,200.00	3,781.77	100	378,177	
							7,398,097
	Subtotal						164,660,000
	Mobilization and Indirect Field Cost		15%				24,699,000
	Subtotal—Construction Cost—Base (year 2006 dollars)						189,359,000

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						47,339,750
	Subtotal—Construction Cost (Not Escalated)						236,698,750
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						48,286,545
	Total Estimated Project Cost						284,985,295
S25—Modesto Downtown Station (UPRR N/S 4-5A/B, Urban—At Grade)							
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	4.00	36,400	
	Site Demolition	HECT	800,000.00	945,443.68	4.00	3,781,775	
							3,818,174
2	Earthwork						
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86	38,000.00	336,814	
							336,814
3	Paving and Surfacing—excluded						
							0
4	Piped Utilities—excluded						
							0
5	Site Structural Work						
	At Grade					0	
							0
6	Track work						
	Ballasted Track Incl. Ballast and subballast	M	430.00	508.18	3,760	1,910,742	
	Turnouts, No. 50 W. Conc. Ties	EA	700,000.00	827,263.22	4	3,309,053	
	Crossover, No. 50 w. Conc. Ties	EA	1,500,000.00	1,772,706.90	4	7,090,828	
	Bumping Posts	EA	50,000.00	59,090.23		0	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Heavy Duty Rubber Grade Crossing						
							12,310,622
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						
							0
8	Traction Power						
	(Included in Overall Estimate)						
							0
9	Train Control						
	(Included in Overall Estimate)						
							0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	10,800	2,169,793	
	Pier Caps	SM	175.00	206.82	10,800	2,233,611	
	Platform Slab	SM	120.00	141.82	10,800	1,531,619	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	2,400	709,083	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	10,800	4,339,586	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	10,800	2,042,158	
	Station Lighting	SM	130.00	153.63	10,800	1,659,254	
	Signage	platform	5,000.00	5,909.02	3	17,727	
	Platform Furnishing	platform	45,000.00	53,181.21	3	159,544	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	12	283,633	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00	1	7,942,000	
	Undercrossing	EA		10,900,000.00		0	
							23,088,008
11	Station Building and Access to Platforms						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Passenger Terminal (180'x65' Foot Print)	SM	540.00	638.17	2,100	1,340,166	
	Ticketing (Enclosed)	SM	3,200.00	3,781.77	100	378,177	
							1,718,344
	Subtotal						41,270,000
	Mobilization and Indirect Field Cost		15%				6,190,500
	Subtotal—Construction Cost—Base (year 2006 dollars)						47,460,500
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						11,865,125
	Subtotal—Construction Cost (Not Escalated)						59,325,625
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						12,102,428
	Total Estimated Project Cost						71,428,053
S26—Briggsmore (Amtrak) Station (BNSF N/S 4-5, Suburban—At Grade)							
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	4.00	36,400	
	Site Demolition	HECT	800,000.00	945,443.68	4.00	3,781,775	
							3,818,174
2	Earthwork						
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86	38,000.00	336,814	
							336,814
3	Paving and Surfacing—excluded						
							0
4	Piped Utilities—excluded						
							0
5	Site Structural Work						
	At Grade					0	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
							0
6	Track work						
	Ballasted Track Incl. Ballast and subballast	M	430.00	508.18	3,760	1,910,742	
	Turnouts, No. 50 W. Conc. Ties	EA	700,000.00	827,263.22	4	3,309,053	
	Crossover, No. 50 w. Conc. Ties	EA	1,500,000.00	1,772,706.90	4	7,090,828	
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						
							12,310,622
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						
							0
8	Traction Power						
	(Included in Overall Estimate)						
							0
9	Train Control						
	(Included in Overall Estimate)						
							0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	10,800	2,169,793	
	Pier Caps	SM	175.00	206.82	10,800	2,233,611	
	Platform Slab	SM	120.00	141.82	10,800	1,531,619	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	2,400	709,083	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	10,800	4,339,586	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	10,800	2,042,158	
	Station Lighting	SM	130.00	153.63	10,800	1,659,254	
	Signage	platform	5,000.00	5,909.02	3	17,727	
	Platform Furnishing	platform	45,000.00	53,181.21	3	159,544	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
3	Paving and Surfacing—excluded						0
4	Piped Utilities—excluded						0
5	Site Structural Work						
	At Grade					0	0
6	Track work						
	Ballasted Track Incl. Ballast and subballast	M	430.00	508.18	3,760	1,910,742	
	Turnouts, No. 50 W. Conc. Ties	EA	700,000.00	827,263.22	4	3,309,053	
	Crossover, No. 50 w. Conc. Ties	EA	1,500,000.00	1,772,706.90	4	7,090,828	
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						
							12,310,622
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						
							0
8	Traction Power						
	(Included in Overall Estimate)						
							0
9	Train Control						
	(Included in Overall Estimate)						
							0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	10,800	2,169,793	
	Pier Caps	SM	175.00	206.82	10,800	2,233,611	
	Platform Slab	SM	120.00	141.82	10,800	1,531,619	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	2,400	709,083	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	10,800	4,339,586	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	10,800	2,042,158	
	Station Lighting	SM	130.00	153.63	10,800	1,659,254	
	Signage	platform	5,000.00	5,909.02	3	17,727	
	Platform Furnishing	platform	45,000.00	53,181.21	3	159,544	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	12	283,633	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00	1	7,942,000	
	Undercrossing	EA		10,900,000.00		0	
							23,088,008
11	Station Building and Access to Platforms						
	Passenger Terminal (180'x65' Foot Print)	SM	540.00	638.17	2,100	1,340,166	
	Ticketing (Enclosed)	SM	3,200.00	3,781.77	100	378,177	
							1,718,344
	Subtotal						41,270,000
	Mobilization and Indirect Field Cost		15%				6,190,500
	Subtotal—Construction Cost—Base (year 2006 dollars)						47,460,500
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						11,865,125
	Subtotal—Construction Cost (Not Escalated)						59,325,625
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						12,102,428
	Total Estimated Project Cost						71,428,053
S28—Castle Air Force Base Station (BNSF N/S 6-7, BNSF Castle 1-2, Suburban—At Grade)							
1	Site Clearing						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	10,800	2,169,793	
	Pier Caps	SM	175.00	206.82	10,800	2,233,611	
	Platform Slab	SM	120.00	141.82	10,800	1,531,619	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	2,400	709,083	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	10,800	4,339,586	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	10,800	2,042,158	
	Station Lighting	SM	130.00	153.63	10,800	1,659,254	
	Signage	platform	5,000.00	5,909.02	3	17,727	
	Platform Furnishing	platform	45,000.00	53,181.21	3	159,544	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	12	283,633	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00	1	7,942,000	
	Undercrossing	EA		10,900,000.00		0	
							23,088,008
11	Station Building and Access to Platforms						
	Passenger Terminal (180'x65' Foot Print)	SM	540.00	638.17	2,100	1,340,166	
	Ticketing (Enclosed)	SM	3,200.00	3,781.77	100	378,177	
							1,718,344
	Subtotal						41,270,000
	Mobilization and Indirect Field Cost		15%				6,190,500
	Subtotal—Construction Cost—Base (year 2006 dollars)						47,460,500
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						11,865,125
	Subtotal—Construction Cost (Not Escalated)						59,325,625
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						12,102,428
	Total Estimated Project Cost						71,428,053
Livermore 1 (UPRR) Station (Suburban-At Grade)							
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	4.00	36,400	
	Site Demolition	HECT	800,000.00	945,443.68	4.00	3,781,775	
							3,818,174
2	Earthwork						
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86	38,000.00	336,814	
							336,814
3	Paving and Surfacing—excluded						
							0
4	Piped Utilities—excluded						
							0
5	Site Structural Work						
	At Grade					0	
							0
6	Track work						
	Ballasted Track Incl. Ballast and subballast	M	430.00	508.18	3,760	1,910,742	
	Turnouts, No. 50 W. Conc. Ties	EA	700,000.00	827,263.22	4	3,309,053	
	Crossover, No. 50 w. Conc. Ties	EA	1,500,000.00	1,772,706.90	4	7,090,828	
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						
							12,310,622
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						
							0
8	Traction Power						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	(Included in Overall Estimate)						0
9	Train Control						
	(Included in Overall Estimate)						0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	10,800	2,169,793	
	Pier Caps	SM	175.00	206.82	10,800	2,233,611	
	Platform Slab	SM	120.00	141.82	10,800	1,531,619	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	2,400	709,083	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	10,800	4,339,586	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	10,800	2,042,158	
	Station Lighting	SM	130.00	153.63	10,800	1,659,254	
	Signage	platform	5,000.00	5,909.02	3	17,727	
	Platform Furnishing	platform	45,000.00	53,181.21	3	159,544	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	12	283,633	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00	1	7,942,000	
	Undercrossing	EA		10,900,000.00		0	
							23,088,008
11	Station Building and Access to Platforms						
	Passenger Terminal (Station Category III)	SM	540.00	638.17	5,539	3,534,848	
	Ticketing (Enclosed)	SM	3,200.00	3,781.77	100	378,177	
							3,913,026
	Subtotal						43,470,000
	Mobilization and Indirect Field Cost		15%				6,520,500
	Subtotal—Construction Cost—Base (year 2006 dollars)						49,990,500
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Contingencies (25% of Total Construction Cost)						12,497,625
	Subtotal—Construction Cost (Not Escalated)						62,488,125
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						12,747,578
	Total Estimated Project Cost						75,235,703
S29—Union City (Shinn) Station (Niles/I-880 4-5, Urban—Aerial)							
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	2.00	18,200	
	Site Demolition	HECT	800,000.00	945,443.68	2.00	1,890,887	
							1,909,087
2	Earthwork						
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86	—	0	
							0
3	Paving and Surfacing—excluded						
							0
4	Piped Utilities—excluded						
							0
5	Site Structural Work						
	Aerial Structure	HECT	10,750,000.00	12,704,399.46	11.00	139,748,394	
							139,748,394
6	Track work						
	Direct Fixation	M	430.00	508.18		0	
	Turnouts, No. 32.7 W. Conc. Ties	EA	700,000.00	827,263.22		0	
	Crossover, No. 32.7 w. Conc. Ties	EA	1,500,000.00	1,772,706.90	4	7,090,828	
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						
							7,090,828

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						
							0
8	Traction Power						
	(Included in Overall Estimate)						
							0
9	Train Control						
	(Included in Overall Estimate)						
							0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	7,200	1,446,529	
	Pier Caps	SM	175.00	206.82	7,200	1,489,074	
	Platform Slab	SM	120.00	141.82	7,200	1,021,079	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	800	236,361	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	7,200	2,893,058	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	7,200	1,361,439	
	Station Lighting	SM	130.00	153.63	7,200	1,106,169	
	Signage	platform	5,000.00	5,909.02	2	11,818	
	Platform Furnishing	platform	45,000.00	53,181.21	2	106,362	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	8	189,089	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00		0	
	Undercrossing	EA		10,900,000.00	1	10,900,000	
							20,760,978
11	Station Building and Access to Platforms						
	Passenger Terminal (Station Category III)	SM	540.00	638.17	5,539	3,534,848	
	Ticketing (Enclosed)	SM	3,200.00	3,781.77	100	378,177	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
							3,913,026
	Subtotal						173,420,000
	Mobilization and Indirect Field Cost		15%				26,013,000
	Subtotal—Construction Cost—Base (year 2006 dollars)						199,433,000
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						49,858,250
	Subtotal—Construction Cost (Not Escalated)						249,291,250
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						50,855,415
	Total Estimated Project Cost						300,146,665
S30—Newark Station (Caltrain 2-3, Suburban—Aerial)							
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	2.00	18,200	
	Site Demolition	HECT	800,000.00	945,443.68	2.00	1,890,887	
							1,909,087
2	Earthwork						
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86	—	0	
							0
3	Paving and Surfacing—excluded						
							0
4	Piped Utilities—excluded						
							0
5	Site Structural Work						
	Aerial Structure	HECT	10,750,000.00	12,704,399.46	11.00	139,748,394	
							139,748,394
6	Track work						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Direct Fixation	M	430.00	508.18		0	
	Turnouts, No. 32.7 W. Conc. Ties	EA	700,000.00	827,263.22		0	
	Crossover, No. 32.7 w. Conc. Ties	EA	1,500,000.00	1,772,706.90	4	7,090,828	
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						
							7,090,828
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						
							0
8	Traction Power						
	(Included in Overall Estimate)						
							0
9	Train Control						
	(Included in Overall Estimate)						
							0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	7,200	1,446,529	
	Pier Caps	SM	175.00	206.82	7,200	1,489,074	
	Platform Slab	SM	120.00	141.82	7,200	1,021,079	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	800	236,361	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	7,200	2,893,058	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	7,200	1,361,439	
	Station Lighting	SM	130.00	153.63	7,200	1,106,169	
	Signage	platform	5,000.00	5,909.02	2	11,818	
	Platform Furnishing	platform	45,000.00	53,181.21	2	106,362	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	8	189,089	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00		0	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Undercrossing	EA		10,900,000.00	1	10,900,000	
							20,760,978
11	Station Building and Access to Platforms						
	Passenger Terminal (Station Category III)	SM	540.00	638.17	5,539	3,534,848	
	Ticketing (Enclosed)	SM	3,200.00	3,781.77	100	378,177	
							3,913,026
	Subtotal						173,420,000
	Mobilization and Indirect Field Cost		15%				26,013,000
	Subtotal—Construction Cost—Base (year 2006 dollars)						199,433,000
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						49,858,250
	Subtotal—Construction Cost (Not Escalated)						249,291,250
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						50,855,415
	Total Estimated Project Cost						300,146,665
S31—Pleasanton (BART) Station (I-680/580/UPRR 1-2, Suburban—Aerial)							
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	4.00	36,400	
	Site Demolition	HECT	800,000.00	945,443.68	4.00	3,781,775	
							3,818,174
2	Earthwork						
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86	—	0	
							0
3	Paving and Surfacing—excluded						
							0
4	Piped Utilities—excluded						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
							0
5	Site Structural Work						
	Aerial Structure	HECT	10,750,000.00	12,704,399.46	11.00	139,748,394	
							139,748,394
6	Track work						
	Direct Fixation	M	800.23	945.72		0	
	Turnouts, No. 50 W. Conc. Ties	EA	365,000.00	431,358.68		0	
	Crossover, No. 50 w. Conc. Ties	EA	750,000.00	886,353.45	4	3,545,414	
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						
							3,545,414
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						
							0
8	Traction Power						
	(Included in Overall Estimate)						
							0
9	Train Control						
	(Included in Overall Estimate)						
							0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	7,200	1,446,529	
	Pier Caps	SM	175.00	206.82	7,200	1,489,074	
	Platform Slab	SM	120.00	141.82	7,200	1,021,079	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	800	236,361	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	7,200	2,893,058	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	7,200	1,361,439	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Station Lighting	SM	130.00	153.63	7,200	1,106,169	
	Signage	platform	5,000.00	5,909.02	2	11,818	
	Platform Furnishing	platform	45,000.00	53,181.21	2	106,362	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	8	189,089	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00		0	
	Undercrossing	EA		10,900,000.00	1	10,900,000	
							20,760,978
11	Station Building and Access to Platforms						
	Passenger Terminal (Station Category III)	SM	540.00	638.17	5,539	3,534,848	
	Ticketing (Enclosed)	SM	3,200.00	3,781.77	100	378,177	
							3,913,026
	Subtotal						171,790,000
	Mobilization and Indirect Field Cost		15%				25,768,500
	Subtotal—Construction Cost—Base (year 2006 dollars)						197,558,500
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						49,389,625
	Subtotal—Construction Cost (Not Escalated)						246,948,125
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						50,377,418
	Total Estimated Project Cost						297,325,543
S32—Pleasanton (I-680/Bernal) Station (UPRR 3-4, Suburban—At Grade)							
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	4.00	36,400	
	Site Demolition	HECT	800,000.00	945,443.68	4.00	3,781,775	
							3,818,174

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
2	Earthwork						
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86	150,000.00	1,329,530	
							1,329,530
3	Paving and Surfacing—excluded						
							0
4	Piped Utilities—excluded						
							0
5	Site Structural Work						
	At grade					0	
							0
6	Track work						
	Ballasted Track Incl. Ballast and subballast	M	430.00	508.18		0	
	Turnouts, No. 50 W. Conc. Ties	EA	700,000.00	827,263.22		0	
	Crossover, No. 50 w. Conc. Ties	EA	1,500,000.00	1,772,706.90	4	7,090,828	
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						
							7,090,828
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						
							0
8	Traction Power						
	(Included in Overall Estimate)						
							0
9	Train Control						
	(Included in Overall Estimate)						
							0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	7,200	1,446,529	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Pier Caps	SM	175.00	206.82	7,200	1,489,074	
	Platform Slab	SM	120.00	141.82	7,200	1,021,079	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	800	236,361	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	7,200	2,893,058	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	7,200	1,361,439	
	Station Lighting	SM	130.00	153.63	7,200	1,106,169	
	Signage	platform	5,000.00	5,909.02	2	11,818	
	Platform Furnishing	platform	45,000.00	53,181.21	2	106,362	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	8	189,089	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00	1	7,942,000	
	Undercrossing	EA		10,900,000.00		0	
							17,802,978
11	Station Building and Access to Platforms						
	Passenger Terminal (Station Category III)	SM	540.00	638.17	5,539	3,534,848	
	Ticketing (Enclosed)	SM	3,200.00	1.18	100	118	
							3,534,967
	Subtotal						33,580,000
	Mobilization and Indirect Field Cost		15%				5,037,000
	Subtotal—Construction Cost—Base (year 2006 dollars)						38,617,000
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						9,654,250
	Subtotal—Construction Cost (Not Escalated)						48,271,250
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						9,847,335

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
9	Train Control						
	(Included in Overall Estimate)						
							0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	10,800	2,169,793	
	Pier Caps	SM	175.00	206.82	10,800	2,233,611	
	Platform Slab	SM	120.00	141.82	10,800	1,531,619	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	2,400	709,083	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	10,800	4,339,586	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	10,800	2,042,158	
	Station Lighting	SM	130.00	153.63	10,800	1,659,254	
	Signage	platform	5,000.00	5,909.02	3	17,727	
	Platform Furnishing	platform	45,000.00	53,181.21	3	159,544	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	12	283,633	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00		0	
	Undercrossing	EA		10,900,000.00	1	10,900,000	
							26,046,008
11	Station Building and Access to Platforms						
	Passenger Terminal (Station Category III)	SM	540.00	638.17	5,539	3,534,848	
	Ticketing (Enclosed)	SM	3,200.00	3,781.77	100	378,177	
							3,913,026
	Subtotal						76,500,000
	Mobilization and Indirect Field Cost			15%			11,475,000
	Subtotal—Construction Cost—Base (year 2006 dollars)						87,975,000
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						21,993,750
	Subtotal—Construction Cost (Not Escalated)						109,968,750
	Project Conceptual and Preliminary Engineering						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						22,433,625
	Total Estimated Project Cost						132,402,375
S34—Livermore 2 (Downtown) Station (UPRR 5-6, Urban—At Grade)							
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	4.00	36,400	
	Site Demolition	HECT	800,000.00	945,443.68	4.00	3,781,775	
							3,818,174
2	Earthwork						
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86	150,000.00	1,329,530	
							1,329,530
3	Paving and Surfacing—excluded						
							0
4	Piped Utilities—excluded						
							0
5	Site Structural Work						
	At grade						
							0
6	Track work						
	Ballasted Track Incl. Ballast and subballast	M	430.00	508.18		0	
	Turnouts, No. 50 W. Conc. Ties	EA	700,000.00	827,263.22		0	
	Crossover, No. 50 w. Conc. Ties	EA	1,500,000.00	1,772,706.90	4	7,090,828	
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						
							7,090,828
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Lighting—See Item 10						0
8	Traction Power						
	(Included in Overall Estimate)						0
9	Train Control						
	(Included in Overall Estimate)						0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	7,200	1,446,529	
	Pier Caps	SM	175.00	206.82	7,200	1,489,074	
	Platform Slab	SM	120.00	141.82	7,200	1,021,079	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	800	236,361	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	7,200	2,893,058	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	7,200	1,361,439	
	Station Lighting	SM	130.00	153.63	7,200	1,106,169	
	Signage	platform	5,000.00	5,909.02	2	11,818	
	Platform Furnishing	platform	45,000.00	53,181.21	2	106,362	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	8	189,089	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00	1	7,942,000	
	Undercrossing	EA		10,900,000.00		0	
							17,802,978
11	Station Building and Access to Platforms						
	Passenger Terminal (Station Category III)	SM	540.00	638.17	5,539	3,534,848	
	Ticketing (Enclosed)	SM	3,200.00	3,781.77	100	378,177	
							3,913,026
	Subtotal						33,950,000
	Mobilization and Indirect Field Cost		15%				5,092,500

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Subtotal—Construction Cost—Base (year 2006 dollars)						39,042,500
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						9,760,625
	Subtotal—Construction Cost (Not Escalated)						48,803,125
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						9,955,838
	Total Estimated Project Cost						58,758,963
S35—Livermore 2 (Downtown) Station (UPRR 5-6, Urban—Aerial)							
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	2.00	18,200	
	Site Demolition	HECT	800,000.00	945,443.68	2.00	1,890,887	
							1,909,087
2	Earthwork						
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86	—	0	
							0
3	Paving and Surfacing—excluded						
							0
4	Piped Utilities—excluded						
							0
5	Site Structural Work						
	Aerial Structure	HECT	10,750,000.00	12,704,399.46	11.00	139,748,394	
							139,748,394
6	Track work						
	Direct Fixation	M	430.00	508.18		0	
	Turnouts, No. 50 W. Conc. Ties	EA	700,000.00	827,263.22		0	
	Crossover, No. 50 w. Conc. Ties	EA	1,500,000.00	1,772,706.90	4	7,090,828	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						
							7,090,828
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						
							0
8	Traction Power						
	(Included in Overall Estimate)						
							0
9	Train Control						
	(Included in Overall Estimate)						
							0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	7,200	1,446,529	
	Pier Caps	SM	175.00	206.82	7,200	1,489,074	
	Platform Slab	SM	120.00	141.82	7,200	1,021,079	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	800	236,361	
	Platform Finish Work—excluded					0	
	Canopy—Str. Steel	SM	340.00	401.81	7,200	2,893,058	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	7,200	1,361,439	
	Station Lighting	SM	130.00	153.63	7,200	1,106,169	
	Signage	platform	5,000.00	5,909.02	2	11,818	
	Platform Furnishing	platform	45,000.00	53,181.21	2	106,362	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	8	189,089	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00		0	
	Undercrossing	EA		10,900,000.00	1	10,900,000	
							20,760,978

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
11	Station Building and Access to Platforms						
	Passenger Terminal (Station Category III)	SM	540.00	638.17	5,539	3,534,848	
	Ticketing (Enclosed)	SM	3,200.00	3,781.77	100	378,177	
							3,913,026
	Subtotal						173,420,000
	Mobilization and Indirect Field Cost		15%				26,013,000
	Subtotal—Construction Cost—Base (year 2006 dollars)						199,433,000
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						49,858,250
	Subtotal—Construction Cost (Not Escalated)						249,291,250
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						50,855,415
	Total Estimated Project Cost						300,146,665
S36—Livermore (Greenville Road/I-580) Station (I-680/580/UPRR 4-5, Undeveloped—Aerial)							
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	—	0	
	Site Demolition	HECT	800,000.00	945,443.68	—	0	
							0
2	Earthwork						
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86	—	0	
							0
3	Paving and Surfacing—excluded						
							0
4	Piped Utilities—excluded						
							0
5	Site Structural Work						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Aerial Structure	HECT	10,750,000.00	12,704,399.46	4.00	50,817,598	
							50,817,598
6	Track work						
	Direct Fixation	M	800.23	945.72		0	
	Turnouts, No. 50 W. Conc. Ties	EA	365,000.00	431,358.68		0	
	Crossover, No. 50 w. Conc. Ties	EA	750,000.00	886,353.45	4	3,545,414	
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						
							3,545,414
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						
							0
8	Traction Power						
	(Included in Overall Estimate)						
							0
9	Train Control						
	(Included in Overall Estimate)						
							0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	10,800	2,169,793	
	Pier Caps	SM	175.00	206.82	10,800	2,233,611	
	Platform Slab	SM	120.00	141.82	10,800	1,531,619	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	2,400	709,083	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	10,800	4,339,586	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	10,800	2,042,158	
	Station Lighting	SM	130.00	153.63	10,800	1,659,254	
	Signage	platform	5,000.00	5,909.02	3	17,727	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Platform Furnishing	platform	45,000.00	53,181.21	3	159,544	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	12	283,633	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00	1	7,942,000	
	Undercrossing	EA		10,900,000.00		0	
							23,088,008
11	Station Building and Access to Platforms						
	Passenger Terminal (Station Category III)	SM	540.00	638.17	5,539	3,534,848	
	Ticketing (Enclosed)	SM	3,200.00	3,781.77	100	378,177	
							3,913,026
	Subtotal						81,360,000
	Mobilization and Indirect Field Cost		15%				12,204,000
	Subtotal—Construction Cost—Base (year 2006 dollars)						93,564,000
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						23,391,000
	Subtotal—Construction Cost (Not Escalated)						116,955,000
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						23,858,820
	Total Estimated Project Cost						140,813,820
S37—Livermore (Greenville Road/UPRR) Station							
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	4.00	36,400	
	Site Demolition	HECT	800,000.00	945,443.68	4.00	3,781,775	
							3,818,174
2	Earthwork						
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86	150,000.00	1,329,530	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
							1,329,530
3	Paving and Surfacing—excluded						0
4	Piped Utilities—excluded						0
5	Site Structural Work						
	At grade					0	0
6	Track work						
	Ballasted Track Incl. Ballast and subballast	M	430.00	508.18		0	
	Turnouts, No. 50 W. Conc. Ties	EA	700,000.00	827,263.22		0	
	Crossover, No. 50 w. Conc. Ties	EA	1,500,000.00	1,772,706.90	4	7,090,828	
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						7,090,828
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						0
8	Traction Power						
	(Included in Overall Estimate)						0
9	Train Control						
	(Included in Overall Estimate)						0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	7,200	1,446,529	
	Pier Caps	SM	175.00	206.82	7,200	1,489,074	
	Platform Slab	SM	120.00	141.82	7,200	1,021,079	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	800	236,361	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	7,200	2,893,058	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	7,200	1,361,439	
	Station Lighting	SM	130.00	153.63	7,200	1,106,169	
	Signage	platform	5,000.00	5,909.02	2	11,818	
	Platform Furnishing	platform	45,000.00	53,181.21	2	106,362	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	8	189,089	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00	1	7,942,000	
	Undercrossing	EA		10,900,000.00		0	
							17,802,978
11	Station Building and Access to Platforms						
	Passenger Terminal (Station Category III)	SM	540.00	638.17	5,539	3,534,848	
	Ticketing (Enclosed)	SM	3,200.00	1.18	100	118	
							3,534,967
	Subtotal						33,580,000
	Mobilization and Indirect Field Cost		15%				5,037,000
	Subtotal—Construction Cost—Base (year 2006 dollars)						38,617,000
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						9,654,250
	Subtotal—Construction Cost (Not Escalated)						48,271,250
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						9,847,335
	Total Estimated Project Cost						58,118,585
S38—Tracy 1 (Downtown) Station (UPRR 10-11, Urban—Aerial)							

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	2.00	18,200	
	Site Demolition	HECT	800,000.00	945,443.68	2.00	1,890,887	
							1,909,087
2	Earthwork						
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86	—	0	
							0
3	Paving and Surfacing—excluded						
							0
4	Piped Utilities—excluded						
							0
5	Site Structural Work						
	Aerial Structure	HECT	10,750,000.00	12,704,399.46	11.00	139,748,394	
							139,748,394
6	Track work						
	Direct Fixation	M	430.00	508.18		0	
	Turnouts, No. 32.7 W. Conc. Ties	EA	700,000.00	827,263.22		0	
	Crossover, No. 32.7 w. Conc. Ties	EA	1,500,000.00	1,772,706.90	4	7,090,828	
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						
							7,090,828
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						
							0
8	Traction Power						
	(Included in Overall Estimate)						
							0
9	Train Control						
	(Included in Overall Estimate)						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
							0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	7,200	1,446,529	
	Pier Caps	SM	175.00	206.82	7,200	1,489,074	
	Platform Slab	SM	120.00	141.82	7,200	1,021,079	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	800	236,361	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	7,200	2,893,058	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	7,200	1,361,439	
	Station Lighting	SM	130.00	153.63	7,200	1,106,169	
	Signage	platform	5,000.00	5,909.02	2	11,818	
	Platform Furnishing	platform	45,000.00	53,181.21	2	106,362	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	8	189,089	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00		0	
	Undercrossing	EA		10,900,000.00	1	10,900,000	
							20,760,978
11	Station Building and Access to Platforms						
	Passenger Terminal (Station Category III)	SM	540.00	638.17	5,539	3,534,848	
	Ticketing (Enclosed)	SM	3,200.00	3,781.77	100	378,177	
							3,913,026
	Subtotal						173,420,000
	Mobilization and Indirect Field Cost		15%				26,013,000
	Subtotal—Construction Cost—Base (year 2006 dollars)						199,433,000
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						49,858,250
	Subtotal—Construction Cost (Not Escalated)						249,291,250
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
8	Traction Power						
	(Included in Overall Estimate)						
							0
9	Train Control						
	(Included in Overall Estimate)						
							0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	7,200	1,446,529	
	Pier Caps	SM	175.00	206.82	7,200	1,489,074	
	Platform Slab	SM	120.00	141.82	7,200	1,021,079	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	800	236,361	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	7,200	2,893,058	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	7,200	1,361,439	
	Station Lighting	SM	130.00	153.63	7,200	1,106,169	
	Signage	platform	5,000.00	5,909.02	2	11,818	
	Platform Furnishing	platform	45,000.00	53,181.21	2	106,362	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	8	189,089	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00		0	
	Undercrossing	EA		10,900,000.00	1	10,900,000	
							20,760,978
11	Station Building and Access to Platforms						
	Passenger Terminal (Station Category III)	SM	540.00	638.17	5,539	3,534,848	
	Ticketing (Enclosed)	SM	3,200.00	3,781.77	100	378,177	
							3,913,026
	Subtotal						173,420,000
	Mobilization and Indirect Field Cost		15%				26,013,000
	Subtotal—Construction Cost—Base (year 2006 dollars)						199,433,000
	Escalation to Midpoint of Construction—not included						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						49,858,250
	Subtotal—Construction Cost (Not Escalated)						249,291,250
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						50,855,415
	Total Estimated Project Cost						300,146,665
Livermore 1 (UPRR) Station (Suburban—At Grade)							
1	Site Clearing						
	Site Clearing	HECT	7,700.00	9,099.90	4.00	36,400	
	Site Demolition	HECT	800,000.00	945,443.68	4.00	3,781,775	
							3,818,174
2	Earthwork						
	Grading Site—Cut and Fill 1M Average	M3	7.50	8.86	38,000.00	336,814	
							336,814
3	Paving and Surfacing—excluded						
							0
4	Piped Utilities—excluded						
							0
5	Site Structural Work						
	At Grade					0	
							0
6	Track work						
	Ballasted Track Incl. Ballast and subballast	M	430.00	508.18		0	
	Turnouts, No. 50 W. Conc. Ties	EA	700,000.00	827,263.22		0	
	Crossover, No. 50 w. Conc. Ties	EA	1,500,000.00	1,772,706.90	4	7,090,828	
	Bumping Posts	EA	50,000.00	59,090.23		0	
	Heavy Duty Rubber Grade Crossing						

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
							7,090,828
7	Station Electrical Work						
	CCTV and Security System—excluded						
	Communication System—excluded						
	Lighting—See Item 10						
							0
8	Traction Power						
	(Included in Overall Estimate)						
							0
9	Train Control						
	(Included in Overall Estimate)						
							0
10	Station Platform						
	Platforms:						
	Foundation—Pier Caissons	SM	170.00	200.91	10,800	2,169,793	
	Pier Caps	SM	175.00	206.82	10,800	2,233,611	
	Platform Slab	SM	120.00	141.82	10,800	1,531,619	
	Platform Warning Edge and Rubbing Edge	M	250.00	295.45	2,400	709,083	
	Platform Finish Work—excluded						
	Canopy—Str. Steel	SM	340.00	401.81	10,800	4,339,586	
	Canopy Roof Metal Deck, Roofing, Gutter, Etc.	SM	160.00	189.09	10,800	2,042,158	
	Station Lighting	SM	130.00	153.63	10,800	1,659,254	
	Signage	platform	5,000.00	5,909.02	3	17,727	
	Platform Furnishing	platform	45,000.00	53,181.21	3	159,544	
	Windscreen Shelter—4 ea. Per Platform	EA	20,000.00	23,636.09	12	283,633	
	Pedestrian Crossing						
	Overcrossing	EA		7,942,000.00	1	7,942,000	
	Undercrossing	EA		10,900,000.00		0	
							23,088,008
11	Station Building and Access to Platforms						
	Passenger Terminal (Station Category III)	SM	540.00	638.17	5,539	3,534,848	

Item No.	Description	Unit	Unit Cost (June 2003 dollars)	Unit Cost (November 2006 dollars)	Quantity	Estimated Cost (in dollars)	Category Total Cost (in dollars)
	Ticketing (Enclosed)	SM	3,200.00	3,781.77	100	378,177	
							3,913,026
	Subtotal						38,250,000
	Mobilization and Indirect Field Cost		15%				5,737,500
	Subtotal—Construction Cost—Base (year 2006 dollars)						43,987,500
	Escalation to Midpoint of Construction—not included						
	Right of way Acquisition						
	Contingencies (25% of Total Construction Cost)						10,996,875
	Subtotal—Construction Cost (Not Escalated)						54,984,375
	Project Conceptual and Preliminary Engineering						
	Final Engineering Design Cost						
	Construction Management and Inspection Costs @ 10%						
	Field Changed Condition						
	Owner Administration and Engineering						
	Program Implementation Costs (25.5% of Total Cost and Procurement)						11,216,813
	Total Estimated Project Cost						66,201,188

CAPITAL COST: NETWORK ALTERNATIVES

Appendix 4-C. Capital Cost: Network Alternatives

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
ALTAMONT PASS						
A1—San Francisco and San Jose Termini		327.24	203.34	33,531,358	53,963,489	10,972,862,793
<i>Caltrain Corridor (San Francisco to Dumbarton)</i>		53.11	33.00	41,277,116	66,429,079	2,192,227,640
Caltrain 1	Transbay Transit Center to 4th/Townsend	5.00	3.11	79,761,189	128,363,191	398,805,944
Caltrain 2	4th/Townsend to Millbrae/SFO	28.61	17.78	35,793,741	57,604,443	1,024,058,938
Caltrain 3	Millbrae/SFO to Redwood City	18.75	11.65	37,489,586	60,333,640	702,929,734
Caltrain 4	Redwood City to Caltrain	0.75	0.47	88,577,366	142,551,453	66,433,025
<i>Dumbarton (High Bridge)</i>		28.71	17.84	67,921,596	109,309,214	1,949,893,187
Dumbarton-XN	Dumbarton Wye North to Caltrain	1.20	0.75	134,496,341	216,450,879	161,395,609
Dumbarton-1 (High Bridge)	Dumbarton Bay Crossing to Don Edwards	10.01	6.22	88,615,763	142,613,246	886,866,552
Dumbarton-2 (High Bridge)	Dumbarton Bay Crossing to Don Edwards	13.00	8.08	60,644,584	97,597,998	788,379,595
UPRR-1	Shinn to Niles Canyon	4.50	2.80	25,166,985	40,502,336	113,251,431
<i>Niles/I-880 (Niles Junction to San Jose via I-880)</i>		22.45	13.95	49,012,551	78,878,055	1,100,331,777
Niles/I-880 5B	Niles Wye (S) to Warm Springs	8.45	5.25	16,691,618	26,862,555	141,044,170
Niles/I-880 6	Warm Springs to Trimble Rd	2.35	1.46	212,457,836	341,917,743	499,275,914
Niles/I-880 7A	I-880 – Trimble Rd. to Diridon	11.65	7.24	39,485,982	63,546,529	460,011,694
<i>East Bay Connection (Dumbarton/Niles XS)</i>		8.88	5.52	64,964,684	104,550,525	576,756,466
Dumbarton/Niles XS	Niles to Fremont – Niles Wye (E) to Niles Wye (S)	8.88	5.52	64,964,684	104,550,525	576,756,466

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
	<i>UPRR (Niles to Altamont)</i>	39.77	24.71	42,257,804	68,007,343	1,680,501,168
UPRR-2A/2B	Niles Canyon to Sunol	6.27	3.90	99,895,152	160,765,663	626,342,602
UPRR-3	Sunol to Pleasanton	3.30	2.05	44,840,606	72,163,960	147,876,695
UPRR-4	Pleasanton to El Charo	2.59	1.61	26,410,969	42,504,335	68,510,055
UPRR-5	El Charo to Livermore	6.61	4.10	7,127,268	11,470,225	47,082,729
UPRR-6	Livermore to Patterson Pass cut off	3.25	2.02	22,896,022	36,847,576	74,412,071
UPRR-7	Patterson Pass cut off to Greenville	2.98	1.85	18,326,922	29,494,322	54,614,227
UPRR-8	Greenville to Altamont Pass	11.27	7.00	53,967,010	86,851,484	608,154,234
UPRR-9	Altamont Pass to County Line	3.50	2.18	15,283,791	24,596,878	53,508,554
	<i>Tracy Downtown (UPRR Connection)</i>	48.26	29.98	19,223,066	30,936,526	927,628,261
UPRR-10	County Line to Tracy Downtown	12.35	7.67	24,741,185	39,817,078	305,553,641
UPRR-11	Tracy Downtown to I-205	7.40	4.60	15,859,194	25,522,899	117,358,035
UPRR-12	I-205 to S. UPRR	7.80	4.85	15,933,589	25,642,626	124,281,993
UPRR-13	I-205 to Lathrop – Northern	13.14	8.16	18,113,361	29,150,629	238,009,562
MC-1	Southwestern Manteca	1.46	0.91	27,687,372	44,558,506	40,340,501
MC-2	Southeastern Manteca	1.83	1.14	25,102,875	40,399,161	45,963,364
MC-4	Manteca to Escaton Wye	4.28	2.66	13,118,552	21,112,263	56,121,166
	<i>UPRR (Central Valley)</i>	134.95	83.85	18,862,722	30,356,608	2,545,524,294
UPRR N/S-1	French Camp to Lathrop	8.00	4.97	13,627,270	21,930,965	109,018,159
UPRR N/S-2	Lathrop through Manteca	8.70	5.41	21,359,159	34,374,234	185,824,683
UPRR N/S-3	Manteca South to BNSF/UPRR	3.30	2.05	7,761,402	12,490,765	25,612,626
UPRR N/S-4	BNSF?UPRR South to Modesto	18.50	11.50	15,559,246	25,040,179	287,846,051
UPRR N/S-5a *	UPRR Modesto South – Western Option	4.20	2.61	84,115,056	135,370,061	353,283,237
UPRR N/S-6	South Modesto to BNSF Connection	20.90	12.99	21,150,677	34,038,714	442,049,140
UPRR N/S-7	BNSF Connection South to Merced	33.25	20.66	16,572,019	26,670,079	551,019,624

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	32,162,740	51,760,913	152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	8,686,037	13,978,822	151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	18,020,529	29,001,230	286,526,405
<i>STATION OPTIONS</i>						
S2	Transbay Transit Center					786,262,418
S1	4th & King (Caltrain)					791,939,278
S6	Millbrae/SFO					29,076,600
S7	Redwood City (Caltrain)					67,516,558
S11	Union City (Shinn)					310,150,400
S12	Fremont (Warm Springs)					156,875,180
S5	San Jose (Diridon)					185,051,790
S15	Pleasanton (I-680/Bernal Rd)					72,639,578
S17	Livermore (Downtown) (At Grade)					73,297,263
S18	Livermore (Downtown) (Aerial)					314,667,658
S20	Livermore (Greenville/UPRR)					72,639,578
S21	Tracy (Downtown)					310,150,400
S25	Modesto (Downtown)					71,428,053
S27	Merced (Downtown)					71,428,053
<i>ALTAMONT PASS</i>						
A2—Oakland and San Jose Termini		293.17	182.16	29,251,092	47,075,069	8,575,425,642
<i>Niles/I-880 (West Oakland to Niles Junction)</i>		44.26	27.50	36,053,254	58,022,088	1,595,717,028
Niles/I-880 1A	West Oakland to Jack London Square	9.04	5.62	57,292,648	92,203,579	517,810,948
Niles/I-880 2	Jack London Square to Oakland Coliseum	3.75	2.33	58,026,798	93,385,080	217,600,493

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
Niles/I-880 3A	Oakland Coliseum to Union City (BART)	8.02	4.98	100,347,026	161,492,885	804,983,844
Niles/I-880 4A	Union City (BART) to Niles Junction	23.45	14.57	2,359,136	3,796,662	55,321,742
<i>Niles/I-880 (Niles Junction to San Jose via I-880)</i>		22.45	13.95	49,012,551	78,878,055	1,100,331,777
Niles/I-880 5B	Niles Wye (S) to Warm Springs	8.45	5.25	16,691,618	26,862,555	141,044,170
Niles/I-880 6	Warm Springs to Trimble Rd	2.35	1.46	212,457,836	341,917,743	499,275,914
Niles/I-880 7A	I-880 – Trimble Rd. to Diridon	11.65	7.24	39,485,982	63,546,529	460,011,694
<i>East Bay Connection (Dumbarton/Niles XN and Dumbarton/Niles XS)</i>		4.25	2.64	170,597,817	274,550,573	725,723,114
Dumbarton/Niles XN	Niles to Union City – Niles Wye (E) to Niles Wye (N)	4.25	2.64	35,018,018	56,356,037	148,966,648
Dumbarton/Niles XS	Niles to Fremont – Niles Wye (E) to Niles Wye (S)	8.88	5.52	64,964,684	104,550,525	576,756,466
<i>UPRR (Niles to Altamont)</i>		43.25	26.87	38,855,518	62,531,895	1,680,501,168
UPRR-2A/2B	Niles Canyon to Sunol	11.95	7.43	52,413,607	84,351,524	626,342,602
UPRR-3	Sunol to Pleasanton	1.10	0.68	134,433,359	216,349,520	147,876,695
UPRR-4	Pleasanton to El Charo	2.59	1.61	26,410,969	42,504,335	68,510,055
UPRR-5	El Charo to Livermore	6.61	4.10	7,127,268	11,470,225	47,082,729
UPRR-6	Livermore to Patterson Pass cut off	3.25	2.02	22,896,022	36,847,576	74,412,071
UPRR-7	Patterson Pass cut off to Greenville	2.98	1.85	18,326,922	29,494,322	54,614,227
UPRR-8	Greenville to Altamont Pass	11.27	7.00	53,967,010	86,851,484	608,154,234
UPRR-9	Altamont Pass to County Line	3.50	2.18	15,283,791	24,596,878	53,508,554
<i>Tracy Downtown (UPRR Connection)</i>		48.26	29.98	19,223,066	30,936,526	927,628,261
UPRR-10	County Line to Tracy Downtown	12.35	7.67	24,741,185	39,817,078	305,553,641
UPRR-11	Tracy Downtown to I-205	7.40	4.60	15,859,194	25,522,899	117,358,035

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
UPRR-12	I-205 to S. UPRR	7.80	4.85	15,933,589	25,642,626	124,281,993
UPRR-13	I-205 to Lathrop – Northern	13.14	8.16	18,113,361	29,150,629	238,009,562
MC-1	Southwestern Manteca	1.46	0.91	27,687,372	44,558,506	40,340,501
MC-2	Southeastern Manteca	1.83	1.14	25,102,875	40,399,161	45,963,364
MC-4	Manteca to Escaton Wye	4.28	2.66	13,118,552	21,112,263	56,121,166
<i>UPRR (Central Valley)</i>		134.95	83.85	18,862,722	30,356,608	2,545,524,294
UPRR N/S-1	French Camp to Lathrop	8.00	4.97	13,627,270	21,930,965	109,018,159
UPRR N/S-2	Lathrop through Manteca	8.70	5.41	21,359,159	34,374,234	185,824,683
UPRR N/S-3	Manteca South to BNSF/UPRR	3.30	2.05	7,761,402	12,490,765	25,612,626
UPRR N/S-4	BNSF?UPRR South to Modesto	18.50	11.50	15,559,246	25,040,179	287,846,051
UPRR N/S-5a *	UPRR Modesto South – Western Option	4.20	2.61	84,115,056	135,370,061	353,283,237
UPRR N/S-6	South Modesto to BNSF Connection	20.90	12.99	21,150,677	34,038,714	442,049,140
UPRR N/S-7	BNSF Connection South to Merced	33.25	20.66	16,572,019	26,670,079	551,019,624
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	32,162,740	51,760,913	152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	8,686,037	13,978,822	151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	18,020,529	29,001,230	286,526,405
<i>STATION OPTIONS</i>						
S3	West Oakland/7th Street					611,197,055
S9	Coliseum/Airport					61,735,853
S10	Union City (BART)					69,853,070
S12	Fremont (Warm Springs)					156,875,180
S5	San Jose (Diridon)					185,051,790
S15	Pleasanton (I-680/Bernal Rd)					72,639,578
S17	Livermore (Downtown) (At Grade)					73,297,263
S18	Livermore (Downtown) (Aerial)					314,667,658

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
S20	Livermore (Greenville/UPRR)					72,639,578
S21	Tracy (Downtown)					310,150,400
S25	Modesto (Downtown)					71,428,053
S27	Merced (Downtown)					71,428,053
ALTAMONT PASS						
A3—San Francisco, Oakland, and San Jose Termini		388.12	241.16	32,767,385	52,733,995	12,717,546,470
<i>Caltrain Corridor (San Francisco to Dumbarton)</i>		53.11	33.00	41,277,116	66,429,079	2,192,227,640
Caltrain 1	Transbay Transit Center to 4th/Townsend	5.00	3.11	79,761,189	128,363,191	398,805,944
Caltrain 2	4th/Townsend to Millbrae/SFO	28.61	17.78	35,793,741	57,604,443	1,024,058,938
Caltrain 3	Millbrae/SFO to Redwood City	18.75	11.65	37,489,586	60,333,640	702,929,734
Caltrain 4	Redwood City to Caltrain	0.75	0.47	88,577,366	142,551,453	66,433,025
<i>Dumbarton (High Bridge)</i>		28.71	17.84	67,921,596	109,309,214	1,949,893,187
Dumbarton-XN	Dumbarton Wye North to Caltrain	1.20	0.75	134,496,341	216,450,879	161,395,609
Dumbarton-1 (High Bridge)	Dumbarton Bay Crossing to Don Edwards	10.01	6.22	88,615,763	142,613,246	886,866,552
Dumbarton-2 (High Bridge)	Dumbarton Bay Crossing to Don Edwards	13.00	8.08	60,644,584	97,597,998	788,379,595
UPRR-1	Shinn to Niles Canyon	4.50	2.80	25,166,985	40,502,336	113,251,431
<i>Niles/I-880 (West Oakland to Niles Junction)</i>		44.26	27.50	36,053,254	58,022,088	1,595,717,028
Niles/I-880 1A	West Oakland to Jack London Square	9.04	5.62	57,292,648	92,203,579	517,810,948
Niles/I-880 2	Jack London Square to Oakland Coliseum	3.75	2.33	58,026,798	93,385,080	217,600,493
Niles/I-880 3A	Oakland Coliseum to Union City (BART)	8.02	4.98	100,347,026	161,492,885	804,983,844
Niles/I-880 4A	Union City (BART) to Niles Junction	23.45	14.57	2,359,136	3,796,662	55,321,742

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
	<i>Niles/I-880 (Niles Junction to San Jose via I-880)</i>	22.45	13.95	49,012,551	78,878,055	1,100,331,777
	Niles/I-880 5B Niles Wye (S) to Warm Springs	8.45	5.25	16,691,618	26,862,555	141,044,170
	Niles/I-880 6 Warm Springs to Trimble Rd	2.35	1.46	212,457,836	341,917,743	499,275,914
	Niles/I-880 7A I-880 – Trimble Rd. to Diridon	11.65	7.24	39,485,982	63,546,529	460,011,694
	<i>East Bay Connection (Dumbarton/Niles XN and Dumbarton/Niles XS)</i>	13.13	8.16	55,263,716	88,938,329	725,723,114
	Dumbarton/Niles XN Niles to Union City – Niles Wye (E) to Niles Wye (N)	4.25	2.64	35,018,018	56,356,037	148,966,648
	Dumbarton/Niles XS Niles to Fremont – Niles Wye (E) to Niles Wye (S)	8.88	5.52	64,964,684	104,550,525	576,756,466
	<i>UPRR (Niles to Altamont)</i>	43.25	26.87	38,855,518	62,531,895	1,680,501,168
	UPRR-2A/2B Niles Canyon to Sunol	11.95	7.43	52,413,607	84,351,524	626,342,602
	UPRR-3 Sunol to Pleasanton	1.10	0.68	134,433,359	216,349,520	147,876,695
	UPRR-4 Pleasanton to El Charo	2.59	1.61	26,410,969	42,504,335	68,510,055
	UPRR-5 El Charo to Livermore	6.61	4.10	7,127,268	11,470,225	47,082,729
	UPRR-6 Livermore to Patterson Pass cut off	3.25	2.02	22,896,022	36,847,576	74,412,071
	UPRR-7 Patterson Pass cut off to Greenville	2.98	1.85	18,326,922	29,494,322	54,614,227
	UPRR-8 Greenville to Altamont Pass	11.27	7.00	53,967,010	86,851,484	608,154,234
	UPRR-9 Altamont Pass to County Line	3.50	2.18	15,283,791	24,596,878	53,508,554
	<i>Tracy Downtown (UPRR Connection)</i>	48.26	29.98	19,223,066	30,936,526	927,628,261
	UPRR-10 County Line to Tracy Downtown	12.35	7.67	24,741,185	39,817,078	305,553,641
	UPRR-11 Tracy Downtown to I-205	7.40	4.60	15,859,194	25,522,899	117,358,035
	UPRR-12 I-205 to S. UPRR	7.80	4.85	15,933,589	25,642,626	124,281,993
	UPRR-13 I-205 to Lathrop – Northern	13.14	8.16	18,113,361	29,150,629	238,009,562

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
MC-1	Southwestern Manteca	1.46	0.91	27,687,372	44,558,506	40,340,501
MC-2	Southeastern Manteca	1.83	1.14	25,102,875	40,399,161	45,963,364
MC-4	Manteca to Escaton Wye	4.28	2.66	13,118,552	21,112,263	56,121,166
<i>UPRR (Central Valley)</i>		134.95	83.85	18,862,722	30,356,608	2,545,524,294
UPRR N/S-1	French Camp to Lathrop	8.00	4.97	13,627,270	21,930,965	109,018,159
UPRR N/S-2	Lathrop through Manteca	8.70	5.41	21,359,159	34,374,234	185,824,683
UPRR N/S-3	Manteca South to BNSF/UPRR	3.30	2.05	7,761,402	12,490,765	25,612,626
UPRR N/S-4	BNSF?UPRR South to Modesto	18.50	11.50	15,559,246	25,040,179	287,846,051
UPRR N/S-5a *	UPRR Modesto South – Western Option	4.20	2.61	84,115,056	135,370,061	353,283,237
UPRR N/S-6	South Modesto to BNSF Connection	20.90	12.99	21,150,677	34,038,714	442,049,140
UPRR N/S-7	BNSF Connection South to Merced	33.25	20.66	16,572,019	26,670,079	551,019,624
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	32,162,740	51,760,913	152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	8,686,037	13,978,822	151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	18,020,529	29,001,230	286,526,405
<i>STATION OPTIONS</i>						
S2	Transbay Transit Center					786,262,418
S1	4th & King (Caltrain)					791,939,278
S6	Millbrae/SFO					29,076,600
S7	Redwood City (Caltrain)					67,516,558
S11	Union City (Shinn)					310,150,400
S3	West Oakland/7th Street					611,197,055
S9	Coliseum/Airport					61,735,853
S10	Union City (BART)					69,853,070
S12	Fremont (Warm Springs)					156,875,180
S5	San Jose (Diridon)					185,051,790

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
S15	Pleasanton (I-680/Bernal Rd)					72,639,578
S17	Livermore (Downtown) (At Grade)					73,297,263
S18	Livermore (Downtown) (Aerial)					314,667,658
S20	Livermore (Greenville/UPRR)					72,639,578
S21	Tracy (Downtown)					310,150,400
S25	Modesto (Downtown)					71,428,053
S27	Merced (Downtown)					71,428,053
ALTAMONT PASS						
A4—San Jose Terminus		257.78	160.18	26,497,928	42,644,282	6,830,741,966
<i>Niles/I-880 (Niles Junction to San Jose via I-880)</i>		22.45	13.95	49,012,551	78,878,055	1,100,331,777
Niles/I-880 5B	Niles Wye (S) to Warm Springs	8.45	5.25	16,691,618	26,862,555	141,044,170
Niles/I-880 6	Warm Springs to Trimble Rd	2.35	1.46	212,457,836	341,917,743	499,275,914
Niles/I-880 7A	I-880 – Trimble Rd. to Diridon	11.65	7.24	39,485,982	63,546,529	460,011,694
<i>East Bay Connection (Dumbarton/Niles XS)</i>		8.88	5.52	64,964,684	104,550,525	576,756,466
Dumbarton/Niles XS	Niles to Fremont – Niles Wye (E) to Niles Wye (S)	8.88	5.52	64,964,684	104,550,525	576,756,466
<i>UPRR (Niles to Altamont)</i>		43.25	26.87	38,855,518	62,531,895	1,680,501,168
UPRR-2A/2B	Niles Canyon to Sunol	11.95	7.43	52,413,607	84,351,524	626,342,602
UPRR-3	Sunol to Pleasanton	1.10	0.68	134,433,359	216,349,520	147,876,695
UPRR-4	Pleasanton to El Charo	2.59	1.61	26,410,969	42,504,335	68,510,055
UPRR-5	El Charo to Livermore	6.61	4.10	7,127,268	11,470,225	47,082,729
UPRR-6	Livermore to Patterson Pass cut off	3.25	2.02	22,896,022	36,847,576	74,412,071
UPRR-7	Patterson Pass cut off to Greenville	2.98	1.85	18,326,922	29,494,322	54,614,227
UPRR-8	Greenville to Altamont Pass	11.27	7.00	53,967,010	86,851,484	608,154,234

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
UPRR-9	Altamont Pass to County Line	3.50	2.18	15,283,791	24,596,878	53,508,554
<i>Tracy Downtown (UPRR Connection)</i>		48.26	29.98	19,223,066	30,936,526	927,628,261
UPRR-10	County Line to Tracy Downtown	12.35	7.67	24,741,185	39,817,078	305,553,641
UPRR-11	Tracy Downtown to I-205	7.40	4.60	15,859,194	25,522,899	117,358,035
UPRR-12	I-205 to S. UPRR	7.80	4.85	15,933,589	25,642,626	124,281,993
UPRR-13	I-205 to Lathrop – Northern	13.14	8.16	18,113,361	29,150,629	238,009,562
MC-1	Southwestern Manteca	1.46	0.91	27,687,372	44,558,506	40,340,501
MC-2	Southeastern Manteca	1.83	1.14	25,102,875	40,399,161	45,963,364
MC-4	Manteca to Escaton Wye	4.28	2.66	13,118,552	21,112,263	56,121,166
<i>UPRR (Central Valley)</i>		134.95	83.85	18,862,722	30,356,608	2,545,524,294
UPRR N/S-1	French Camp to Lathrop	8.00	4.97	13,627,270	21,930,965	109,018,159
UPRR N/S-2	Lathrop through Manteca	8.70	5.41	21,359,159	34,374,234	185,824,683
UPRR N/S-3	Manteca South to BNSF/UPRR	3.30	2.05	7,761,402	12,490,765	25,612,626
UPRR N/S-4	BNSF?UPRR South to Modesto	18.50	11.50	15,559,246	25,040,179	287,846,051
UPRR N/S-5a *	UPRR Modesto South – Western Option	4.20	2.61	84,115,056	135,370,061	353,283,237
UPRR N/S-6	South Modesto to BNSF Connection	20.90	12.99	21,150,677	34,038,714	442,049,140
UPRR N/S-7	BNSF Connection South to Merced	33.25	20.66	16,572,019	26,670,079	551,019,624
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	32,162,740	51,760,913	152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	8,686,037	13,978,822	151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	18,020,529	29,001,230	286,526,405
<i>STATION OPTIONS</i>						
S12	Fremont (Warm Springs)					156,875,180
S5	San Jose (Diridon)					185,051,790
S15	Pleasanton (I-680/Bernal Rd)					72,639,578

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
S17	Livermore (Downtown) (At Grade)					73,297,263
S18	Livermore (Downtown) (Aerial)					314,667,658
S20	Livermore (Greenville/UPRR)					72,639,578
S21	Tracy (Downtown)					310,150,400
S25	Modesto (Downtown)					71,428,053
S27	Merced (Downtown)					71,428,053
ALTAMONT PASS						
A5—San Francisco Terminus		308.27	191.55	30,154,261	48,528,578	9,295,774,550
<i>Caltrain Corridor (San Francisco to Dumbarton)</i>		53.11	33.00	41,277,116	66,429,079	2,192,227,640
Caltrain 1	Transbay Transit Center to 4th/Townsend	5.00	3.11	79,761,189	128,363,191	398,805,944
Caltrain 2	4th/Townsend to Millbrae/SFO	28.61	17.78	35,793,741	57,604,443	1,024,058,938
Caltrain 3	Millbrae/SFO to Redwood City	18.75	11.65	37,489,586	60,333,640	702,929,734
Caltrain 4	Redwood City to Caltrain	0.75	0.47	88,577,366	142,551,453	66,433,025
<i>Dumbarton (High Bridge)</i>		28.71	17.84	67,921,596	109,309,214	1,949,893,187
Dumbarton-XN	Dumbarton Wye North to Caltrain	1.20	0.75	134,496,341	216,450,879	161,395,609
Dumbarton-1 (High Bridge)	Dumbarton Bay Crossing to Don Edwards	10.01	6.22	88,615,763	142,613,246	886,866,552
Dumbarton-2 (High Bridge)	Dumbarton Bay Crossing to Don Edwards	13.00	8.08	60,644,584	97,597,998	788,379,595
UPRR-1	Shinn to Niles Canyon	4.50	2.80	25,166,985	40,502,336	113,251,431
<i>UPRR (Niles to Altamont)</i>		43.25	26.87	38,855,518	62,531,895	1,680,501,168
UPRR-2A/2B	Niles Canyon to Sunol	11.95	7.43	52,413,607	84,351,524	626,342,602
UPRR-3	Sunol to Pleasanton	1.10	0.68	134,433,359	216,349,520	147,876,695
UPRR-4	Pleasanton to El Charo	2.59	1.61	26,410,969	42,504,335	68,510,055

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
UPRR-5	El Charo to Livermore	6.61	4.10	7,127,268	11,470,225	47,082,729
UPRR-6	Livermore to Patterson Pass cut off	3.25	2.02	22,896,022	36,847,576	74,412,071
UPRR-7	Patterson Pass cut off to Greenville	2.98	1.85	18,326,922	29,494,322	54,614,227
UPRR-8	Greenville to Altamont Pass	11.27	7.00	53,967,010	86,851,484	608,154,234
UPRR-9	Altamont Pass to County Line	3.50	2.18	15,283,791	24,596,878	53,508,554
<i>Tracy Downtown (UPRR Connection)</i>		48.26	29.98	19,223,066	30,936,526	927,628,261
UPRR-10	County Line to Tracy Downtown	12.35	7.67	24,741,185	39,817,078	305,553,641
UPRR-11	Tracy Downtown to I-205	7.40	4.60	15,859,194	25,522,899	117,358,035
UPRR-12	I-205 to S. UPRR	7.80	4.85	15,933,589	25,642,626	124,281,993
UPRR-13	I-205 to Lathrop – Northern	13.14	8.16	18,113,361	29,150,629	238,009,562
MC-1	Southwestern Manteca	1.46	0.91	27,687,372	44,558,506	40,340,501
MC-2	Southeastern Manteca	1.83	1.14	25,102,875	40,399,161	45,963,364
MC-4	Manteca to Escaton Wye	4.28	2.66	13,118,552	21,112,263	56,121,166
<i>UPRR (Central Valley)</i>		134.95	83.85	18,862,722	30,356,608	2,545,524,294
UPRR N/S-1	French Camp to Lathrop	8.00	4.97	13,627,270	21,930,965	109,018,159
UPRR N/S-2	Lathrop through Manteca	8.70	5.41	21,359,159	34,374,234	185,824,683
UPRR N/S-3	Manteca South to BNSF/UPRR	3.30	2.05	7,761,402	12,490,765	25,612,626
UPRR N/S-4	BNSF/UPRR South to Modesto	18.50	11.50	15,559,246	25,040,179	287,846,051
UPRR N/S-5a *	UPRR Modesto South – Western Option	4.20	2.61	84,115,056	135,370,061	353,283,237
UPRR N/S-6	South Modesto to BNSF Connection	20.90	12.99	21,150,677	34,038,714	442,049,140
UPRR N/S-7	BNSF Connection South to Merced	33.25	20.66	16,572,019	26,670,079	551,019,624
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	32,162,740	51,760,913	152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	8,686,037	13,978,822	151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	18,020,529	29,001,230	286,526,405

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
<i>STATION OPTIONS</i>						
S2	Transbay Transit Center					786,262,418
S1	4th & King (Caltrain)					791,939,278
S6	Millbrae/SFO					29,076,600
S7	Redwood City (Caltrain)					67,516,558
S11	Union City (Shinn)					310,150,400
S15	Pleasanton (I-680/Bernal Rd)					72,639,578
S17	Livermore (Downtown) (At Grade)					73,297,263
S18	Livermore (Downtown) (Aerial)					314,667,658
S20	Livermore (Greenville/UPRR)					72,639,578
S21	Tracy (Downtown)					310,150,400
S25	Modesto (Downtown)					71,428,053
S27	Merced (Downtown)					71,428,053
ALTAMONT PASS						
A6—Oakland Terminus		274.97	170.86	25,087,600	40,374,579	6,898,337,399
<i>Niles/I-880 (West Oakland to Niles Junction)</i>		44.26	27.50	36,053,254	58,022,088	1,595,717,028
Niles/I-880 1A	West Oakland to Jack London Square	9.04	5.62	57,292,648	92,203,579	517,810,948
Niles/I-880 2	Jack London Square to Oakland Coliseum	3.75	2.33	58,026,798	93,385,080	217,600,493
Niles/I-880 3A	Oakland Coliseum to Union City (BART)	8.02	4.98	100,347,026	161,492,885	804,983,844
Niles/I-880 4A	Union City (BART) to Niles Junction	23.45	14.57	2,359,136	3,796,662	55,321,742
<i>East Bay Connection (Dumbarton/Niles XN)</i>		4.25	2.64	35,018,018	56,356,037	148,966,648
Dumbarton/Niles XN	Niles to Union City – Niles Wye (E) to Niles Wye (N)	4.25	2.64	35,018,018	56,356,037	148,966,648

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
	<i>UPRR (Niles to Altamont)</i>	43.25	26.87	38,855,518	62,531,895	1,680,501,168
UPRR-2A/2B	Niles Canyon to Sunol	11.95	7.43	52,413,607	84,351,524	626,342,602
UPRR-3	Sunol to Pleasanton	1.10	0.68	134,433,359	216,349,520	147,876,695
UPRR-4	Pleasanton to El Charo	2.59	1.61	26,410,969	42,504,335	68,510,055
UPRR-5	El Charo to Livermore	6.61	4.10	7,127,268	11,470,225	47,082,729
UPRR-6	Livermore to Patterson Pass cut off	3.25	2.02	22,896,022	36,847,576	74,412,071
UPRR-7	Patterson Pass cut off to Greenville	2.98	1.85	18,326,922	29,494,322	54,614,227
UPRR-8	Greenville to Altamont Pass	11.27	7.00	53,967,010	86,851,484	608,154,234
UPRR-9	Altamont Pass to County Line	3.50	2.18	15,283,791	24,596,878	53,508,554
	<i>Tracy Downtown (UPRR Connection)</i>	48.26	29.98	19,223,066	30,936,526	927,628,261
UPRR-10	County Line to Tracy Downtown	12.35	7.67	24,741,185	39,817,078	305,553,641
UPRR-11	Tracy Downtown to I-205	7.40	4.60	15,859,194	25,522,899	117,358,035
UPRR-12	I-205 to S. UPRR	7.80	4.85	15,933,589	25,642,626	124,281,993
UPRR-13	I-205 to Lathrop – Northern	13.14	8.16	18,113,361	29,150,629	238,009,562
MC-1	Southwestern Manteca	1.46	0.91	27,687,372	44,558,506	40,340,501
MC-2	Southeastern Manteca	1.83	1.14	25,102,875	40,399,161	45,963,364
MC-4	Manteca to Escaton Wye	4.28	2.66	13,118,552	21,112,263	56,121,166
	<i>UPRR (Central Valley)</i>	134.95	83.85	18,862,722	30,356,608	2,545,524,294
UPRR N/S-1	French Camp to Lathrop	8.00	4.97	13,627,270	21,930,965	109,018,159
UPRR N/S-2	Lathrop through Manteca	8.70	5.41	21,359,159	34,374,234	185,824,683
UPRR N/S-3	Manteca South to BNSF/UPRR	3.30	2.05	7,761,402	12,490,765	25,612,626
UPRR N/S-4	BNSF?UPRR South to Modesto	18.50	11.50	15,559,246	25,040,179	287,846,051
UPRR N/S-5a *	UPRR Modesto South – Western Option	4.20	2.61	84,115,056	135,370,061	353,283,237
UPRR N/S-6	South Modesto to BNSF Connection	20.90	12.99	21,150,677	34,038,714	442,049,140
UPRR N/S-7	BNSF Connection South to Merced	33.25	20.66	16,572,019	26,670,079	551,019,624

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	32,162,740	51,760,913	152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	8,686,037	13,978,822	151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	18,020,529	29,001,230	286,526,405
<i>STATION OPTIONS</i>						
S3	West Oakland/7th Street					611,197,055
S9	Coliseum/Airport					61,735,853
S10	Union City (BART)					69,853,070
S15	Pleasanton (I-680/Bernal Rd)					72,639,578
S17	Livermore (Downtown) (At Grade)					73,297,263
S18	Livermore (Downtown) (Aerial)					314,667,658
S20	Livermore (Greenville/UPRR)					72,639,578
S21	Tracy (Downtown)					310,150,400
S25	Modesto (Downtown)					71,428,053
S27	Merced (Downtown)					71,428,053
ALTAMONT PASS						
A7—Union City Terminus		254.16	157.93	21,080,981	33,926,550	5,357,942,113
<i>Niles/I-880 (Union City BART to Niles Junction)</i>		23.45	14.57	2,359,136	3,796,662	55,321,742
Niles/I-880 4A	Union City (BART) to Niles Junction	23.45	14.57	2,359,136	3,796,662	55,321,742
<i>East Bay Connection (Dumbarton/Niles XN)</i>		4.25	2.64	35,018,018	56,356,037	148,966,648
Dumbarton/Niles XN	Niles to Union City – Niles Wye (E) to Niles Wye (N)	4.25	2.64	35,018,018	56,356,037	148,966,648

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
	<i>UPRR (Niles to Altamont)</i>	43.25	26.87	38,855,518	62,531,895	1,680,501,168
UPRR-2A/2B	Niles Canyon to Sunol	11.95	7.43	52,413,607	84,351,524	626,342,602
UPRR-3	Sunol to Pleasanton	1.10	0.68	134,433,359	216,349,520	147,876,695
UPRR-4	Pleasanton to El Charo	2.59	1.61	26,410,969	42,504,335	68,510,055
UPRR-5	El Charo to Livermore	6.61	4.10	7,127,268	11,470,225	47,082,729
UPRR-6	Livermore to Patterson Pass cut off	3.25	2.02	22,896,022	36,847,576	74,412,071
UPRR-7	Patterson Pass cut off to Greenville	2.98	1.85	18,326,922	29,494,322	54,614,227
UPRR-8	Greenville to Altamont Pass	11.27	7.00	53,967,010	86,851,484	608,154,234
UPRR-9	Altamont Pass to County Line	3.50	2.18	15,283,791	24,596,878	53,508,554
	<i>Tracy Downtown (UPRR Connection)</i>	48.26	29.98	19,223,066	30,936,526	927,628,261
UPRR-10	County Line to Tracy Downtown	12.35	7.67	24,741,185	39,817,078	305,553,641
UPRR-11	Tracy Downtown to I-205	7.40	4.60	15,859,194	25,522,899	117,358,035
UPRR-12	I-205 to S. UPRR	7.80	4.85	15,933,589	25,642,626	124,281,993
UPRR-13	I-205 to Lathrop – Northern	13.14	8.16	18,113,361	29,150,629	238,009,562
MC-1	Southwestern Manteca	1.46	0.91	27,687,372	44,558,506	40,340,501
MC-2	Southeastern Manteca	1.83	1.14	25,102,875	40,399,161	45,963,364
MC-4	Manteca to Escaton Wye	4.28	2.66	13,118,552	21,112,263	56,121,166
	<i>UPRR (Central Valley)</i>	134.95	83.85	18,862,722	30,356,608	2,545,524,294
UPRR N/S-1	French Camp to Lathrop	8.00	4.97	13,627,270	21,930,965	109,018,159
UPRR N/S-2	Lathrop through Manteca	8.70	5.41	21,359,159	34,374,234	185,824,683
UPRR N/S-3	Manteca South to BNSF/UPRR	3.30	2.05	7,761,402	12,490,765	25,612,626
UPRR N/S-4	BNSF?UPRR South to Modesto	18.50	11.50	15,559,246	25,040,179	287,846,051
UPRR N/S-5a *	UPRR Modesto South – Western Option	4.20	2.61	84,115,056	135,370,061	353,283,237
UPRR N/S-6	South Modesto to BNSF Connection	20.90	12.99	21,150,677	34,038,714	442,049,140
UPRR N/S-7	BNSF Connection South to Merced	33.25	20.66	16,572,019	26,670,079	551,019,624

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	32,162,740	51,760,913	152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	8,686,037	13,978,822	151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	18,020,529	29,001,230	286,526,405
<i>STATION OPTIONS</i>						
S10	Union City (BART)					69,853,070
S15	Pleasanton (I-680/Bernal Rd)					72,639,578
S17	Livermore (Downtown) (At Grade)					73,297,263
S18	Livermore (Downtown) (Aerial)					314,667,658
S20	Livermore (Greenville/UPRR)					72,639,578
S21	Tracy (Downtown)					310,150,400
S25	Modesto (Downtown)					71,428,053
S27	Merced (Downtown)					71,428,053
<i>ALTAMONT PASS</i>						
A8—San Francisco, and San Jose via SF Peninsula		343.27	213.30	31,060,550	49,987,109	10,662,279,160
<i>Caltrain Corridor (San Francisco to Dumbarton)</i>		53.11	33.00	41,277,116	66,429,079	2,192,227,640
Caltrain 1	Transbay Transit Center to 4th/Townsend	5.00	3.11	79,761,189	128,363,191	398,805,944
Caltrain 2	4th/Townsend to Millbrae/SFO	28.61	17.78	35,793,741	57,604,443	1,024,058,938
Caltrain 3	Millbrae/SFO to Redwood City	18.75	11.65	37,489,586	60,333,640	702,929,734
Caltrain 4	Redwood City to Caltrain	0.75	0.47	88,577,366	142,551,453	66,433,025
<i>Caltrain Corridor (Dumbarton to San Jose)</i>		34.40	21.38	39,358,880	63,341,977	1,353,945,475
Caltrain 5	Caltrain Dumbarton Wye	1.62	1.01	24,593,435	39,579,297	39,865,958
Caltrain 6	Dumbarton Wye to Palo Alto	5.23	3.25	49,783,239	80,118,357	260,316,558

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
Caltrain 7	Palo Alto to Santa Clara	22.55	14.01	26,212,143	42,184,355	591,083,820
Caltrain 8	Santa Clara to Diridon Station	5.00	3.11	92,535,828	148,921,979	462,679,139
<i>Dumbarton (High Bridge)</i>		29.31	18.21	66,959,612	107,761,051	1,962,452,322
Dumbarton-XN	Dumbarton Wye North to Caltrain	1.20	0.75	134,496,341	216,450,879	161,395,609
Dumbarton-XS	Dumbarton Wye South to Caltrain	0.60	0.37	20,931,892	33,686,615	12,559,135
Dumbarton-1 (High Bridge)	Dumbarton Bay Crossing to Don Edwards	10.01	6.22	88,615,763	142,613,246	886,866,552
Dumbarton-2 (High Bridge)	Dumbarton Bay Crossing to Don Edwards	13.00	8.08	60,644,584	97,597,998	788,379,595
UPRR-1	Shinn to Niles Canyon	4.50	2.80	25,166,985	40,502,336	113,251,431
<i>UPRR (Niles to Altamont)</i>		43.25	26.87	38,855,518	62,531,895	1,680,501,168
UPRR-2A/2B	Niles Canyon to Sunol	11.95	7.43	52,413,607	84,351,524	626,342,602
UPRR-3	Sunol to Pleasanton	1.10	0.68	134,433,359	216,349,520	147,876,695
UPRR-4	Pleasanton to El Charo	2.59	1.61	26,410,969	42,504,335	68,510,055
UPRR-5	El Charo to Livermore	6.61	4.10	7,127,268	11,470,225	47,082,729
UPRR-6	Livermore to Patterson Pass cut off	3.25	2.02	22,896,022	36,847,576	74,412,071
UPRR-7	Patterson Pass cut off to Greenville	2.98	1.85	18,326,922	29,494,322	54,614,227
UPRR-8	Greenville to Altamont Pass	11.27	7.00	53,967,010	86,851,484	608,154,234
UPRR-9	Altamont Pass to County Line	3.50	2.18	15,283,791	24,596,878	53,508,554
<i>Tracy Downtown (UPRR Connection)</i>		48.26	29.98	19,223,066	30,936,526	927,628,261
UPRR-10	County Line to Tracy Downtown	12.35	7.67	24,741,185	39,817,078	305,553,641
UPRR-11	Tracy Downtown to I-205	7.40	4.60	15,859,194	25,522,899	117,358,035
UPRR-12	I-205 to S. UPRR	7.80	4.85	15,933,589	25,642,626	124,281,993
UPRR-13	I-205 to Lathrop – Northern	13.14	8.16	18,113,361	29,150,629	238,009,562
MC-1	Southwestern Manteca	1.46	0.91	27,687,372	44,558,506	40,340,501

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
MC-2	Southeastern Manteca	1.83	1.14	25,102,875	40,399,161	45,963,364
MC-4	Manteca to Escaton Wye	4.28	2.66	13,118,552	21,112,263	56,121,166
<i>UPRR (Central Valley)</i>		134.95	83.85	18,862,722	30,356,608	2,545,524,294
UPRR N/S-1	French Camp to Lathrop	8.00	4.97	13,627,270	21,930,965	109,018,159
UPRR N/S-2	Lathrop through Manteca	8.70	5.41	21,359,159	34,374,234	185,824,683
UPRR N/S-3	Manteca South to BNSF/UPRR	3.30	2.05	7,761,402	12,490,765	25,612,626
UPRR N/S-4	BNSF?UPRR South to Modesto	18.50	11.50	15,559,246	25,040,179	287,846,051
UPRR N/S-5a *	UPRR Modesto South – Western Option	4.20	2.61	84,115,056	135,370,061	353,283,237
UPRR N/S-6	South Modesto to BNSF Connection	20.90	12.99	21,150,677	34,038,714	442,049,140
UPRR N/S-7	BNSF Connection South to Merced	33.25	20.66	16,572,019	26,670,079	551,019,624
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	32,162,740	51,760,913	152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	8,686,037	13,978,822	151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	18,020,529	29,001,230	286,526,405
<i>STATION OPTIONS</i>						
S2	Transbay Transit Center					786,262,418
S1	4th & King (Caltrain)					791,939,278
S6	Millbrae/SFO					29,076,600
S7	Redwood City (Caltrain)					67,516,558
S8	Palo Alto (Caltrain)					67,516,558
S5	San Jose (Diridon)					185,051,790
S11	Union City (Shinn)					310,150,400
S15	Pleasanton (I-680/Bernal Rd)					72,639,578
S17	Livermore (Downtown) (At Grade)					73,297,263
S18	Livermore (Downtown) (Aerial)					314,667,658
S20	Livermore (Greenville/UPRR)					72,639,578

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
S21	Tracy (Downtown)					310,150,400
S25	Modesto (Downtown)					71,428,053
S27	Merced (Downtown)					71,428,053
ALTAMONT PASS						
A9—San Francisco, San Jose, and Oakland with no San Francisco Bay Crossing		393.81	244.70	30,780,479	49,536,379	12,121,598,757
<i>Caltrain Corridor (San Francisco to Dumbarton)</i>		53.11	33.00	41,277,116	66,429,079	2,192,227,640
Caltrain 1	Transbay Transit Center to 4th/Townsend	5.00	3.11	79,761,189	128,363,191	398,805,944
Caltrain 2	4th/Townsend to Millbrae/SFO	28.61	17.78	35,793,741	57,604,443	1,024,058,938
Caltrain 3	Millbrae/SFO to Redwood City	18.75	11.65	37,489,586	60,333,640	702,929,734
Caltrain 4	Redwood City to Caltrain	0.75	0.47	88,577,366	142,551,453	66,433,025
<i>Caltrain Corridor (Dumbarton to San Jose)</i>		34.40	21.38	39,358,880	63,341,977	1,353,945,475
Caltrain 5	Caltrain Dumbarton Wye	1.62	1.01	24,593,435	39,579,297	39,865,958
Caltrain 6	Dumbarton Wye to Palo Alto	5.23	3.25	49,783,239	80,118,357	260,316,558
Caltrain 7	Palo Alto to Santa Clara	22.55	14.01	26,212,143	42,184,355	591,083,820
Caltrain 8	Santa Clara to Diridon Station	5.00	3.11	92,535,828	148,921,979	462,679,139
<i>Niles/I-880 (West Oakland to Niles Junction)</i>		44.26	27.50	36,053,254	58,022,088	1,595,717,028
Niles/I-880 1A	West Oakland to Jack London Square	9.04	5.62	57,292,648	92,203,579	517,810,948
Niles/I-880 2	Jack London Square to Oakland Coliseum	3.75	2.33	58,026,798	93,385,080	217,600,493
Niles/I-880 3A	Oakland Coliseum to Union City (BART)	8.02	4.98	100,347,026	161,492,885	804,983,844
Niles/I-880 4A	Union City (BART) to Niles Junction	23.45	14.57	2,359,136	3,796,662	55,321,742
<i>Niles/I-880 (Niles Junction to San</i>		22.45	13.95	49,012,551	78,878,055	1,100,331,777

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
	<i>Jose via I-880)</i>					
Niles/I-880 5B	Niles Wye (S) to Warm Springs	8.45	5.25	16,691,618	26,862,555	141,044,170
Niles/I-880 6	Warm Springs to Trimble Rd	2.35	1.46	212,457,836	341,917,743	499,275,914
Niles/I-880 7A	I-880 – Trimble Rd. to Diridon	11.65	7.24	39,485,982	63,546,529	460,011,694
	<i>East Bay Connection (Dumbarton/Niles XN and Dumbarton/Niles XS)</i>	13.13	8.16	55,263,716	88,938,329	725,723,114
Dumbarton/Niles XN	Niles to Union City – Niles Wye (E) to Niles Wye (N)	4.25	2.64	35,018,018	56,356,037	148,966,648
Dumbarton/Niles XS	Niles to Fremont – Niles Wye (E) to Niles Wye (S)	8.88	5.52	64,964,684	104,550,525	576,756,466
	<i>UPRR (Niles to Altamont)</i>	43.25	26.87	38,855,518	62,531,895	1,680,501,168
UPRR-2A/2B	Niles Canyon to Sunol	11.95	7.43	52,413,607	84,351,524	626,342,602
UPRR-3	Sunol to Pleasanton	1.10	0.68	134,433,359	216,349,520	147,876,695
UPRR-4	Pleasanton to El Charo	2.59	1.61	26,410,969	42,504,335	68,510,055
UPRR-5	El Charo to Livermore	6.61	4.10	7,127,268	11,470,225	47,082,729
UPRR-6	Livermore to Patterson Pass cut off	3.25	2.02	22,896,022	36,847,576	74,412,071
UPRR-7	Patterson Pass cut off to Greenville	2.98	1.85	18,326,922	29,494,322	54,614,227
UPRR-8	Greenville to Altamont Pass	11.27	7.00	53,967,010	86,851,484	608,154,234
UPRR-9	Altamont Pass to County Line	3.50	2.18	15,283,791	24,596,878	53,508,554
	<i>Tracy Downtown (UPRR Connection)</i>	48.26	29.98	19,223,066	30,936,526	927,628,261
UPRR-10	County Line to Tracy Downtown	12.35	7.67	24,741,185	39,817,078	305,553,641
UPRR-11	Tracy Downtown to I-205	7.40	4.60	15,859,194	25,522,899	117,358,035
UPRR-12	I-205 to S. UPRR	7.80	4.85	15,933,589	25,642,626	124,281,993
UPRR-13	I-205 to Lathrop – Northern	13.14	8.16	18,113,361	29,150,629	238,009,562
MC-1	Southwestern Manteca	1.46	0.91	27,687,372	44,558,506	40,340,501

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
MC-2	Southeastern Manteca	1.83	1.14	25,102,875	40,399,161	45,963,364
MC-4	Manteca to Escaton Wye	4.28	2.66	13,118,552	21,112,263	56,121,166
<i>UPRR (Central Valley)</i>		134.95	83.85	18,862,722	30,356,608	2,545,524,294
UPRR N/S-1	French Camp to Lathrop	8.00	4.97	13,627,270	21,930,965	109,018,159
UPRR N/S-2	Lathrop through Manteca	8.70	5.41	21,359,159	34,374,234	185,824,683
UPRR N/S-3	Manteca South to BNSF/UPRR	3.30	2.05	7,761,402	12,490,765	25,612,626
UPRR N/S-4	BNSF?UPRR South to Modesto	18.50	11.50	15,559,246	25,040,179	287,846,051
UPRR N/S-5a *	UPRR Modesto South – Western Option	4.20	2.61	84,115,056	135,370,061	353,283,237
UPRR N/S-6	South Modesto to BNSF Connection	20.90	12.99	21,150,677	34,038,714	442,049,140
UPRR N/S-7	BNSF Connection South to Merced	33.25	20.66	16,572,019	26,670,079	551,019,624
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	32,162,740	51,760,913	152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	8,686,037	13,978,822	151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	18,020,529	29,001,230	286,526,405
<i>STATION OPTIONS</i>						
S2	Transbay Transit Center					786,262,418
S1	4th and King (Caltrain)					791,939,278
S6	Millbrae/SFO					29,076,600
S7	Redwood City (Caltrain)					67,516,558
S8	Palo Alto (Caltrain)					67,516,558
S3	West Oakland/7th Street					611,197,055
S9	Coliseum/Airport					61,735,853
S10	Union City (BART)					69,853,070
S12	Fremont (Warm Springs)					156,875,180
S5	San Jose (Diridon)					185,051,790
S15	Pleasanton (I-680/Bernal Rd)					72,639,578

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
S17	Livermore (Downtown) (At Grade)					73,297,263
S18	Livermore (Downtown) (Aerial)					314,667,658
S20	Livermore (Greenville/UPRR)					72,639,578
S21	Tracy (Downtown)					310,150,400
S25	Modesto (Downtown)					71,428,053
S27	Merced (Downtown)					71,428,053
ALTAMONT PASS						
A10—Oakland and San Francisco via Transbay Tube		289.11	179.64	37,563,667	60,452,862	10,860,031,797
<i>Transbay Crossing – Transbay Transit Center</i>		14.14	8.79	280,176,407	450,900,220	3,961,694,398
TB-1	Transbay Transit Center tube to SF Bay	4.33	2.69	144,822,423	233,069,097	627,081,091
TB-3	SF Bay to West Oakland	9.81	6.10	339,919,807	547,047,902	3,334,613,307
<i>Niles/I-880 (West Oakland to Niles Junction)</i>		44.26	27.50	36,053,254	58,022,088	1,595,717,028
Niles/I-880 1A	West Oakland to Jack London Square	9.04	5.62	57,292,648	92,203,579	517,810,948
Niles/I-880 2	Jack London Square to Oakland Coliseum	3.75	2.33	58,026,798	93,385,080	217,600,493
Niles/I-880 3A	Oakland Coliseum to Union City (BART)	8.02	4.98	100,347,026	161,492,885	804,983,844
Niles/I-880 4A	Union City (BART) to Niles Junction	23.45	14.57	2,359,136	3,796,662	55,321,742
<i>East Bay Connection (Dumbarton/Niles XN)</i>		4.25	2.64	35,018,018	56,356,037	148,966,648
Dumbarton/Niles XN	Niles to Union City – Niles Wye (E) to Niles Wye (N)	4.25	2.64	35,018,018	56,356,037	148,966,648
<i>UPRR (Niles to Altamont)</i>		43.25	26.87	38,855,518	62,531,895	1,680,501,168
UPRR-2A/2B	Niles Canyon to Sunol	11.95	7.43	52,413,607	84,351,524	626,342,602
UPRR-3	Sunol to Pleasanton	1.10	0.68	134,433,359	216,349,520	147,876,695

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
UPRR-4	Pleasanton to El Charo	2.59	1.61	26,410,969	42,504,335	68,510,055
UPRR-5	El Charo to Livermore	6.61	4.10	7,127,268	11,470,225	47,082,729
UPRR-6	Livermore to Patterson Pass cut off	3.25	2.02	22,896,022	36,847,576	74,412,071
UPRR-7	Patterson Pass cut off to Greenville	2.98	1.85	18,326,922	29,494,322	54,614,227
UPRR-8	Greenville to Altamont Pass	11.27	7.00	53,967,010	86,851,484	608,154,234
UPRR-9	Altamont Pass to County Line	3.50	2.18	15,283,791	24,596,878	53,508,554
<i>Tracy Downtown (UPRR Connection)</i>		48.26	29.98	19,223,066	30,936,526	927,628,261
UPRR-10	County Line to Tracy Downtown	12.35	7.67	24,741,185	39,817,078	305,553,641
UPRR-11	Tracy Downtown to I-205	7.40	4.60	15,859,194	25,522,899	117,358,035
UPRR-12	I-205 to S. UPRR	7.80	4.85	15,933,589	25,642,626	124,281,993
UPRR-13	I-205 to Lathrop – Northern	13.14	8.16	18,113,361	29,150,629	238,009,562
MC-1	Southwestern Manteca	1.46	0.91	27,687,372	44,558,506	40,340,501
MC-2	Southeastern Manteca	1.83	1.14	25,102,875	40,399,161	45,963,364
MC-4	Manteca to Escaton Wye	4.28	2.66	13,118,552	21,112,263	56,121,166
<i>UPRR (Central Valley)</i>		134.95	83.85	18,862,722	30,356,608	2,545,524,294
UPRR N/S-1	French Camp to Lathrop	8.00	4.97	13,627,270	21,930,965	109,018,159
UPRR N/S-2	Lathrop through Manteca	8.70	5.41	21,359,159	34,374,234	185,824,683
UPRR N/S-3	Manteca South to BNSF/UPRR	3.30	2.05	7,761,402	12,490,765	25,612,626
UPRR N/S-4	BNSF?UPRR South to Modesto	18.50	11.50	15,559,246	25,040,179	287,846,051
UPRR N/S-5a *	UPRR Modesto South – Western Option	4.20	2.61	84,115,056	135,370,061	353,283,237
UPRR N/S-6	South Modesto to BNSF Connection	20.90	12.99	21,150,677	34,038,714	442,049,140
UPRR N/S-7	BNSF Connection South to Merced	33.25	20.66	16,572,019	26,670,079	551,019,624
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	32,162,740	51,760,913	152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	8,686,037	13,978,822	151,571,352

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	18,020,529	29,001,230	286,526,405
<i>STATION OPTIONS</i>						
S2	Transbay Transit Center					786,262,418
S3	West Oakland/7th Street					611,197,055
S9	Coliseum/Airport					61,735,853
S10	Union City (BART)					69,853,070
S15	Pleasanton (I-680/Bernal Rd)					72,639,578
S17	Livermore (Downtown) (At Grade)					73,297,263
S18	Livermore (Downtown) (Aerial)					314,667,658
S20	Livermore (Greenville/UPRR)					72,639,578
S21	Tracy (Downtown)					310,150,400
S25	Modesto (Downtown)					71,428,053
S27	Merced (Downtown)					71,428,053
<i>ALTAMONT PASS</i>						
A11—San Jose, Oakland and San Francisco via Transbay Tube		320.44	199.11	39,124,948	62,965,500	12,537,120,041
<i>Transbay Crossing – Transbay Transit Center</i>		14.14	8.79	280,176,407	450,900,220	3,961,694,398
TB-1	Transbay Transit Center tube to SF Bay	4.33	2.69	144,822,423	233,069,097	627,081,091
TB-3	SF Bay to West Oakland	9.81	6.10	339,919,807	547,047,902	3,334,613,307
<i>Niles/I-880 (West Oakland to Niles Junction)</i>		44.26	27.50	36,053,254	58,022,088	1,595,717,028
Niles/I-880 1A	West Oakland to Jack London Square	9.04	5.62	57,292,648	92,203,579	517,810,948
Niles/I-880 2	Jack London Square to Oakland Coliseum	3.75	2.33	58,026,798	93,385,080	217,600,493
Niles/I-880 3A	Oakland Coliseum to Union City (BART)	8.02	4.98	100,347,026	161,492,885	804,983,844
Niles/I-880 4A	Union City (BART) to Niles Junction	23.45	14.57	2,359,136	3,796,662	55,321,742

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
	<i>Niles/I-880 (Niles Junction to San Jose via I-880)</i>	22.45	13.95	49,012,551	78,878,055	1,100,331,777
	Niles/I-880 5B Niles Wye (S) to Warm Springs	8.45	5.25	16,691,618	26,862,555	141,044,170
	Niles/I-880 6 Warm Springs to Trimble Rd	2.35	1.46	212,457,836	341,917,743	499,275,914
	Niles/I-880 7A I-880 – Trimble Rd. to Diridon	11.65	7.24	39,485,982	63,546,529	460,011,694
	<i>East Bay Connection (Dumbarton/Niles XN and Dumbarton/Niles XS)</i>	13.13	8.16	55,263,716	88,938,329	725,723,114
	Dumbarton/Niles XN Niles to Union City – Niles Wye (E) to Niles Wye (N)	4.25	2.64	35,018,018	56,356,037	148,966,648
	Dumbarton/Niles XS Niles to Fremont – Niles Wye (E) to Niles Wye (S)	8.88	5.52	64,964,684	104,550,525	576,756,466
	<i>UPRR (Niles to Altamont)</i>	43.25	26.87	38,855,518	62,531,895	1,680,501,168
	UPRR-2A/2B Niles Canyon to Sunol	11.95	7.43	52,413,607	84,351,524	626,342,602
	UPRR-3 Sunol to Pleasanton	1.10	0.68	134,433,359	216,349,520	147,876,695
	UPRR-4 Pleasanton to El Charo	2.59	1.61	26,410,969	42,504,335	68,510,055
	UPRR-5 El Charo to Livermore	6.61	4.10	7,127,268	11,470,225	47,082,729
	UPRR-6 Livermore to Patterson Pass cut off	3.25	2.02	22,896,022	36,847,576	74,412,071
	UPRR-7 Patterson Pass cut off to Greenville	2.98	1.85	18,326,922	29,494,322	54,614,227
	UPRR-8 Greenville to Altamont Pass	11.27	7.00	53,967,010	86,851,484	608,154,234
	UPRR-9 Altamont Pass to County Line	3.50	2.18	15,283,791	24,596,878	53,508,554
	<i>Tracy Downtown (UPRR Connection)</i>	48.26	29.98	19,223,066	30,936,526	927,628,261
	UPRR-10 County Line to Tracy Downtown	12.35	7.67	24,741,185	39,817,078	305,553,641
	UPRR-11 Tracy Downtown to I-205	7.40	4.60	15,859,194	25,522,899	117,358,035
	UPRR-12 I-205 to S. UPRR	7.80	4.85	15,933,589	25,642,626	124,281,993
	UPRR-13 I-205 to Lathrop – Northern	13.14	8.16	18,113,361	29,150,629	238,009,562

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
MC-1	Southwestern Manteca	1.46	0.91	27,687,372	44,558,506	40,340,501
MC-2	Southeastern Manteca	1.83	1.14	25,102,875	40,399,161	45,963,364
MC-4	Manteca to Escaton Wye	4.28	2.66	13,118,552	21,112,263	56,121,166
<i>UPRR (Central Valley)</i>		134.95	83.85	18,862,722	30,356,608	2,545,524,294
UPRR N/S-1	French Camp to Lathrop	8.00	4.97	13,627,270	21,930,965	109,018,159
UPRR N/S-2	Lathrop through Manteca	8.70	5.41	21,359,159	34,374,234	185,824,683
UPRR N/S-3	Manteca South to BNSF/UPRR	3.30	2.05	7,761,402	12,490,765	25,612,626
UPRR N/S-4	BNSF?UPRR South to Modesto	18.50	11.50	15,559,246	25,040,179	287,846,051
UPRR N/S-5a *	UPRR Modesto South – Western Option	4.20	2.61	84,115,056	135,370,061	353,283,237
UPRR N/S-6	South Modesto to BNSF Connection	20.90	12.99	21,150,677	34,038,714	442,049,140
UPRR N/S-7	BNSF Connection South to Merced	33.25	20.66	16,572,019	26,670,079	551,019,624
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	32,162,740	51,760,913	152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	8,686,037	13,978,822	151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	18,020,529	29,001,230	286,526,405
<i>STATION OPTIONS</i>						
S2	Transbay Transit Center					786,262,418
S3	West Oakland/7th Street					611,197,055
S9	Coliseum/Airport					61,735,853
S10	Union City (BART)					69,853,070
S12	Fremont (Warm Springs)					156,875,180
S5	San Jose (Diridon)					185,051,790
S15	Pleasanton (I-680/Bernal Rd)					72,639,578
S17	Livermore (Downtown) (At Grade)					73,297,263
S18	Livermore (Downtown) (Aerial)					314,667,658
S20	Livermore (Greenville/UPRR)					72,639,578

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
S21	Tracy (Downtown)					310,150,400
S25	Modesto (Downtown)					71,428,053
S27	Merced (Downtown)					71,428,053
PACHECO PASS						
P1—San Francisco and San Jose Termini		430.55	267.53	25,615,371	41,223,943	11,028,569,783
<i>Caltrain Corridor (San Francisco to Dumbarton)</i>		53.11	33.00	41,277,116	66,429,079	2,192,227,640
Caltrain 1	Transbay Transit Center to 4th/Townsend	5.00	3.11	79,761,189	128,363,191	398,805,944
Caltrain 2	4th/Townsend to Millbrae/SFO	28.61	17.78	35,793,741	57,604,443	1,024,058,938
Caltrain 3	Millbrae/SFO to Redwood City	18.75	11.65	37,489,586	60,333,640	702,929,734
Caltrain 4	Redwood City to Caltrain	0.75	0.47	88,577,366	142,551,453	66,433,025
<i>Caltrain Corridor (Dumbarton to San Jose)</i>		34.40	21.38	39,358,880	63,341,977	1,353,945,475
Caltrain 5	Caltrain Dumbarton Wye	1.62	1.01	24,593,435	39,579,297	39,865,958
Caltrain 6	Dumbarton Wye to Palo Alto	5.23	3.25	49,783,239	80,118,357	260,316,558
Caltrain 7	Palo Alto to Santa Clara	22.55	14.01	26,212,143	42,184,355	591,083,820
Caltrain 8	Santa Clara to Diridon Station	5.00	3.11	92,535,828	148,921,979	462,679,139
<i>Pacheco (San Jose to Western Valley)</i>		92.50	57.48	38,800,727	62,443,717	3,589,067,255
Pacheco 1	Diridon to Morgan Hill	32.50	20.19	20,366,713	32,777,047	661,918,165
Pacheco 2	Morgan Hill to Gilroy	16.00	9.94	23,730,117	38,189,921	379,681,864
Pacheco 3	Gilroy to San Luis Reservoir	44.00	27.34	57,896,982	93,176,161	2,547,467,226
<i>Henry Miller (UPRR Connection)</i>		100.89	62.69	13,489,349	21,709,003	1,360,872,958
Pacheco 4	San Luis Reservoir to Valley Floor	15.45	9.60	27,554,846	44,345,226	425,722,369
HM-1	Western Valley to Henry Miller UP Wye	58.05	36.07	10,870,134	17,493,785	630,967,784

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
HM-2	Henry Miller UP North Wye to UP South Wye	8.19	5.09	11,200,428	18,025,342	91,720,307
HM/UP-XN	Henry Miller Wye North to UPRR	11.25	6.99	11,845,555	19,063,573	133,262,493
HM/UP-XS	Henry Miller Wye South to UPRR	7.95	4.94	9,962,265	16,032,711	79,200,005
<i>BNSF – UPRR</i>		149.65	92.99	16,922,529	27,234,170	2,532,456,455
BNSF N/S 1	North Stockton South to UPRR Connection	17.50	10.87	8,299,538	13,356,812	145,241,919
BNSF N/S 2	BNSF Parallel to UPRR tracks	3.50	2.17	8,146,586	13,110,659	28,513,051
BNSF N/S 3	Parallel tracks South through Escaton	13.55	8.42	18,310,198	29,467,407	248,103,178
BNSF N/S 4	Escaton South to Amtrak Briggsmore	13.85	8.61	22,595,951	36,364,659	312,953,926
BNSF N/S 5	Amtrak Briggsmore to UPRR/BNSF Connection	39.85	24.76	17,070,256	27,471,913	680,249,686
BNSF N/S 6	UPRR/BNSF Connection to Atwater	6.30	3.91	17,380,925	27,971,887	109,499,827
BNSF N/S 7	Atwater to Downtown Merced	17.00	10.56	24,530,829	39,478,543	417,024,095
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	32,162,740	51,760,913	152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	8,686,037	13,978,822	151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	18,020,529	29,001,230	286,526,405
<i>STATION OPTIONS</i>						
S2	Transbay Transit Center					786,262,418
S1	4th and King (Caltrain)					791,939,278
S6	Millbrae/SFO					29,076,600
S7	Redwood City (Caltrain)					67,516,558
S8	Palo Alto (Caltrain)					67,516,558
S5	San Jose (Diridon)					185,051,790
S24	Morgan Hill (Caltrain)					284,985,295
S23	Gilroy (Caltrain)					148,256,045

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
S26	Briggsmore (Amtrak)					71,428,053
S27	Merced (Downtown)					71,428,053
PACHECO PASS						
P2—Oakland and San Jose Termini		413.40	256.87	25,025,334	40,274,372	10,345,348,109
<i>Niles/I-880 (West Oakland to Niles Junction)</i>		44.26	27.50	36,053,254	58,022,088	1,595,717,028
Niles/I-880 1A	West Oakland to Jack London Square	9.04	5.62	57,292,648	92,203,579	517,810,948
Niles/I-880 2	Jack London Square to Oakland Coliseum	3.75	2.33	58,026,798	93,385,080	217,600,493
Niles/I-880 3A	Oakland Coliseum to Union City (BART)	8.02	4.98	100,347,026	161,492,885	804,983,844
Niles/I-880 4A	Union City (BART) to Niles Junction	23.45	14.57	2,359,136	3,796,662	55,321,742
<i>Niles/I-880 (Niles Junction to San Jose via I-880)</i>		26.10	16.22	48,553,043	78,138,548	1,267,234,412
Niles/I-880 5A	Niles Junction to Niles Wye (S)	3.65	2.27	45,726,749	73,590,069	166,902,634
Niles/I-880 5B	Niles Wye (S) to Warm Springs	8.45	5.25	16,691,618	26,862,555	141,044,170
Niles/I-880 6	Warm Springs to Trimble Rd	2.35	1.46	212,457,836	341,917,743	499,275,914
Niles/I-880 7A	I-880 – Trimble Rd. to Diridon	11.65	7.24	39,485,982	63,546,529	460,011,694
<i>Pacheco (San Jose to Western Valley)</i>		92.50	57.48	38,800,727	62,443,717	3,589,067,255
Pacheco 1	Diridon to Morgan Hill	32.50	20.19	20,366,713	32,777,047	661,918,165
Pacheco 2	Morgan Hill to Gilroy	16.00	9.94	23,730,117	38,189,921	379,681,864
Pacheco 3	Gilroy to San Luis Reservoir	44.00	27.34	57,896,982	93,176,161	2,547,467,226
<i>Henry Miller (UPRR Connection)</i>		100.89	62.69	13,489,349	21,709,003	1,360,872,958
Pacheco 4	San Luis Reservoir to Valley Floor	15.45	9.60	27,554,846	44,345,226	425,722,369
HM-1	Western Valley to Henry Miller UP Wye	58.05	36.07	10,870,134	17,493,785	630,967,784
HM-2	Henry Miller UP North Wye to UP South Wye	8.19	5.09	11,200,428	18,025,342	91,720,307

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
HM/UP-XN	Henry Miller Wye North to UPRR	11.25	6.99	11,845,555	19,063,573	133,262,493
HM/UP-XS	Henry Miller Wye South to UPRR	7.95	4.94	9,962,265	16,032,711	79,200,005
<i>BNSF – UPRR</i>		149.65	92.99	16,922,529	27,234,170	2,532,456,455
BNSF N/S 1	North Stockton South to UPRR Connection	17.50	10.87	8,299,538	13,356,812	145,241,919
BNSF N/S 2	BNSF Parallel to UPRR tracks	3.50	2.17	8,146,586	13,110,659	28,513,051
BNSF N/S 3	Parallel tracks South through Escaton	13.55	8.42	18,310,198	29,467,407	248,103,178
BNSF N/S 4	Escaton South to Amtrak Briggsmore	13.85	8.61	22,595,951	36,364,659	312,953,926
BNSF N/S 5	Amtrak Briggsmore to UPRR/BNSF Connection	39.85	24.76	17,070,256	27,471,913	680,249,686
BNSF N/S 6	UPRR/BNSF Connection to Atwater	6.30	3.91	17,380,925	27,971,887	109,499,827
BNSF N/S 7	Atwater to Downtown Merced	17.00	10.56	24,530,829	39,478,543	417,024,095
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	32,162,740	51,760,913	152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	8,686,037	13,978,822	151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	18,020,529	29,001,230	286,526,405
<i>STATION OPTIONS</i>						
S3	West Oakland/7th Street					611,197,055
S9	Coliseum/Airport					61,735,853
S10	Union City (BART)					69,853,070
S12	Fremont (Warm Springs)					156,875,180
S5	San Jose (Diridon)					185,051,790
S24	Morgan Hill (Caltrain)					284,985,295
S23	Gilroy (Caltrain)					148,256,045
S26	Briggsmore (Amtrak)					71,428,053
S27	Merced (Downtown)					71,428,053

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
PACHECO PASS						
P3—San Francisco, Oakland and San Jose Termini		498.26	309.60	27,880,345	44,869,066	13,891,521,223
<i>Caltrain Corridor (San Francisco to Dumbarton)</i>		53.11	33.00	41,277,116	66,429,079	2,192,227,640
Caltrain 1	Transbay Transit Center to 4th/Townsend	5.00	3.11	79,761,189	128,363,191	398,805,944
Caltrain 2	4th/Townsend to Millbrae/SFO	28.61	17.78	35,793,741	57,604,443	1,024,058,938
Caltrain 3	Millbrae/SFO to Redwood City	18.75	11.65	37,489,586	60,333,640	702,929,734
Caltrain 4	Redwood City to Caltrain	0.75	0.47	88,577,366	142,551,453	66,433,025
<i>Caltrain Corridor (Dumbarton to San Jose)</i>		34.40	21.38	39,358,880	63,341,977	1,353,945,475
Caltrain 5	Caltrain Dumbarton Wye	1.62	1.01	24,593,435	39,579,297	39,865,958
Caltrain 6	Dumbarton Wye to Palo Alto	5.23	3.25	49,783,239	80,118,357	260,316,558
Caltrain 7	Palo Alto to Santa Clara	22.55	14.01	26,212,143	42,184,355	591,083,820
Caltrain 8	Santa Clara to Diridon Station	5.00	3.11	92,535,828	148,921,979	462,679,139
<i>Niles/I-880 (West Oakland to Niles Junction)</i>		44.26	27.50	36,053,254	58,022,088	1,595,717,028
Niles/I-880 1A	West Oakland to Jack London Square	9.04	5.62	57,292,648	92,203,579	517,810,948
Niles/I-880 2	Jack London Square to Oakland Coliseum	3.75	2.33	58,026,798	93,385,080	217,600,493
Niles/I-880 3A	Oakland Coliseum to Union City (BART)	8.02	4.98	100,347,026	161,492,885	804,983,844
Niles/I-880 4A	Union City (BART) to Niles Junction	23.45	14.57	2,359,136	3,796,662	55,321,742
<i>Niles/I-880 (Niles Junction to San Jose via I-880)</i>		26.10	16.22	48,553,043	78,138,548	1,267,234,412
Niles/I-880 5A	Niles Junction to Niles Wye (S)	3.65	2.27	45,726,749	73,590,069	166,902,634
Niles/I-880 5B	Niles Wye (S) to Warm Springs	8.45	5.25	16,691,618	26,862,555	141,044,170
Niles/I-880 6	Warm Springs to Trimble Rd	2.35	1.46	212,457,836	341,917,743	499,275,914

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
Niles/I-880 7A	I-880 – Trimble Rd. to Diridon	11.65	7.24	39,485,982	63,546,529	460,011,694
<i>Pacheco (San Jose to Western Valley)</i>		92.50	57.48	38,800,727	62,443,717	3,589,067,255
Pacheco 1	Diridon to Morgan Hill	32.50	20.19	20,366,713	32,777,047	661,918,165
Pacheco 2	Morgan Hill to Gilroy	16.00	9.94	23,730,117	38,189,921	379,681,864
Pacheco 3	Gilroy to San Luis Reservoir	44.00	27.34	57,896,982	93,176,161	2,547,467,226
<i>Henry Miller (UPRR Connection)</i>		100.89	62.69	13,489,349	21,709,003	1,360,872,958
Pacheco 4	San Luis Reservoir to Valley Floor	15.45	9.60	27,554,846	44,345,226	425,722,369
HM-1	Western Valley to Henry Miller UP Wye	58.05	36.07	10,870,134	17,493,785	630,967,784
HM-2	Henry Miller UP North Wye to UP South Wye	8.19	5.09	11,200,428	18,025,342	91,720,307
HM/UP-XN	Henry Miller Wye North to UPRR	11.25	6.99	11,845,555	19,063,573	133,262,493
HM/UP-XS	Henry Miller Wye South to UPRR	7.95	4.94	9,962,265	16,032,711	79,200,005
<i>BNSF – UPRR</i>		149.65	92.99	16,922,529	27,234,170	2,532,456,455
BNSF N/S 1	North Stockton South to UPRR Connection	17.50	10.87	8,299,538	13,356,812	145,241,919
BNSF N/S 2	BNSF Parallel to UPRR tracks	3.50	2.17	8,146,586	13,110,659	28,513,051
BNSF N/S 3	Parallel tracks South through Escaton	13.55	8.42	18,310,198	29,467,407	248,103,178
BNSF N/S 4	Escaton South to Amtrak Briggsmore	13.85	8.61	22,595,951	36,364,659	312,953,926
BNSF N/S 5	Amtrak Briggsmore to UPRR/BNSF Connection	39.85	24.76	17,070,256	27,471,913	680,249,686
BNSF N/S 6	UPRR/BNSF Connection to Atwater	6.30	3.91	17,380,925	27,971,887	109,499,827
BNSF N/S 7	Atwater to Downtown Merced	17.00	10.56	24,530,829	39,478,543	417,024,095
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	32,162,740	51,760,913	152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	8,686,037	13,978,822	151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	18,020,529	29,001,230	286,526,405

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
<i>STATION OPTIONS</i>						
S2	Transbay Transit Center					786,262,418
S1	4th and King (Caltrain)					791,939,278
S6	Millbrae/SFO					29,076,600
S7	Redwood City (Caltrain)					67,516,558
S8	Palo Alto (Caltrain)					67,516,558
S3	West Oakland/7th Street					611,197,055
S9	Coliseum/Airport					61,735,853
S10	Union City (BART)					69,853,070
S12	Fremont (Warm Springs)					156,875,180
S5	San Jose (Diridon)					185,051,790
S24	Morgan Hill (Caltrain)					284,985,295
S23	Gilroy (Caltrain)					148,256,045
S26	Briggsmore (Amtrak)					71,428,053
S27	Merced (Downtown)					71,428,053
<i>PACHECO PASS</i>						
P4—San Jose Terminus		343.04	213.15	21,812,342	35,103,561	7,482,396,668
<i>Pacheco (San Jose to Western Valley)</i>		92.50	57.48	38,800,727	62,443,717	3,589,067,255
Pacheco 1	Diridon to Morgan Hill	32.50	20.19	20,366,713	32,777,047	661,918,165
Pacheco 2	Morgan Hill to Gilroy	16.00	9.94	23,730,117	38,189,921	379,681,864
Pacheco 3	Gilroy to San Luis Reservoir	44.00	27.34	57,896,982	93,176,161	2,547,467,226
<i>Henry Miller (UPRR Connection)</i>		100.89	62.69	13,489,349	21,709,003	1,360,872,958
Pacheco 4	San Luis Reservoir to Valley Floor	15.45	9.60	27,554,846	44,345,226	425,722,369
HM-1	Western Valley to Henry Miller UP Wye	58.05	36.07	10,870,134	17,493,785	630,967,784

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
HM-2	Henry Miller UP North Wye to UP South Wye	8.19	5.09	11,200,428	18,025,342	91,720,307
HM/UP-XN	Henry Miller Wye North to UPRR	11.25	6.99	11,845,555	19,063,573	133,262,493
HM/UP-XS	Henry Miller Wye South to UPRR	7.95	4.94	9,962,265	16,032,711	79,200,005
<i>BNSF – UPRR</i>		149.65	92.99	16,922,529	27,234,170	2,532,456,455
BNSF N/S 1	North Stockton South to UPRR Connection	17.50	10.87	8,299,538	13,356,812	145,241,919
BNSF N/S 2	BNSF Parallel to UPRR tracks	3.50	2.17	8,146,586	13,110,659	28,513,051
BNSF N/S 3	Parallel tracks South through Escaton	13.55	8.42	18,310,198	29,467,407	248,103,178
BNSF N/S 4	Escaton South to Amtrak Briggsmore	13.85	8.61	22,595,951	36,364,659	312,953,926
BNSF N/S 5	Amtrak Briggsmore to UPRR/BNSF Connection	39.85	24.76	17,070,256	27,471,913	680,249,686
BNSF N/S 6	UPRR/BNSF Connection to Atwater	6.30	3.91	17,380,925	27,971,887	109,499,827
BNSF N/S 7	Atwater to Downtown Merced	17.00	10.56	24,530,829	39,478,543	417,024,095
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	32,162,740	51,760,913	152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	8,686,037	13,978,822	151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	18,020,529	29,001,230	286,526,405
<i>STATION OPTIONS</i>						
S5	San Jose (Diridon)					185,051,790
S24	Morgan Hill (Caltrain)					284,985,295
S23	Gilroy (Caltrain)					148,256,045
S26	Briggsmore (Amtrak)					71,428,053
S27	Merced (Downtown)					71,428,053
PACHECO PASS						
P5—San Jose, San Francisco and Oakland via Transbay Tube		444.69	276.31	33,709,849	54,250,743	14,990,264,181

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
	<i>Transbay Crossing – Transbay Transit Center</i>	14.14	8.79	280,176,407	450,900,220	3,961,694,398
TB-1	Transbay Transit Center tube to SF Bay	4.33	2.69	144,822,423	233,069,097	627,081,091
TB-3	SF Bay to West Oakland	9.81	6.10	339,919,807	547,047,902	3,334,613,307
	<i>Caltrain Corridor (San Francisco to Dumbarton)</i>	53.11	33.00	41,277,116	66,429,079	2,192,227,640
Caltrain 1	Transbay Transit Center to 4th/Townsend	5.00	3.11	79,761,189	128,363,191	398,805,944
Caltrain 2	4th/Townsend to Millbrae/SFO	28.61	17.78	35,793,741	57,604,443	1,024,058,938
Caltrain 3	Millbrae/SFO to Redwood City	18.75	11.65	37,489,586	60,333,640	702,929,734
Caltrain 4	Redwood City to Caltrain	0.75	0.47	88,577,366	142,551,453	66,433,025
	<i>Caltrain Corridor (Dumbarton to San Jose)</i>	34.40	21.38	39,358,880	63,341,977	1,353,945,475
Caltrain 5	Caltrain Dumbarton Wye	1.62	1.01	24,593,435	39,579,297	39,865,958
Caltrain 6	Dumbarton Wye to Palo Alto	5.23	3.25	49,783,239	80,118,357	260,316,558
Caltrain 7	Palo Alto to Santa Clara	22.55	14.01	26,212,143	42,184,355	591,083,820
Caltrain 8	Santa Clara to Diridon Station	5.00	3.11	92,535,828	148,921,979	462,679,139
	<i>Pacheco (San Jose to Western Valley)</i>	92.50	57.48	38,800,727	62,443,717	3,589,067,255
Pacheco 1	Diridon to Morgan Hill	32.50	20.19	20,366,713	32,777,047	661,918,165
Pacheco 2	Morgan Hill to Gilroy	16.00	9.94	23,730,117	38,189,921	379,681,864
Pacheco 3	Gilroy to San Luis Reservoir	44.00	27.34	57,896,982	93,176,161	2,547,467,226
	<i>Henry Miller (UPRR Connection)</i>	100.89	62.69	13,489,349	21,709,003	1,360,872,958
Pacheco 4	San Luis Reservoir to Valley Floor	15.45	9.60	27,554,846	44,345,226	425,722,369
HM-1	Western Valley to Henry Miller UP Wye	58.05	36.07	10,870,134	17,493,785	630,967,784
HM-2	Henry Miller UP North Wye to UP South Wye	8.19	5.09	11,200,428	18,025,342	91,720,307

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
HM/UP-XN	Henry Miller Wye North to UPRR	11.25	6.99	11,845,555	19,063,573	133,262,493
HM/UP-XS	Henry Miller Wye South to UPRR	7.95	4.94	9,962,265	16,032,711	79,200,005
<i>BNSF – UPRR</i>		149.65	92.99	16,922,529	27,234,170	2,532,456,455
BNSF N/S 1	North Stockton South to UPRR Connection	17.50	10.87	8,299,538	13,356,812	145,241,919
BNSF N/S 2	BNSF Parallel to UPRR tracks	3.50	2.17	8,146,586	13,110,659	28,513,051
BNSF N/S 3	Parallel tracks South through Escaton	13.55	8.42	18,310,198	29,467,407	248,103,178
BNSF N/S 4	Escaton South to Amtrak Briggsmore	13.85	8.61	22,595,951	36,364,659	312,953,926
BNSF N/S 5	Amtrak Briggsmore to UPRR/BNSF Connection	39.85	24.76	17,070,256	27,471,913	680,249,686
BNSF N/S 6	UPRR/BNSF Connection to Atwater	6.30	3.91	17,380,925	27,971,887	109,499,827
BNSF N/S 7	Atwater to Downtown Merced	17.00	10.56	24,530,829	39,478,543	417,024,095
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	32,162,740	51,760,913	152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	8,686,037	13,978,822	151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	18,020,529	29,001,230	286,526,405
<i>STATION OPTIONS</i>						
S2	Transbay Transit Center					786,262,418
S1	4th and King (Caltrain)					791,939,278
S6	Millbrae/SFO					29,076,600
S7	Redwood City (Caltrain)					67,516,558
S3	West Oakland/7th Street					611,197,055
S8	Palo Alto (Caltrain)					67,516,558
S5	San Jose (Diridon)					185,051,790
S24	Morgan Hill (Caltrain)					284,985,295
S23	Gilroy (Caltrain)					148,256,045

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
S26	Briggsmore (Amtrak)					71,428,053
S27	Merced (Downtown)					71,428,053
PACHECO PASS						
P6—San Jose, Oakland and San Francisco via Transbay Tube		427.54	265.66	33,464,026	53,855,130	14,307,042,507
<i>Transbay Crossing – Transbay Transit Center</i>		14.14	8.79	280,176,407	450,900,220	3,961,694,398
TB-1	Transbay Transit Center tube to SF Bay	4.33	2.69	144,822,423	233,069,097	627,081,091
TB-3	SF Bay to West Oakland	9.81	6.10	339,919,807	547,047,902	3,334,613,307
<i>Niles/I-880 (West Oakland to Niles Junction)</i>		44.26	27.50	36,053,254	58,022,088	1,595,717,028
Niles/I-880 1A	West Oakland to Jack London Square	9.04	5.62	57,292,648	92,203,579	517,810,948
Niles/I-880 2	Jack London Square to Oakland Coliseum	3.75	2.33	58,026,798	93,385,080	217,600,493
Niles/I-880 3A	Oakland Coliseum to Union City (BART)	8.02	4.98	100,347,026	161,492,885	804,983,844
Niles/I-880 4A	Union City (BART) to Niles Junction	23.45	14.57	2,359,136	3,796,662	55,321,742
<i>Niles/I-880 (Niles Junction to San Jose via I-880)</i>		26.10	16.22	48,553,043	78,138,548	1,267,234,412
Niles/I-880 5A	Niles Junction to Niles Wye (S)	3.65	2.27	45,726,749	73,590,069	166,902,634
Niles/I-880 5B	Niles Wye (S) to Warm Springs	8.45	5.25	16,691,618	26,862,555	141,044,170
Niles/I-880 6	Warm Springs to Trimble Rd	2.35	1.46	212,457,836	341,917,743	499,275,914
Niles/I-880 7A	I-880 – Trimble Rd. to Diridon	11.65	7.24	39,485,982	63,546,529	460,011,694
<i>Pacheco (San Jose to Western Valley)</i>						
Pacheco 1	Diridon to Morgan Hill	32.50	20.19	20,366,713	32,777,047	661,918,165
Pacheco 2	Morgan Hill to Gilroy	16.00	9.94	23,730,117	38,189,921	379,681,864
Pacheco 3	Gilroy to San Luis Reservoir	44.00	27.34	57,896,982	93,176,161	2,547,467,226

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
	<i>Henry Miller (UPRR Connection)</i>	100.89	62.69	13,489,349	21,709,003	1,360,872,958
Pacheco 4	San Luis Reservoir to Valley Floor	15.45	9.60	27,554,846	44,345,226	425,722,369
HM-1	Western Valley to Henry Miller UP Wye	58.05	36.07	10,870,134	17,493,785	630,967,784
HM-2	Henry Miller UP North Wye to UP South Wye	8.19	5.09	11,200,428	18,025,342	91,720,307
HM/UP-XN	Henry Miller Wye North to UPRR	11.25	6.99	11,845,555	19,063,573	133,262,493
HM/UP-XS	Henry Miller Wye South to UPRR	7.95	4.94	9,962,265	16,032,711	79,200,005
	<i>BNSF – UPRR</i>	149.65	92.99	16,922,529	27,234,170	2,532,456,455
BNSF N/S 1	North Stockton South to UPRR Connection	17.50	10.87	8,299,538	13,356,812	145,241,919
BNSF N/S 2	BNSF Parallel to UPRR tracks	3.50	2.17	8,146,586	13,110,659	28,513,051
BNSF N/S 3	Parallel tracks South through Escaton	13.55	8.42	18,310,198	29,467,407	248,103,178
BNSF N/S 4	Escaton South to Amtrak Briggsmore	13.85	8.61	22,595,951	36,364,659	312,953,926
BNSF N/S 5	Amtrak Briggsmore to UPRR/BNSF Connection	39.85	24.76	17,070,256	27,471,913	680,249,686
BNSF N/S 6	UPRR/BNSF Connection to Atwater	6.30	3.91	17,380,925	27,971,887	109,499,827
BNSF N/S 7	Atwater to Downtown Merced	17.00	10.56	24,530,829	39,478,543	417,024,095
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	32,162,740	51,760,913	152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	8,686,037	13,978,822	151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	18,020,529	29,001,230	286,526,405
	<i>STATION OPTIONS</i>					
S2	Transbay Transit Center					786,262,418
S3	West Oakland/7th Street					611,197,055
S9	Coliseum/Airport					61,735,853
S10	Union City (BART)					69,853,070
S12	Fremont (Warm Springs)					156,875,180

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
S5	San Jose (Diridon)					185,051,790
S24	Morgan Hill (Caltrain)					284,985,295
S23	Gilroy (Caltrain)					148,256,045
S26	Briggsmore (Amtrak)					71,428,053
S27	Merced (Downtown)					71,428,053
PACHECO PASS WITH ALTAMONT PASS (LOCAL SERVICE)						
PA1—San Francisco and San Jose Termini		545.83	339.16	29,861,979	48,058,196	16,299,474,324
<i>Caltrain Corridor (San Francisco to Dumbarton)</i>		53.11	33.00	41,277,116	66,429,079	2,192,227,640
Caltrain 1	Transbay Transit Center to 4th/Townsend	5.00	3.11	79,761,189	128,363,191	398,805,944
Caltrain 2	4th/Townsend to Millbrae/SFO	28.61	17.78	35,793,741	57,604,443	1,024,058,938
Caltrain 3	Millbrae/SFO to Redwood City	18.75	11.65	37,489,586	60,333,640	702,929,734
Caltrain 4	Redwood City to Caltrain	0.75	0.47	88,577,366	142,551,453	66,433,025
<i>Caltrain Corridor (Dumbarton to San Jose)</i>		34.40	21.38	39,358,880	63,341,977	1,353,945,475
Caltrain 5	Caltrain Dumbarton Wye	1.62	1.01	24,593,435	39,579,297	39,865,958
Caltrain 6	Dumbarton Wye to Palo Alto	5.23	3.25	49,783,239	80,118,357	260,316,558
Caltrain 7	Palo Alto to Santa Clara	22.55	14.01	26,212,143	42,184,355	591,083,820
Caltrain 8	Santa Clara to Diridon Station	5.00	3.11	92,535,828	148,921,979	462,679,139
<i>Dumbarton (High Bridge)</i>		29.31	18.21	66,959,612	107,761,051	1,962,452,322
Dumbarton-XN	Dumbarton Wye North to Caltrain	1.20	0.75	134,496,341	216,450,879	161,395,609
Dumbarton-XS	Dumbarton Wye South to Caltrain	0.60	0.37	20,931,892	33,686,615	12,559,135

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
Dumbarton-1 (High Bridge)	Dumbarton Bay Crossing to Don Edwards	10.01	6.22	88,615,763	142,613,246	886,866,552
Dumbarton-2 (High Bridge)	Dumbarton Bay Crossing to Don Edwards	13.00	8.08	60,644,584	97,597,998	788,379,595
UPRR-1	Shinn to Niles Canyon	4.50	2.80	25,166,985	40,502,336	113,251,431
<i>UPRR (Niles to Altamont)</i>		43.25	26.87	38,855,518	62,531,895	1,680,501,168
UPRR-2A/2B	Niles Canyon to Sunol	11.95	7.43	52,413,607	84,351,524	626,342,602
UPRR-3	Sunol to Pleasanton	1.10	0.68	134,433,359	216,349,520	147,876,695
UPRR-4	Pleasanton to El Charo	2.59	1.61	26,410,969	42,504,335	68,510,055
UPRR-5	El Charo to Livermore	6.61	4.10	7,127,268	11,470,225	47,082,729
UPRR-6	Livermore to Patterson Pass cut off	3.25	2.02	22,896,022	36,847,576	74,412,071
UPRR-7	Patterson Pass cut off to Greenville	2.98	1.85	18,326,922	29,494,322	54,614,227
UPRR-8	Greenville to Altamont Pass	11.27	7.00	53,967,010	86,851,484	608,154,234
UPRR-9	Altamont Pass to County Line	3.50	2.18	15,283,791	24,596,878	53,508,554
<i>Tracy Downtown (UPRR Connection)</i>		57.42	35.68	28,122,096	45,258,126	1,614,883,212
UPRR-10	County Line to Tracy Downtown	12.35	7.67	24,741,185	39,817,078	305,553,641
UPRR-11	Tracy Downtown to I-205	7.40	4.60	15,859,194	25,522,899	117,358,035
UPRR-12	I-205 to S. UPRR	7.80	4.85	15,933,589	25,642,626	124,281,993
UPRR-13	I-205 to Lathrop – Northern	13.14	8.16	18,113,361	29,150,629	238,009,562
MC-1	Southwestern Manteca	1.46	0.91	27,687,372	44,558,506	40,340,501
MC-2	Southeastern Manteca	1.83	1.14	25,102,875	40,399,161	45,963,364
MC-3	Eastern Manteca UPRR South to BNSF	9.17	5.70	74,962,364	120,640,230	687,254,951
MC-4	Manteca to Escaton Wye	4.28	2.66	13,118,552	21,112,263	56,121,166
<i>UPRR (Central Valley)</i>		134.95	83.85	18,862,722	30,356,608	2,545,524,294
UPRR N/S-1	French Camp to Lathrop	8.00	4.97	13,627,270	21,930,965	109,018,159

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
UPRR N/S-2	Lathrop through Manteca	8.70	5.41	21,359,159	34,374,234	185,824,683
UPRR N/S-3	Manteca South to BNSF/UPRR	3.30	2.05	7,761,402	12,490,765	25,612,626
UPRR N/S-4	BNSF?UPRR South to Modesto	18.50	11.50	15,559,246	25,040,179	287,846,051
UPRR N/S-5a *	UPRR Modesto South – Western Option	4.20	2.61	84,115,056	135,370,061	353,283,237
UPRR N/S-6	South Modesto to BNSF Connection	20.90	12.99	21,150,677	34,038,714	442,049,140
UPRR N/S-7	BNSF Connection South to Merced	33.25	20.66	16,572,019	26,670,079	551,019,624
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	32,162,740	51,760,913	152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	8,686,037	13,978,822	151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	18,020,529	29,001,230	286,526,405
<i>Pacheco (San Jose to Western Valley)</i>		92.50	57.48	38,800,727	62,443,717	3,589,067,255
Pacheco 1	Diridon to Morgan Hill	32.50	20.19	20,366,713	32,777,047	661,918,165
Pacheco 2	Morgan Hill to Gilroy	16.00	9.94	23,730,117	38,189,921	379,681,864
Pacheco 3	Gilroy to San Luis Reservoir	44.00	27.34	57,896,982	93,176,161	2,547,467,226
<i>Henry Miller (UPRR Connection)</i>		100.89	62.69	13,489,349	21,709,003	1,360,872,958
Pacheco 4	San Luis Reservoir to Valley Floor	15.45	9.60	27,554,846	44,345,226	425,722,369
HM-1	Western Valley to Henry Miller UP Wye	58.05	36.07	10,870,134	17,493,785	630,967,784
HM-2	Henry Miller UP North Wye to UP South Wye	8.19	5.09	11,200,428	18,025,342	91,720,307
HM/UP-XN	Henry Miller Wye North to UPRR	11.25	6.99	11,845,555	19,063,573	133,262,493
HM/UP-XS	Henry Miller Wye South to UPRR	7.95	4.94	9,962,265	16,032,711	79,200,005
<i>STATION OPTIONS</i>						
S2	Transbay Transit Center					786,262,418
S1	4th and King (Caltrain)					791,939,278
S6	Millbrae/SFO					29,076,600

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
S7	Redwood City (Caltrain)					67,516,558
S8	Palo Alto (Caltrain)					67,516,558
S29	Union City (Shinn)					300,146,665
S32	Pleasanton (I-680/Bernal Rd)					58,118,585
S34	Livermore (Downtown) (At Grade)					58,758,963
S35	Livermore (Downtown) (Aerial)					300,146,665
S37	Livermore (Greenville Road/UPRR)					58,118,585
S38	Tracy (Downtown)					300,146,665
S25	Modesto (Downtown)					71,428,053
S27	Merced (Downtown)					71,428,053
S5	San Jose (Diridon)					185,051,790
S24	Morgan Hill (Caltrain)					284,985,295
S23	Gilroy (Caltrain)					148,256,045
PACHECO PASS WITH ALTAMONT PASS (LOCAL SERVICE)						
PA2—Oakland and San Jose Termini		512.50	318.45	28,057,552	45,154,253	14,379,523,442
<i>Niles/I-880 (West Oakland to Niles Junction)</i>		44.26	27.50	36,053,254	58,022,088	1,595,717,028
Niles/I-880 1A	West Oakland to Jack London Square	9.04	5.62	57,292,648	92,203,579	517,810,948
Niles/I-880 2	Jack London Square to Oakland Coliseum	3.75	2.33	58,026,798	93,385,080	217,600,493
Niles/I-880 3A	Oakland Coliseum to Union City (BART)	8.02	4.98	100,347,026	161,492,885	804,983,844
Niles/I-880 4A	Union City (BART) to Niles Junction	23.45	14.57	2,359,136	3,796,662	55,321,742
<i>Niles/I-880 (Niles Junction to San Jose via I-880)</i>		26.10	16.22	48,553,043	78,138,548	1,267,234,412
Niles/I-880 5A	Niles Junction to Niles Wye (S)	3.65	2.27	45,726,749	73,590,069	166,902,634

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
Niles/I-880 5B	Niles Wye (S) to Warm Springs	8.45	5.25	16,691,618	26,862,555	141,044,170
Niles/I-880 6	Warm Springs to Trimble Rd	2.35	1.46	212,457,836	341,917,743	499,275,914
Niles/I-880 7A	I-880 – Trimble Rd. to Diridon	11.65	7.24	39,485,982	63,546,529	460,011,694
<i>East Bay Connection (Dumbarton/Niles XN and Dumbarton/Niles XS)</i>		13.13	8.16	55,263,716	88,938,329	725,723,114
Dumbarton/Niles XN	Niles to Union City – Niles Wye (E) to Niles Wye (N)	4.25	2.64	35,018,018	56,356,037	148,966,648
Dumbarton/Niles XS	Niles to Fremont – Niles Wye (E) to Niles Wye (S)	8.88	5.52	64,964,684	104,550,525	576,756,466
<i>UPRR (Niles to Altamont)</i>		43.25	26.87	38,855,518	62,531,895	1,680,501,168
UPRR-2A/2B	Niles Canyon to Sunol	11.95	7.43	52,413,607	84,351,524	626,342,602
UPRR-3	Sunol to Pleasanton	1.10	0.68	134,433,359	216,349,520	147,876,695
UPRR-4	Pleasanton to El Charo	2.59	1.61	26,410,969	42,504,335	68,510,055
UPRR-5	El Charo to Livermore	6.61	4.10	7,127,268	11,470,225	47,082,729
UPRR-6	Livermore to Patterson Pass cut off	3.25	2.02	22,896,022	36,847,576	74,412,071
UPRR-7	Patterson Pass cut off to Greenville	2.98	1.85	18,326,922	29,494,322	54,614,227
UPRR-8	Greenville to Altamont Pass	11.27	7.00	53,967,010	86,851,484	608,154,234
UPRR-9	Altamont Pass to County Line	3.50	2.18	15,283,791	24,596,878	53,508,554
<i>Tracy Downtown (UPRR Connection)</i>		57.42	35.68	28,122,096	45,258,126	1,614,883,212
UPRR-10	County Line to Tracy Downtown	12.35	7.67	24,741,185	39,817,078	305,553,641
UPRR-11	Tracy Downtown to I-205	7.40	4.60	15,859,194	25,522,899	117,358,035
UPRR-12	I-205 to S. UPRR	7.80	4.85	15,933,589	25,642,626	124,281,993
UPRR-13	I-205 to Lathrop – Northern	13.14	8.16	18,113,361	29,150,629	238,009,562
MC-1	Southwestern Manteca	1.46	0.91	27,687,372	44,558,506	40,340,501
MC-2	Southeastern Manteca	1.83	1.14	25,102,875	40,399,161	45,963,364

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
MC-3	Eastern Manteca UPRR South to BNSF	9.17	5.70	74,962,364	120,640,230	687,254,951
MC-4	Manteca to Escaton Wye	4.28	2.66	13,118,552	21,112,263	56,121,166
<i>UPRR (Central Valley)</i>		134.95	83.85	18,862,722	30,356,608	2,545,524,294
UPRR N/S-1	French Camp to Lathrop	8.00	4.97	13,627,270	21,930,965	109,018,159
UPRR N/S-2	Lathrop through Manteca	8.70	5.41	21,359,159	34,374,234	185,824,683
UPRR N/S-3	Manteca South to BNSF/UPRR	3.30	2.05	7,761,402	12,490,765	25,612,626
UPRR N/S-4	BNSF?UPRR South to Modesto	18.50	11.50	15,559,246	25,040,179	287,846,051
UPRR N/S-5a *	UPRR Modesto South – Western Option	4.20	2.61	84,115,056	135,370,061	353,283,237
UPRR N/S-6	South Modesto to BNSF Connection	20.90	12.99	21,150,677	34,038,714	442,049,140
UPRR N/S-7	BNSF Connection South to Merced	33.25	20.66	16,572,019	26,670,079	551,019,624
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	32,162,740	51,760,913	152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	8,686,037	13,978,822	151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	18,020,529	29,001,230	286,526,405
<i>Pacheco (San Jose to Western Valley)</i>		92.50	57.48	38,800,727	62,443,717	3,589,067,255
Pacheco 1	Diridon to Morgan Hill	32.50	20.19	20,366,713	32,777,047	661,918,165
Pacheco 2	Morgan Hill to Gilroy	16.00	9.94	23,730,117	38,189,921	379,681,864
Pacheco 3	Gilroy to San Luis Reservoir	44.00	27.34	57,896,982	93,176,161	2,547,467,226
<i>Henry Miller (UPRR Connection)</i>		100.89	62.69	13,489,349	21,709,003	1,360,872,958
Pacheco 4	San Luis Reservoir to Valley Floor	15.45	9.60	27,554,846	44,345,226	425,722,369
HM-1	Western Valley to Henry Miller UP Wye	58.05	36.07	10,870,134	17,493,785	630,967,784
HM-2	Henry Miller UP North Wye to UP South Wye	8.19	5.09	11,200,428	18,025,342	91,720,307
HM/UP-XN	Henry Miller Wye North to UPRR	11.25	6.99	11,845,555	19,063,573	133,262,493
HM/UP-XS	Henry Miller Wye South to UPRR	7.95	4.94	9,962,265	16,032,711	79,200,005

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
<i>STATION OPTIONS</i>						
S3	West Oakland/7th Street					611,197,055
S9	Coliseum/Airport					61,735,853
S10	Union City (BART)					69,853,070
S12	Fremont (Warm Springs)					156,875,180
S32	Pleasanton (I-680/Bernal Rd)					58,118,585
S34	Livermore (Downtown) (At Grade)					58,758,963
S35	Livermore (Downtown) (Aerial)					300,146,665
S37	Livermore (Greenville Road/UPRR)					58,118,585
S38	Tracy (Downtown)					300,146,665
S25	Modesto (Downtown)					71,428,053
S27	Merced (Downtown)					71,428,053
S5	San Jose (Diridon)					185,051,790
S24	Morgan Hill (Caltrain)					284,985,295
S23	Gilroy (Caltrain)					148,256,045
PACHECO PASS WITH ALTAMONT PASS (LOCAL SERVICE)						
PA3—San Francisco, Oakland and San Jose Termini (with Dumbarton Bridge)		629.32	391.04	31,602,651	50,859,537	19,888,148,879
<i>Caltrain Corridor (San Francisco to Dumbarton)</i>		53.11	33.00	41,277,116	66,429,079	2,192,227,640
Caltrain 1	Transbay Transit Center to 4th/Townsend	5.00	3.11	79,761,189	128,363,191	398,805,944
Caltrain 2	4th/Townsend to Millbrae/SFO	28.61	17.78	35,793,741	57,604,443	1,024,058,938
Caltrain 3	Millbrae/SFO to Redwood City	18.75	11.65	37,489,586	60,333,640	702,929,734
Caltrain 4	Redwood City to Caltrain	0.75	0.47	88,577,366	142,551,453	66,433,025

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
	<i>Caltrain Corridor (Dumbarton to San Jose)</i>	34.40	21.38	39,358,880	63,341,977	1,353,945,475
Caltrain 5	Caltrain Dumbarton Wye	1.62	1.01	24,593,435	39,579,297	39,865,958
Caltrain 6	Dumbarton Wye to Palo Alto	5.23	3.25	49,783,239	80,118,357	260,316,558
Caltrain 7	Palo Alto to Santa Clara	22.55	14.01	26,212,143	42,184,355	591,083,820
Caltrain 8	Santa Clara to Diridon Station	5.00	3.11	92,535,828	148,921,979	462,679,139
	<i>Dumbarton (High Bridge)</i>	29.31	18.21	66,959,612	107,761,051	1,962,452,322
Dumbarton-XN	Dumbarton Wye North to Caltrain	1.20	0.75	134,496,341	216,450,879	161,395,609
Dumbarton-XS	Dumbarton Wye South to Caltrain	0.60	0.37	20,931,892	33,686,615	12,559,135
Dumbarton-1 (High Bridge)	Dumbarton Bay Crossing to Don Edwards	10.01	6.22	88,615,763	142,613,246	886,866,552
Dumbarton-2 (High Bridge)	Dumbarton Bay Crossing to Don Edwards	13.00	8.08	60,644,584	97,597,998	788,379,595
UPRR-1	Shinn to Niles Canyon	4.50	2.80	25,166,985	40,502,336	113,251,431
	<i>Niles/I-880 (West Oakland to Niles Junction)</i>	44.26	27.50	36,053,254	58,022,088	1,595,717,028
Niles/I-880 1A	West Oakland to Jack London Square	9.04	5.62	57,292,648	92,203,579	517,810,948
Niles/I-880 2	Jack London Square to Oakland Coliseum	3.75	2.33	58,026,798	93,385,080	217,600,493
Niles/I-880 3A	Oakland Coliseum to Union City (BART)	8.02	4.98	100,347,026	161,492,885	804,983,844
Niles/I-880 4A	Union City (BART) to Niles Junction	23.45	14.57	2,359,136	3,796,662	55,321,742
	<i>Niles/I-880 (Niles Junction to San Jose via I-880)</i>	26.10	16.22	48,553,043	78,138,548	1,267,234,412
Niles/I-880 5A	Niles Junction to Niles Wye (S)	3.65	2.27	45,726,749	73,590,069	166,902,634
Niles/I-880 5B	Niles Wye (S) to Warm Springs	8.45	5.25	16,691,618	26,862,555	141,044,170
Niles/I-880 6	Warm Springs to Trimble Rd	2.35	1.46	212,457,836	341,917,743	499,275,914
Niles/I-880 7A	I-880 – Trimble Rd. to Diridon	11.65	7.24	39,485,982	63,546,529	460,011,694

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
<i>East Bay Connection (Dumbarton/Niles XN and Dumbarton/Niles XS)</i>		13.13	8.16	55,263,716	88,938,329	725,723,114
Dumbarton/Niles XN	Niles to Union City – Niles Wye (E) to Niles Wye (N)	4.25	2.64	35,018,018	56,356,037	148,966,648
Dumbarton/Niles XS	Niles to Fremont – Niles Wye (E) to Niles Wye (S)	8.88	5.52	64,964,684	104,550,525	576,756,466
<i>UPRR (Niles to Altamont)</i>		43.25	26.87	38,855,518	62,531,895	1,680,501,168
UPRR-2A/2B	Niles Canyon to Sunol	11.95	7.43	52,413,607	84,351,524	626,342,602
UPRR-3	Sunol to Pleasanton	1.10	0.68	134,433,359	216,349,520	147,876,695
UPRR-4	Pleasanton to El Charo	2.59	1.61	26,410,969	42,504,335	68,510,055
UPRR-5	El Charo to Livermore	6.61	4.10	7,127,268	11,470,225	47,082,729
UPRR-6	Livermore to Patterson Pass cut off	3.25	2.02	22,896,022	36,847,576	74,412,071
UPRR-7	Patterson Pass cut off to Greenville	2.98	1.85	18,326,922	29,494,322	54,614,227
UPRR-8	Greenville to Altamont Pass	11.27	7.00	53,967,010	86,851,484	608,154,234
UPRR-9	Altamont Pass to County Line	3.50	2.18	15,283,791	24,596,878	53,508,554
<i>Tracy Downtown (UPRR Connection)</i>		57.42	35.68	28,122,096	45,258,126	1,614,883,212
UPRR-10	County Line to Tracy Downtown	12.35	7.67	24,741,185	39,817,078	305,553,641
UPRR-11	Tracy Downtown to I-205	7.40	4.60	15,859,194	25,522,899	117,358,035
UPRR-12	I-205 to S. UPRR	7.80	4.85	15,933,589	25,642,626	124,281,993
UPRR-13	I-205 to Lathrop – Northern	13.14	8.16	18,113,361	29,150,629	238,009,562
MC-1	Southwestern Manteca	1.46	0.91	27,687,372	44,558,506	40,340,501
MC-2	Southeastern Manteca	1.83	1.14	25,102,875	40,399,161	45,963,364
MC-3	Eastern Manteca UPRR South to BNSF	9.17	5.70	74,962,364	120,640,230	687,254,951
MC-4	Manteca to Escaton Wye	4.28	2.66	13,118,552	21,112,263	56,121,166
<i>UPRR (Central Valley)</i>		134.95	83.85	18,862,722	30,356,608	2,545,524,294

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
UPRR N/S-1	French Camp to Lathrop	8.00	4.97	13,627,270	21,930,965	109,018,159
UPRR N/S-2	Lathrop through Manteca	8.70	5.41	21,359,159	34,374,234	185,824,683
UPRR N/S-3	Manteca South to BNSF/UPRR	3.30	2.05	7,761,402	12,490,765	25,612,626
UPRR N/S-4	BNSF?UPRR South to Modesto	18.50	11.50	15,559,246	25,040,179	287,846,051
UPRR N/S-5a *	UPRR Modesto South – Western Option	4.20	2.61	84,115,056	135,370,061	353,283,237
UPRR N/S-6	South Modesto to BNSF Connection	20.90	12.99	21,150,677	34,038,714	442,049,140
UPRR N/S-7	BNSF Connection South to Merced	33.25	20.66	16,572,019	26,670,079	551,019,624
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	32,162,740	51,760,913	152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	8,686,037	13,978,822	151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	18,020,529	29,001,230	286,526,405
<i>Pacheco (San Jose to Western Valley)</i>		92.50	57.48	38,800,727	62,443,717	3,589,067,255
Pacheco 1	Diridon to Morgan Hill	32.50	20.19	20,366,713	32,777,047	661,918,165
Pacheco 2	Morgan Hill to Gilroy	16.00	9.94	23,730,117	38,189,921	379,681,864
Pacheco 3	Gilroy to San Luis Reservoir	44.00	27.34	57,896,982	93,176,161	2,547,467,226
<i>Henry Miller (UPRR Connection)</i>		100.89	62.69	13,489,349	21,709,003	1,360,872,958
Pacheco 4	San Luis Reservoir to Valley Floor	15.45	9.60	27,554,846	44,345,226	425,722,369
HM-1	Western Valley to Henry Miller UP Wye	58.05	36.07	10,870,134	17,493,785	630,967,784
HM-2	Henry Miller UP North Wye to UP South Wye	8.19	5.09	11,200,428	18,025,342	91,720,307
HM/UP-XN	Henry Miller Wye North to UPRR	11.25	6.99	11,845,555	19,063,573	133,262,493
HM/UP-XS	Henry Miller Wye South to UPRR	7.95	4.94	9,962,265	16,032,711	79,200,005
<i>STATION OPTIONS</i>						
S2	Transbay Transit Center					786,262,418
S1	4th and King (Caltrain)					791,939,278

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
S6	Millbrae/SFO					29,076,600
S7	Redwood City (Caltrain)					67,516,558
S8	Palo Alto (Caltrain)					67,516,558
S29	Union City (Shinn)					300,146,665
S3	West Oakland/7th Street					611,197,055
S9	Coliseum/Airport					61,735,853
S10	Union City (BART)					69,853,070
S12	Fremont (Warm Springs)					156,875,180
S32	Pleasanton (I-680/Bernal Rd)					58,118,585
S34	Livermore (Downtown) (At Grade)					58,758,963
S35	Livermore (Downtown) (Aerial)					300,146,665
S37	Livermore (Greenville Road/UPRR)					58,118,585
S38	Tracy (Downtown)					300,146,665
S25	Modesto (Downtown)					71,428,053
S27	Merced (Downtown)					71,428,053
S5	San Jose (Diridon)					185,051,790
S24	Morgan Hill (Caltrain)					284,985,295
S23	Gilroy (Caltrain)					148,256,045
PACHECO PASS WITH ALTAMONT PASS (LOCAL SERVICE)						
PA4—San Francisco, Oakland and San Jose Termini (without Dumbarton Bridge)		580.81	360.90	30,863,218	49,669,535	17,925,696,556
<i>Caltrain Corridor (San Francisco to Dumbarton)</i>		53.11	33.00	41,277,116	66,429,079	2,192,227,640
Caltrain 1	Transbay Transit Center to 4th/Townsend	5.00	3.11	79,761,189	128,363,191	398,805,944

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
Caltrain 2	4th/Townsend to Millbrae/SFO	28.61	17.78	35,793,741	57,604,443	1,024,058,938
Caltrain 3	Millbrae/SFO to Redwood City	18.75	11.65	37,489,586	60,333,640	702,929,734
Caltrain 4	Redwood City to Caltrain	0.75	0.47	88,577,366	142,551,453	66,433,025
<i>Caltrain Corridor (Dumbarton to San Jose)</i>		34.40	21.38	39,358,880	63,341,977	1,353,945,475
Caltrain 5	Caltrain Dumbarton Wye	1.62	1.01	24,593,435	39,579,297	39,865,958
Caltrain 6	Dumbarton Wye to Palo Alto	5.23	3.25	49,783,239	80,118,357	260,316,558
Caltrain 7	Palo Alto to Santa Clara	22.55	14.01	26,212,143	42,184,355	591,083,820
Caltrain 8	Santa Clara to Diridon Station	5.00	3.11	92,535,828	148,921,979	462,679,139
<i>Niles/I-880 (West Oakland to Niles Junction)</i>		44.26	27.50	36,053,254	58,022,088	1,595,717,028
Niles/I-880 1A	West Oakland to Jack London Square	9.04	5.62	57,292,648	92,203,579	517,810,948
Niles/I-880 2	Jack London Square to Oakland Coliseum	3.75	2.33	58,026,798	93,385,080	217,600,493
Niles/I-880 3A	Oakland Coliseum to Union City (BART)	8.02	4.98	100,347,026	161,492,885	804,983,844
Niles/I-880 4A	Union City (BART) to Niles Junction	23.45	14.57	2,359,136	3,796,662	55,321,742
<i>Niles/I-880 (Niles Junction to San Jose via I-880)</i>		26.10	16.22	48,553,043	78,138,548	1,267,234,412
Niles/I-880 5A	Niles Junction to Niles Wye (S)	3.65	2.27	45,726,749	73,590,069	166,902,634
Niles/I-880 5B	Niles Wye (S) to Warm Springs	8.45	5.25	16,691,618	26,862,555	141,044,170
Niles/I-880 6	Warm Springs to Trimble Rd	2.35	1.46	212,457,836	341,917,743	499,275,914
Niles/I-880 7A	I-880 – Trimble Rd. to Diridon	11.65	7.24	39,485,982	63,546,529	460,011,694
<i>East Bay Connection (Dumbarton/Niles XN and Dumbarton/Niles XS)</i>		13.13	8.16	55,263,716	88,938,329	725,723,114
Dumbarton/Niles XN	Niles to Union City – Niles Wye (E) to Niles Wye (N)	4.25	2.64	35,018,018	56,356,037	148,966,648
Dumbarton/Niles XS	Niles to Fremont – Niles Wye (E) to	8.88	5.52	64,964,684	104,550,525	576,756,466

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
	Niles Wye (S)					
<i>UPRR (Niles to Altamont)</i>		43.25	26.87	38,855,518	62,531,895	1,680,501,168
UPRR-2A/2B	Niles Canyon to Sunol	11.95	7.43	52,413,607	84,351,524	626,342,602
UPRR-3	Sunol to Pleasanton	1.10	0.68	134,433,359	216,349,520	147,876,695
UPRR-4	Pleasanton to El Charo	2.59	1.61	26,410,969	42,504,335	68,510,055
UPRR-5	El Charo to Livermore	6.61	4.10	7,127,268	11,470,225	47,082,729
UPRR-6	Livermore to Patterson Pass cut off	3.25	2.02	22,896,022	36,847,576	74,412,071
UPRR-7	Patterson Pass cut off to Greenville	2.98	1.85	18,326,922	29,494,322	54,614,227
UPRR-8	Greenville to Altamont Pass	11.27	7.00	53,967,010	86,851,484	608,154,234
UPRR-9	Altamont Pass to County Line	3.50	2.18	15,283,791	24,596,878	53,508,554
<i>Tracy Downtown (UPRR Connection)</i>		57.42	35.68	28,122,096	45,258,126	1,614,883,212
UPRR-10	County Line to Tracy Downtown	12.35	7.67	24,741,185	39,817,078	305,553,641
UPRR-11	Tracy Downtown to I-205	7.40	4.60	15,859,194	25,522,899	117,358,035
UPRR-12	I-205 to S. UPRR	7.80	4.85	15,933,589	25,642,626	124,281,993
UPRR-13	I-205 to Lathrop – Northern	13.14	8.16	18,113,361	29,150,629	238,009,562
MC-1	Southwestern Manteca	1.46	0.91	27,687,372	44,558,506	40,340,501
MC-2	Southeastern Manteca	1.83	1.14	25,102,875	40,399,161	45,963,364
MC-3	Eastern Manteca UPRR South to BNSF	9.17	5.70	74,962,364	120,640,230	687,254,951
MC-4	Manteca to Escaton Wye	4.28	2.66	13,118,552	21,112,263	56,121,166
<i>UPRR (Central Valley)</i>		134.95	83.85	18,862,722	30,356,608	2,545,524,294
UPRR N/S-1	French Camp to Lathrop	8.00	4.97	13,627,270	21,930,965	109,018,159
UPRR N/S-2	Lathrop through Manteca	8.70	5.41	21,359,159	34,374,234	185,824,683
UPRR N/S-3	Manteca South to BNSF/UPRR	3.30	2.05	7,761,402	12,490,765	25,612,626
UPRR N/S-4	BNSF/UPRR South to Modesto	18.50	11.50	15,559,246	25,040,179	287,846,051
UPRR N/S-5a *	UPRR Modesto South – Western Option	4.20	2.61	84,115,056	135,370,061	353,283,237

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
UPRR N/S-6	South Modesto to BNSF Connection	20.90	12.99	21,150,677	34,038,714	442,049,140
UPRR N/S-7	BNSF Connection South to Merced	33.25	20.66	16,572,019	26,670,079	551,019,624
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	32,162,740	51,760,913	152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	8,686,037	13,978,822	151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	18,020,529	29,001,230	286,526,405
<i>Pacheco (San Jose to Western Valley)</i>		92.50	57.48	38,800,727	62,443,717	3,589,067,255
Pacheco 1	Diridon to Morgan Hill	32.50	20.19	20,366,713	32,777,047	661,918,165
Pacheco 2	Morgan Hill to Gilroy	16.00	9.94	23,730,117	38,189,921	379,681,864
Pacheco 3	Gilroy to San Luis Reservoir	44.00	27.34	57,896,982	93,176,161	2,547,467,226
<i>Henry Miller (UPRR Connection)</i>		81.69	50.76	16,660,011	26,811,688	1,360,872,958
Pacheco 4	San Luis Reservoir to Valley Floor	15.45	9.60	27,554,846	44,345,226	425,722,369
HM-1	Western Valley to Henry Miller UP Wye	58.05	36.07	10,870,134	17,493,785	630,967,784
HM-2	Henry Miller UP North Wye to UP South Wye	8.19	5.09	11,200,428	18,025,342	91,720,307
HM/UP-XN	Henry Miller Wye North to UPRR	11.25	6.99	11,845,555	19,063,573	133,262,493
HM/UP-XS	Henry Miller Wye South to UPRR	7.95	4.94	9,962,265	16,032,711	79,200,005
<i>STATION OPTIONS</i>						
S2	Transbay Transit Center					786,262,418
S1	4th and King (Caltrain)					791,939,278
S6	Millbrae/SFO					29,076,600
S7	Redwood City (Caltrain)					67,516,558
S8	Palo Alto (Caltrain)					67,516,558
S3	West Oakland/7th Street					611,197,055
S9	Coliseum/Airport					61,735,853

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
S10	Union City (BART)					69,853,070
S12	Fremont (Warm Springs)					156,875,180
S32	Pleasanton (I-680/Bernal Rd)					58,118,585
S34	Livermore (Downtown) (At Grade)					58,758,963
S35	Livermore (Downtown) (Aerial)					300,146,665
S37	Livermore (Greenville Road/UPRR)					58,118,585
S38	Tracy (Downtown)					300,146,665
S25	Modesto (Downtown)					71,428,053
S27	Merced (Downtown)					71,428,053
S5	San Jose (Diridon)					185,051,790
S24	Morgan Hill (Caltrain)					284,985,295
S23	Gilroy (Caltrain)					148,256,045
PACHECO PASS WITH ALTAMONT PASS (LOCAL SERVICE)						
PA5—San Jose Terminus		460.34	286.04	27,084,369	43,588,067	12,467,937,131
<i>Niles/I-880 (Niles Junction to San Jose via I-880)</i>		22.45	13.95	49,012,551	78,878,055	1,100,331,777
Niles/I-880 5B	Niles Wye (S) to Warm Springs	8.45	5.25	16,691,618	26,862,555	141,044,170
Niles/I-880 6	Warm Springs to Trimble Rd	2.35	1.46	212,457,836	341,917,743	499,275,914
Niles/I-880 7A	I-880 – Trimble Rd. to Diridon	11.65	7.24	39,485,982	63,546,529	460,011,694
<i>East Bay Connection (Dumbarton/Niles XS)</i>		8.88	5.52	64,964,684	104,550,525	576,756,466
Dumbarton/Niles XS	Niles to Fremont – Niles Wye (E) to Niles Wye (S)	8.88	5.52	64,964,684	104,550,525	576,756,466
<i>UPRR (Niles to Altamont)</i>		43.25	26.87	38,855,518	62,531,895	1,680,501,168
UPRR-2A/2B	Niles Canyon to Sunol	11.95	7.43	52,413,607	84,351,524	626,342,602

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
UPRR-3	Sunol to Pleasanton	1.10	0.68	134,433,359	216,349,520	147,876,695
UPRR-4	Pleasanton to El Charo	2.59	1.61	26,410,969	42,504,335	68,510,055
UPRR-5	El Charo to Livermore	6.61	4.10	7,127,268	11,470,225	47,082,729
UPRR-6	Livermore to Patterson Pass cut off	3.25	2.02	22,896,022	36,847,576	74,412,071
UPRR-7	Patterson Pass cut off to Greenville	2.98	1.85	18,326,922	29,494,322	54,614,227
UPRR-8	Greenville to Altamont Pass	11.27	7.00	53,967,010	86,851,484	608,154,234
UPRR-9	Altamont Pass to County Line	3.50	2.18	15,283,791	24,596,878	53,508,554
<i>Tracy UP Connection (Tracy Downtown)</i>		57.42	35.68	28,122,096	45,258,126	1,614,883,212
UPRR-10	County Line to Tracy Downtown	12.35	7.67	24,741,185	39,817,078	305,553,641
UPRR-11	Tracy Downtown to I-205	7.40	4.60	15,859,194	25,522,899	117,358,035
UPRR-12	I-205 to S. UPRR	7.80	4.85	15,933,589	25,642,626	124,281,993
UPRR-13	I-205 to Lathrop – Northern	13.14	8.16	18,113,361	29,150,629	238,009,562
MC-1	Southwestern Manteca	1.46	0.91	27,687,372	44,558,506	40,340,501
MC-2	Southeastern Manteca	1.83	1.14	25,102,875	40,399,161	45,963,364
MC-3	Eastern Manteca UPRR South to BNSF	9.17	5.70	74,962,364	120,640,230	687,254,951
MC-4	Manteca to Escaton Wye	4.28	2.66	13,118,552	21,112,263	56,121,166
<i>UPRR (Central Valley)</i>		134.95	83.85	18,862,722	30,356,608	2,545,524,294
UPRR N/S-1	French Camp to Lathrop	8.00	4.97	13,627,270	21,930,965	109,018,159
UPRR N/S-2	Lathrop through Manteca	8.70	5.41	21,359,159	34,374,234	185,824,683
UPRR N/S-3	Manteca South to BNSF/UPRR	3.30	2.05	7,761,402	12,490,765	25,612,626
UPRR N/S-4	BNSF/UPRR South to Modesto	18.50	11.50	15,559,246	25,040,179	287,846,051
UPRR N/S-5a *	UPRR Modesto South – Western Option	4.20	2.61	84,115,056	135,370,061	353,283,237
UPRR N/S-6	South Modesto to BNSF Connection	20.90	12.99	21,150,677	34,038,714	442,049,140
UPRR N/S-7	BNSF Connection South to Merced	33.25	20.66	16,572,019	26,670,079	551,019,624
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	32,162,740	51,760,913	152,773,015

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	8,686,037	13,978,822	151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	18,020,529	29,001,230	286,526,405
<i>Pacheco (San Jose to Western Valley)</i>		92.50	57.48	38,800,727	62,443,717	3,589,067,255
Pacheco 1	Diridon to Morgan Hill	32.50	20.19	20,366,713	32,777,047	661,918,165
Pacheco 2	Morgan Hill to Gilroy	16.00	9.94	23,730,117	38,189,921	379,681,864
Pacheco 3	Gilroy to San Luis Reservoir	44.00	27.34	57,896,982	93,176,161	2,547,467,226
<i>Henry Miller (UPRR Connection)</i>		100.89	62.69	13,489,349	21,709,003	1,360,872,958
Pacheco 4	San Luis Reservoir to Valley Floor	15.45	9.60	27,554,846	44,345,226	425,722,369
HM-1	Western Valley to Henry Miller UP Wye	58.05	36.07	10,870,134	17,493,785	630,967,784
HM-2	Henry Miller UP North Wye to UP South Wye	8.19	5.09	11,200,428	18,025,342	91,720,307
HM/UP-XN	Henry Miller Wye North to UPRR	11.25	6.99	11,845,555	19,063,573	133,262,493
HM/UP-XS	Henry Miller Wye South to UPRR	7.95	4.94	9,962,265	16,032,711	79,200,005
<i>STATION OPTIONS</i>						
S12	Fremont (Warm Springs)					156,875,180
S32	Pleasanton (I-680/Bernal Rd)					58,118,585
S34	Livermore (Downtown) (At Grade)					58,758,963
S35	Livermore (Downtown) (Aerial)					300,146,665
S37	Livermore (Greenville Road/UPRR)					58,118,585
S38	Tracy (Downtown)					300,146,665
S25	Modesto (Downtown)					71,428,053

	Network Alternatives and Segments	Segment Length		Average Cost		Segment/Station Costs (in dollars)
		Km	Miles	Dollars/Km	Dollars/Mile	
S27	Merced (Downtown)					71,428,053
S5	San Jose (Diridon)					185,051,790
S24	Morgan Hill (Caltrain)					284,985,295
S23	Gilroy (Caltrain)					148,256,045

CAPITAL COST: DEFINITION OF COST ELEMENTS

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The capital costs for the proposed HST Alignment Alternatives have been categorized into discrete cost elements. In general, the capital costs were estimated by determining the appropriate unit costs for the identified cost elements and the cost element quantities from conceptual high-speed train alignment alternative and station location option plans prepared for each region. Each cost element is defined below along with the methods and assumptions applied in each case. Many of these elements were reviewed as part of the peer reviews of the Authority's Corridor Evaluation.¹ The unit costs and assumptions were also reviewed, and in some cases revised, by the regional teams as part of the alignment and station screening performed as part of this program. However, application of these assumptions is consistent with past evaluations and provides appropriate level of detail for the comparison of alignment alternatives and station location options at this program level.

A. ALIGNMENT COSTS

Track Items

High-Speed Train Track

For steel-wheel-on-steel-rail systems (VHS), track includes ballast, subballast rails, ties, fasteners, etc. No special trackwork (turnouts, sidings, etc.) is included in this cost element. Cost for special trackwork is included as part of the passenger station cost. The track required in the maintenance and service facilities, as well as the at-grade or elevated reinforced concrete substructures/foundation costs, including switches, is included in the cost of the those facilities.

Track unit costs were applied per unit length of alignment. Unit costs were applied to account for lengths of ballasted track section and direct fixation (slab track). Special trackwork costs were estimated based on station configuration.

The *ballasted track* unit cost, applied to most corridors, is \$993,167 per km (\$1,598,347 per mile) of alignment; this is a double-tracked cost. In areas where a single track is added to the existing corridor, this cost would be 50% less, \$496,583 per km (\$799,174 per mile).

For *direct fixation track*, the unit cost is given as \$1,878,243 per km (\$3,022,738 per mile) of alignment. In areas where adding a single track is proposed, this cost would be 50% less, \$939,121 per km (\$1,511,369 per mile).

Earthwork and Related Items

Included in the detailed categories below are all the earthwork elements and other items related to site development.

Site Preparation

This includes the costs for *clearing and grubbing*, which cover the removal of unsuitable surface debris and vegetation. This also includes the cost of *grading*, which is the movement of dirt around

¹ *California High-Speed Rail Corridor Evaluation German Peer Review Report (Phase I)*, DE-Consult Deutsche Eisenbahn-Consulting GmbH December 2000.

Review of the Final Report on California High-Speed Rail Corridor Evaluation (Phase I), Japan Railway Technical Service. September 2000.

Peer Review – Phase I, SNCF International. October 2000.

the site to prepare the surface for construction. Site preparation also includes work done to make the site usable after the demolition of existing structures.

Unit costs for site preparation were applied to the total area required for earthwork operations along a given segment. The amount of area was based on the earthwork volume calculations.

Earthwork

The general category of *earthwork* is made up of four constituent activities: excavation, embankment, spoil, and borrow. Earthwork incidental to the construction of a structure, such as the excavation for a bridge foundation, is not included here—that cost is a part of the structural estimates.

Unit costs of earthwork were applied to the total volume of earthwork required along a given segment. A digital terrain model (DTM) was used to calculate the earthwork volumes based on the profile of each segment. If a DTM was unavailable, an assumption of 1 m (3.28 ft) (depth of cut/fill) by 8.3 m (27.2 ft) (the width of the cross-sectional track bed) was assumed to be the required cut/fill quantity.

Landscaping/Erosion Control

This includes areas alongside the tracks within the high-speed train right-of-way. Plantings in station areas are included under passenger stations. The landscaping along the route includes the seeding of cut slopes and embankments. Site preparation and landscaping costs would only be applied to areas of new right-of-way for the alignment, including bypass alignments and corridor widening.

Security Fencing

This is a security chain link fence 2.5 m (8.2 ft) high along the right-of-way. All at-grade sections, trench sections, cut and fill sections, tunnel portals, maintenance areas, and any other areas where tracks are accessible to public would be fully fenced. A unit cost for fencing was applied per length of alignment and includes fencing for both sides of the right-of-way.

Drainage Facilities

This includes culverts and other structures needed for track and cross drainage purposes only, including track underdrains if needed. This does not include the cost of bridges or bridge drainage costs. The cost of drainage facilities was estimated at 5% of the earthwork cost for each segment.

Structures, Tunnels, and Walls

Structures are defined as those appurtenant elements that require structural engineering for system design, and fall into the categories below. Buildings (such as passenger terminals and maintenance facilities) are not included under structures, but are included other elements.

Viaducts and Bridges

This category includes costs for prestressed reinforced concrete aerial structures, including the bridge and the abutment (for a bridge or viaduct). Costs for bridges would consist of the excavation for the abutment, including all wing walls and transition slabs. The foundation work is included as well as the earthwork needed to construct the foundations. Waterway crossings that were calculated on a per crossing basis are included under bridge costs.

A unit cost was applied per length of aerial structure. Different unit costs were used for *special structures* requiring spans greater than 120 ft (36.6 m) and for *high structures* with heights exceeding 30 feet (9.1 meters). Unit costs for other special or unique structures (i.e., bay crossing) would be addressed on a case by case basis at the subsequent project level analysis.

High-Speed Train Tunnels & Trenches

This includes tunnel boring machine (TBM) and drill and blast (D&B) tunnels constructed beneath the ground level that only require surface occupation (construction access) at the openings of the tunnel. The costs for these tunnels for the HST system include all structural work, full lining and grouting, ventilation systems, and special drainages needed to make the tunnel ready to receive the railroad. This item does not include the track, signaling, or traction power systems, which are addressed in separate cost elements. Unit costs are applied per unit length of twin single track tunnel sections for two discrete cases: twin single track tunnels less than six miles in total length, and twin single track tunnels greater than 6 miles in total length. Tunnels greater than six miles in total length require a third access tunnel and additional ventilation/cooling facilities and are significantly more expensive.

Cross-over Chambers

This involves an oversized tunnel segment to accommodate universal cross-over tracks at an average spacing of 10 miles apart (not to exceed 12 miles) in long tunnel sections.

Seismic Chambers

This involves an oversized tunnel segment (3600 ft long by 77 ft wide by 37 ft high) to accommodate potential track realignment and passage of the train subsequent to a possible future fault rupture event along fault zones where especially large displacement is predicted.

Cut & Cover Double Track Tunnel & Trench

This method would be used in urban areas where depth of alignment is not sufficient for tunneling methods. The cost accounts for all anticipated labor, equipment, and mobilization costs. Cost includes excavation support, excavation bracing, excavation, structural backfill, and structure cost. *Excavation* includes removing the material from within the supported area and disposing of that amount of material not used for backfill or unsuitable for use. *Structural backfill* includes obtaining sufficient acceptable material for use, and placing and compacting that material. Cost does not include traffic control, street relocation, or utility relocation.

Mechanical and Electrical for Tunnels

This category includes mechanical and electrical systems related to tunnels (such as lighting and fans). This is a cost for twin single track TBM length.

Retaining Walls

These are concrete walls used to support embankments and retained fill along cut sections. Retaining walls that are a part of abutments for bridges are included in the bridge costs.

Containment Walls

These are structural concrete walls (including foundations and walls) required to prevent incursion of vehicles from one area to another. Generally, they are included whenever the high-speed train track is at-grade and adjacent to (within 30 ft [9.1 m]) existing freight and passenger rail operations on dedicated portions of the high-speed train line (or alternative). Containment walls are also required adjacent to existing structures where prescribed by horizontal clearances (Caltrans Bridge and American Railway Engineering and Maintenance-of-Way Association [AREMA] Standards).

Grade Separations**Bridges and Undercrossings**

These are highway and railroad overcrossings/undercrossings of the high-speed train system. All crossings with other transportation facilities must be grade-separated from the high-speed train system. The unit costs applied for these grade separations include all of the cost elements necessary to complete the construction of the grade separations, such as earthwork, traffic handling, and drainage. The number of existing crossings (roadway and rail) per segment was quantified per USGS planimetric information, field reconnaissance, and other mapping sources according to type (at-

grade, under, or over) and general land use density category (dense urban, urban, dense suburban, suburban, and undeveloped). Professional judgments were made regarding the proposed crossing type, including the option of closure for minor roadways, based on aerial photography and mapping. Costs were estimated on a per-crossing basis using a representative unit cost.

Building Items

Costs for all buildings, such as station facilities, are based on the conceptual designs defined in the Engineering Criteria Report.

Intermediate/Terminal Passenger Stations

Different passenger station facility unit costs were developed for several station classifications. The different unit costs account for differences in station size, configuration, and general location. These costs are assumed to be a rough average because station costs are expected to vary widely at specific locations.

Passenger Station

This includes the cost of both passenger platform and inspections platform (for certain stations) and also includes tracks and special tracks going through stations plus substructure supporting tracks and platform outside of the main line track. This cost also includes circulation, lighting, security measures, and all auxiliary spaces including intermodal connection areas. Spaces are provided within the station for ticket sales, passenger information, station administration, baggage handling, commercial space for newsstands, and small restaurants. Cost does not include traction power, overhead catenary system (OCS), and signal and communication.

Parking

Parking includes all facility costs associated with the construction of parking structures and at-grade parking lots, including right-of-way.

Site Development

This cost involves the paving and landscaping of the site around the passenger station building. Also included in this cost is the provision of street and roadway modifications necessary to provide access to the site. Different site development unit costs are provided for several levels of station size, based on the forecasted ridership.

Rail and Utility Relocation

Railroad Relocation and Removal

This involves the cost of track relocations (temporary or permanent) or track removal required to place high-speed train track into existing rail corridors, including all construction work needed to relocate or remove the railroad, including earthwork, trackwork, etc. A unit cost was applied to the length of alignment requiring relocation or removal.

Utility Relocation

The cost of major utility relocations that must be done before constructing the facilities, such as overhead power lines, pipelines, sewers, fiber optics, and underground duct banks. Different unit costs were applied to the total length of alignment based on the intensity of land use development along the alignment.

B. RIGHT-OF-WAY ITEMS

This relates to the total cost associated with the purchase of land and/or easement rights for the high-speed train system. This includes relocation assistance and demolition costs. Property values and acquisition costs can range from quite modest in undeveloped areas to quite significant in areas

where high-value commercial properties near the stations are needed. These costs also include those for title searches, appraisals, legal fees, title insurance, surveys, and various other processes.

The basic unit cost estimates assume that a minimum right-of-way width of 50 feet (15.2 meters) would be necessary throughout the length of each segment. Even when the alignment is primarily within existing rail rights-of-way, costs are estimated to account for the purchase and or lease agreements necessary for operation in these corridors. Wider right-of-way sections are necessary in mountainous areas where large cut and fill slopes are required.

Three general parameters were followed: (1) a minimum right-of-way corridor of 50 feet (15.2 meters) has been assumed in congested corridors; (2) a 100-foot (30.4-meter) corridor has been assumed in less developed areas to allow for drainage, future expansion and maintenance needs; and (3) a wider corridor was used in variable terrain to allow for cut and fill slopes, based on computerized terrain modeling of the alignment options.

C. ENVIRONMENTAL IMPACT MITIGATION

This cost is total cost associated with potential mitigation of environmental impacts such as impacts to wetlands, parkland, biological resources, and wildlife habitat. Noise mitigation with sound walls and right-of-way impacts and relocation mitigation are estimated separately.

The total cost of environmental mitigation was estimated to be 3% of the line construction costs (i.e., track, earthwork, structures, etc.) for each segment based on other recently implemented transportation corridors in California. This factor is based on the average in order to estimate a total cost of mitigation.

D. SYSTEM ELEMENTS

Signaling and Communications Items

Signaling

These costs cover the cost of wayside, on-board, and central control software and hardware for the overall signaling system. The unit costs are applied per length of track. The VHS technologies operate either on the basis of moving block technology with automatic train protection (ATP) or automatic train control (ATC) and automatic train operation (ATO).

Communications

This includes a high capacity fiber optic backbone with full redundancy, which is key for the operation of the supervisory control and data acquisition (SCADA) and reliable ATC systems. The communication system would be used for operations, maintenance and emergencies, phone and fax capabilities (enroute), closed circuit television, public information systems, public address systems, and other monitoring and detection devices needed for a safe and efficient operating system. The unit costs are applied per length of track.

Wayside Protection Systems

This includes systems/equipment to monitor and/or detect obstacles that may be placed or fall onto the track, intrusion, flooding, wind, seismic activity, and equipment failures (broken rails, hot axles, dragging equipment, etc.). The unit costs are applied per length of track.

Electrification Items

Traction Power Supply

This cost is the entire cost of the substations, including site preparation, foundations, cable trenches, fencing, electrical equipment, and so on. The unit costs are applied per unit length of track. It does

not include the cost of transmission lines from the local utility source to the substations; those are included in the energy costs.

Traction Power Distribution

This cost includes the catenary poles and foundations, the catenary wires and supports, tensioning devices, power feeders and returns, transformers, and other appurtenances. The unit costs are applied per unit length of track.

E. VEHICLE COSTS

This includes costs for trainsets, including an inventory of small parts estimated to be needed for regular maintenance. The costs are based on an estimated fleet size to accommodate the high-end ridership forecasts according to the conceptual operating plan, including estimated spare/out of service requirements. This unit cost includes a 15% contingency to account for uncertainties related to the variance of cost between manufacturers, burn-in and testing, and other economic uncertainties at this stage of estimation.

The unit cost estimates for each train set are based on published manufacturers' documentation on recent sales of in-service trainsets **at the time of the preparation of this document**, as well as telephone inquiries with representatives of the manufacturer. Five manufacturers were considered to develop the unit costs, which are representative of the different manufacturers' cost information.

F. SUPPORT FACILITY COSTS

Costs for all support facilities are based on the conceptual designs defined in the Engineering Criteria Report. The support facilities include the train storage, service and inspection, and light maintenance facilities defined near the terminal stations at Sacramento, the Bay Area (at Los Banos due to land use constraints in the Bay Area), and San Diego. They also include the main repair and maintenance facility to be located in the mid-portion of the system (Central Valley).

The costs include all costs associated with support maintenance facilities, including right-of-way and facilities. In addition to civil work and structural work, the unit cost includes trackwork, traction power, OCS, signal and communication, and maintenance equipment costs.

The facilities sizing was based on the greatest potential need (fleet size) associated with various operating scenarios. These operating scenarios are based on the Business Plan Sensitivity Analysis ridership forecasts, which represent the highest reasonable forecasted ridership, and the conceptual service plan from the Corridor Evaluation. For the purposes of defining these general facilities, we have assumed the following trainset storage requirements: Sacramento (9 trains), San Francisco/Oakland (15 trains), San Diego (21 trains), Los Angeles (4 trains), and Fresno/Bakersfield (2 trains).

G. PROGRAM IMPLEMENTATION COSTS

Costs for these elements are computed as a percentage of the total of construction and procurement costs. The percentages are intended to represent the average overall cost of these implementation items based on implementation of rail transit and other related improvement projects throughout the state. The percentages are predicated on a design-build (DB) and design-build-operate-and-maintain (DBOM) procurement approach and would be significantly higher using a traditional procurement approach. These costs would be divided between the owner and the contractor in this procurement approach and are noted accordingly at the end of each paragraph. These costs should be included in the cost estimates for overall consistency in the order of magnitude.

Preliminary Engineering and Environmental Review

These are preliminary engineering design costs to approximately a 35% level. This includes preliminary geotechnical investigations, land surveying and mapping, engineering, architecture, landscape architecture, traffic engineering, right-of-way engineering and preparation of preliminary plans and analyses in all necessary technical disciplines, and various other technical studies and support of the draft environmental document. The environmental review would entail all studies and analyses necessary to complete further federal and state required environmental documents. (Owner–2.5%.)

Program & Design Management

This includes costs for the overall management and administration of the project. Included were the program manager's office, contract management and administration, project control including both cost and schedule, general administration, computer support, quality assurance, configuration management, system safety, publications, public relations, support of the bidding process, agency liaison, community information and involvement, and legal support. (Owner–5.0%.)

Final Design

Final design includes the costs for final design and preparation of construction and procurement documents for all facilities and systems. This would include geotechnical investigations, land surveying and mapping, engineering, architecture, landscape architecture, traffic engineering, right-of-way engineering, preparation of plans and specifications in all necessary technical disciplines, and various other technical studies and support of the final design process. Design support during construction, including shop drawing review, is also included in this item. (Contractor–5.0%.)

Construction & Procurement Management

This covers the costs for all management of construction and procurement work after contracts are awarded to contractors or suppliers. This would include onsite inspection in factory and field, quality control, contract administration, and acceptance inspection. (Owner–1.0%; Contractor–4.0%.)

Agency Costs

Includes the costs of maintaining the owner's organization (or operator of the system) during the entire program, whether that owner is a franchisee or a government agency. (Owner–1.0%.)

Force Account Costs

Force account costs are those for the services of other organizations or agencies of the local, state, or federal government that may be required to support the project. Work within railroad rights-of-way may be on force account with the appropriate railroad. There may be unforeseen costs as a result of moving the railroad to allow for high-speed trains. (Owner–1.0%.)

Risk Management

These are the costs of owner (or operator of the system)-supplied insurance or any other allowances decided to be applied for the management of risk to the owner. (Owner–6.0%.)

Testing & Pre-Revenue Operations

Includes the costs of pre-revenue testing, acceptance testing, safety certification, and training related to start-up of the system for revenue service. These costs would be included in the DBOM contract. These costs are not included as part of the program implementation costs at this level of evaluation.

H. CONTINGENCIES

A contingency is added as a percentage of overall project costs based on past experience for projects in early stages of definition. Contingencies should not be considered as potential savings. They are an allowance added to a basic estimate to account for items and conditions that cannot be assessed at the time of the estimate. The contingency amount is expected to be reduced as the project matures. The contingency is estimated at 25% of the total of construction costs.

CAPITAL COST: STATION-TO-STATION TRAVEL TIMES
