

Mill Valley to Corte Madera  
Bicycle and Pedestrian Corridor Study

Appendix L:  
Detailed Cost Estimates

Prepared by  
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## Appendix L – Detailed Cost Estimates

*Prepared by Alta/LandPeople, Jacobs Associates, Nolte Associates*

This Appendix provides the detailed planning-level cost estimates prepared for the alternative route improvement concepts, including planning, design, construction, and other anticipated implementation costs.

These cost estimates required numerous assumptions about the methods of construction and associated requirements. The estimate and assumptions reflect the experience of the consultant team with other similar projects.

The individual segment estimates (Table 1) include cost “placeholders” for each stage of project implementation, based on factors of the construction cost, including:

- Survey, technical studies (such as geotechnical or hazardous waste investigations) and design (including preliminary and final plans, cost estimates, and specifications/bid forms) – 15%
- Environmental analysis and documentation and related permits – 10%
- Project administration during planning, design and construction – 10%
- Construction overhead (costs the contract typically includes over and above the individual work items, such as mobilization and general conditions) – 10%

A contingency for the level of accuracy of the estimate is included at 20% of all items. Specific cost allowances are added to the standard cost factors for tasks or items that are unique to some segments.

If small improvement projects are undertaken separately, the costs may potentially increase significantly from the design, administration and construction cost factors in the estimates. In any case, actual costs for the projects can only be determined following development of more complete and detailed base information and definition of the specific improvements for design, environmental review and permitting, and construction.

Table 2 presents Jacobs Associates estimate for the Alto Tunnel, which is extrapolated from actual costs for the nearby Cal Park Tunnel. This does not include right-of-way research, negotiation and acquisition costs, which were estimated separately in the Right-of-Way Conditions Analysis (Appendix G) and added to the segment costs in Table 1.

Table 3 presents Nolte Associates estimate for drainage improvements associated with the Alto Tunnel portal areas. These were determined in the Drainage Analysis (Appendix C). They have been added to the segment costs in Table 1.

## Mill Valley to Corte Madera Bicycle and Pedestrian Corridor Study

<b>Alto Tunnel Route</b>					
					With Optional E. Blithedale Bike/Ped Crossing
		Length:	16,620 feet/3.1 miles		
		Total estimated cost:	\$48,253,660	Low	\$51,661,660
			\$56,095,893	High	\$59,503,893
<b>Segment 11A</b>	E. Blithedale Avenue crossing improvements from northern end of Mill Valley Sausalito Path at Lomita Avenue.				
	Length:	100 feet/0.02 miles			
	Total Cost:	\$84,067			
	<i>See Horse Hill Route for detailed estimate</i>				
<b>Segment 1</b>	Functions as part of Alto Tunnel & Horse Hill route. From the northern end of Mill Valley-Sausalito Path to Vasco Court.				
	Length:	3,700 feet/0.7 miles			
	Total Cost:	\$926,325			
	<i>See Horse Hill Route for detailed estimate</i>				
<b>Segment 7</b>	Old railroad bed running from Vasco Court to Alto Tunnel.				
	Length:	1,280 feet/0.2 miles			
	Total Cost:	\$1,411,809			
<b>Construction Items:</b>		<b>Unit</b>	<b>Qty.</b>	<b>Unit Cost</b>	<b>Extension</b>
	1 Clearing, trimming and site preparation (LF x 24)	SF	30,816	\$2.00	\$61,632
	2 Remove and salvage rails	LF	1,280	\$20	\$25,600
	3 Grading for path and turn around (LF x 24)	SF	30,816	\$3.50	\$107,856
	4 Retaining walls for turnaround (up to 10' high, avg 5')	SF	250	\$110	\$27,500
	5 Base and A.C. pavement for turnaround	SF	1,500	\$6.00	\$9,000
	6 Water line extension to turnaround (10' line)	LF	1,280	\$85	\$108,800
	7 Fire hydrant	EA	1	\$5,000	\$5,000
	8 Bollards to prevent vehicle entry (1 removable)	EA	5	\$800	\$4,000
	9 Base and A.C. pavement for paths - 6' ped, 10' bikes, + 2' base rock shoulders (18' wide trail area)	SF	23,112	\$6.50	\$150,228
	10 Bollards to prevent vehicle entry (2 removable)	EA	10	\$800	\$8,000
	11 Add high-visibility crosswalk at Vasco Court	EA	3	\$1,000	\$3,000
	12 Add curb ramps at Vasco Court	EA	2	\$2,000	\$4,000
	13 Bike traffic control/warning signs	EA	6	\$250	\$1,500
	14 Wayfinding signs	EA	3	\$350	\$1,050
	15 Milepost signs	EA	1	\$150	\$150
	16 Drainage improvements - <i>see Table 4-3 for detailed estimate from Drainage Analysis</i>	LS			\$240,750
	Subtotal Construction				\$758,066
	17 Construction overhead - mobilization, general conditions - 10%				\$75,807
	18 Contingency - 20% of all above				\$166,775
	<b>Total Construction</b>				<b>\$1,000,647</b>
<b>Design, Environmental and Administration:</b>					
	19 Topo survey in difficult terrain	LS			\$20,000
	20 Survey, tech studies, and design - 15%				\$150,097
	21 Environmental - 10%				\$100,065
	22 Project administration - 10%				\$75,807
	23 Contingency - 20% of above 3 items				\$65,194
	<b>Total Design, Env., Admin.</b>				<b>\$411,162</b>

## Mill Valley to Corte Madera Bicycle and Pedestrian Corridor Study

Segment 8		Alto Tunnel, including portals		Length: 2,250 feet/0.4 miles	
Total Cost:		Low	\$40,626,000	High	\$50,551,000
<b>Construction Items: See Table 2 for detailed cost estimate from Tunnel Feasibility Study</b>					
1	Tunnel rehabilitation improvements				
2	12' A.C. multi-use path (12' X 2172')				
3	Gates at each end				
4	Bollards				
5	Emergency Call and Fire Alarm Stations				
6	"Leaky Antenna" for radio/cell communication				
7	Sprinkler System				
8	Fire Hydrants				
10	Ventilation system				
11	System Notice to alert user: Maintenance Vehicle in Tunnel				
12	Video surveillance system				
13	Drainage system				
14	Entry gates with rules and closure information				
	<b>Total Construction</b>	Low	\$29,182,000	High	\$35,673,000
18	Design, environmental, administration, and construction management		\$10,944,000		\$13,378,000
17	Right-of-way research, negotiation and acquisition process (allowance)		\$500,000		\$1,500,000
	<b>Total "Soft" Cost</b>	Low	\$11,444,000	High	\$14,878,000
	<b>Total Estimated Project Cost</b>	Low	\$40,626,000	High	\$50,551,000
<b>Segment 9A</b> From northern end of Alto Tunnel to Montecito Avenue and beginning of existing path near Tamalpais Drive.					
Length: 2,310 feet/0.4 miles					
Total Cost: \$2,555,968					
<b>Construction Items:</b>					
		Unit	Qty.	Unit Cost	Extension
1	Clearing, trimming and site preparation (LF x 24)	SF	55,440	\$2.00	\$110,880
2	Remove and salvage rails	LF	1,284	\$20	\$25,680
3	Grading for path and turn around (LF x 24)	SF	55,440	\$3.50	\$194,040
4	Retaining walls for turnaround (up to 10' high, avg 5')	SF	250	\$110	\$27,500
5	Base and A.C. pavement for turnaround	SF	1,500	\$6.00	\$9,000
6	Water line extension to turnaround (10" line)	LF	2,310	\$85	\$196,350
7	Fire hydrant	EA	1	\$5,000	\$5,000
8	Bollards to prevent vehicle entry (1 removable)	EA	5	\$800	\$4,000
9	Base and A.C. pavement for paths - 6' ped, 10' bikes, + 2' base rock shoulders (18' wide trail area)	SF	41,580	\$6.50	\$270,270
10	Bike traffic control/warning signs	EA	1	\$250	\$250
11	Wayfinding signs	EA	1	\$350	\$350
12	Milepost signs	EA	1	\$150	\$150
13	Drainage improvements - see Table 4-3 for detailed estimate from Drainage Analysis	LS			\$509,479
	<b>Subtotal Construction</b>				\$1,352,949
14	Construction overhead - mobilization, general conditions - 10%				\$135,295
15	Contingency - 20% of all above				\$297,649
	<b>Total Construction</b>				\$1,785,893
<b>Design, Environmental and Administration:</b>					
16	Topo survey in difficult terrain	LS			\$20,000
17	Survey, tech studies, and design - 15%				\$267,884
18	Environmental - 10%				\$178,589
19	Project administration - 10%				\$178,589
20	Contingency - 20% of above 3 items				\$125,012
	<b>Total Design, Env., Admin.</b>				\$770,075

## Mill Valley to Corte Madera Bicycle and Pedestrian Corridor Study

<b>Segment 9B</b>	Along RR row from Montecito Avenue and beginning of existing path near Tamalpais Drive to the south side of Redwood Avenue.				
	<b>Length: 352 feet/0.06 miles</b>				
	<b>Total Cost: \$215,697</b>				
<b>Proposed improvements:</b>					
	<b>Unit</b>	<b>Qty.</b>	<b>Unit Cost</b>	<b>Extension</b>	
1a	Multi-use path S. of Redwood - demolish 8' path, A.C. parking spaces and adjacent landscaping (14' x 375')	SF	5,250	\$3.00	\$15,750
1b	Grading for path	SF	5,250	\$3.50	\$18,375
1c	Base and decorative concrete pavement for path (12' X 250')	SF	3,000	\$15	\$45,000
2	New concrete curb and gutter	LF	100	\$30	\$3,000
3	Base and A.C. pavement extension	SF	200	\$6.00	\$1,200
4	Restripe revised parking areas	LS			\$1,000
5	New planting and irrigation (8' x 375')	SF	3,000	\$10	\$30,000
6	Bike traffic control/warning signs	EA	1	\$250	\$250
7	Wayfinding signs	EA	1	\$350	\$350
8	Milepost signs	EA	1	\$150	\$150
	<b>Subtotal Construction</b>				<b>\$115,075</b>
9	Construction overhead - mobilization, general conditions - 10%				\$11,508
10	Contingency - 20% of all above				\$25,317
	<b>Total Construction</b>				<b>\$151,899</b>
<b>Design, Environmental and Administration:</b>					
11	Survey, tech studies, and design - 15%				\$22,785
12	Environmental - 10%				\$15,190
13	Project administration - 10%				\$15,190
14	Contingency - 20% of above 3 items				\$10,633
	<b>Total Design, Env., Admin.</b>				<b>\$63,798</b>
<b>Segment 10</b>	From Redwood Avenue, along Montecito and existing Sandra Marker Trail north and east to Wornum Way at Tamal Vista Ave.				
	<b>Length: 6,638 feet/1.3 miles</b>				
	<b>Total Cost: \$164,197</b>				
<b>Construction Items:</b>					
	<b>Unit</b>	<b>Qty.</b>	<b>Unit Cost</b>	<b>Extension</b>	
1	High-visibility crosswalk at Montecito/Redwood intersection	EA	1	\$1,000	\$1,000
2a	Multi-use path N. of Redwood - Demolish existing planter and curb (12' x 250')	SF	3,000	\$5.00	\$15,000
2b	New concrete curbs	LF	275	\$20	\$5,500
2c	New retaining wall, reinforced concrete/footing, 2' high	LF	250	\$55	\$13,750
2d	Base and decorative concrete pavement for path (12' X 250')	SF	3,000	\$12	\$36,000
2e	New planting and irrigation (4' x 250')	SF	1,000	\$10	\$10,000
2f	Restripe parking areas to accommodate new 12' AC path	LS			\$2,500
3	Bike traffic control/warning signs	EA	8	\$250	\$2,000
4	Wayfinding signs	EA	4	\$350	\$1,400
5	Milepost signs	EA	3	\$150	\$450
	<b>Subtotal Construction</b>				<b>\$87,600</b>
7	Construction overhead - mobilization, general conditions - 10%				\$8,760
8	Contingency - 20% of all above				\$19,272
	<b>Total Construction</b>				<b>\$115,632</b>
<b>Design, Environmental and Administration:</b>					
9	Survey, tech studies, and design - 15%				\$17,345
10	Environmental - 10%				\$11,563
11	Project administration - 10%				\$11,563
12	Contingency - 20% of above 3 items				\$8,094
	<b>Total Design, Env., Admin.</b>				<b>\$48,565</b>

# Mill Valley to Corte Madera Bicycle and Pedestrian Corridor Study

<u>Camino Alto/Corte Madera Avenue Route</u>				
		Length: 19,430 feet/3.7 miles		With Optional Sidewalk Extension to Overhill
		Total estimated cost: \$4,644,473		\$5,465,647
		With Optional E. Blithedale Bike/Ped Crossing \$8,052,473		\$8,873,647
<b>Segment 11</b>	E. Blithedale crossing improvements and short connection along E. Blithedale Avenue from northern end of Mill Valley Sausalito Path at Lomita Avenue to Camino Alto.			
	Length: 570 feet/0.1 miles			
	Total Cost: \$84,067			
	<i>See Horse Hill Route for detailed estimate</i>			
<b>Segment 12A</b>	Along Camino Alto from E. Blithedale Avenue to Overhill Road.			
	Length: 3,430 feet/0.7 miles			
	Total Cost: \$1,393,898			
<b>Construction Items:</b>		<b>Unit</b>	<b>Qty.</b>	<b>Unit Cost</b>
				<b>Extension</b>
	1 Clearing and grubbing (3,100 LF x 8')	SF	24,800	\$2.00
	2 Demolish existing sidewalk	SF	1,500	\$5.00
	3 Sawcut and remove A.C. curb and pavement 12" wide	LF	3,100	\$2.50
	4 Culvert extensions, assume 24" x 8', typical	EA	4	\$4,000
	5 Relocate utility pole and fire hydrant	EA	2	\$200
	6 Grading for widening (3,100 LF x 8')	SF	24,800	\$3.50
	7 New A.C. curb	LF	3,100	\$20
	8 New sidewalk to replace existing	SF	1,500	\$20
	9 Add curb ramps at Overhill Road and Kite Hill Lane	EA	3	\$2,000
	10 Base and A.C. pavement for widening (1,100 LF x 5' avg, 2,000 LF x 9' avg)	SF	23,500	\$6.00
	11 Retaining walls, avg. 4' high reinforced concrete/footing	LF	2,000	\$110
	12 Road and driveway conform work - minor removal, grading and paving	EA	5	\$5,000
	13 Striping removal and replacement - lanes and shoulders (3 x LF)	LF	22,500	\$4.00
	14 Bike traffic control/warning signs	EA	3	\$250
	15 Wayfinding signs	EA	2	\$350
	16 Milepost signs	EA	1	\$150
	Subtotal Construction			\$743,650
	17 Construction overhead - mobilization, general conditions - 10%			\$74,365
	18 Contingency - 20% of all above			\$163,603
	<b>Total Construction</b>			<b>\$981,618</b>
<b>Design, Environmental and Administration:</b>				
	19 Survey, tech studies, and design - 15%			\$147,243
	20 Environmental - 10%			\$98,162
	21 Project administration - 10%			\$98,162
	22 Contingency - 20% of above 3 items			\$68,713
	<b>Total Design, Env., Admin.</b>			<b>\$412,280</b>
<b>Optional Sidewalk Extension to Overhill Road (add to the above):</b>				
	Total Cost: \$821,175			
		<b>Unit</b>	<b>Qty.</b>	<b>Unit Cost</b>
				<b>Extension</b>
	1a Extend sidewalk on west side clearing - 2,760 l.f. x 5'	SF	13,800	\$1.00
	1b Extend sidewalk on west side, grading - 2,760 l.f. x 5'	SF	13,800	\$3.50
	1c Increase height of retaining walls approximately 2'	LF	2,000	\$50.00
	1d Extend 5' concrete sidewalk, curb and gutter to connect relocated existing portions - 2,760 l.f. x 5'	SF	13,800	\$20.00
	Subtotal Construction			\$438,100
	2 Construction overhead - mobilization, general conditions - 10%			\$43,810
	3 Contingency - 20% of all above			\$96,382
	<b>Total Construction</b>			<b>\$578,292</b>
<b>Design, Environmental and Administration:</b>				
	4 Survey, tech studies, and design - 15%			\$86,744
	5 Environmental - 10%			\$57,829
	6 Project administration - 10%			\$57,829
	7 Contingency - 20% of above 3 items			\$40,480
	<b>Total Design, Env., Admin.</b>			<b>\$242,883</b>

## Mill Valley to Corte Madera Bicycle and Pedestrian Corridor Study

<b>Segment 12B</b> Along Camino Alto Road from Overhill Road to Mill Valley/Corte Madera city limit.					
<b>Length:</b> 3,850 feet/0.7 miles					
<b>Total Cost:</b> \$1,365,172					
<b>Construction Items:</b>					
	<b>Unit</b>	<b>Qty.</b>	<b>Unit Cost</b>	<b>Extension</b>	
1	Clearing and grubbing (LF x 10)	SF	40,000	\$2.00	\$80,000
2	Sawcut and remove A.C. 12" wide	LF	3,850	\$2.50	\$9,625
3	Grading for widening (LF x 10')	SF	40,000	\$3.50	\$140,000
4	Culvert extensions, assume 24" x 8', typical	EA	2	\$4,000	\$8,000
5	Retaining walls, avg. 4' high reinforced concrete w/ reinforced footing	LF	1,925	\$110	\$211,750
6	Base and A.C. pavement for climbing/bike lanes (LF x 10)	SF	38,500	\$6.00	\$231,000
7	Striping removal and replacement - lanes and shoulders (3 x LF)	LF	11,550	\$4.00	\$46,200
8	Bike traffic control/warning signs	EA	3	\$250	\$750
9	Wayfinding signs	EA	2	\$350	\$700
10	Milepost signs	EA	2	\$150	\$300
<b>Subtotal Construction</b>					\$728,325
11	Construction overhead - mobilization, general conditions - 10%				\$72,833
12	Contingency - 20% of all above				\$160,232
<b>Total Construction</b>					<b>\$961,389</b>
<b>Design, Environmental and Administration:</b>					
14	Survey, tech studies, and design - 15%				\$144,208
15	Environmental - 10%				\$96,139
16	Project administration - 10%				\$96,139
17	Contingency - 20% of above 3 items				\$67,297
<b>Total Design, Env., Admin.</b>					<b>\$403,783</b>
<b>Segment 13A</b> From Mill Valley/Corte Madera city limit to Open Space boundary and start of pedestrian path					
<b>Length:</b> 2,570 feet/0.5 miles					
<b>Total Cost:</b> \$760,575					
<b>Construction Items:</b>					
	<b>Unit</b>	<b>Qty.</b>	<b>Unit Cost</b>	<b>Extension</b>	
1	Clearing and grubbing (LF x 5)	SF	12,850	\$2.00	\$25,700
2	Sawcut and remove A.C. curb and pavement 12" wide	LF	2,570	\$2.50	\$6,425
3	Culvert extensions, assume 24" x 8', typical	EA	4	\$4,000	\$16,000
4	Grading for widening (LF x 5')	SF	12,850	\$3.50	\$44,975
5	Base and A.C. pavement for widening (LF x 4)	SF	10,280	\$6.00	\$61,680
6	Retaining walls, avg. 4' high reinforced concrete/footing	LF	1,700	\$110	\$187,000
7	Road and driveway conform work - minor removal, grading and paving	EA	6	\$5,000	\$30,000.00
8	Striping removal and replacement - lanes and shoulders (3 x LF)	LF	7,710	\$4.00	\$30,840.00
9	Bike traffic control/warning signs	EA	10	\$250	\$2,500
10	Wayfinding signs	EA	1	\$350	\$350
11	Milepost signs	EA	2	\$150	\$300
<b>Subtotal Construction</b>					\$405,770.00
12	Construction overhead - mobilization, general conditions - 10%				\$40,577.00
13	Contingency - 20% of all above				\$89,269.40
<b>Total Construction</b>					<b>\$535,616</b>
<b>Design, Environmental and Administration:</b>					
14	Survey, tech studies, and design - 15%				\$80,342.46
15	Environmental - 10%				\$53,561.64
16	Project administration - 10%				\$53,561.64
17	Contingency - 20% of all above				\$37,493.15
<b>Total Design, Env., Admin.</b>					<b>\$224,959</b>

## Mill Valley to Corte Madera Bicycle and Pedestrian Corridor Study

<b>Segment 13B</b>	From Open Space boundary and start of pedestrian path to Redwood Avenue, and along Redwood Avenue to Tamalpais Drive				
<b>Length:</b>	2,710 feet/0.5 miles				
<b>Total Cost:</b>	\$876,563				
<b>Construction Items:</b>		<b>Unit</b>	<b>Qty.</b>	<b>Unit Cost</b>	<b>Extension</b>
1	Clearing and grubbing (1,700 LF x 5')	SF	8,500	\$2.00	\$17,000
2	Sawcut and remove A.C. curb and pavement 12" wide	LF	1,700	\$2.50	\$4,250
3	Culvert extensions, assume 24" x 8', typical	EA	4	\$4,000	\$16,000
4	Grading for widening (1,700 LF x 5')	SF	8,500	\$3.50	\$29,750
5	Base and A.C. pavement for widening (1,700 LF x 4)	SF	6,800	\$6.00	\$40,800
6	Retaining walls, avg. 4' high reinforced concrete/footing	LF	1,100	\$55.00	\$60,500
7	Road and driveway conform work - minor removal, grading and paving	EA	30	\$5,000.00	\$150,000.00
8	Striping removal and replacement - lanes and shoulders (1700 LF x 3)	LF	5,100	\$4.00	\$20,400.00
9	Reconstruct/improve existing pedestrian path (1,700 LF x 5)	SF	8,500	\$15.00	\$127,500.00
10	Bike traffic control/warning signs	EA	1	\$250	\$250
11	Wayfinding signs	EA	3	\$350	\$1,050
12	Milepost signs	EA	1	\$150	\$150
	<b>Subtotal Construction</b>				\$467,650.00
13	Construction overhead - mobilization, general conditions - 10%				\$46,765.00
14	Contingency - 20% of all above				\$102,883.00
	<b>Total Construction</b>				\$617,298
<b>Design, Environmental and Administration:</b>					
15	Survey, tech studies, and design - 15%				\$92,594.70
16	Environmental - 10%				\$61,729.80
17	Project administration - 10%				\$61,729.80
18	Contingency - 20% of all above				\$43,210.86
	<b>Total Design, Env., Admin.</b>				\$259,265
<b>Segment 10</b>	From Redwood Avenue, along Montecito and existing Sandra Marker Trail north and east to Wornum Way at Tamal Vista Ave.				
<b>Length:</b>	6,638 feet/1.4 miles				
<b>Total Cost:</b>	\$164,197				
	<i>See Alto Tunnel Route for detailed estimate</i>				



# Mill Valley to Corte Madera Bicycle and Pedestrian Corridor Study

## Table 2 – Alto Tunnel Cost Estimate

Factored Construction Cost Estimate for Alto Tunnel based on Cal Park Hill Tunnel Bids						Comparison	Cal Park Hill Tunnel	Alto Tunnel	
						Width	31 feet	13 feet	
						Length	1,100 feet	2,173 feet	
Cal Park Bid Item No.	Item Description	Cal Park Bids 8/27/08				Estimated Quantity or Factor	Alto Tunnel		
		Unit of Measure	Quantity	Average Unit Price	Average Amount		Base Cost	AAACE Class 4 Estimate (Feasibility) Range	
							Lower Range	Upper Range	
1	Mobilization	LS	1		\$941,450	1	\$941,450	\$941,450	\$941,450
2	Traffic Control	LS	1		\$37,829	1	\$37,829	\$37,829	\$37,829
3	Clearing and Grubbing*	LS	1		\$63,952	0	\$0	\$0	\$0
4	Remove Existing Tracks	LS	1		\$88,802	2	\$177,604	\$177,604	\$177,604
5	Site Demolition	LS	1		\$88,326	0	\$0	\$0	\$0
6	Site Excavation	CY	1,000	\$84.67	\$84,667	2,000	\$169,333	\$169,333	\$169,333
7	Soil Nail Assembly	LF	272	\$103.22	\$28,076	0	\$0	\$0	\$0
8	Retaining Wall (Soil Nail)*	SF	620	\$48.88	\$30,303	0	\$0	\$0	\$0
9	Prepare Subgrade	SY	1,580	\$16.76	\$26,477	3,139	\$52,601	\$52,601	\$52,601
10	Aggregate Base	CY	753	\$110.40	\$83,132	523	\$57,740	\$57,740	\$57,740
11	Asphalt Paving	SY	1,465	\$55.00	\$144,959	3,139	\$172,645	\$172,645	\$172,645
12	Storm Drainage, Outside Tunnel (see Note 1)	LS	1		\$42,893	0	\$0	\$0	\$0
13	Underdrain, Tunnel (Rail Side)	LF	1,100	\$108.39	\$119,225	0	\$0	\$0	\$0
14	Trench Drain, Tunnel (Pathway Side)	LF	1,100	\$97.11	\$106,825	2,173	\$211,028	\$211,028	\$211,028
15	Graffiti Protection Coating	SF	24,930	\$3.25	\$81,060	43,460	\$141,310	\$0	\$141,310
16	Domestic and Fire Water System	LS	1		\$252,382	n/a (see Note 2)	\$600,850	\$600,850	\$600,850
17	Power Distribution	LS	1		\$297,187	n/a	\$349,643	\$349,643	\$349,643
18	Lighting, Partial Pathway and Tunnel	LS	1		\$201,932	2	\$403,865	\$403,865	\$548,776
19	Communication and CCTV, Pathway and Tunnel	LS	1		\$496,900	n/a	\$576,900	\$576,900	\$576,900
23	Tunnel Support and Rehabilitation for Type I (see Note 4)	LF	168	\$3,728.00	\$609,671	125	\$375,000	\$375,000	\$375,000
20	Tunnel Support and Rehabilitation for Type II	LF	158	\$5,435.57	\$858,820	1,046	\$5,685,606	\$5,685,606	\$8,740,398
22	Tunnel Support and Rehabilitation for Type III	LF	694	\$1,553.54	\$1,078,155	562	\$873,088	\$873,088	\$683,557
21	Tunnel Support and Rehabilitation for Type IV	LF	80	\$2,480.08	\$198,407	440	\$1,091,237	\$1,091,237	\$0
24	Fan Control Room Excavation and Support	LS	1		\$69,690	1	\$69,690	\$0	\$69,690
25	Excavate, Haul, and Dispose Tunnel Invert	CY	2050	\$68.71	\$140,850	2,093	\$143,771	\$143,771	\$143,771
26	Furnish Steel Sets and Precast Concrete Block Footings	EA	252	\$4,314.17	\$1,087,171	579	\$2,497,906	\$2,497,906	\$3,132,089
27	Furnish Steel Channel Lagging	SF	21,220	\$34.45	\$625,987	0	\$0	\$0	\$0
28	Furnish Additional Steel Channel Lagging	SF	0	\$50.43	\$6	0	\$0	\$0	\$0
29	Furnish Rock Bolts	EA	247	\$134.49	\$33,218	364	\$48,953	\$48,953	\$0
30	Shotcrete Tunnel Walls and Crown	CY	2,400	\$800.22	\$1,920,533	2,432	\$1,946,140	\$1,946,140	\$1,946,140
31	Additional Cellular Concrete Fill	CY	1,100	\$396.29	\$435,917	2,354	\$932,664	\$932,664	\$1,433,770
32	Fill Tunnel Voids and Re-contour Above Tunnel Portal Areas	LS	1		\$230,190	0	\$0	\$0	\$0
33	Modify Existing Tunnel Gates	LS	1		\$18,812	n/a	\$36,000	\$36,000	\$36,000
34	Allowance for Hazardous Material Disposal	LS	1160		\$2,172,640	n/a	\$50,000	\$50,000	\$50,000
35	Fire Alarm System, Tunnel	LS	1		\$71,840	2	\$143,680	\$143,680	\$143,680
36	Tunnel Ventilation	LS	1		\$47,538	2	\$95,076	\$0	\$95,076
(see Note 3)									
A	Structure Protection (not in Cal Park)	EACH		\$20,000.00	\$120,000	6	\$720,000	\$120,000	\$720,000
B	Building Monitoring (not in Cal Park)	LS			\$80,000	1	\$80,000	\$80,000	\$80,000
C	South Portal Reconstruction	EACH			\$75,000	1	\$75,000	\$75,000	\$75,000
Subtotal Construction Cost							\$18,756,609	\$17,850,533	\$21,761,878
Escalation 1 yr @ 2% (on base costs only - not contingencies)							\$375,132	\$357,011	\$435,238
Subtotal w/ escalation							\$19,131,741	\$18,207,543	\$22,197,116
Construction Cost Contingency							\$6,444,732	\$6,110,563	\$7,529,794
<b>Total Construction Cost w/ contingency</b>							<b>\$25,576,473</b>	<b>\$24,318,107</b>	<b>\$29,726,910</b>
Cost Estimate Accuracy Allowance						20%	\$5,115,294.55	\$4,863,621.39	\$5,945,381.91
<b>Total Construction Cost w/ contingency and accuracy allowance</b>							<b>\$30,691,767</b>	<b>\$29,181,728</b>	<b>\$35,672,291</b>
Survey, Technical Studies, and Engineering Design						15%	\$3,836,471	\$3,647,716	\$4,459,036
Environmental Analysis, documentation, and related permits						10%	\$2,557,647	\$2,431,811	\$2,972,691
Project Administration						10%	\$2,557,647	\$2,431,811	\$2,972,691
Construction Management						10%	\$2,557,647	\$2,431,811	\$2,972,691
Cost to address ROW issues (placeholder allowance by others)						LS		\$500,000	\$1,500,000
<b>Total Non-Construction Project Costs</b>							<b>\$11,509,413</b>	<b>\$11,443,148</b>	<b>\$14,877,109</b>
<b>Total Project Costs</b>							<b>\$42,191,180</b>	<b>\$40,624,876</b>	<b>\$50,549,400</b>
Notes:								Lower Range	Higher Range
1. In other estimates by Nolte Engineers.									
2. n/a indicates cost estimated based on selected components of Engineer's Estimate for Cal Park Hill Tunnel.									
3. Lettered bid items were not part of Cal Park Hill Tunnel contract, and were estimated as allowances for Alto Tunnel.									
4. Tunnel Support & Rehab includes disposal of existing timber sets.									
5. Base costs are in 2008 dollars (Cal Park bid date); estimate assumes one year of escalation to 2009 dollars.									
Further cost estimate adjustments will be necessary depending on actual date of construction and economic conditions at that time.									
6. Environmental mitigation in contingency.									
7. See Appendix B, Tunnel Feasibility Study for additional assumptions.									

## Mill Valley to Corte Madera Bicycle and Pedestrian Corridor Study

**Table 3 – Alto Tunnel Portal Area Drainage Improvement Costs**

Item	Description	Unit	Quantity	Cost/unit	Cost
<b>North Portal</b>					
1	12" CMP down drain	LF	5	\$190	\$950
2	15" CMP down drain	LF	10	\$200	\$2,000
3	30" CMP down drain	LF	30	\$300	\$9,000
4	12" CMP	LF	105	\$175	\$18,375
5	15" CMP	LF	30	\$185	\$5,550
6	48" CMP	LF	555	\$600	\$333,000
7	Outfall (Headwall, Rock Slope Protection, and Filter Fabric)	EA	2	\$12,800	\$25,600
8	Storm Drain Manhole	EA	5	\$6,500	\$32,500
9	Storm Drain Inlet	EA	5	\$3,500	\$17,500
10	Stormwater Quality Elements	LS	1	\$65,000	\$65,000
	<b>Subtotal</b>				<b>\$509,475</b>
<b>South Portal</b>					
1	6" PVC under drain	LF	1,355	\$90	\$121,950
2	24" CMP	LF	200	\$250	\$50,000
3	Outfall (Headwall, Rock Slope Protection, and Filter Fabric)	EA	2	\$6,400	\$12,800
4	Earthwork - Excavation	CY	350	\$60	\$21,000
5	Stormwater Quality Elements	LS	1	\$35,000	\$35,000
	<b>Subtotal</b>				<b>\$240,750</b>
	<b>TOTAL</b>				<b>\$750,225</b>