Cost estimates include all work necessry to complete the rehabilitation, except for the FHWA-designed retaining walls scheduled for completion prior to 2004. The steps in the development of an opinion of probable cost for the rehabilitation include:

- Determination of the approximate quantities of work items identified for each of the defined roadway sections.
- Determination of the approximate unit costs for each of the items, including labor, equipment, and materials. All costs expressed in 2001 dollars.
- Calculation of the extended costs for the work items.
- Application of percentages to indirect costs:

  Mobilization 10%

  Safety and Traffic Control 10%

  Quality and Environmental Control.....10%

  Contingency 25%

  Design Engineering 20%

  Construction Engineering & Inspection 20%
- Application of experience judgment factors in work items.
- Calculation of costs for each roadway section.
- Summarization of work items into type of work.
- Calculation of breakdown of labor, equipment, and materials for each type of work and for each roadway section, based upon judgment of percentages.
- Estimation of yearly expenditures based upon rehabilitation schedule for labor, equipment, and materials for the Comprehensive Shared Use alternative.

- Extrapolation of costs for Extended Rehabilitation Season and Road Segment Closures alternatives.
- Application of 20% factor on Comprehensive Shared Use alternative costs for Repair As Needed costs.
- Application of 10% factor on Comprehensive Shared Use alternative costs for Priority Rehabilitations.

Table 1: Repair As Needed Alternative
Opinon of Probable Costs (2001 Dollars)

Year	Total	Labor	Equipment	Materials
1	$ 2,000,000	$ 900,000	$ 500,000	$ 600,000
2	2,000,000	900,000	500,000	600,000
3	2,000,000	900,000	500,000	600,000
4	2,000,000	900,000	500,000	600,000
5	2,000,000	900,000	500,000	600,000
6	2,000,000	900,000	500,000	600,000
7	2,000,000	900,000	500,000	600,000
8	2,000,000	900,000	500,000	600,000
9	2,000,000	900,000	500,000	600,000
10-49	79,700,000	37,700,000	21,000,000	21,000,000
Total	**$ 97,700,000**	**$ 45,800,000**	**$ 25,500,000**	**$ 26,400,000**

Table 2: Priority Rehabilitations Alternative
Opinion of Probable Costs (2001 dollars)

Year	Total	Labor	Equipment	Materials
1	$ 5,000,000	$ 2,400,000	$ 1,300,000	$ 1,300,000
2	5,000,000	2,400,000	1,300,000	1,300,000
3	5,000,000	2,400,000	1,300,000	1,300,000
4	5,000,000	2,400,000	1,300,000	1,300,000
5	5,000,000	2,400,000	1,300,000	1,300,000
6	5,000,000	2,400,000	1,300,000	1,300,000
7	5,000,000	2,400,000	1,300,000	1,300,000
8	5,000,000	2,400,000	1,300,000	1,300,000
9	5,000,000	2,400,000	1,300,000	1,300,000
10-19	44,500,000	21,000,000	11,700,000	11,800,000
Total	**$ 89,500,000**	**$ 42,600,000**	**$ 23,400,000**	**$ 23,500,000**

Table 3: Comprehensive Shared Use Alternative
Opinion of Probable Costs (2001 dollars)

Year	Total	Labor	Equipment	Materials
1	$ 9,800,000	$ 4,800,000	$ 2,400,000	$ 2,600,000
2	11,300,000	5,600,000	2,700,000	3,000,000
3	12,900,000	6,400,000	3,100,000	3,400,000
4	9,800,000	4,800,000	2,400,000	2,600,000
5	9,800,000	4,800,000	2,400,000	2,600,000
6	9,800,000	4,800,000	2,400,000	2,600,000
7	9,800,000	4,800,000	2,400,000	2,600,000
8	8,200,000	4,000,000	2,000,000	2,200,000
Total	**$ 81,400,000**	**$ 40,000,000**	**$ 19,800,000**	**$ 21,600,000**

Table 4: Extended Rehabilitation Season Alternative
Opinion of Probable Costs (2001 dollars)

Year	Total	Labor	Equipment	Materials
1	$ 13,600,000	$ 6,700,000	$ 3,300,000	$ 3,600,000
2	20,700,000	10,200,000	5,000,000	5,500,000
3	19,900,000	9,800,000	4,800,000	5,300,000
4	9,000,000	4,400,000	2,200,000	2,400,000
5	9,000,000	4,400,000	2,200,000	2,400,000
6	9,000,000	4,400,000	2,200,000	2,400,000
7	9,000,000	4,400,000	2,200,000	2,400,000
Total	**$ 90,200,000**	**$ 44,300,000**	**$ 21,900,000**	**$ 24,000,000**

Table 5: Road Segment Closures Alternative
Opinion of Probable Costs (2001 dollars)

Year	Total	Labor	Equipment	Materials
1	$ 14,400,000	$ 7,100,000	$ 3,500,000	$ 3,800,000
2	18,100,000	8,900,000	4,400,000	4,800,000
3	14,400,000	7,100,000	3,500,000	3,800,000
4	10,900,000	5,400,000	2,600,000	2,900,000
5	7,200,000	3,600,000	1,700,000	1,900,000
6	7,200,000	3,600,000	1,700,000	1,900,000
Total	**$ 72,200,000**	**$ 35,700,000**	**$ 17,400,000**	**$ 19,100,000**

COMPREHENSIVE SHARED USE ALTERNATIVE--- SUMMARY

Construction Feature	Lake McDonald Cost	Lake McDonald Work Days	West Tunnel Cost	West Tunnel Work Days	Alpine Cost	Alpine Work Days	Baring Creek Cost	Baring Creek Work Days	St. Mary Cost	St. Mary Work Days
Drainage	$ 443,500	45	$ 425,660	50	$ 676,135	55	$ 489,250	65	$ 517,950	30
Guard Walls	$ 160,675	10	$ 138,125	10	$ 5,764,960	205	$ 674,175	40	$ 184,800	10
Retaining Walls	$ 410,300	25	$ 202,780	30	$ 2,198,700	200	$ 209,800	15	$ 106,000	20
Roadway	$ 2,531,612	45	$ 4,526,703	90	$ 8,546,054	210	$ 6,562,985	120	$ 956,132	30
Slope Stability	$ 90,000	15	$ 30,000	10	$ 976,313	90	$ 137,813	15	$ 122,813	20
Mobilization	$ 363,609		$ 532,327		$ 1,816,216		$ 807,402		$ 188,769	
Quality & Environmental Control	$ 181,804		$ 266,163		$ 908,108		$ 403,701		$ 94,385	
Safety & Traffic Control	$ 363,609		$ 798,490		$ 2,724,324		$ 1,211,103		$ 188,769	
Premium / Contingency	$ 909,022		$ 1,463,899		$ 4,994,594		$ 2,220,356		$ 471,924	
Preliminary Design Engineering	$ 1,090,826		$ 1,676,829		$ 5,721,081		$ 2,543,317		$ 566,308	
Construction Engineering	$ 1,090,826		$ 1,676,829		$ 5,721,081		$ 2,543,317		$ 566,308	
					$ 40,047,566					
Total Area Est. Cost	**$ 7,635,783**		**$ 11,737,805**		**$ 40,047,566**		**$ 17,803,219**		**$ 3,964,158**	
Cost per Mile	$ 471,345		$ 1,664,937		$ 3,624,214		$ 2,046,347		$ 591,665	
Area estimated time		140		190		760		255		110

Project Totals	**Total**	**Labor**		**Equipment**		**Materials**	
Drainage	$ 2,552,495	$ 1,020,998	40%	$ 765,749	30%	$ 765,749	30%
Guard Walls	$ 6,922,735	$ 3,461,368	50%	$ 1,384,547	20%	$ 2,076,821	30%
Retaining Walls	$ 3,127,580	$ 1,563,790	50%	$ 625,516	20%	$ 938,274	30%
Roadway	$ 23,123,485	$ 6,937,046	30%	$ 6,937,046	30%	$ 9,249,394	40%
Slope Stability	$ 1,356,938	$ 542,775	40%	$ 407,081	30%	$ 407,081	30%
Mobilization	$ 3,708,323	$ 1,112,497	30%	$ 1,483,329	40%	$ 1,112,497	30%
Quality & Environmental Control	$ 1,854,162	$ 741,665	40%	$ 556,248	30%	$ 556,248	30%
Safety & Traffic Control	$ 5,286,296	$ 2,114,518	40%	$ 2,114,518	40%	$ 1,057,259	20%
Contingency	$ 10,059,794	$ 4,023,918	40%	$ 3,017,938	30%	$ 3,017,938	30%
Preliminary Design Engineering	$ 11,598,362	$ 9,278,689	80%	$ 1,159,836	10%	$ 1,159,836	10%
Construction Engineering	$ 11,598,362	$ 9,278,689	80%	$ 1,159,836	10%	$ 1,159,836	10%
Total Est. Cost	**$ 81,188,531**	**$ 40,075,952**	**47%**	**$ 19,611,645**	**26%**	**$ 21,500,934**	**26%**
Total Cost per Mile	**$ 1,618,914**						
Total estimated time	**1455**						

Approximately 8 years of Construction (180 Shifts per Year)

Comprehensive Shared Use Alternative - Opinion of Probable Costs (2001 dollars)

Year	**Total**	**Labor**		**Equipment**		**Materials**	
1	$ 9,800,000	$ 4,800,000	12%	$ 2,400,000	12%	$ 2,600,000	12%
2	$ 11,300,000	$ 5,600,000	14%	$ 2,700,000	14%	$ 3,000,000	14%
3	$ 12,900,000	$ 6,400,000	16%	$ 3,100,000	16%	$ 3,400,000	16%
4	$ 9,800,000	$ 4,800,000	12%	$ 2,400,000	12%	$ 2,600,000	12%
5	$ 9,800,000	$ 4,800,000	12%	$ 2,400,000	12%	$ 2,600,000	12%
6	$ 9,800,000	$ 4,800,000	12%	$ 2,400,000	12%	$ 2,600,000	12%
7	$ 9,800,000	$ 4,800,000	12%	$ 2,400,000	12%	$ 2,600,000	12%
8	$ 8,200,000	$ 4,000,000	10%	$ 2,000,000	10%	$ 2,200,000	10%
Total	$ 81,400,000	$ 40,000,000	100%	$ 19,800,000	100%	$ 21,600,000	100%

Rehabilitation Work	$	47,932,014
Contingency	$	10,059,794
Subtotal	**$**	**57,991,808**
Design & Construction Engr.	$	23,196,723
Total	**$**	**81,188,531**

EXTENDED REHABILIATION SEASON ALTERNATIVE — SUMMARY

Construction Feature	Lake McDonald Cost	Lake McDonald Work Days	West Tunnel Cost	West Tunnel Work Days	Alpine Cost	Alpine Work Days	Baring Creek Cost	Baring Creek Work Days	St. Mary Cost	St. Mary Work Days
Drainage	$ 510,025	45	$ 489,509	50	$ 777,555	55	$ 562,638	65	$ 595,643	30
Guard Walls	$ 184,776	10	$ 158,844	10	$ 6,629,704	205	$ 775,301	40	$ 212,520	10
Retaining Walls	$ 512,875	25	$ 253,475	30	$ 2,748,375	200	$ 262,250	15	$ 132,500	20
Roadway	$ 2,658,193	45	$ 4,753,038	90	$ 8,973,357	210	$ 6,891,134	120	$ 1,003,939	30
Slope Stability	$ 112,500	15	$ 37,500	10	$ 1,220,391	90	$ 172,266	15	$ 153,516	20
Mobilization	$ 454,511		$ 665,408		$ 2,270,270		$ 1,009,253		$ 235,962	
Quality & Environmental Control	$ 209,075		$ 306,088		$ 1,044,324		$ 464,256		$ 108,542	
Safety & Traffic Control	$ 399,970		$ 878,339		$ 2,996,757		$ 1,332,214		$ 207,646	
Premium / Contingency	$ 1,090,826		$ 1,730,062		$ 5,902,702		$ 2,624,057		$ 566,308	
Preliminary Design Engineering	$ 1,090,826		$ 1,676,829		$ 5,721,081		$ 2,543,317		$ 566,308	
Construction Engineering	$ 1,254,450		$ 1,928,354		$ 6,579,243		$ 2,924,815		$ 651,255	
Total Area Est. Cost	**$ 8,478,027**		**$ 12,877,446**		**$ 44,863,759**		**$ 19,561,500**		**$ 4,434,139**	
Cost per Mile	$ 523,335		$ 1,826,588		$ 4,060,069		$ 2,248,448		$ 661,812	
Area estimated time		140		190		760		255		110

Project Totals		**Labor**		**Equipment**		**Materials**	
Drainage	$ 2,935,369	$ 1,174,148	40%	$ 880,611	30%	$ 880,611	30%
Guard Walls	$ 7,961,145	$ 3,980,573	50%	$ 1,592,229	20%	$ 2,388,344	30%
Retaining Walls	$ 3,909,475	$ 1,954,738	50%	$ 781,895	20%	$ 1,172,843	30%
Roadway	$ 24,279,660	$ 7,283,898	30%	$ 7,283,898	30%	$ 9,711,864	40%
Slope Stability	$ 1,696,172	$ 678,469	40%	$ 508,852	30%	$ 508,852	30%
Mobilization	$ 4,635,404	$ 1,390,621	30%	$ 1,854,162	40%	$ 1,390,621	30%
Quality & Environmental Control	$ 2,132,286	$ 852,914	40%	$ 639,686	30%	$ 639,686	30%
Safety & Traffic Control	$ 5,814,925	$ 2,325,970	40%	$ 2,325,970	40%	$ 1,162,985	20%
Contingency	$ 11,913,956	$ 4,765,582	40%	$ 3,574,187	30%	$ 3,574,187	30%
Preliminary Design Engineering	$ 11,598,362	$ 9,278,689	80%	$ 1,159,836	10%	$ 1,159,836	10%
Construction Engineering	$ 13,338,116	$ 10,670,493	80%	$ 1,333,812	10%	$ 1,333,812	10%
	$ -						
Total Est. Cost	**$ 90,214,870**	**$ 44,356,095**		**$ 21,935,136**		**$ 23,923,639**	
Total Cost per Mile	**$ 1,798,901**						
Total estimated time	**1455**						

Approximately 7 Years of Construction with Longer Work Seasons (220 Shifts per Year)

Extended Season Alternative - Opinion of Costs (2001 dollars)

Year	**Total**	**Labor**		**Equipment**		**Materials**	
1 1	$ 13,600,000	$ 6,700,000	15%	$ 3,300,000	15%	$ 3,600,000	15%
2 2	$ 20,700,000	$ 10,200,000	23%	$ 5,000,000	23%	$ 5,500,000	23%
3 3	$ 19,900,000	$ 9,800,000	22%	$ 4,800,000	22%	$ 5,300,000	22%
4 4	$ 9,000,000	$ 4,400,000	10%	$ 2,200,000	10%	$ 2,400,000	10%
5 5	$ 9,000,000	$ 4,400,000	10%	$ 2,200,000	10%	$ 2,400,000	10%
6 6	$ 9,000,000	$ 4,400,000	10%	$ 2,200,000	10%	$ 2,400,000	10%
7 7	$ 9,000,000	$ 4,400,000	10%	$ 2,200,000	10%	$ 2,400,000	10%
Total	**$ 90,200,000**	**$ 44,300,000**	100%	**$ 21,900,000**	100%	**$ 24,000,000**	100%

Rehabilitation Work	$	53,364,436
Contingency	$	11,913,956
Subtotal	**$**	**65,278,392**
Design & Construction Engr.	$	24,936,477
Total	**$**	**90,214,870**

ROAD SEGMENT CLOSURES ALTERNATIVE--- SUMMARY

Construction Feature	Lake McDonald Cost	Lake McDonald Work Days	West Tunnel Cost	West Tunnel Work Days	Alpine Cost	Alpine Work Days	Baring Creek Cost	Baring Creek Work Days	St. Mary Cost	St. Mary Work Days
Drainage	$ 354,800	36	$ 340,528	40	$ 540,908	44	$ 391,400	52	$ 414,360	24
Guard Walls	$ 128,540	8	$ 110,500	8	$ 4,611,968	164	$ 539,340	32	$ 147,840	8
Retaining Walls	$ 307,725	20	$ 152,085	24	$ 1,649,025	160	$ 157,350	12	$ 79,500	16
Roadway	$ 2,405,031	36	$ 4,526,703	90	$ 8,118,751	210	$ 6,234,836	120	$ 908,325	30
Slope Stability	$ 72,000	12	$ 24,000	8	$ 781,050	72	$ 110,250	12	$ 98,250	16
Mobilization	$ 363,609		$ 532,327		$ 1,816,216		$ 807,402		$ 188,769	
Quality & Environmental Control	$ 145,443		$ 212,931		$ 726,486		$ 322,961		$ 75,508	
Safety & Traffic Control	$ 290,887		$ 638,792		$ 2,179,459		$ 968,883		$ 207,646	
Premium / Contingency	$ 727,217		$ 1,197,735		$ 4,086,486		$ 1,816,655		$ 377,539	
Preliminary Design Engineering	$ 1,090,826		$ 1,676,829		$ 5,721,081		$ 2,543,317		$ 566,308	
Construction Engineering	$ 927,202		$ 1,425,305		$ 4,862,919		$ 2,161,819		$ 481,362	
Total Area Est. Cost	**$ 6,813,281**		**$ 10,837,734**		**$ 35,094,350**		**$ 16,054,213**		**$ 3,545,408**	
Cost per Mile	$ 420,573		$ 1,537,267		$ 3,175,959		$ 1,845,312		$ 529,165	
Area estimated time		112		170		650		228		94

Project Totals	**Totals**	**Labor**		**Equipment**		**Materials**	
Drainage	$ 2,041,996	$ 816,798	40%	$ 612,599	30%	$ 612,599	30%
Guard Walls	$ 5,538,188	$ 2,769,094	50%	$ 1,107,638	20%	$ 1,661,456	30%
Retaining Walls	$ 2,345,685	$ 1,172,843	50%	$ 469,137	20%	$ 703,706	30%
Roadway	$ 22,193,646	$ 6,658,094	30%	$ 6,658,094	30%	$ 8,877,458	40%
Slope Stability	$ 1,085,550	$ 434,220	40%	$ 325,665	30%	$ 325,665	30%
Mobilization	$ 3,708,323	$ 1,112,497	30%	$ 1,483,329	40%	$ 1,112,497	30%
Quality & Environmental Control	$ 1,483,329	$ 593,332	40%	$ 444,999	30%	$ 444,999	30%
Safety & Traffic Control	$ 4,285,668	$ 1,714,267	40%	$ 1,714,267	40%	$ 857,134	20%
Contingency	$ 8,205,633	$ 3,282,253	40%	$ 2,461,690	30%	$ 2,461,690	30%
Preliminary Design Engineering	$ 11,598,362	$ 9,278,689	80%	$ 1,159,836	10%	$ 1,159,836	10%
Construction Engineering	$ 9,858,607	$ 7,886,886	80%	$ 985,861	10%	$ 985,861	10%
Total Est. Cost	**$ 72,344,987**	**$ 35,718,973**		**$ 17,423,114**		**$ 19,202,900**	
Total Cost per Mile	**$ 1,442,572**						
Total estimated time		**1254**					

Approximately 6 years of Construction (220 Shifts per Year)

Road Segment Closures Alternative - Opinion of Costs (2001 dollars)

Year	**Total**	**Labor**		**Equipment**		**Materials**	
1	$ 14,400,000	$ 7,100,000	20%	$ 3,500,000	20%	$ 3,800,000	20%
2	$ 18,100,000	$ 8,900,000	25%	$ 4,400,000	25%	$ 4,800,000	25%
3	$ 14,400,000	$ 7,100,000	20%	$ 3,500,000	20%	$ 3,800,000	20%
4	$ 10,900,000	$ 5,400,000	15%	$ 2,600,000	15%	$ 2,900,000	15%
5	$ 7,200,000	$ 3,600,000	10%	$ 1,700,000	10%	$ 1,900,000	10% 5
6	$ 7,200,000	$ 3,600,000	10%	$ 1,700,000	10%	$ 1,900,000	10%
Total	**$ 72,200,000**	**$ 35,700,000**	100%	**$ 17,400,000**	100%	**$ 19,100,000**	100%

Rehabilitation Work	$ 42,682,385
Contingency	$ 8,205,633
Subtotal	**$ 50,888,018**
Design & Construction Engr.	$ 21,456,969
Total	**$ 72,344,987**

COMPREHENSIVE SHARED USE ALTERNATIVE --- Lake McDonald Section

Construction Feature	Unit	Quantity	Unit Costs	Extended Cost	Associated Time
DRAINAGE					
Culverts (clean & refurbish)	EA	220	$ 1,250	$ 275,000	25
Culvert (reline)	EA	5	$ 1,500	$ 7,500	2
Culvert (new)	EA	4	$ 4,000	$ 16,000	8
Borrow ditch clean & grade	Site	110	$ 500	$ 55,000	11
Add for WFL est for repair to Snider Creek (stream stabilization) at MP 10.5.	LS	1	$ 90,000	$ 90,000	30
Subtotal				**$ 443,500**	**45**
STONE MASONRY GUARDWALLS					
S.M. Guardwalls - (estimated total)	*LF*	*3480*			
Repointing	LF	1410	$ 55	$ 77,550	4
Repair	LF	475	$ 175	$ 83,125	10
Subtotal				**$ 160,675**	**10**
STONE MASONRY RETAINING & WING WALLS					
Wing walls-repointing	SF	300	$ 15	$ 4,500	3
Wing walls-repair	SF	150	$ 40	$ 6,000	3
S.M. Retaining walls - (estimated total)	*SF*	*20370*			
S.M. Retaining walls-repointing	SF	5990	$ 20	$ 119,800	20
S.M. Retaining walls-repair	SF	2050	$ 100	$ 205,000	20
S.M. Retaining walls foundation-repair	LF	250	$ 300	$ 75,000	3
Subtotal				**$ 410,300**	**25**
ROAD REHABILITATION/RECONSTRUCTION					
Roadway surface (seal & chip)	mile	16.2	$ 100,000	$ 1,620,000	45
Patching	mile	16.2	$ 15,000	$ 243,000	30
Pullouts	EA	25	$ 1,000	$ 25,000	25
Parking areas	EA	3	$ 1,500	$ 4,500	6
Intersections	EA	16	$ 2,000	$ 32,000	16
Reflective pavement striping	LF	303556	$ 2	$ 607,112	25
Subtotal				**$ 2,531,612**	**45**
SLOPE STABILITY					
Add riprap shore protection to road repair near MP 6 and add soil nail to landslide	LS	1	$ 50,000	$ 50,000	15
Monitoring at MP 9 of landslide	LS	1	$ 25,000	$ 25,000	5
Rehabilitate Moose Country Pit staging area	LS	1	$ 15,000	$ 15,000	
Subtotal				**$ 90,000**	**15**
Subtotal Construction Cost (Year 2001 dollars)				**3,636,087.00**	
Add for Construction Indirects					
Mobilization (10%)				$ 363,609	
Safety & Traffic Control (10%)				$ 363,609	
Quality & Environmental Control (5%)				$ 181,804	
Contingency (25%)				$ 909,022	
Subtotal for Construction Additions				**$ 1,818,044**	
Other Additions					
Preliminary/Design Engineering (20%)				$ 1,090,826	
Construction Engineering(20%)				$ 1,090,826	
				$ -	
Subtotal for Other Additions				**$ 2,181,652**	
Total Estimated Cost of Lake McDonald Sec.				**$ 7,635,783**	**140**
Estimated Cost per Mile				**$ 471,344.61**	

COMPREHENSIVE SHARED USE ALTERNATIVE --- West Tunnel Section

Construction Feature	Unit	Quantity	Unit Costs	Extended Cost	Associated Time
DRAINAGE					
Drop inlets (rehab)	EA	5	$ 1,250.00	$ 6,250	3
Drop inlets (new)	EA	2	$ 2,000.00	$ 4,000	4
Culverts (clean & refurbish)	EA	117	$ 750.00	$ 87,750	15
Culvert (reline)	EA	9	$ 1,500.00	$ 13,500	2
Culvert (replace/new)	EA	3	$ 4,000.00	$ 12,000	2
Concrete Box Culvert	LF	75	$ 700.00	$ 52,500	10
Borrow ditch (clean & grade)	Site	60	$ 500.00	$ 30,000	4
Arch & box culverts invert repair	EA	5	$ 5,000.00	$ 25,000	15
Headwall Repair	EA	3	$ 1,000	$ 3,000	3
Riprap Rundown	LF	120	$ 18	$ 2,160	15
Grouted Riprap protection M.P. 17.45-17.95	LS	1	$ 72,000	$ 72,000	10
Riprap along McDonald Creek M.P. 13.3	LS	1	$ 25,000	$ 25,000	5
Logan Creek Bridge Protection and Removal of Bed Loading	LS	1	$ 92,500	$ 92,500	10
Subtotal				**$ 425,660**	**50**
STONE MASONRY GUARDWALLS					
S.M. Guardwalls - (estimated total)	*LF*	*2221*			
Repointing	LF	1000	$ 55.00	$ 55,000	4
Repair	LF	275	$ 175.00	$ 48,125	2
Replace GW on conc slab (4')	LF	70	$ 500	$ 35,000	5
Subtotal				**$ 138,125**	**10**
STONE MASONRY RETAINING & WING WALLS					
Wing walls-repointing	SF	20	$ 15.00	$ 300	1
Wing walls-repair	SF	10	$ 38.00	$ 380	1
S.M. retaining walls - (estimated total)	*SF*	*7890*			
Repointing	SF	2770	$ 20.00	$ 55,400	15
Repair walls repair	SF	750	$ 100.00	$ 75,000	20
Dry stack retaining walls - total	*SF*	*3045*			
Dry stack walls - rehabilitate	SF	750	$ 35.00	$ 26,250	7
Conc retaining CBC/Walls (add veneer)	SF	1010	$ 45.00	$ 45,450	10
Subtotal				**$ 202,780**	**30**
ROAD REHABILITATION/RECONSTRUCTION					
Roadway reconstruction (recycle + 4" mat)	Mile	7	$ 550,000.00	$ 3,877,500	90
Template Rehabilitation	LF	690	$ 60	$ 41,400	15
Pullouts (pave)	EA	22	$ 8,500.00	$ 187,000	22
Curb replace	LF	150	$ 12.00	$ 1,800	
Parking areas (pave)	EA	2	$ 20,000.00	$ 40,000	4
Intersections (pave)	EA	2	$ 16,000.00	$ 32,000	2
Geotextile fabric over tack	SY	92530	$ 1.25	$ 115,663	90
Reflective pavement striping	LF	115670	$ 2.00	$ 231,340	90
Subtotal				**$ 4,526,703**	**90**
SLOPE STABILITY					
Rehabilitate Logan Pit staging area	LS	1	$ 30,000	$ 30,000	10
Subtotal				**$ 30,000**	**10**
Subtotal construction cost (Year 2001 dollars)				**$ 5,323,268**	
Add for Construction Indirects					
Premium for Night Operations (25% of work + 10%)				$ 133,082	
Mobilization (10%)				$ 532,327	
Safety & Traffic Control (15%)				$ 798,490	
Quality & Environmental Control (5%)				$ 266,163	
Contingency (25%)				$ 1,330,817	
Subtotal for Construction Additions				**$ 3,060,879**	
Other Additions					
Preliminary/Design Engineering (20%)				$ 1,676,829	
Construction Engineering(20%)				$ 1,676,829	
				$ -	
Subtotal for Other Additions				**$ 3,353,659**	
Total Estimated Cost of West Tunnel Section				**$ 11,737,805**	**190**
Estimated Cost per Mile				$ 1,664,936.86	

COMPREHENSIVE SHARED USE ALTERNATIVE --- Alpine Section

Construction Feature	Unit	Quantity	Unit Costs	Extended Cost	Associated Time
DRAINAGE					
Drop inlets (rehab)	EA	88	$ 1,250.00	$ 110,000	50
Drop inlets (new)	EA	39	$ 2,000.00	$ 78,000	39
Culverts (clean & refurbish)	EA	255	$ 750.00	$ 191,250	50
Culvert (reline)	EA	30	$ 1,500.00	$ 45,000	5
Culvert (replace/new)	EA	36	$ 4,000.00	$ 144,000	20
Borrow ditch (clean & grade)	Site	150	$ 500.00	$ 75,000	15
Paved ditches (repair)	LF	351	$ 25.00	$ 8,775	10
Headwall Repair	EA	7	$ 1,000	$ 7,000	7
Trash Rack	EA	1	$ 1,000	$ 1,000	2
Riprap Rundown	LF	320	$ 18	$ 5,760	30
Log Bollard	EA	18	$ 500	$ 9,000	5
Sediment catch headwall	EA	1	$ 1,350	$ 1,350	3
Subtotal				**$ 676,135**	**55**
STONE MASONRY GUARDWALLS					
S.M. Guardwalls (estimated total)	*LF*	*29450*			
Repointing	LF	16200	$ 55.00	$ 891,000	40
Repair	LF	475	$ 175.00	$ 83,125	15
ARGW on conc slab w/tiebcks and micropiles	LF	1031	$ 985	$ 1,015,535	55
GW on conc slab w/Micropiles	LF	350	$ 675	$ 236,250	18
ARGW on conc slab	LF	870	$ 550	$ 478,500	50
Replace GW on conc slab (8')	LF	595	$ 525	$ 312,375	40
Replace GW on conc slab (4')	LF	2225	$ 500	$ 1,112,500	60
ARGW on Retaining wall	LF	755	$ 630	$ 475,650	45
Removable guardrail (FHWA)	LF	310	$ 65	$ 20,150	18
Removable guardrail (FHWA) w/micropiles	LF	3015	$ 325	$ 979,875	150
Removable guardrails - new	LF	400	$ 400.00	$ 160,000	40
Subtotal				**$ 5,764,960**	**205**
STONE MASONRY RETAINING & WING WALLS					
Wing walls-repointing	SF	0	$ 15.00	$ -	
Wing walls-repair	SF	0	$ 38.00	$ -	
S.M. Retaining walls (estimated total)	*SF*	*95055*			
Repointing	SF	25815	$ 20.00	$ 516,300	120
Other S.M.retaining wall repairs	SF	8720	$ 110.00	$ 959,200	220
Retaining walls foundation repair	LF	429	$ 300.00	$ 128,700	40
Dry stack retaining walls - total	SF	*2625*			20
Rehab dry stack retaining walls	SF	400	$ 65.00	$ 26,000	10
Conc retaining walls (add veneer)	SF	10790	$ 50.00	$ 539,500	60
Stain and rustification of concrete wall	SF	2900	$ 10	$ 29,000	
Subtotal				**$ 2,198,700**	**200**
ROAD REHABILITATION/RECONSTRUCTION					
Roadway reconstruction (recycle + 4" new mat)	Mile	11	$ 615,000.00	$ 6,795,750	200
Template rehabilitation	LF	6870	$ 65	$ 446,550	140
Pullouts (pave)	EA	47	$ 8,500.00	$ 399,500	50
Concete pvmt w/valley gutter	SY	1390	$ 90	$ 125,100	25
Parking areas (pave)	EA	5	$ 20,000.00	$ 100,000	10
Intersections (pave)	EA	2	$ 16,000.00	$ 32,000	2
Fabric over tack	SY	153000	$ 1.25	$ 191,250	200
Curb replace	LF	1492	$ 12.00	$ 17,904	20
Reflective pavement striping	LF	219000	$ 2.00	$ 438,000	200
Subtotal				**$ 8,546,054**	**210**
SLOPE STABILITY					
West Tunnel spot bolting	LS	1	$ 75,000.00	$ 75,000	30
Tunnel portal repair	EA	4	$ 40,000.00	$ 160,000	40
Safety scaling	HR	915	$ 450	$ 411,750	90
Rock staining	HR	466	$ 375	$ 174,563	50
Slusher operation for rock generation	EA	3	$ 25,000	$ 75,000	15
Biomat slope stabilization	SY	8000	$ 10	$ 80,000	20
Subtotal				**$976,312.50**	**90**
Sub Total Construction Cost (Year 2001 dollars)				***$ 18,162,162***	
Add for Construction Indirects					
Premium for Night Operations (25% of work + 10%)				$ 454,054	
Mobilization (10%)				$ 1,816,216	
Safety & Traffic Control (15%)				$ 2,724,324	
Quality & Environmental Control (5%)				$ 908,108	
Contingency (25%)				$ 4,540,540	
Subtotal for Construction Additions				**$ 10,443,243**	
Other Additions					
Preliminary/Design Engineering (20%)				$ 5,721,081	
Construction Engineering(20%)				$ 5,721,081	
				$ -	
Subtotal for Other Additions				**$ 11,442,162**	
Total Estimated Cost of Alpine Section				**$ 40,047,566**	**760**
Estimated cost per mile				$ 3,624,214	

COMPREHENSIVE SHARED USE ALTERNATIVE --- Baring Creek Section

Construction Feature	Unit	Quantity	Unit Cost	Extended Cost	Associated Time
DRAINAGE					
Drop inlets (rehab)	EA	193	$ 1,250	$ 241,250	60
Drop inlets (new)	EA	0	$ 2,000.00	$ -	
Culverts (clean & refurbish)	EA	191	$ 750	$ 143,250	10
Culvert (reline)	EA	19	$ 1,500	$ 28,500	3
Culvert (new)	EA	5	$ 4,000	$ 20,000	6
Borrow ditch (clean & grade)	Site	95	$ 500	$ 47,500	10
Riprap Rundown	LF	300	$ 18	$ 5,400	25
Log Bollard	EA	4	$ 500	$ 2,000	2
Sediment catch headwall	EA	1	$ 1,350	$ 1,350	5
Subtotal				**$ 489,250**	**65**
STONE MASONRY GUARDWALLS					
S.M. guard walls total (linear feet - LF)	*LF*	*3197*			
Repointing	LF	1500	$ 55	$ 82,500	10
Repair	LF	520	$ 175	$ 91,000	2
GW on conc slab w/Micropiles	LF	130	$ 675	$ 87,750	10
Replace GW on conc slab (4')	LF	200	$ 500	$ 100,000	10
ARGW on Retaining wall	LF	75	$ 630	$ 47,250	10
Removable guardrail (FHWA)	LF	20	$ 65	$ 1,300	4
Removable guardrail (FHWA) w/micropiles	LF	75	$ 325	$ 24,375	5
Replace (15%) includes concrete footing	LF	480	$ 500	$ 240,000	30
Subtotal				**$ 674,175**	**40**
STONE MASONRY RETAINING & WING WALLS					
Wing walls-repointing	SF	1800	$ 15	$ 27,000	15
Wing walls-repair	SF	720	$ 40	$ 28,800	10
S.M. Retaining walls - estimated total	*SF*	*4390*			
Repointing	SF	5200	$ 20	$ 104,000	4
Repair	SF	500	$ 100	$ 50,000	4
Subtotal				**$ 209,800**	**15**
ROAD REHABILITATION/RECONSTRUCTION					
Roadway reconstruct(recycle + 4" new mat)	Mile	8.7	$ 615,000.00	$ 5,350,500	100
Template Rehabilitation	LF	6000	$ 60	$ 360,000	120
Pullouts (pave)	EA	30	$ 8,500.00	$ 255,000	30
Parking areas (pave)	EA	5	$ 20,000.00	$ 100,000	10
Intersections (pave)	EA	2	$ 16,000.00	$ 32,000	2
Geotextile fabric over tack	SY	122496	$ 1.25	$ 153,120	100
Reflective pavement striping	LF	156182	$ 2.00	$ 312,365	100
Subtotal				**$ 6,562,985**	**120**
SLOPE STABILITY					
Rehabilitate Sun Point staging area	LS	1	$ 40,000	$ 40,000	10
Safety scaling	HR	75	$ 450	$ 33,750	8
Rock Staining	HR	38	$ 375	$ 14,063	4
Biomat slope stabilization	SY	5000	$ 10	$ 50,000	15
Subtotal				**$ 137,813**	**15**
Subtotal Construction Cost (Year 2001 dollars)				***$ 8,074,022***	
Add for Construction Indirects					
Premium for Night Operations (25% of work + 10%)				$ 201,851	
Mobilization (10%)				$ 807,402	
Safety & Traffic Control (15%)				$ 1,211,103	
Quality & Environmental Control (5%)				$ 403,701	
Contingency (25%)				$ 2,018,506	
Subtotal for Construction Additions				**$ 4,642,563**	
Other Additions					
Preliminary/Design Engineering (20%)				$ 2,543,317	
Construction Engineering(20%)				$ 2,543,317	
				$ -	
Subtotal for Other Additions				**$ 5,086,634**	
Total Est. Cost of Baring Creek Section				**$ 17,803,219**	**255**
Estimated Cost per Mile				$ 2,046,347.0	

COMPREHENSIVE SHARED USE ALTERNATIVE --- St. Mary's Section

Construction Feature	Unit	Quantity	Unit Costs	Extended Cost	Associated Time
DRAINAGE					
Drop inlets (rehab)	EA		$ 1,250.00	$ -	
Drop inlets (new)	EA	3	$ 2,000.00	$ 6,000	6
Culverts (clean & refurbish)	EA	87	$ 750	$ 65,250.00	10
Culvert (reline)	EA	1	$ 1,500	$ 1,500.00	1
Culvert (new)	EA	4	$ 4,000	$ 16,000.00	4
Borrow ditch (clean & grade)	Site	44	$ 500	$ 22,000.00	10
Riprap Rundown	LF	400	$ 18	$ 7,200	30
Divide Creek Bridge (box culvert) est.	LS	1	$ 325,000.00	$ 325,000.00	30
Divide Creek flood plain special study	LS	1	$ 75,000.00	$ 75,000.00	0
Subtotal				**$ 517,950**	**30**
STONE MASONRY GUARDWALLS					
S.M. guard walls - estimated total	*LF*	*2000*			
Repointing	LF	1200	$ 55	$ 66,000.00	10
Repair	LF	100	$ 175	$ 17,500.00	10
Replace GW on conc slab (4')	LF	200	$ 500	$ 100,000	5
Removable guardrail (FHWA)	LF	20	$ 65	$ 1,300	3
Subtotal				**$ 184,800**	**10**
STONE MASONRY RETAINING & WING WALLS					
Wing walls (repointing)	SF	6000	$ 15	$ 90,000.00	20
Wing walls (repair)	SF	0	$ 40	$ -	
S.M. Retaining walls - estimated total	*SF*	*2000*			
Repointing	SF	400	$ 20	$ 8,000	$ 5
Repair	SF	80	$ 100	$ 8,000	10
Subtotal				**$ 106,000**	**20**
ROAD REHABILITATION/RECONSTRUCTION					
Roadway resurface (seal & chip)	Mile	6.7	$ 75,000.00	$ 502,500.00	25
Patching	Mile	6.7	$ 15,000.00	$ 100,500.00	30
Concete pvmt w/valley gutter	SY	0	$ 75	$ -	
Pullouts	EA	9	$ 1,000.00	$ 9,000.00	9
Parking areas	EA	1	$ 1,500.00	$ 1,500.00	2
Intersections	EA	10	$ 2,000.00	$ 20,000.00	10
Additional work at East Entrance and Rising Sun Intersections	LS	1	$ 75,000.00	$ 75,000.00	10
Pavement markings std reflective type (CL + shoulders + no-pass zones)	LF	123816	$ 2.00	$ 247,632.00	25
Subtotal				**$ 956,132**	**30**
SLOPE STABILITY					
Install Monitoring of slope failure at (MP 47.2)	LS	1	$ 75,000.00	$ 75,000.00	15
Safety scaling	HR	75	$ 450	$ 33,750	10
Rock Staining	HR	38	$ 375	$ 14,063	5
Subtotal				**$ 122,813**	**20**
Subtotal Construction Cost (Year 2001 dollars)				***$ 1,887,695***	
Add for Construction Indirects					
Mobilization (10%)				$ 188,769	
Safety & Traffic Control (10%)				$ 188,769	
Quality & Environmental Control (5%)				$ 94,385	
Contingency (25%)				$ 471,924	
Subtotal for Construction Additions				**$ 943,847**	
Other Additions					
Preliminary/Design Engineering (20%)				$ 566,308	
Construction Engineering(20%)				$ 566,308	
				$ -	
Subtotal for Other Additions				**$ 1,132,617**	
Total Estimated Cost of St. Mary Section				**$ 3,964,158**	**110**
Estimated Cost per Mile (year 2000 dollars)				$ 591,665	