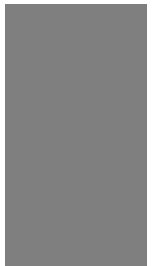


West Susitna Access Reconnaissance Study West Susitna Access to Resource Development

Transportation Analysis Report



Appendix D: Preliminary Cost Estimate

WEST SUSITNA ACCESS TO RESOURCE DEVELOPMENT

COST ESTIMATE for NEW ROADS

Terrain Summary				
Alternatives	Length, mi	Level, mi	Rolling, mi	Mountainous, mi
North Petersville	78.8	31.3	25.7	21.8
South Peters Hills	27.5			
Yenlo Hills	51.3			
North Skwentna	71.6	31.3	16.2	24.1
Skwentna	27.3	17.6	6.4	3.3
Skwentna River	44.4	13.7	9.9	20.8
Middle Susitna-Skwentna Riv	108.0	62.8	29.3	15.8
Susitna Crossing	26.1	22.0	2.9	1.3
East Susitna	37.5	12.3	16.1	9.1
Skwentna River	44.4	28.6	10.3	5.4
Beluga	63.8	42.6	18.3	2.9
Susitna Crossing	26.1	22.0	2.9	1.3
Beluga Alignment	37.6	20.6	15.3	1.7
Deshka Variant	33.5	28.1	4.6	0.9
Deshka	33.5	28.1	4.6	0.9

TYPICAL SECTION	
Roadway Width, ft =	24
STRUCTURAL SECTION, in	
Gravel Wearing Surface =	4
Borrow "A" =	48

Subtotal for Guardrail and Miscellaneous	\$16,384,054	\$16,593,728	\$17,031,580	\$7,573,255	\$3,718,001
Subtotal for Earthwork	\$29,360,041	\$29,257,971	\$26,394,389	\$9,962,400	\$3,713,824
Subtotal for road Structural Section	\$15,942,058	\$14,494,804	\$21,850,497	\$12,903,837	\$6,778,816
Subtotal for Stream and River Crossings	\$83,664,000	\$125,925,000	\$119,439,000	\$74,980,000	\$57,312,000

DESCRIPTION	ASSUMPTIONS	ASSUMPTION FACTORS	ITEM No	Pay Unit	Unit Price	Quantity Per Mile			Total Route Quantities					COST				
						Level	Rolling	Mountainous	North Petersville	North Skwentna	Middle Susitna-Skwentna River	Beluga	Deshka Variant	North Petersville	North Skwentna	Middle Susitna-Skwentna River	Beluga	Deshka Variant
CLEARING			201 (1A)	ACRE	\$3,092.40	6.4	9.7	12.1	714	650	879	486	235	\$2,208,993	\$2,011,601	\$2,719,736	\$1,502,907	\$726,669
EARTHWORK			203 (3)	CY	\$9.13	4,994	17,211	66,076	2,040,557	2,028,279	1,862,453	720,319	275,858	\$18,623,944	\$18,511,884	\$16,998,410	\$6,574,279	\$2,517,729
	UNCLASSIFIED EXCAVATION		203 (6C)	TON	\$3.83	4,505	22,664	95,294	2,803,159	2,805,767	2,453,258	884,627	312,296	\$10,736,097	\$10,746,087	\$9,395,979	\$3,388,121	\$1,196,095
STRUCTURAL SECTION			203 (6A)	TON	\$3.25	51,954	51,954	51,954	4,091,867	3,720,398	5,608,393	3,312,043	1,739,927	\$13,298,567	\$12,091,295	\$18,227,277	\$10,764,140	\$5,654,761
	BORROW A		301 (3)	TON	\$10.43	3,218	3,218	3,218	253,435	230,428	347,363	205,136	107,765	\$2,643,491	\$2,403,509	\$3,623,220	\$2,139,697	\$1,124,054
STREAM AND RIVER CROSSINGS																		
	CONVENTIONAL BRIDGES	Length of bridge multiplied by 26' width.	26	SF	\$350.00				27,040	42,900	38,740	28,600	520	\$9,464,000	\$15,015,000	\$13,559,000	\$10,010,000	\$182,000
	LONG SPAN BRIDGES	Length of bridge multiplied by 26' width.	26	SF	\$1,000.00				64,220	101,660	93,860	59,540	54,600	\$64,220,000	\$101,660,000	\$93,860,000	\$59,540,000	\$54,600,000
	MINOR DRAINAGE CULVERT	Culvert length approximately 50' to daylight on eit	50	603()	LF	\$150.00			15,800	14,600	22,000	13,000	6,800	\$2,370,000	\$2,190,000	\$3,300,000	\$1,950,000	\$1,020,000
	SMALL CULVERT	Culvert length approximately 50' to daylight on eit	50	603()	LF	\$1,000.00			1,850	1,300	2,000	600	550	\$1,850,000	\$1,300,000	\$2,000,000	\$600,000	\$550,000
	LARGE CULVERT	Culvert length approximately 96' to daylight on eit	96	603()	LF	\$5,000.00			1,152	1,152	1,344	576	192	\$5,760,000	\$5,760,000	\$6,720,000	\$2,880,000	\$960,000
GUARDRAIL																		
	GABION RETAINING WALLS	Walls are only used in mountainous terrain.	0.25	30	636(1)	CY	\$166.28		32,027	35,351	23,171	4,293	1,272	\$5,325,418	\$5,878,151	\$3,852,854	\$713,782	\$211,587
	W-BEAM GUARDRAIL	Guardrail are only used in mountainous terrain.	0.5		606(1)	FT	\$25.94		57,648	63,632	41,708	7,727	2,290	\$1,495,521	\$1,650,744	\$1,081,985	\$200,449	\$59,419
	END-SECTIONS (ET-2000)	Average length of guardrail installation at 250', terminals at either end.			606(11)	EACH	\$3,239.47		231	255	167	31	9	\$746,999	\$824,531	\$540,442	\$100,123	\$29,679
MISCELLANEOUS																		
	TOPSOIL		620(1)	SY	\$1.38	16,808	33,751	101,522	3,608,282	3,520,604	3,649,699	1,628,930	713,505	\$4,979,430	\$4,858,434	\$5,036,584	\$2,247,923	\$984,637
	SEEDING		618(1)	ACRE	\$69.66	3.47	6.97	20.98	746	727	754	337	147	\$51,934	\$50,672	\$52,530	\$23,445	\$10,270
	GEOTEXTILE TEXTILE	Level terrain = 25%, Rolling terrain = 15%	685()	SY	\$5.30	14,667	8,800		684,383	601,505	1,179,487	784,912	451,762	\$3,627,233	\$3,187,976	\$6,251,284	\$4,160,033	\$2,394,338
	SIGNING			LANE-MILE	\$1,000.00				158	143	216	128	56	\$157,520	\$143,220	\$215,900	\$127,500	\$28,071
SUBTOTAL														\$147,559,146	\$188,283,104	\$187,435,201	\$106,922,399	\$72,249,309
DRAINAGE MEASURES (10%)														\$14,800,000	\$18,900,000	\$18,800,000	\$10,700,000	\$7,300,000
EROSION and POLLUTION (3%)														\$4,500,000	\$5,700,000	\$5,700,000	\$3,300,000	\$2,200,000
SURVEYING (3%)														\$4,500,000	\$5,700,000	\$5,700,000	\$3,300,000	\$2,200,000
CONSTRUCTION TRAFFIC CONTROL (5%)														\$7,400,000	\$9,500,000	\$9,400,000	\$5,400,000	\$3,700,000
CONTRACTOR FURNISHED (1%)														\$1,500,000	\$1,900,000	\$1,900,000	\$1,100,000	\$800,000
MOBILIZATION (10%)														\$14,800,000	\$18,900,000	\$18,800,000	\$10,700,000	\$7,300,000
SUBTOTAL														\$195,059,146	\$248,883,104	\$247,735,201	\$141,422,399	\$95,749,309
CONTINGENCY (30%)														\$58,517,744	\$74,664,931	\$74,320,560	\$42,426,720	\$28,724,793
CONSTRUCTION SUBTOTAL														\$253,600,000	\$323,600,000	\$322,100,000	\$183,900,000	\$124,500,000
ENVIRONMENTAL STUDY & PERMITTING (3%)														\$7,608,000	\$9,708,000	\$9,663,000	\$5,517,000	\$3,735,000
CONSTRUCTION ADMINISTRATION (15%)														\$38,100,000	\$48,600,000	\$48,400,000	\$27,600,000	\$18,700,000
PROJECT CAMP (2%)														\$5,100,000	\$6,500,000	\$6,500,000	\$3,700,000	\$2,500,000
SUBTOTAL														\$304,408,000	\$388,408,000	\$386,663,000	\$220,717,000	\$149,435,000
DESIGN (10%)														\$30,500,000	\$38,900,000	\$38,700,000	\$22,100,000	\$15,000,000
UTILITIES (0.5%)														\$1,600,000	\$2,000,000	\$2,000,000	\$1,200,000	\$800,000
RIGHT-of-WAY														\$5,700,000	\$1,400,000	\$4,200,000	\$1,500,000	\$45,000
SUBTOTAL														\$342,208,000	\$430,708,000	\$431,563,000	\$245,517,000	\$165,280,000
ICAP(5%)														\$17,110,400	\$21,535,400	\$21,578,150	\$12,275,850	\$8,264,000
TOTAL														\$359,400,000	\$452,300,000	\$453,200,000	\$257,800,000	\$173,600,000
Cost Per Mile														\$4,600,000	\$6,300,000	\$4,200,000	\$4,000,000	\$5,200,000

WEST SUSITNA ACCESS TO RESOURCE DEVELOPMENT
COST ESTIMATE for UPGRADING EXISTING ROADS

Alternatives	Length, mi	Terrain Summary		
		Level, mi	Rolling, mi	Mountainous, mi
Petersville Road	8.5	6.4	2.1	0.0
Oilwell Road 0-12.6	12.6	9.5	3.2	0.0
Oilwell Road 12.6-16.76	4.2	3.1	1.0	0.0
Oilwell Road Extension I	5.1	3.8	1.3	0.0
Oilwell Road Extension II	4.7	3.5	1.2	0.0

TYPICAL SECTION
Roadway Width, ft = 24
STRUCTURAL SECTION, in
Gravel Wearing Surface = 4
Borrow "A" = 48

Subtotal for Miscellaneous	\$862,184	\$1,278,061	\$421,963	\$517,311	\$467,857
Subtotal for Earthwork	\$282,018	\$1,254,163	\$414,073	\$507,637	\$464,837
Subtotal for road Structural Section	\$1,127,427	\$3,089,649	\$1,020,075	\$1,250,572	\$1,145,132
Subtotal for Stream and River Crossings	\$1,838,000	\$2,133,500	\$623,250	\$1,289,500	\$1,170,150

DESCRIPTION	ASSUMPTIONS	ASSUMPTION FACTORS	ITEM No	Pay Unit	Unit Price	Quantity Per Mile			Total Route Quantities					COST				
						Level	Rolling	Mountainous	Petersville Road	Oilwell Road MP0 to 12.6	Oilwell Road MP12.6 to 16.76	Oilwell Rd Extension I 5.1miles	Oilwell Rd Extension II 4.7miles	Petersville Road	Oilwell Road MP0 to 12.6	Oilwell Road MP12.6 to 16.76	Oilwell Road Extension I 5.1 miles	Oilwell Road Extension II 4.7 miles
CLEARING			201 (1A)	ACRE	\$3,092.40	6.4	9.7	0.0	0	23	15	18	17	\$0	\$70,549	\$46,585	\$57,111	\$52,296
EARTHWORK																		
UNCLASSIFIED EXCAVATION			203 (3)	CY	\$8.06	4,994	17,211	0	22,804	101,412	33,482	41,048	37,587	\$183,865	\$817,667	\$269,960	\$330,961	\$303,056
EMBANKMENT BORROW C			203 (6C)	TON	\$3.83	4,505	22,664	0	25,627	113,967	37,627	46,130	42,240	\$98,153	\$436,495	\$144,113	\$176,677	\$161,780
STRUCTURAL SECTION																		
BORROW A			203 (6A)	TON	\$3.25	51,954	51,954	0	147,187	654,616	216,127	264,963	242,623	\$478,358	\$2,127,501	\$702,413	\$861,131	\$788,526
AGGREGATE SURFACE COURSE			301 (3)	TON	\$23.73	3,218	3,218	0	27,351	40,544	13,386	16,411	15,027	\$649,069	\$962,149	\$317,662	\$389,441	\$356,606
STREAM AND RIVER CROSSINGS																		
CONVENTIONAL BRIDGES	Length of bridge multiplied by 26' width.	26		SF	\$350.00				2,730	1,010	1,245	0	0	\$955,500	\$353,500	\$435,750	\$0	\$0
LONG SPAN BRIDGES	Length of bridge multiplied by 26' width.	26		SF	\$1,000.00				0	0	0	0	0	\$0	\$0	\$0	\$0	\$0
MINOR DRAINAGE CULVERT	Culvert length approximately 50' to daylight on eit	50	603()	LF	\$150.00				2,550	3,800	1,250	1,530	1,401	\$382,500	\$570,000	\$187,500	\$229,500	\$210,150
SMALL CULVERT	Culvert length approximately 50' to daylight on eit	50	603()	LF	\$1,000.00				500	250	0	100	0	\$500,000	\$250,000	\$0	\$100,000	\$0
LARGE CULVERT	Culvert length approximately 96' to daylight on eit	96	603()	LF	\$5,000.00				0	192	0	192	192	\$0	\$960,000	\$0	\$960,000	\$960,000
GUARDRAIL																		
GABION RETAINING WALLS	Walls are only used in mountainous terrain.	0.25	30	636(1)	CY	\$0.00			0	0	0	0	0	\$0	\$0	\$0	\$0	\$0
W-BEAM GUARDRAIL	Guardrail are only used in mountainous terrain.	0.5		606(1)	FT	\$0.00			0	0	0	0	0	\$0	\$0	\$0	\$0	\$0
END-SECTIONS (ET-2000)	Average length of guardrail installation at 250', terminals at either end.			606(11)	EACH	\$0.00			0	0	0	0	0	\$0	\$0	\$0	\$0	\$0
MISCELLANEOUS																		
TOPSOIL SEEDING			620(1)	SY	\$1.38	16,808	33,751	0	178,871	265,150	87,542	107,323	98,274	\$246,842	\$365,907	\$120,807	\$148,105	\$135,618
GEOTEXTILE TEXTILE SIGNING	Level terrain = 25%, Rolling terrain = 15%		618(1)	ACRE	\$99.63	3.47	6.97	0.00	37	55	18	22	20	\$3,682	\$5,458	\$1,802	\$2,209	\$2,023
			685()	SY	\$5.30	14,667	8,800		112,200	166,320	54,912	67,320	61,644	\$594,660	\$881,496	\$291,034	\$356,796	\$326,713
				LANE-MILE	\$1,000.00				17	25	8	10	7	\$17,000	\$25,200	\$8,320	\$10,200	\$3,503
SUBTOTAL									\$4,109,629	\$7,825,922	\$2,525,945	\$3,622,131	\$3,300,271					
DRAINAGE MEASURES (10%)									\$500,000	\$800,000	\$300,000	\$400,000	\$400,000	\$500,000	\$800,000	\$300,000	\$400,000	\$400,000
EROSION and POLLUTION (3%)									\$200,000	\$300,000	\$100,000	\$200,000	\$200,000	\$200,000	\$300,000	\$100,000	\$200,000	\$100,000
SURVEYING (3%)									\$200,000	\$300,000	\$100,000	\$200,000	\$200,000	\$200,000	\$300,000	\$100,000	\$200,000	\$100,000
CONSTRUCTION TRAFFIC CONTROL (5%)									\$300,000	\$400,000	\$200,000	\$200,000	\$200,000	\$300,000	\$400,000	\$200,000	\$200,000	\$200,000
CONTRACTOR FURNISHED (1%)									\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
MOBILIZATION (10%)									\$500,000	\$800,000	\$300,000	\$400,000	\$400,000	\$500,000	\$800,000	\$300,000	\$400,000	\$400,000
SUBTOTAL									\$5,909,629	\$10,525,922	\$3,625,945	\$5,122,131	\$4,600,271					
CONTINGENCY (30%)									\$1,772,889	\$3,157,777	\$1,087,784	\$1,536,639	\$1,380,081					
CONSTRUCTION SUBTOTAL									\$7,700,000	\$13,700,000	\$4,800,000	\$6,700,000	\$6,000,000					
ENVIRONMENTAL STUDY & PERMITTING (3%)									\$231,000	\$411,000	\$144,000	\$201,000	\$180,000					
CONSTRUCTION ADMINISTRATION (15%)									\$1,200,000	\$2,100,000	\$800,000	\$1,100,000	\$900,000					
PROJECT CAMP (2%)									\$200,000	\$300,000	\$100,000	\$200,000	\$200,000					
SUBTOTAL									\$9,331,000	\$16,511,000	\$5,844,000	\$8,201,000	\$7,280,000					
DESIGN (10%)									\$1,000,000	\$1,700,000	\$600,000	\$900,000	\$800,000					
UTILITIES (0.5%)									\$100,000	\$100,000	\$100,000	\$100,000	\$100,000					
RIGHT-of-WAY									\$5,700,000	\$1,400,000	\$4,200,000	\$1,500,000	\$45,000					
SUBTOTAL									\$16,131,000	\$19,711,000	\$10,744,000	\$10,701,000	\$8,225,000					
ICAP(5%)									\$806,550	\$985,550	\$537,200	\$535,050	\$411,250					
TOTAL									\$17,000,000	\$20,700,000	\$11,300,000	\$11,300,000	\$8,700,000					
<i>Cost Per Mile</i>									<i>\$2,000,000</i>	<i>\$1,600,000</i>	<i>\$2,700,000</i>	<i>\$2,200,000</i>	<i>\$1,800,000</i>					