

APPENDIX F:

Cost Estimates

Concept	Description	Length (mi.)	Design Cost	Right of Way	Utilities	Construction Cost	Total Cost	Total Cost (50% Contingency)
	No-Build	6.988	\$0	\$0	\$0	\$0	\$0	\$0
Concept 1	Southern River Crossing	8.29	\$22,300,000	\$2,100,000	\$5,500,000	\$148,400,000	\$178,300,000	\$267,500,000
	No SUP*					\$122,700,000	\$152,600,000	\$228,900,000
Concept 2	Off Alignment (West)	5.73	\$22,200,000	\$3,400,000	\$5,500,000	\$148,100,000	\$179,200,000	\$268,800,000
	No SUP*					\$119,000,000	\$150,100,000	\$225,150,000
Concept 3	Chinn's Curve Realignment	1.37	\$3,500,000	\$400,000	\$400,000	\$23,000,000	\$27,300,000	\$41,000,000
Concept 4	Signing, Striping, Guardrail, HFST, etc.	5.608	\$800,000	\$0	\$0	\$5,608,000	\$6,400,000	N/A

*Concepts were assumed to have the same Design, ROW, & Utility costs without Shared Use Path

Cost Estimate

Concept 1B			MP 16.8
Assumes two 12' lanes with 8' paved shoulders	40	LF	
Total Length (New Route)	28,756	LF	
Bridge Width	53	LF	12' lanes, 8' shoulder, 3' barrier, 10' shared use path
Bridge Length	1,590	LF	
New Route Length (Minus Bridge)	27,166	LF	

Pavement Costs

Total Length	27,166	LF		Bridge Spans (LF)		Total Length
2 12' Lanes	24	LF		1	310	Section 1 26,839
	Area	651,992	SF	2	250	Section 2 505
		72,444	SY	3	430 Main	Section 3 487
	Cost	\$140		4	200	Section 4 568
				5	200	Section 5 357
				6	200	28,756

Shoulder Pavement

Total Length	27,166	LF
2 8' shoulders	16	LF
	434,662	SF
	48,296	SY
	Cost	\$140

Existing Pavement (Mill & Overlay)

Total Length	12,408	LF	
Width	22	LF	Existing width
	272,976	SF	
	30,331	SY	
	Cost	\$16	

Additional Pavement on Existing US 68

Total Length	12,408	LF	
Width	18	LF	Upgraded width minus existing width (40 - 22)
	223,344	SF	
	24,816	SY	
	Cost	\$140	

\$20,863,037 Total Paving

Miscellaneous Items

	Qty.	Units	\$ per Unit	
Clearing & Grubbing	5.1	mi.	\$250,000	\$1,286,286
Excavation	1,163,197	CY	\$25	\$29,079,933
Excavation on Existing US 68 (to Shakertown)	2.4	mi.	\$2,150,000	\$5,052,500
Guardrail	14,378	LF	\$40	\$575,127
Guardrail End Treatments	20	EA	\$4,500	\$90,000
Bridge (main span)	22,790	SF	\$450	\$10,255,500
Bridge (approach span)	61,480	SF	\$400	\$24,592,000
Concrete barrier (bridge)	1,590	LF	\$250	\$397,500
Mill & Overlay (tie ins)	1,917	SY	\$16	\$30,674
Pavement Striping	28,756	LF	\$5	\$143,782
Staking	1	LS	\$50,000	\$50,000
Shared use path	45,738	SY	\$125	\$5,717,271 10' path
Signs	5.1	mi.	\$250,000	\$1,286,286
Misc. drainage, erosion control, etc.			50% paving	\$10,431,519
Maintenance of Traffic		LS		\$500,000

Subtotal **\$110,351,414**

Contingency (30%) \$33,105,424

Mobilization (3%) \$3,310,542

Demobilization (1.5%) \$1,655,271

TOTAL CONSTRUCTION COST \$148,400,000

Cost Estimate

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			5	200	Section 5 357
			6	200	28,756

Shoulder Pavement

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Additional Pavement on Existing US 68

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Width	18	LF	Upgraded width minus existing width (40 - 22)
	223,344	SF	
	24,816	SY	
Cost	\$140		

\$20,863,037 Total Paving

Miscellaneous Items

	Qty.	Units	\$ per Unit	
Clearing & Grubbing	5.1	mi.	\$250,000	\$1,286,286
Excavation	969,085	CY	\$25	\$24,227,135
Excavation on Existing US 68 (to Shakertown)	2.4	mi.	\$2,150,000	\$5,052,500
Guardrail	14,378	LF	\$40	\$575,127
Guardrail End Treatments	20	EA	\$4,500	\$90,000
Bridge (main span)	17,200	SF	\$450	\$7,740,000
Bridge (approach span)	46,400	SF	\$400	\$18,560,000
Concrete barrier (bridge)	1,590	LF	\$250	\$397,500
Mill & Overlay (tie ins)	1,917	SY	\$16	\$30,674
Pavement Striping	28,756	LF	\$5	\$143,782
Staking	1	LS	\$50,000	\$50,000
Shared use path	45,738	SY	\$125	\$5,717,271 10' path
Signs	5.1	mi.	\$250,000	\$1,286,286
Misc. drainage, erosion control, etc.			50% paving	\$10,431,519
Maintenance of Traffic		LS		\$500,000

Subtotal **\$91,233,845**

Contingency (30%) \$27,370,154

Mobilization (3%) \$2,737,015

Demobilization (1.5%) \$1,368,508

TOTAL CONSTRUCTION COST \$122,700,000

Cost Estimate

Concept 2B		MP 17.3
Assumes two 12' lanes with 8' paved shoulders	40	LF
Total Length (New Route)	14,177	LF
Bridge Width	53	LF 12' lanes, 8' shoulder, 3' barrier, 10' shared use path
Bridge Length	1,725	LF
New Route Length (Minus Bridge)	12,452	LF

Pavement Costs

Total Length	12,452	LF	Bridge Spans (LF)		Total Length
2 12' Lanes		22	1	275	Section 1 13,862
Area	273,934	SF	2	200	Section 2 314
		30,437	3	400 Main	14,177
Cost	\$140		4	200	
			5	200	
			6	200	
			7	250	

Shoulder Pavement

Total Length	12,452	LF
2 8' shoulders	16	LF
	199,225	SF
	22,136	SY
Cost	\$140	

Existing Pavement

Total Length	15,048	LF	
Width	22	LF	Existing width
	331,056	SF	
	36,784	SY	
Cost	\$16		

Additional Pavement on Existing US 68

Total Length	15,048	LF	
Width	18	LF	Upgraded width minus existing width (40 - 22)
	270,864	SF	
	30,096	SY	
Cost	\$140		

\$12,162,234 Total Paving

Miscellaneous Items

	Qty.	Units	\$ per Unit	
Clearing & Grubbing	2.4	mi.	\$250,000	\$589,562
Excavation	1,656,398	CY	\$25	\$41,409,947
Excavation on Existing US 68 (to Shakertown)	2.9	mi.	\$2,150,000	\$6,127,500
Guardrail	7,088	LF	\$40	\$283,531
Guardrail End Treatments	20	EA	\$4,500	\$90,000
Bridge (main span)	21,200	SF	\$450	\$9,540,000
Bridge (approach span)	70,225	SF	\$400	\$28,090,000
Concrete barrier (bridge)	1,725	LF	\$250	\$431,250
Mill & Overlay (tie ins)	314	SY	\$16	\$5,029
Pavement Striping	14,177	LF	\$5	\$70,883
Staking	1	LS	\$50,000	\$50,000
Shared use path	32,501	SY	\$125	\$4,062,632 10' path
Signs	2.4	mi.	\$250,000	\$589,562
Misc. drainage, erosion control, etc.			50% paving	\$6,081,117
Maintenance of Traffic		LS		\$500,000

Subtotal **\$110,083,246**

Contingency (30%) \$33,024,974

Mobilization (3%) \$3,302,497

Demobilization (1.5%) \$1,651,249

TOTAL CONSTRUCTION COST \$148,100,000

Cost Estimate

Concept 2B		MP 17.3
Assumes two 12' lanes with 8' paved shoulders	40	LF
Total Length (New Route)	14,177	LF
Bridge Width	40	LF 12' lanes, 8' shoulder, 3' barrier, 10' shared use path
Bridge Length	1,725	LF
New Route Length (Minus Bridge)	12,452	LF

Pavement Costs

Total Length	12,452	LF	Bridge Spans (LF)		Total Length
2 12' Lanes		22	1	275	Section 1 13,862
Area	273,934	SF	2	200	Section 2 314
		30,437	3	400 Main	14,177
Cost	\$140		4	200	
			5	200	
			6	200	
			7	250	

Shoulder Pavement

Total Length	12,452	LF
2 8' shoulders	16	LF
	199,225	SF
	22,136	SY
Cost	\$140	

Existing Pavement

Total Length	15,048	LF
Width	22	LF Existing width
	331,056	SF
	36,784	SY
Cost	\$16	

Additional Pavement on Existing US 68

Total Length	15,048	LF
Width	18	LF Upgraded width minus existing width (40 - 22)
	270,864	SF
	30,096	SY
Cost	\$140	

\$12,162,234 Total Paving

Miscellaneous Items

	Qty.	Units	\$ per Unit	
Clearing & Grubbing		2.4 mi.	\$250,000	\$589,562
Excavation	1,324,660	CY	\$25	\$33,116,490
Excavation on Existing US 68 (to Shakertown)	2.9	mi.	\$2,150,000	\$6,127,500
Guardrail	7,088	LF	\$40	\$283,531
Guardrail End Treatments	20	EA	\$4,500	\$90,000
Bridge (main span)	16,000	SF	\$450	\$7,200,000
Bridge (approach span)	53,000	SF	\$400	\$21,200,000
Concrete barrier (bridge)	1,725	LF	\$250	\$431,250
Mill & Overlay (tie ins)	314	SY	\$16	\$5,029
Pavement Striping	14,177	LF	\$5	\$70,883
Staking	1	LS	\$50,000	\$50,000
Shared use path	32,501	SY	\$125	\$4,062,632 10' path
Signs	2.4	mi.	\$250,000	\$589,562
Misc. drainage, erosion control, etc.			50% paving	\$6,081,117
Maintenance of Traffic		LS		\$500,000

Subtotal **\$88,497,157**

Contingency (30%) \$26,549,147

Mobilization (3%) \$2,654,915

Demobilization (1.5%) \$1,327,457

TOTAL CONSTRUCTION COST \$119,000,000

Cost Estimate

Concept 3B

Assumes two 12' lanes with 8' paved shoulders 40 LF
Total Length 6,408 LF

Pavement Costs

Total Length	6,408 LF	Total Length	
2 12' Lanes	24 LF		6,408
Area	153,803 SF		
	17,089 SY		
Cost	\$140		

Shoulder Pavement

Total Length	6,408 LF
2 8' shoulders	16 LF
	102,536 SF
	11,393 SY
Cost	\$140

\$3,987,492 Total Paving

Miscellaneous Items

	Qty.	Units	\$ per Unit		
Clearing & Grubbing		1.2 mi.	\$250,000	\$303,431	
Excavation	397,861	CY	\$25	\$9,946,532	\$8,195,043.07
Pavement Striping	6,408	LF	\$5	\$32,042	
Staking	1	LS	\$50,000	\$50,000	
Signs	1.2	mi.	\$250,000	\$303,431	
Misc. drainage, erosion control, etc.			50% paving	\$1,993,746	
Maintenance of Traffic		LS		\$500,000	

Subtotal **\$17,116,675**

Contingency (30%) \$5,135,003

Mobilization (3%) \$513,500

Demobilization (1.5%) \$256,750

TOTAL CONSTRUCTION COST \$23,000,000

Material	Unit	Cost
C&G concrete	LF	\$50
Sidewalk concrete	SY	\$150
Gravel	ton	\$38
Asphalt	ton	\$145
Thermo pavement striping	LF	\$5
Thermo stop bar	LF	\$15
Curve arrows	Ea	\$125
Straight arrows	Ea	\$125
Earthwork	CY	\$50
Edgeline rumbles	LF	\$1
Concrete barrier	LF	\$250
Concrete girder	CY	\$650
Bearings	Ea	\$500
Bridge deck	SF	\$200
Shared use path	SY	\$60

Description	Depth (in)	lb/in/sq yd	Units	\$ per Unit	Subtotal
CL2 ASPH SURF 0.38D PG64-22	1.5	110	0.08 TON	\$160.00	\$13.20
CL2 ASPH BASE 1.00D PG64-22	9.5	110	0.44 TON	\$140.00	\$61.60
CRUSHED STONE BASE	18	115	1.04 TON	\$40.00	\$41.40
FABRIC-GEOTEXTILE CLASS 1	1 --		1 SQ YD	\$3.00	\$3.00
TACK COAT			0.075 GAL	\$36.54	\$2.74
PRIME COAT			0.4 GAL	\$32.28	\$12.91
			SUM		\$134.85
			USE		\$140.00

\$/ton	lb/ton	lb/gal
\$456.51	2000	8.34
\$516.80	2000	8.34