

APPENDIX D

Alternative Design Cost Estimates

Alternative Design Cost Estimates
(No Through Traffic Allowed)
within Construction Area)

CHOCOLATTA BAY (WITH ROAD CLOSED IN CONSTRUCTION AREA)

MOBILE BAY CAUSEWAY RESTORATION

PRELIMINARY COST ESTIMATION

Concrete Volume Calculations

	DESCRIPTION	QUANTITY	DIAMETER (ft)	LENGTH (ft)	VOLUME (cy)
	Cast-In-Place (C.I.P) Foundation System	Pier (drilled on land, casing salvaged)	3	4	68
DESCRIPTION		QUANTITY	UNIT		VOLUME (cy)
Total Piers		88	Each		8,356
DESCRIPTION		QUANTITY	AREA (ft2)	LENGTH (ft)	VOLUME (cy)
Main Support Beam		1	22.5	41	34.2
DESCRIPTION		QUANTITY	UNIT		VOLUME (cy)
Total Main Support Beams		88	Each		3,007

	DESCRIPTION	QUANTITY	AREA (ft2)	LENGTH (ft)	VOLUME (cy)
	Decking System	Deck Beams (precast, prestressed)	10	3.89	2,700
K-Railing (C.I.P.)		4	4.98	2,700	1,992
DESCRIPTION		QUANTITY	AREA (ft2)	LENGTH (ft)	VOLUME (cy)
Road Decking, 8-in (C.I.P.)		2	27.47	2,700	5,494

Preliminary Cost Estimate

CATEGORY	ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
Pre-Const.	1	Mobilization	1	Lump Sum	\$100,000.00	\$100,000.00
	2	Traffic Control	1	Lump Sum	\$50,000.00	\$50,000.00
Construction Miscellaneous	3	Remove Exist. Asphalt Concrete (A.C.)	252,000	Square Feet	\$2.25	\$567,000.00
	4	Install A.C. Approaches (9" AC/15" Class II)	57,600	Square Feet	\$12.00	\$691,200.00
	5	Install A.C. Maint. Roads (3" AC/6" Class II)	23,000	Square Feet	\$4.25	\$97,750.00
	6	Rock Retement (1-ton slope protection)	2,800	Cubic Yards	\$95.00	\$266,000.00
	7	Highway Striping Continuous	14,000	Linear Feet	\$1.25	\$17,500.00
	8	Highway Striping Dashed	7,000	Linear Feet	\$0.85	\$5,950.00
	9	Approach Guard Rail Metal Beam	1,600	Linear Feet	\$40.00	\$64,000.00
Earthwork	10	Earthwork, Cut & Fill	15,000	Cubic Yards	\$20.00	\$300,000.00
	11	Earthwork, Cut & Export	141,000	Cubic Yards	\$35.00	\$4,935,000.00
Bridge	12	Foundation System (Piers)	8,356	Cubic Yards	\$600.00	\$5,013,600.00
	13	Foundation System (Beams)	3,007	Cubic Yards	\$650.00	\$1,954,550.00
	14	Precast Deck Beams	3,890	Cubic Yards	\$585.00	\$2,275,650.00
	15	K-Railing (C.I.P.)	1,992	Cubic Yards	\$650.00	\$1,294,800.00
	16	Road Decking (C.I.P.)	5,494	Cubic Yards	\$425.00	\$2,334,950.00
Utilities	17	Relocate Utility - F.O.	3,500	Linear Feet	\$225.00	\$787,500.00
	18	Replace OE Pole Foundation for Open Water	6	Each	\$50,000.00	\$300,000.00
Miscellaneous	19	Misc. Erosion Control	1	Lump Sum	\$150,000.00	\$150,000.00
	20	Demobilization	1	Lump Sum	\$50,000.00	\$50,000.00

Subtotal					\$21,255,450
Design & Permitting				3%	\$637,664
Bond				4%	\$850,218
Contingency				5%	\$1,062,773
Administration				4%	\$850,218
Project Cost					\$24,656,000

JUSTINS BAY (WITH ROAD CLOSED IN CONSTRUCTION AREA)

MOBILE BAY CAUSEWAY RESTORATION

PRELIMINARY COST ESTIMATION

Concrete Volume Calculations

Cast-In-Place (C.I.P) Foundation System	DESCRIPTION	QUANTITY	DIAMETER (ft)	LENGTH (ft)	VOLUME (cy)
	Pier (drilled on land, casing salvaged)	3	4	68	94.9
	DESCRIPTION	QUANTITY	UNIT		VOLUME (cy)
	Total Piers	44	Each		4,178
	DESCRIPTION	QUANTITY	AREA (ft2)	LENGTH (ft)	VOLUME (cy)
	Main Support Beam	1	22.5	41	34.2
	DESCRIPTION	QUANTITY	UNIT		VOLUME (cy)
Total Main Support Beams	44	Each		1,504	

Decking System	DESCRIPTION	QUANTITY	AREA (ft2)	LENGTH (ft)	VOLUME (cy)
	Deck Beams (precast, prestressed)	10	3.89	1,380	1,989
	K-Railing (C.I.P.)	4	4.98	1,380	1,019
	DESCRIPTION	QUANTITY	AREA (ft2)	LENGTH (ft)	VOLUME (cy)
Road Decking, 8-in (C.I.P.)	2	27.47	1,380	2,809	

Preliminary Cost Estimate

CATEGORY	ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
Pre-Const.	1	Mobilization	1	Lump Sum	\$100,000.00	\$100,000.00
	2	Traffic Control	1	Lump Sum	\$500,000.00	\$500,000.00
		Property Acquisition	1	Acre	\$500,000.00	\$500,000.00
Construction Miscellaneous	3	Remove Exist. Asphalt Concrete	156,960	Square Feet	\$2.25	\$353,160.00
	4	Install A.C. Approaches (9" AC/15" Class II)	57,600	Square Feet	\$12.00	\$691,200.00
	5	Install A.C. Maint. Roads (3" AC/6" Class II)	23,000	Square Feet	\$4.25	\$97,750.00
		Rock Revetment (1-ton slope protection)	4,600	Cubic Yards	\$95.00	\$437,000.00
	6	Highway Striping Continuous	8,720	Linear Feet	\$1.25	\$10,900.00
	7	Highway Striping Dashed	4,360	Linear Feet	\$0.85	\$3,706.00
	8	Approach Guard Rail Metal Beam	1,600	Linear Feet	\$40.00	\$64,000.00
Earthwork	9	Earthwork, Cut & Fill	15,000	Cubic Yards	\$20.00	\$300,000.00
	10	Earthwork, Cut & Export	115,000	Cubic Yards	\$35.00	\$4,025,000.00
Bridge	11	Foundation System (Piers)	4,178	Cubic Yards	\$600.00	\$2,506,800.00
	12	Foundation System (Beams)	1,504	Cubic Yards	\$650.00	\$977,600.00
	13	Precast Deck Beams	1,989	Cubic Yards	\$585.00	\$1,163,565.00
	14	K-Railing (C.I.P.)	1,019	Cubic Yards	\$650.00	\$662,350.00
	15	Road Decking (C.I.P.)	2,809	Cubic Yards	\$425.00	\$1,193,825.00
Utilities	16	Relocate Utility - F.O.	2,280	Linear Feet	\$225.00	\$513,000.00
	17	20-in HDPE Water Main	2,280	Linear Feet	\$135.00	\$307,800.00
	18	Replace OE Pole Foundation for Open Water	5	Each	\$50,000.00	\$250,000.00
Miscellaneous	19	Misc. Erosion Control	1	Lump Sum	\$100,000.00	\$100,000.00
	20	Demobilization	1	Lump Sum	\$50,000.00	\$50,000.00

Subtotal					\$14,807,656
Design & Permitting				4%	\$592,306
Bond				4%	\$592,306
Contingency				5%	\$740,383
Administration				4%	\$592,306
Project Cost					\$17,325,000

SHELLBANK BAY (WITH ROAD CLOSED IN CONSTRUCTION AREA)

MOBILE BAY CAUSEWAY RESTORATION

PRELIMINARY COST ESTIMATION

Concrete Volume Calculations

	DESCRIPTION	QUANTITY	DIAMETER (ft)	LENGTH (ft)	VOLUME (cy)
	Cast-In-Place (C.I.P) Foundation System	Pier (drilled on land, casing salvaged)	3	4	68
DESCRIPTION		QUANTITY	UNIT		VOLUME (cy)
Total Piers		12	Each		1,140
DESCRIPTION		QUANTITY	AREA (ft2)	LENGTH (ft)	VOLUME (cy)
Main Support Beam		1	22.5	41	34.2
DESCRIPTION		QUANTITY	UNIT		VOLUME (cy)
Total Main Support Beams		12	Each		410

	DESCRIPTION	QUANTITY	AREA (ft2)	LENGTH (ft)	VOLUME (cy)
	Decking System	Deck Beams (precast, prestressed)	15	3.89	300
K-Railing (C.I.P.)		6	4.98	300	332
DESCRIPTION		QUANTITY	AREA (ft2)	LENGTH (ft)	VOLUME (cy)
Road Decking, 8-in (C.I.P.)		3	27.47	300	916

Preliminary Cost Estimate

CATEGORY	ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
Pre-Const.	1	Mobilization	1	Lump Sum	\$100,000.00	\$100,000.00
	2	Traffic Control	1	Lump Sum	\$50,000.00	\$50,000.00
Construction Miscellaneous	3	Remove Exist. Asphalt Concrete	29,700	Square Feet	\$2.25	\$66,825.00
	4	Rock Revetment (1-ton slope protection)	3,700	Cubic Yards	\$95.00	\$351,500.00
	5	Highway Striping Continuous	1,800	Linear Feet	\$1.25	\$2,250.00
	6	Highway Striping Dashed	900	Linear Feet	\$0.85	\$765.00
	7	Approach Guard Rail Metal Beam	800	Linear Feet	\$40.00	\$32,000.00
Earthwork	8	Earthwork, Cut & Export	14,500	Cubic Yards	\$35.00	\$507,500.00
Bridge	9	Foundation System (Piers)	1,140	Cubic Yards	\$600.00	\$684,000.00
	10	Foundation System (Beams)	410	Cubic Yards	\$650.00	\$266,500.00
	11	Precast Deck Beams	649	Cubic Yards	\$585.00	\$379,665.00
	12	K-Railing (C.I.P.)	332	Cubic Yards	\$650.00	\$215,800.00
	13	Road Decking (C.I.P.)	916	Cubic Yards	\$425.00	\$389,300.00
Utilities	14	Relocate Utility - F.O.	600	Linear Feet	\$225.00	\$135,000.00
	15	20-in HDPE Water Main	600	Linear Feet	\$135.00	\$81,000.00
Miscellaneous	16	Misc. Erosion Control	1	Lump Sum	\$50,000.00	\$50,000.00
	17	Demobilization	1	Lump Sum	\$50,000.00	\$50,000.00

Subtotal			\$3,362,105
Engineering Design		3%	\$100,863
Bond		4%	\$134,484
Contingency		5%	\$168,105
Administration		4%	\$134,484
Project Cost			\$3,900,000

**Alternative Design Cost Estimates
(Single Lane of Traffic in Each
Direction Through Construction Area)**

CHOCOLATTA BAY (WITH CONTINUOUS SINGLE LANE OF TRAFFIC EACH DIRECTION)

MOBILE BAY CAUSEWAY HYDROLOGY RESTORATION

ALTERNATIVE DESIGN CONCEPTUAL COST ESTIMATION

Concrete Volume Calculations

Cast-In-Place (C.I.P) Foundation System	DESCRIPTION	QUANTITY	DIAMETER (ft)	LENGTH (ft)	VOLUME (cy)
		Pier (drilled on land, casing salvaged)	3	4	68
Total Piers	DESCRIPTION	QUANTITY	UNIT		VOLUME (cy)
		88	Each		8,356
Main Support Beam	DESCRIPTION	QUANTITY	AREA (ft2)	LENGTH (ft)	VOLUME (cy)
		1	22.5	41	34.2
Total Main Support Beams	DESCRIPTION	QUANTITY	UNIT		VOLUME (cy)
		88	Each		3,007

Decking System	DESCRIPTION	QUANTITY	AREA (ft2)	LENGTH (ft)	VOLUME (cy)
		Deck Beams (precast, prestressed)	10	3.89	2,700
	K-Railing (C.I.P.)	4	4.98	2,700	1,992
Road Decking, 8-in (C.I.P.)	DESCRIPTION	QUANTITY	AREA (ft2)	LENGTH (ft)	VOLUME (cy)
		2	27.47	2,700	5,494

Preliminary Cost Estimate

CATEGORY	ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
Pre-Const.	1	Mobilization	1	Lump Sum	\$100,000.00	\$100,000
	2	Traffic Control	1	Lump Sum	\$400,000.00	\$400,000
Construction Miscellaneous	3	Cofferdam/Ret. Wall (seal=8 ft, wtr depth=4 ft)	3,600	Linear Feet	\$935.00	\$3,366,000
	4	Remove Exist. Asphalt Concrete (A.C.)	252,000	Square Feet	\$2.25	\$567,000
	5	Install A.C. Approaches (9" AC/15" Class II)	57,600	Square Feet	\$12.00	\$691,200
	6	Install A.C. Maint. Roads (3" AC/6" Class II)	23,000	Square Feet	\$4.25	\$97,750
	7	Rock Revetment (1-ton slope protection)	2,800	Cubic Yards	\$95.00	\$266,000
	8	Highway Striping Continuous	14,000	Linear Feet	\$1.25	\$17,500
	9	Highway Striping Dashed	7,000	Linear Feet	\$0.85	\$5,950
	10	Approach Guard Rail Metal Beam	1,600	Linear Feet	\$40.00	\$64,000
Earthwork	11	Earthwork, Cut & Fill	15,000	Cubic Yards	\$20.00	\$300,000
	12	Earthwork, Cut & Export	141,000	Cubic Yards	\$35.00	\$4,935,000
Bridge	13	Foundation System (Piers)	8,356	Cubic Yards	\$600.00	\$5,013,600
	14	Foundation System (Beams)	3,007	Cubic Yards	\$650.00	\$1,954,550
	15	Precast Deck Beams	3,890	Cubic Yards	\$585.00	\$2,275,650
	16	K-Railing (C.I.P.)	1,992	Cubic Yards	\$650.00	\$1,294,800
	17	Road Decking (C.I.P.)	5,494	Cubic Yards	\$425.00	\$2,334,950
Utilities	18	Relocate Utility - F.O.	3,500	Linear Feet	\$225.00	\$787,500
	19	Replace OE Pole Foundation for Open Water	6	Each	\$50,000.00	\$300,000
Miscellaneous	20	Misc. Erosion Control	1	Lump Sum	\$150,000.00	\$150,000
	21	Demobilization	1	Lump Sum	\$50,000.00	\$50,000

Subtotal			\$24,971,450
Design & Permitting		3%	\$749,144
Bond		4%	\$998,858
Contingency		5%	\$1,248,573
Administration		4%	\$998,858
Project Cost			\$28,967,000

JUSTINS BAY (WITH CONTINUOUS SINGLE LANE OF TRAFFIC EACH DIRECTION)

MOBILE BAY CAUSEWAY HYDROLOGY RESTORATION

ALTERNATIVE DESIGN CONCEPTUAL COST ESTIMATION

Concrete Volume Calculations

Cast-In-Place (C.I.P) Foundation System	DESCRIPTION	QUANTITY	DIAMETER (ft)	LENGTH (ft)	VOLUME (cy)
		Pier (drilled on land, casing salvaged)	3	4	68
Total Piers	DESCRIPTION	QUANTITY	UNIT		VOLUME (cy)
		44	Each		4,178
Main Support Beam	DESCRIPTION	QUANTITY	AREA (ft2)	LENGTH (ft)	VOLUME (cy)
		1	22.5	41	34.2
Total Main Support Beams	DESCRIPTION	QUANTITY	UNIT		VOLUME (cy)
		44	Each		1,504

Decking System	DESCRIPTION	QUANTITY	AREA (ft2)	LENGTH (ft)	VOLUME (cy)
		Deck Beams (precast, prestressed)	10	3.89	1,380
	K-Railing (C.I.P.)	4	4.98	1,380	1,019
Road Decking, 8-in (C.I.P.)	DESCRIPTION	QUANTITY	AREA (ft2)	LENGTH (ft)	VOLUME (cy)
		2	27.47	1,380	2,809

Preliminary Cost Estimate

CATEGORY	ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
Pre-Const.	1	Mobilization	1	Lump Sum	\$100,000.00	\$100,000
	2	Traffic Control	1	Lump Sum	\$350,000.00	\$350,000
	3	Property Acquisition	1	Acre	\$500,000.00	\$500,000
Construction Miscellaneous	4	Cofferdam/Ret. Wall (seal=8 ft, wtr depth=4 ft)	2,280	Linear Feet	\$935.00	\$2,131,800
	5	Remove Exist. Asphalt Concrete	156,960	Square Feet	\$2.25	\$353,160
	6	Install A.C. Approaches (9" AC/15" Class II)	57,600	Square Feet	\$12.00	\$691,200
	7	Install A.C. Maint. Roads (3" AC/6" Class II)	23,000	Square Feet	\$4.25	\$97,750
	8	Rock Retement (1-ton slope protection)	4,600	Cubic Yards	\$95.00	\$437,000
	9	Highway Striping Continuous	8,720	Linear Feet	\$1.25	\$10,900
	10	Highway Striping Dashed	4,360	Linear Feet	\$0.85	\$3,706
	11	Approach Guard Rail Metal Beam	1,600	Linear Feet	\$40.00	\$64,000
Earthwork	12	Earthwork, Cut & Fill	15,000	Cubic Yards	\$20.00	\$300,000
	13	Earthwork, Cut & Export	115,000	Cubic Yards	\$35.00	\$4,025,000
Bridge	14	Foundation System (Piers)	4,178	Cubic Yards	\$600.00	\$2,506,800
	15	Foundation System (Beams)	1,504	Cubic Yards	\$650.00	\$977,600
	16	Precast Deck Beams	1,989	Cubic Yards	\$585.00	\$1,163,565
	17	K-Railing (C.I.P.)	1,019	Cubic Yards	\$650.00	\$662,350
	18	Road Decking (C.I.P.)	2,809	Cubic Yards	\$425.00	\$1,193,825
Utilities	19	Relocate Utility - F.O.	2,280	Linear Feet	\$225.00	\$513,000
	20	20-in HDPE Water Main	2,280	Linear Feet	\$135.00	\$307,800
	21	Replace OE Pole Foundation for Open Water	5	Each	\$50,000.00	\$250,000
Miscellaneous	22	Misc. Erosion Control	1	Lump Sum	\$100,000.00	\$100,000
	23	Demobilization	1	Lump Sum	\$50,000.00	\$50,000

Subtotal						\$16,789,456
	Design & Permitting			4%	\$671,578	
	Bond			4%	\$671,578	
	Contingency			5%	\$839,473	
	Administration			4%	\$671,578	
Project Cost						\$19,644,000

SHELLBANK BAY (WITH CONTINUOUS SINGLE LANE OF TRAFFIC EACH DIRECTION)

MOBILE BAY CAUSEWAY HYDROLOGY RESTORATION

ALTERNATIVE DESIGN CONCEPTUAL COST ESTIMATION

Concrete Volume Calculations

Cast-In-Place (C.I.P) Foundation System	DESCRIPTION	QUANTITY	DIAMETER (ft)	LENGTH (ft)	VOLUME (cy)
		Pier (drilled on land, casing salvaged)	3	4	68
Total Piers	DESCRIPTION	QUANTITY	UNIT		VOLUME (cy)
		12	Each		1,140
Main Support Beam	DESCRIPTION	QUANTITY	AREA (ft2)	LENGTH (ft)	VOLUME (cy)
		1	22.5	41	34.2
Total Main Support Beams	DESCRIPTION	QUANTITY	UNIT		VOLUME (cy)
		12	Each		410

Decking System	DESCRIPTION	QUANTITY	AREA (ft2)	LENGTH (ft)	VOLUME (cy)
		Deck Beams (precast, prestressed)	15	3.89	300
	K-Railing (C.I.P.)	6	4.98	300	332
Road Decking, 8-in (C.I.P.)	DESCRIPTION	QUANTITY	AREA (ft2)	LENGTH (ft)	VOLUME (cy)
		3	27.47	300	916

Preliminary Cost Estimate

CATEGORY	ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
Pre-Const.	1	Mobilization	1	Lump Sum	\$100,000.00	\$100,000.00
	2	Traffic Control	1	Lump Sum	\$150,000.00	\$150,000.00
Construction Miscellaneous	3	Cofferdam/Ret. Wall (seal=8 ft, wtr depth=4 ft)	500	Linear Feet	\$935.00	\$467,500
	4	Remove Exist. Asphalt Concrete	29,700	Square Feet	\$2.25	\$66,825.00
	5	Rock Revetment (1-ton slope protection)	3,700	Cubic Yards	\$95.00	\$351,500.00
	6	Highway Striping Continuous	1,800	Linear Feet	\$1.25	\$2,250.00
	7	Highway Striping Dashed	900	Linear Feet	\$0.85	\$765.00
	8	Approach Guard Rail Metal Beam	800	Linear Feet	\$40.00	\$32,000.00
Earthwork Bridge	9	Earthwork, Cut & Export	14,500	Cubic Yards	\$35.00	\$507,500.00
	10	Foundation System (Piers)	1,140	Cubic Yards	\$600.00	\$684,000.00
	11	Foundation System (Beams)	410	Cubic Yards	\$650.00	\$266,500.00
	12	Precast Deck Beams	649	Cubic Yards	\$585.00	\$379,665.00
	13	K-Railing (C.I.P.)	332	Cubic Yards	\$650.00	\$215,800.00
	14	Road Decking (C.I.P.)	916	Cubic Yards	\$425.00	\$389,300.00
Utilities	15	Relocate Utility - F.O.	600	Linear Feet	\$225.00	\$135,000.00
	16	20-in HDPE Water Main	600	Linear Feet	\$135.00	\$81,000.00
Miscellaneous	17	Misc. Erosion Control	1	Lump Sum	\$50,000.00	\$50,000.00
	18	Demobilization	1	Lump Sum	\$50,000.00	\$50,000.00
Subtotal						\$3,929,605
Engineering Design					3%	\$117,888
Bond					4%	\$157,184
Contingency					5%	\$196,480
Administration					4%	\$157,184
Project Cost						\$4,558,000