

San Juan Harbor, Puerto Rico

San Juan Harbor Navigation Improvement Study
Integrated Feasibility Report and Environmental Assessment

APPENDIX D

Cost Engineering and Risk Analysis

June 2017



**US Army Corps
of Engineers**
Jacksonville District

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D. COST ESTIMATES

D.1. GENERAL INFORMATION

Corps of Engineers cost estimates for planning purposes are prepared in accordance with the following guidance:

- Engineer Technical Letter (ETL) 1110-2-573, Construction Cost Estimating Guide for Civil Works, 30 September 2008
- Engineer Regulation (ER) 1110-1-1300, Cost Engineering Policy and General Requirements, 26 March 1993
- ER 1110-2-1302, Civil Works Cost Engineering, 15 September 2008
- ER 1110-2-1150, Engineering and Design for Civil Works Projects, 31 August 1999
- ER 1105-2-100, Planning Guidance Notebook, 11 April 2000, as amended
- Engineer Manual (EM) 1110-2-1304 (Tables Revised 31 March 2009), Civil Works Construction Cost Index System, 31 March 2000
- CECW-CP Memorandum for Distribution, Subject: Initiatives to Improve the Accuracy of Total Project Costs in Civil Works Feasibility Studies Requiring Congress Authorization, 19 September 2007
- CECW-CE Memorandum for Distribution, Subject: Application of Cost Risk Analysis Methods to Develop Contingencies for Civil Works Total Project Costs, 3 July 2007
- Methods to Develop Contingencies for Civil Works Total Project Costs, 3 July 2007
- Cost and Schedule Risk Analysis Process, March 2008

The goal of the cost estimate for the San Juan Harbor Navigation Improvement Study is to present a Total Project Cost (construction and non-construction costs) for the Recommended Plan(s) at the current price level to be used for project justification/authorization and to escalate costs for budgeting purposes. In addition, the costing efforts are intended to produce and final product (cost estimate) that is reliable and accurate, and that supports the definition of the Government's and the non-Federal sponsor's obligations.

The cost estimating effort for the study also yielded a series of alternative plan formulation cost estimates for decision making. The final set of plan formulation cost estimates used for plan selection rely on construction feature unit pricing and are prepared in Civil Works Work Breakdown Structure (CWWBS) format to the sub-feature level. The cost estimate supporting the National Economic Development (NED) plan (Recommended Plan) is prepared in MCACES/MII format to the CWWBS sub-feature level. This estimate is supported by the preferred labor, equipment, materials, and crew/production breakdown. A fully funded (escalate for inflation through project completion) cost estimate, the Baseline Cost Estimate or Total Project Cost Summary, has also been developed.

Contingency for this estimate was assumed to be 35% based on ER 1110-2-1302 from 30 June 2016, page 18, for a Class 4 project (early concept technical information). A full cost and schedule risk analysis will be performed, for the ATR/MCX review, to establish the project contingency for the Recommended Plan's cost items.

D.1.1 Plan Formulation Cost Estimates

For the plan formulation cost estimates, unit prices for dredging related work were developed in CEDEP and then entered into MCACES/MII. Unit prices for the remaining major or variable construction elements were developed in MCACES/MII based on input from the PDT. Design details, information and assumptions were provided in the Engineering Appendix. Plan formulation alternatives were run through Beach-FX for calculation of the Benefit-to-Cost Ratio (BCR). Cost Engineering provided estimates for the initial construction of all alternatives. Contingency for this estimate was assumed to be 35% based on ER 1110-2-1302 from 30 June 2016, page 18, for a Class 4 project (early concept technical information).

D.1.2 Recommended Plan (TSP)

The Recommended Plan (TSP) was chosen by the Project Delivery Team (PDT) according to the plan formulation described above. The Economics Appendix fully describes the plan selection. The scope of work for the Recommended Plan is found in Appendix A, Engineering. The MCACES/MII cost estimate for the Recommended Plan is based on that scope and is formatted in the CWWBS. The notes provided in the body of the estimate detail the estimate parameters and assumptions. These include pricing at the Fiscal Year 2017 price level (1 October 2016 to 30 September 2017). For project justification purposes, the estimate costs are categorized under the appropriate CWWBS code and include both construction and non-construction costs.

The construction costs fall under the following feature code:

- 12 Navigation Ports and Harbors

The non-construction costs fall under the following feature codes:

- 01 Lands and Damages
- 30 Planning, Engineering and Design
- 31 Construction Management

D.1.3 Construction Cost

For the construction costs, unit prices for dredging related work were developed in the Cost Engineering Dredging Program (CEDEP) and then entered into MCACES/MII. These costs include all major project components categorized under the appropriate CWWBS to the sub-feature level. The Total Project Cost Summary (TPCS) on the Recommended Plan contains contingencies as noted in the estimate (below) and were determined based on ER 1110-2-1302 from 30 June 2016, page 18, for a Class 4. A full cost and schedule risk analysis will be performed, for the ATR/MCX review, to establish the project contingency for the Recommended Plan's cost items.

D.1.4 Non-Construction Cost

Non-construction costs typically include Lands and Damages (Real Estate), Planning, Engineering and Design (PED), and Construction Management (S&A). These costs were provided by the PDT either as a lump sum cost or as a percentage of the total construction contract cost. Lands and Damages are provided by Real Estate and are best described in the Real Estate Appendix. PED costs are for the preparation of contract plans and specifications (P&S) and include itemized costs that were provided by the PDT, as well as costs for Post-Construction Monitoring costs and percentages for Engineering During Construction (EDC) that were provided by the project manager. Construction Management costs are for the supervision and administration of a contract and include Project Management and Contract Admin costs. These costs were provided by the project manager and are included as a percentage of the total construction contract cost.

The main report details both allocations and cost apportionment for the Federal Government and the non-Federal sponsor. Also included in the main report are the non-Federal sponsor's obligations (items of local cooperation).

D.1.5 Construction Schedule

A construction schedule was prepared utilizing input from the PDT and reflects all project construction components. The schedule considers not only durations of individual components of construction, but also the timing of construction contracts based on funding and construction windows. The construction schedule was combined with the project schedule to create an overall schedule that was used for the generation of the TPCS. The construction schedule will change as the project moves through the various project lifecycle phases. The overall project schedule is provided below.

D.1.6 Total Project Cost Summary

The cost estimate for the Recommended Plan is prepared with an identified price level date and inflation factors are used to adjust the pricing to the project schedule. This estimate is known as the Fully Funded Cost Estimate or Total Project Cost Summary. It includes all Federal and non-Federal costs: Lands, Easements, Rights of Way and Relocations; construction features; Planning Engineering and Design; Construction Management; Contingency; and Inflation.

D.2 PLAN FORMULATION COST ESTIMATES

There were several alternatives the PDT evaluated during plan formulation in order to identify the Recommended Plan. All alternatives that were evaluated at various stages in the study can be found in the Economics Appendix and are also outlined in the Main Report.

All dredging unit costs were calculated in CEDEP and transferred to an Excel generated spreadsheet to determine the total initial construction costs for each alternative at incremental depths.

A contingency was applied to each alternative. The contingencies for the construction and non-construction costs were developed using ER 1110-2-1302 from 30 June 2016, page 18, for a Class 4 project. All major risk components were the same for each reach and alternative.

Once the total initial construction costs for each alternative were developed, the costs were broken down into a spreadsheet so that the PDT could input the cost information into BeachFx. The table listed the Mobilization & Demobilization costs separately and a Total Cost/Cubic Yard.

D.3 RECOMMENDED PLAN (NED) COST ESTIMATE

The cost shared recommended plan includes the following features:

- Alternative 1
 - Cut 8 - Army Terminal Channel (Widening) @ 40
- Alternative 2
 - Cut 6 - (Deepening) @ 46
 - Cut 7 - Anegado Channel (Deepening) @ 44
 - Cut 8 - Army Terminal Channel (Deepening & Widening) @ 44
 - Cut 9 - Army Terminal Turning Basin (Deepening & Widening) @ 44
- Alternative 7
 - Cut 18 - San Antonio Channel (Deepening) @ 36
 - Cut 20 - San Antonio Channel Extension (Deepening) @ 36
 - Cut 22 - East/South Cruise Ship Turning Basin (Deepening Only) @ 44

The Recommended Plan also includes the following associated work:

- Non-Federal Sponsored Features:
 - PREPA LNG Facility Modifications
 - COD/Total Berth (Deepening) @ 44
 - Puma LNG Berth to Point A (Deepening) @ 44
- US Coast Guard (USCG) Sponsored Features:
 - USCG Aids to Navigation

D.4 RISK AND UNCERTAINTY ANALYSIS (to be completed on the following weeks)

A Cost and Schedule Risk Analysis will be conducted according to the procedures outlined in the following documents and sources:

- Cost and Schedule Risk Analysis Process guidance prepared by the USACE Cost Engineering MCX.
- Engineer Regulation (ER) 1110-2-1302 CIVIL WORKS COST ENGINEERING, dated September 15, 2008.
- Engineer Technical Letter (ETL) CONSTRUCTION COST ESTIMATING GUIDE FOR CIVIL WORKS, dated September 30, 2008.

D.5.1 Risk Analysis Methods

The risk analysis process for this study is intended to determine the probability of various cost outcomes and quantify the required contingency needed in the cost estimate to achieve the desired level of cost confidence.

The entire PDT will participate in a risk analysis brainstorming session to identify risks associated with the Recommended Plan. The risks will be listed in the risk register, which is a tool commonly used in project planning and risk analysis, and evaluated by the PDT.-Assumptions will be made as to the likelihood and impact of each risk item, as well as the probability of occurrence and magnitude of the impact if it were to occur. A risk model will then developed by Walla Walla in order to establish contingencies to apply to the project cost. Risks to be evaluated for the following features of work:

- 01 Lands and Damages
- 12 Navigation Ports and Harbors
 - Mobilization, Demobilization & Preparatory Work
 - Mechanical/Clamshell Dredging
- 30 Planning, Engineering & Design
- 31 Construction Management

After the model is run, the results will be reviewed and all parameters re-evaluated by the PDT as a sanity check of assumptions and inputs. Adjustments will be made to the analysis accordingly and the final contingency will be established. The contingency is to be applied to the Recommended Plan estimate in the Total Project Cost Summary in order to obtain the Fully Funded Cost.

D.5.2 Risk Analysis Results

Risk analysis results are intended to provide project leadership with contingency information for scheduling, budgeting, and project control purposes, as well as to provide tools to support decision making and risk management as projects progress through planning and implementation.

D.6 TOTAL PROJECT COST SUMMARY

The Total Project Cost Summary (TPCS) addresses inflation through project completion (accomplished by escalation to mid-point of construction per ER 1110-2-1302, Appendix C, Page C-2). It is based on the scope of the Recommended Plan and the official project schedule. The TPCS includes Federal and non-Federal costs for Lands and Damages, all construction features, PED, S&A, along with the appropriate contingencies and escalation associated with each of these activities. The TPCS is formatted according to the CWWBS and uses Civil Works Construction Cost Indexing System (CWCCIS) factors for escalation (EM 1110-2-1304) of construction costs and Office of Management and Budget (EC 11-2-18X, 20 Feb 2008) factors for escalation of PED and S&A costs.

The Total Project Cost Summary was prepared using the MCACES/MII cost estimate on the Recommended Plan, as well as the contingencies set by the risk analysis and the official project schedule.

D.6.1 Total Project Cost Summary Spreadsheet

Refer to the Total Project Cost Summary Spreadsheet on the next page.

D.7 COST MCX TPCS CERTIFICATION

The Recommended Plan estimate, formal cost and schedule risk analysis and total project cost summary spreadsheet will undergo a cost review and certification by the Walla Walla Mandatory Center of Expertise.

**** TOTAL PROJECT COST SUMMARY ****

Printed: 6/16/2017
Page 1 of 4

PROJECT: San Juan Harbor Improvements TSP
PROJECT NO: P2 443841
LOCATION: San Juan, PR

DISTRICT: SAJ Jacksonville
POC: CHIEF, COST ENGINEERING, Matthew W. Cunningham
PREPARED: 6/14/2017

This Estimate reflects the scope and schedule in report:

0

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)					TOTAL PROJECT COST (FULLY FUNDED)				
WBS NUMBER A	Civil Works Feature & Sub-Feature Description B	COST (\$K) C	CNTG (\$K) D	CNTG (%) E	TOTAL (\$K) F	Program Year (Budget EC): Effective Price Level Date: 2018 1 OCT 17				Spent Thru: 1-Oct-16 (\$K) E	TOTAL FIRST COST (\$K) K	INFLATED (%) L	COST (\$K) M	CNTG (\$K) N	FULL (\$K) O
						ESC (%) G	COST (\$K) H	CNTG (\$K) I	TOTAL (\$K) J						
12	NAVIGATION PORTS & HARBORS (COST SHARED WORK)	\$27,243	\$9,535	35.0%	\$36,778	1.8%	\$27,747	\$9,711	\$37,458	\$0	\$37,458	8.2%	\$30,011	\$10,504	\$40,515
12	NAVIGATION PORTS & HARBORS (ASSOC. WORK NON-FED)	\$500,813	\$214	0.0%	\$500,827	1.8%	\$509,866	\$218	\$510,084	\$0	\$510,084	8.2%	\$551,476	\$236	\$551,712
12	NAVIGATION PORTS & HARBORS (ASSOC. WORK USCG)	\$80	\$0	0.0%	\$80	1.8%	\$81	\$0	\$81	\$0	\$81	12.5%	\$91	\$0	\$91
CONSTRUCTION ESTIMATE TOTALS:		\$527,936	\$9,750		\$537,685	1.8%	\$537,694	\$9,930	\$547,624	\$0	\$547,624	8.2%	\$581,579	\$10,740	\$592,319
01	LANDS AND DAMAGES (COST SHARED)	\$66	\$0	0.0%	\$66	1.8%	\$67	\$0	\$67	\$0	\$67	4.5%	\$70	\$0	\$70
30	PLANNING, ENGINEERING & DESIGN (COST SHARED)	\$7,489	\$2,821	35.0%	\$10,110	3.6%	\$7,759	\$2,716	\$10,475	\$0	\$10,475	8.7%	\$8,433	\$2,952	\$11,385
31	CONSTRUCTION MANAGEMENT (COST SHARED)	\$3,950	\$1,383	35.0%	\$5,333	3.6%	\$4,092	\$1,432	\$5,525	\$0	\$5,525	16.6%	\$4,773	\$1,670	\$6,443
PROJECT COST TOTALS:		\$539,441	\$13,753	2.5%	\$553,194		\$549,613	\$14,078	\$563,690	\$0	\$563,690	8.3%	\$594,855	\$15,362	\$610,217

CHIEF, COST ENGINEERING, Matthew W. Cunningham

PROJECT MANAGER, Brenda Calvente

CHIEF, REAL ESTATE, Audrey Ormer

CHIEF, PLANNING, Eric Summa

CHIEF, ENGINEERING, Laureen Borochaner

CHIEF, OPERATIONS, Candida Bronson

CHIEF, CONSTRUCTION, Steven Duba

CHIEF, CONTRACTING, Timothy Black

CHIEF, PM-PB, Gerald Grubb

CHIEF, DPM, Tim Murphy

ESTIMATED COST-SHARED TOTAL COST: \$58,414

ESTIMATED ASSOC. COST / PREPA LNG FACILITIES (NON-FED): \$550,801

ESTIMATED ASSOC. COST / BERTH DREDGING (NON-FED): \$911

ESTIMATED ASSOC. COST / USCG: \$91

ESTIMATED ASSOC. COST TOTAL COST: \$551,804

ESTIMATED TOTAL PROJECT COST: \$610,217

**** TOTAL PROJECT COST SUMMARY ****

**** CONTRACT COST SUMMARY ****

PROJECT: San Juan Harbor Improvements TSP
LOCATION: San Juan, PR
This Estimate reflects the scope and schedule in report:

0

DISTRICT: SAJ Jacksonville
POC: CHIEF, COST ENGINEERING, Matthew W. Cunningham
PREPARED: 6/14/2017

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared: 14-Jun-17		Effective Price Level: 1-Oct-16		Program Year (Budget EC): 2018		Effective Price Level Date: 1 OCT 17						
		RISK BASED												
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST (\$K)	CNTG (%)	CNTG (%)	TOTAL (\$K)	ESC (%)	COST (\$K)	CNTG (%)	TOTAL (\$K)	Mid-Point Date	INFLATED (%)	COST (\$K)	CNTG (%)	FULL (\$K)
A	B	C	D	E	F	G	H	I	J	P	L	M	N	O
COST SHARED WORK														
12	NAVIGATION PORTS & HARBORS	\$27,243	\$9,535	35.0%	\$36,778	1.8%	\$27,747	\$9,711	\$37,458	2022Q1	8.2%	\$30,011	\$10,504	\$40,515
CONSTRUCTION ESTIMATE TOTALS:		\$27,243	\$9,535	35.0%	\$36,778		\$27,747	\$9,711	\$37,458			\$30,011	\$10,504	\$40,515
01	LANDS AND DAMAGES	\$66	\$0	0.0%	\$66	1.8%	\$67	\$0	\$67	2020Q2	4.5%	\$70	\$0	\$70
30	PLANNING, ENGINEERING & DESIGN													
2.5%	Project Management	\$681	\$238	35.0%	\$919	3.6%	\$706	\$247	\$953	2019Q4	6.0%	\$754	\$264	\$1,019
1.0%	Planning & Environmental Compliance	\$272	\$95	35.0%	\$367	3.6%	\$282	\$99	\$380	2019Q4	6.0%	\$301	\$105	\$407
15.0%	Engineering & Design	\$4,086	\$1,430	35.0%	\$5,516	3.6%	\$4,233	\$1,482	\$5,715	2019Q4	6.0%	\$4,527	\$1,584	\$6,111
1.0%	Reviews, ATRs, IEPRs, VE	\$272	\$95	35.0%	\$367	3.6%	\$282	\$99	\$380	2019Q4	6.0%	\$301	\$105	\$407
1.0%	Life Cycle Updates (cost, schedule, risks)	\$272	\$95	35.0%	\$367	3.6%	\$282	\$99	\$380	2019Q4	6.0%	\$301	\$105	\$407
1.0%	Contracting & Reprographics	\$272	\$95	35.0%	\$367	3.6%	\$282	\$99	\$380	2019Q4	6.0%	\$301	\$105	\$407
3.0%	Engineering During Construction	\$817	\$286	35.0%	\$1,103	3.6%	\$846	\$296	\$1,143	2022Q1	16.6%	\$987	\$346	\$1,333
2.0%	Planning During Construction	\$545	\$191	35.0%	\$736	3.6%	\$565	\$198	\$762	2022Q1	16.6%	\$659	\$230	\$889
1.0%	Project Operations	\$272	\$95	35.0%	\$367	3.6%	\$282	\$99	\$380	2019Q4	6.0%	\$301	\$105	\$407
31	CONSTRUCTION MANAGEMENT													
10.0%	Construction Management	\$2,724	\$953	35.0%	\$3,677	3.6%	\$2,822	\$988	\$3,810	2022Q1	16.6%	\$3,291	\$1,152	\$4,443
2.0%	Project Operation:	\$545	\$191	35.0%	\$736	3.6%	\$565	\$198	\$762	2022Q1	16.6%	\$659	\$230	\$889
2.5%	Project Management	\$681	\$238	35.0%	\$919	3.6%	\$706	\$247	\$953	2022Q1	16.6%	\$823	\$288	\$1,111
CONTRACT COST TOTALS:		\$38,748	\$13,539		\$52,287		\$39,665	\$13,859	\$53,525			\$43,288	\$15,126	\$58,414

**** TOTAL PROJECT COST SUMMARY ****

Printed: 8/16/2017
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**** CONTRACT COST SUMMARY ****

PROJECT: San Juan Harbor Improvements TSP
LOCATION: San Juan, PR
This Estimate reflects the scope and schedule in report:

0

DISTRICT: SAJ Jacksonville
POC: CHIEF, COST ENGINEERING, Matthew W. Cunningham
PREPARED: 6/14/2017

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)					
WBS NUMBER A	Civil Works Feature & Sub-Feature Description B	Estimate Prepared:		14-Jun-17	Program Year (Budget EC):		2018	Effective Price Level Date:		1 OCT 17	Mid-Point Date P	INFLATED (%) L	COST (\$K) M	CNTG (\$K) N	FULL (\$K) O
		Effective Price Level:	1-Oct-16	Effective Price Level Date:	1 OCT 17										
		COST (\$K) C	CNTG (\$K) D	CNTG (%) E	TOTAL (\$K) F	ESC (%) G	COST (\$K) H	CNTG (\$K) I	TOTAL (\$K) J						
	ASSOCIATED WORK (NON-FEDERAL)														
12	NAVIGATION PORTS & HARBORS (PREPA LNG Facilities)	\$500,000	\$0	0.0%	\$500,000	1.8%	\$509,242	\$0	\$509,242	2022Q1	8.2%	\$550,801	\$0	\$550,801	
12	NAVIGATION PORTS & HARBORS (Berthing Areas)	\$813	\$214	35.0%	\$827	1.8%	\$824	\$218	\$843	2022Q1	8.2%	\$875	\$236	\$911	
	CONSTRUCTION ESTIMATE TOTALS:	\$500,813	\$214	0.0%	\$500,827		\$509,866	\$218	\$510,084			\$551,476	\$236	\$551,712	
01	LANDS AND DAMAGES	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0	
30	PLANNING, ENGINEERING & DESIGN														
0.0%	Project Management	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0	
0.0%	Planning & Environmental Compliance	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0	
0.0%	Engineering & Design	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0	
0.0%	Reviews, ATRs, IEPRs, VE	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0	
0.0%	Life Cycle Updates (cost, schedule, risks)	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0	
0.0%	Contracting & Reprographics	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0	
0.0%	Engineering During Construction	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0	
0.0%	Planning During Construction	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0	
0.0%	Project Operations	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0	
31	CONSTRUCTION MANAGEMENT														
0.0%	Construction Management	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0	
0.0%	Project Operation:	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0	
0.0%	Project Management	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0	
	CONTRACT COST TOTALS:	\$500,813	\$214		\$500,827		\$509,866	\$218	\$510,084			\$551,476	\$236	\$551,712	

**** TOTAL PROJECT COST SUMMARY ****

Printed: 8/16/2017
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**** CONTRACT COST SUMMARY ****

PROJECT: San Juan Harbor Improvements TSP
LOCATION: San Juan, PR
This Estimate reflects the scope and schedule in report:

0

DISTRICT: SAJ Jacksonville
POC: CHIEF, COST ENGINEERING, Matthew W. Cunningham
PREPARED: 6/14/2017

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
WBS NUMBER	Civil Works Feature & Sub-Feature Description	Estimate Prepared:		14-Jun-17		Program Year (Budget EC):		2018		Mid-Point Date	INFLATED (%)	COST (\$K)	CNTG (\$K)	FULL (\$K)
		Effective Price Level:		1-Oct-16		Effective Price Level Date:	1 OCT 17							
A	B	COST (\$K)	CNTG (\$K)	CNTG (%)	TOTAL (\$K)	ESC (%)	COST (\$K)	CNTG (\$K)	TOTAL (\$K)	P	L	M	N	O
12	ASSOCIATED WORK (USCG) NAVIGATION PORTS & HARBORS (Nav Aids)	\$80	\$0	0.0%	\$80	1.8%	\$81	\$0	\$81	2024Q1	12.5%	\$91	\$0	\$91
	CONSTRUCTION ESTIMATE TOTALS:	\$80	\$0	0.0%	\$80		\$81	\$0	\$81			\$91	\$0	\$91
01	LANDS AND DAMAGES	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0
30	PLANNING, ENGINEERING & DESIGN													
0.0%	Project Management	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0
0.0%	Planning & Environmental Compliance	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0
0.0%	Engineering & Design	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0
0.0%	Reviews, ATRs, IEPRs, VE	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0
0.0%	Life Cycle Updates (cost, schedule, risks)	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0
0.0%	Contracting & Reprographics	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0
0.0%	Engineering During Construction	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0
0.0%	Planning During Construction	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0
0.0%	Project Operations	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0
31	CONSTRUCTION MANAGEMENT													
0.0%	Construction Management	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0
0.0%	Project Operation:	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0
0.0%	Project Management	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0
	CONTRACT COST TOTALS:	\$80	\$0		\$80		\$81	\$0	\$81			\$91	\$0	\$91