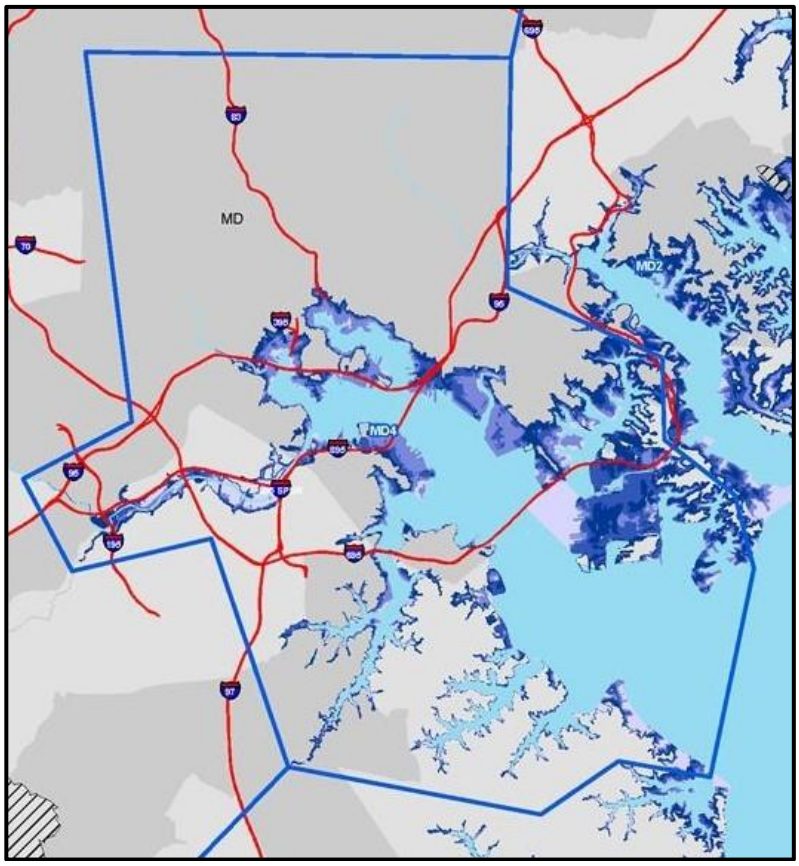
Baltimore Coastal Storm Risk Management Feasibility Study

Appendix C: Cost Engineering and Risk Analysis



City of Baltimore, Anne Arundel and Baltimore Counties
July 2022

US Army Corps of Engineers
Baltimore District

MARYLAND DEPARTMENT OF TRANSPORTATION

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BALTIMORE COASTAL STORM RISK MANAGEMENT FEASIBILITY STUDY

COST NARRATIVE

Summary of Scope of Work:

The study area for the Baltimore Coastal Feasibility Study includes four (4) main study areas or planning units: Inner Harbor, Patapsco, Locus Point, and Martin State Airport. Many flood risk management structures were evaluated and through the project matrix elimination process. Selected structures were elevated roads, earthen levees, floodwalls, and aluminum stop log closures as a flood protection line. For the pre-Tentative Selected Plan, this Coastal Storm Risk Management Project includes the following civil works feature accounts for selected structures and associated work for the four (4) study areas:

- Account 01. Land and Damages. For both structural and nonstructural features of work, real estate costs due to construction impacts are assessed by and provided by Real Estate Division. Real estate cost for structural plan includes real estate administrative cost to provide easement and access to study areas. Real estate cost for nonstructural plan includes estimated cost to temporary relocate local residents while nonstructural measures such as flood proofing or structural elevation is applied. Both real estate costs are accounted in for in separate Total Project Cost Summaries, one for structural plan, and one for nonstructural plan.

- Account 02. Relocation. Relocation is likely but because of lack of utility survey, allowance costs based on experience of similar past studies were used. For structural plan, a budgetary allowance applied using ten (10) percent of construction accounts, accounts 11, 13, and 15. This study area includes an approximately $170,000 allowance to cover potential minor relocation costs such as disconnect or reconnect or repair of local communication lines. There are large light poles where a 4 ft I-wall can conceivably be built around to avoid relocation and potential opposition from utility companies and local sponsors.

- Account 11. Levees and Floodwalls. The proposed project alignment shows elements of Measures that include walls and levee constructions for multiple areas. As far as flood wall construction goes, I-walls and T-walls are used. Elevated roads or levees with asphalt pavement are also included. Length of wall and levees and assumed typical cross section dimensions are provided by the Project civil engineer. Preliminary quantity take-offs for the walls and levees based on averaged wall heights and typical cross section dimensions were conservatively estimated. Each segment of proposed lengths for walls or levees are assumed to have the same averaged elevation with the same as the constant desired structure height. The project alignment is crossing many areas that may need traffic control, which is estimated by assuming that new traffic signals, vehicle barriers, and flagmen may be needed. All costs in connection with construction work for floodwalls and levees were estimated in MII using MII software, Cost Book Library 2016 as starting point, updated with 2021 National Labor Library, and latest fuel prices for

2020 Equipment Region 02, and escalated to 2022 price level using CWCCIS Escalation Calculation dated 30 Sep 2021 for account 11.

- Account 13. Pumping Plant. The NAO preliminary estimate for a pump station in Freemanson, Norfolk VA at price level in 3rd quarter, 2014 price level was used as a template to parametrically estimate pump stations for some of the areas in the project alignment. The MII estimate portion is repriced with 2016 Cost Book, updated latest wage rates and escalated to current price using CWCCIS Escalation Calculation dated 30 Sep 2021 for account 13 from Q3 2014 to Q1 2022. The size of concrete sump chamber, sluice gates, pipes, electrical, and other appropriate items are also adjusted to accommodate the number of pumps. Pumps are assumed as vertical axial pumps. Pump stations are proposed at Martin State Airport Rd - Wilson Rd, Inner Harbor and Locust Point sites: West, North and Fort McHenry.

- Account 15. Floodway Control - Diversion Structures. Stop log structure cost is parametrically estimated using historical $580/sf stop log cost in a Washington, DC project in quarter 1 of 2016 which is escalated to quarter 1 in 2022 for account 15. The square foot area is basically length times height of structure. It is not exact cost but should provide a close estimated cost of a stop log closure structure. The parametrical cost is assigned to subcontractor since the historical cost was done by a Prime contractor. Stop log closure structures are assumed in all four (4) study areas because they are cheapest solution while providing a temporary sturdy structure, but they may require a lot of time to set up and install. Sponsors may desire to have a quicker and more expensive temporary structure such as automatic pop-up structure that can be controlled afar with a push button. A market survey for a compatible structure was done and has shown that an auto push-button pop-up structure could cost as much as 80% higher than a stop log structure. Risk analysis for this item includes estimated magnitude of cost impact.

- Account 18. Cultural Resource Preservation. The proposed project alignment has potential impacts on cultural resources that may require extensive archaeological mitigations. Since no surveys were done, areas that are currently considered as significant sites may potentially have extensive impacts or no impact. A conservative approach was taken to count as if most sites are high risk sites and will have substantial archaeological mitigations. The cost for archaeological mitigation was conservatively estimated and provided by a NAB archeologist. For the nonstructural plan, the cultural preservation cost is also provided by a NAB archeologist and is captured in separate TPCSs for 100 years, 50 years, and 20 years level of protection.

- Account 19. Buildings, Grounds, and Utilities. This account is for nonstructural costs for properties available in study areas. There are two (2) types of nonstructural methods being considered, flood proofing and structural raising or elevation. The nonstructural cost is based on MII estimate done for the 2020 Denville study in New Jersey. It is upgraded to 2022 price level using escalation and latest cost libraries such as 2021 Labor Library and 2020 Equipment Library for Region 2 with updated fuel and Cost of Money rates. The average cost of flood proofing and the average cost for structural elevation for different types of properties are computed. These two (2) average costs are applied to

each property according to whether it is selected to be either flood proofing or structural elevation. The total nonstructural cost for all properties for each level of protection is included in separate TPCSs. For example, for the 100 years protection, there is a TPCS, and likewise for 50 years and 20 years of protection.

- Account 30. Planning, Engineering, and Design. For structural plan, the team decided to use 46% of construction cost. For nonstructural plan, it is decided that 15.3% of construction cost is adequate since less paperwork would be involved. It is also noted that the Baltimore District does not have any history of actual involvement in contract acquisition for nonstructural plan. We only may only have some small and partial involvement with local authorities such as cost sharing and administrative oversight.
- Account 31. Construction Management. For structural plan, the team decided to use 46% of construction cost. For nonstructural plan, it is decided that 10% of construction cost would be adequate. Again, because lack of history of District's involvement, it is hard to tell. However, considering contract management for construction work at residential areas, it would not be expected to be extensive as regular construction work such as those for levees or floodwalls. Plus, there is an expectation that most contract management would be done by local authorities.

Construction Cost Estimate:

The following methodology is used in the preparation of the cost estimate for Baltimore Storm Risk Management Project:

a. The estimate is in accordance with the guidance contained in ER 1110-2-1302, Civil Works Cost Engineering.

b. The estimate is presented in Civilworks Work Breakdown Structure.

c. The price level for the estimate is in 1st Quarter of FY2022.

d. Construction costs developed by Estimating and Specifications Section, Engineering Division, Baltimore District are based on a concept design developed by NAB Engineering team. Unit costs are developed using the M-CACES Second Generation (MII) software containing the 2016 English Cost Book Library which was used as a starting point. Historical cost data from similar projects are used for parametric estimate and updated with latest RSMeans material cost. The estimate is documented with notes to explain the assumed construction methods, crews, productivity, and other specific information. The intent is to provide or convey a "fair and reasonable" estimate that which depicts the local market conditions.

e. Labor costs are based on the 2021 National Labor Library.

f. Bid competition: No contracting plan is done at this point. Bidding competition is assumed to be unrestricted in the baseline estimate since the overall work is typical to the area and the massive size of the project will likely draw multiple national level large size contractors to bid on the project. However, unfavorable bidding environment such as low competition due to saturated work in the area could cause increase in bid costs. This assessment is reflected in the Cost and Schedule Risk Analysis.

g. Contract Acquisition Strategy: Acquisition strategy is not yet determined at this point. However, to reflect the historical market condition for this type of work, Prime Contractor is assumed to perform minimal work and will sub-contract out all remaining work.

h. Labor Shortages: It is assumed that there will be a normal labor market since large project such as this would likely be delayed that by the time funding is authorized, there would be a normal labor market. In addition, even though current labor shortage is happening almost everywhere, there has not been any cost impact in construction cost for civil work projects.

i. Materials: Most material costs are from the Cost Book Library. Vendor quotes were used for non-Cost Book items such as quotes for vertical axial pumps for the pump stations. Assumptions include:

   1. Government furnished materials are assumed. Quoted delivery charge is included in the vendor's material cost.
   2. Materials will be available from local nearest available sources.
   3. Hauling: most hauling will be done by trucks. For trucking, it is assumed that the average speed is 30 mph factoring traffic hours in often congested major routes.

j. Equipment: Rates used are based on the latest USACE EP-1110-1-8, Region II. Adjustments are made for fuel and facility capital cost of money (FCCM). Judicious use of owned verses rental rates was considered based on typical contractor usage and local equipment availability. Full FCCM/Cost of Money rate is latest available; MII program takes EP recommended discount, no other adjustments have been made to the FCCM.

k. Fuels (gasoline, on and off-road diesel) were based on local market averages for on-road and off-road fuels in Mid Atlantic areas. Since fuels fluctuate irrationally, an average was used.

l. Major crew and productivity rates were developed and studied by senior USACE estimators familiar with the type of work. All the work is typical to the Baltimore District. The crews and productivities were checked by local NAB estimators, discussions with contractors and comparisons with historical cost data. Major crews include hauling, stonework, and planting.

m. Most crew work hours are assumed to be 8 hrs 5 days/week which is typical to the area. It is anticipated that no overtime is required for reasons such as time of year restriction because it is anticipated that there is none. At the Reagan Airport area, there will likely be off hour or nightly differential hours which may take place to avoid the interruption to the normal operations of the airport. Therefore, the construction estimate for levees and floodwalls at the airport includes ten (10) percent labor cost increase for nightly differential.

n. Mobilization and demobilization: Contractor mobilization and demobilization are based on the assumption that most of the contractors will take about one 8 hrs day to mobilize and one 8 hrs day to demobilize.

o. Field Office Overhead: Typically, civil works projects can have field office overhead ranging from 9% to 20%. Since this project is a larger than the norm, 13% was used for Job Office Overhead. Overhead assumptions may include: Superintendent, office manager, pickups, periodic travel, costs, communications, temporary offices (contractor and government), office furniture, office supplies, computers and software, as-built drawings and minor designs, tool trailers, staging setup, camp and kitchen maintenance and utilities, utility service, toilets, safety equipment, security and fencing, small hand and power tools, project signs, traffic control, surveys, temp fuel tank station, generators, compressors, lighting, and minor miscellaneous. Field office overhead for Pump Station work is kept at 15% as the original pump station MII estimate. It is reasonable since the pump station may likely be awarded in a separate contract or bundled in a phased contract which is typically seen with high field overhead.

p. Home Office Overhead: Due to large size of project a little less than typical percentage was used (4%) for HOOH. Subcontractor's HOOH is at 5%. The rates are based upon estimating and negotiating experience, and consultation with local construction representatives. However, the HOOH rate could be higher if market and bidding condition is limited in competition or there is a labor shortage which forces construction companies to increase overhead to provide incentives to hire skill workers or professionals field management teams. This risk is captured as part of market risk and rated as high risk in the CSRA.

q. Profit: Since the Construction Cost Estimate is currently in a budgetary phase, profit is typically included at 10% for Prime Contractor. However, due to the size of project

and general expectation that there will be some competition, 8% profit was used for Prime and Prime's Profit on Sub's work. Sub-contractors' profit is mostly 8%. Profit in pump station is kept at 9% for Prime and 10% for subs to maintain the integrity of the original estimate and to also assume that pump station may be in a separate contract.

r. Sales Tax: Only State sales tax was applied. No local sales tax was included in the estimate.

s. Bond: Bond is calculated at 0.66% using Bond Table in MII for the Prime contractor. For pump station estimate under a separate Pump Station Prime, it is at 0.7% which is also from Bond Table calculation.

t. Contingency: Contingency is based the outcome of the Cost and Schedule Risk Analysis for pre TSP milestone which was done on 14 March 2022.

u. Escalation: No escalation to midpoint of construction according to tentative construction start dates is included in the estimate but will be included in the Total Project Cost Summary (TPCS) to avoid duplicates.

v. HTRW: The estimate includes no costs for Hazardous, Toxic, and Radioactive Waste (HTRW) since there is no potential concern for HTRW where the levees, floodwalls, closure structures, and pump stations are proposed.

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

PROJECT: **Baltimore City Storm Risk Management Structural Plan**
PROJECT NO: 0
LOCATION: MD

DISTRICT: **NAB District** **PREPARED:** **3/15/2022**
POC: **CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey**

This Estimate reflects the scope and schedule in report; METRO WASHINGTON, Baltimore City STORM RISK MANAGEMENT FEASIBILITY STUDY

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)						TOTAL PROJECT COST (FULLY FUNDED)			
						Program Year (Budget EC): 2023 Effective Price Level Date: 1 OCT 22									
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	**TOTAL ($K)**	Spent Thru: **1-Oct-21** ($K)	**TOTAL FIRST COST** ($K)	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*		*K*	*L*	*M*	*N*	*O*
02	RELOCATIONS	$27,792	$12,784	46.0%	$40,576	3.2%	$28,673	$13,190	$41,863	$0	$41,863	17.2%	$33,604	$15,458	$49,062
11	LEVEES & FLOODWALLS	$201,494	$92,687	46.0%	$294,181	3.2%	$207,885	$95,627	$303,513	$0	$303,513	17.3%	$243,754	$112,127	$355,881
13	PUMPING PLANT	$65,805	$30,270	46.0%	$96,075	3.2%	$67,892	$31,230	$99,123	$0	$99,123	16.9%	$79,388	$36,518	$115,906
15	FLOODWAY CONTROL & DIVERSION STRUCTU	$10,620	$4,885	46.0%	$15,505	3.2%	$10,957	$5,040	$15,997	$0	$15,997	17.7%	$12,900	$5,934	$18,834
18	CULTURAL RESOURCE PRESERVATION	$3,057	$1,406	46.0%	$4,463	3.2%	$3,154	$1,451	$4,605	$0	$4,605	17.2%	$3,696	$1,700	$5,397
	CONSTRUCTION ESTIMATE TOTALS:	$308,768	$142,033		$450,801	3.2%	$318,562	$146,539	$465,101	$0	$465,101	17.2%	$373,342	$171,737	$545,079
01	LANDS AND DAMAGES	$21,378	$6,414	30.0%	$27,792	3.2%	$22,057	$6,617	$28,673	$0	$28,673	17.2%	$25,849	$7,755	$33,604
30	PLANNING, ENGINEERING & DESIGN	$85,838	$39,485	46.0%	$125,323	2.5%	$87,983	$40,472	$128,456	$0	$128,456	10.4%	$97,091	$44,662	$141,753
31	CONSTRUCTION MANAGEMENT	$30,877	$14,203	46.0%	$45,080	2.5%	$31,649	$14,558	$46,207	$0	$46,207	13.7%	$35,986	$16,553	$52,539
	PROJECT COST TOTALS:	$446,861	$202,135	45.2%	$648,996		$460,251	$208,186	**$668,437**	$0	**$668,437**	15.6%	$532,268	$240,707	$772,976

ESTIMATED TOTAL PROJECT COST: **$772,976**

CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey

PROJECT MANAGER, Katherine Perkins

CHIEF, REAL ESTATE, Benjamin Rooney

CHIEF, PLANNING, Amy M. Guise

CHIEF, ENGINEERING, Mary P. Foutz

CHIEF, OPERATIONS, Patrick G. Findlay

CHIEF, CONSTRUCTION, Jeff J. Werner

CHIEF, CONTRACTING, Paula M. Beck

CHIEF, PP-C, Justin Callahan

CHIEF, DPM, David B. Morrow

****** CONTRACT COST SUMMARY ******

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared: 22-Feb-22 Effective Price Level: 1-Oct-21				Program Year (Budget EC): 2023 Effective Price Level Date: 1 OCT 22								
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	RISK BASED CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Mid-Point Date	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*P*	*L*	*M*	*N*	*O*
	Martin State Airport Rd Ele. - Wilson Rd [MA 2]													
02	RELOCATIONS	$1,495	$687	46.0%	$2,182	3.2%	$1,542	$709	$2,251	2027Q2	13.9%	$1,756	$808	$2,564
11	LEVEES & FLOODWALLS	$5,036	$2,317	46.0%	$7,353	3.2%	$5,196	$2,390	$7,586	2027Q2	13.9%	$5,917	$2,722	$8,638
13	PUMPING PLANT	$9,909	$4,558	46.0%	$14,467	3.2%	$10,223	$4,703	$14,926	2027Q2	13.9%	$11,642	$5,355	$16,997
15	FLOODWAY CONTROL & DIVERSION STRUCTU	$0	$0	46.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
18	CULTURAL RESOURCE PRESERVATION	$164	$76	46.0%	$240	3.2%	$170	$78	$248	2027Q2	13.9%	$193	$89	$282
	CONSTRUCTION ESTIMATE TOTALS:	$16,604	$7,638	46.0%	**$24,242**		$17,131	$7,880	$25,011			$19,507	$8,973	$28,481
01	LANDS AND DAMAGES	$1,150	$345	30.0%	$1,495	3.2%	$1,186	$356	$1,542	2027Q2	13.9%	$1,351	$405	$1,756
30	PLANNING, ENGINEERING & DESIGN													
2.5%	Project Management	$415	$191	46.0%	$606	2.5%	$425	$196	$621	2026Q4	9.7%	$467	$215	$681
2.0%	Planning & Environmental Compliance	$332	$153	46.0%	$485	2.5%	$340	$157	$497	2026Q4	9.7%	$373	$172	$545
15.5%	Engineering & Design	$2,574	$1,184	46.0%	$3,757	2.5%	$2,638	$1,213	$3,851	2026Q4	9.7%	$2,894	$1,331	$4,225
1.3%	Reviews, ATRs, IEPRs, VE	$208	$95	46.0%	$303	2.5%	$213	$98	$311	2026Q4	9.7%	$233	$107	$341
1.3%	Life Cycle Updates (cost, schedule, risks)	$216	$99	46.0%	$315	2.5%	$221	$102	$323	2026Q4	9.7%	$243	$112	$354
0.8%	Contracting & Reprographics	$125	$57	46.0%	$182	2.5%	$128	$59	$186	2026Q4	9.7%	$140	$64	$204
3.0%	Engineering During Construction	$498	$229	46.0%	$727	2.5%	$511	$235	$745	2027Q2	11.1%	$567	$261	$828
0.5%	Planning During Construction	$83	$38	46.0%	$121	2.5%	$85	$39	$124	2027Q2	11.1%	$95	$43	$138
1.0%	Adaptive Management & Monitoring	$166	$76	46.0%	$242	2.5%	$170	$78	$248	2027Q2	11.1%	$189	$87	$276
0.0%	Project Operations	$0	$0	46.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
31	CONSTRUCTION MANAGEMENT													
7.5%	Construction Management	$1,245	$573	46.0%	$1,818	2.5%	$1,276	$587	$1,864	2027Q2	11.1%	$1,418	$652	$2,070
0.0%	Project Operation:	$0	$0	46.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
2.5%	Project Management	$415	$191	46.0%	$606	2.5%	$425	$196	$621	2027Q2	11.1%	$473	$217	$690
	CONTRACT COST TOTALS:	$24,030	$10,870		$34,900		$24,750	$11,195	**35,945**			$27,949	$12,640	**$40,589**

****** CONTRACT COST SUMMARY ******

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LOCATION: MD
This Estimate reflects the scope and schedule in report; METRO WASHINGTON, Baltimore City STORM RISK MANAGEMENT FEASIBILITY STUDY

DISTRICT: NAB District
POC: CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey
PREPARED: 3/15/2022

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared: 22-Feb-22 Effective Price Level: 1-Oct-21				Program Year (Budget EC): 2023 Effective Price Level Date: 1 OCT 22								
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Mid-Point Date	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*P*	*L*	*M*	*N*	*O*
	Martin State Airport Rd Ele. - Lynbrooke Rd [MA 3]													

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

02	RELOCATIONS	$27	$12	46.0%	$39	3.2%	$27	$13	$40	2027Q4	15.6%	$32	$15	$46
11	LEVEES & FLOODWALLS	$265	$122	46.0%	$387	3.2%	$273	$126	$399	2027Q4	15.6%	$316	$145	$462
13	PUMPING PLANT	$0	$0	46.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
15	FLOODWAY CONTROL & DIVERSION STRUCTU	$0	$0	46.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
18	CULTURAL RESOURCE PRESERVATION	$3	$1	46.0%	$4	3.2%	$3	$1	$4	2027Q4	15.6%	$3	$2	$5
	CONSTRUCTION ESTIMATE TOTALS:	$294	$135	46.0%	**$430**		$304	$140	$443			$351	$162	$513
01	LANDS AND DAMAGES	$20	$6	30.0%	$27	3.2%	$21	$6	$27	2027Q4	15.6%	$24	$7	$32
30	PLANNING, ENGINEERING & DESIGN													
2.5%	Project Management	$7	$3	46.0%	$11	2.5%	$8	$3	$11	2026Q4	9.7%	$8	$4	$12
2.0%	Planning & Environmental Compliance	$6	$3	46.0%	$9	2.5%	$6	$3	$9	2026Q4	9.7%	$7	$3	$10
15.5%	Engineering & Design	$46	$21	46.0%	$67	2.5%	$47	$22	$68	2026Q4	9.7%	$51	$24	$75
1.3%	Reviews, ATRs, IEPRs, VE	$4	$2	46.0%	$5	2.5%	$4	$2	$6	2026Q4	9.7%	$4	$2	$6
1.3%	Life Cycle Updates (cost, schedule, risks)	$4	$2	46.0%	$6	2.5%	$4	$2	$6	2026Q4	9.7%	$4	$2	$6
0.8%	Contracting & Reprographics	$2	$1	46.0%	$3	2.5%	$2	$1	$3	2026Q4	9.7%	$2	$1	$4
3.0%	Engineering During Construction	$9	$4	46.0%	$13	2.5%	$9	$4	$13	2027Q4	12.4%	$10	$5	$15
0.5%	Planning During Construction	$1	$1	46.0%	$2	2.5%	$2	$1	$2	2027Q4	12.4%	$2	$1	$2
1.0%	Adaptive Management & Monitoring	$3	$1	46.0%	$4	2.5%	$3	$1	$4	2027Q4	12.4%	$3	$2	$5
0.0%	Project Operations	$0	$0	46.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
31	CONSTRUCTION MANAGEMENT													
7.5%	Construction Management	$22	$10	46.0%	$32	2.5%	$23	$10	$33	2027Q4	12.4%	$25	$12	$37
0.0%	Project Operation:	$0	$0	46.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
2.5%	Project Management	$7	$3	46.0%	$11	2.5%	$8	$3	$11	2027Q4	12.4%	$8	$4	$12
	CONTRACT COST TOTALS:	$426	$193		$619		$439	$199	**$637**			$502	$227	**$729**

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LOCATION: MD
This Estimate reflects the scope and schedule in report; METRO WASHINGTON, Baltimore City STORM RISK MANAGEMENT FEASIBILITY STUDY

DISTRICT: NAB District
POC: CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey
PREPARED: 3/15/2022

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared:			22-Feb-22	Program Year (Budget EC):			2023					
		Effective Price Level:			1-Oct-21	Effective Price Level Date:			1 OCT 22					
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Mid-Point Date	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*P*	*L*	*M*	*N*	*O*
	Patapsco North Seagrit Terminal [MA 7]													
02	RELOCATIONS	$4,193	$1,929	46.0%	$6,122	3.2%	$4,326	$1,990	$6,316	2027Q4	15.6%	$5,003	$2,301	$7,304
11	LEVEES & FLOODWALLS	$41,929	$19,287	46.0%	$61,216	3.2%	$43,259	$19,899	$63,158	2027Q4	15.6%	$50,027	$23,013	$73,040
13	PUMPING PLANT	$0	$0	46.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
15	FLOODWAY CONTROL & DIVERSION STRUCTU	$0	$0	46.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
18	CULTURAL RESOURCE PRESERVATION	$461	$212	46.0%	$673	3.2%	$476	$219	$695	2027Q4	15.6%	$550	$253	$803
	CONSTRUCTION ESTIMATE TOTALS:	$46,583	$21,428	46.0%	**$68,011**		$48,061	$22,108	$70,169			$55,581	$25,567	$81,148

Filename: Baltimore CSRM Structural TPCS 4-15-22v3_KJ.xlsx
TPCS

01	LANDS AND DAMAGES	$3,225	$968	30.0%	$4,193	3.2%	$3,328	$998	$4,326	2027Q4	15.6%	$3,848	$1,154	$5,003
30	PLANNING, ENGINEERING & DESIGN													
2.5%	Project Management	$1,165	$536	46.0%	$1,700	2.5%	$1,194	$549	$1,743	2026Q4	9.7%	$1,310	$602	$1,912
2.0%	Planning & Environmental Compliance	$932	$429	46.0%	$1,360	2.5%	$955	$439	$1,394	2026Q4	9.7%	$1,048	$482	$1,530
15.5%	Engineering & Design	$7,220	$3,321	46.0%	$10,542	2.5%	$7,401	$3,404	$10,805	2026Q4	9.7%	$8,119	$3,735	$11,854
1.3%	Reviews, ATRs, IEPRs, VE	$582	$268	46.0%	$850	2.5%	$597	$275	$871	2026Q4	9.7%	$655	$301	$956
1.3%	Life Cycle Updates (cost, schedule, risks)	$606	$279	46.0%	$884	2.5%	$621	$286	$906	2026Q4	9.7%	$681	$313	$994
0.8%	Contracting & Reprographics	$349	$161	46.0%	$510	2.5%	$358	$165	$523	2026Q4	9.7%	$393	$181	$574
3.0%	Engineering During Construction	$1,397	$643	46.0%	$2,040	2.5%	$1,432	$659	$2,091	2027Q4	12.4%	$1,611	$741	$2,352
0.5%	Planning During Construction	$233	$107	46.0%	$340	2.5%	$239	$110	$349	2027Q4	12.4%	$268	$123	$392
1.0%	Adaptive Management & Monitoring	$466	$214	46.0%	$680	2.5%	$477	$220	$697	2027Q4	12.4%	$537	$247	$784
0.0%	Project Operations	$0	$0	46.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
31	CONSTRUCTION MANAGEMENT													
7.5%	Construction Management	$3,494	$1,607	46.0%	$5,101	2.5%	$3,581	$1,647	$5,228	2027Q4	12.4%	$4,027	$1,852	$5,879
0.0%	Project Operation:	$0	$0	46.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
2.5%	Project Management	$1,165	$536	46.0%	$1,700	2.5%	$1,194	$549	$1,743	2027Q4	12.4%	$1,342	$617	$1,960
	CONTRACT COST TOTALS:	$67,417	$30,496		**$97,913**		$69,437	$31,409	**$100,846**			$79,419	$35,917	**$115,336**

****** CONTRACT COST SUMMARY ******

PROJECT: Baltimore City Storm Risk Management Structural Plan
LOCATION: MD
This Estimate reflects the scope and schedule in report; METRO WASHINGTON, Baltimore City STORM RISK MANAGEMENT FEASIBILITY STUDY

DISTRICT: NAB District
POC: CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey
PREPARED: 3/15/2022

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared:			22-Feb-22	Program Year (Budget EC):			2023					
		Effective Price Level:			1-Oct-21	Effective Price Level Date:			1 OCT 22	FULLY FUNDED PROJECT ESTIMATE				
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Mid-Point Date	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*P*	*L*	*M*	*N*	*O*
	Patapsco North Canton Ventilation Building [MA 8]													
02	RELOCATIONS	$165	$76	46.0%	$241	3.2%	$171	$78	$249	2028Q4	19.2%	$203	$94	$297
11	LEVEES & FLOODWALLS	$1,591	$732	46.0%	$2,323	3.2%	$1,641	$755	$2,397	2028Q4	19.2%	$1,957	$900	$2,857
13	PUMPING PLANT	$0	$0	46.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
15	FLOODWAY CONTROL & DIVERSION STRUCTU	$62	$29	46.0%	$91	3.2%	$64	$29	$93	2028Q4	19.2%	$76	$35	$111
18	CULTURAL RESOURCE PRESERVATION	$18	$8	46.0%	$27	3.2%	$19	$9	$27	2028Q4	19.2%	$22	$10	$33
	CONSTRUCTION ESTIMATE TOTALS:	$1,836	$845	46.0%	**$2,681**		$1,895	$872	$2,766			$2,259	$1,039	$3,298
01	LANDS AND DAMAGES	$127	$38	30.0%	$165	3.2%	$131	$39	$171	2028Q4	19.2%	$156	$47	$203
30	PLANNING, ENGINEERING & DESIGN													
2.5%	Project Management	$46	$21	46.0%	$67	2.5%	$47	$22	$69	2026Q4	9.7%	$52	$24	$75
2.0%	Planning & Environmental Compliance	$37	$17	46.0%	$54	2.5%	$38	$17	$55	2026Q4	9.7%	$41	$19	$60
15.5%	Engineering & Design	$285	$131	46.0%	$416	2.5%	$292	$134	$426	2026Q4	9.7%	$320	$147	$467
1.3%	Reviews, ATRs, IEPRs, VE	$23	$11	46.0%	$34	2.5%	$24	$11	$34	2026Q4	9.7%	$26	$12	$38
1.3%	Life Cycle Updates (cost, schedule, risks)	$24	$11	46.0%	$35	2.5%	$24	$11	$36	2026Q4	9.7%	$27	$12	$39
0.8%	Contracting & Reprographics	$14	$6	46.0%	$20	2.5%	$14	$6	$21	2026Q4	9.7%	$15	$7	$23
3.0%	Engineering During Construction	$55	$25	46.0%	$80	2.5%	$56	$26	$82	2028Q4	15.3%	$65	$30	$95
0.5%	Planning During Construction	$9	$4	46.0%	$13	2.5%	$9	$4	$14	2028Q4	15.3%	$11	$5	$16
1.0%	Adaptive Management & Monitoring	$18	$8	46.0%	$27	2.5%	$19	$9	$27	2028Q4	15.3%	$22	$10	$32
0.0%	Project Operations	$0	$0	46.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0

31	CONSTRUCTION MANAGEMENT													
7.5%	Construction Management	$138	$63	46.0%	$201	2.5%	$141	$65	$206	2028Q4	15.3%	$163	$75	$238
0.0%	Project Operation:	$0	$0	46.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
2.5%	Project Management	$46	$21	46.0%	$67	2.5%	$47	$22	$69	2028Q4	15.3%	$54	$25	$79
	CONTRACT COST TOTALS:	$2,658	$1,202		**$3,860**		$2,737	$1,238	**$3,976**			$3,211	$1,452	**$4,664**

****** CONTRACT COST SUMMARY ******

PROJECT: Baltimore City Storm Risk Management Structural Plan
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This Estimate reflects the scope and schedule in report; METRO WASHINGTON, Baltimore City STORM RISK MANAGEMENT FEASIBILITY STUDY

DISTRICT: NAB District
POC: CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey
PREPARED: 3/15/2022

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared:			22-Feb-22	Program Year (Budget EC):			2023					
		Effective Price Level:			1-Oct-21	Effective Price Level Date:			1 OCT 22	FULLY FUNDED PROJECT ESTIMATE				
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Mid-Point Date	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*P*	*L*	*M*	*N*	*O*
	Inner Harbor [MA 10]													
02	RELOCATIONS	$10,200	$4,692	46.0%	$14,892	3.2%	$10,523	$4,841	$15,364	2027Q4	15.6%	$12,170	$5,598	$17,768
11	LEVEES & FLOODWALLS	$57,663	$26,525	46.0%	$84,188	3.2%	$59,492	$27,366	$86,858	2027Q4	15.6%	$68,800	$31,648	$100,449
13	PUMPING PLANT	$40,161	$18,474	46.0%	$58,635	3.2%	$41,435	$19,060	$60,495	2027Q4	15.6%	$47,918	$22,042	$69,960
15	FLOODWAY CONTROL & DIVERSION STRUCTU	$4,174	$1,920	46.0%	$6,094	3.2%	$4,306	$1,981	$6,287	2027Q4	15.6%	$4,980	$2,291	$7,271
18	CULTURAL RESOURCE PRESERVATION	$1,122	$516	46.0%	$1,638	3.2%	$1,158	$532	$1,690	2027Q4	15.6%	$1,339	$616	$1,954
	CONSTRUCTION ESTIMATE TOTALS:	$113,320	$52,127	46.0%	**$165,447**		$116,914	$53,781	$170,695			$135,207	$62,195	$197,403
01	LANDS AND DAMAGES	$7,846	$2,354	30.0%	$10,200	3.2%	$8,095	$2,428	$10,523	2027Q4	15.6%	$9,361	$2,808	$12,170
30	PLANNING, ENGINEERING & DESIGN													
2.5%	Project Management	$2,833	$1,303	46.0%	$4,136	2.5%	$2,904	$1,336	$4,240	2026Q4	9.7%	$3,186	$1,465	$4,651
2.0%	Planning & Environmental Compliance	$2,266	$1,043	46.0%	$3,309	2.5%	$2,323	$1,069	$3,392	2026Q4	9.7%	$2,548	$1,172	$3,721
15.5%	Engineering & Design	$17,565	$8,080	46.0%	$25,644	2.5%	$18,004	$8,282	$26,285	2026Q4	9.7%	$19,751	$9,085	$28,836
1.3%	Reviews, ATRs, IEPRs, VE	$1,416	$652	46.0%	$2,068	2.5%	$1,452	$668	$2,120	2026Q4	9.7%	$1,593	$733	$2,325
1.3%	Life Cycle Updates (cost, schedule, risks)	$1,473	$678	46.0%	$2,151	2.5%	$1,510	$695	$2,205	2026Q4	9.7%	$1,657	$762	$2,419
0.8%	Contracting & Reprographics	$850	$391	46.0%	$1,241	2.5%	$871	$401	$1,272	2026Q4	9.7%	$956	$440	$1,395
3.0%	Engineering During Construction	$3,400	$1,564	46.0%	$4,963	2.5%	$3,485	$1,603	$5,087	2027Q4	12.4%	$3,918	$1,802	$5,721
0.5%	Planning During Construction	$567	$261	46.0%	$827	2.5%	$581	$267	$848	2027Q4	12.4%	$653	$300	$953
1.0%	Adaptive Management & Monitoring	$1,133	$521	46.0%	$1,654	2.5%	$1,162	$534	$1,696	2027Q4	12.4%	$1,306	$601	$1,907
0.0%	Project Operations	$0	$0	46.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
31	CONSTRUCTION MANAGEMENT													
7.5%	Construction Management	$8,499	$3,910	46.0%	$12,409	2.5%	$8,711	$4,007	$12,719	2027Q4	12.4%	$9,796	$4,506	$14,302
0.0%	Project Operation:	$0	$0	46.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
2.5%	Project Management	$2,833	$1,303	46.0%	$4,136	2.5%	$2,904	$1,336	$4,240	2027Q4	12.4%	$3,265	$1,502	$4,767
	CONTRACT COST TOTALS:	$164,001	$74,185		**$238,186**		$168,915	$76,406	**$245,321**			$193,197	$87,373	**$280,570**

****** CONTRACT COST SUMMARY ******

PROJECT: Baltimore City Storm Risk Management Structural Plan
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This Estimate reflects the scope and schedule in report; METRO WASHINGTON, Baltimore City STORM RISK MANAGEMENT FEASIBILITY STUDY

DISTRICT: NAB District
POC: CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey
PREPARED: 3/15/2022

Total Project Cost Summary

B-1. General.

A Total Project Cost Summary (TPCS) is required for all civil works cost estimates submitted for approval at all levels within the U.S. Army Corps of Engineers (Corps). The summary and supporting contract cost sheets are the basis for the official Project Cost Estimate (PB-3) ER 11-2-240. It is a living document, developed from feasibility to project completion to present current working estimate (cost, schedule (escalation), risks (contingencies). The TPCS must consider current escalation tables, which are updated twice annually: March and September.

The TPC reflects all applicable project feature costs, contingencies, escalation to Project First Cost and inflation to Fully Funded Project Costs and is presented in Federal and non-Federal dollars. The TPC emerges when the TPCS form is completed (shown in Figures B-2). The TPCS is a PDT product. While the cost engineer prepares the basic elements of the form, the PM, Real Estate and Construction offices play a major role in establishing Program Year, Federal and non-Federal shares, spent costs, 01 Lands and Damages, 30 PED and 31 Construction Management values.

For the cost engineer, the Total Project Cost form is developed and presented with three different estimates over time: Estimated Cost (Price Level), Project First Cost - Constant Dollar, and Total Project Cost – Fully Funded (reference Figure B-2)

i. Estimated Cost (Effective Price Level) (TPCS columns C through F) is the current developed cost estimate which includes contingencies. The effective price level date for Estimated Cost (shown in DAY MONTH YYYY format) is commonly reported as the previous 1 Oct 20XX to support economic study and escalation to Project First Cost

ii. Project First Cost - Constant Dollar Cost (TPCS columns G through K) is the Estimated Cost then escalated to the PROGRAM YEAR effective price level by applying the appropriate escalation from the CWCCIS tables. The Project First Cost - Constant Dollar (shown in 1 OCT 20XX) is the cost estimate used in feasibility reports and Chief of Engineer's Report (Chief's Report) for Congressional funding requests

iii. Total Project Cost (TPCS columns L through O) is the FULLY FUNDED WITH INFLATION to represent the total cost of the project. The inflation to midpoint of each activity is added from the Project First Cost column set. Total Project Cost (or Total Cost of Construction of GNFs when discussing navigation projects) is the cost estimate used in Project Partnership Agreements and Integral Determination Reports. Total Project Cost is the cost estimate provided to non-Federal sponsors for their use in financial planning as it provides information regarding the overall non-Federal cost

The Project First Cost – Constant Dollar Cost estimate is to be used in the Chief's Reports and other decision documents to support the funding request. The Project First Cost should include, among other things, an estimate of: (i) construction and management costs, including both Federal costs and non-Federal sponsor in-kind contributions, as applicable; (ii) planning engineering and design costs; (iii) lands, easements, rights-of-way, relocations and dredged materials (LERRD) values; and (iv) contingencies. Where several years elapse between the signing of the Chief's Report and the consideration of legislation to authorize a project, the Project First Cost must be updated to reflect the current Project First Cost date for Congressional funding consideration, in accordance with ER 1110-2-1302.

Figure B-1 illustrates the TPC process. Figures B-2 (summary sheet) and B-3 (sample supporting sheet) are examples based upon feasibility estimate reporting requirements in Engineer Regulation (ER) 1105-2-100, Planning Guidance Notebook. "Two project cost estimates shall be displayed in the feasibility report; one based on constant dollars and one based on projected inflation rates." The guidance notebook is referring to the Project First Cost and the Total Project Cost columns J and O. The TPCS (summary sheet) is a signature document for the appropriate district managerial approvals. ER 1105-2-100 states that project cost estimates will be prepared by or reviewed by the cost engineering office in the district and the chief of that office will sign the estimate. Real estate estimates included in the project cost are reviewed, approved, and signed by the chief or designee of the real estate office. Project Management is the third required signature that assumes responsibility for the TPCS value. Figure B-2 also lists other review/approval signatures that may be a district requirement.

Preparing a TPC during the feasibility phase is required, because it is the first document that will show the estimated total project cost at the anticipated authorizing budget year and forecast the total project cost inflated through construction based on the known scope and schedule.

B-2. Sample TPCS (Figure B-2) is in a spreadsheet format beginning with the total project cost summary followed by contract cost summary supporting sheets appearing like Figure B-3. The TPCS template can be downloaded from the Cost MCX website.

B-3. TPCS Form Procedures
a. Estimated Cost (Price Level)
TPCS Headers: Ensure the form presents the formal project name. project number. location. author and date.

Column A: WBS Number – Enter the Civil Works Breakdown code for each feature (refer to the Civil Works Work Breakdown Structure Appendix).

Column B: Civil Works Feature and Sub-Feature Description - For the summary sheet Figure B-2, enter the feature code title. For the supporting sheets like Figure B-3, enter and identify the project phase, contract, etc. as well as the CWWBS description of the item. For Figure B-3, separate lines for the same WBS element may be prudent, pending certain programs or presentations desired. The various phases or contracts on the Figure B-3 sheets is to make distinction between varying schedules of occurrence, associated escalation and risks (contingencies).

The first primary column set, sub columns C through F, is the estimated cost plus contingencies, typically in current or most recent estimated dollars (must be less than 2 years old) that includes all feature accounts: the MCACES construction estimate(s), estimates for lands and damages, preconstruction, engineering and design, and construction management. The following paragraphs are instructions for completing data entry for each scheduled contract (figure B-2 and B-3). Figure B-2 serves as the summary roll-up from the supporting sheets such as Figure B-3.

Column C: COST- Entered in this column are the estimates of those costs that require funding or are remaining costs yet to incur. The costs should reflect the actual estimated costs in $1000s based on the previous October price level that the estimate was prepared. Note: For the Real Estate estimate, ensure the estimate is recent and the contingencies (incremental costs) are separated from the appraisal quote for presentation in the contingency column.

Column D: CNTG (contingency) - This is the dollar amount of contingency determined from a risk-based analysis. It is the result of Column C times the entered contingency percent in Column E or an actual amount determined by a cost risk analysis.

Column E: CNTG % (contingency percentage) - Enter the percentage of contingency (from risk analysis). For 30 and 31 accounts you may want to use the average of the construction element contingencies in lieu of developing a separate contingency. For 01 Lands and Damages, the Chief of Real Estate is responsible to provide a signed estimate of costs and should be able to provide contingency data, also referred to as incremental costs. Ensure that the real estate contingency is separated from the real estate estimate and presented separately as contingency. Contingency is the full dollar value of the various features, converted to a contingency. Reliance solely on a per cent value can induce errors when differing contingency sources such as real estate are also used.

Column F: TOTAL - This is the sum of columns C and D.

b. Project First Cost – Constant Dollar.
The second primary column set is the Project First Cost, also known as the Constant Dollar total. This totaled cost is the one reflected in all Chief's reports for requested funding: effective price level for the year of the Chief's Report submissions. Typically the year of the report submission is the year prior to the anticipated funding. This total can become more complicated for ongoing projects with spent costs that require additional funding.

Column G: - ESC (escalation) This column is the percentage of escalation from the first column set to the PROGRAM YEAR DATE. This moves the estimate cost from the price level when it was prepared to the Program Year price on a constant dollar basis. This escalation is calculated utilizing the Civil Works Construction Cost Index System (CWCCIS) found in EM 1110-2-1304. The CWCCIS is a reflection of the OMB projected rates for future costs, experienced inflation for past costs for each of the Feature categories. The escalation tables are updated twice annually: March and September. To determine the escalation percent, locate the CWCCIS index factors of the Feature account or element for the 1st quarter date of the program year and divide by the index factor of the established or initial estimate date (no less than 2 years old). Subtract value of 1 and multiply by 100 to obtain the percent escalation.

Column H: COST - This is the cost from Column C with the added percent of escalation computed in Column G.

Estimated Cost to Project First Cost

EPL Estimate + Continuency (1 Oct 20XX) Risk Based (Current Dollars)	+	Contingen (risk	x	Cost Index (Budget Yea	=	**Project First Cost Budget Yea**				
				Cost Index (EPL - Current Estimate)		**Constant Dollars**				

Column I: CNTG (contingency) - This is the Contingency value from Column D with the added escalation determined in Column G.
Column J: TOTAL- This is the sum of Columns H and I. This is the constant dollar estimate at PROGRAM YEAR price level, 1 October, also referred to as Project First Cost, excluding any project spent costs. within the Chief's Report. For ongoing projects, the Project First Cost would include Spent Costs to reflect total first costs for the project.
SPENT THRU - Enter the amount of EXPENDED Federal funds for each Feature (this information is commonly obtained from project or program managers. Caution here is advised. If these funds have been expended by a sponsor, but the Government has not yet spent reflective Federal funds, those costs must remain in the Project First Costs, excluding escalation and contingencies. The spent costs of FEDERAL project dollars, already received and expended, is entered as actual amount spent in the year it was spent. The year of the expenditure must exclude inflation and contingencies because no further inflation or risks on these costs can occur. This is entered on the TPCS (figure B- 2) (PAGE 1) only.
c. Total Project Cost (Fully Funded with Inflation).
The third primary column of the TPCS is the total project cost estimate inflated through project completion, which is the second cost estimate referred to from the Planning Guidance Notebook. For financial analysis, an inflated dollar basis is to be used for the sponsor's information. Reasonably accurate and complete cost estimates and schedules are necessary for the Federal Government and the non-Federal sponsors to make prudent financial and budgetary decisions in obtaining and expending funds.
The project schedule is used to forecast when project elements will begin and the duration of each element. Knowing how each activity/element is funded and its respective duration will illustrate when the costs are expected to occur. In cases where multiple construction contracts or phases are planned, each should be addressed separately to present a more realistic escalation to design and construction midpoints for each contract. It is recommended that separate contracts be presented as a subset spreadsheet with values that roll up to the summary level total (Figure B-1).

Column L: INFLATED – This is the inflation percentage from PROGRAM YEAR price level to the MIDPOINT of the performance period of each Feature item. Midpoint dates are determined from the Project Schedule. The amount shown in the column is the percentage of increase.
For construction contracts and other project elements having a relatively short duration, choosing an index coinciding with the midpoint of the duration may be adequate to escalate the costs for inflation. Also, activities/elements that are primarily level of effort, where costs are relatively consistent throughout the duration, a date at the midpoint of the duration is usually adequate to select the CWCCIS index to inflate the activity/element cost.

Project First Cost

Budget Year x

Constant Dollars

Cost Index (Midpt of Activity	=	**ully Funded**				
Cost Index (Budget Year)						

m. Column M: COST- Is the cost from Column H with midpoint inflation added from the CWCCIS calculations (column L).

n. Column N: CNTG (contingency) - This is the Contingency dollar value from Column I with the added inflation factor (column L).
o. Column O: FULL (fully funded amount) Is the fully funded estimate amount for the Item (Column M + Column N + Spent Costs). The overall summation of column O on the TPCS (Figure B-2) is the TOTAL PROJECT COST ESTIMATE inflated through the Project Schedule midpoint for each separate activity.
o. Column P: Found on the succeeding sheets. such as Figure B-3. for the TPC summary. the column presents the midpoint date for the inflated value for each Feature.

The costs of water resources studies and projects developed by the Corps are shared between Federal and non-Federal entities as defined in laws and administrative provisions. The Water Resources Development Act of 1986, established new cost sharing rules for all studies and projects conducted by the Corps. The cost sharing provisions of the Water Resources Development Act of 1986 place greater financial responsibilities on non-Federal sponsors of Corps projects. The amount of non-Federal share varies depending upon the project purpose and the general and specific laws that apply to each project. Coordination with Project and Program Management is required to clarify this share percentage. Cost sharing can and does change over time.

The total project cost inflated through construction is divided into Federal cost and non-Federal cost. The non-Federal cost is for the sponsor's information and financial analysis. The cost engineer must coordinate with the project manager to determine the appropriate cost sharing percentages applicable to the project. To illustrate, the cost of feasibility studies is shared equally (50/50) and the remaining project cost may be shared 25 percent non-Federal cost and 75 percent Federal cost. Guidance on cost sharing for each civil works mission and authority is presented in ER 1105-2-100 and coordination with the project manager is necessary.

B-4. Section 902 Project Cost Limit.
When appropriate for authorized projects spanning several years, the TPCS is updated annually for comparison to the Section 902 project cost limit. It can be computed and presented on the updated TPCS to serve as a current working estimate.
The maximum project cost limit imposed by Section 902 is a numerical value specified by law, which must be computed in a legally supportable manner. It is not an estimate of the current cost of the project. The construction component of the authorized cost will be updated to account for current scope, quantities, costs, schedules and risks and applying escalation using the current CWCCIS escalation tables. The real estate component of the authorized cost will be updated to account for historical inflation based on changes to the Consumer Price Index. ER 1105-2-100, appendix G, paragraph G-15a provides detailed guidance on the calculations necessary to determine the numerical value.

DISTRICT	NAB District
PROJECT NAME	Baltimore City Storm Risk Management Structural Plan
PROJECT NUMBER	
PROJECT LOCATION	MD
PROGRAM YEAR	2023
ESTIMATE PREPARED DATE	2/22/2022
DATE TPCS PREPARED	3/15/2022
ENGINEERING REPORT AS BASIS	METRO WASHINGTON, Baltimore City STORM RISK MANAGEME

ENGINEERING & DESIGN PHASE -> 30 ACCOUNT		% of Construct	Districts % Vary	30/31 Accounts			
PROJECT MANAGER, Katherine Perkins	Program Management:	2.5%	2.50%	30.0	27.8%	Sum per % of 30 Account	Project Management
CHIEF, DPM, David B. Morrow				30.0			Planning & Environmental Compliance
CHIEF, PLANNING, Amy M. Guise	Planning & Environmental Compliance:	1.0%	2.00%	30.0			Engineering & Design
CHIEF, ENGINEERING, Mary P. Foutz	Engineering & Design:	15.0%	15.50%	30.0			Reviews, ATRs, IEPRs, VE
CHIEF, Estimating and Specs Section, Parris J. McGhee-Be	Reviews, ATRs, IEPRs, VE:	1.0%	1.25%	30.0			Life Cycle Updates (cost, schedule, risks)
CHIEF, ENGINEERING, Mary P. Foutz	Life Cycle Updates (cost, schedule, risks):	1.0%	1.30%	30.0			Contracting & Reprographics
	Contracting & Reprographics:	1.0%	0.75%	30.0			Engineering During Construction
CHIEF, CONTRACTING, Paula M. Beck	Engineering During Construction:	3.0%	3.00%	30.0			Planning During Construction
CHIEF, ENGINEERING, Mary P. Foutz	Planning During Construction	2.0%	0.50%	30.0		Escalate to Mid Point Construction	Adaptive Management & Monitoring
CHIEF, PLANNING, Amy M. Guise	Adaptive Mgmt & Monitoring:	1.0%	1.00%	30.0			
CHIEF, OPERATIONS, Patrick G. Findlay	Project Operations	1.0%	0.00%	31.0			

CONSTRUCTION PHASE -> 31 ACCOUNT						
CHIEF, CONSTRUCTION, Jeff J. Werner	Supervision & Assurance:	10.0%	7.50%	31.0	10.0%	Sum per % of 31 Account
CHIEF, OPERATIONS, Patrick G. Findlay	Project Operation:	2.0%	0.00%	30.0		
CHIEF, DPM, David B. Morrow	Program Management:	2.5%	2.50%	31.0		
					37.8%	Sum per % of 30 & 31 Accounts

REAL ESTATE -> 01 ACCOUNT

CHIEF, REAL ESTATE, Benjamin Rooney

CULTURAL RESOURCES -> 18 ACCOUNT

CHIEF, PLANNING, Amy M. Guise

SPENT THRU FYXX COSTS

CHIEF, PP-C, Justin Callahan

		Design Start Date	**10/1/2024**	
Martin State Airport Rd Ele. - Wilson Rd [MA 2]		midpoint =	2/3/2027	factored in half of 80% confidence schedule contingency
		duration	0.75 yr	
Land and Damages	1,494,500			
Relocation	1,494,500			
Levees	5,036,000			
Floodwalls				
Floodway Control - Diversion Structures				
Pump Stations	9,909,000			
Martin State Airport Rd Ele. - Lynbrooke Rd [MA 3]		midpoint =	7/21/2027	factored in half of 80% confidence schedule contingency
Land and Damages	26,500	duration	0.25 yr	
Relocation	26,500			
Levees	265,000			
Floodwalls				
Floodway Control - Diversion Structures				
Patapsco North Seagrit Terminal [MA 7]		midpoint =	9/1/2027	factored in half of 80% confidence schedule contingency
Land and Damages	4,192,900	duration	1 yr	
Relocation	4,192,900			
Levees				
Floodwalls	41,929,000			
Floodway Control - Diversion Structures				
Patapsco North Canton Ventilation Building [MA 8]		midpoint =	9/13/2028	factored in half of 80% confidence schedule contingency
Land and Damages	165,300	duration	0.25 yr	
Relocation	165,300			
Levees				
Floodwalls	1,591,000			
Floodway Control - Diversion Structures	62,000			
Inner Harbor [MA 10]		midpoint =	9/1/2027	factored in half of 80% confidence schedule contingency
Land and Damages	10,199,800	duration	2 yr	
Relocation	10,199,800			
Levees				
Floodwalls	57,663,000			
Floodway Control - Diversion Structures	4,174,000			
Pump Stations	40,161,000			
Inner Harbor [MA 11]		midpoint =	7/4/2029	factored in half of 80% confidence schedule contingency
		duration	2 yr	
Land and Damages	5,039,200			
Relocation	5,039,200			
Levees				
Floodwalls	34,572,000			
Floodway Control - Diversion Structures	1,660,000			
Pump Stations	14,160,000			
Inner Harbor [MA 12]		midpoint =	10/9/2030	factored in half of 80% confidence schedule contingency
Land and Damages	1,057,900	duration	0.75 yr	
Relocation	1,057,900			
Levees				
Floodwalls	9,644,000			
Floodway Control - Diversion Structures	935,000			
Inner Harbor [MA 13]		midpoint =	3/26/2031	factored in half of 80% confidence schedule contingency
Land and Damages	211,100	duration	0.25 yr	
Relocation	211,100			
Levees				
Floodwalls	1,804,000			
Floodway Control - Diversion Structures	307,000			
Locust Point West [MA 15]		midpoint =	9/1/2027	factored in half of 80% confidence schedule contingency
Land and Damages	1,417,800	duration	1 yr	
Relocation	1,417,800			
Levees				
Floodwalls	12,772,000			

Floodway Control - Diversion Structures	881,000			
Pump Stations	525,000			
Locus Point North [MA 16}		midpoint =	12/23/2026	factored in half of 80% confidence schedule contingency
Land and Damages	458,100	duration	0.5 yr	
Relocation	458,100			
Levees				
Floodwalls	3,244,000			
Floodway Control - Diversion Structures	812,000			
Pump Stations	525,000			
Locus Point Ft McHenry [MA 17]		midpoint =	11/24/2027	factored in half of 80% confidence schedule contingency
		duration	0.5 yr	
Land and Damages	799,000			
Relocation	799,000			
Levees				
Floodwalls	7,055,000			
Floodway Control - Diversion Structures	410,000			
Pump Stations	525,000			
Locus Point West Ventilation Building [MA 18]		midpoint =	10/29/2026	factored in half of 80% confidence schedule contingency
Land and Damages	162,200	duration	0.1666 yr	
Relocation	162,200			
Levees				
Floodwalls	1,570,000			
Floodway Control - Diversion Structures	52,000			
Locus Point I95 Fort McHenry Tunnel [MA 19]		midpoint =	3/17/2027	factored in half of 80% confidence schedule contingency
Land and Damages	1,177,700	duration	1 yr	
Relocation	1,177,700			
Levees				
Floodwalls	10,931,000			
Floodway Control - Diversion Structures	846,000			
Middle Branch Incinerator [MA 21]		midpoint =	12/23/2026	factored in half of 80% confidence schedule contingency
Land and Damages	600,200	duration	0.5 yr	
Relocation	600,200			
Levees				
Floodwalls	5,740,000			
Floodway Control - Diversion Structures	262,000			
Patapsco South - Baltimore Harbor Tunnel [MA 24]		midpoint =	3/17/2027	factored in half of 80% confidence schedule contingency
Land and Damages	789,700	duration	1 yr	
Relocation	789,700			
Levees	-			
Floodwalls	7,678,000			
Floodway Control - Diversion Structures	219,000			

Total account 18	3,057,109.00	3,057.11	-
Total account 11	201,494,000.00	201,494.00	-
Total account 15	10,620,000.00	10,620.00	-
Total account 13	65,805,000.00	65,805.00	-
Total account 02	27,791,900.00	27,791.90	-
Total account 01	21,378,384.62	21,378.38	-
Total account 30	85,837,506.50	85,837.51	-
Total account 31	30,876,800.90	30,876.80	-
Total of construction accounts, w/o acc 18	**305,710,900**		
Total of all accounts	**446,860,701.02**		-

Estimated Cost (Price Level) is the initially developed cost estimate which includes contingencies. The effective price level date for Estimated Cost (shown in MONTH YYYY format) is usually the date of preparation of the cost estimate.

Project First Cost (Constant Dollar Cost) (Price Level) is the Estimated Cost BROUGHT TO THE EFFECTIVE PRICE LEVEL. The effective price level for Constant Dollar Cost (shown in MONTH YYYY format) is the date of the common point in time of the pricing used in the cost estimate. Constant Dollar Cost does not include inflation. Constant Dollar Cost at current price levels is the cost estimate used in feasibility reports and Chief's Reports (see paragraphs 5(a) and 5(b) below). THE CONSTANT DOLLAR COST SHOULD BE EXPRESSED AS THE FY OF THE CHIEF'S REPORT TO ENSURE THAT THE CW PROGRAM TOTALS IN ONE FY DOLLAR TO ASA AND CONGRESS.

Total Project Cost is the Constant Dollar Cost FULLY FUNDED WITH ESCALATION to the estimated midpoint of construction. Total Project Cost (or Total Cost of Construction of GNFs when discussing navigation projects) is the cost estimate used in Project Partnership Agreements and Integral Determination Reports. Total Project Cost is the cost estimate provided non-Federal sponsors for their use in financial planning as it provides information regarding the overall non-Federal cost sharing obligation. See the enclosed tables for more detail of what is or is not included in the Total Project Cost.

Type of Program	CWBS*	Pro ect Cost Component**	Br ef Def n t on	For Chief s Report		For PPA s
				Project F rst Cost Constant Cost Estimate Oct (YYYY) Pr ce Level	Econom c Cost for BCR	Tota Pro ect Cost Fu y Funded Cost Estimate
Flood Risk Management	01,02	Lands, Easements, Rights of Way, Relocations, and Dredged Material Disposal Areas (LERRD).	Estimated value/costs of LERRD for the project (to include breakout of related Federal administrative costs).	Y	Y	Y
Flood Risk Management	02 - 20	Construction Elements	Physical Construction cost estimate broken out by Civil Works Breakdown Structure(CWBS).	Y	Y	Y
Flood Risk Management	30	Planning, Engineering, and Design (post feasibility work)	Estimated costs for post feasibility planning, engineering, and design for the project. This cost should include the estimate of Preconstruction Engineering and Design (PED) phase costs as well as the planning, engineering, and design costs during the construction phase to complete the project.	Y	Y	Y
Flood Risk Management	31	Construction Management	Estimated costs for construction management of project	Y	Y	Y
Flood Risk Management		Fish and Wildlife Mitigation	Estimated costs of Mitigation	Y	Y	Y
Flood Risk Management	18	Cultural Mitigation	Estimated costs of Mitigation	Y	Y***	Y
Flood Risk Management	By project element	Contingency	This is the Risk Based contingency established for the project.	Y	Y	Y
Flood Risk Management	By project element	Interest During Construction (IDC)	Estimate of interest accumulated during construction(Economic cost)	N	Y	Y
Flood Risk Management	By project element	Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R)	Annualized estimate of Operation, Maintenance, Replacement and Rehabilitation cost.	N	Y	N
Flood Risk Management	By project element	Inflation through midpoint construction	Estimate of inflation using appropriate Civil Works Construction Cost Index System (CWCCIS) factors applied to the Constant Dollar Cost	N	N	Y
Flood Risk Management	By project element	Associated and Other Costs	Associated financial costs that are not part of the recommended Federal project but are a necessary non-Federal responsibility. These cost are required to be shown within the Chief's report, as a separate total but are not to be included within cost shared project cost	N	Y	Y
Ecosystem Restoration	01,02	Lands, Easements, Rights of Way, Relocations, and Dredged Material Disposal Areas (LERRD). This includes related Federal administrative costs.	Estimated value/costs of LERRD for the project (to include breakout of related Federal administrative costs).	Y	Y	Y
Ecosystem Restoration	03 - 20	Construction Elements	Physical Construction cost estimate broken out by Civil Works Breakdown Structure(CWBS).	Y	Y	Y
Ecosystem Restoration	30	Planning, Engineering, and Design (post feasibility work)	Estimated costs for post feasibility planning, engineering, and design for the project. This cost should include the estimate of Preconstruction Engineering and Design (PED) phase costs as well as the planning, engineering, and design costs during the construction phase to complete the project.	Y	Y	Y
Ecosystem Restoration	31	Construction Management	Estimated costs for construction management of project	Y	Y	Y
Ecosystem Restoration		Fish and Wildlife Mitigation	Estimated costs of Mitigation	Y	Y	Y
Ecosystem Restoration	18	Cultural Mitigation	Estimated costs of Mitigation	Y	Y***	Y
Ecosystem Restoration	By project element	Monitoring and Adaptive Management	This represents the estimated costs of monitoring and or adaptive management to be cost shared for the project.	Y	Y	Y
Ecosystem Restoration	By project element	Contingency	This is the Risk Based contingency established for the project.	Y	Y	Y
Ecosystem Restoration	By project element	Interest During Construction (IDC)	Estimate of interest accumulated during construction(Economic cost)	N	Y	Y
Ecosystem Restoration	By project element	Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R)	Annualized estimate of Operation, Maintenance, Replacement and Rehabilitation cost.	N	Y	N
Ecosystem Restoration	By project element	Inflation through midpoint construction	Estimate of inflation using appropriate Civil Works Construction Cost Index System (CWCCIS) factors applied to the Constant Dollar Cost	N	N	Y
Ecosystem Restoration		Associated and Other Costs	Associated financial costs that are not part of the recommended Federal project but are a necessary non-Federal responsibility. These cost are required to be shown within the Chief's report, as a separate total but are not to be included within the cost shared project cost	N	Y	Y
Navigation and Harbors	01,02	Lands, Easements, Rights of Way, Relocations (LERR). This includes related Federal costs.	Estimated value/costs of LERR (to include breakout of related Federal administrative costs).	Y	Y	Y
Navigation and Harbors	03 - 20	Construction Elements (General Navigation Features)	Physical Construction cost estimate broken out by Civil Works Breakdown Structure(CWBS).	Y	Y	Y
Navigation and Harbors	30	Planning, Engineering, and Design (post feasibility work)	Estimated costs for post feasibility planning, engineering, and design for the project. This cost should include the estimate of Preconstruction Engineering and Design (PED) phase costs as well as the planning, engineering, and design costs during the construction phase to complete the project.	Y	Y	Y
Navigation and Harbors	31	Construction Management	Estimated costs for construction management of project	Y	Y	Y
Navigation and Harbors		Fish and Wildlife Mitigation	Estimated costs of Mitigation	Y	Y	Y
Navigation and Harbors	18	Cultural Mitigation	Estimated costs of Mitigation	Y	Y***	Y
Navigation and Harbors	By project element	Contingency	This is the Risk Based contingency established for the project.	Y	Y	Y
Navigation and Harbors	By project element	Interest During Construction (IDC)	Estimate of interest accumulated during construction(Economic cost)	N	Y	Y

Navigation and Harbors	By project element	Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R)	Annualized estimate of Operation, Maintenance, Replacement and Rehabilitation cost.	N	Y	N
Navigation and Harbors	By project element	Inflation through midpoint construction	Estimate of inflation using appropriate Civil Works Construction Cost Index System (CWCCIS) factors applied to the Constant Dollar Cost	N	N	Y
Navigation and Harbors	By project element	Local Service Facilities (LSF)	For Navigation Only: This represents the estimated cost of Local Service Facilities as defined in the Planning Guidance Notebook Appendix E. These are the responsibility of the non-Federal entity and are required as part of the PCA if	N	Y	Y
Navigation and Harbors		Associated and Other Costs	Associated financial costs that are not part of the recommended Federal project but are a necessary non-Federal responsibility. These cost are required to be shown within the Chief's report, as a separate total but are not to be included within the cost shared project cost.	N	Y	Y
Inland Navigation	01,02	Lands, Easements, Rights of Way, Relocations, and Dredged Material Disposal Areas (LERRD). This includes related Federal administrative costs.	Estimated value/costs of LERRD for the project (to include breakout of related Federal administrative costs).	Y	Y	Y
Inland Navigation	03 - 20	Construction Elements (General Navigation Features)	Physical Construction cost estimate broken out by Civil Works Breakdown Structure(CWBS).	Y	Y	Y
Inland Navigation	30	Planning, Engineering, and Design (post feasibility work)	Estimated costs for post feasibility planning, engineering, and design for the project. This cost should include the estimate of Preconstruction Engineering and Design (PED) phase costs as well as the planning, engineering, and design	Y	Y	Y
Inland Navigation	31	Construction Management	Estimated costs for construction management of project	Y	Y	Y
Inland Navigation		Fish and Wildlife Mitigation	Estimated costs of Mitigation	Y	Y	Y
Inland Navigation	18	Cultural Mitigation	Estimated costs of Mitigation	Y	Y***	Y
Inland Navigation	By project element	Contingency	This is the Risk Based contingency established for the project.	Y	Y	Y
Inland Navigation	By project element	Interest During Construction (IDC)	Estimate of interest accumulated during construction(Economic cost)	N	Y	Y
Inland Navigation	By project element	Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R)	Annualized estimate of Operation, Maintenance, Replacement and Rehabilitation cost.	N	Y	N
Inland Navigation	By project element	Inflation through midpoint construction	Estimate of inflation using appropriate Civil Works Construction Cost Index System (CWCCIS) factors applied to the Constant Dollar Cost	N	N	Y
Inland Navigation	By project element	Local Service Facilities (LSF)	For Navigation Only: This represents the estimated cost of Local Service Facilities as defined in the Planning Guidance Notebook Appendix E. These are the responsibility of the non-Federal entity and are required as part of the PCA if	N	Y	Y
Inland Navigation		Associated and Other Costs	Associated financial costs that are not part of the recommended Federal project but are a necessary non-Federal responsibility. These cost are required to be shown within the Chief's report, as a separate total but are not to be included	N	Y	Y
COASTAL STORM	01,02	Lands, Easements, Rights of Way, Relocations, and Dredged Material Disposal Areas (LERRD). This includes related Federal administrative costs.	Estimated value/costs of LERRD for the project (to include breakout of related Federal administrative costs).	Y	Y	Y
COASTAL STORM	03 - 20	Construction Elements	Physical Construction cost estimate broken out by Civil Works Breakdown Structure(CWBS).	Y	Y	Y
COASTAL STORM	30	Planning, Engineering, and Design (post feasibility work)	Estimated costs for post feasibility planning, engineering, and design for the project. This cost should include the estimate of Preconstruction Engineering and Design (PED) phase costs as well as the planning, engineering, and design	Y	Y	Y
COASTAL STORM	31	Construction Management	Estimated costs for construction management of project	Y	Y	Y
COASTAL STORM		Fish and Wildlife Mitigation	Estimated costs of Mitigation	Y	Y	Y
COASTAL STORM	18	Cultural Mitigation	Estimated costs of Mitigation	Y	Y***	Y
COASTAL STORM	By project element	Monitoring and Adaptive Management	This represents the estimated costs of monitoring and or adaptive management to be cost shared for the project.	Y	Y	Y
COASTAL STORM	By project element	Contingency	This is the Risk Based contingency established for the project.	Y	Y	Y
COASTAL STORM	By project element	Continued Construction (periodic nourishment)	For Hurricane and Storm Damage Reduction Only: Estimate of Allowable Periodic Average future construction cost submitted for authorization.	Y	Y	Y
COASTAL STORM	By project element	Interest During Construction (IDC)	Estimate of interest accumulated during construction(Economic cost)	N	Y	Y
COASTAL STORM	By project element	Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R)	Annualized estimate of Operation, Maintenance, Replacement and Rehabilitation cost.	N	Y	N
COASTAL STORM		Inflation through midpoint construction	Estimate of inflation using appropriate Civil Works Construction Cost Index System (CWCCIS) factors applied to the Constant Dollar Cost	N	N	Y
COASTAL STORM		Associated and Other Costs	Associated financial costs that are not part of the recommended Federal project but are a necessary non-Federal responsibility. These cost are required to be shown within the Chief's report, as a separate total but are not to be included within the cost shared project cost.	N	Y	Y

Feature Code Definitions

CWBS	Def n t ons
01 Lands and Damages	This feature includes all costs of acquiring for the project (by purchase or condemnation) real property or permanent interests therein, including Government costs, damages, and costs of disposal of real estate. Government costs include planning expenses for the real estate portion of the General Design Memo and for the detailed Real Estate Memo; and project real estate office administration, surveys, and marking for land acquisition purposes and appraisals. For projects which require that costs be incurred on real estate activities, i.e., for records search, appraisals, and field inspection to assure compliance by local interests in the provision of local requirements on projects where no Federal land acquisition is involved, a memorandum statement will be provided with the PB-3 indicating the estimated costs of such real estate activities. These costs will be charged to feature 30, Engineering and Design and that feature will be properly footnoted to show the amount of such costs. A similar footnote will be shown on the PB-1's and PB-2a's for all such projects. This feature is credited with disposal receipts from sale of such items as standing crops, standing timber, structures, and improvements in place and acquired with the land. Disposal receipts from sale of excess land not turned in to the U.S. Treasury as miscellaneous receipts are credited to this feature. Lands or interests purchased for relocations and conveyed to others are included in the feature "Relocations." Temporary interests such as leases are included in the feature or distributive item benefited thereby.
02 Relocations	This feature includes removing and relocating, or reconstructing property of others, such as roads, railroads, cemeteries, utilities, buildings, and other structures; and lands or interests purchased for such relocations and conveyed to others, including real estate planning and acquisition expenses. The cost of removal of improvements from the reservoir area for disposal is included in the feature "Reservoirs." All alterations of railroad bridges in accordance with Section 3 of the 1946 Flood Control Act (22 USC 701p) are also included in this feature.
03 Reservoirs	This feature includes clearing lands in reservoirs and pools of debris, brush, trees, improvements, and structures. Any salvage, obtained by sale or disposal by the Government, of material removed in clearing operations is credited to this feature. This feature also includes bank stabilization, shoreline improvement, firebreaks, fencing, boundary line survey and marking of land which has been acquired or is to be acquired, rehabilitation of natural resources, erosion control, drainage, and rim grouting and mine sealing, etc., to prevent leakage. Site clearing, grouting, etc., incidental to and required for specific construction features is included as part of the construction features.

04 Dams	This feature includes dams and all other water collecting and storage facilities, whether man-made or natural, together with appurtenant diversion, regulation, and delivery facilities and spillways, outlet works, and power intake works, whether separate from the dam or not. In the case where the powerhouse is an integral part of the intake dam, the cost of the power intake dam is included in the feature "Power Plant." Any auxiliary dams or spillways detached from the main structures and floating trash and drift booms and barriers are included in this feature. The power intake works include such power items as forebay, penstocks, tunnels, surge tank, gates, operating equipment, and appurtenances. Service roads and service railroads on the dam are included in this feature. The additional cost of relocating highways and railroads across the dam is included in the feature "Relocations."
05 Locks	This feature includes facilities to provide for passage of waterborne traffic, including gates, valves, operating mechanisms, cribs, fills, lock walls, guide and guard walls, operating buildings, and excavation therefore. The lock structure is considered that part of the work within the limit lines extending from the upper end of the upper guide or guard walls to the lower end of the lower guide or guard walls, including dolphins within the lock approaches for tie up, guard, or guide purposes. Excavation or dredging• required in approaches outside of the limits defined above for the lock structure is included in the feature "Channels and Canals." The cost of a cofferdam or the properly allocable amount thereof, if required, is charged to this feature. Locks provided in connection with facilities for the prevention of encroachment of salt water are included in this feature. Locks in connection with fish facilities are included in the feature "Fish and Wildlife Facilities."
06 Fish and Wildlife Facilities	This feature includes items such as ladders, elevators, locks and related facilities for passage of fish at dams and navigation locks and maintenance of fish runs; and provision for wildlife preservation.
07 Power Plant	This feature includes those facilities specifically required for the production of power other than those included in the feature "Dams," and consists of the following: powerhouse, turbines and governors, generators, accessory electrical equipment, miscellaneous power plant equipment, switchyard, and tailrace improvement for power. In the case where the powerhouse is an integral part of the power intake dam, the cost of the power intake dam is included in this feature. Where the structure of a dam also forms the foundation of the powerhouse, such foundation is considered a part of the dam. Units for production of power for the operation only of power for the operation only of navigation, flood control, or other purpose projects (excluding those projects with power as a feature) are included in other than this feature. The cost of a cofferdam or appropriate part is charged to this feature.
08 Roads, Railroads and Bridges	This feature includes permanent roads, railroads, and bridges required for access and other purposes in connection with the construction and operation of the project. This feature does not include roads, railroads, and bridges chargeable to the feature "Relocations," access roads to recreation facilities and areas, which will be charged to the feature "14. Recreation Facilities," and service roads and service railroads on structures.
09 Channels and Canals	This feature includes all forms of excavation (including dredging, preparation of spoil disposal area, and attendant facilities) necessary for the development and construction of channels, harbors, and canals for navigation purposes; and deepening, providing new, or improving existing watercourses for flood control and major drainage. Excavation of natural watercourse to provide adequate depths for navigation is included. Excavation for specific structures, such as dams and locks used in the development of waterways and conservation of water resources, is included with such structures. The removal of trees, brush, accumulated snags, drift, debris, water hyacinths and other aquatic growths from canals, harbors, and channels in navigable streams and tributaries thereof for navigational included in this feature. Excavation, clearing, and removal of accumulated snags, drifts, debris, and vegetable growth from streams for flood control and major drainage purposes also is included. Included in this feature are revetments, linings, dikes, and bulkheads constructed as channel improvement works for flood control or navigation, as against such items constructed for bank stabilization only. Also included are jetties constructed in connection with flood control channel improvements.
10 Breakwaters and Seawalls	This feature includes breakwaters, seawalls, piers, and like improvements constructed in connection with the protection of beaches, harbors, shores•, and port facilities against the force of waves and encroachment of seas or lakes by direct wave action. Jetties, groins, and like structures provided in seas, lakes, tidewater reaches of rivers and canals, and harbors to control water flow and current, to maintain depth of channels, and to provide protection, are included in this feature.
11 Levees and Floodwalls	This feature includes embankments and walls constructed to protect areas from inundation by overflow from creeks, rivers, lakes, canals, and other bodies of water. This feature consists of such items as: service roads on levee crown or landside berms, road ramps, closure structures, seepage control measures, erosion protection measures on levee slopes and on berms and bank slops when an integral part of the levees or floodwalls; and drainage facilities, constructed to provide means for the passage of accumulated drainage and seepage water and sewage from the protected area over or through levees and floodwalls, comprising such items as interceptor and collection sewers and ditches, and pressurized sewers and drainage structures, including outfalls through levees or floodwalls. Pumping plants are included in the feature "Pumping Plants." Levees locally called dikes are included in this feature.
13 Pumping Plants	This feature includes pumping plants construction to pass accumulated drainage and seepage water and sewage from the protected area over or through levees and floodwalls.
14 Recreation Facilities	This feature includes access roads; parking areas; public camping and picnicking areas, including tables and fireplaces; water supply; sanitary facilities; boat launching ramps; directional signs; and other facilities constructed primarily for public recreational use, including essential safety measures in connection therewith. The latter includes, as appropriate, sheltered anchorage areas for small craft, bathing areas readily accessible and reasonably safe, and safety provisions for visitors and fishermen in the project area. (Boat launching ramps, anchorage areas and beaches should be provided during construction to the extent they will definitely be needed and can be accomplished more economically than at a later date.)
15 Floodway Control and Diversion Structures	This feature includes floodway control and diversion structures to provide for the release of flood waters from streams where discharges exceed flood capacity of the stream, including items such as diversion dams, gated or ungated discharge structures, training walls, stilling basin, and those adjacent embankment sections forming part of the control structure. Construction of channels and levees not forming part of the main control structure, but necessary for operation of such structures is included in the appropriate feature "Channels and Canals" or "Levees and Floodwalls."
16 Bank Stabilization	This feature includes revetments, linings, training dikes, and bulkheads for stabilization of banks of watercourses to prevent erosion, sloughing, or meandering. Bank stabilization constructed in navigation channels or in connection with flood control channel improvement is included in• the feature "Channels and Canals."
17 Beach Replenishment	This feature includes replacement of eroded beaches, for purposes of recreation and shore protection, by direct deposit of materials obtained by dredging or land excavation.
19 Buildings, Grounds and Utilities	This feature includes permanent facilities such as operators' quarters, administration and shop buildings, storage buildings and areas, garage buildings and areas, community buildings, local streets and sidewalks, landscaping, and electric, gas, water, and sewage facilities. Where space in a dam, powerhouse, or other basic structure is used in lieu of construction of any of the above-mentioned buildings, such allocated space is not separated from the basic structure. Communication systems are• included in the feature "Permanent Operating Equipment."
20 Permanent Operating Equipment	This feature includes all project-owned operation and maintenance tools and equipment, such as laboratory, shop, warehousing, communications, and transportation equipment, and office furniture and equipment. The cost of installing sedimentation and degradation measuring facilities, including the surveys requisite to locating and monumenting range layouts, is charged to this feature. •The cost of planning the installation of sedimentation and degradation ranges is charged to the feature "Engineering and Design."
30 Engineering and Design	This feature includes all engineering, design, surveys, preparation of detailed plans and specifications, and related work required for the construction of the project, including relocations. Surveys and planning required in connection with land acquisition are charged to the features "Lands and Damages" or "Relocations," as applicable. Engineering and design performed by hired labor or as a pay item under a contract is included in this feature.
31 Supervision and Administration	This feature includes such functions as inspection, supervision, project office administration, and distributive costs of area office and general overhead charged to the project. Costs for OCE and Division Office Executive Direction and Management are not charged to Construction, General but to the General Expenses appropriation title.

Feature	**02 RELOCATIONS**			
	Month	Day	Year	CWCCIS
Construction Start	**10**	**1**	**2026**	2027Q1
Construction End	**3**	**17**	**2027**	2027Q2
Midpoint	12	23	2026	2027Q1
Feature	**02 RELOCATIONS**			
	Month	Day	Year	CWCCIS
Construction Start	**10**	**1**	**2026**	2027Q1
Construction End	**11**	**25**	**2026**	2027Q1
Midpoint	10	28	2026	2027Q1
Feature	**30 Planning Engineering and Design**			
	Month	Day	Year	CWCCIS
Construction Start	**10**	**1**	**2024**	2025Q1
Construction End	**11**	**1**	**2027**	2028Q1
Midpoint	4	17	2026	2026Q3
Feature	**NOT USED**			
	Month	Day	Year	CWCCIS
Construction Start	**1**	**1**	**2000**	2000Q2
Construction End	**1**	**1**	**2001**	2001Q2
Midpoint	7	2	2000	2000Q4
Feature	**NOT USED**			
	Month	Day	Year	CWCCIS
Construction Start	**1**	**1**	**2000**	2000Q2
Construction End	**1**	**1**	**2001**	2001Q2
Midpoint	7	2	2000	2000Q4
Feature	**NOT USED**			
	Month	Day	Year	CWCCIS
Construction Start	**1**	**1**	**2000**	2000Q2
Construction End	**1**	**1**	**2001**	2001Q2
Midpoint	7	2	2000	2000Q4
Feature	**NOT USED**			
	Month	Day	Year	CWCCIS
Construction Start	**1**	**1**	**2000**	2000Q2
Construction End	**1**	**1**	**2001**	2001Q2
Midpoint	7	2	2000	2000Q4

	Days
January	31
February	28.25
March	31
April	30
May	31
June	30
July	31
August	31
September	30
October	31
Novermber	30
December	31

Use this sheet to determine the midpoint of construction.

Cells with gray fill and blue text are input cells.

Cells with yellow fill are output cells.

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

PROJECT: **Baltimore City Coastal Storm Risk Management Nonstructural 20 Years**
PROJECT NO: P2 xxxxxx
LOCATION: Baltimore, MD

DISTRICT: **NAB District** **PREPARED:** **3/6/2022**
POC: **CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey**

This Estimate reflects the scope and schedule in report; FS Report (underway)

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)						TOTAL PROJECT COST (FULLY FUNDED)			
						Program Year (Budget EC): 2023									
						Effective Price Level Date: 1 OCT 22									
										Spent Thru:					
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	**TOTAL ($K)**	**1-Oct-21** ($K)	**TOTAL FIRST COST** ($K)	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*		*K*	*L*	*M*	*N*	*O*
19	BUILDINGS, GROUNDS & UTILITIES	$64,689	$21,994	34.0%	$86,683	3.2%	$66,741	$22,692	$89,432	$0	$89,432	31.6%	$87,845	$29,867	$117,713
18	CULTURAL RESOURCE PRESERVATION	$647	$220	34.0%	$867	3.2%	$667	$227	$894	$0	$894	31.6%	$878	$299	$1,177
	CONSTRUCTION ESTIMATE TOTALS:	$65,336	$22,214		$87,550	3.2%	$67,408	$22,919	$90,327	$0	$90,327	31.6%	$88,724	$30,166	$118,890
01	LANDS AND DAMAGES	$647	$194	30.0%	$841	3.2%	$667	$200	$868	$0	$868	31.6%	$878	$264	$1,142
30	PLANNING, ENGINEERING & DESIGN	$9,964	$996	10.0%	$10,960	2.5%	$10,213	$1,021	$11,234	$0	$11,234	25.4%	$12,811	$1,281	$14,092
31	CONSTRUCTION MANAGEMENT	$6,207	$621	10.0%	$6,828	2.5%	$6,362	$636	$6,998	$0	$6,998	25.4%	$7,980	$798	$8,778
	PROJECT COST TOTALS:	$82,153	$24,025	29.2%	$106,178		$84,650	$24,776	**$109,427**	$0	**$109,427**	30.6%	$110,393	$32,509	$142,902

ESTIMATED TOTAL PROJECT COST: **$142,902**

CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey

PROJECT MANAGER, Katherine Perkins

CHIEF, REAL ESTATE, Susan K. Lev

CHIEF, PLANNING, Amy M. Guise

CHIEF, ENGINEERING, Mary P. Foutz

CHIEF, OPERATIONS, Patrick G. Findlay

CHIEF, CONSTRUCTION, Jeff J. Werner

CHIEF, CONTRACTING, Paula M. Beck

CHIEF, PP-C, Justin Callahan

CHIEF, DPM, David B. Morrow

****** CONTRACT COST SUMMARY ******

PROJECT: Baltimore City Coastal Storm Risk Management Nonstructural 20 Years
LOCATION: Baltimore, MD
This Estimate reflects the scope and schedule in report; FS Report (underway)

DISTRICT: NAB District PREPARED: 3/6/2022
POC: CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared: 6-Feb-22 Effective Price Level: 1-Oct-21				Program Year (Budget EC): 2023 Effective Price Level Date: 1 OCT 22								
WBS NUMBER A	Civil Works Feature & Sub-Feature Description B	COST ($K) C	CNTG ($K) D	RISK BASED CNTG (%) E	TOTAL ($K) F	ESC (%) G	COST ($K) H	CNTG ($K) I	TOTAL ($K) J	Mid-Point Date P	INFLATED (%) L	COST ($K) M	CNTG ($K) N	FULL ($K) O
	MA 1													
19	BUILDINGS, GROUNDS & UTILITIES	$339	$115	34.0%	$454	3.2%	$350	$119	$469	2032Q1	31.6%	$460	$157	$617
18	CULTURAL RESOURCE PRESERVATION	$3	$1	34.0%	$5	3.2%	$3	$1	$5	2032Q1	31.6%	$5	$2	$6
	CONSTRUCTION ESTIMATE TOTALS:	$342	$116	34.0%	**$459**		$353	$120	$473			$465	$158	$623
01	LANDS AND DAMAGES	$3	$1	30.0%	$4	3.2%	$3	$1	$5	2032Q1	31.6%	$5	$1	$6
30	PLANNING, ENGINEERING & DESIGN													
2.5%	Project Management	$9	$1	10.0%	$9	2.5%	$9	$1	$10	2032Q1	25.4%	$11	$1	$12
1.0%	Planning & Environmental Compliance	$3	$0	10.0%	$4	2.5%	$4	$0	$4	2032Q1	25.4%	$4	$0	$5
8.0%	Engineering & Design	$27	$3	10.0%	$30	2.5%	$28	$3	$31	2032Q1	25.4%	$35	$4	$39
1.3%	Reviews, ATRs, IEPRs, VE	$4	$0	10.0%	$5	2.5%	$4	$0	$5	2032Q1	25.4%	$6	$1	$6
1.0%	Life Cycle Updates (cost, schedule, risks)	$3	$0	10.0%	$4	2.5%	$4	$0	$4	2032Q1	25.4%	$4	$0	$5
0.0%	Contracting & Reprographics	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
1.0%	Engineering During Construction	$3	$0	10.0%	$4	2.5%	$4	$0	$4	2032Q1	25.4%	$4	$0	$5
0.5%	Planning During Construction	$2	$0	10.0%	$2	2.5%	$2	$0	$2	2032Q1	25.4%	$2	$0	$2
0.0%	Adaptive Management & Monitoring	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
0.0%	Project Operations	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
31	CONSTRUCTION MANAGEMENT													
7.5%	Construction Management	$26	$3	10.0%	$28	2.5%	$26	$3	$29	2032Q1	25.4%	$33	$3	$36
0.0%	Project Operation:	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
2.0%	Project Management	$7	$1	10.0%	$8	2.5%	$7	$1	$8	2032Q1	25.4%	$9	$1	$10
	CONTRACT COST TOTALS:	$431	$126		$557		$444	$130	**574**			$579	$170	**$749**

**** CONTRACT COST SUMMARY ****

PROJECT: Baltimore City Coastal Storm Risk Management Nonstructural 20 Years
LOCATION: Baltimore, MD
This Estimate reflects the scope and schedule in report; FS Report (underway)

DISTRICT: NAB District
POC: CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey
PREPARED: 2/6/2021

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared: 6-Feb-22 Effective Price Level: 1-Oct-21				Program Year (Budget EC): 2023 Effective Price Level Date: 1 OCT 22								
WBS NUMBER A	Civil Works Feature & Sub-Feature Description B	COST ($K) C	CNTG ($K) D	CNTG (%) E	TOTAL ($K) F	ESC (%) G	COST ($K) H	CNTG ($K) I	TOTAL ($K) J	Mid-Point Date P	INFLATED (%) L	COST ($K) M	CNTG ($K) N	FULL ($K) O
	MA9													
19	BUILDINGS, GROUNDS & UTILITIES	$6,781	$2,306	34.0%	$9,087	3.2%	$6,996	$2,379	$9,375	2032Q1	31.6%	$9,209	$3,131	$12,340
18	CULTURAL RESOURCE PRESERVATION	$68	$23	34.0%	$91	3.2%	$70	$24	$94	2032Q1	31.6%	$92	$31	$123

	CONSTRUCTION ESTIMATE TOTALS:	$6,849	$2,329	34.0%	**$9,178**		$7,066	$2,403	$9,469			$9,301	$3,162	$12,463
01	LANDS AND DAMAGES	$68	$20	30.0%	$88	3.2%	$70	$21	$91	2032Q1	31.6%	$92	$28	$120
30	PLANNING, ENGINEERING & DESIGN													
2.5%	Project Management	$171	$17	10.0%	$188	2.5%	$176	$18	$193	2032Q1	25.4%	$220	$22	$242
1.0%	Planning & Environmental Compliance	$68	$7	10.0%	$75	2.5%	$70	$7	$77	2032Q1	25.4%	$88	$9	$97
8.0%	Engineering & Design	$548	$55	10.0%	$603	2.5%	$562	$56	$618	2032Q1	25.4%	$704	$70	$775
1.3%	Reviews, ATRs, IEPRs, VE	$86	$9	10.0%	$94	2.5%	$88	$9	$97	2032Q1	25.4%	$110	$11	$121
1.0%	Life Cycle Updates (cost, schedule, risks)	$68	$7	10.0%	$75	2.5%	$70	$7	$77	2032Q1	25.4%	$88	$9	$97
0.0%	Contracting & Reprographics	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
1.0%	Engineering During Construction	$68	$7	10.0%	$75	2.5%	$70	$7	$77	2032Q1	25.4%	$88	$9	$97
0.5%	Planning During Construction	$34	$3	10.0%	$38	2.5%	$35	$4	$39	2032Q1	25.4%	$44	$4	$48
0.0%	Adaptive Management & Monitoring	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
0.0%	Project Operations	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
31	CONSTRUCTION MANAGEMENT													
7.5%	Construction Management	$514	$51	10.0%	$565	2.5%	$527	$53	$579	2032Q1	25.4%	$660	$66	$726
0.0%	Project Operation:	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
2.0%	Project Management	$137	$14	10.0%	$151	2.5%	$140	$14	$154	2032Q1	25.4%	$176	$18	$194
	CONTRACT COST TOTALS:	$8,612	$2,519		$11,131		$8,874	$2,597	**$11,471**			$11,572	$3,408	**$14,980**

****** CONTRACT COST SUMMARY ******

PROJECT: Baltimore City Coastal Storm Risk Management Nonstructural 20 Years
LOCATION: Baltimore, MD
This Estimate reflects the scope and schedule in report; FS Report (underway)

DISTRICT: NAB District
POC: CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey
PREPARED: 2/6/2021

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared: / Effective Price Level:			6-Feb-22 / 1-Oct-21	Program Year (Budget EC): / Effective Price Level Date:			2023 / 1 OCT 22					
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Mid-Point Date	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*P*	*L*	*M*	*N*	*O*
	MA10													
19	BUILDINGS, GROUNDS & UTILITIES	$33,398	$11,355	34.0%	$44,753	3.2%	$34,457	$11,715	$46,172	2032Q1	31.6%	$45,353	$15,420	$60,773
18	CULTURAL RESOURCE PRESERVATION	$334	$114	34.0%	$448	3.2%	$345	$117	$462	2032Q1	31.6%	$454	$154	$608
	CONSTRUCTION ESTIMATE TOTALS:	$33,732	$11,469	34.0%	**$45,200**		$34,802	$11,833	$46,634			$45,807	$15,574	$61,381
01	LANDS AND DAMAGES	$334	$100	30.0%	$434	3.2%	$345	$103	$448	2032Q1	31.6%	$454	$136	$590
30	PLANNING, ENGINEERING & DESIGN													
2.5%	Project Management	$843	$84	10.0%	$928	2.5%	$864	$86	$951	2032Q1	25.4%	$1,084	$108	$1,193
1.0%	Planning & Environmental Compliance	$337	$34	10.0%	$371	2.5%	$346	$35	$380	2032Q1	25.4%	$434	$43	$477
8.0%	Engineering & Design	$2,699	$270	10.0%	$2,968	2.5%	$2,766	$277	$3,043	2032Q1	25.4%	$3,470	$347	$3,817
1.3%	Reviews, ATRs, IEPRs, VE	$422	$42	10.0%	$464	2.5%	$432	$43	$475	2032Q1	25.4%	$542	$54	$596
1.0%	Life Cycle Updates (cost, schedule, risks)	$337	$34	10.0%	$371	2.5%	$346	$35	$380	2032Q1	25.4%	$434	$43	$477
0.0%	Contracting & Reprographics	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
1.0%	Engineering During Construction	$337	$34	10.0%	$371	2.5%	$346	$35	$380	2032Q1	25.4%	$434	$43	$477
0.5%	Planning During Construction	$169	$17	10.0%	$186	2.5%	$173	$17	$190	2032Q1	25.4%	$217	$22	$239
0.0%	Adaptive Management & Monitoring	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
0.0%	Project Operations	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
31	CONSTRUCTION MANAGEMENT													
7.5%	Construction Management	$2,530	$253	10.0%	$2,783	2.5%	$2,593	$259	$2,852	2032Q1	25.4%	$3,253	$325	$3,578

0.0%	Project Operation:	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
2.0%	Project Management	$675	$67	10.0%	$742	2.5%	$691	$69	$761	2032Q1	25.4%	$867	$87	$954
	CONTRACT COST TOTALS:	$42,414	$12,404		**$54,818**		$43,703	$12,792	**$56,495**			$56,994	$16,784	**$73,778**

****** CONTRACT COST SUMMARY ******

PROJECT: Baltimore City Coastal Storm Risk Management Nonstructural 20 Years
LOCATION: Baltimore, MD
This Estimate reflects the scope and schedule in report; FS Report (underway)

DISTRICT: NAB District
POC: CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey
PREPARED: 2/6/2021

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared:			6-Feb-22	Program Year (Budget EC):			2023	FULLY FUNDED PROJECT ESTIMATE				
		Effective Price Level:			1-Oct-21	Effective Price Level Date:			1 OCT 22					
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Mid-Point Date	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*P*	*L*	*M*	*N*	*O*
	MA11													
19	BUILDINGS, GROUNDS & UTILITIES	$2,882	$980	34.0%	$3,862	3.2%	$2,973	$1,011	$3,984	2032Q1	31.6%	$3,914	$1,331	$5,244
18	CULTURAL RESOURCE PRESERVATION	$29	$10	34.0%	$39	3.2%	$30	$10	$40	2032Q1	31.6%	$39	$13	$52
	CONSTRUCTION ESTIMATE TOTALS:	$2,911	$990	34.0%	**$3,901**		$3,003	$1,021	$4,024			$3,953	$1,344	$5,297
01	LANDS AND DAMAGES	$29	$9	30.0%	$37	3.2%	$30	$9	$39	2032Q1	31.6%	$39	$12	$51
30	PLANNING, ENGINEERING & DESIGN													
2.5%	Project Management	$73	$7	10.0%	$80	2.5%	$75	$7	$82	2032Q1	25.4%	$94	$9	$103
1.0%	Planning & Environmental Compliance	$29	$3	10.0%	$32	2.5%	$30	$3	$33	2032Q1	25.4%	$37	$4	$41
8.0%	Engineering & Design	$233	$23	10.0%	$256	2.5%	$239	$24	$263	2032Q1	25.4%	$299	$30	$329
1.3%	Reviews, ATRs, IEPRs, VE	$36	$4	10.0%	$40	2.5%	$37	$4	$41	2032Q1	25.4%	$47	$5	$51
1.0%	Life Cycle Updates (cost, schedule, risks)	$29	$3	10.0%	$32	2.5%	$30	$3	$33	2032Q1	25.4%	$37	$4	$41
0.0%	Contracting & Reprographics	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
1.0%	Engineering During Construction	$29	$3	10.0%	$32	2.5%	$30	$3	$33	2032Q1	25.4%	$37	$4	$41
0.5%	Planning During Construction	$15	$1	10.0%	$16	2.5%	$15	$1	$16	2032Q1	25.4%	$19	$2	$21
0.0%	Adaptive Management & Monitoring	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
0.0%	Project Operations	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
31	CONSTRUCTION MANAGEMENT													
7.5%	Construction Management	$218	$22	10.0%	$240	2.5%	$224	$22	$246	2032Q1	25.4%	$281	$28	$309
0.0%	Project Operation:	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
2.0%	Project Management	$58	$6	10.0%	$64	2.5%	$60	$6	$66	2032Q1	25.4%	$75	$7	$82
	CONTRACT COST TOTALS:	$3,660	$1,070		**$4,730**		$3,771	$1,104	**$4,875**			$4,918	$1,448	**$6,367**

****** CONTRACT COST SUMMARY ******

PROJECT: Baltimore City Coastal Storm Risk Management Nonstructural 20 Years
LOCATION: Baltimore, MD
This Estimate reflects the scope and schedule in report; FS Report (underway)

DISTRICT: NAB District
POC: CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey
PREPARED: 2/6/2021

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared:			6-Feb-22	Program Year (Budget EC):			2023	FULLY FUNDED PROJECT ESTIMATE				
		Effective Price Level:			1-Oct-21	Effective Price Level Date:			1 OCT 22					
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Mid-Point Date	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*P*	*L*	*M*	*N*	*O*
	MA12													
19	BUILDINGS, GROUNDS & UTILITIES	$0	$0	34.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
18	CULTURAL RESOURCE PRESERVATION	$0	$0	34.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0

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

	CONSTRUCTION ESTIMATE TOTALS:	$0	$0	0.0%	**$0**		$0	$0	$0			$0	$0	$0
01	LANDS AND DAMAGES	$0	$0	30.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
30	PLANNING, ENGINEERING & DESIGN													
2.5%	Project Management	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
1.0%	Planning & Environmental Compliance	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
8.0%	Engineering & Design	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
1.3%	Reviews, ATRs, IEPRs, VE	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
1.0%	Life Cycle Updates (cost, schedule, risks)	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
0.0%	Contracting & Reprographics	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
1.0%	Engineering During Construction	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
0.5%	Planning During Construction	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
0.0%	Adaptive Management & Monitoring	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
0.0%	Project Operations	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
31	CONSTRUCTION MANAGEMENT													
7.5%	Construction Management	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
0.0%	Project Operation:	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
2.0%	Project Management	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
	CONTRACT COST TOTALS:	$0	$0		**$0**		$0	$0	**$0**			$0	$0	**$0**

**** CONTRACT COST SUMMARY ****

PROJECT: Baltimore City Coastal Storm Risk Management Nonstructural 20 Years
LOCATION: Baltimore, MD
This Estimate reflects the scope and schedule in report; FS Report (underway)

DISTRICT: NAB District
POC: CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey
PREPARED: 2/6/2021

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared:			6-Feb-22	Program Year (Budget EC):			2023					
		Effective Price Level:			1-Oct-21	Effective Price Level Date:			1 OCT 22	FULLY FUNDED PROJECT ESTIMATE				
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Mid-Point Date	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*P*	*L*	*M*	*N*	*O*
	MA14													
19	BUILDINGS, GROUNDS & UTILITIES	$1,187	$403	34.0%	$1,590	3.2%	$1,224	$416	$1,641	2032Q1	31.6%	$1,612	$548	$2,159
18	CULTURAL RESOURCE PRESERVATION	$12	$4	34.0%	$16	3.2%	$12	$4	$16	2032Q1	31.6%	$16	$5	$22
	CONSTRUCTION ESTIMATE TOTALS:	$1,199	$408	34.0%	**$1,606**		$1,237	$420	$1,657			$1,628	$553	$2,181
01	LANDS AND DAMAGES	$12	$4	30.0%	$15	3.2%	$12	$4	$16	2032Q1	31.6%	$16	$5	$21
30	PLANNING, ENGINEERING & DESIGN													
2.5%	Project Management	$30	$3	10.0%	$33	2.5%	$31	$3	$34	2032Q1	25.4%	$39	$4	$42
1.0%	Planning & Environmental Compliance	$12	$1	10.0%	$13	2.5%	$12	$1	$14	2032Q1	25.4%	$15	$2	$17
8.0%	Engineering & Design	$96	$10	10.0%	$105	2.5%	$98	$10	$108	2032Q1	25.4%	$123	$12	$136
1.3%	Reviews, ATRs, IEPRs, VE	$15	$1	10.0%	$16	2.5%	$15	$2	$17	2032Q1	25.4%	$19	$2	$21
1.0%	Life Cycle Updates (cost, schedule, risks)	$12	$1	10.0%	$13	2.5%	$12	$1	$14	2032Q1	25.4%	$15	$2	$17
0.0%	Contracting & Reprographics	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
1.0%	Engineering During Construction	$12	$1	10.0%	$13	2.5%	$12	$1	$14	2032Q1	25.4%	$15	$2	$17
0.5%	Planning During Construction	$6	$1	10.0%	$7	2.5%	$6	$1	$7	2032Q1	25.4%	$8	$1	$8
0.0%	Adaptive Management & Monitoring	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
0.0%	Project Operations	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
31	CONSTRUCTION MANAGEMENT													
7.5%	Construction Management	$90	$9	10.0%	$99	2.5%	$92	$9	$101	2032Q1	25.4%	$116	$12	$127
0.0%	Project Operation:	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0

2.0%	Project Management	$24	$2	10.0%	$26	2.5%	$25	$2	$27	2032Q1	25.4%	$31	$3	$34
	CONTRACT COST TOTALS:	$1,507	$441		**$1,948**		$1,553	$455	**$2,007**			$2,025	$596	**$2,622**

**** CONTRACT COST SUMMARY ****

PROJECT: Baltimore City Coastal Storm Risk Management Nonstructural 20 Years
LOCATION: Baltimore, MD
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DISTRICT: NAB District
POC: CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey

PREPARED: 2/6/2021

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared:			6-Feb-22	Program Year (Budget EC):			2023	FULLY FUNDED PROJECT ESTIMATE				
		Effective Price Level:			1-Oct-21	Effective Price Level Date:			1 OCT 22					
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Mid-Point Date	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*P*	*L*	*M*	*N*	*O*
	MA15													
19	BUILDINGS, GROUNDS & UTILITIES	$848	$288	34.0%	$1,136	3.2%	$875	$297	$1,172	2032Q1	31.6%	$1,151	$391	$1,542
18	CULTURAL RESOURCE PRESERVATION	$8	$3	34.0%	$11	3.2%	$9	$3	$12	2032Q1	31.6%	$12	$4	$15
	CONSTRUCTION ESTIMATE TOTALS:	$856	$291	34.0%	**$1,147**		$883	$300	$1,184			$1,163	$395	$1,558
01	LANDS AND DAMAGES	$8	$3	30.0%	$11	3.2%	$9	$3	$11	2032Q1	31.6%	$12	$3	$15
30	PLANNING, ENGINEERING & DESIGN													
2.5%	Project Management	$21	$2	10.0%	$24	2.5%	$22	$2	$24	2032Q1	25.4%	$28	$3	$30
1.0%	Planning & Environmental Compliance	$9	$1	10.0%	$9	2.5%	$9	$1	$10	2032Q1	25.4%	$11	$1	$12
8.0%	Engineering & Design	$68	$7	10.0%	$75	2.5%	$70	$7	$77	2032Q1	25.4%	$88	$9	$97
1.3%	Reviews, ATRs, IEPRs, VE	$11	$1	10.0%	$12	2.5%	$11	$1	$12	2032Q1	25.4%	$14	$1	$15
1.0%	Life Cycle Updates (cost, schedule, risks)	$9	$1	10.0%	$9	2.5%	$9	$1	$10	2032Q1	25.4%	$11	$1	$12
0.0%	Contracting & Reprographics	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
1.0%	Engineering During Construction	$9	$1	10.0%	$9	2.5%	$9	$1	$10	2032Q1	25.4%	$11	$1	$12
0.5%	Planning During Construction	$4	$0	10.0%	$5	2.5%	$4	$0	$5	2032Q1	25.4%	$6	$1	$6
0.0%	Adaptive Management & Monitoring	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
0.0%	Project Operations	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
31	CONSTRUCTION MANAGEMENT													
7.5%	Construction Management	$64	$6	10.0%	$71	2.5%	$66	$7	$72	2032Q1	25.4%	$83	$8	$91
0.0%	Project Operation:	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
2.0%	Project Management	$17	$2	10.0%	$19	2.5%	$18	$2	$19	2032Q1	25.4%	$22	$2	$24
	CONTRACT COST TOTALS:	$1,077	$315		**$1,391**		$1,109	$325	**$1,434**			$1,447	$426	**$1,873**

**** CONTRACT COST SUMMARY ****

PROJECT: Baltimore City Coastal Storm Risk Management Nonstructural 20 Years
LOCATION: Baltimore, MD
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DISTRICT: NAB District
POC: CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey

PREPARED: 2/6/2021

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared:			6-Feb-22	Program Year (Budget EC):			2023	FULLY FUNDED PROJECT ESTIMATE				
		Effective Price Level:			1-Oct-21	Effective Price Level Date:			1 OCT 22					
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Mid-Point Date	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*P*	*L*	*M*	*N*	*O*
	MA16													
19	BUILDINGS, GROUNDS & UTILITIES	$170	$58	34.0%	$227	3.2%	$175	$59	$234	2032Q1	31.6%	$230	$78	$308
18	CULTURAL RESOURCE PRESERVATION	$2	$1	34.0%	$2	3.2%	$2	$1	$2	2032Q1	31.6%	$2	$1	$3

	CONSTRUCTION ESTIMATE TOTALS:	$171	$58	34.0%	**229**		$177	$60	$237			$233	$79	$312
01	LANDS AND DAMAGES	$2	$1	30.0%	$ 2	3.2%	$2	$1	$2	2032Q1	31.6%	$2	$1	$3
30	PLANNING, ENGINEERING & DESIGN													
2.5%	Project Management	$4	$0	10.0%	$5	2.5%	$4	$0	$5	2032Q1	25.4%	$6	$1	$6
1.0%	Planning & Environmental Compliance	$2	$0	10.0%	$2	2.5%	$2	$0	$2	2032Q1	25.4%	$2	$0	$2
8.0%	Engineering & Design	$14	$1	10.0%	$15	2.5%	$14	$1	$15	2032Q1	25.4%	$18	$2	$19
1.3%	Reviews, ATRs, IEPRs, VE	$2	$0	10.0%	$2	2.5%	$2	$0	$2	2032Q1	25.4%	$3	$0	$3
1.0%	Life Cycle Updates (cost, schedule, risks)	$2	$0	10.0%	$2	2.5%	$2	$0	$2	2032Q1	25.4%	$2	$0	$2
0.0%	Contracting & Reprographics	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
1.0%	Engineering During Construction	$2	$0	10.0%	$2	2.5%	$2	$0	$2	2032Q1	25.4%	$2	$0	$2
0.5%	Planning During Construction	$1	$0	10.0%	$1	2.5%	$1	$0	$1	2032Q1	25.4%	$1	$0	$1
0.0%	Adaptive Management & Monitoring	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
0.0%	Project Operations	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
31	CONSTRUCTION MANAGEMENT													
7.5%	Construction Management	$13	$1	10.0%	14	2.5%	$13	$1	$14	2032Q1	25.4%	$17	$2	$18
0.0%	Project Operation:	$0	$0	10.0%	0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
2.0%	Project Management	$3	$0	10.0%	4	2.5%	$4	$0	$4	2032Q1	25.4%	$4	$0	$5
	CONTRACT COST TOTALS:	$215	$63		**278**		$222	$65	**$287**			$289	$85	**$375**

**** CONTRACT COST SUMMARY ****

PROJECT: Baltimore City Coastal Storm Risk Management Nonstructural 20 Years
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PREPARED: 2/6/2021

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared:			6-Feb-22	Program Year (Budget EC):			2023					
		Effective Price Level:			1-Oct-21	Effective Price Level Date:			1 OCT 22	FULLY FUNDED PROJECT ESTIMATE				
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Mid-Point Date	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*P*	*L*	*M*	*N*	*O*
	MA17													
19	BUILDINGS, GROUNDS & UTILITIES	$4,547	$1,546	34.0%	$6,093	3.2%	$4,691	$1,595	$6,286	2032Q1	31.6%	$6,175	$2,099	$8,274
18	CULTURAL RESOURCE PRESERVATION	$45	$15	34.0%	$61	3.2%	$47	$16	$63	2032Q1	31.6%	$62	$21	$83
	CONSTRUCTION ESTIMATE TOTALS:	$4,592	$1,561	34.0%	**$6,154**		$4,738	$1,611	$6,349			$6,236	$2,120	$8,357
01	LANDS AND DAMAGES	$45	$14	30.0%	$59	3.2%	$47	$14	$61	2032Q1	31.6%	$62	$19	$80
30	PLANNING, ENGINEERING & DESIGN													
2.5%	Project Management	$115	$11	10.0%	$126	2.5%	$118	$12	$129	2032Q1	25.4%	$148	$15	$162
1.0%	Planning & Environmental Compliance	$46	$5	10.0%	$51	2.5%	$47	$5	$52	2032Q1	25.4%	$59	$6	$65
8.0%	Engineering & Design	$367	$37	10.0%	$404	2.5%	$377	$38	$414	2032Q1	25.4%	$472	$47	$520
1.3%	Reviews, ATRs, IEPRs, VE	$57	$6	10.0%	$63	2.5%	$59	$6	$65	2032Q1	25.4%	$74	$7	$81
1.0%	Life Cycle Updates (cost, schedule, risks)	$46	$5	10.0%	$51	2.5%	$47	$5	$52	2032Q1	25.4%	$59	$6	$65
0.0%	Contracting & Reprographics	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
1.0%	Engineering During Construction	$46	$5	10.0%	$51	2.5%	$47	$5	$52	2032Q1	25.4%	$59	$6	$65
0.5%	Planning During Construction	$23	$2	10.0%	$25	2.5%	$24	$2	$26	2032Q1	25.4%	$30	$3	$32
0.0%	Adaptive Management & Monitoring	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
0.0%	Project Operations	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
31	CONSTRUCTION MANAGEMENT													
7.5%	Construction Management	$344	$34	10.0%	$379	2.5%	$353	$35	$388	2032Q1	25.4%	$443	$44	$487
0.0%	Project Operation:	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
2.0%	Project Management	$92	$9	10.0%	$101	2.5%	$94	$9	$104	2032Q1	25.4%	$118	$12	$130

CONTRACT COST TOTALS:	$5,774	$1,689	**$7,463**	$5,950	$1,741	**$7,691**	$7,759	$2,285	**$10,044**

**** CONTRACT COST SUMMARY ****

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PREPARED: 2/6/2021

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared: / Effective Price Level:			6-Feb-22 / 1-Oct-21	Program Year (Budget EC): / Effective Price Level Date:			2023 / 1 OCT 22	FULLY FUNDED PROJECT ESTIMATE				
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Mid-Point Date	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*P*	*L*	*M*	*N*	*O*
	MA22													
19	BUILDINGS, GROUNDS & UTILITIES	$14,538	$4,943	34.0%	$19,481	3.2%	$14,999	$5,100	$20,099	2032Q1	31.6%	$19,742	$6,712	$26,454
18	CULTURAL RESOURCE PRESERVATION	$145	$49	34.0%	$195	3.2%	$150	$51	$201	2032Q1	31.6%	$197	$67	$265
	CONSTRUCTION ESTIMATE TOTALS:	$14,683	$4,992	34.0%	**$19,676**		$15,149	$5,151	$20,300			$19,939	$6,779	$26,719
01	LANDS AND DAMAGES	$145	$44	30.0%	$189	3.2%	$150	$45	$195	2032Q1	31.6%	$197	$59	$257
30	PLANNING, ENGINEERING & DESIGN													
2.5%	Project Management	$367	$37	10.0%	$404	2.5%	$376	$38	$414	2032Q1	25.4%	$472	$47	$519
1.0%	Planning & Environmental Compliance	$147	$15	10.0%	$162	2.5%	$151	$15	$166	2032Q1	25.4%	$189	$19	$208
8.0%	Engineering & Design	$1,175	$117	10.0%	$1,292	2.5%	$1,204	$120	$1,324	2032Q1	25.4%	$1,510	$151	$1,661
1.3%	Reviews, ATRs, IEPRs, VE	$184	$18	10.0%	$202	2.5%	$188	$19	$207	2032Q1	25.4%	$236	$24	$260
1.0%	Life Cycle Updates (cost, schedule, risks)	$147	$15	10.0%	$162	2.5%	$151	$15	$166	2032Q1	25.4%	$189	$19	$208
0.0%	Contracting & Reprographics	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
1.0%	Engineering During Construction	$147	$15	10.0%	$162	2.5%	$151	$15	$166	2032Q1	25.4%	$189	$19	$208
0.5%	Planning During Construction	$73	$7	10.0%	$81	2.5%	$75	$8	$83	2032Q1	25.4%	$94	$9	$104
0.0%	Adaptive Management & Monitoring	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
0.0%	Project Operations	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
31	CONSTRUCTION MANAGEMENT													
7.5%	Construction Management	$1,101	$110	10.0%	$1,211	2.5%	$1,129	$113	$1,242	2032Q1	25.4%	$1,416	$142	$1,557
0.0%	Project Operation:	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
2.0%	Project Management	$294	$29	10.0%	$323	2.5%	$301	$30	$331	2032Q1	25.4%	$378	$38	$415
	CONTRACT COST TOTALS:	$18,463	$5,399		**$23,862**		$19,024	$5,568	**$24,592**			$24,809	$7,306	**$32,115**

**** CONTRACT COST SUMMARY ****

PROJECT: Baltimore City Coastal Storm Risk Management Nonstructural 20 Years
LOCATION: Baltimore, MD
This Estimate reflects the scope and schedule in report; FS Report (underway)

DISTRICT: NAB District
POC: CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey
PREPARED: 2/6/2021

Total Project Cost Summary

B-1. General.

A Total Project Cost Summary (TPCS) is required for all civil works cost estimates submitted for approval at all levels within the U.S. Army Corps of Engineers (Corps). The summary and supporting contract cost sheets are the basis for the official Project Cost Estimate (PB-3) ER 11-2-240. It is a living document, developed from feasibility to project completion to present current working estimate (cost, schedule (escalation), risks (contingencies). The TPCS must consider current escalation tables, which are updated twice annually: March and September.

The TPC reflects all applicable project feature costs, contingencies, escalation to Project First Cost and inflation to Fully Funded Project Costs and is presented in Federal and non-Federal dollars. The TPC emerges when the TPCS form is completed (shown in Figures B-2). The TPCS is a PDT product. While the cost engineer prepares the basic elements of the form, the PM, Real Estate and Construction offices play a major role in establishing Program Year, Federal and non-Federal shares, spent costs, 01 Lands and Damages, 30 PED and 31 Construction Management values.

For the cost engineer, the Total Project Cost form is developed and presented with three different estimates over time: Estimated Cost (Price Level), Project First Cost - Constant Dollar, and Total Project Cost – Fully Funded (reference Figure B-2)

i. Estimated Cost (Effective Price Level) (TPCS columns C through F) is the current developed cost estimate which includes contingencies. The effective price level date for Estimated Cost (shown in DAY MONTH YYYY format) is commonly reported as the previous 1 Oct 20XX to support economic study and escalation to Project First Cost

ii. Project First Cost - Constant Dollar Cost (TPCS columns G through K) is the Estimated Cost then escalated to the PROGRAM YEAR effective price level by applying the appropriate escalation from the CWCCIS tables. The Project First Cost - Constant Dollar (shown in 1 OCT 20XX) is the cost estimate used in feasibility reports and Chief of Engineer's Report (Chief's Report) for Congressional funding requests

iii. Total Project Cost (TPCS columns L through O) is the FULLY FUNDED WITH INFLATION to represent the total cost of the project. The inflation to midpoint of each activity is added from the Project First Cost column set. Total Project Cost (or Total Cost of Construction of GNFs when discussing navigation projects) is the cost estimate used in Project Partnership Agreements and Integral Determination Reports. Total Project Cost is the cost estimate provided to non-Federal sponsors for their use in financial planning as it provides information regarding the overall non-Federal cost

The Project First Cost – Constant Dollar Cost estimate is to be used in the Chief's Reports and other decision documents to support the funding request. The Project First Cost should include, among other things, an estimate of: (i) construction and management costs, including both Federal costs and non-Federal sponsor in-kind contributions, as applicable; (ii) planning engineering and design costs; (iii) lands, easements, rights-of-way, relocations and dredged materials (LERRD) values; and (iv) contingencies. Where several years elapse between the signing of the Chief's Report and the consideration of legislation to authorize a project, the Project First Cost must be updated to reflect the current Project First Cost date for Congressional funding consideration, in accordance with ER 1110-2-1302.

Figure B-1 illustrates the TPC process. Figures B-2 (summary sheet) and B-3 (sample supporting sheet) are examples based upon feasibility estimate reporting requirements in Engineer Regulation (ER) 1105-2-100, Planning Guidance Notebook. "Two project cost estimates shall be displayed in the feasibility report; one based on constant dollars and one based on projected inflation rates." The guidance notebook is referring to the Project First Cost and the Total Project Cost columns J and O. The TPCS (summary sheet) is a signature document for the appropriate district managerial approvals. ER 1105-2-100 states that project cost estimates will be prepared by or reviewed by the cost engineering office in the district and the chief of that office will sign the estimate. Real estate estimates included in the project cost are reviewed, approved, and signed by the chief or designee of the real estate office. Project Management is the third required signature that assumes responsibility for the TPCS value. Figure B-2 also lists other review/approval signatures that may be a district requirement.

Preparing a TPC during the feasibility phase is required, because it is the first document that will show the estimated total project cost at the anticipated authorizing budget year and forecast the total project cost inflated through construction based on the known scope and schedule.

B-2. Sample TPCS (Figure B-2) is in a spreadsheet format beginning with the total project cost summary followed by contract cost summary supporting sheets appearing like Figure B-3. The TPCS template can be downloaded from the Cost MCX website.

B-3. TPCS Form Procedures
a. Estimated Cost (Price Level)
TPCS Headers: Ensure the form presents the formal project name. project number. location. author and date.

Column A: WBS Number – Enter the Civil Works Breakdown code for each feature (refer to the Civil Works Work Breakdown Structure Appendix).

Column B: Civil Works Feature and Sub-Feature Description - For the summary sheet Figure B-2, enter the feature code title. For the supporting sheets like Figure B-3, enter and identify the project phase, contract, etc. as well as the CWWBS description of the item. For Figure B-3, separate lines for the same WBS element may be prudent, pending certain programs or presentations desired. The various phases or contracts on the Figure B-3 sheets is to make distinction between varying schedules of occurrence, associated escalation and risks (contingencies).

The first primary column set, sub columns C through F, is the estimated cost plus contingencies, typically in current or most recent estimated dollars (must be less than 2 years old) that includes all feature accounts: the MCACES construction estimate(s), estimates for lands and damages, preconstruction, engineering and design, and construction management. The following paragraphs are instructions for completing data entry for each scheduled contract (figure B-2 and B-3). Figure B-2 serves as the summary roll-up from the supporting sheets such as Figure B-3.

Column C: COST- Entered in this column are the estimates of those costs that require funding or are remaining costs yet to incur. The costs should reflect the actual estimated costs in $1000s based on the previous October price level that the estimate was prepared. Note: For the Real Estate estimate, ensure the estimate is recent and the contingencies (incremental costs) are separated from the appraisal quote for presentation in the contingency column.

Column D: CNTG (contingency) - This is the dollar amount of contingency determined from a risk-based analysis. It is the result of Column C times the entered contingency percent in Column E or an actual amount determined by a cost risk analysis.

Column E: CNTG % (contingency percentage) - Enter the percentage of contingency (from risk analysis). For 30 and 31 accounts you may want to use the average of the construction element contingencies in lieu of developing a separate contingency. For 01 Lands and Damages, the Chief of Real Estate is responsible to provide a signed estimate of costs and should be able to provide contingency data, also referred to as incremental costs. Ensure that the real estate contingency is separated from the real estate estimate and presented separately as contingency. Contingency is the full dollar value of the various features, converted to a contingency. Reliance solely on a per cent value can induce errors when differing contingency sources such as real estate are also used.

Column F: TOTAL - This is the sum of columns C and D.

b. Project First Cost – Constant Dollar.
The second primary column set is the Project First Cost, also known as the Constant Dollar total. This totaled cost is the one reflected in all Chief's reports for requested funding: effective price level for the year of the Chief's Report submissions. Typically the year of the report submission is the year prior to the anticipated funding. This total can become more complicated for ongoing projects with spent costs that require additional funding.

Column G: - ESC (escalation) This column is the percentage of escalation from the first column set to the PROGRAM YEAR DATE. This moves the estimate cost from the price level when it was prepared to the Program Year price on a constant dollar basis. This escalation is calculated utilizing the Civil Works Construction Cost Index System (CWCCIS) found in EM 1110-2-1304. The CWCCIS is a reflection of the OMB projected rates for future costs, experienced inflation for past costs for each of the Feature categories. The escalation tables are updated twice annually: March and September. To determine the escalation percent, locate the CWCCIS index factors of the Feature account or element for the 1st quarter date of the program year and divide by the index factor of the established or initial estimate date (no less than 2 years old). Subtract value of 1 and multiply by 100 to obtain the percent escalation.

Column H: COST - This is the cost from Column C with the added percent of escalation computed in Column G.

Estimated Cost to Project First Cost

EPL Estimate + Continuency (1 Oct 20XX) Risk Based (Current Dollars)	+	Contingen (risk	x	Cost Index (Budget Yea	=	**Project First Cost Budget Yea**				
				Cost Index (EPL - Current Estimate)		**Constant Dollars**				

Column I: CNTG (contingency) - This is the Contingency value from Column D with the added escalation determined in Column G.
Column J: TOTAL- This is the sum of Columns H and I. This is the constant dollar estimate at PROGRAM YEAR price level, 1 October, also referred to as Project First Cost, excluding any project spent costs. within the Chief's Report. For ongoing projects, the Project First Cost would include Spent Costs to reflect total first costs for the project.
SPENT THRU - Enter the amount of EXPENDED Federal funds for each Feature (this information is commonly obtained from project or program managers. Caution here is advised. If these funds have been expended by a sponsor, but the Government has not yet spent reflective Federal funds, those costs must remain in the Project First Costs, excluding escalation and contingencies. The spent costs of FEDERAL project dollars, already received and expended, is entered as actual amount spent in the year it was spent. The year of the expenditure must exclude inflation and contingencies because no further inflation or risks on these costs can occur This is entered on the TPCS (figure B- 2) (PAGE 1) only
c. Total Project Cost (Fully Funded with Inflation).
The third primary column of the TPCS is the total project cost estimate inflated through project completion, which is the second cost estimate referred to from the Planning Guidance Notebook. For financial analysis, an inflated dollar basis is to be used for the sponsor's information. Reasonably accurate and complete cost estimates and schedules are necessary for the Federal Government and the non-Federal sponsors to make prudent financial and budgetary decisions in obtaining and expending funds
The project schedule is used to forecast when project elements will begin and the duration of each element. Knowing how each activity/element is funded and its respective duration will illustrate when the costs are expected to occur. In cases where multiple construction contracts or phases are planned, each should be addressed separately to present a more realistic escalation to design and construction midpoints for each contract. It is recommended that separate contracts be presented as a subset spreadsheet with values that roll up to the summary level total (Figure B-1).

Column L: INFLATED – This is the inflation percentage from PROGRAM YEAR price level to the MIDPOINT of the performance period of each Feature item. Midpoint dates are determined from the Project Schedule. The amount shown in the column is the percentage of increase.
For construction contracts and other project elements having a relatively short duration, choosing an index coinciding with the midpoint of the duration may be adequate to escalate the costs for inflation. Also, activities/elements that are primarily level of effort, where costs are relatively consistent throughout the duration, a date at the midpoint of the duration is usually adequate to select the CWCCIS index to inflate the activity/element cost.

Project First Cost

Budget Year x

Constant Dollars

Cost Index (Midpt of Activity	=	**ully Funded**				
Cost Index (Budget) (Year)						

m. Column M: COST- Is the cost from Column H with midpoint inflation added from the CWCCIS calculations (column L).

n. Column N: CNTG (contingency) - This is the Contingency dollar value from Column I with the added inflation factor (column L).
o. Column O: FULL (fully funded amount) Is the fully funded estimate amount for the Item (Column M + Column N + Spent Costs). The overall summation of column O on the TPCS (Figure B-2) is the TOTAL PROJECT COST ESTIMATE inflated through the Project Schedule midpoint for each separate activity.
o. Column P: Found on the succeeding sheets. such as Figure B-3. for the TPC summary. the column presents the midpoint date for the inflated value for each Feature.

The costs of water resources studies and projects developed by the Corps are shared between Federal and non-Federal entities as defined in laws and administrative provisions. The Water Resources Development Act of 1986, established new cost sharing rules for all studies and projects conducted by the Corps. The cost sharing provisions of the Water Resources Development Act of 1986 place greater financial responsibilities on non-Federal sponsors of Corps projects. The amount of non-Federal share varies depending upon the project purpose and the general and specific laws that apply to each project. Coordination with Project and Program Management is required to clarify this share percentage. Cost sharing can and does change over time.

The total project cost inflated through construction is divided into Federal cost and non-Federal cost. The non-Federal cost is for the sponsor's information and financial analysis. The cost engineer must coordinate with the project manager to determine the appropriate cost sharing percentages applicable to the project. To illustrate, the cost of feasibility studies is shared equally (50/50) and the remaining project cost may be shared 25 percent non-Federal cost and 75 percent Federal cost. Guidance on cost sharing for each civil works mission and authority is presented in ER 1105-2-100 and coordination with the project manager is necessary.
B-4. Section 902 Project Cost Limit.
When appropriate for authorized projects spanning several years, the TPCS is updated annually for comparison to the Section 902 project cost limit. It can be computed and presented on the updated TPCS to serve as a current working estimate.
The maximum project cost limit imposed by Section 902 is a numerical value specified by law, which must be computed in a legally supportable manner. It is not an estimate of the current cost of the project. The construction component of the authorized cost will be updated to account for current scope, quantities, costs, schedules and risks and applying escalation using the current CWCCIS escalation tables. The real estate component of the authorized cost will be updated to account for historical inflation based on changes to the Consumer Price Index. ER 1105-2-100, appendix G paragraph G-15a provides detailed guidance on the calculations necessary to determine the numerical value

DISTRICT	NAB District
PROJECT NAME	Baltimore City Coastal Storm Risk Management Nonstructural 20 Years
PROJECT NUMBER	P2 xxxxxx
PROJECT LOCATION	Baltimore, MD
PROGRAM YEAR	2023
ESTIMATE PREPARED DATE	2/6/2022
DATE TPCS PREPARED	3/6/2022
ENGINEERING REPORT AS BASIS	FS Report (underway)

ENGINEERING & DESIGN PHASE -> 30 ACCOUNT		% of Construct	Districts % Vary	30/31 Accounts			
PROJECT MANAGER, Katherine Perkins	Program Management:	2.5%	2.50%	30.0	15.3%	Sum per % of 30 Account	Project Management
CHIEF, DPM, David B. Morrow				30.0			Planning & Environmental Compliance
CHIEF, PLANNING, Amy M. Guise	Planning & Environmental Compliance:	1.0%	1.00%	30.0			Engineering & Design
CHIEF, ENGINEERING, Mary P. Foutz	Engineering & Design:	15.0%	8.00%	30.0			Reviews, ATRs, IEPRs, VE
CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey	Reviews, ATRs, IEPRs, VE:	1.0%	1.25%	30.0			Life Cycle Updates (cost, schedule, risks)
CHIEF, ENGINEERING, Mary P. Foutz	Life Cycle Updates (cost, schedule, risks):	1.0%	1.00%	30.0			Contracting & Reprographics
	Contracting & Reprographics:	1.0%	0.00%	30.0			Engineering During Construction
CHIEF, CONTRACTING, Paula M. Beck	Engineering During Construction:	3.0%	1.00%	30.0			Planning During Construction
CHIEF, ENGINEERING, Mary P. Foutz	Planning During Construction	2.0%	0.50%	30.0		Escalate to Mid Point Construction	Adaptive Management & Monitoring
CHIEF, PLANNING, Amy M. Guise	Adaptive Mgmt & Monitoring:	1.0%	0.00%	30.0			
CHIEF, OPERATIONS, Patrick G. Findlay	Project Operations	1.0%	0.00%	31.0			

CONSTRUCTION PHASE -> 31 ACCOUNT					

CULTURAL RESOURCES -> 18 ACCOUNT
CHIEF, PLANNING, Amy M. Guise

SPENT THRU FYXX COSTS
CHIEF, PP-C, Justin Callahan

MA	FIE	Join Coun	TARGET FIE	Extern Re	AssetType	Active	DateOnline	DateOffline	A_Descrip
MA1(	0	1	0	222	Structure	1	2015-01-01	2115-01-0:	2021 FOUNTAIN ST
MA1(	1	1	1	223	Structure	1	2015-01-01	2115-01-0:	2023 FOUNTAIN ST
MA1(	2	1	2	224	Structure	1	2015-01-01	2115-01-0:	2019 FOUNTAIN ST
MA1(	3	1	3	225	Structure	1	2015-01-01	2115-01-0:	2017 FOUNTAIN ST
MA1(	4	1	4	226	Structure	1	2015-01-01	2115-01-0:	2015 FOUNTAIN ST
MA1(	5	1	5	227	Structure	1	2015-01-01	2115-01-0:	2013 FOUNTAIN ST
MA1(	6	1	6	228	Structure	1	2015-01-01	2115-01-0:	2011 FOUNTAIN ST
MA1(	7	1	7	229	Structure	1	2015-01-01	2115-01-0:	2009 FOUNTAIN ST
MA1(	8	1	8	230	Structure	1	2015-01-01	2115-01-0:	2007 FOUNTAIN ST
MA1(	9	1	9	231	Structure	1	2015-01-01	2115-01-0:	2005 FOUNTAIN ST
MA1(	10	1	10	232	Structure	1	2015-01-01	2115-01-0:	2003 FOUNTAIN ST
MA1(	11	1	11	235	Structure	1	2015-01-01	2115-01-0:	2030 ALICEANNA ST
MA1(	12	1	12	236	Structure	1	2015-01-01	2115-01-0:	2018 ALICEANNA ST
MA1(	13	1	13	237	Structure	1	2015-01-01	2115-01-0:	2020 ALICEANNA ST
MA1(	14	1	14	238	Structure	1	2015-01-01	2115-01-0:	2016 ALICEANNA ST
MA1(	15	1	15	239	Structure	1	2015-01-01	2115-01-0:	2014 ALICEANNA ST
MA1(	16	1	16	240	Structure	1	2015-01-01	2115-01-0:	2012 ALICEANNA ST
MA1(	17	1	17	241	Structure	1	2015-01-01	2115-01-0:	2010 ALICEANNA ST
MA1(	18	1	18	242	Structure	1	2015-01-01	2115-01-0:	2008 ALICEANNA ST
MA1(	19	1	19	243	Structure	1	2015-01-01	2115-01-0:	2006 ALICEANNA ST
MA1(	20	1	20	244	Structure	1	2015-01-01	2115-01-0:	2004 ALICEANNA ST
MA1(	21	1	21	245	Structure	1	2015-01-01	2115-01-0:	2002 ALICEANNA ST
MA1(	22	1	22	246	Structure	1	2015-01-01	2115-01-0:	2000 ALICEANNA ST
MA1(	23	1	23	248	Structure	1	2015-01-01	2115-01-0:	1905 ALICEANNA ST
MA1(	24	1	24	249	Structure	1	2015-01-01	2115-01-0:	1933 ALICEANNA STUNIT # 1
MA1(	25	1	25	250	Structure	1	2015-01-01	2115-01-0:	1907 ALICEANNA ST
MA1(	26	1	26	251	Structure	1	2015-01-01	2115-01-0:	1909 ALICEANNA ST
MA1(	27	1	27	252	Structure	1	2015-01-01	2115-01-0:	1903 ALICEANNA STUNIT # 1
MA1(	28	1	28	253	Structure	1	2015-01-01	2115-01-0:	701 S WOLFE ST
MA1(	29	1	29	255	Structure	1	2015-01-01	2115-01-0:	801 S WOLFE ST
MA1(	30	1	30	256	Structure	1	2015-01-01	2115-01-0:	No Address

Estimated Cost (Price Level) is the initially developed cost estimate which includes contingencies. The effective price level date for Estimated Cost (shown in MONTH YYYY format) is usually the date of preparation of the cost estimate.

Project First Cost (Constant Dollar Cost) (Price Level) is the Estimated Cost BROUGHT TO THE EFFECTIVE PRICE LEVEL. The effective price level for Constant Dollar Cost (shown in MONTH YYYY format) is the date of the common point in time of the pricing used in the cost estimate. Constant Dollar Cost does not include inflation. Constant Dollar Cost at current price levels is the cost estimate used in feasibility reports and Chief's Reports (see paragraphs 5(a) and 5(b) below). THE CONSTANT DOLLAR COST SHOULD BE EXPRESSED AS THE FY OF THE CHIEF'S REPORT TO ENSURE THAT THE CW PROGRAM TOTALS IN ONE FY DOLLAR TO ASA AND CONGRESS.

Total Project Cost is the Constant Dollar Cost FULLY FUNDED WITH ESCALATION to the estimated midpoint of construction. Total Project Cost (or Total Cost of Construction of GNFs when discussing navigation projects) is the cost estimate used in Project Partnership Agreements and Integral Determination Reports. Total Project Cost is the cost estimate provided non-Federal sponsors for their use in financial planning as it provides information regarding the overall non-Federal cost sharing obligation. See the enclosed tables for more detail of what is or is not included in the Total Project Cost.

Type of Program	CWBS*	Pro ect Cost Component**	Br ef Def n t on	For Chief s Report		For PPA s
				Project F rst Cost Constant Cost Estimate Oct (YYYY) Pr ce Level	Econom c Cost for BCR	Tota Pro ect Cost Fu y Funded Cost Estimate
Flood Risk Management	01,02	Lands, Easements, Rights of Way, Relocations, and Dredged Material Disposal Areas (LERRD).	Estimated value/costs of LERRD for the project (to include breakout of related Federal administrative costs).	Y	Y	Y
Flood Risk Management	02 - 20	Construction Elements	Physical Construction cost estimate broken out by Civil Works Breakdown Structure(CWBS).	Y	Y	Y
Flood Risk Management	30	Planning, Engineering, and Design (post feasibility work)	Estimated costs for post feasibility planning, engineering, and design for the project. This cost should include the estimate of Preconstruction Engineering and Design (PED) phase costs as well as the planning, engineering, and design costs during the construction phase to complete the project.	Y	Y	Y
Flood Risk Management	31	Construction Management	Estimated costs for construction management of project	Y	Y	Y
Flood Risk Management		Fish and Wildlife Mitigation	Estimated costs of Mitigation	Y	Y	Y
Flood Risk Management	18	Cultural Mitigation	Estimated costs of Mitigation	Y	Y***	Y
Flood Risk Management	By project element	Contingency	This is the Risk Based contingency established for the project.	Y	Y	Y
Flood Risk Management	By project element	Interest During Construction (IDC)	Estimate of interest accumulated during construction(Economic cost)	N	Y	Y
Flood Risk Management	By project element	Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R)	Annualized estimate of Operation, Maintenance, Replacement and Rehabilitation cost.	N	Y	N
Flood Risk Management	By project element	Inflation through midpoint construction	Estimate of inflation using appropriate Civil Works Construction Cost Index System (CWCCIS) factors applied to the Constant Dollar Cost	N	N	Y
Flood Risk Management	By project element	Associated and Other Costs	Associated financial costs that are not part of the recommended Federal project but are a necessary non-Federal responsibility. These cost are required to be shown within the Chief's report, as a separate total but are not to be included within cost shared project cost	N	Y	Y
Ecosystem Restoration	01,02	Lands, Easements, Rights of Way, Relocations, and Dredged Material Disposal Areas (LERRD). This includes related Federal administrative costs.	Estimated value/costs of LERRD for the project (to include breakout of related Federal administrative costs).	Y	Y	Y
Ecosystem Restoration	03 - 20	Construction Elements	Physical Construction cost estimate broken out by Civil Works Breakdown Structure(CWBS).	Y	Y	Y
Ecosystem Restoration	30	Planning, Engineering, and Design (post feasibility work)	Estimated costs for post feasibility planning, engineering, and design for the project. This cost should include the estimate of Preconstruction Engineering and Design (PED) phase costs as well as the planning, engineering, and design costs during the construction phase to complete the project.	Y	Y	Y
Ecosystem Restoration	31	Construction Management	Estimated costs for construction management of project	Y	Y	Y
Ecosystem Restoration		Fish and Wildlife Mitigation	Estimated costs of Mitigation	Y	Y	Y
Ecosystem Restoration	18	Cultural Mitigation	Estimated costs of Mitigation	Y	Y***	Y
Ecosystem Restoration	By project element	Monitoring and Adaptive Management	This represents the estimated costs of monitoring and or adaptive management to be cost shared for the project.	Y	Y	Y
Ecosystem Restoration	By project element	Contingency	This is the Risk Based contingency established for the project.	Y	Y	Y
Ecosystem Restoration	By project element	Interest During Construction (IDC)	Estimate of interest accumulated during construction(Economic cost)	N	Y	Y
Ecosystem Restoration	By project element	Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R)	Annualized estimate of Operation, Maintenance, Replacement and Rehabilitation cost.	N	Y	N
Ecosystem Restoration	By project element	Inflation through midpoint construction	Estimate of inflation using appropriate Civil Works Construction Cost Index System (CWCCIS) factors applied to the Constant Dollar Cost	N	N	Y
Ecosystem Restoration		Associated and Other Costs	Associated financial costs that are not part of the recommended Federal project but are a necessary non-Federal responsibility. These cost are required to be shown within the Chief's report, as a separate total but are not to be included within the cost shared project cost	N	Y	Y
Navigation and Harbors	01,02	Lands, Easements, Rights of Way, Relocations (LERR). This includes related Federal costs.	Estimated value/costs of LERR (to include breakout of related Federal administrative costs).	Y	Y	Y
Navigation and Harbors	03 - 20	Construction Elements (General Navigation Features)	Physical Construction cost estimate broken out by Civil Works Breakdown Structure(CWBS).	Y	Y	Y
Navigation and Harbors	30	Planning, Engineering, and Design (post feasibility work)	Estimated costs for post feasibility planning, engineering, and design for the project. This cost should include the estimate of Preconstruction Engineering and Design (PED) phase costs as well as the planning, engineering, and design costs during the construction phase to complete the project.	Y	Y	Y
Navigation and Harbors	31	Construction Management	Estimated costs for construction management of project	Y	Y	Y
Navigation and Harbors		Fish and Wildlife Mitigation	Estimated costs of Mitigation	Y	Y	Y
Navigation and Harbors	18	Cultural Mitigation	Estimated costs of Mitigation	Y	Y***	Y
Navigation and Harbors	By project element	Contingency	This is the Risk Based contingency established for the project.	Y	Y	Y
Navigation and Harbors	By project element	Interest During Construction (IDC)	Estimate of interest accumulated during construction(Economic cost)	N	Y	Y

Navigation and Harbors	By project element	Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R)	Annualized estimate of Operation, Maintenance, Replacement and Rehabilitation cost.	N	Y	N
Navigation and Harbors	By project element	Inflation through midpoint construction	Estimate of inflation using appropriate Civil Works Construction Cost Index System (CWCCIS) factors applied to the Constant Dollar Cost	N	N	Y
Navigation and Harbors	By project element	Local Service Facilities (LSF)	For Navigation Only: This represents the estimated cost of Local Service Facilities as defined in the Planning Guidance Notebook Appendix E. These are the responsibility of the non-Federal entity and are required as part of the PCA if	N	Y	Y
Navigation and Harbors		Associated and Other Costs	Associated financial costs that are not part of the recommended Federal project but are a necessary non-Federal responsibility. These cost are required to be shown within the Chief's report, as a separate total but are not to be included within the cost shared project cost.	N	Y	Y
Inland Navigation	01,02	Lands, Easements, Rights of Way, Relocations, and Dredged Material Disposal Areas (LERRD). This includes related Federal administrative costs.	Estimated value/costs of LERRD for the project (to include breakout of related Federal administrative costs).	Y	Y	Y
Inland Navigation	03 - 20	Construction Elements (General Navigation Features)	Physical Construction cost estimate broken out by Civil Works Breakdown Structure(CWBS).	Y	Y	Y
Inland Navigation	30	Planning, Engineering, and Design (post feasibility work)	Estimated costs for post feasibility planning, engineering, and design for the project. This cost should include the estimate of Preconstruction Engineering and Design (PED) phase costs as well as the planning, engineering, and design	Y	Y	Y
Inland Navigation	31	Construction Management	Estimated costs for construction management of project	Y	Y	Y
Inland Navigation		Fish and Wildlife Mitigation	Estimated costs of Mitigation	Y	Y	Y
Inland Navigation	18	Cultural Mitigation	Estimated costs of Mitigation	Y	Y***	Y
Inland Navigation	By project element	Contingency	This is the Risk Based contingency established for the project.	Y	Y	Y
Inland Navigation	By project element	Interest During Construction (IDC)	Estimate of interest accumulated during construction(Economic cost)	N	Y	Y
Inland Navigation	By project element	Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R)	Annualized estimate of Operation, Maintenance, Replacement and Rehabilitation cost.	N	Y	N
Inland Navigation	By project element	Inflation through midpoint construction	Estimate of inflation using appropriate Civil Works Construction Cost Index System (CWCCIS) factors applied to the Constant Dollar Cost	N	N	Y
Inland Navigation	By project element	Local Service Facilities (LSF)	For Navigation Only: This represents the estimated cost of Local Service Facilities as defined in the Planning Guidance Notebook Appendix E. These are the responsibility of the non-Federal entity and are required as part of the PCA if	N	Y	Y
Inland Navigation		Associated and Other Costs	Associated financial costs that are not part of the recommended Federal project but are a necessary non-Federal responsibility. These cost are required to be shown within the Chief's report, as a separate total but are not to be included	N	Y	Y
COASTAL STORM	01,02	Lands, Easements, Rights of Way, Relocations, and Dredged Material Disposal Areas (LERRD). This includes related Federal administrative costs.	Estimated value/costs of LERRD for the project (to include breakout of related Federal administrative costs).	Y	Y	Y
COASTAL STORM	03 - 20	Construction Elements	Physical Construction cost estimate broken out by Civil Works Breakdown Structure(CWBS).	Y	Y	Y
COASTAL STORM	30	Planning, Engineering, and Design (post feasibility work)	Estimated costs for post feasibility planning, engineering, and design for the project. This cost should include the estimate of Preconstruction Engineering and Design (PED) phase costs as well as the planning, engineering, and design	Y	Y	Y
COASTAL STORM	31	Construction Management	Estimated costs for construction management of project	Y	Y	Y
COASTAL STORM		Fish and Wildlife Mitigation	Estimated costs of Mitigation	Y	Y	Y
COASTAL STORM	18	Cultural Mitigation	Estimated costs of Mitigation	Y	Y***	Y
COASTAL STORM	By project element	Monitoring and Adaptive Management	This represents the estimated costs of monitoring and or adaptive management to be cost shared for the project.	Y	Y	Y
COASTAL STORM	By project element	Contingency	This is the Risk Based contingency established for the project.	Y	Y	Y
COASTAL STORM	By project element	Continued Construction (periodic nourishment)	For Hurricane and Storm Damage Reduction Only: Estimate of Allowable Periodic Average future construction cost submitted for authorization.	Y	Y	Y
COASTAL STORM	By project element	Interest During Construction (IDC)	Estimate of interest accumulated during construction(Economic cost)	N	Y	Y
COASTAL STORM	By project element	Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R)	Annualized estimate of Operation, Maintenance, Replacement and Rehabilitation cost.	N	Y	N
COASTAL STORM		Inflation through midpoint construction	Estimate of inflation using appropriate Civil Works Construction Cost Index System (CWCCIS) factors applied to the Constant Dollar Cost	N	N	Y
COASTAL STORM		Associated and Other Costs	Associated financial costs that are not part of the recommended Federal project but are a necessary non-Federal responsibility. These cost are required to be shown within the Chief's report, as a separate total but are not to be included within the cost shared project cost.	N	Y	Y

Feature Code Definitions

CWBS	Def n t ons
01 Lands and Damages	This feature includes all costs of acquiring for the project (by purchase or condemnation) real property or permanent interests therein, including Government costs, damages, and costs of disposal of real estate. Government costs include planning expenses for the real estate portion of the General Design Memo and for the detailed Real Estate Memo; and project real estate office administration, surveys, and marking for land acquisition purposes and appraisals. For projects which require that costs be incurred on real estate activities, i.e., for records search, appraisals, and field inspection to assure compliance by local interests in the provision of local requirements on projects where no Federal land acquisition is involved, a memorandum statement will be provided with the PB-3 indicating the estimated costs of such real estate activities. These costs will be charged to feature 30, Engineering and Design and that feature will be properly footnoted to show the amount of such costs. A similar footnote will be shown on the PB-1's and PB-2a's for all such projects. This feature is credited with disposal receipts from sale of such items as standing crops, standing timber, structures, and improvements in place and acquired with the land. Disposal receipts from sale of excess land not turned in to the U.S. Treasury as miscellaneous receipts are credited to this feature. Lands or interests purchased for relocations and conveyed to others are included in the feature "Relocations." Temporary interests such as leases are included in the feature or distributive item benefited thereby.
02 Relocations	This feature includes removing and relocating, or reconstructing property of others, such as roads, railroads, cemeteries, utilities, buildings, and other structures; and lands or interests purchased for such relocations and conveyed to others, including real estate planning and acquisition expenses. The cost of removal of improvements from the reservoir area for disposal is included in the feature "Reservoirs." All alterations of railroad bridges in accordance with Section 3 of the 1946 Flood Control Act (22 USC 701p) are also included in this feature.
03 Reservoirs	This feature includes clearing lands in reservoirs and pools of debris, brush, trees, improvements, and structures. Any salvage, obtained by sale or disposal by the Government, of material removed in clearing operations is credited to this feature. This feature also includes bank stabilization, shoreline improvement, firebreaks, fencing, boundary line survey and marking of land which has been acquired or is to be acquired, rehabilitation of natural resources, erosion control, drainage, and rim grouting and mine sealing, etc., to prevent leakage. Site clearing, grouting, etc., incidental to and required for specific construction features is included as part of the construction features.

04 Dams	This feature includes dams and all other water collecting and storage facilities, whether man-made or natural, together with appurtenant diversion, regulation, and delivery facilities and spillways, outlet works, and power intake works, whether separate from the dam or not. In the case where the powerhouse is an integral part of the intake dam, the cost of the power intake dam is included in the feature "Power Plant." Any auxiliary dams or spillways detached from the main structures and floating trash and drift booms and barriers are included in this feature. The power intake works include such power items as forebay, penstocks, tunnels, surge tank, gates, operating equipment, and appurtenances. Service roads and service railroads on the dam are included in this feature. The additional cost of relocating highways and railroads across the dam is included in the feature "Relocations."
05 Locks	This feature includes facilities to provide for passage of waterborne traffic, including gates, valves, operating mechanisms, cribs, fills, lock walls, guide and guard walls, operating buildings, and excavation therefore. The lock structure is considered that part of the work within the limit lines extending from the upper end of the upper guide or guard walls to the lower end of the lower guide or guard walls, including dolphins within the lock approaches for tie up, guard, or guide purposes. Excavation or dredging• required in approaches outside of the limits defined above for the lock structure is included in the feature "Channels and Canals." The cost of a cofferdam or the properly allocable amount thereof, if required, is charged to this feature. Locks provided in connection with facilities for the prevention of encroachment of salt water are included in this feature. Locks in connection with fish facilities are included in the feature "Fish and Wildlife Facilities."
06 Fish and Wildlife Facilities	This feature includes items such as ladders, elevators, locks and related facilities for passage of fish at dams and navigation locks and maintenance of fish runs; and provision for wildlife preservation.
07 Power Plant	This feature includes those facilities specifically required for the production of power other than those included in the feature "Dams," and consists of the following: powerhouse, turbines and governors, generators, accessory electrical equipment, miscellaneous power plant equipment, switchyard, and tailrace improvement for power. In the case where the powerhouse is an integral part of the power intake dam, the cost of the power intake dam is included in this feature. Where the structure of a dam also forms the foundation of the powerhouse, such foundation is considered a part of the dam. Units for production of power for the operation only of power for the operation only of navigation, flood control, or other purpose projects (excluding those projects with power as a feature) are included in other than this feature. The cost of a cofferdam or appropriate part is charged to this feature.
08 Roads, Railroads and Bridges	This feature includes permanent roads, railroads, and bridges required for access and other purposes in connection with the construction and operation of the project. This feature does not include roads, railroads, and bridges chargeable to the feature "Relocations," access roads to recreation facilities and areas, which will be charged to the feature "14. Recreation Facilities," and service roads and service railroads on structures.
09 Channels and Canals	This feature includes all forms of excavation (including dredging, preparation of spoil disposal area, and attendant facilities) necessary for the development and construction of channels, harbors, and canals for navigation purposes; and deepening, providing new, or improving existing watercourses for flood control and major drainage. Excavation of natural watercourse to provide adequate depths for navigation is included. Excavation for specific structures, such as dams and locks used in the development of waterways and conservation of water resources, is included with such structures. The removal of trees, brush, accumulated snags, drift, debris, water hyacinths and other aquatic growths from canals, harbors, and channels in navigable streams and tributaries thereof for navigational included in this feature. Excavation, clearing, and removal of accumulated snags, drifts, debris, and vegetable growth from streams for flood control and major drainage purposes also is included. Included in this feature are revetments, linings, dikes, and bulkheads constructed as channel improvement works for flood control or navigation, as against such items constructed for bank stabilization only. Also included are jetties constructed in connection with flood control channel improvements.
10 Breakwaters and Seawalls	This feature includes breakwaters, seawalls, piers, and like improvements constructed in connection with the protection of beaches, harbors, shores•, and port facilities against the force of waves and encroachment of seas or lakes by direct wave action. Jetties, groins, and like structures provided in seas, lakes, tidewater reaches of rivers and canals, and harbors to control water flow and current, to maintain depth of channels, and to provide protection, are included in this feature.
11 Levees and Floodwalls	This feature includes embankments and walls constructed to protect areas from inundation by overflow from creeks, rivers, lakes, canals, and other bodies of water. This feature consists of such items as: service roads on levee crown or landside berms, road ramps, closure structures, seepage control measures, erosion protection measures on levee slopes and on berms and bank slops when an integral part of the levees or floodwalls; and drainage facilities, constructed to provide means for the passage of accumulated drainage and seepage water and sewage from the protected area over or through levees and floodwalls, comprising such items as interceptor and collection sewers and ditches, and pressurized sewers and drainage structures, including outfalls through levees or floodwalls. Pumping plants are included in the feature "Pumping Plants." Levees locally called dikes are included in this feature.
13 Pumping Plants	This feature includes pumping plants construction to pass accumulated drainage and seepage water and sewage from the protected area over or through levees and floodwalls.
14 Recreation Facilities	This feature includes access roads; parking areas; public camping and picnicking areas, including tables and fireplaces; water supply; sanitary facilities; boat launching ramps; directional signs; and other facilities constructed primarily for public recreational use, including essential safety measures in connection therewith. The latter includes, as appropriate, sheltered anchorage areas for small craft, bathing areas readily accessible and reasonably safe, and safety provisions for visitors and fishermen in the project area. (Boat launching ramps, anchorage areas and beaches should be provided during construction to the extent they will definitely be needed and can be accomplished more economically than at a later date.)
15 Floodway Control and Diversion Structures	This feature includes floodway control and diversion structures to provide for the release of flood waters from streams where discharges exceed flood capacity of the stream, including items such as diversion dams, gated or ungated discharge structures, training walls, stilling basin, and those adjacent embankment sections forming part of the control structure. Construction of channels and levees not forming part of the main control structure, but necessary for operation of such structures is included in the appropriate feature "Channels and Canals" or "Levees and Floodwalls."
16 Bank Stabilization	This feature includes revetments, linings, training dikes, and bulkheads for stabilization of banks of watercourses to prevent erosion, sloughing, or meandering. Bank stabilization constructed in navigation channels or in connection with flood control channel improvement is included in• the feature "Channels and Canals."
17 Beach Replenishment	This feature includes replacement of eroded beaches, for purposes of recreation and shore protection, by direct deposit of materials obtained by dredging or land excavation.
19 Buildings, Grounds and Utilities	This feature includes permanent facilities such as operators' quarters, administration and shop buildings, storage buildings and areas, garage buildings and areas, community buildings, local streets and sidewalks, landscaping, and electric, gas, water, and sewage facilities. Where space in a dam, powerhouse, or other basic structure is used in lieu of construction of any of the above-mentioned buildings, such allocated space is not separated from the basic structure. Communication systems are• included in the feature "Permanent Operating Equipment."
20 Permanent Operating Equipment	This feature includes all project-owned operation and maintenance tools and equipment, such as laboratory, shop, warehousing, communications, and transportation equipment, and office furniture and equipment. The cost of installing sedimentation and degradation measuring facilities, including the surveys requisite to locating and monumenting range layouts, is charged to this feature. •The cost of planning the installation of sedimentation and degradation ranges is charged to the feature "Engineering and Design."
30 Engineering and Design	This feature includes all engineering, design, surveys, preparation of detailed plans and specifications, and related work required for the construction of the project, including relocations. Surveys and planning required in connection with land acquisition are charged to the features "Lands and Damages" or "Relocations," as applicable. Engineering and design performed by hired labor or as a pay item under a contract is included in this feature.
31 Supervision and Administration	This feature includes such functions as inspection, supervision, project office administration, and distributive costs of area office and general overhead charged to the project. Costs for OCE and Division Office Executive Direction and Management are not charged to Construction, General but to the General Expenses appropriation title.

Date of Index Factors: 30-Sep-21

CWCCIS ESCALATION CALCULATION

Enter Code below

19 **BUILDINGS, GROUNDS & UTILITIES** **23 th row**

Pick FY Quarter - Check Dates	FY Quarter	Dates	Index	
Estimate Pricing Level Date:	**2021Q1**		905.63	/
Middle Point of Construction Date:	**2022Q1**		1,025.80	=

Escalation Percentage: -> 113.27%

Paste the Web Address into browser for downloadable (.pdf) source of factors:

Feature	**07 POWER PLANT**			
	Month	Day	Year	CWCCIS
Construction Start	**10**	**12**	**2024**	2025Q1
Construction End	**3**	**12**	**2030**	2030Q2
Midpoint	6	27	2027	2027Q3
Feature	**NOT USED**			
	Month	Day	Year	CWCCIS
Construction Start	**1**	**1**	**2022**	2022Q2
Construction End	**1**	**1**	**2001**	2001Q2
Midpoint	7	3	2011	2011Q4
Feature	**NOT USED**			
	Month	Day	Year	CWCCIS
Construction Start	**1**	**1**	**2000**	2000Q2
Construction End	**1**	**1**	**2001**	2001Q2
Midpoint	7	2	2000	2000Q4
Feature	**NOT USED**			
	Month	Day	Year	CWCCIS
Construction Start	**1**	**1**	**2000**	2000Q2
Construction End	**1**	**1**	**2001**	2001Q2
Midpoint	7	2	2000	2000Q4
Feature	**NOT USED**			
	Month	Day	Year	CWCCIS
Construction Start	**1**	**1**	**2000**	2000Q2
Construction End	**1**	**1**	**2001**	2001Q2
Midpoint	7	2	2000	2000Q4
Feature	**NOT USED**			
	Month	Day	Year	CWCCIS
Construction Start	**1**	**1**	**2000**	2000Q2
Construction End	**1**	**1**	**2001**	2001Q2
Midpoint	7	2	2000	2000Q4
Feature	**NOT USED**			
	Month	Day	Year	CWCCIS
Construction Start	**1**	**1**	**2000**	2000Q2
Construction End	**1**	**1**	**2001**	2001Q2
Midpoint	7	2	2000	2000Q4

	Days
January	31
February	28.25
March	31
April	30
May	31
June	30
July	31
August	31
September	30
October	31
Novermber	30
December	31

365/183

Use this sheet to determine the midpoint of construction.

Cells with gray fill and blue text are input cells.

Cells with yellow fill are output cells.

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

PROJECT: **Baltimore City Coastal Storm Risk Management Nonstructural 50 Years**
PROJECT NO: P2 xxxxxx
LOCATION: Baltimore, MD

DISTRICT: **NAB District** **PREPARED:** **3/6/2022**
POC: **CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey**

This Estimate reflects the scope and schedule in report; FS Report (underway)

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)						TOTAL PROJECT COST (FULLY FUNDED)			
						Program Year (Budget EC): 2023									
						Effective Price Level Date: 1 OCT 22									
										Spent Thru:					
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	**TOTAL ($K)**	**1-Oct-21** ($K)	**TOTAL FIRST COST** ($K)	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*		*K*	*L*	*M*	*N*	*O*
19	BUILDINGS, GROUNDS & UTILITIES	$104,975	$35,691	34.0%	$140,666	3.2%	$108,305	$36,824	$145,128	$0	$145,128	108.1%	$225,349	$76,619	$301,968
18	CULTURAL RESOURCE PRESERVATION	$1,050	$357	34.0%	$1,407	3.2%	$1,083	$368	$1,451	$0	$1,451	108.1%	$2,253	$766	$3,020
	CONSTRUCTION ESTIMATE TOTALS:	$106,025	$36,048		$142,073	3.2%	$109,388	$37,192	$146,580	$0	$146,580	108.1%	$227,602	$77,385	$304,987
01	LANDS AND DAMAGES	$1,050	$315	30.0%	$1,365	3.2%	$1,083	$325	$1,408	$0	$1,408	108.1%	$2,253	$676	$2,930
30	PLANNING, ENGINEERING & DESIGN	$16,169	$1,617	10.0%	$17,786	2.5%	$16,573	$1,657	$18,230	$0	$18,230	90.3%	$31,534	$3,153	$34,687
31	CONSTRUCTION MANAGEMENT	$10,072	$1,007	10.0%	$11,080	2.5%	$10,324	$1,032	$11,357	$0	$11,357	90.3%	$19,644	$1,964	$21,609
	PROJECT COST TOTALS:	$133,316	$38,987	29.2%	$172,303		$137,368	$40,206	**$177,574**	$0	**$177,574**	105.1%	$281,034	$83,179	$364,213

ESTIMATED TOTAL PROJECT COST: **$364,213**

_____ **CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey**

_____ **PROJECT MANAGER, Katherine Perkins**

_____ **CHIEF, REAL ESTATE, Susan K. Lev**

_____ **CHIEF, PLANNING, Amy M. Guise**

_____ **CHIEF, ENGINEERING, Mary P. Foutz**

_____ **CHIEF, OPERATIONS, Patrick G. Findlay**

_____ **CHIEF, CONSTRUCTION, Jeff J. Werner**

_____ **CHIEF, CONTRACTING, Paula M. Beck**

_____ **CHIEF, PP-C, Justin Callahan**

_____ **CHIEF, DPM, David B. Morrow**

****** CONTRACT COST SUMMARY ******

PROJECT: Baltimore City Coastal Storm Risk Management Nonstructural 50 Years
LOCATION: Baltimore, MD
This Estimate reflects the scope and schedule in report; FS Report (underway)

DISTRICT: NAB District PREPARED: 3/6/2022
POC: CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared: 6-Feb-22				Program Year (Budget EC): 2023								
		Effective Price Level: 1-Oct-21				Effective Price Level Date: 1 OCT 22								
				RISK BASED										
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Mid-Point Date	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*P*	*L*	*M*	*N*	*O*
	MA 1													
19	BUILDINGS, GROUNDS & UTILITIES	$509	$173	34.0%	$682	3.2%	$525	$178	$703	2047Q1	108.1%	$1,092	$371	$1,463
18	CULTURAL RESOURCE PRESERVATION	$5	$2	34.0%	$7	3.2%	$5	$2	$7	2047Q1	108.1%	$11	$4	$15
	CONSTRUCTION ESTIMATE TOTALS:	$514	$175	34.0%	**$688**		$530	$180	$710			$1,103	$375	$1,478
01	LANDS AND DAMAGES	$5	$2	30.0%	$7	3.2%	$5	$2	$7	2047Q1	108.1%	$11	$3	$14
30	PLANNING, ENGINEERING & DESIGN													
2.5%	Project Management	$13	$1	10.0%	$14	2.5%	$13	$1	$14	2047Q1	90.3%	$25	$3	$28
1.0%	Planning & Environmental Compliance	$5	$1	10.0%	$6	2.5%	$5	$1	$6	2047Q1	90.3%	$10	$1	$11
8.0%	Engineering & Design	$41	$4	10.0%	$45	2.5%	$42	$4	$46	2047Q1	90.3%	$80	$8	$88
1.3%	Reviews, ATRs, IEPRs, VE	$6	$1	10.0%	$7	2.5%	$7	$1	$7	2047Q1	90.3%	$13	$1	$14
1.0%	Life Cycle Updates (cost, schedule, risks)	$5	$1	10.0%	$6	2.5%	$5	$1	$6	2047Q1	90.3%	$10	$1	$11
0.0%	Contracting & Reprographics	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
1.0%	Engineering During Construction	$5	$1	10.0%	$6	2.5%	$5	$1	$6	2047Q1	90.3%	$10	$1	$11
0.5%	Planning During Construction	$3	$0	10.0%	$3	2.5%	$3	$0	$3	2047Q1	90.3%	$5	$1	$6
0.0%	Adaptive Management & Monitoring	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
0.0%	Project Operations	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
31	CONSTRUCTION MANAGEMENT													
7.5%	Construction Management	$39	$4	10.0%	$42	2.5%	$39	$4	$43	2047Q1	90.3%	$75	$8	$83
0.0%	Project Operation:	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
2.0%	Project Management	$10	$1	10.0%	$11	2.5%	$11	$1	$12	2047Q1	90.3%	$20	$2	$22
	CONTRACT COST TOTALS:	$646	$189		$835		$666	$195	**860**			$1,362	$403	**$1,765**

**** CONTRACT COST SUMMARY ****

PROJECT: Baltimore City Coastal Storm Risk Management Nonstructural 50 Years
LOCATION: Baltimore, MD
This Estimate reflects the scope and schedule in report; FS Report (underway)

DISTRICT: NAB District
POC: CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey
PREPARED: 2/6/2021

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared: 6-Feb-22				Program Year (Budget EC): 2023								
		Effective Price Level: 1-Oct-21				Effective Price Level Date: 1 OCT 22								
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Mid-Point Date	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*P*	*L*	*M*	*N*	*O*
	MA9													
19	BUILDINGS, GROUNDS & UTILITIES	$9,663	$3,286	34.0%	$12,949	3.2%	$9,970	$3,390	$13,360	2047Q1	108.1%	$20,744	$7,053	$27,797
18	CULTURAL RESOURCE PRESERVATION	$97	$33	34.0%	$129	3.2%	$100	$34	$134	2047Q1	108.1%	$207	$71	$278

	CONSTRUCTION ESTIMATE TOTALS:	$9,760	$3,318	34.0%	**$13,078**		$10,070	$3,424	$13,493			$20,952	$7,124	$28,075
01	LANDS AND DAMAGES	$97	$29	30.0%	$126	3.2%	$100	$30	$130	2047Q1	108.1%	$207	$62	$270
30	PLANNING, ENGINEERING & DESIGN													
2.5%	Project Management	$244	$24	10.0%	$268	2.5%	$250	$25	$275	2047Q1	90.3%	$476	$48	$523
1.0%	Planning & Environmental Compliance	$98	$10	10.0%	$107	2.5%	$100	$10	$110	2047Q1	90.3%	$190	$19	$209
8.0%	Engineering & Design	$781	$78	10.0%	$859	2.5%	$800	$80	$880	2047Q1	90.3%	$1,523	$152	$1,675
1.3%	Reviews, ATRs, IEPRs, VE	$122	$12	10.0%	$134	2.5%	$125	$13	$138	2047Q1	90.3%	$238	$24	$262
1.0%	Life Cycle Updates (cost, schedule, risks)	$98	$10	10.0%	$107	2.5%	$100	$10	$110	2047Q1	90.3%	$190	$19	$209
0.0%	Contracting & Reprographics	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
1.0%	Engineering During Construction	$98	$10	10.0%	$107	2.5%	$100	$10	$110	2047Q1	90.3%	$190	$19	$209
0.5%	Planning During Construction	$49	$5	10.0%	$54	2.5%	$50	$5	$55	2047Q1	90.3%	$95	$10	$105
0.0%	Adaptive Management & Monitoring	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
0.0%	Project Operations	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
31	CONSTRUCTION MANAGEMENT													
7.5%	Construction Management	$732	$73	10.0%	$805	2.5%	$750	$75	$825	2047Q1	90.3%	$1,428	$143	$1,570
0.0%	Project Operation:	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
2.0%	Project Management	$195	$20	10.0%	$215	2.5%	$200	$20	$220	2047Q1	90.3%	$381	$38	$419
	CONTRACT COST TOTALS:	$12,272	$3,589		$15,861		$12,645	$3,701	**$16,346**			$25,870	$7,657	**$33,527**

****** CONTRACT COST SUMMARY ******

PROJECT: Baltimore City Coastal Storm Risk Management Nonstructural 50 Years
LOCATION: Baltimore, MD
This Estimate reflects the scope and schedule in report; FS Report (underway)

DISTRICT: NAB District
POC: CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey
PREPARED: 2/6/2021

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared: / Effective Price Level:			6-Feb-22 / 1-Oct-21	Program Year (Budget EC): / Effective Price Level Date:			2023 / 1 OCT 22					
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Mid-Point Date	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*P*	*L*	*M*	*N*	*O*
	MA10													
19	BUILDINGS, GROUNDS & UTILITIES	$59,166	$20,117	34.0%	$79,283	3.2%	$61,043	$20,755	$81,798	2047Q1	108.1%	$127,012	$43,184	$170,196
18	CULTURAL RESOURCE PRESERVATION	$592	$201	34.0%	$793	3.2%	$610	$208	$818	2047Q1	108.1%	$1,270	$432	$1,702
	CONSTRUCTION ESTIMATE TOTALS:	$59,758	$20,318	34.0%	**$80,076**		$61,654	$20,962	$82,616			$128,282	$43,616	$171,898
01	LANDS AND DAMAGES	$592	$177	30.0%	$769	3.2%	$610	$183	$794	2047Q1	108.1%	$1,270	$381	$1,651
30	PLANNING, ENGINEERING & DESIGN													
2.5%	Project Management	$1,494	$149	10.0%	$1,643	2.5%	$1,531	$153	$1,684	2047Q1	90.3%	$2,914	$291	$3,205
1.0%	Planning & Environmental Compliance	$598	$60	10.0%	$657	2.5%	$613	$61	$674	2047Q1	90.3%	$1,165	$117	$1,282
8.0%	Engineering & Design	$4,781	$478	10.0%	$5,259	2.5%	$4,900	$490	$5,390	2047Q1	90.3%	$9,324	$932	$10,256
1.3%	Reviews, ATRs, IEPRs, VE	$747	$75	10.0%	$822	2.5%	$766	$77	$842	2047Q1	90.3%	$1,457	$146	$1,603
1.0%	Life Cycle Updates (cost, schedule, risks)	$598	$60	10.0%	$657	2.5%	$613	$61	$674	2047Q1	90.3%	$1,165	$117	$1,282
0.0%	Contracting & Reprographics	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
1.0%	Engineering During Construction	$598	$60	10.0%	$657	2.5%	$613	$61	$674	2047Q1	90.3%	$1,165	$117	$1,282
0.5%	Planning During Construction	$299	$30	10.0%	$329	2.5%	$306	$31	$337	2047Q1	90.3%	$583	$58	$641
0.0%	Adaptive Management & Monitoring	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
0.0%	Project Operations	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
31	CONSTRUCTION MANAGEMENT													
7.5%	Construction Management	$4,482	$448	10.0%	$4,930	2.5%	$4,594	$459	$5,053	2047Q1	90.3%	$8,741	$874	$9,615

0.0%	Project Operation:	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
2.0%	Project Management	$1,195	$120	10.0%	$1,315	2.5%	$1,225	$123	$1,348	2047Q1	90.3%	$2,331	$233	$2,564
	CONTRACT COST TOTALS:	$75,140	$21,974		**$97,114**		$77,424	$22,661	**$100,085**			$158,398	$46,882	**$205,279**

**** CONTRACT COST SUMMARY ****

PROJECT: Baltimore City Coastal Storm Risk Management Nonstructural 50 Years
LOCATION: Baltimore, MD
This Estimate reflects the scope and schedule in report; FS Report (underway)

DISTRICT: NAB District
POC: CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey
PREPARED: 2/6/2021

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared:			6-Feb-22	Program Year (Budget EC):			2023	FULLY FUNDED PROJECT ESTIMATE				
		Effective Price Level:			1-Oct-21	Effective Price Level Date:			1 OCT 22					
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Mid-Point Date	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*P*	*L*	*M*	*N*	*O*
	MA11													
19	BUILDINGS, GROUNDS & UTILITIES	$4,916	$1,672	34.0%	$6,588	3.2%	$5,072	$1,725	$6,797	2047Q1	108.1%	$10,554	$3,588	$14,142
18	CULTURAL RESOURCE PRESERVATION	$49	$17	34.0%	$66	3.2%	$51	$17	$68	2047Q1	108.1%	$106	$36	$141
	CONSTRUCTION ESTIMATE TOTALS:	$4,966	$1,688	34.0%	**$6,654**		$5,123	$1,742	$6,865			$10,660	$3,624	$14,284
01	LANDS AND DAMAGES	$49	$15	30.0%	$64	3.2%	$51	$15	$66	2047Q1	108.1%	$106	$32	$137
30	PLANNING, ENGINEERING & DESIGN													
2.5%	Project Management	$124	$12	10.0%	$137	2.5%	$127	$13	$140	2047Q1	90.3%	$242	$24	$266
1.0%	Planning & Environmental Compliance	$50	$5	10.0%	$55	2.5%	$51	$5	$56	2047Q1	90.3%	$97	$10	$107
8.0%	Engineering & Design	$397	$40	10.0%	$437	2.5%	$407	$41	$448	2047Q1	90.3%	$775	$77	$852
1.3%	Reviews, ATRs, IEPRs, VE	$62	$6	10.0%	$68	2.5%	$64	$6	$70	2047Q1	90.3%	$121	$12	$133
1.0%	Life Cycle Updates (cost, schedule, risks)	$50	$5	10.0%	$55	2.5%	$51	$5	$56	2047Q1	90.3%	$97	$10	$107
0.0%	Contracting & Reprographics	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
1.0%	Engineering During Construction	$50	$5	10.0%	$55	2.5%	$51	$5	$56	2047Q1	90.3%	$97	$10	$107
0.5%	Planning During Construction	$25	$2	10.0%	$27	2.5%	$25	$3	$28	2047Q1	90.3%	$48	$5	$53
0.0%	Adaptive Management & Monitoring	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
0.0%	Project Operations	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
31	CONSTRUCTION MANAGEMENT													
7.5%	Construction Management	$372	$37	10.0%	$410	2.5%	$382	$38	$420	2047Q1	90.3%	$726	$73	$799
0.0%	Project Operation:	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
2.0%	Project Management	$99	$10	10.0%	$109	2.5%	$102	$10	$112	2047Q1	90.3%	$194	$19	$213
	CONTRACT COST TOTALS:	$6,244	$1,826		**$8,070**		$6,434	$1,883	**$8,317**			$13,162	$3,896	**$17,058**

**** CONTRACT COST SUMMARY ****

PROJECT: Baltimore City Coastal Storm Risk Management Nonstructural 50 Years
LOCATION: Baltimore, MD
This Estimate reflects the scope and schedule in report; FS Report (underway)

DISTRICT: NAB District
POC: CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey
PREPARED: 2/6/2021

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared:			6-Feb-22	Program Year (Budget EC):			2023	FULLY FUNDED PROJECT ESTIMATE				
		Effective Price Level:			1-Oct-21	Effective Price Level Date:			1 OCT 22					
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Mid-Point Date	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*P*	*L*	*M*	*N*	*O*
	MA12													
19	BUILDINGS, GROUNDS & UTILITIES	$339	$115	34.0%	$454	3.2%	$350	$119	$469	2047Q1	108.1%	$728	$247	$975
18	CULTURAL RESOURCE PRESERVATION	$3	$1	34.0%	$5	3.2%	$3	$1	$5	2047Q1	108.1%	$7	$2	$10

	CONSTRUCTION ESTIMATE TOTALS:	$342	$116	34.0%	**$459**		$353	$120	$473			$735	$250	$985
01	LANDS AND DAMAGES	$3	$1	30.0%	$4	3.2%	$3	$1	$5	2047Q1	108.1%	$7	$2	$9
30	PLANNING, ENGINEERING & DESIGN													
2.5%	Project Management	$9	$1	10.0%	$9	2.5%	$9	$1	$10	2047Q1	90.3%	$17	$2	$18
1.0%	Planning & Environmental Compliance	$3	$0	10.0%	$4	2.5%	$4	$0	$4	2047Q1	90.3%	$7	$1	$7
8.0%	Engineering & Design	$27	$3	10.0%	$30	2.5%	$28	$3	$31	2047Q1	90.3%	$53	$5	$59
1.3%	Reviews, ATRs, IEPRs, VE	$4	$0	10.0%	$5	2.5%	$4	$0	$5	2047Q1	90.3%	$8	$1	$9
1.0%	Life Cycle Updates (cost, schedule, risks)	$3	$0	10.0%	$4	2.5%	$4	$0	$4	2047Q1	90.3%	$7	$1	$7
0.0%	Contracting & Reprographics	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
1.0%	Engineering During Construction	$3	$0	10.0%	$4	2.5%	$4	$0	$4	2047Q1	90.3%	$7	$1	$7
0.5%	Planning During Construction	$2	$0	10.0%	$2	2.5%	$2	$0	$2	2047Q1	90.3%	$3	$0	$4
0.0%	Adaptive Management & Monitoring	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
0.0%	Project Operations	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
31	CONSTRUCTION MANAGEMENT													
7.5%	Construction Management	$26	$3	10.0%	$28	2.5%	$26	$3	$29	2047Q1	90.3%	$50	$5	$55
0.0%	Project Operation:	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
2.0%	Project Management	$7	$1	10.0%	$8	2.5%	$7	$1	$8	2047Q1	90.3%	$13	$1	$15
	CONTRACT COST TOTALS:	$431	$126		**$557**		$444	$130	**$574**			$908	$269	**$1,176**

****** CONTRACT COST SUMMARY ******

PROJECT: Baltimore City Coastal Storm Risk Management Nonstructural 50 Years
LOCATION: Baltimore, MD
This Estimate reflects the scope and schedule in report; FS Report (underway)

DISTRICT: NAB District
POC: CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey
PREPARED: 2/6/2021

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared:			6-Feb-22	Program Year (Budget EC):			2023					
		Effective Price Level:			1-Oct-21	Effective Price Level Date:			1 OCT 22	FULLY FUNDED PROJECT ESTIMATE				
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Mid-Point Date	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*P*	*L*	*M*	*N*	*O*
	MA14													
19	BUILDINGS, GROUNDS & UTILITIES	$2,713	$922	34.0%	$3,635	3.2%	$2,799	$952	$3,750	2047Q1	108.1%	$5,823	$1,980	$7,803
18	CULTURAL RESOURCE PRESERVATION	$27	$9	34.0%	$36	3.2%	$28	$10	$38	2047Q1	108.1%	$58	$20	$78
	CONSTRUCTION ESTIMATE TOTALS:	$2,740	$931	34.0%	**$3,671**		$2,827	$961	$3,788			$5,881	$2,000	$7,881
01	LANDS AND DAMAGES	$27	$8	30.0%	$35	3.2%	$28	$8	$36	2047Q1	108.1%	$58	$17	$76
30	PLANNING, ENGINEERING & DESIGN													
2.5%	Project Management	$68	$7	10.0%	$75	2.5%	$70	$7	$77	2047Q1	90.3%	$134	$13	$147
1.0%	Planning & Environmental Compliance	$27	$3	10.0%	$30	2.5%	$28	$3	$31	2047Q1	90.3%	$53	$5	$59
8.0%	Engineering & Design	$219	$22	10.0%	$241	2.5%	$225	$22	$247	2047Q1	90.3%	$427	$43	$470
1.3%	Reviews, ATRs, IEPRs, VE	$34	$3	10.0%	$38	2.5%	$35	$4	$39	2047Q1	90.3%	$67	$7	$73
1.0%	Life Cycle Updates (cost, schedule, risks)	$27	$3	10.0%	$30	2.5%	$28	$3	$31	2047Q1	90.3%	$53	$5	$59
0.0%	Contracting & Reprographics	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
1.0%	Engineering During Construction	$27	$3	10.0%	$30	2.5%	$28	$3	$31	2047Q1	90.3%	$53	$5	$59
0.5%	Planning During Construction	$14	$1	10.0%	$15	2.5%	$14	$1	$15	2047Q1	90.3%	$27	$3	$29
0.0%	Adaptive Management & Monitoring	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
0.0%	Project Operations	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
31	CONSTRUCTION MANAGEMENT													
7.5%	Construction Management	$205	$21	10.0%	$226	2.5%	$211	$21	$232	2047Q1	90.3%	$401	$40	$441
0.0%	Project Operation:	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0

2.0%	Project Management	$55	$5	10.0%	$60	2.5%	$56	$6	$62	2047Q1	90.3%	$107	$11	$118
	CONTRACT COST TOTALS:	$3,445	$1,007		**$4,452**		$3,550	$1,039	**$4,588**			$7,262	$2,149	**$9,411**

**** CONTRACT COST SUMMARY ****

PROJECT: Baltimore City Coastal Storm Risk Management Nonstructural 50 Years
LOCATION: Baltimore, MD
This Estimate reflects the scope and schedule in report; FS Report (underway)

DISTRICT: NAB District
POC: CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey

PREPARED: 2/6/2021

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared:			6-Feb-22	Program Year (Budget EC):			2023	FULLY FUNDED PROJECT ESTIMATE				
		Effective Price Level:			1-Oct-21	Effective Price Level Date:			1 OCT 22					
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Mid-Point Date	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*P*	*L*	*M*	*N*	*O*
	MA15													
19	BUILDINGS, GROUNDS & UTILITIES	$1,356	$461	34.0%	$1,817	3.2%	$1,399	$476	$1,875	2047Q1	108.1%	$2,911	$990	$3,901
18	CULTURAL RESOURCE PRESERVATION	$14	$5	34.0%	$18	3.2%	$14	$5	$19	2047Q1	108.1%	$29	$10	$39
	CONSTRUCTION ESTIMATE TOTALS:	$1,370	$466	34.0%	**$1,836**		$1,413	$481	$1,894			$2,941	$1,000	$3,940
01	LANDS AND DAMAGES	$14	$4	30.0%	$18	3.2%	$14	$4	$18	2047Q1	108.1%	$29	$9	$38
30	PLANNING, ENGINEERING & DESIGN													
2.5%	Project Management	$34	$3	10.0%	$38	2.5%	$35	$4	$39	2047Q1	90.3%	$67	$7	$73
1.0%	Planning & Environmental Compliance	$14	$1	10.0%	$15	2.5%	$14	$1	$15	2047Q1	90.3%	$27	$3	$29
8.0%	Engineering & Design	$110	$11	10.0%	$121	2.5%	$112	$11	$124	2047Q1	90.3%	$214	$21	$235
1.3%	Reviews, ATRs, IEPRs, VE	$17	$2	10.0%	$19	2.5%	$18	$2	$19	2047Q1	90.3%	$33	$3	$37
1.0%	Life Cycle Updates (cost, schedule, risks)	$14	$1	10.0%	$15	2.5%	$14	$1	$15	2047Q1	90.3%	$27	$3	$29
0.0%	Contracting & Reprographics	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
1.0%	Engineering During Construction	$14	$1	10.0%	$15	2.5%	$14	$1	$15	2047Q1	90.3%	$27	$3	$29
0.5%	Planning During Construction	$7	$1	10.0%	$8	2.5%	$7	$1	$8	2047Q1	90.3%	$13	$1	$15
0.0%	Adaptive Management & Monitoring	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
0.0%	Project Operations	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
31	CONSTRUCTION MANAGEMENT													
7.5%	Construction Management	$103	$10	10.0%	$113	2.5%	$105	$11	$116	2047Q1	90.3%	$200	$20	$220
0.0%	Project Operation:	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
2.0%	Project Management	$27	$3	10.0%	$30	2.5%	$28	$3	$31	2047Q1	90.3%	$53	$5	$59
	CONTRACT COST TOTALS:	$1,722	$504		**$2,226**		$1,775	$519	**$2,294**			$3,631	$1,075	**$4,706**

**** CONTRACT COST SUMMARY ****

PROJECT: Baltimore City Coastal Storm Risk Management Nonstructural 50 Years
LOCATION: Baltimore, MD
This Estimate reflects the scope and schedule in report; FS Report (underway)

DISTRICT: NAB District
POC: CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey

PREPARED: 2/6/2021

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared:			6-Feb-22	Program Year (Budget EC):			2023	FULLY FUNDED PROJECT ESTIMATE				
		Effective Price Level:			1-Oct-21	Effective Price Level Date:			1 OCT 22					
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Mid-Point Date	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*P*	*L*	*M*	*N*	*O*
	MA16													
19	BUILDINGS, GROUNDS & UTILITIES	$170	$58	34.0%	$227	3.2%	$175	$59	$234	2047Q1	108.1%	$364	$124	$488
18	CULTURAL RESOURCE PRESERVATION	$2	$1	34.0%	$2	3.2%	$2	$1	$2	2047Q1	108.1%	$4	$1	$5

	CONSTRUCTION ESTIMATE TOTALS:	$171	$58	34.0%	**229**		$177	$60	$237			$368	$125	$493
01	LANDS AND DAMAGES	$2	$1	30.0%	$ 2	3.2%	$2	$1	$2	2047Q1	108.1%	$4	$1	$5
30	PLANNING, ENGINEERING & DESIGN													
2.5%	Project Management	$4	$0	10.0%	$5	2.5%	$4	$0	$5	2047Q1	90.3%	$8	$1	$9
1.0%	Planning & Environmental Compliance	$2	$0	10.0%	$2	2.5%	$2	$0	$2	2047Q1	90.3%	$3	$0	$4
8.0%	Engineering & Design	$14	$1	10.0%	$15	2.5%	$14	$1	$15	2047Q1	90.3%	$27	$3	$29
1.3%	Reviews, ATRs, IEPRs, VE	$2	$0	10.0%	$2	2.5%	$2	$0	$2	2047Q1	90.3%	$4	$0	$5
1.0%	Life Cycle Updates (cost, schedule, risks)	$2	$0	10.0%	$2	2.5%	$2	$0	$2	2047Q1	90.3%	$3	$0	$4
0.0%	Contracting & Reprographics	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
1.0%	Engineering During Construction	$2	$0	10.0%	$2	2.5%	$2	$0	$2	2047Q1	90.3%	$3	$0	$4
0.5%	Planning During Construction	$1	$0	10.0%	$1	2.5%	$1	$0	$1	2047Q1	90.3%	$2	$0	$2
0.0%	Adaptive Management & Monitoring	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
0.0%	Project Operations	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
31	CONSTRUCTION MANAGEMENT													
7.5%	Construction Management	$13	$1	10.0%	14	2.5%	$13	$1	$14	2047Q1	90.3%	$25	$3	$28
0.0%	Project Operation:	$0	$0	10.0%	0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
2.0%	Project Management	$3	$0	10.0%	4	2.5%	$4	$0	$4	2047Q1	90.3%	$7	$1	$7
	CONTRACT COST TOTALS:	$215	$63		**278**		$222	$65	**$287**			$454	$134	**$588**

****** CONTRACT COST SUMMARY ******

PROJECT: Baltimore City Coastal Storm Risk Management Nonstructural 50 Years
LOCATION: Baltimore, MD
This Estimate reflects the scope and schedule in report; FS Report (underway)

DISTRICT: NAB District
POC: CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey
PREPARED: 2/6/2021

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared:			6-Feb-22	Program Year (Budget EC):			2023					
		Effective Price Level:			1-Oct-21	Effective Price Level Date:			1 OCT 22	FULLY FUNDED PROJECT ESTIMATE				
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Mid-Point Date	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*P*	*L*	*M*	*N*	*O*
	MA17													
19	BUILDINGS, GROUNDS & UTILITIES	$4,547	$1,546	34.0%	$6,093	3.2%	$4,691	$1,595	$6,286	2047Q1	108.1%	$9,761	$3,319	$13,079
18	CULTURAL RESOURCE PRESERVATION	$45	$15	34.0%	$61	3.2%	$47	$16	$63	2047Q1	108.1%	$98	$33	$131
	CONSTRUCTION ESTIMATE TOTALS:	$4,592	$1,561	34.0%	**$6,154**		$4,738	$1,611	$6,349			$9,858	$3,352	$13,210
01	LANDS AND DAMAGES	$45	$14	30.0%	$59	3.2%	$47	$14	$61	2047Q1	108.1%	$98	$29	$127
30	PLANNING, ENGINEERING & DESIGN													
2.5%	Project Management	$115	$11	10.0%	$126	2.5%	$118	$12	$129	2047Q1	90.3%	$224	$22	$246
1.0%	Planning & Environmental Compliance	$46	$5	10.0%	$51	2.5%	$47	$5	$52	2047Q1	90.3%	$90	$9	$99
8.0%	Engineering & Design	$367	$37	10.0%	$404	2.5%	$377	$38	$414	2047Q1	90.3%	$717	$72	$788
1.3%	Reviews, ATRs, IEPRs, VE	$57	$6	10.0%	$63	2.5%	$59	$6	$65	2047Q1	90.3%	$112	$11	$123
1.0%	Life Cycle Updates (cost, schedule, risks)	$46	$5	10.0%	$51	2.5%	$47	$5	$52	2047Q1	90.3%	$90	$9	$99
0.0%	Contracting & Reprographics	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
1.0%	Engineering During Construction	$46	$5	10.0%	$51	2.5%	$47	$5	$52	2047Q1	90.3%	$90	$9	$99
0.5%	Planning During Construction	$23	$2	10.0%	$25	2.5%	$24	$2	$26	2047Q1	90.3%	$45	$4	$49
0.0%	Adaptive Management & Monitoring	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
0.0%	Project Operations	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
31	CONSTRUCTION MANAGEMENT													
7.5%	Construction Management	$344	$34	10.0%	$379	2.5%	$353	$35	$388	2047Q1	90.3%	$672	$67	$739
0.0%	Project Operation:	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
2.0%	Project Management	$92	$9	10.0%	$101	2.5%	$94	$9	$104	2047Q1	90.3%	$179	$18	$197

CONTRACT COST TOTALS:	$5,774	$1,689	**$7,463**		$5,950	$1,741	**$7,691**		$12,173	$3,603	**$15,775**

****** CONTRACT COST SUMMARY ******

PROJECT: Baltimore City Coastal Storm Risk Management Nonstructural 50 Years
LOCATION: Baltimore, MD
This Estimate reflects the scope and schedule in report; FS Report (underway)

DISTRICT: NAB District
POC: CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey
PREPARED: 2/6/2021

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared: 6-Feb-22 Effective Price Level: 1-Oct-21				Program Year (Budget EC): 2023 Effective Price Level Date: 1 OCT 22				FULLY FUNDED PROJECT ESTIMATE				
WBS NUMBER *A*	Civil Works Feature & Sub-Feature Description *B*	COST ($K) *C*	CNTG ($K) *D*	CNTG (%) *E*	TOTAL ($K) *F*	ESC (%) *G*	COST ($K) *H*	CNTG ($K) *I*	TOTAL ($K) *J*	Mid-Point Date *P*	INFLATED (%) *L*	COST ($K) *M*	CNTG ($K) *N*	FULL ($K) *O*
	MA22													
19	BUILDINGS, GROUNDS & UTILITIES	$20,918	$7,112	34.0%	$28,030	3.2%	$21,581	$7,338	$28,919	2047Q1	108.1%	$44,904	$15,267	$60,172
18	CULTURAL RESOURCE PRESERVATION	$209	$71	34.0%	$280	3.2%	$216	$73	$289	2047Q1	108.1%	$449	$153	$602
	CONSTRUCTION ESTIMATE TOTALS:	$21,127	$7,183	34.0%	**$28,310**		$21,797	$7,411	$29,208			$45,353	$15,420	$60,773
01	LANDS AND DAMAGES	$209	$63	30.0%	$272	3.2%	$216	$65	$281	2047Q1	108.1%	$449	$135	$584
30	PLANNING, ENGINEERING & DESIGN													
2.5%	Project Management	$528	$53	10.0%	$581	2.5%	$541	$54	$596	2047Q1	90.3%	$1,030	$103	$1,133
1.0%	Planning & Environmental Compliance	$211	$21	10.0%	$232	2.5%	$217	$22	$238	2047Q1	90.3%	$412	$41	$453
8.0%	Engineering & Design	$1,690	$169	10.0%	$1,859	2.5%	$1,732	$173	$1,906	2047Q1	90.3%	$3,296	$330	$3,626
1.3%	Reviews, ATRs, IEPRs, VE	$264	$26	10.0%	$290	2.5%	$271	$27	$298	2047Q1	90.3%	$515	$52	$567
1.0%	Life Cycle Updates (cost, schedule, risks)	$211	$21	10.0%	$232	2.5%	$217	$22	$238	2047Q1	90.3%	$412	$41	$453
0.0%	Contracting & Reprographics	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
1.0%	Engineering During Construction	$211	$21	10.0%	$232	2.5%	$217	$22	$238	2047Q1	90.3%	$412	$41	$453
0.5%	Planning During Construction	$106	$11	10.0%	$116	2.5%	$108	$11	$119	2047Q1	90.3%	$206	$21	$227
0.0%	Adaptive Management & Monitoring	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
0.0%	Project Operations	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
31	CONSTRUCTION MANAGEMENT													
7.5%	Construction Management	$1,585	$158	10.0%	$1,743	2.5%	$1,624	$162	$1,787	2047Q1	90.3%	$3,090	$309	$3,399
0.0%	Project Operation:	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
2.0%	Project Management	$423	$42	10.0%	$465	2.5%	$433	$43	$476	2047Q1	90.3%	$824	$82	$906
	CONTRACT COST TOTALS:	$26,565	$7,769		**$34,334**		$27,373	$8,012	**$35,384**			$56,000	$16,575	**$72,575**

****** CONTRACT COST SUMMARY ******

PROJECT: Baltimore City Coastal Storm Risk Management Nonstructural 50 Years
LOCATION: Baltimore, MD
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DISTRICT: NAB District
POC: CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey
PREPARED: 2/6/2021

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared: 6-Feb-22 Effective Price Level: 1-Oct-21				Program Year (Budget EC): 2023 Effective Price Level Date: 1 OCT 22				FULLY FUNDED PROJECT ESTIMATE				
WBS NUMBER *A*	Civil Works Feature & Sub-Feature Description *B*	COST ($K) *C*	CNTG ($K) *D*	CNTG (%) *E*	TOTAL ($K) *F*	ESC (%) *G*	COST ($K) *H*	CNTG ($K) *I*	TOTAL ($K) *J*	Mid-Point Date *P*	INFLATED (%) *L*	COST ($K) *M*	CNTG ($K) *N*	FULL ($K) *O*
	MA23													
19	BUILDINGS, GROUNDS & UTILITIES	$678	$231	34.0%	$909	3.2%	$700	$238	$938	2047Q1	108.1%	$1,456	$495	$1,951
18	CULTURAL RESOURCE PRESERVATION	$7	$2	34.0%	$9	3.2%	$7	$2	$9	2047Q1	108.1%	$15	$5	$20

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

		CONSTRUCTION ESTIMATE TOTALS:	$685	$233	34.0%	**$918**		$707	$240	$947			$1,470	$500	$1,970
01		LANDS AND DAMAGES	$7	$2	30.0%	$9	3.2%	$7	$2	$9	2047Q1	108.1%	$15	$4	$19
30		PLANNING, ENGINEERING & DESIGN													
2.5%		Project Management	$17	$2	10.0%	$19	2.5%	$18	$2	$19	2047Q1	90.3%	$33	$3	$37
1.0%		Planning & Environmental Compliance	$7	$1	10.0%	$8	2.5%	$7	$1	$8	2047Q1	90.3%	$13	$1	$15
8.0%		Engineering & Design	$55	$5	10.0%	$60	2.5%	$56	$6	$62	2047Q1	90.3%	$107	$11	$118
1.3%		Reviews, ATRs, IEPRs, VE	$9	$1	10.0%	$9	2.5%	$9	$1	$10	2047Q1	90.3%	$17	$2	$18
1.0%		Life Cycle Updates (cost, schedule, risks)	$7	$1	10.0%	$8	2.5%	$7	$1	$8	2047Q1	90.3%	$13	$1	$15
0.0%		Contracting & Reprographics	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
1.0%		Engineering During Construction	$7	$1	10.0%	$8	2.5%	$7	$1	$8	2047Q1	90.3%	$13	$1	$15
0.5%		Planning During Construction	$3	$0	10.0%	$4	2.5%	$4	$0	$4	2047Q1	90.3%	$7	$1	$7
0.0%		Adaptive Management & Monitoring	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
0.0%		Project Operations	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
31		CONSTRUCTION MANAGEMENT													
7.5%		Construction Management	$51	$5	10.0%	$57	2.5%	$53	$5	$58	2047Q1	90.3%	$100	$10	$110
0.0%		Project Operation:	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
2.0%		Project Management	$14	$1	10.0%	$15	2.5%	$14	$1	$15	2047Q1	90.3%	$27	$3	$29
		CONTRACT COST TOTALS:	$861	$252		**$1,113**		$887	$260	**$1,147**			$1,815	$537	**$2,353**

**** CONTRACT COST SUMMARY ****

PROJECT: Baltimore City Coastal Storm Risk Management Nonstructural 50 Years
LOCATION: Baltimore, MD
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PREPARED: 2/6/2021

Total Project Cost Summary

B-1. General.

A Total Project Cost Summary (TPCS) is required for all civil works cost estimates submitted for approval at all levels within the U.S. Army Corps of Engineers (Corps). The summary and supporting contract cost sheets are the basis for the official Project Cost Estimate (PB-3) ER 11-2-240. It is a living document, developed from feasibility to project completion to present current working estimate (cost, schedule (escalation), risks (contingencies). The TPCS must consider current escalation tables, which are updated twice annually: March and September.

The TPC reflects all applicable project feature costs, contingencies, escalation to Project First Cost and inflation to Fully Funded Project Costs and is presented in Federal and non-Federal dollars. The TPC emerges when the TPCS form is completed (shown in Figures B-2). The TPCS is a PDT product. While the cost engineer prepares the basic elements of the form, the PM, Real Estate and Construction offices play a major role in establishing Program Year, Federal and non-Federal shares, spent costs, 01 Lands and Damages, 30 PED and 31 Construction Management values.

For the cost engineer, the Total Project Cost form is developed and presented with three different estimates over time: Estimated Cost (Price Level), Project First Cost - Constant Dollar, and Total Project Cost – Fully Funded (reference Figure B-2)

i. Estimated Cost (Effective Price Level) (TPCS columns C through F) is the current developed cost estimate which includes contingencies. The effective price level date for Estimated Cost (shown in DAY MONTH YYYY format) is commonly reported as the previous 1 Oct 20XX to support economic study and escalation to Project First Cost

ii. Project First Cost - Constant Dollar Cost (TPCS columns G through K) is the Estimated Cost then escalated to the PROGRAM YEAR effective price level by applying the appropriate escalation from the CWCCIS tables. The Project First Cost - Constant Dollar (shown in 1 OCT 20XX) is the cost estimate used in feasibility reports and Chief of Engineer's Report (Chief's Report) for Congressional funding requests

iii. Total Project Cost (TPCS columns L through O) is the FULLY FUNDED WITH INFLATION to represent the total cost of the project. The inflation to midpoint of each activity is added from the Project First Cost column set. Total Project Cost (or Total Cost of Construction of GNFs when discussing navigation projects) is the cost estimate used in Project Partnership Agreements and Integral Determination Reports. Total Project Cost is the cost estimate provided to non-Federal sponsors for their use in financial planning as it provides information regarding the overall non-Federal cost

The Project First Cost – Constant Dollar Cost estimate is to be used in the Chief's Reports and other decision documents to support the funding request. The Project First Cost should include, among other things, an estimate of: (i) construction and management costs, including both Federal costs and non-Federal sponsor in-kind contributions, as applicable; (ii) planning engineering and design costs; (iii) lands, easements, rights-of-way, relocations and dredged materials (LERRD) values; and (iv) contingencies. Where several years elapse between the signing of the Chief's Report and the consideration of legislation to authorize a project, the Project First Cost must be updated to reflect the current Project First Cost date for Congressional funding consideration, in accordance with ER 1110-2-1302.

Figure B-1 illustrates the TPC process. Figures B-2 (summary sheet) and B-3 (sample supporting sheet) are examples based upon feasibility estimate reporting requirements in Engineer Regulation (ER) 1105-2-100, Planning Guidance Notebook. "Two project cost estimates shall be displayed in the feasibility report; one based on constant dollars and one based on projected inflation rates." The guidance notebook is referring to the Project First Cost and the Total Project Cost columns J and O. The TPCS (summary sheet) is a signature document for the appropriate district managerial approvals. ER 1105-2-100 states that project cost estimates will be prepared by or reviewed by the cost engineering office in the district and the chief of that office will sign the estimate. Real estate estimates included in the project cost are reviewed, approved, and signed by the chief or designee of the real estate office. Project Management is the third required signature that assumes responsibility for the TPCS value. Figure B-2 also lists other review/approval signatures that may be a district requirement.

Preparing a TPC during the feasibility phase is required, because it is the first document that will show the estimated total project cost at the anticipated authorizing budget year and forecast the total project cost inflated through construction based on the known scope and schedule.

B-2. Sample TPCS (Figure B-2) is in a spreadsheet format beginning with the total project cost summary followed by contract cost summary supporting sheets appearing like Figure B-3. The TPCS template can be downloaded from the Cost MCX website.

B-3. TPCS Form Procedures
a. Estimated Cost (Price Level)
TPCS Headers: Ensure the form presents the formal project name. project number. location. author and date.

Column A: WBS Number – Enter the Civil Works Breakdown code for each feature (refer to the Civil Works Work Breakdown Structure Appendix).

Column B: Civil Works Feature and Sub-Feature Description - For the summary sheet Figure B-2, enter the feature code title. For the supporting sheets like Figure B-3, enter and identify the project phase, contract, etc. as well as the CWWBS description of the Item. For Figure B-3, separate lines for the same WBS element may be prudent, pending certain programs or presentations desired. The various phases or contracts on the Figure B-3 sheets is to make distinction between varying schedules of occurrence, associated escalation and risks (contingencies).

The first primary column set, sub columns C through F, is the estimated cost plus contingencies, typically in current or most recent estimated dollars (must be less than 2 years old) that includes all feature accounts: the MCACES construction estimate(s), estimates for lands and damages, preconstruction, engineering and design, and construction management. The following paragraphs are instructions for completing data entry for each scheduled contract (figure B-2 and B-3). Figure B-2 serves as the summary roll-up from the supporting sheets such as Figure B-3.

Column C: COST- Entered in this column are the estimates of those costs that require funding or are remaining costs yet to incur. The costs should reflect the actual estimated costs in $1000s based on the previous October price level that the estimate was prepared. Note: For the Real Estate estimate, ensure the estimate is recent and the contingencies (incremental costs) are separated from the appraisal quote for presentation in the contingency column.

Column D: CNTG (contingency) - This is the dollar amount of contingency determined from a risk-based analysis. It is the result of Column C times the entered contingency percent in Column E or an actual amount determined by a cost risk analysis.

Column E: CNTG % (contingency percentage) - Enter the percentage of contingency (from risk analysis). For 30 and 31 accounts you may want to use the average of the construction element contingencies in lieu of developing a separate contingency. For 01 Lands and Damages, the Chief of Real Estate is responsible to provide a signed estimate of costs and should be able to provide contingency data, also referred to as incremental costs. Ensure that the real estate contingency is separated from the real estate estimate and presented separately as contingency. Contingency is the full dollar value of the various features, converted to a contingency. Reliance solely on a per cent value can induce errors when differing contingency sources such as real estate are also used.

Column F: TOTAL - This is the sum of columns C and D.

b. Project First Cost – Constant Dollar.
The second primary column set is the Project First Cost, also known as the Constant Dollar total. This totaled cost is the one reflected in all Chief's reports for requested funding: effective price level for the year of the Chief's Report submissions. Typically the year of the report submission is the year prior to the anticipated funding. This total can become more complicated for ongoing projects with spent costs that require additional funding.

Column G: - ESC (escalation) This column is the percentage of escalation from the first column set to the PROGRAM YEAR DATE. This moves the estimate cost from the price level when it was prepared to the Program Year price on a constant dollar basis. This escalation is calculated utilizing the Civil Works Construction Cost Index System (CWCCIS) found in EM 1110-2-1304. The CWCCIS is a reflection of the OMB projected rates for future costs, experienced inflation for past costs for each of the Feature categories. The escalation tables are updated twice annually: March and September. To determine the escalation percent, locate the CWCCIS index factors of the Feature account or element for the 1st quarter date of the program year and divide by the index factor of the established or initial estimate date (no less than 2 years old). Subtract value of 1 and multiply by 100 to obtain the percent escalation.

Column H: COST - This is the cost from Column C with the added percent of escalation computed in Column G.

Estimated Cost to Project First Cost

EPL Estimate + Continuency (1 Oct 20XX) **Risk Based** (Current Dollars) + Contingency (TPCS Column D) x [Cost Index (Budget Year) / Cost Index (EPL - Current Estimate)] = **Project First Cost Budget Year Constant Dollars**

Column I: CNTG (contingency) - This is the Contingency value from Column D with the added escalation determined in Column G.
Column J: TOTAL- This is the sum of Columns H and I. This is the constant dollar estimate at PROGRAM YEAR price level, 1 October, also referred to as Project First Cost, excluding any project spent costs. within the Chief's Report. For ongoing projects, the Project First Cost would include Spent Costs to reflect total first costs for the project.
SPENT THRU - Enter the amount of EXPENDED Federal funds for each Feature (this information is commonly obtained from project or program managers. Caution here is advised. If these funds have been expended by a sponsor, but the Government has not yet spent reflective Federal funds, those costs must remain in the Project First Costs, excluding escalation and contingencies. The spent costs of FEDERAL project dollars, already received and expended, is entered as actual amount spent in the year it was spent. The year of the expenditure must exclude inflation and contingencies because no further inflation or risks on these costs can occur. This is entered on the TPCS (figure B- 2) (PAGE 1) only.

c. Total Project Cost (Fully Funded with Inflation).
The third primary column of the TPCS is the total project cost estimate inflated through project completion, which is the second cost estimate referred to from the Planning Guidance Notebook. For financial analysis, an inflated dollar basis is to be used for the sponsor's information. Reasonably accurate and complete cost estimates and schedules are necessary for the Federal Government and the non-Federal sponsors to make prudent financial and budgetary decisions in obtaining and expending funds.
The project schedule is used to forecast when project elements will begin and the duration of each element. Knowing how each activity/element is funded and its respective duration will illustrate when the costs are expected to occur. In cases where multiple construction contracts or phases are planned, each should be addressed separately to present a more realistic escalation to design and construction midpoints for each contract. It is recommended that separate contracts be presented as a subset spreadsheet with values that roll up to the summary level total (Figure B-3).

Column L: INFLATED – This is the inflation percentage from PROGRAM YEAR price level to the MIDPOINT of the performance period of each Feature Item. Midpoint dates are determined from the Project Schedule. The amount shown in the column is the percentage of increase.
For construction contracts and other project elements having a relatively short duration, choosing an index coinciding with the midpoint of the duration may be adequate to escalate the costs for inflation. Also, activities/elements that are primarily level of effort, where costs are relatively consistent throughout the duration, a date at the midpoint of the duration is usually adequate to select the CWCCIS index to inflate the activity/element cost.

Project First Cost
Budget Year x [Cost Index (Midpt of Budget Year) / Cost Index (Budget Year)] = **ully Funded**
Constant Dollars

m. Column M: COST- Is the cost from Column H with midpoint inflation added from the CWCCIS calculations (column L).

n. Column N: CNTG (contingency) - This is the Contingency dollar value from Column I with the added inflation factor (column L).
o. Column O: FULL (fully funded amount) Is the fully funded estimate amount for the Item (Column M + Column N + Spent Costs). The overall summation of column O on the TPCS (Figure B-2) is the TOTAL PROJECT COST ESTIMATE inflated through the Project Schedule midpoint for each separate activity.
o. Column P: Found on the supporting sheets. such as Figure B-3. for the TPC summary. the column presents the midpoint date for the inflated value for each Feature.

The costs of water resources studies and projects developed by the Corps are shared between Federal and non-Federal entities as defined in laws and administrative provisions. The Water Resources Development Act of 1986, established new cost sharing rules for all studies and projects conducted by the Corps. The cost sharing provisions of the Water Resources Development Act of 1986 place greater financial responsibilities on non-Federal sponsors of Corps projects. The amount of non-Federal share varies depending upon the project purpose and the general and specific laws that apply to each project. Coordination with Project and Program Management is required to clarify this share percentage. Cost sharing can and does change over time.

The total project cost inflated through construction is divided into Federal cost and non-Federal cost. The non-Federal cost is for the sponsor's information and financial analysis. The cost engineer must coordinate with the project manager to determine the appropriate cost sharing percentages applicable to the project. To illustrate, the cost of feasibility studies is shared equally (50/50) and the remaining project cost may be shared 25 percent non-Federal cost and 75 percent Federal cost. Guidance on cost sharing for each civil works mission and authority is presented in ER 1105-2-100 and coordination with the project manager is necessary.

B-4. Section 902 Project Cost Limit.
When appropriate for authorized projects spanning several years, the TPCS is updated annually for comparison to the Section 902 project cost limit. It can be computed and presented on the updated TPCS to serve as a current working estimate.
The maximum project cost limit imposed by Section 902 is a numerical value specified by law, which must be computed in a legally supportable manner. It is not an estimate of the current cost of the project. The construction component of the authorized cost will be updated to account for current scope, quantities, costs, schedules and risks and applying escalation using the current CWCCIS escalation tables. The real estate component of the authorized cost will be updated to account for historical inflation based on changes to the Consumer Price Index. ER 1105-2-100, appendix G, paragraph G-19a provides detailed guidance on the calculations necessary to determine the numerical value.

DISTRICT	NAB District
PROJECT NAME	Baltimore City Coastal Storm Risk Management Nonstructural 50 Years
PROJECT NUMBER	P2 xxxxxx
PROJECT LOCATION	Baltimore, MD
PROGRAM YEAR	2023
ESTIMATE PREPARED DATE	2/6/2022
DATE TPCS PREPARED	3/6/2022
ENGINEERING REPORT AS BASIS	FS Report (underway)

ENGINEERING & DESIGN PHASE -> 30 ACCOUNT		% of Construct	Districts % Vary	30/31 Accounts			
PROJECT MANAGER, Katherine Perkins	Program Management:	2.5%	2.50%	30.0	15.3%	Sum per % of 30 Account	Project Management
CHIEF, DPM, David B. Morrow				30.0			Planning & Environmental Compliance
CHIEF, PLANNING, Amy M. Guise	Planning & Environmental Compliance:	1.0%	1.00%	30.0			Engineering & Design
CHIEF, ENGINEERING, Mary P. Foutz	Engineering & Design:	15.0%	8.00%	30.0			Reviews, ATRs, IEPRs, VE
CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey	Reviews, ATRs, IEPRs, VE:	1.0%	1.25%	30.0			Life Cycle Updates (cost, schedule, risks)
CHIEF, ENGINEERING, Mary P. Foutz	Life Cycle Updates (cost, schedule, risks):	1.0%	1.00%	30.0			Contracting & Reprographics
	Contracting & Reprographics:	1.0%	0.00%	30.0			Engineering During Construction
CHIEF, CONTRACTING, Paula M. Beck	Engineering During Construction:	3.0%	1.00%	30.0			Planning During Construction
CHIEF, ENGINEERING, Mary P. Foutz	Planning During Construction	2.0%	0.50%	30.0		Escalate to Mid Point Construction	Adaptive Management & Monitoring
CHIEF, PLANNING, Amy M. Guise	Adaptive Mgmt & Monitoring:	1.0%	0.00%	30.0			
CHIEF, OPERATIONS, Patrick G. Findlay	Project Operations	1.0%	0.00%	31.0			

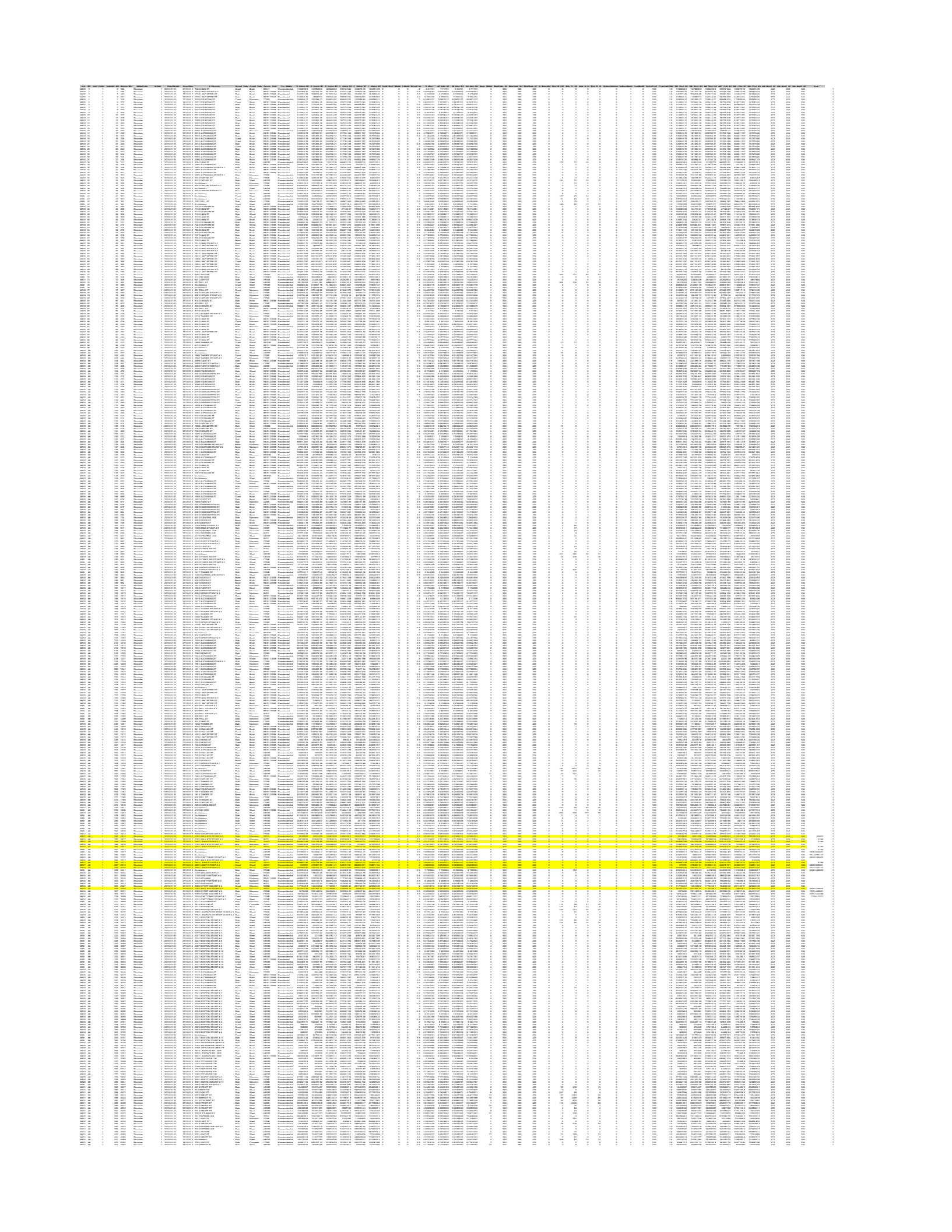
CONSTRUCTION PHASE -> 31 ACCOUNT					

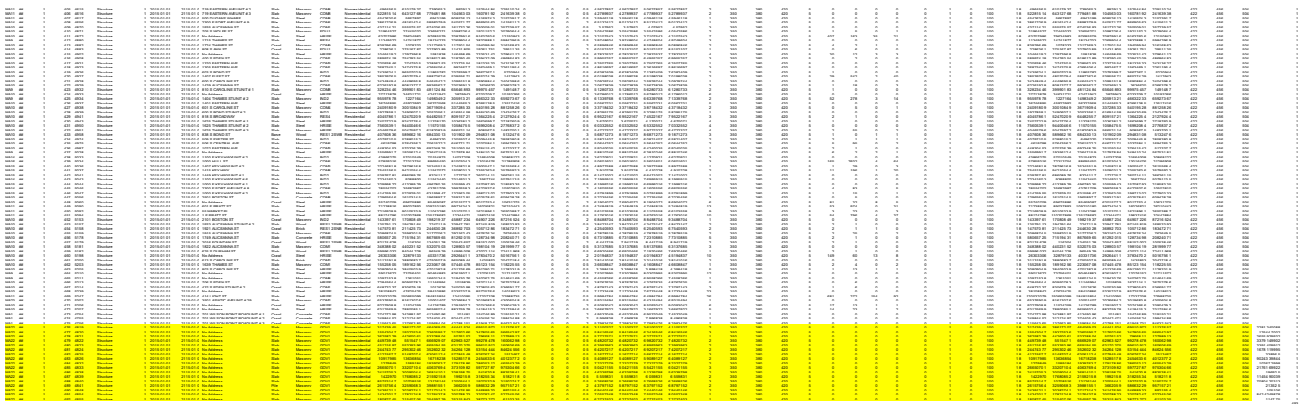
CULTURAL RESOURCES -> 18 ACCOUNT

CHIEF, PLANNING, Amy M. Guise

SPENT THRU FYXX COSTS

CHIEF, PP-C, Justin Callahan





Estimated Cost (Price Level) is the initially developed cost estimate which includes contingencies. The effective price level date for Estimated Cost (shown in MONTH YYYY format) is usually the date of preparation of the cost estimate.

Project First Cost (Constant Dollar Cost) (Price Level) is the Estimated Cost BROUGHT TO THE EFFECTIVE PRICE LEVEL. The effective price level for Constant Dollar Cost (shown in MONTH YYYY format) is the date of the common point in time of the pricing used in the cost estimate. Constant Dollar Cost does not include inflation. Constant Dollar Cost at current price levels is the cost estimate used in feasibility reports and Chief's Reports (see paragraphs 5(a) and 5(b) below). THE CONSTANT DOLLAR COST SHOULD BE EXPRESSED AS THE FY OF THE CHIEF'S REPORT TO ENSURE THAT THE CW PROGRAM TOTALS IN ONE FY DOLLAR TO ASA AND CONGRESS.

Total Project Cost is the Constant Dollar Cost FULLY FUNDED WITH ESCALATION to the estimated midpoint of construction. Total Project Cost (or Total Cost of Construction of GNFs when discussing navigation projects) is the cost estimate used in Project Partnership Agreements and Integral Determination Reports. Total Project Cost is the cost estimate provided non-Federal sponsors for their use in financial planning as it provides information regarding the overall non-Federal cost sharing obligation. See the enclosed tables for more detail of what is or is not included in the Total Project Cost.

Type of Program	CWBS*	Pro ect Cost Component**	Br ef Def n t on	For Chief s Report		For PPA s
				Project F rst Cost Constant Cost Estimate Oct (YYYY) Pr ce Level	Econom c Cost for BCR	Tota Pro ect Cost Fu y Funded Cost Estimate
Flood Risk Management	01,02	Lands, Easements, Rights of Way, Relocations, and Dredged Material Disposal Areas (LERRD).	Estimated value/costs of LERRD for the project (to include breakout of related Federal administrative costs).	Y	Y	Y
Flood Risk Management	02 - 20	Construction Elements	Physical Construction cost estimate broken out by Civil Works Breakdown Structure(CWBS).	Y	Y	Y
Flood Risk Management	30	Planning, Engineering, and Design (post feasibility work)	Estimated costs for post feasibility planning, engineering, and design for the project. This cost should include the estimate of Preconstruction Engineering and Design (PED) phase costs as well as the planning, engineering, and design costs during the construction phase to complete the project.	Y	Y	Y
Flood Risk Management	31	Construction Management	Estimated costs for construction management of project	Y	Y	Y
Flood Risk Management		Fish and Wildlife Mitigation	Estimated costs of Mitigation	Y	Y	Y
Flood Risk Management	18	Cultural Mitigation	Estimated costs of Mitigation	Y	Y***	Y
Flood Risk Management	By project element	Contingency	This is the Risk Based contingency established for the project.	Y	Y	Y
Flood Risk Management	By project element	Interest During Construction (IDC)	Estimate of interest accumulated during construction(Economic cost)	N	Y	Y
Flood Risk Management	By project element	Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R)	Annualized estimate of Operation, Maintenance, Replacement and Rehabilitation cost.	N	Y	N
Flood Risk Management	By project element	Inflation through midpoint construction	Estimate of inflation using appropriate Civil Works Construction Cost Index System (CWCCIS) factors applied to the Constant Dollar Cost	N	N	Y
Flood Risk Management	By project element	Associated and Other Costs	Associated financial costs that are not part of the recommended Federal project but are a necessary non-Federal responsibility. These cost are required to be shown within the Chief's report, as a separate total but are not to be included within cost shared project cost	N	Y	Y
Ecosystem Restoration	01,02	Lands, Easements, Rights of Way, Relocations, and Dredged Material Disposal Areas (LERRD). This includes related Federal administrative costs.	Estimated value/costs of LERRD for the project (to include breakout of related Federal administrative costs).	Y	Y	Y
Ecosystem Restoration	03 - 20	Construction Elements	Physical Construction cost estimate broken out by Civil Works Breakdown Structure(CWBS).	Y	Y	Y
Ecosystem Restoration	30	Planning, Engineering, and Design (post feasibility work)	Estimated costs for post feasibility planning, engineering, and design for the project. This cost should include the estimate of Preconstruction Engineering and Design (PED) phase costs as well as the planning, engineering, and design costs during the construction phase to complete the project.	Y	Y	Y
Ecosystem Restoration	31	Construction Management	Estimated costs for construction management of project	Y	Y	Y
Ecosystem Restoration		Fish and Wildlife Mitigation	Estimated costs of Mitigation	Y	Y	Y
Ecosystem Restoration	18	Cultural Mitigation	Estimated costs of Mitigation	Y	Y***	Y
Ecosystem Restoration	By project element	Monitoring and Adaptive Management	This represents the estimated costs of monitoring and or adaptive management to be cost shared for the project.	Y	Y	Y
Ecosystem Restoration	By project element	Contingency	This is the Risk Based contingency established for the project.	Y	Y	Y
Ecosystem Restoration	By project element	Interest During Construction (IDC)	Estimate of interest accumulated during construction(Economic cost)	N	Y	Y
Ecosystem Restoration	By project element	Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R)	Annualized estimate of Operation, Maintenance, Replacement and Rehabilitation cost.	N	Y	N
Ecosystem Restoration	By project element	Inflation through midpoint construction	Estimate of inflation using appropriate Civil Works Construction Cost Index System (CWCCIS) factors applied to the Constant Dollar Cost	N	N	Y
Ecosystem Restoration		Associated and Other Costs	Associated financial costs that are not part of the recommended Federal project but are a necessary non-Federal responsibility. These cost are required to be shown within the Chief's report, as a separate total but are not to be included within the cost shared project cost	N	Y	Y
Navigation and Harbors	01,02	Lands, Easements, Rights of Way, Relocations (LERR). This includes related Federal costs.	Estimated value/costs of LERR (to include breakout of related Federal administrative costs).	Y	Y	Y
Navigation and Harbors	03 - 20	Construction Elements (General Navigation Features)	Physical Construction cost estimate broken out by Civil Works Breakdown Structure(CWBS).	Y	Y	Y
Navigation and Harbors	30	Planning, Engineering, and Design (post feasibility work)	Estimated costs for post feasibility planning, engineering, and design for the project. This cost should include the estimate of Preconstruction Engineering and Design (PED) phase costs as well as the planning, engineering, and design costs during the construction phase to complete the project.	Y	Y	Y
Navigation and Harbors	31	Construction Management	Estimated costs for construction management of project	Y	Y	Y
Navigation and Harbors		Fish and Wildlife Mitigation	Estimated costs of Mitigation	Y	Y	Y
Navigation and Harbors	18	Cultural Mitigation	Estimated costs of Mitigation	Y	Y***	Y
Navigation and Harbors	By project element	Contingency	This is the Risk Based contingency established for the project.	Y	Y	Y
Navigation and Harbors	By project element	Interest During Construction (IDC)	Estimate of interest accumulated during construction(Economic cost)	N	Y	Y

Navigation and Harbors	By project element	Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R)	Annualized estimate of Operation, Maintenance, Replacement and Rehabilitation cost.	N	Y	N
Navigation and Harbors	By project element	Inflation through midpoint construction	Estimate of inflation using appropriate Civil Works Construction Cost Index System (CWCCIS) factors applied to the Constant Dollar Cost	N	N	Y
Navigation and Harbors	By project element	Local Service Facilities (LSF)	For Navigation Only: This represents the estimated cost of Local Service Facilities as defined in the Planning Guidance Notebook Appendix E. These are the responsibility of the non-Federal entity and are required as part of the PCA if	N	Y	Y
Navigation and Harbors		Associated and Other Costs	Associated financial costs that are not part of the recommended Federal project but are a necessary non-Federal responsibility. These cost are required to be shown within the Chief's report, as a separate total but are not to be included within the cost shared project cost.	N	Y	Y
Inland Navigation	01,02	Lands, Easements, Rights of Way, Relocations, and Dredged Material Disposal Areas (LERRD). This includes related Federal administrative costs.	Estimated value/costs of LERRD for the project (to include breakout of related Federal administrative costs).	Y	Y	Y
Inland Navigation	03 - 20	Construction Elements (General Navigation Features)	Physical Construction cost estimate broken out by Civil Works Breakdown Structure(CWBS).	Y	Y	Y
Inland Navigation	30	Planning, Engineering, and Design (post feasibility work)	Estimated costs for post feasibility planning, engineering, and design for the project. This cost should include the estimate of Preconstruction Engineering and Design (PED) phase costs as well as the planning, engineering, and design	Y	Y	Y
Inland Navigation	31	Construction Management	Estimated costs for construction management of project	Y	Y	Y
Inland Navigation		Fish and Wildlife Mitigation	Estimated costs of Mitigation	Y	Y	Y
Inland Navigation	18	Cultural Mitigation	Estimated costs of Mitigation	Y	Y***	Y
Inland Navigation	By project element	Contingency	This is the Risk Based contingency established for the project.	Y	Y	Y
Inland Navigation	By project element	Interest During Construction (IDC)	Estimate of interest accumulated during construction(Economic cost)	N	Y	Y
Inland Navigation	By project element	Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R)	Annualized estimate of Operation, Maintenance, Replacement and Rehabilitation cost.	N	Y	N
Inland Navigation	By project element	Inflation through midpoint construction	Estimate of inflation using appropriate Civil Works Construction Cost Index System (CWCCIS) factors applied to the Constant Dollar Cost	N	N	Y
Inland Navigation	By project element	Local Service Facilities (LSF)	For Navigation Only: This represents the estimated cost of Local Service Facilities as defined in the Planning Guidance Notebook Appendix E. These are the responsibility of the non-Federal entity and are required as part of the PCA if	N	Y	Y
Inland Navigation		Associated and Other Costs	Associated financial costs that are not part of the recommended Federal project but are a necessary non-Federal responsibility. These cost are required to be shown within the Chief's report, as a separate total but are not to be included	N	Y	Y
COASTAL STORM	01,02	Lands, Easements, Rights of Way, Relocations, and Dredged Material Disposal Areas (LERRD). This includes related Federal administrative costs.	Estimated value/costs of LERRD for the project (to include breakout of related Federal administrative costs).	Y	Y	Y
COASTAL STORM	03 - 20	Construction Elements	Physical Construction cost estimate broken out by Civil Works Breakdown Structure(CWBS).	Y	Y	Y
COASTAL STORM	30	Planning, Engineering, and Design (post feasibility work)	Estimated costs for post feasibility planning, engineering, and design for the project. This cost should include the estimate of Preconstruction Engineering and Design (PED) phase costs as well as the planning, engineering, and design	Y	Y	Y
COASTAL STORM	31	Construction Management	Estimated costs for construction management of project	Y	Y	Y
COASTAL STORM		Fish and Wildlife Mitigation	Estimated costs of Mitigation	Y	Y	Y
COASTAL STORM	18	Cultural Mitigation	Estimated costs of Mitigation	Y	Y***	Y
COASTAL STORM	By project element	Monitoring and Adaptive Management	This represents the estimated costs of monitoring and or adaptive management to be cost shared for the project.	Y	Y	Y
COASTAL STORM	By project element	Contingency	This is the Risk Based contingency established for the project.	Y	Y	Y
COASTAL STORM	By project element	Continued Construction (periodic nourishment)	For Hurricane and Storm Damage Reduction Only: Estimate of Allowable Periodic Average future construction cost submitted for authorization.	Y	Y	Y
COASTAL STORM	By project element	Interest During Construction (IDC)	Estimate of interest accumulated during construction(Economic cost)	N	Y	Y
COASTAL STORM	By project element	Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R)	Annualized estimate of Operation, Maintenance, Replacement and Rehabilitation cost.	N	Y	N
COASTAL STORM		Inflation through midpoint construction	Estimate of inflation using appropriate Civil Works Construction Cost Index System (CWCCIS) factors applied to the Constant Dollar Cost	N	N	Y
COASTAL STORM		Associated and Other Costs	Associated financial costs that are not part of the recommended Federal project but are a necessary non-Federal responsibility. These cost are required to be shown within the Chief's report, as a separate total but are not to be included within the cost shared project cost.	N	Y	Y

Feature Code Definitions

CWBS	Def n t ons
01 Lands and Damages	This feature includes all costs of acquiring for the project (by purchase or condemnation) real property or permanent interests therein, including Government costs, damages, and costs of disposal of real estate. Government costs include planning expenses for the real estate portion of the General Design Memo and for the detailed Real Estate Memo; and project real estate office administration, surveys, and marking for land acquisition purposes and appraisals. For projects which require that costs be incurred on real estate activities, i.e., for records search, appraisals, and field inspection to assure compliance by local interests in the provision of local requirements on projects where no Federal land acquisition is involved, a memorandum statement will be provided with the PB-3 indicating the estimated costs of such real estate activities. These costs will be charged to feature 30, Engineering and Design and that feature will be properly footnoted to show the amount of such costs. A similar footnote will be shown on the PB-1's and PB-2a's for all such projects. This feature is credited with disposal receipts from sale of such items as standing crops, standing timber, structures, and improvements in place and acquired with the land. Disposal receipts from sale of excess land not turned in to the U.S. Treasury as miscellaneous receipts are credited to this feature. Lands or interests purchased for relocations and conveyed to others are included in the feature "Relocations." Temporary interests such as leases are included in the feature or distributive item benefited thereby.
02 Relocations	This feature includes removing and relocating, or reconstructing property of others, such as roads, railroads, cemeteries, utilities, buildings, and other structures; and lands or interests purchased for such relocations and conveyed to others, including real estate planning and acquisition expenses. The cost of removal of improvements from the reservoir area for disposal is included in the feature "Reservoirs." All alterations of railroad bridges in accordance with Section 3 of the 1946 Flood Control Act (22 USC 701p) are also included in this feature.
03 Reservoirs	This feature includes clearing lands in reservoirs and pools of debris, brush, trees, improvements, and structures. Any salvage, obtained by sale or disposal by the Government, of material removed in clearing operations is credited to this feature. This feature also includes bank stabilization, shoreline improvement, firebreaks, fencing, boundary line survey and marking of land which has been acquired or is to be acquired, rehabilitation of natural resources, erosion control, drainage, and rim grouting and mine sealing, etc., to prevent leakage. Site clearing, grouting, etc., incidental to and required for specific construction features is included as part of the construction features.

04 Dams	This feature includes dams and all other water collecting and storage facilities, whether man-made or natural, together with appurtenant diversion, regulation, and delivery facilities and spillways, outlet works, and power intake works, whether separate from the dam or not. In the case where the powerhouse is an integral part of the intake dam, the cost of the power intake dam is included in the feature "Power Plant." Any auxiliary dams or spillways detached from the main structures and floating trash and drift booms and barriers are included in this feature. The power intake works include such power items as forebay, penstocks, tunnels, surge tank, gates, operating equipment, and appurtenances. Service roads and service railroads on the dam are included in this feature. The additional cost of relocating highways and railroads across the dam is included in the feature "Relocations."
05 Locks	This feature includes facilities to provide for passage of waterborne traffic, including gates, valves, operating mechanisms, cribs, fills, lock walls, guide and guard walls, operating buildings, and excavation therefore. The lock structure is considered that part of the work within the limit lines extending from the upper end of the upper guide or guard walls to the lower end of the lower guide or guard walls, including dolphins within the lock approaches for tie up, guard, or guide purposes. Excavation or dredging• required in approaches outside of the limits defined above for the lock structure is included in the feature "Channels and Canals." The cost of a cofferdam or the properly allocable amount thereof, if required, is charged to this feature. Locks provided in connection with facilities for the prevention of encroachment of salt water are included in this feature. Locks in connection with fish facilities are included in the feature "Fish and Wildlife Facilities."
06 Fish and Wildlife Facilities	This feature includes items such as ladders, elevators, locks and related facilities for passage of fish at dams and navigation locks and maintenance of fish runs; and provision for wildlife preservation.
07 Power Plant	This feature includes those facilities specifically required for the production of power other than those included in the feature "Dams," and consists of the following: powerhouse, turbines and governors, generators, accessory electrical equipment, miscellaneous power plant equipment, switchyard, and tailrace improvement for power. In the case where the powerhouse is an integral part of the power intake dam, the cost of the power intake dam is included in this feature. Where the structure of a dam also forms the foundation of the powerhouse, such foundation is considered a part of the dam. Units for production of power for the operation only of power for the operation only of navigation, flood control, or other purpose projects (excluding those projects with power as a feature) are included in other than this feature. The cost of a cofferdam or appropriate part is charged to this feature.
08 Roads, Railroads and Bridges	This feature includes permanent roads, railroads, and bridges required for access and other purposes in connection with the construction and operation of the project. This feature does not include roads, railroads, and bridges chargeable to the feature "Relocations," access roads to recreation facilities and areas, which will be charged to the feature "14. Recreation Facilities," and service roads and service railroads on structures.
09 Channels and Canals	This feature includes all forms of excavation (including dredging, preparation of spoil disposal area, and attendant facilities) necessary for the development and construction of channels, harbors, and canals for navigation purposes; and deepening, providing new, or improving existing watercourses for flood control and major drainage. Excavation of natural watercourse to provide adequate depths for navigation is included. Excavation for specific structures, such as dams and locks used in the development of waterways and conservation of water resources, is included with such structures. The removal of trees, brush, accumulated snags, drift, debris, water hyacinths and other aquatic growths from canals, harbors, and channels in navigable streams and tributaries thereof for navigational included in this feature. Excavation, clearing, and removal of accumulated snags, drifts, debris, and vegetable growth from streams for flood control and major drainage purposes also is included. Included in this feature are revetments, linings, dikes, and bulkheads constructed as channel improvement works for flood control or navigation, as against such items constructed for bank stabilization only. Also included are jetties constructed in connection with flood control channel improvements.
10 Breakwaters and Seawalls	This feature includes breakwaters, seawalls, piers, and like improvements constructed in connection with the protection of beaches, harbors, shores•, and port facilities against the force of waves and encroachment of seas or lakes by direct wave action. Jetties, groins, and like structures provided in seas, lakes, tidewater reaches of rivers and canals, and harbors to control water flow and current, to maintain depth of channels, and to provide protection, are included in this feature.
11 Levees and Floodwalls	This feature includes embankments and walls constructed to protect areas from inundation by overflow from creeks, rivers, lakes, canals, and other bodies of water. This feature consists of such items as: service roads on levee crown or landside berms, road ramps, closure structures, seepage control measures, erosion protection measures on levee slopes and on berms and bank slops when an integral part of the levees or floodwalls; and drainage facilities, constructed to provide means for the passage of accumulated drainage and seepage water and sewage from the protected area over or through levees and floodwalls, comprising such items as interceptor and collection sewers and ditches, and pressurized sewers and drainage structures, including outfalls through levees or floodwalls. Pumping plants are included in the feature "Pumping Plants." Levees locally called dikes are included in this feature.
13 Pumping Plants	This feature includes pumping plants construction to pass accumulated drainage and seepage water and sewage from the protected area over or through levees and floodwalls.
14 Recreation Facilities	This feature includes access roads; parking areas; public camping and picnicking areas, including tables and fireplaces; water supply; sanitary facilities; boat launching ramps; directional signs; and other facilities constructed primarily for public recreational use, including essential safety measures in connection therewith. The latter includes, as appropriate, sheltered anchorage areas for small craft, bathing areas readily accessible and reasonably safe, and safety provisions for visitors and fishermen in the project area. (Boat launching ramps, anchorage areas and beaches should be provided during construction to the extent they will definitely be needed and can be accomplished more economically than at a later date.)
15 Floodway Control and Diversion Structures	This feature includes floodway control and diversion structures to provide for the release of flood waters from streams where discharges exceed flood capacity of the stream, including items such as diversion dams, gated or ungated discharge structures, training walls, stilling basin, and those adjacent embankment sections forming part of the control structure. Construction of channels and levees not forming part of the main control structure, but necessary for operation of such structures is included in the appropriate feature "Channels and Canals" or "Levees and Floodwalls."
16 Bank Stabilization	This feature includes revetments, linings, training dikes, and bulkheads for stabilization of banks of watercourses to prevent erosion, sloughing, or meandering. Bank stabilization constructed in navigation channels or in connection with flood control channel improvement is included in• the feature "Channels and Canals."
17 Beach Replenishment	This feature includes replacement of eroded beaches, for purposes of recreation and shore protection, by direct deposit of materials obtained by dredging or land excavation.
19 Buildings, Grounds and Utilities	This feature includes permanent facilities such as operators' quarters, administration and shop buildings, storage buildings and areas, garage buildings and areas, community buildings, local streets and sidewalks, landscaping, and electric, gas, water, and sewage facilities. Where space in a dam, powerhouse, or other basic structure is used in lieu of construction of any of the above-mentioned buildings, such allocated space is not separated from the basic structure. Communication systems are• included in the feature "Permanent Operating Equipment."
20 Permanent Operating Equipment	This feature includes all project-owned operation and maintenance tools and equipment, such as laboratory, shop, warehousing, communications, and transportation equipment, and office furniture and equipment. The cost of installing sedimentation and degradation measuring facilities, including the surveys requisite to locating and monumenting range layouts, is charged to this feature. •The cost of planning the installation of sedimentation and degradation ranges is charged to the feature "Engineering and Design."
30 Engineering and Design	This feature includes all engineering, design, surveys, preparation of detailed plans and specifications, and related work required for the construction of the project, including relocations. Surveys and planning required in connection with land acquisition are charged to the features "Lands and Damages" or "Relocations," as applicable. Engineering and design performed by hired labor or as a pay item under a contract is included in this feature.
31 Supervision and Administration	This feature includes such functions as inspection, supervision, project office administration, and distributive costs of area office and general overhead charged to the project. Costs for OCE and Division Office Executive Direction and Management are not charged to Construction, General but to the General Expenses appropriation title.

Date of Index Factors: 30-Sep-21

CWCCIS ESCALATION CALCULATION

Enter Code below

19 **BUILDINGS, GROUNDS & UTILITIES** **23 th row**

Pick FY Quarter - Check Dates	FY Quarter	Dates	Index	
Estimate Pricing Level Date:	**2021Q1**		905.63	/
Middle Point of Construction Date:	**2022Q1**		1,025.80	=

Escalation Percentage: -> 113.27%

Paste the Web Address into browser for downloadable (.pdf) source of factors:

Feature	**07 POWER PLANT**			
	Month	Day	Year	CWCCIS
Construction Start	**10**	**12**	**2024**	2025Q1
Construction End	**3**	**12**	**2030**	2030Q2
Midpoint	6	27	2027	2027Q3
Feature	**NOT USED**			
	Month	Day	Year	CWCCIS
Construction Start	**1**	**1**	**2000**	2000Q2
Construction End	**1**	**1**	**2001**	2001Q2
Midpoint	7	2	2000	2000Q4
Feature	**NOT USED**			
	Month	Day	Year	CWCCIS
Construction Start	**1**	**1**	**2000**	2000Q2
Construction End	**1**	**1**	**2001**	2001Q2
Midpoint	7	2	2000	2000Q4
Feature	**NOT USED**			
	Month	Day	Year	CWCCIS
Construction Start	**1**	**1**	**2000**	2000Q2
Construction End	**1**	**1**	**2001**	2001Q2
Midpoint	7	2	2000	2000Q4
Feature	**NOT USED**			
	Month	Day	Year	CWCCIS
Construction Start	**1**	**1**	**2000**	2000Q2
Construction End	**1**	**1**	**2001**	2001Q2
Midpoint	7	2	2000	2000Q4
Feature	**NOT USED**			
	Month	Day	Year	CWCCIS
Construction Start	**1**	**1**	**2000**	2000Q2
Construction End	**1**	**1**	**2001**	2001Q2
Midpoint	7	2	2000	2000Q4
Feature	**NOT USED**			
	Month	Day	Year	CWCCIS
Construction Start	**1**	**1**	**2000**	2000Q2
Construction End	**1**	**1**	**2001**	2001Q2
Midpoint	7	2	2000	2000Q4

	Days
January	31
February	28.25
March	31
April	30
May	31
June	30
July	31
August	31
September	30
October	31
Novermber	30
December	31

Use this sheet to determine the midpoint of construction.

Cells with gray fill and blue text are input cells.

Cells with yellow fill are output cells.

DISTRICT	NAB District
PROJECT NAME	Baltimore City Coastal Storm Risk Management Nonstructural 100 Years
PROJECT NUMBER	P2 xxxxxx
PROJECT LOCATION	Baltimore, MD
PROGRAM YEAR	2023
ESTIMATE PREPARED DATE	2/6/2022
DATE TPCS PREPARED	3/6/2022
ENGINEERING REPORT AS BASIS	FS Report (underway)

ENGINEERING & DESIGN PHASE -> 30 ACCOUNT		% of Construct	Districts % Vary	30/31 Accounts			
PROJECT MANAGER, Katherine Perkins	Program Management:	2.5%	2.50%	30.0	15.3%	Sum per % of 30 Account	Project Management
CHIEF, DPM, David B. Morrow				30.0			Planning & Environmental Compliance
CHIEF, PLANNING, Amy M. Guise	Planning & Environmental Compliance:	1.0%	1.00%	30.0			Engineering & Design
CHIEF, ENGINEERING, Mary P. Foutz	Engineering & Design:	15.0%	8.00%	30.0			Reviews, ATRs, IEPRs, VE
CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey	Reviews, ATRs, IEPRs, VE:	1.0%	1.25%	30.0			Life Cycle Updates (cost, schedule, risks)
CHIEF, ENGINEERING, Mary P. Foutz	Life Cycle Updates (cost, schedule, risks):	1.0%	1.00%	30.0			Contracting & Reprographics
	Contracting & Reprographics:	1.0%	0.00%	30.0			Engineering During Construction
CHIEF, CONTRACTING, Paula M. Beck	Engineering During Construction:	3.0%	1.00%	30.0			Planning During Construction
CHIEF, ENGINEERING, Mary P. Foutz	Planning During Construction	2.0%	0.50%	30.0		Escalate to Mid Point Construction	Adaptive Management & Monitoring
CHIEF, PLANNING, Amy M. Guise	Adaptive Mgmt & Monitoring:	1.0%	0.00%	30.0			
CHIEF, OPERATIONS, Patrick G. Findlay	Project Operations	1.0%	0.00%	31.0			

CONSTRUCTION PHASE -> 31 ACCOUNT

CULTURAL RESOURCES -> 18 ACCOUNT

CHIEF, PLANNING, Amy M. Guise

SPENT THRU FYXX COSTS

CHIEF, PP-C, Justin Callahan

Total Project Cost Summary

B-1. General.

A Total Project Cost Summary (TPCS) is required for all civil works cost estimates submitted for approval at all levels within the U.S. Army Corps of Engineers (Corps). The summary and supporting contract cost sheets are the basis for the official Project Cost Estimate (PB-3) ER 11-2-240. It is a living document, developed from feasibility to project completion to present current working estimate (cost, schedule (escalation), risks (contingencies). The TPCS must consider current escalation tables, which are updated twice annually: March and September.

The TPC reflects all applicable project feature costs, contingencies, escalation to Project First Cost and inflation to Fully Funded Project Costs and is presented in Federal and non-Federal dollars. The TPC emerges when the TPCS form is completed (shown in Figures B-2). The TPCS is a PDT product. While the cost engineer prepares the basic elements of the form, the PM, Real Estate and Construction offices play a major role in establishing Program Year, Federal and non-Federal shares, spent costs, 01 Lands and Damages, 30 PED and 31 Construction Management values.

For the cost engineer, the Total Project Cost form is developed and presented with three different estimates over time: Estimated Cost (Price Level), Project First Cost - Constant Dollar, and Total Project Cost – Fully Funded (reference Figure B-2)

i. Estimated Cost (Effective Price Level) (TPCS columns C through F) is the current developed cost estimate which includes contingencies. The effective price level date for Estimated Cost (shown in DAY MONTH YYYY format) is commonly reported as the previous 1 Oct 20XX to support economic study and escalation to Project First Cost

ii. Project First Cost - Constant Dollar Cost (TPCS columns G through K) is the Estimated Cost then escalated to the PROGRAM YEAR effective price level by applying the appropriate escalation from the CWCCIS tables. The Project First Cost - Constant Dollar (shown in 1 OCT 20XX) is the cost estimate used in feasibility reports and Chief of Engineer's Report (Chief's Report) for Congressional funding requests

iii. Total Project Cost (TPCS columns L through O) is the FULLY FUNDED WITH INFLATION to represent the total cost of the project. The inflation to midpoint of each activity is added from the Project First Cost column set. Total Project Cost (or Total Cost of Construction of GNFs when discussing navigation projects) is the cost estimate used in Project Partnership Agreements and Integral Determination Reports. Total Project Cost is the cost estimate provided to non-Federal sponsors for their use in financial planning as it provides information regarding the overall non-Federal cost

The Project First Cost – Constant Dollar Cost estimate is to be used in the Chief's Reports and other decision documents to support the funding request. The Project First Cost should include, among other things, an estimate of: (i) construction and management costs, including both Federal costs and non-Federal sponsor in-kind contributions, as applicable; (ii) planning engineering and design costs; (iii) lands, easements, rights-of-way, relocations and dredged materials (LERRD) values; and (iv) contingencies. Where several years elapse between the signing of the Chief's Report and the consideration of legislation to authorize a project, the Project First Cost must be updated to reflect the current Project First Cost date for Congressional funding consideration, in accordance with ER 1110-2-1302.

Figure B-1 illustrates the TPC process. Figures B-2 (summary sheet) and B-3 (sample supporting sheet) are examples based upon feasibility estimate reporting requirements in Engineer Regulation (ER) 1105-2-100, Planning Guidance Notebook. "Two project cost estimates shall be displayed in the feasibility report; one based on constant dollars and one based on projected inflation rates." The guidance notebook is referring to the Project First Cost and the Total Project Cost columns J and O. The TPCS (summary sheet) is a signature document for the appropriate district managerial approvals. ER 1105-2-100 states that project cost estimates will be prepared by or reviewed by the cost engineering office in the district and the chief of that office will sign the estimate. Real estate estimates included in the project cost are reviewed, approved, and signed by the chief or designee of the real estate office. Project Management is the third required signature that assumes responsibility for the TPCS value. Figure B-2 also lists other review/approval signatures that may be a district requirement.

Preparing a TPC during the feasibility phase is required, because it is the first document that will show the estimated total project cost at the anticipated authorizing budget year and forecast the total project cost inflated through construction based on the known scope and schedule.

B-2. Sample TPCS (Figure B-2) is in a spreadsheet format beginning with the total project cost summary followed by contract cost summary supporting sheets appearing like Figure B-3. The TPCS template can be downloaded from the Cost MCX website.

B-3. TPCS Form Procedures
a. Estimated Cost (Price Level)
TPCS Headers: Ensure the form presents the formal project name. project number. location. author and date.

Column A: WBS Number – Enter the Civil Works Breakdown code for each feature (refer to the Civil Works Work Breakdown Structure Appendix).

Column B: Civil Works Feature and Sub-Feature Description - For the summary sheet Figure B-2, enter the feature code title. For the supporting sheets like Figure B-3, enter and identify the project phase, contract, etc. as well as the CWWBS description of the item. For Figure B-3, separate lines for the same WBS element may be prudent, pending certain programs or presentations desired. The various phases or contracts on the Figure B-3 sheets is to make distinction between varying schedules of occurrence, associated escalation and risks (contingencies).

The first primary column set, sub columns C through F, is the estimated cost plus contingencies, typically in current or most recent estimated dollars (must be less than 2 years old) that includes all feature accounts: the MCACES construction estimate(s), estimates for lands and damages, preconstruction, engineering and design, and construction management. The following paragraphs are instructions for completing data entry for each scheduled contract (figure B-2 and B-3). Figure B-2 serves as the summary roll-up from the supporting sheets such as Figure B-3.

Column C: COST- Entered in this column are the estimates of those costs that require funding or are remaining costs yet to incur. The costs should reflect the actual estimated costs in $1000s based on the previous October price level that the estimate was prepared. Note: For the Real Estate estimate, ensure the estimate is recent and the contingencies (incremental costs) are separated from the appraisal quote for presentation in the contingency column.

Column D: CNTG (contingency) - This is the dollar amount of contingency determined from a risk-based analysis. It is the result of Column C times the entered contingency percent in Column E or an actual amount determined by a cost risk analysis.

Column E: CNTG % (contingency percentage) - Enter the percentage of contingency (from risk analysis). For 30 and 31 accounts you may want to use the average of the construction element contingencies in lieu of developing a separate contingency. For 01 Lands and Damages, the Chief of Real Estate is responsible to provide a signed estimate of costs and should be able to provide contingency data, also referred to as incremental costs. Ensure that the real estate contingency is separated from the real estate estimate and presented separately as contingency. Contingency is the full dollar value of the various features, converted to a contingency. Reliance solely on a per cent value can induce errors when differing contingency sources such as real estate are also used.

Column F: TOTAL - This is the sum of columns C and D.

b. Project First Cost – Constant Dollar.
The second primary column set is the Project First Cost, also known as the Constant Dollar total. This totaled cost is the one reflected in all Chief's reports for requested funding: effective price level for the year of the Chief's Report submissions. Typically the year of the report submission is the year prior to the anticipated funding. This total can become more complicated for ongoing projects with spent costs that require additional funding.

Column G: - ESC (escalation) This column is the percentage of escalation from the first column set to the PROGRAM YEAR DATE. This moves the estimate cost from the price level when it was prepared to the Program Year price on a constant dollar basis. This escalation is calculated utilizing the Civil Works Construction Cost Index System (CWCCIS) found in EM 1110-2-1304. The CWCCIS is a reflection of the OMB projected rates for future costs, experienced inflation for past costs for each of the Feature categories. The escalation tables are updated twice annually: March and September. To determine the escalation percent, locate the CWCCIS index factors of the Feature account or element for the 1st quarter date of the program year and divide by the index factor of the established or initial estimate date (no less than 2 years old). Subtract value of 1 and multiply by 100 to obtain the percent escalation.

Column H: COST - This is the cost from Column C with the added percent of escalation computed in Column G.

Estimated Cost to Project First Cost

EPL Estimate + Continuency (1 Oct 20XX) Risk Based (Current Dollars)	+	Contingen (risk	x	Cost Index (Budget Yea	=	**Project First Cost Budget Yea**				
				Cost Index (EPL - Current Estimate)		**Constant Dollars**				

Column I: CNTG (contingency) - This is the Contingency value from Column D with the added escalation determined in Column G.
Column J: TOTAL- This is the sum of Columns H and I. This is the constant dollar estimate at PROGRAM YEAR price level, 1 October, also referred to as Project First Cost, excluding any project spent costs. within the Chief's Report. For ongoing projects, the Project First Cost would include Spent Costs to reflect total first costs for the project.
SPENT THRU - Enter the amount of EXPENDED Federal funds for each Feature (this information is commonly obtained from project or program managers. Caution here is advised. If these funds have been expended by a sponsor, but the Government has not yet spent reflective Federal funds, those costs must remain in the Project First Costs, excluding escalation and contingencies. The spent costs of FEDERAL project dollars, already received and expended, is entered as actual amount spent in the year it was spent. The year of the expenditure must exclude inflation and contingencies because no further inflation or risks on these costs can occur This is entered on the TPCS (figure B- 2) (PAGE 1) only
c. Total Project Cost (Fully Funded with Inflation).
The third primary column of the TPCS is the total project cost estimate inflated through project completion, which is the second cost estimate referred to from the Planning Guidance Notebook. For financial analysis, an inflated dollar basis is to be used for the sponsor's information. Reasonably accurate and complete cost estimates and schedules are necessary for the Federal Government and the non-Federal sponsors to make prudent financial and budgetary decisions in obtaining and expending funds
The project schedule is used to forecast when project elements will begin and the duration of each element. Knowing how each activity/element is funded and its respective duration will illustrate when the costs are expected to occur. In cases where multiple construction contracts or phases are planned, each should be addressed separately to present a more realistic escalation to design and construction midpoints for each contract. It is recommended that separate contracts be presented as a subset spreadsheet with values that roll up to the summary level total (Figure B-1).

Column L: INFLATED – This is the inflation percentage from PROGRAM YEAR price level to the MIDPOINT of the performance period of each Feature item. Midpoint dates are determined from the Project Schedule. The amount shown in the column is the percentage of increase.
For construction contracts and other project elements having a relatively short duration, choosing an index coinciding with the midpoint of the duration may be adequate to escalate the costs for inflation. Also, activities/elements that are primarily level of effort, where costs are relatively consistent throughout the duration, a date at the midpoint of the duration is usually adequate to select the CWCCIS index to inflate the activity/element cost.

Project First Cost

Budget Year x

Constant Dollars

Cost Index (Midpt of Activity	=	**ully Funded**				
Cost Index (Budget) (Year)						

m. Column M: COST- Is the cost from Column H with midpoint inflation added from the CWCCIS calculations (column L).

n. Column N: CNTG (contingency) - This is the Contingency dollar value from Column I with the added inflation factor (column L).
o. Column O: FULL (fully funded amount) Is the fully funded estimate amount for the Item (Column M + Column N + Spent Costs). The overall summation of column O on the TPCS (Figure B-2) is the TOTAL PROJECT COST ESTIMATE inflated through the Project Schedule midpoint for each separate activity.
o. Column P: Found on the succeeding sheets. such as Figure B-3. for the TPC summary. the column presents the midpoint date for the inflated value for each Feature.

The costs of water resources studies and projects developed by the Corps are shared between Federal and non-Federal entities as defined in laws and administrative provisions. The Water Resources Development Act of 1986, established new cost sharing rules for all studies and projects conducted by the Corps. The cost sharing provisions of the Water Resources Development Act of 1986 place greater financial responsibilities on non-Federal sponsors of Corps projects. The amount of non-Federal share varies depending upon the project purpose and the general and specific laws that apply to each project. Coordination with Project and Program Management is required to clarify this share percentage. Cost sharing can and does change over time.

The total project cost inflated through construction is divided into Federal cost and non-Federal cost. The non-Federal cost is for the sponsor's information and financial analysis. The cost engineer must coordinate with the project manager to determine the appropriate cost sharing percentages applicable to the project. To illustrate, the cost of feasibility studies is shared equally (50/50) and the remaining project cost may be shared 25 percent non-Federal cost and 75 percent Federal cost. Guidance on cost sharing for each civil works mission and authority is presented in ER 1105-2-100 and coordination with the project manager is necessary.
B-4. Section 902 Project Cost Limit.
When appropriate for authorized projects spanning several years, the TPCS is updated annually for comparison to the Section 902 project cost limit. It can be computed and presented on the updated TPCS to serve as a current working estimate.
The maximum project cost limit imposed by Section 902 is a numerical value specified by law, which must be computed in a legally supportable manner. It is not an estimate of the current cost of the project. The construction component of the authorized cost will be updated to account for current scope, quantities, costs, schedules and risks and applying escalation using the current CWCCIS escalation tables. The real estate component of the authorized cost will be updated to account for historical inflation based on changes to the Consumer Price Index. ER 1105-2-100, appendix G paragraph G-15a provides detailed guidance on the calculations necessary to determine the numerical value

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

PROJECT: **Baltimore City Coastal Storm Risk Management Nonstructural 100 Years**
PROJECT NO: P2 xxxxxx
LOCATION: Baltimore, MD

DISTRICT: **NAB District** **PREPARED:** **3/6/2022**
POC: **CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey**

This Estimate reflects the scope and schedule in report; FS Report (underway)

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)						TOTAL PROJECT COST (FULLY FUNDED)			
						Program Year (Budget EC): 2023									
						Effective Price Level Date: 1 OCT 22									
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	**TOTAL ($K)**	Spent Thru: **1-Oct-21** ($K)	**TOTAL FIRST COST** ($K)	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*		*K*	*L*	*M*	*N*	*O*
19	BUILDINGS, GROUNDS & UTILITIES	$208,355	$70,841	34.0%	$279,196	3.2%	$214,964	$73,088	$288,052	$0	$288,052	346.3%	$959,490	$326,226	$1,285,716
18	CULTURAL RESOURCE PRESERVATION	$2,084	$708	34.0%	$2,792	3.2%	$2,150	$731	$2,881	$0	$2,881	346.3%	$9,595	$3,262	$12,857
	CONSTRUCTION ESTIMATE TOTALS:	$210,439	$71,549		$281,988	3.2%	$217,114	$73,819	$290,932	$0	$290,932	346.3%	$969,084	$329,489	$1,298,573
01	LANDS AND DAMAGES	$2,084	$625	30.0%	$2,709	3.2%	$2,150	$645	$2,795	$0	$2,795	346.3%	$9,595	$2,878	$12,473
30	PLANNING, ENGINEERING & DESIGN	$32,092	$3,209	10.0%	$35,301	2.5%	$32,894	$3,289	$36,184	$0	$36,184	288.8%	$127,904	$12,790	$140,694
31	CONSTRUCTION MANAGEMENT	$19,992	$1,999	10.0%	$21,991	2.5%	$20,491	$2,049	$22,541	$0	$22,541	288.8%	$79,678	$7,968	$87,645
	PROJECT COST TOTALS:	$264,606	$77,383	29.2%	$341,988		$272,649	$79,802	**$352,451**	$0	**$352,451**	336.8%	$1,186,260	$353,125	$1,539,386

ESTIMATED TOTAL PROJECT COST: **$1,539,386**

_____ **CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey**

_____ **PROJECT MANAGER, Katherine Perkins**

_____ **CHIEF, REAL ESTATE, Susan K. Lev**

_____ **CHIEF, PLANNING, Amy M. Guise**

_____ **CHIEF, ENGINEERING, Mary P. Foutz**

_____ **CHIEF, OPERATIONS, Patrick G. Findlay**

_____ **CHIEF, CONSTRUCTION, Jeff J. Werner**

_____ **CHIEF, CONTRACTING, Paula M. Beck**

_____ **CHIEF, PP-C, Justin Callahan**

_____ **CHIEF, DPM, David B. Morrow**

****** CONTRACT COST SUMMARY ******

PROJECT: Baltimore City Coastal Storm Risk Management Nonstructural 100 Years
LOCATION: Baltimore, MD
This Estimate reflects the scope and schedule in report; FS Report (underway)

DISTRICT: NAB District PREPARED: 3/6/2022
POC: CHIEF, Estimating and Specs Section, Parris J. McGhee-Bey

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared:			6-Feb-22	Program Year (Budget EC):			2023					
		Effective Price Level:			1-Oct-21	Effective Price Level Date:			1 OCT 22					
				RISK BASED										
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Mid-Point Date	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*P*	*L*	*M*	*N*	*O*
	MA 1													
19	BUILDINGS, GROUNDS & UTILITIES	$1,356	$461	34.0%	$1,817	3.2%	$1,399	$476	$1,875	2072Q1	346.3%	$6,246	$2,124	$8,369
18	CULTURAL RESOURCE PRESERVATION	$14	$5	34.0%	$18	3.2%	$14	$5	$19	2072Q1	346.3%	$62	$21	$84
	CONSTRUCTION ESTIMATE TOTALS:	$1,370	$466	34.0%	**$1,836**		$1,413	$481	$1,894			$6,308	$2,145	$8,453
01	LANDS AND DAMAGES	$14	$4	30.0%	$18	3.2%	$14	$4	$18	2072Q1	346.3%	$62	$19	$81
30	PLANNING, ENGINEERING & DESIGN													
2.5%	Project Management	$34	$3	10.0%	$38	2.5%	$35	$4	$39	2072Q1	288.8%	$136	$14	$150
1.0%	Planning & Environmental Compliance	$14	$1	10.0%	$15	2.5%	$14	$1	$15	2072Q1	288.8%	$55	$5	$60
8.0%	Engineering & Design	$110	$11	10.0%	$121	2.5%	$112	$11	$124	2072Q1	288.8%	$437	$44	$480
1.3%	Reviews, ATRs, IEPRs, VE	$17	$2	10.0%	$19	2.5%	$18	$2	$19	2072Q1	288.8%	$68	$7	$75
1.0%	Life Cycle Updates (cost, schedule, risks)	$14	$1	10.0%	$15	2.5%	$14	$1	$15	2072Q1	288.8%	$55	$5	$60
0.0%	Contracting & Reprographics	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
1.0%	Engineering During Construction	$14	$1	10.0%	$15	2.5%	$14	$1	$15	2072Q1	288.8%	$55	$5	$60
0.5%	Planning During Construction	$7	$1	10.0%	$8	2.5%	$7	$1	$8	2072Q1	288.8%	$27	$3	$30
0.0%	Adaptive Management & Monitoring	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
0.0%	Project Operations	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
31	CONSTRUCTION MANAGEMENT													
7.5%	Construction Management	$103	$10	10.0%	$113	2.5%	$105	$11	$116	2072Q1	288.8%	$409	$41	$450
0.0%	Project Operation:	$0	$0	10.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
2.0%	Project Management	$27	$3	10.0%	$30	2.5%	$28	$3	$31	2072Q1	288.8%	$109	$11	$120
	CONTRACT COST TOTALS:	$1,722	$504		$2,226		$1,775	$519	**2,294**			$7,722	$2,299	**$10,020**

MA	FID	Join_Count	TARGET_FID	Extern_Ref	Width	Length	Found_Ht	G_Elev	PR_RebT_P3	Sqft	
MA10	0	1	0	4	0	0	0.5	8.53521875	504		1
MA10	1	1	1	168	0	0	0.5	8.797357333	504		1
MA10	2	1	2	170	0	0	0.5	9.054246583	504		1
MA10	3	1	3	172	0	0	0.5	8.372489417	504		1
MA10	4	1	4	173	0	0	2	8.009301167	504		1
MA10	5	1	5	174	0	0	0.5	8.413827917	504		1
MA10	6	1	6	175	0	0	0.5	8.974850417	504		1
MA10	7	1	7	176	0	0	0.5	8.974850417	504		1
MA10	8	1	8	177	0	0	0.5	7.91514125	504		1
MA10	9	1	9	178	0	0	0.5	8.488959	504		1
MA10	10	1	10	179	0	0	0.5	8.311465917	504		1
MA10	11	1	11	180	0	0	0.5	8.355757167	504		1
MA10	12	1	12	181	0	0	0.5	8.330166667	504		1
MA10	13	1	13	182	0	0	0.5	8.17498325	504		1
MA10	14	1	14	183	0	0	0.5	8.516189917	504		1
MA10	15	1	15	184	0	0	0.5	8.15529825	504		1
MA10	16	1	16	185	0	0	2	6.21731	504		1
MA10	17	1	17	186	0	0	2	8.014878583	504		1
MA10	18	1	18	187	0	0	3	5.955827583	504		1
MA10	19	1	19	188	0	0	0.5	5.930565167	504		1
MA10	20	1	20	190	0	0	0.5	6.429908	504		1
MA10	21	1	21	191	0	0	0.5	6.709435	504		1
MA10	22	1	22	192	0	0	0.5	8.158907167	504		1
MA10	23	1	23	193	0	0	0.5	6.972885917	504		1
MA10	24	1	24	194	0	0	0.5	7.16514275	504		1
MA10	25	1	25	212	0	0	2	8.01947175	504		1
MA10	26	1	26	214	0	0	0.5	8.689746	504		1
MA10	27	1	27	215	0	0	0.5	8.936464667	504		1
MA10	28	1	28	217	0	0	0.5	7.686467167	504		1
MA10	29	1	29	218	0	0	2	6.196312667	504		1
MA10	30	1	30	219	0	0	2	6.598542833	504		1
MA10	31	1	31	220	0	0	0.5	7.109368583	504		1
MA10	32	1	32	221	0	0	2	6.9240015	504		1
MA10	33	1	33	222	0	0	2	5.662521083	504		1
MA10	34	1	34	223	0	0	0.5	5.662521083	504		1
MA10	35	1	35	224	0	0	0.5	5.581812583	504		1
MA10	36	1	36	225	0	0	0.5	5.581812583	504		1
MA10	37	1	37	226	0	0	0.5	5.634634	504		1
MA10	38	1	38	227	0	0	0.5	5.56081525	504		1
MA10	39	1	39	228	0	0	0.5	5.56081525	504		1
MA10	40	1	40	229	0	0	2	5.4358155	504		1
MA10	41	1	41	230	0	0	0.5	5.4358155	504		1
MA10	42	1	42	231	0	0	0.5	5.398742083	504		1
MA10	43	1	43	232	0	0	0.5	5.040475083	504		1
MA10	44	1	44	233	0	0	0.5	4.859701167	504		1
MA10	45	1	45	235	0	0	0.5	4.144151417	504		1
MA10	46	1	46	236	0	0	0.5	4.788507083	504		1
MA10	47	1	47	237	0	0	0.5	4.118560917	504		1
MA10	48	1	48	238	0	0	2	4.773743333	504		1
MA10	49	1	49	239	0	0	2	4.5696755	504		1
MA10	50	1	50	240	0	0	0.5	4.5696755	504		1
MA10	51	1	51	241	0	0	2	4.309505417	504		1
MA10	52	1	52	242	0	0	0.5	4.210096167	504		1
MA10	53	1	53	243	0	0	0.5	4.210096167	504		1
MA10	54	1	54	244	0	0	0.5	4.223875667	504		1
MA10	55	1	55	245	0	0	0.5	3.79310225	504		1
MA10	56	1	56	246	0	0	0.5	3.585753583	504		1
MA10	57	1	57	247	0	0	0.5	6.682532167	504		1
MA10	58	1	58	248	0	0	0.5	4.564426167	504		1
MA10	59	1	59	249	0	0	0.5	5.179582417	504		1
MA10	60	1	60	250	0	0	2	4.718625333	504		1
MA10	61	1	61	251	0	0	2	4.278009417	504		1
MA10	62	1	62	252	0	0	0.5	5.08246975	504		1
MA10	63	1	63	253	0	0	0.5	5.244214833	504		1
MA10	64	1	64	254	0	0	0.5	7.939091333	504		1
MA10	65	1	65	255	0	0	0.5	3.572302167	504		1
MA10	66	1	66	256	0	0	0.5	2.9200725	504		1
MA10	67	1	67	257	0	0	0.5	4.908913667	504		1
MA10	68	1	68	258	0	0	0.5	6.5775455	504		1
MA10	69	1	69	259	0	0	0.5	4.007340667	504		1
MA10	70	1	70	260	0	0	2	6.769802333	504		1
MA9	71	1	71	261	0	0	2	4.0657395	504		1
MA9	72	1	72	262	0	0	2	5.578203667	504		1
MA9	73	1	73	263	0	0	0.5	3.558194583	504		1
MA9	74	1	74	264	0	0	2	4.614951	504		1
MA10	75	1	75	265	0	0	0.5	4.708126667	504		1
MA10	76	1	76	266	0	0	0.5	6.611338083	504		1
MA10	77	1	77	267	0	0	0.5	4.708126667	504		1
MA10	78	1	78	268	0	0	0.5	6.538831667	504		1
MA10	79	1	79	269	0	0	0.5	6.538831667	504		1

MA10	80	1	80	270	0	0	2	6.460747833	504	1
MA10	81	1	81	271	0	0	0.5	4.2389675	504	1
MA10	82	1	82	272	0	0	0.5	4.40924275	504	1
MA10	83	1	83	273	0	0	3	6.419409333	504	1
MA10	84	1	84	274	0	0	3	6.139226167	504	1
MA10	85	1	85	275	0	0	0.5	4.383324167	504	1
MA10	86	1	86	276	0	0	0.5	6.044082	504	1
MA10	87	1	87	277	0	0	0.5	4.118232833	504	1
MA10	88	1	88	278	0	0	0.5	5.778006417	504	1
MA10	89	1	89	279	0	0	0.5	4.118232833	504	1
MA10	90	1	90	280	0	0	3	5.778006417	504	1
MA10	91	1	91	281	0	0	3	4.1523535	504	1
MA10	92	1	92	282	0	0	0.5	3.660556583	504	1
MA10	93	1	93	283	0	0	3	5.559174833	504	1
MA10	94	1	94	284	0	0	3	4.6877855	504	1
MA10	95	1	95	285	0	0	0.5	4.018823583	504	1
MA10	96	1	96	286	0	0	0.5	4.082799833	504	1
MA10	97	1	97	287	0	0	0.5	4.193363917	504	1
MA10	98	1	98	288	0	0	2	4.378074833	504	1
MA10	99	1	99	289	0	0	0.5	4.307865	504	1
MA10	100	1	100	290	0	0	0.5	4.307865	504	1
MA10	101	1	101	291	0	0	3	4.66711625	504	1
MA10	102	1	102	292	0	0	0.5	8.921372833	504	1
MA10	103	1	103	293	0	0	0.5	9.0066745	504	1
MA10	104	1	104	189	0	0	2	6.228792917	504	1
MA10	105	1	105	309	0	0	0.5	8.465337	504	1
MA10	106	1	106	310	0	0	0.5	8.536859167	504	1
MA10	107	1	107	322	0	0	0.5	6.373149583	504	1
MA10	108	1	108	333	0	0	0.5	6.937452917	504	1
MA11	109	1	109	347	0	0	0.5	6.514881583	504	1
MA9	110	1	110	348	0	0	0.5	2.816398167	504	1
MA11	111	1	111	349	0	0	0.5	6.443031333	504	1
MA10	112	1	112	351	0	0	0.5	8.921372833	504	1
MA10	113	1	113	352	0	0	0.5	8.768157917	504	1
MA10	114	1	114	353	0	0	0.5	8.90726525	504	1
MA10	115	1	115	354	0	0	0.5	8.861333583	504	1
MA10	116	1	116	357	0	0	0.5	7.317373417	504	1
MA10	117	1	117	358	0	0	0.5	7.921374833	504	1
MA10	118	1	118	360	0	0	0.5	7.68679525	504	1
MA10	119	1	119	363	0	0	0.5	8.64348625	504	1
MA10	120	1	120	364	0	0	0.5	8.6680925	504	1
MA10	121	1	121	372	0	0	0.5	9.158577083	504	1
MA10	122	1	122	385	0	0	0.5	8.422686167	504	1
MA10	123	1	123	387	0	0	2	5.482403333	504	1
MA9	124	1	124	388	0	0	2	6.993227083	504	1
MA9	125	1	125	389	0	0	2	6.992242833	504	1
MA9	126	1	126	390	0	0	2	6.83837175	504	1
MA9	127	1	127	391	0	0	2	6.725511083	504	1
MA9	128	1	128	394	0	0	2	7.77340925	504	1
MA9	129	1	129	395	0	0	2	6.599527083	504	1
MA10	130	1	130	396	0	0	3	5.878071833	504	1
MA10	131	1	131	397	0	0	2	6.440078583	504	1
MA10	132	1	132	398	0	0	0.5	4.694019083	504	1
MA10	133	1	133	399	0	0	0.5	5.504384917	504	1
MA10	134	1	134	400	0	0	0.5	5.346904917	504	1
MA10	135	1	135	401	0	0	0.5	5.474529333	504	1
MA10	136	1	136	402	0	0	2	6.73207275	504	1
MA10	137	1	137	403	0	0	0.5	6.22026275	504	1
MA10	138	1	138	404	0	0	3	6.0578615	504	1
MA10	139	1	139	405	0	0	3	6.024397	504	1
MA10	140	1	140	406	0	0	0.5	5.736667917	504	1
MA10	141	1	141	407	0	0	3	5.84624775	504	1
MA10	142	1	142	408	0	0	3	6.73207275	504	1
MA10	143	1	143	409	0	0	2	7.339355	504	1
MA10	144	1	144	410	0	0	0.5	7.51750425	504	1
MA10	145	1	145	411	0	0	0.5	7.339355	504	1
MA10	146	1	146	412	0	0	2	7.853789667	504	1
MA10	147	1	147	413	0	0	0.5	7.853789667	504	1
MA10	148	1	148	414	0	0	0.5	7.255365667	504	1
MA10	149	1	149	415	0	0	0.5	7.338042667	504	1
MA10	150	1	150	416	0	0	0.5	7.338042667	504	1
MA10	151	1	151	417	0	0	2	7.464026667	504	1
MA10	152	1	152	418	0	0	0.5	6.57164	504	1
MA10	153	1	153	419	0	0	0.5	6.70254525	504	1
MA10	154	1	154	420	0	0	0.5	7.068030083	504	1
MA10	155	1	155	421	0	0	0.5	7.24388275	504	1
MA10	156	1	156	422	0	0	0.5	7.4043155	504	1
MA10	157	1	157	423	0	0	0.5	6.589684583	504	1
MA10	158	1	158	424	0	0	0.5	7.131022083	504	1
MA10	159	1	159	425	0	0	0.5	7.408580583	504	1
MA10	160	1	160	426	0	0	3	5.73010625	504	1

MA10	161	1	161 427	0	0	3	5.961405	504	1
MA10	162	1	162 428	0	0	2	5.961405	504	1
MA10	163	1	163 429	0	0	3	5.867245083	504	1
MA10	164	1	164 430	0	0	0.5	4.953533	504	1
MA10	165	1	165 431	0	0	3	5.466655333	504	1
MA10	166	1	166 432	0	0	0.5	4.2822745	504	1
MA10	167	1	167 433	0	0	3	5.466655333	504	1
MA10	168	1	168 434	0	0	3	5.577219417	504	1
MA10	169	1	169 435	0	0	3	5.577219417	504	1
MA10	170	1	170 436	0	0	3	5.936470667	504	1
MA10	171	1	171 437	0	0	2	4.450909333	504	1
MA10	172	1	172 438	0	0	0.5	5.956155667	504	1
MA10	173	1	173 439	0	0	3	6.122165833	504	1
MA10	174	1	174 440	0	0	0.5	5.225186	504	1
MA10	175	1	175 441	0	0	0.5	5.679581417	504	1
MA10	176	1	176 442	0	0	0.5	4.927286333	504	1
MA10	177	1	177 443	0	0	2	6.014226417	504	1
MA10	178	1	178 444	0	0	2	6.133320667	504	1
MA10	179	1	179 445	0	0	0.5	7.506349417	504	1
MA10	180	1	180 446	0	0	0.5	7.341651583	504	1
MA10	181	1	181 447	0	0	0.5	7.387911333	504	1
MA10	182	1	182 448	0	0	0.5	7.382990083	504	1
MA10	183	1	183 451	0	0	0.5	8.25766025	504	1
MA10	184	1	184 452	0	0	0.5	7.83148	504	1
MA10	185	1	185 453	0	0	0.5	7.879380167	504	1
MA10	186	1	186 454	0	0	0.5	7.48994525	504	1
MA10	187	1	187 456	0	0	2	7.286861667	504	1
MA10	188	1	188 459	0	0	3	7.012255917	504	1
MA10	189	1	189 461	0	0	0.5	8.29703025	504	1
MA10	190	1	190 462	0	0	0.5	5.477810167	504	1
MA10	191	1	191 463	0	0	0.5	8.158907167	504	1
MA10	192	1	192 465	0	0	0.5	8.153001667	504	1
MA10	193	1	193 467	0	0	2	5.18286325	504	1
MA10	194	1	194 468	0	0	0.5	5.1326665	504	1
MA10	195	1	195 469	0	0	0.5	6.405629833	504	1
MA10	196	1	196 470	0	0	0.5	6.174003	504	1
MA10	197	1	197 471	0	0	2	4.781945417	504	1
MA10	198	1	198 472	0	0	0.5	6.405629833	504	1
MA10	199	1	199 473	0	0	2	6.497165083	504	1
MA10	200	1	200 474	0	0	3	6.401692833	504	1
MA10	201	1	201 475	0	0	0.5	6.009305167	504	1
MA10	202	1	202 476	0	0	3	5.9318775	504	1
MA10	203	1	203 477	0	0	0.5	5.72616925	504	1
MA10	204	1	204 478	0	0	0.5	5.683190333	504	1
MA10	205	1	205 479	0	0	2	5.17302075	504	1
MA10	206	1	206 480	0	0	0.5	4.361342583	504	1
MA10	207	1	207 483	0	0	0.5	8.876425417	504	1
MA10	208	1	208 485	0	0	0.5	8.69762	504	1
MA10	209	1	209 486	0	0	0.5	8.539483833	504	1
MA10	210	1	210 489	0	0	2	4.262917583	504	1
MA10	211	1	211 490	0	0	0.5	4.469938167	504	1
MA10	212	1	212 493	0	0	2	4.543428833	504	1
MA10	213	1	213 494	0	0	0.5	4.52341575	504	1
MA10	214	1	214 495	0	0	2	4.396775583	504	1
MA10	215	1	215 496	0	0	2	3.73601575	504	1
MA10	216	1	216 497	0	0	0.5	3.638246917	504	1
MA10	217	1	217 498	0	0	0.5	3.783915917	504	1
MA10	218	1	218 499	0	0	0.5	3.821317417	504	1
MA10	219	1	219 511	0	0	0.5	4.813441417	504	1
MA10	220	1	220 512	0	0	2	4.6917225	504	1
MA10	221	1	221 513	0	0	0.5	4.7035335	504	1
MA10	222	1	222 514	0	0	0.5	4.7429035	504	1
MA10	223	1	223 515	0	0	0.5	4.673349833	504	1
MA10	224	1	224 516	0	0	0.5	4.673349833	504	1
MA10	225	1	225 517	0	0	0.5	3.9909365	504	1
MA10	226	1	226 518	0	0	0.5	3.382341917	504	1
MA10	227	1	227 519	0	0	2	3.940083583	504	1
MA10	228	1	228 520	0	0	2	3.674336083	504	1
MA10	229	1	229 521	0	0	0.5	5.2507765	504	1
MA10	230	1	230 522	0	0	2	5.559831	504	1
MA10	231	1	231 523	0	0	0.5	5.559831	504	1
MA10	232	1	232 524	0	0	0.5	5.546707667	504	1
MA10	233	1	233 525	0	0	3	5.221249	504	1
MA10	234	1	234 526	0	0	3	5.025711333	504	1
MA10	235	1	235 527	0	0	0.5	5.165474833	504	1
MA10	236	1	236 528	0	0	0.5	6.013242167	504	1
MA10	237	1	237 529	0	0	0.5	6.502414417	504	1
MA10	238	1	238 530	0	0	3	6.4554985	504	1
MA10	239	1	239 531	0	0	3	6.468949917	504	1
MA10	240	1	240 532	0	0	0.5	6.114948	504	1
MA10	241	1	241 533	0	0	3	6.124462417	504	1

MA10	242	1	242 534	0	0	0.5	6.919408333	504	1
MA10	243	1	243 535	0	0	2	5.092640333	504	1
MA10	244	1	244 536	0	0	2	4.930567167	504	1
MA10	245	1	245 537	0	0	0.5	6.922033	504	1
MA10	246	1	246 538	0	0	2	6.7507735	504	1
MA10	247	1	247 539	0	0	0.5	6.611338083	504	1
MA10	248	1	248 540	0	0	0.5	4.510948583	504	1
MA10	249	1	249 578	0	0	0.5	5.007338667	504	1
MA10	250	1	250 584	0	0	0.5	7.44860675	504	1
MA10	251	1	251 586	0	0	0.5	7.21238675	504	1
MA10	252	1	252 587	0	0	0.5	7.288502083	504	1
MA10	253	1	253 588	0	0	0.5	7.188436667	504	1
MA10	254	1	254 590	0	0	0.5	8.091978167	504	1
MA10	255	1	255 591	0	0	0.5	7.86592875	504	1
MA10	256	1	256 592	0	0	0.5	8.689417917	504	1
MA10	257	1	257 593	0	0	0.5	8.497489167	504	1
MA10	258	1	258 594	0	0	0.5	8.915467333	504	1
MA10	259	1	259 602	0	0	0.5	8.957133917	504	1
MA10	260	1	260 617	0	0	0.5	8.25569175	504	1
MA10	261	1	261 618	0	0	0.5	8.904968667	504	1
MA10	262	1	262 620	0	0	0.5	8.25569175	504	1
MA10	263	1	263 622	0	0	0.5	8.063763	504	1
MA10	264	1	264 624	0	0	2	7.816388167	504	1
MA10	265	1	265 625	0	0	0.5	7.626099833	504	1
MA10	266	1	266 626	0	0	0.5	7.270785583	504	1
MA10	267	1	267 627	0	0	0.5	7.8728185	504	1
MA10	268	1	268 629	0	0	0.5	6.996179833	504	1
MA10	269	1	269 630	0	0	0.5	6.365603667	504	1
MA10	270	1	270 631	0	0	0.5	5.32065825	504	1
MA10	271	1	271 632	0	0	0.5	5.2783355	504	1
MA10	272	1	272 633	0	0	0.5	5.2783355	504	1
MA10	273	1	273 634	0	0	2	5.63758675	504	1
MA10	274	1	274 635	0	0	0.5	5.440408667	504	1
MA10	275	1	275 636	0	0	0.5	5.48404375	504	1
MA10	276	1	276 655	0	0	0.5	8.670717167	504	1
MA10	277	1	277 657	0	0	0.5	8.670717167	504	1
MA10	278	1	278 658	0	0	2	8.08443225	504	1
MA10	279	1	279 660	0	0	0.5	7.910548083	504	1
MA10	280	1	280 662	0	0	3	7.018161417	504	1
MA10	281	1	281 663	0	0	3	6.475839667	504	1
MA10	282	1	282 664	0	0	3	6.134304917	504	1
MA10	283	1	283 665	0	0	3	5.910224	504	1
MA10	284	1	284 666	0	0	0.5	4.1720385	504	1
MA10	285	1	285 667	0	0	0.5	4.795724917	504	1
MA10	286	1	286 668	0	0	3	4.492904	504	1
MA10	287	1	287 669	0	0	2	4.363639167	504	1
MA10	288	1	288 671	0	0	0.5	9.13364275	504	1
MA10	289	1	289 673	0	0	2	7.23404025	504	1
MA10	290	1	290 676	0	0	0.5	6.680563667	504	1
MA10	291	1	291 677	0	0	0.5	5.26160325	504	1
MA10	292	1	292 678	0	0	0.5	5.046708667	504	1
MA10	293	1	293 679	0	0	0.5	5.046708667	504	1
MA10	294	1	294 682	0	0	3	4.971905667	504	1
MA10	295	1	295 684	0	0	2	4.971905667	504	1
MA10	296	1	296 686	0	0	0.5	4.262917583	504	1
MA10	297	1	297 733	0	0	3	5.924659667	504	1
MA10	298	1	298 734	0	0	0.5	6.284895167	504	1
MA10	299	1	299 736	0	0	3	5.924659667	504	1
MA10	300	1	300 738	0	0	3	5.880040333	504	1
MA10	301	1	301 741	0	0	3	6.574264667	504	1
MA10	302	1	302 743	0	0	3	6.367572167	504	1
MA10	303	1	303 746	0	0	3	6.453858083	504	1
MA10	304	1	304 747	0	0	3	6.05294025	504	1
MA10	305	1	305 748	0	0	3	5.769148167	504	1
MA10	306	1	306 814	0	0	0.5	6.491587667	504	1
MA10	307	1	307 817	0	0	0.5	6.454186167	504	1
MA10	308	1	308 827	0	0	3	6.334763833	504	1
MA10	309	1	309 828	0	0	3	6.281614333	504	1
MA10	310	1	310 829	0	0	0.5	8.268158917	504	1
MA10	311	1	311 832	0	0	0.5	5.147102167	504	1
MA10	312	1	312 842	0	0	2	6.944342667	504	1
MA10	313	1	313 843	0	0	2	8.0617945	504	1
MA10	314	1	314 852	0	0	0.5	6.441719	504	1
MA10	315	1	315 855	0	0	0.5	9.154312	504	1
MA10	316	1	316 859	0	0	0.5	4.861669667	504	1
MA10	317	1	317 861	0	0	0.5	6.485682167	504	1
MA10	318	1	318 882	0	0	0.5	5.736339833	504	1
MA10	319	1	319 884	0	0	0.5	7.204184667	504	1
MA10	320	1	320 885	0	0	0.5	7.66907875	504	1
MA10	321	1	321 886	0	0	0.5	7.4515595	504	1
MA10	322	1	322 887	0	0	0.5	6.213044917	504	1

MA10	323	1	323	888	0	0	0.5	6.063438917	504	1
MA10	324	1	324	889	0	0	0.5	4.80491125	504	1
MA10	325	1	325	890	0	0	0.5	9.019797833	504	1
MA10	326	1	326	891	0	0	0.5	8.177279833	504	1
MA10	327	1	327	892	0	0	0.5	8.177279833	504	1
MA10	328	1	328	894	0	0	0.5	7.472884917	504	1
MA10	329	1	329	895	0	0	0.5	8.300311083	504	1
MA10	330	1	330	896	0	0	0.5	2.356753417	504	1
MA10	331	1	331	897	0	0	0.5	4.166789167	504	1
MA10	332	1	332	898	0	0	0.5	3.95451925	504	1
MA10	333	1	333	900	0	0	0.5	8.6365965	504	1
MA10	334	1	334	901	0	0	0.5	8.6365965	504	1
MA10	335	1	335	910	0	0	0.5	7.651690333	504	1
MA10	336	1	336	912	0	0	0.5	7.651690333	504	1
MA10	337	1	337	914	0	0	0.5	7.03522175	504	1
MA10	338	1	338	915	0	0	0.5	7.40136275	504	1
MA10	339	1	339	919	0	0	0.5	7.857398583	504	1
MA10	340	1	340	921	0	0	2	8.024721083	504	1
MA10	341	1	341	924	0	0	0.5	8.885939833	504	1
MA10	342	1	342	926	0	0	0.5	8.979771667	504	1
MA10	343	1	343	932	0	0	0.5	3.16515075	504	1
MA9	344	1	344	934	0	0	0.5	4.216657833	504	1
MA9	345	1	345	935	0	0	0.5	6.67498625	504	1
MA9	346	1	346	936	0	0	0.5	6.991258583	504	1
MA10	347	1	347	937	0	0	0.5	3.090675833	504	1
MA10	348	1	348	938	0	0	2	4.143167167	504	1
MA10	349	1	349	939	0	0	0.5	5.945000833	504	1
MA9	350	1	350	940	0	0	0.5	2.544089	504	1
MA9	351	1	351	941	0	0	0.5	7.626099833	504	1
MA10	352	1	352	943	0	0	0.5	8.661858917	504	1
MA10	353	1	353	944	0	0	0.5	8.302607667	504	1
MA10	354	1	354	983	0	0	0.5	6.812125083	504	1
MA10	355	1	355	985	0	0	0.5	6.057533417	504	1
MA10	356	1	356	990	0	0	3	5.748150833	504	1
MA10	357	1	357	991	0	0	3	5.851497083	504	1
MA10	358	1	358	992	0	0	3	5.861667667	504	1
MA10	359	1	359	1010	0	0	0.5	5.069346417	504	1
MA10	360	1	360	1011	0	0	0.5	6.170066	504	1
MA10	361	1	361	1012	0	0	0.5	6.750445417	504	1
MA10	362	1	362	1013	0	0	2	5.34231175	504	1
MA10	363	1	363	1014	0	0	0.5	4.71436025	504	1
MA10	364	1	364	1015	0	0	2	5.23306	504	1
MA10	365	1	365	1016	0	0	0.5	4.452221667	504	1
MA10	366	1	366	1017	0	0	0.5	4.244216833	504	1
MA10	367	1	367	1018	0	0	0.5	3.882012833	504	1
MA10	368	1	368	1021	0	0	0.5	7.827543	504	1
MA10	369	1	369	1027	0	0	0.5	9.01553275	504	1
MA10	370	1	370	1033	0	0	0.5	5.213375	504	1
MA10	371	1	371	1034	0	0	0.5	6.252414917	504	1
MA10	372	1	372	1035	0	0	0.5	8.265206167	504	1
MA10	373	1	373	1036	0	0	0.5	8.380035333	504	1
MA10	374	1	374	1037	0	0	0.5	8.313106333	504	1
MA10	375	1	375	1038	0	0	0.5	8.313106333	504	1
MA10	376	1	376	1041	0	0	0.5	3.65924425	504	1
MA10	377	1	377	1044	0	0	0.5	6.95451325	504	1
MA10	378	1	378	1045	0	0	0.5	6.770130417	504	1
MA10	379	1	379	1046	0	0	0.5	7.575246917	504	1
MA10	380	1	380	1047	0	0	0.5	5.359700167	504	1
MA10	381	1	381	1051	0	0	0.5	9.143157167	504	1
MA10	382	1	382	1055	0	0	0.5	8.7153365	504	1
MA10	383	1	383	1060	0	0	0.5	8.716976917	504	1
MA10	384	1	384	1061	0	0	0.5	8.716976917	504	1
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MA10	386	1	386	1063	0	0	2	7.424328583	504	1
MA10	387	1	387	1064	0	0	0.5	6.952872833	504	1
MA10	388	1	388	1065	0	0	0.5	7.026035417	504	1
MA10	389	1	389	1066	0	0	0.5	9.229771167	504	1
MA10	390	1	390	1067	0	0	0.5	8.894798083	504	1
MA10	391	1	391	1068	0	0	0.5	8.99781625	504	1
MA10	392	1	392	1069	0	0	3	7.026035417	504	1
MA10	393	1	393	1070	0	0	0.5	8.363303083	504	1
MA10	394	1	394	1071	0	0	0.5	8.074261667	504	1
MA10	395	1	395	1072	0	0	0.5	9.028656083	504	1
MA10	396	1	396	1074	0	0	0.5	7.995193583	504	1
MA10	397	1	397	1075	0	0	2	7.798671667	504	1
MA10	398	1	398	1101	0	0	0.5	7.413829917	504	1
MA10	399	1	399	1102	0	0	2	7.390207917	504	1
MA10	400	1	400	1103	0	0	0.5	7.580824333	504	1
MA10	401	1	401	1104	0	0	0.5	8.851491083	504	1
MA10	402	1	402	1105	0	0	0.5	8.652672583	504	1
MA10	403	1	403	1106	0	0	0.5	8.311794	504	1

MA10	404	1	404	1107	0	0	0.5	8.851491083	504	1
MA10	405	1	405	1108	0	0	0.5	8.091322	504	1
MA10	406	1	406	1109	0	0	0.5	8.843289	504	1
MA10	407	1	407	1111	0	0	2	7.53128375	504	1
MA10	408	1	408	1112	0	0	0.5	8.400048417	504	1
MA10	409	1	409	1113	0	0	0.5	8.510284417	504	1
MA10	410	1	410	1115	0	0	0.5	7.696309667	504	1
MA10	411	1	411	1116	0	0	0.5	9.00175325	504	1
MA10	412	1	412	1117	0	0	0.5	8.510284417	504	1
MA10	413	1	413	1118	0	0	0.5	8.555231833	504	1
MA10	414	1	414	1119	0	0	0.5	8.632331417	504	1
MA10	415	1	415	1120	0	0	0.5	7.548016	504	1
MA10	416	1	416	1121	0	0	0.5	7.536533083	504	1
MA10	417	1	417	1122	0	0	0.5	8.66513975	504	1
MA10	418	1	418	1123	0	0	0.5	8.451885583	504	1
MA10	419	1	419	1124	0	0	0.5	8.66513975	504	1
MA10	420	1	420	1125	0	0	0.5	8.307200833	504	1
MA10	421	1	421	1127	0	0	0.5	8.307200833	504	1
MA10	422	1	422	1129	0	0	2	7.847228	504	1
MA10	423	1	423	1130	0	0	0.5	8.476819917	504	1
MA10	424	1	424	1131	0	0	0.5	8.159891417	504	1
MA10	425	1	425	1132	0	0	0.5	8.338696833	504	1
MA10	426	1	426	1133	0	0	0.5	8.159891417	504	1
MA10	427	1	427	1135	0	0	2	8.01159775	504	1
MA10	428	1	428	1138	0	0	0.5	7.762254417	504	1
MA10	429	1	429	1143	0	0	0.5	7.416782667	504	1
MA10	430	1	430	1144	0	0	0.5	7.416782667	504	1
MA10	431	1	431	1145	0	0	0.5	7.491257583	504	1
MA10	432	1	432	1147	0	0	2	7.72813375	504	1
MA10	433	1	433	1149	0	0	0.5	8.144143417	504	1
MA10	434	1	434	1150	0	0	0.5	8.144143417	504	1
MA10	435	1	435	1151	0	0	0.5	8.1602195	504	1
MA10	436	1	436	1154	0	0	2	7.626427917	504	1
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MA10	439	1	439	1161	0	0	0.5	8.981084	504	1
MA10	440	1	440	1162	0	0	0.5	8.708774833	504	1
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MA10	442	1	442	1167	0	0	0.5	7.450247167	504	1
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MA10	444	1	444	1177	0	0	3	6.961731083	504	1
MA10	445	1	445	1178	0	0	0.5	7.650049917	504	1
MA10	446	1	446	1179	0	0	2	6.612322333	504	1
MA10	447	1	447	1180	0	0	0.5	6.218622333	504	1
MA10	448	1	448	1181	0	0	2	7.356415333	504	1
MA10	449	1	449	1183	0	0	0.5	5.841654583	504	1
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MA10	454	1	454	1191	0	0	2	6.67695475	504	1
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MA10	456	1	456	1193	0	0	0.5	7.421375833	504	1
MA10	457	1	457	1194	0	0	0.5	6.961403	504	1
MA10	458	1	458	1196	0	0	0.5	6.962715333	504	1
MA10	459	1	459	1197	0	0	2	7.655955417	504	1
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MA10	462	1	462	1202	0	0	0.5	7.414814167	504	1
MA10	463	1	463	1203	0	0	0.5	6.118885	504	1
MA10	464	1	464	1204	0	0	0.5	5.618229833	504	1
MA10	465	1	465	1208	0	0	0.5	7.681545917	504	1
MA10	466	1	466	1211	0	0	2	7.70648025	504	1
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MA10	470	1	470	1217	0	0	0.5	4.340673333	504	1
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MA10	472	1	472	1219	0	0	2	5.247167583	504	1
MA10	473	1	473	1220	0	0	0.5	5.773085167	504	1
MA10	474	1	474	1236	0	0	2	4.029978417	504	1
MA10	475	1	475	1237	0	0	3	3.98601525	504	1
MA10	476	1	476	1238	0	0	0.5	4.30294375	504	1
MA10	477	1	477	1239	0	0	0.5	4.30294375	504	1
MA10	478	1	478	1240	0	0	2	4.362326833	504	1
MA10	479	1	479	1241	0	0	2	4.278009417	504	1
MA10	480	1	480	1242	0	0	2	4.176631667	504	1
MA10	481	1	481	1243	0	0	0.5	4.188114583	504	1
MA10	482	1	482	1244	0	0	0.5	4.867575167	504	1
MA10	483	1	483	1245	0	0	0.5	4.352484333	504	1
MA10	484	1	484	1246	0	0	0.5	5.127089083	504	1

MA10	485	1	485	1247	0	0	2	5.240605917	504	1
MA10	486	1	486	1248	0	0	2	5.025711333	504	1
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MA10	488	1	488	1274	0	0	0.5	7.664485583	504	1
MA10	489	1	489	1277	0	0	0.5	6.530629583	504	1
MA10	490	1	490	1278	0	0	2	6.795720917	504	1
MA10	491	1	491	1279	0	0	3	5.852809417	504	1
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MA10	493	1	493	1281	0	0	0.5	8.18482575	504	1
MA10	494	1	494	1282	0	0	0.5	8.193027833	504	1
MA10	495	1	495	1283	0	0	2	7.904970667	504	1
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MA10	498	1	498	1288	0	0	0.5	6.429908	504	1
MA10	499	1	499	1289	0	0	0.5	7.706152167	504	1
MA10	500	1	500	1290	0	0	0.5	7.522097417	504	1
MA9	501	1	501	1291	0	0	0.5	4.6838485	504	1
MA9	502	1	502	1292	0	0	3	6.988633917	504	1
MA9	503	1	503	1293	0	0	3	4.800646167	504	1
MA9	504	1	504	1294	0	0	3	5.382666	504	1
MA9	505	1	505	1295	0	0	0.5	4.382339917	504	1
MA9	506	1	506	1296	0	0	3	6.311798	504	1
MA9	507	1	507	1297	0	0	0.5	5.062128583	504	1
MA9	508	1	508	1298	0	0	0.5	5.2074695	504	1
MA9	509	1	509	1299	0	0	0.5	5.2074695	504	1
MA10	510	1	510	1301	0	0	0.5	6.84821425	504	1
MA10	511	1	511	1302	0	0	2	6.780301	504	1
MA10	512	1	512	1303	0	0	2	6.780301	504	1
MA10	513	1	513	1304	0	0	0.5	6.924329583	504	1
MA10	514	1	514	1214	0	0	0.5	5.132994583	504	1
MA10	515	1	515	1305	0	0	0.5	7.094932917	504	1
MA10	516	1	516	1306	0	0	0.5	7.41514225	504	1
MA10	517	1	517	1307	0	0	0.5	7.41514225	504	1
MA10	518	1	518	1308	0	0	3	4.372497417	504	1
MA10	519	1	519	1309	0	0	0.5	7.634958083	504	1
MA10	520	1	520	1310	0	0	2	4.022104417	504	1
MA10	521	1	521	1311	0	0	2	3.893823833	504	1
MA10	522	1	522	1312	0	0	2	6.4515615	504	1
MA10	523	1	523	1313	0	0	0.5	6.708778833	504	1
MA10	524	1	524	1314	0	0	2	6.879054083	504	1
MA10	525	1	525	1315	0	0	0.5	5.74979125	504	1
MA10	526	1	526	1316	0	0	2	6.5342385	504	1
MA10	527	1	527	1317	0	0	0.5	6.91908025	504	1
MA10	528	1	528	1318	0	0	0.5	6.929250833	504	1
MA10	529	1	529	1319	0	0	0.5	4.0381805	504	1
MA10	530	1	530	1320	0	0	2	3.537525333	504	1
MA10	531	1	531	1321	0	0	0.5	3.537525333	504	1
MA10	532	1	532	1322	0	0	0.5	3.589690583	504	1
MA10	533	1	533	1323	0	0	0.5	3.630044833	504	1
MA10	534	1	534	1337	0	0	3	5.86396425	504	1
MA10	535	1	535	1338	0	0	2	5.225514083	504	1
MA10	536	1	536	1439	0	0	0.5	8.394799083	504	1
MA10	537	1	537	1443	0	0	0.5	8.70450975	504	1
MA10	538	1	538	1452	0	0	0.5	5.161537833	504	1
MA10	539	1	539	1458	0	0	0.5	8.547685917	504	1
MA10	540	1	540	1467	0	0	0.5	8.31080975	504	1
MA10	541	1	541	1472	0	0	0.5	7.85018075	504	1
MA10	542	1	542	1473	0	0	3	6.675314333	504	1
MA10	543	1	543	1475	0	0	2	7.288174	504	1
MA10	544	1	544	1476	0	0	0.5	6.511928833	504	1
MA10	545	1	545	1477	0	0	0.5	6.2074675	504	1
MA10	546	1	546	1478	0	0	0.5	5.945985083	504	1
MA10	547	1	547	1479	0	0	2	7.79506275	504	1
MA10	548	1	548	1480	0	0	0.5	6.41711275	504	1
MA10	549	1	549	1481	0	0	0.5	7.022098417	504	1
MA10	550	1	550	1482	0	0	2	7.034893667	504	1
MA10	551	1	551	1483	0	0	3	6.933515917	504	1
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MA10	553	1	553	1485	0	0	3	6.465669083	504	1
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MA10	556	1	556	1488	0	0	3	6.337716583	504	1
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MA10	558	1	558	1490	0	0	3	6.701232917	504	1
MA10	559	1	559	1491	0	0	3	5.553269333	504	1
MA10	560	1	560	1492	0	0	3	5.933189833	504	1
MA10	561	1	561	1493	0	0	3	6.080171167	504	1
MA10	562	1	562	1494	0	0	3	5.488965	504	1
MA10	563	1	563	1495	0	0	3	6.320328167	504	1
MA10	564	1	564	1496	0	0	3	6.35215225	504	1
MA10	565	1	565	1497	0	0	3	5.927284333	504	1

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MA10	567	1	567	1499	0	0	3	5.90923975	504	1
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MA10	570	1	570	1506	0	0	0.5	8.941057833	504	1
MA10	571	1	571	1507	0	0	0.5	8.137909833	504	1
MA10	572	1	572	1515	0	0	3	6.23994775	504	1
MA10	573	1	573	1516	0	0	0.5	6.6090415	504	1
MA10	574	1	574	1518	0	0	0.5	7.54112625	504	1
MA10	575	1	575	1519	0	0	0.5	7.653658833	504	1
MA10	576	1	576	1521	0	0	0.5	8.268815083	504	1
MA10	577	1	577	1532	0	0	0.5	9.15726475	504	1
MA10	578	1	578	1541	0	0	0.5	8.2980145	504	1
MA10	579	1	579	1543	0	0	0.5	8.472882917	504	1
MA10	580	1	580	1544	0	0	0.5	8.441058833	504	1
MA10	581	1	581	1592	0	0	2	4.738638417	504	1
MA10	582	1	582	1593	0	0	2	4.738638417	504	1
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MA10	584	1	584	1595	0	0	0.5	6.438110083	504	1
MA10	585	1	585	1753	0	0	0.5	7.188436667	504	1
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MA10	588	1	588	1756	0	0	0.5	7.544735167	504	1
MA10	589	1	589	1757	0	0	0.5	7.702871333	504	1
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MA10	594	1	594	1781	0	0	3	7.034565583	504	1
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MA10	596	1	596	1785	0	0	0.5	5.41120925	504	1
MA10	597	1	597	1786	0	0	0.5	7.172688667	504	1
MA10	598	1	598	1787	0	0	0.5	7.684498667	504	1
MA10	599	1	599	1788	0	0	0.5	7.731742667	504	1
MA10	600	1	600	1789	0	0	0.5	7.880036333	504	1
MA10	601	1	601	1790	0	0	0.5	3.6366065	504	1
MA10	602	1	602	1791	0	0	0.5	3.798679667	504	1
MA10	603	1	603	1792	0	0	0.5	6.694015083	504	1
MA10	604	1	604	1793	0	0	0.5	4.733717167	504	1
MA10	605	1	605	1794	0	0	3	5.4082565	504	1
MA10	606	1	606	1795	0	0	3	5.798347583	504	1
MA10	607	1	607	1796	0	0	0.5	6.734369333	504	1
MA10	608	1	608	1798	0	0	0.5	5.827875083	504	1
MA10	609	1	609	1799	0	0	0.5	5.785552333	504	1
MA10	610	1	610	1800	0	0	0.5	7.585745583	504	1
MA10	611	1	611	1801	0	0	0.5	7.166783167	504	1
MA10	612	1	612	1802	0	0	3	6.497165083	504	1
MA10	613	1	613	1797	0	0	3	6.730432333	504	1
MA10	614	1	614	1806	0	0	0.5	8.09821175	504	1
MA10	615	1	615	1815	0	0	0.5	5.205829083	504	1
MA11	616	1	616	1841	0	0	0.5	4.945987083	504	1
MA9	617	1	617	1850	0	0	0.5	4.01554275	504	1
MA11	618	1	618	1857	0	0	0.5	7.253397167	504	1
MA12	619	1	619	1862	0	0	0.5	6.659566333	504	1
MA9	620	1	620	1863	0	0	0.5	6.0893575	504	1
MA9	621	1	621	1864	0	0	0.5	6.295393833	504	1
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MA12	624	1	624	1871	0	0	0.5	7.39841	504	1
MA9	625	1	625	1877	0	0	2	6.781941417	504	1
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MA14	628	1	628	1914	0	0	0.5	6.967636583	504	1
MA17	629	1	629	1915	0	0	0.5	3.536541083	504	62992 1
MA14	630	1	630	1917	0	0	0.5	4.211080417	504	5196 1
MA17	631	1	631	1919	0	0	0.5	5.3413275	504	5196 1
MA14	632	1	632	1920	0	0	2	6.792768167	504	5196 1
MA17	633	1	633	1921	0	0	2	4.4240065	504	5196 1
MA9	634	1	634	1924	0	0	0.5	7.074919833	504	2214.62 1
MA9	635	1	635	1927	0	0	0.5	7.569997583	504	5969.55 1
MA12	636	1	636	1935	0	0	0.5	7.874458917	504	1323.45 1
MA9	637	1	637	1951	0	0	2	7.920390583	504	2281.34 1
MA12	638	1	638	1980	0	0	0.5	7.944996833	504	12544.7 1
MA14	639	1	639	2175	0	0	2	6.019147667	504	2655.93 1
MA14	640	1	640	2312	0	0	0.5	5.320330167	504	3379.15 1
MA17	641	1	641	2313	0	0	2	3.965674083	504	5196 1
MA17	642	1	642	2314	0	0	2	4.38365225	504	2899.96 1
MA17	643	1	643	2315	0	0	2	5.076892333	504	2214.62 1
MA9	644	1	644	2439	0	0	0.5	7.86396025	504	90243.4 1
MA9	645	1	645	2441	0	0	0.5	7.799984	504	10267.3 1
MA15	646	1	646	2445	0	0	0.5	7.905626833	504	21761.7 1

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MA15	648	1	648	2508	0	0	0.5	8.507331667	504	11454.9	1
MA14	649	1	649	2509	0	0	0.5	5.76553925	504	70804.2	1
MA15	650	1	650	2510	0	0	0.5	7.45057525	504	21352.5	1
MA14	651	1	651	2511	0	0	0.5	6.469278	504	105106	1
MA15	652	1	652	2512	0	0	0.5	7.4594335	504	842.425	1
MA15	653	1	653	2513	0	0	0.5	5.102810917	504	19886.8	1
MA14	654	1	654	2516	0	0	0.5	8.764549	504	11548.1	1
MA14	655	1	655	2527	0	0	2	4.041461333	504	1147.75	1
MA17	656	1	656	2530	0	0	2	3.392840583	504	5969.55	1
MA14	657	1	657	2531	0	0	0.5	5.362652917	504		1
MA14	658	1	658	2533	0	0	0.5	6.467965667	504		1
MA14	659	1	659	2561	0	0	0.5	3.7350315	504		1
MA14	660	1	660	2566	0	0	2	6.370196833	504		1
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MA13	663	1	663	2774	0	0	0.5	8.792108	504		1
MA13	664	1	664	2776	0	0	0.5	8.713039917	504		1
MA13	665	1	665	2777	0	0	0.5	8.525704333	504		1
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MA9	668	1	668	2999	0	0	0.5	2.492908	504		1
MA10	669	1	669	3025	0	0	0.5	8.183513417	504		1
MA10	670	1	670	3030	0	0	0.5	8.159563333	504		1
MA10	671	1	671	3031	0	0	0.5	8.382331917	504		1
MA10	672	1	672	3033	0	0	0.5	7.916453583	504		1
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MA10	674	1	674	3284	0	0	0.5	8.033579333	504		1
MA10	675	1	675	3289	0	0	0.5	6.9476235	504		1
MA10	676	1	676	3299	0	0	0.5	6.72026175	504		1
MA10	677	1	677	3300	0	0	2	7.668422583	504		1
MA10	678	1	678	3301	0	0	2	7.545719417	504		1
MA10	679	1	679	3302	0	0	0.5	7.646769083	504		1
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MA10	682	1	682	3310	0	0	0.5	8.284235	504		1
MA10	683	1	683	3325	0	0	0.5	8.15726675	504		1
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MA10	685	1	685	3330	0	0	0.5	8.0421095	504		1
MA10	686	1	686	3335	0	0	0.5	8.083776083	504		1
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MA10	692	1	692	3359	0	0	0.5	7.352478333	504		1
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MA10	694	1	694	3366	0	0	0.5	7.805233333	504		1
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MA10	709	1	709	3421	0	0	0.5	5.530959667	504		1
MA10	710	1	710	3422	0	0	0.5	6.111339083	504		1
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MA10	712	1	712	3426	0	0	0.5	6.553267333	504		1
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MA10	719	1	719	3474	0	0	0.5	6.72026175	504		1
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MA9	729	1	729	3590	0	0	0.5	6.388241417	504	1
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MA9	734	1	734	3595	0	0	0.5	6.47026225	504	1
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MA10	745	1	745	3614	0	0	0.5	7.077872583	504	1
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MA10	747	1	747	3616	0	0	0.5	6.543424833	504	1
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MA10	751	1	751	3620	0	0	0.5	6.397099667	504	1
MA10	752	1	752	3621	0	0	2	6.03325525	504	1
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MA10	754	1	754	3648	0	0	0.5	8.83639925	504	1
MA10	755	1	755	3650	0	0	0.5	8.497489167	504	1
MA10	756	1	756	3652	0	0	0.5	7.898080917	504	1
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MA10	762	1	762	3663	0	0	0.5	7.290470583	504	1
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MA10	770	1	770	3674	0	0	0.5	8.798669667	504	1
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MA10	774	1	774	3682	0	0	0.5	9.1287215	504	1
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MA10	776	1	776	3687	0	0	2	7.60411825	504	1
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MA10	780	1	780	3691	0	0	0.5	5.956811833	504	1
MA10	781	1	781	3692	0	0	2	6.03719225	504	1
MA10	782	1	782	3693	0	0	0.5	6.03719225	504	1
MA10	783	1	783	3694	0	0	2	5.926300083	504	1
MA10	784	1	784	3695	0	0	2	6.040801167	504	1
MA10	785	1	785	3696	0	0	0.5	5.772100917	504	1
MA10	786	1	786	3697	0	0	2	5.571642	504	1
MA10	787	1	787	3698	0	0	2	6.440078583	504	1
MA10	788	1	788	3699	0	0	0.5	6.360354333	504	1
MA10	789	1	789	3700	0	0	0.5	7.130037833	504	1
MA10	790	1	790	3701	0	0	2	6.792112	504	1
MA10	791	1	791	3702	0	0	2	6.614947	504	1
MA10	792	1	792	3703	0	0	2	6.218622333	504	1
MA10	793	1	793	3704	0	0	0.5	6.287847917	504	1
MA10	794	1	794	3705	0	0	2	6.218622333	504	1
MA9	795	1	795	3706	0	0	2	6.62380525	504	1
MA9	796	1	796	3707	0	0	0.5	6.46435675	504	1
MA9	797	1	797	3708	0	0	0.5	6.260288917	504	1
MA10	798	1	798	3717	0	0	2	7.42301625	504	1
MA10	799	1	799	3718	0	0	0.5	6.845589583	504	1
MA10	800	1	800	3719	0	0	0.5	6.845589583	504	1
MA10	801	1	801	3720	0	0	2	6.773739333	504	1
MA10	802	1	802	3721	0	0	2	6.773739333	504	1
MA10	803	1	803	3722	0	0	2	6.98207225	504	1
MA10	804	1	804	3723	0	0	0.5	7.92695225	504	1
MA10	805	1	805	3724	0	0	0.5	8.043421833	504	1
MA10	806	1	806	3725	0	0	0.5	7.309499417	504	1
MA10	807	1	807	3726	0	0	2	7.309499417	504	1
MA10	808	1	808	3727	0	0	0.5	7.588698333	504	1

MA10	809	1	809	3728	0	0	0.5	7.63364575	504	1
MA10	810	1	810	3730	0	0	2	7.523737833	504	1
MA10	811	1	811	3731	0	0	0.5	7.523737833	504	1
MA10	812	1	812	3732	0	0	0.5	8.095587083	504	1
MA10	813	1	813	3733	0	0	0.5	8.394799083	504	1
MA10	814	1	814	3734	0	0	0.5	7.575903083	504	1
MA10	815	1	815	3735	0	0	0.5	8.376098333	504	1
MA10	816	1	816	3736	0	0	0.5	8.376098333	504	1
MA10	817	1	817	3738	0	0	0.5	8.240599917	504	1
MA10	818	1	818	3739	0	0	0.5	8.2586445	504	1
MA10	819	1	819	3740	0	0	0.5	8.33443175	504	1
MA10	820	1	820	3741	0	0	0.5	7.593947667	504	1
MA10	821	1	821	3742	0	0	0.5	8.53521875	504	1
MA10	822	1	822	3743	0	0	0.5	7.11593025	504	1
MA10	823	1	823	3744	0	0	0.5	7.471900667	504	1
MA10	824	1	824	3745	0	0	0.5	7.471900667	504	1
MA10	825	1	825	3746	0	0	0.5	8.057529417	504	1
MA10	826	1	826	3750	0	0	0.5	7.11593025	504	1
MA10	827	1	827	3751	0	0	2	7.997162083	504	1
MA10	828	1	828	3752	0	0	2	7.705824083	504	1
MA10	829	1	829	3753	0	0	0.5	7.384302417	504	1
MA10	830	1	830	3754	0	0	0.5	6.35215225	504	1
MA10	831	1	831	3755	0	0	0.5	7.015208667	504	1
MA10	832	1	832	3756	0	0	0.5	7.015208667	504	1
MA10	833	1	833	3757	0	0	0.5	6.890865083	504	1
MA10	834	1	834	3758	0	0	0.5	7.272426	504	1
MA10	835	1	835	3759	0	0	2	7.354774917	504	1
MA10	836	1	836	3760	0	0	0.5	7.354774917	504	1
MA10	837	1	837	3761	0	0	2	6.890865083	504	1
MA10	838	1	838	3762	0	0	0.5	7.020458	504	1
MA10	839	1	839	3763	0	0	0.5	7.020458	504	1
MA10	840	1	840	3764	0	0	0.5	6.967964667	504	1
MA10	841	1	841	3765	0	0	0.5	7.04408	504	1
MA10	842	1	842	3766	0	0	0.5	6.958778333	504	1
MA10	843	1	843	3767	0	0	0.5	7.0893555	504	1
MA10	844	1	844	3768	0	0	2	6.93285975	504	1
MA10	845	1	845	3769	0	0	0.5	6.93285975	504	1
MA10	846	1	846	3770	0	0	0.5	6.958778333	504	1
MA10	847	1	847	3771	0	0	2	6.96238725	504	1
MA10	848	1	848	3772	0	0	0.5	7.014224417	504	1
MA10	849	1	849	3773	0	0	0.5	7.0696705	504	1
MA10	850	1	850	3774	0	0	2	6.7035295	504	1
MA10	851	1	851	3775	0	0	0.5	6.982400333	504	1
MA10	852	1	852	3776	0	0	0.5	6.119541167	504	1
MA10	853	1	853	3777	0	0	0.5	7.31671725	504	1
MA10	854	1	854	3778	0	0	0.5	7.717963167	504	1
MA10	855	1	855	3779	0	0	2	7.717963167	504	1
MA10	856	1	856	3780	0	0	2	7.595916167	504	1
MA10	857	1	857	3781	0	0	0.5	7.38167775	504	1
MA10	858	1	858	3782	0	0	0.5	7.126757	504	1
MA10	859	1	859	3786	0	0	0.5	7.792438083	504	1
MA10	860	1	860	3787	0	0	0.5	8.28128225	504	1
MA23	861	1	861	3795	0	0	0.5	7.788829167	504	1
MA23	862	1	862	3804	0	0	0.5	7.232399833	504	1
MA23	863	1	863	3805	0	0	0.5	7.141848833	504	1
MA23	864	1	864	3816	0	0	0.5	7.290798667	504	1
MA23	865	1	865	3837	0	0	0.5	7.339355	504	1
MA23	866	1	866	3841	0	0	0.5	5.692376667	504	1
MA23	867	1	867	3843	0	0	2	7.704183667	504	1
MA23	868	1	868	3845	0	0	0.5	9.280296	504	1
MA23	869	1	869	3848	0	0	0.5	8.918092	504	1
MA23	870	1	870	3850	0	0	0.5	8.820979333	504	1
MA23	871	1	871	3851	0	0	0.5	8.486334333	504	1
MA23	872	1	872	3852	0	0	0.5	9.040139	504	1
MA9	873	1	873	3956	0	0	0.5	5.57262625	504	1
MA11	874	1	874	3957	0	0	0.5	3.456816833	504	1
MA11	875	1	875	3992	0	0	0.5	6.821967583	504	1
MA11	876	1	876	3995	0	0	0.5	8.455822583	504	1
MA11	877	1	877	3996	0	0	0.5	8.002083333	504	1
MA11	878	1	878	3998	0	0	0.5	6.752085833	504	1
MA11	879	1	879	3999	0	0	0.5	7.409892917	504	1
MA11	880	1	880	4008	0	0	0.5	9.422028	504	1
MA11	881	1	881	4009	0	0	0.5	7.190405167	504	1
MA11	882	1	882	4010	0	0	0.5	7.190405167	504	1
MA11	883	1	883	4012	0	0	0.5	8.827541	504	1
MA11	884	1	884	4014	0	0	0.5	4.773087167	504	1
MA11	885	1	885	4015	0	0	0.5	7.080825333	504	1
MA11	886	1	886	4016	0	0	0.5	7.659892417	504	1
MA11	887	1	887	4017	0	0	0.5	7.946965333	504	1
MA11	888	1	888	4019	0	0	0.5	8.895126167	504	1
MA11	889	1	889	4022	0	0	0.5	6.806547667	504	1

MA11	890	1	890	4023	0	0	0.5	3.764887083	504	1
MA11	891	1	891	4025	0	0	0.5	3.681225833	504	1
MA11	892	1	892	4026	0	0	0.5	5.448938833	504	1
MA11	893	1	893	4027	0	0	0.5	6.199921583	504	1
MA11	894	1	894	4028	0	0	0.5	5.61002775	504	1
MA11	895	1	895	4030	0	0	0.5	7.76159825	504	1
MA11	896	1	896	4031	0	0	0.5	5.536209	504	1
MA11	897	1	897	4032	0	0	0.5	4.968952917	504	1
MA11	898	1	898	4033	0	0	0.5	4.529977417	504	1
MA10	899	1	899	4034	0	0	0.5	7.355431083	504	1
MA10	900	1	900	4035	0	0	0.5	6.89742675	504	1
MA10	901	1	901	4036	0	0	0.5	6.090669833	504	1
MA11	902	1	902	4037	0	0	0.5	4.13168425	504	1
MA10	903	1	903	4038	0	0	0.5	4.391854333	504	1
MA10	904	1	904	4039	0	0	0.5	7.3728195	504	1
MA11	905	1	905	4041	0	0	0.5	4.492247833	504	1
MA11	906	1	906	4042	0	0	0.5	4.98404475	504	1
MA10	907	1	907	4043	0	0	0.5	7.319013833	504	1
MA11	908	1	908	4044	0	0	0.5	7.355431083	504	1
MA11	909	1	909	4045	0	0	0.5	4.598546833	504	1
MA11	910	1	910	4046	0	0	0.5	4.033915417	504	1
MA11	911	1	911	4057	0	0	0.5	8.731412583	504	1
MA11	912	1	912	4072	0	0	0.5	5.896772583	504	1
MA11	913	1	913	4073	0	0	0.5	6.323609	504	1
MA11	914	1	914	4082	0	0	0.5	4.253403167	504	1
MA11	915	1	915	4083	0	0	0.5	4.68483275	504	1
MA11	916	1	916	4085	0	0	0.5	4.427615417	504	1
MA11	917	1	917	4086	0	0	0.5	7.314092583	504	1
MA11	918	1	918	4087	0	0	0.5	7.314092583	504	1
MA10	919	1	919	4088	0	0	0.5	7.255037583	504	1
MA10	920	1	920	4089	0	0	0.5	6.65726975	504	1
MA11	921	1	921	4093	0	0	0.5	5.176301583	504	1
MA11	922	1	922	4096	0	0	0.5	5.257010083	504	1
MA11	923	1	923	4097	0	0	0.5	5.257010083	504	1
MA11	924	1	924	4084	0	0	0.5	4.115608167	504	1
MA11	925	1	925	4615	0	0	0.5	4.56278575	504	1
MA11	926	1	926	4616	0	0	0.5	4.278993667	504	1
MA11	927	1	927	4617	0	0	0.5	3.594611833	504	1
MA14	928	1	928	4656	0	0	2	6.513241167	504	1
MA10	929	1	929	4870	0	0	0.5	3.57952	504	1
MA10	930	1	930	4871	0	0	0.5	3.054258583	504	1
MA10	931	1	931	4872	0	0	0.5	3.210754333	504	1
MA10	932	1	932	4878	0	0	0.5	6.937452917	504	1
MA9	933	1	933	4880	0	0	0.5	3.974860417	504	1
MA10	934	1	934	4881	0	0	2	7.07459175	504	1
MA10	935	1	935	4882	0	0	2	6.589684583	504	1
MA10	936	1	936	4883	0	0	2	6.015210667	504	1
MA10	937	1	937	4884	0	0	0.5	7.404643583	504	1
MA10	938	1	938	4885	0	0	0.5	8.137909833	504	1
MA10	939	1	939	4887	0	0	0.5	8.247489667	504	1
MA10	940	1	940	4888	0	0	0.5	7.790797667	504	1
MA10	941	1	941	4889	0	0	0.5	7.793422333	504	1
MA10	942	1	942	4890	0	0	0.5	7.611008	504	1
MA10	943	1	943	4891	0	0	0.5	7.705167917	504	1
MA10	944	1	944	4892	0	0	0.5	7.857398583	504	1
MA10	945	1	945	4898	0	0	2	7.534564583	504	1
MA10	946	1	946	4899	0	0	0.5	8.3649435	504	1
MA10	947	1	947	4900	0	0	0.5	8.451885583	504	1
MA10	948	1	948	4902	0	0	0.5	6.78325375	504	1
MA10	949	1	949	4908	0	0	0.5	5.995525667	504	1
MA10	950	1	950	4921	0	0	0.5	5.2507765	504	1
MA10	951	1	951	4923	0	0	0.5	4.861669667	504	1
MA10	952	1	952	4926	0	0	0.5	6.638240917	504	1
MA10	953	1	953	4927	0	0	0.5	6.019803833	504	1
MA10	954	1	954	4928	0	0	0.5	2.092974417	504	1
MA10	955	1	955	4929	0	0	0.5	2.067383917	504	1
MA10	956	1	956	4931	0	0	0.5	8.09821175	504	1
MA9	957	1	957	4932	0	0	0.5	5.128073333	504	1
MA10	958	1	958	4933	0	0	2	3.678601167	504	1
MA9	959	1	959	4934	0	0	0.5	6.133976833	504	1
MA10	960	1	960	4937	0	0	0.5	5.056223083	504	1
MA10	961	1	961	4938	0	0	0.5	3.37184325	504	1
MA10	962	1	962	4939	0	0	0.5	4.8295175	504	1
MA10	963	1	963	4941	0	0	0.5	6.952216667	504	1
MA10	964	1	964	4943	0	0	0.5	3.670071	504	1
MA10	965	1	965	4944	0	0	2	7.735351583	504	1
MA10	966	1	966	4945	0	0	0.5	7.819012833	504	1
MA10	967	1	967	4946	0	0	0.5	7.719931667	504	1
MA10	968	1	968	4947	0	0	0.5	7.785548333	504	1
MA10	969	1	969	4948	0	0	0.5	7.5106145	504	1
MA10	970	1	970	4949	0	0	0.5	7.440076583	504	1

MA10	971	1	971	4950	0	0	0.5	6.03325525	504	1
MA10	972	1	972	4951	0	0	0.5	5.47223275	504	1
MA10	973	1	973	4956	0	0	0.5	8.844929417	504	1
MA10	974	1	974	4957	0	0	0.5	8.313106333	504	1
MA10	975	1	975	4958	0	0	3	5.687127333	504	1
MA10	976	1	976	4959	0	0	0.5	7.824918333	504	1
MA10	977	1	977	4960	0	0	0.5	7.751427667	504	1
MA10	978	1	978	4961	0	0	0.5	7.611664167	504	1
MA10	979	1	979	4962	0	0	0.5	6.957137917	504	1
MA10	980	1	980	4974	0	0	0.5	5.582140667	504	1
MA10	981	1	981	4975	0	0	0.5	5.064425167	504	1
MA10	982	1	982	4976	0	0	0.5	6.05983	504	1
MA10	983	1	983	4977	0	0	0.5	5.951234417	504	1
MA10	984	1	984	4978	0	0	0.5	6.315406917	504	1
MA10	985	1	985	4979	0	0	0.5	5.596576333	504	1
MA10	986	1	986	4980	0	0	0.5	5.596576333	504	1
MA10	987	1	987	4981	0	0	3	5.695001333	504	1
MA10	988	1	988	4982	0	0	0.5	7.090011667	504	1
MA10	989	1	989	4983	0	0	0.5	7.94466875	504	1
MA10	990	1	990	4987	0	0	0.5	5.9240035	504	1
MA10	991	1	991	4988	0	0	0.5	7.303922	504	1
MA10	992	1	992	4989	0	0	0.5	7.1917175	504	1
MA10	993	1	993	4990	0	0	0.5	8.66907675	504	1
MA10	994	1	994	4991	0	0	0.5	7.79703125	504	1
MA9	995	1	995	5028	0	0	0.5	5.881024583	504	1
MA14	996	1	996	5033	0	0	0.5	3.627092083	504	1
MA16	997	1	997	5034	0	0	0.5	5.060160083	504	1
MA15	998	1	998	5036	0	0	0.5	4.897758833	504	1
MA15	999	1	999	5037	0	0	0.5	3.910228	504	1
MA15	1000	1	1000	5038	0	0	2	7.833120417	504	1
MA15	1001	1	1001	5041	0	0	0.5	6.147100167	504	1
MA15	1002	1	1002	5042	0	0	2	7.473213	504	1
MA14	1003	1	1003	5043	0	0	0.5	7.1995915	504	1
MA15	1004	1	1004	5044	0	0	0.5	6.199921583	504	1
MA15	1005	1	1005	5045	0	0	0.5	7.542438583	504	1
MA14	1006	1	1006	5046	0	0	2	4.160555583	504	1
MA15	1007	1	1007	5047	0	0	0.5	4.579189917	504	1
MA10	1008	1	1008	5056	0	0	0.5	5.223545583	504	1
MA10	1009	1	1009	5059	0	0	0.5	7.146770083	504	1
MA10	1010	1	1010	5060	0	0	2	6.190407167	504	1
MA10	1011	1	1011	5061	0	0	0.5	8.2665185	504	1
MA23	1012	1	1012	5064	0	0	2	7.718619333	504	1
MA11	1013	1	1013	5072	0	0	0.5	7.747162583	504	1
MA11	1014	1	1014	5090	0	0	0.5	4.248481917	504	1
MA11	1015	1	1015	5091	0	0	0.5	5.58443725	504	1
MA11	1016	1	1016	5092	0	0	0.5	5.610355833	504	1
MA11	1017	1	1017	5094	0	0	0.5	5.176301583	504	1
MA10	1018	1	1018	5153	0	0	2	6.848870417	504	1
MA10	1019	1	1019	5157	0	0	0.5	3.84231475	504	1
MA10	1020	1	1020	5158	0	0	2	4.254059333	504	1
MA10	1021	1	1021	5159	0	0	0.5	4.287851917	504	1
MA10	1022	1	1022	5160	0	0	0.5	8.386925083	504	1
MA10	1023	1	1023	5161	0	0	0.5	8.093946667	504	1
MA10	1024	1	1024	5162	0	0	0.5	8.050311583	504	1
MA10	1025	1	1025	5163	0	0	0.5	8.166125	504	1
MA10	1026	1	1026	5165	0	0	0.5	8.313106333	504	1
MA10	1027	1	1027	5166	0	0	0.5	8.218618333	504	1
MA10	1028	1	1028	5167	0	0	0.5	6.742571417	504	1
MA10	1029	1	1029	5168	0	0	0.5	7.897752833	504	1
MA10	1030	1	1030	5169	0	0	2	7.81277925	504	1
MA10	1031	1	1031	5170	0	0	0.5	7.57065375	504	1
MA10	1032	1	1032	5171	0	0	0.5	7.57065375	504	1
MA10	1033	1	1033	5172	0	0	0.5	7.445982083	504	1
MA10	1034	1	1034	5173	0	0	0.5	7.341651583	504	1
MA10	1035	1	1035	5174	0	0	0.5	7.024395	504	1
MA10	1036	1	1036	5175	0	0	0.5	6.957137917	504	1
MA10	1037	1	1037	5176	0	0	0.5	7.075247917	504	1
MA10	1038	1	1038	5177	0	0	0.5	7.026035417	504	1
MA10	1039	1	1039	5178	0	0	0.5	6.7310885	504	1
MA10	1040	1	1040	5179	0	0	2	6.441719	504	1
MA10	1041	1	1041	5180	0	0	0.5	7.069014333	504	1
MA10	1042	1	1042	5181	0	0	0.5	5.3137685	504	1
MA10	1043	1	1043	5182	0	0	0.5	6.692046583	504	1
MA10	1044	1	1044	5183	0	0	0.5	8.167765417	504	1
MA10	1045	1	1045	5184	0	0	0.5	8.091978167	504	1
MA10	1046	1	1046	5186	0	0	0.5	8.165796917	504	1
MA10	1047	1	1047	5188	0	0	0.5	9.023734833	504	1
MA10	1048	1	1048	5198	0	0	2	2.01948375	504	1
MA10	1049	1	1049	5199	0	0	0.5	4.77735225	504	1
MA10	1050	1	1050	5200	0	0	0.5	2.814101583	504	1
MA10	1051	1	1051	5203	0	0	0.5	3.660884667	504	1

MA10	1052	1	1052	5205		0	0	0.5	3.398418	504		1
MA10	1053	1	1053	5208		0	0	0.5	7.4909295	504		1
MA9	1054	1	1054	5210		0	0	0.5	7.5302995	504		1
MA9	1055	1	1055	5211		0	0	0.5	6.455826583	504		1
MA10	1056	1	1056	5213		0	0	0.5	3.8767635	504		1
MA10	1057	1	1057	5214		0	0	2	4.87971425	504		1
MA10	1058	1	1058	5229		0	0	0.5	8.75175375	504		1
MA10	1059	1	1059	5238		0	0	3	5.695001333	504		1
MA10	1060	1	1060	5239		0	0	0.5	7.173344833	504		1
MA10	1061	1	1061	5240		0	0	0.5	6.3413255	504		1
MA11	1062	1	1062	5246		0	0	0.5	8.37773875	504		1
MA11	1063	1	1063	5247		0	0	0.5	5.998478417	504		1
MA23	1064	1	1064	5295		0	0	0.5	8.718945417	504		1
MA23	1065	1	1065	5302		0	0	0.5	5.931549417	504		1
MA10	1066	1	1066	5206		0	0	2	6.509304167	504		1
MA10	1067	1	1067	5207		0	0	0.5	2.666792167	504		1
MA1	1068	1	1068	4754		0	0	2	4.953204917	504		1
MA1	1069	1	1069	4755		0	0	2	5.996838	504		1
MA1	1070	1	1070	4756		0	0	2	5.798347583	504		1
MA1	1071	1	1071	4758		0	0	2	8.057201333	504		1
MA1	1072	1	1072	4760		0	0	2	7.503068583	504		1
MA1	1073	1	1073	4800		0	0	0.5	7.449919083	504		1
MA1	1074	1	1074	4801		0	0	0.5	7.747162583	504		1
MA1	1075	1	1075	5303		0	0	0.5	8.5	504		1
MA22	1076	1	1076	4818		0	0	0.5	8.760283917	504	1323.45	1
MA22	1077	1	1077	4819		0	0	0.5	3.11003275	504	2281.34	1
MA22	1078	1	1078	4820		0	0	0.5	5.841654583	504	12544.7	1
MA22	1079	1	1079	4821		0	0	0.5	5.772757083	504	2655.93	1
MA22	1080	1	1080	4822		0	0	0.5	6.48207325	504	3379.15	1
MA22	1081	1	1081	4823		0	0	0.5	6.39939625	504	3391.41	1
MA22	1082	1	1082	4824		0	0	0.5	6.420721667	504	1678.12	1
MA22	1083	1	1083	4825		0	0	0.5	5.167771417	504	33896.5	1
MA22	1084	1	1084	4826		0	0	0.5	5.408912667	504	90243.4	1
MA22	1085	1	1085	4832		0	0	0.5	7.232727917	504	10267.3	1
MA22	1086	1	1086	4833		0	0	0.5	5.0421155	504	21761.7	1
MA22	1087	1	1087	4838		0	0	0.5	4.633979833	504	19692.5	1
MA22	1088	1	1088	4839		0	0	0.5	5.559831	504	11454.9	1
MA22	1089	1	1089	4840		0	0	0.5	5.266852583	504	70804.2	1
MA22	1090	1	1090	4841		0	0	2	4.37971525	504	21352.5	1
MA22	1091	1	1091	4843		0	0	0.5	7.041783417	504	105106	1
MA22	1092	1	1092	4845		0	0	0.5	7.922031	504	842.425	1
MA22	1093	1	1093	4848		0	0	0.5	6.944014583	504	19886.8	1
MA22	1094	1	1094	4854		0	0	0.5	7.055234833	504	11548.1	1
MA22	1095	1	1095	4855		0	0	0.5	6.273740333	504	1147.75	1

		1096			1096
	MA1	8			
	MA9	67			
	MA10	879			
	MA11	57			
	MA12	4			
	MA13	4			
	MA14	20			
	MA15	14			
	MA16	1			
	MA17	7	$ 89,664.13	$ 4,546,868.03	
	MA22	20	$ 445,258.18	$ 22,579,042.12	
	MA23	15	0		

Estimated Cost (Price Level) is the initially developed cost estimate which includes contingencies. The effective price level date for Estimated Cost (shown in MONTH YYYY format) is usually the date of preparation of the cost estimate.

Project First Cost (Constant Dollar Cost) (Price Level) is the Estimated Cost BROUGHT TO THE EFFECTIVE PRICE LEVEL. The effective price level for Constant Dollar Cost (shown in MONTH YYYY format) is the date of the common point in time of the pricing used in the cost estimate. Constant Dollar Cost does not include inflation. Constant Dollar Cost at current price levels is the cost estimate used in feasibility reports and Chief's Reports (see paragraphs 5(a) and 5(b) below). THE CONSTANT DOLLAR COST SHOULD BE EXPRESSED AS THE FY OF THE CHIEF'S REPORT TO ENSURE THAT THE CW PROGRAM TOTALS IN ONE FY DOLLAR TO ASA AND CONGRESS.

Total Project Cost is the Constant Dollar Cost FULLY FUNDED WITH ESCALATION to the estimated midpoint of construction. Total Project Cost (or Total Cost of Construction of GNFs when discussing navigation projects) is the cost estimate used in Project Partnership Agreements and Integral Determination Reports. Total Project Cost is the cost estimate provided non-Federal sponsors for their use in financial planning as it provides information regarding the overall non-Federal cost sharing obligation. See the enclosed tables for more detail of what is or is not included in the Total Project Cost.

Type of Program	CWBS*	Pro ect Cost Component**	Br ef Def n t on	For Chief s Report		For PPA s
				Project F rst Cost Constant Cost Estimate Oct (YYYY) Pr ce Level	Econom c Cost for BCR	Tota Pro ect Cost Fu y Funded Cost Estimate
Flood Risk Management	01,02	Lands, Easements, Rights of Way, Relocations, and Dredged Material Disposal Areas (LERRD).	Estimated value/costs of LERRD for the project (to include breakout of related Federal administrative costs).	Y	Y	Y
Flood Risk Management	02 - 20	Construction Elements	Physical Construction cost estimate broken out by Civil Works Breakdown Structure(CWBS).	Y	Y	Y
Flood Risk Management	30	Planning, Engineering, and Design (post feasibility work)	Estimated costs for post feasibility planning, engineering, and design for the project. This cost should include the estimate of Preconstruction Engineering and Design (PED) phase costs as well as the planning, engineering, and design costs during the construction phase to complete the project.	Y	Y	Y
Flood Risk Management	31	Construction Management	Estimated costs for construction management of project	Y	Y	Y
Flood Risk Management		Fish and Wildlife Mitigation	Estimated costs of Mitigation	Y	Y	Y
Flood Risk Management	18	Cultural Mitigation	Estimated costs of Mitigation	Y	Y***	Y
Flood Risk Management	By project element	Contingency	This is the Risk Based contingency established for the project.	Y	Y	Y
Flood Risk Management	By project element	Interest During Construction (IDC)	Estimate of interest accumulated during construction(Economic cost)	N	Y	Y
Flood Risk Management	By project element	Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R)	Annualized estimate of Operation, Maintenance, Replacement and Rehabilitation cost.	N	Y	N
Flood Risk Management	By project element	Inflation through midpoint construction	Estimate of inflation using appropriate Civil Works Construction Cost Index System (CWCCIS) factors applied to the Constant Dollar Cost	N	N	Y
Flood Risk Management	By project element	Associated and Other Costs	Associated financial costs that are not part of the recommended Federal project but are a necessary non-Federal responsibility. These cost are required to be shown within the Chief's report, as a separate total but are not to be included within cost shared project cost	N	Y	Y
Ecosystem Restoration	01,02	Lands, Easements, Rights of Way, Relocations, and Dredged Material Disposal Areas (LERRD). This includes related Federal administrative costs.	Estimated value/costs of LERRD for the project (to include breakout of related Federal administrative costs).	Y	Y	Y
Ecosystem Restoration	03 - 20	Construction Elements	Physical Construction cost estimate broken out by Civil Works Breakdown Structure(CWBS).	Y	Y	Y
Ecosystem Restoration	30	Planning, Engineering, and Design (post feasibility work)	Estimated costs for post feasibility planning, engineering, and design for the project. This cost should include the estimate of Preconstruction Engineering and Design (PED) phase costs as well as the planning, engineering, and design costs during the construction phase to complete the project.	Y	Y	Y
Ecosystem Restoration	31	Construction Management	Estimated costs for construction management of project	Y	Y	Y
Ecosystem Restoration		Fish and Wildlife Mitigation	Estimated costs of Mitigation	Y	Y	Y
Ecosystem Restoration	18	Cultural Mitigation	Estimated costs of Mitigation	Y	Y***	Y
Ecosystem Restoration	By project element	Monitoring and Adaptive Management	This represents the estimated costs of monitoring and or adaptive management to be cost shared for the project.	Y	Y	Y
Ecosystem Restoration	By project element	Contingency	This is the Risk Based contingency established for the project.	Y	Y	Y
Ecosystem Restoration	By project element	Interest During Construction (IDC)	Estimate of interest accumulated during construction(Economic cost)	N	Y	Y
Ecosystem Restoration	By project element	Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R)	Annualized estimate of Operation, Maintenance, Replacement and Rehabilitation cost.	N	Y	N
Ecosystem Restoration	By project element	Inflation through midpoint construction	Estimate of inflation using appropriate Civil Works Construction Cost Index System (CWCCIS) factors applied to the Constant Dollar Cost	N	N	Y
Ecosystem Restoration		Associated and Other Costs	Associated financial costs that are not part of the recommended Federal project but are a necessary non-Federal responsibility. These cost are required to be shown within the Chief's report, as a separate total but are not to be included within the cost shared project cost	N	Y	Y
Navigation and Harbors	01,02	Lands, Easements, Rights of Way, Relocations (LERR). This includes related Federal costs.	Estimated value/costs of LERR (to include breakout of related Federal administrative costs).	Y	Y	Y
Navigation and Harbors	03 - 20	Construction Elements (General Navigation Features)	Physical Construction cost estimate broken out by Civil Works Breakdown Structure(CWBS).	Y	Y	Y
Navigation and Harbors	30	Planning, Engineering, and Design (post feasibility work)	Estimated costs for post feasibility planning, engineering, and design for the project. This cost should include the estimate of Preconstruction Engineering and Design (PED) phase costs as well as the planning, engineering, and design costs during the construction phase to complete the project.	Y	Y	Y
Navigation and Harbors	31	Construction Management	Estimated costs for construction management of project	Y	Y	Y
Navigation and Harbors		Fish and Wildlife Mitigation	Estimated costs of Mitigation	Y	Y	Y
Navigation and Harbors	18	Cultural Mitigation	Estimated costs of Mitigation	Y	Y***	Y
Navigation and Harbors	By project element	Contingency	This is the Risk Based contingency established for the project.	Y	Y	Y
Navigation and Harbors	By project element	Interest During Construction (IDC)	Estimate of interest accumulated during construction(Economic cost)	N	Y	Y

Navigation and Harbors	By project element	Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R)	Annualized estimate of Operation, Maintenance, Replacement and Rehabilitation cost.	N	Y	N
Navigation and Harbors	By project element	Inflation through midpoint construction	Estimate of inflation using appropriate Civil Works Construction Cost Index System (CWCCIS) factors applied to the Constant Dollar Cost	N	N	Y
Navigation and Harbors	By project element	Local Service Facilities (LSF)	For Navigation Only: This represents the estimated cost of Local Service Facilities as defined in the Planning Guidance Notebook Appendix E. These are the responsibility of the non-Federal entity and are required as part of the PCA if	N	Y	Y
Navigation and Harbors		Associated and Other Costs	Associated financial costs that are not part of the recommended Federal project but are a necessary non-Federal responsibility. These cost are required to be shown within the Chief's report, as a separate total but are not to be included within the cost shared project cost.	N	Y	Y
Inland Navigation	01,02	Lands, Easements, Rights of Way, Relocations, and Dredged Material Disposal Areas (LERRD). This includes related Federal administrative costs.	Estimated value/costs of LERRD for the project (to include breakout of related Federal administrative costs).	Y	Y	Y
Inland Navigation	03 - 20	Construction Elements (General Navigation Features)	Physical Construction cost estimate broken out by Civil Works Breakdown Structure(CWBS).	Y	Y	Y
Inland Navigation	30	Planning, Engineering, and Design (post feasibility work)	Estimated costs for post feasibility planning, engineering, and design for the project. This cost should include the estimate of Preconstruction Engineering and Design (PED) phase costs as well as the planning, engineering, and design	Y	Y	Y
Inland Navigation	31	Construction Management	Estimated costs for construction management of project	Y	Y	Y
Inland Navigation		Fish and Wildlife Mitigation	Estimated costs of Mitigation	Y	Y	Y
Inland Navigation	18	Cultural Mitigation	Estimated costs of Mitigation	Y	Y***	Y
Inland Navigation	By project element	Contingency	This is the Risk Based contingency established for the project.	Y	Y	Y
Inland Navigation	By project element	Interest During Construction (IDC)	Estimate of interest accumulated during construction(Economic cost)	N	Y	Y
Inland Navigation	By project element	Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R)	Annualized estimate of Operation, Maintenance, Replacement and Rehabilitation cost.	N	Y	N
Inland Navigation	By project element	Inflation through midpoint construction	Estimate of inflation using appropriate Civil Works Construction Cost Index System (CWCCIS) factors applied to the Constant Dollar Cost	N	N	Y
Inland Navigation	By project element	Local Service Facilities (LSF)	For Navigation Only: This represents the estimated cost of Local Service Facilities as defined in the Planning Guidance Notebook Appendix E. These are the responsibility of the non-Federal entity and are required as part of the PCA if	N	Y	Y
Inland Navigation		Associated and Other Costs	Associated financial costs that are not part of the recommended Federal project but are a necessary non-Federal responsibility. These cost are required to be shown within the Chief's report, as a separate total but are not to be included	N	Y	Y
COASTAL STORM	01,02	Lands, Easements, Rights of Way, Relocations, and Dredged Material Disposal Areas (LERRD). This includes related Federal administrative costs.	Estimated value/costs of LERRD for the project (to include breakout of related Federal administrative costs).	Y	Y	Y
COASTAL STORM	03 - 20	Construction Elements	Physical Construction cost estimate broken out by Civil Works Breakdown Structure(CWBS).	Y	Y	Y
COASTAL STORM	30	Planning, Engineering, and Design (post feasibility work)	Estimated costs for post feasibility planning, engineering, and design for the project. This cost should include the estimate of Preconstruction Engineering and Design (PED) phase costs as well as the planning, engineering, and design	Y	Y	Y
COASTAL STORM	31	Construction Management	Estimated costs for construction management of project	Y	Y	Y
COASTAL STORM		Fish and Wildlife Mitigation	Estimated costs of Mitigation	Y	Y	Y
COASTAL STORM	18	Cultural Mitigation	Estimated costs of Mitigation	Y	Y***	Y
COASTAL STORM	By project element	Monitoring and Adaptive Management	This represents the estimated costs of monitoring and or adaptive management to be cost shared for the project.	Y	Y	Y
COASTAL STORM	By project element	Contingency	This is the Risk Based contingency established for the project.	Y	Y	Y
COASTAL STORM	By project element	Continued Construction (periodic nourishment)	For Hurricane and Storm Damage Reduction Only: Estimate of Allowable Periodic Average future construction cost submitted for authorization.	Y	Y	Y
COASTAL STORM	By project element	Interest During Construction (IDC)	Estimate of interest accumulated during construction(Economic cost)	N	Y	Y
COASTAL STORM	By project element	Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R)	Annualized estimate of Operation, Maintenance, Replacement and Rehabilitation cost.	N	Y	N
COASTAL STORM		Inflation through midpoint construction	Estimate of inflation using appropriate Civil Works Construction Cost Index System (CWCCIS) factors applied to the Constant Dollar Cost	N	N	Y
COASTAL STORM		Associated and Other Costs	Associated financial costs that are not part of the recommended Federal project but are a necessary non-Federal responsibility. These cost are required to be shown within the Chief's report, as a separate total but are not to be included within the cost shared project cost.	N	Y	Y

Feature Code Definitions

CWBS	Def n t ons
01 Lands and Damages	This feature includes all costs of acquiring for the project (by purchase or condemnation) real property or permanent interests therein, including Government costs, damages, and costs of disposal of real estate. Government costs include planning expenses for the real estate portion of the General Design Memo and for the detailed Real Estate Memo; and project real estate office administration, surveys, and marking for land acquisition purposes and appraisals. For projects which require that costs be incurred on real estate activities, i.e., for records search, appraisals, and field inspection to assure compliance by local interests in the provision of local requirements on projects where no Federal land acquisition is involved, a memorandum statement will be provided with the PB-3 indicating the estimated costs of such real estate activities. These costs will be charged to feature 30, Engineering and Design and that feature will be properly footnoted to show the amount of such costs. A similar footnote will be shown on the PB-1's and PB-2a's for all such projects. This feature is credited with disposal receipts from sale of such items as standing crops, standing timber, structures, and improvements in place and acquired with the land. Disposal receipts from sale of excess land not turned in to the U.S. Treasury as miscellaneous receipts are credited to this feature. Lands or interests purchased for relocations and conveyed to others are included in the feature "Relocations." Temporary interests such as leases are included in the feature or distributive item benefited thereby.
02 Relocations	This feature includes removing and relocating, or reconstructing property of others, such as roads, railroads, cemeteries, utilities, buildings, and other structures; and lands or interests purchased for such relocations and conveyed to others, including real estate planning and acquisition expenses. The cost of removal of improvements from the reservoir area for disposal is included in the feature "Reservoirs." All alterations of railroad bridges in accordance with Section 3 of the 1946 Flood Control Act (22 USC 701p) are also included in this feature.
03 Reservoirs	This feature includes clearing lands in reservoirs and pools of debris, brush, trees, improvements, and structures. Any salvage, obtained by sale or disposal by the Government, of material removed in clearing operations is credited to this feature. This feature also includes bank stabilization, shoreline improvement, firebreaks, fencing, boundary line survey and marking of land which has been acquired or is to be acquired, rehabilitation of natural resources, erosion control, drainage, and rim grouting and mine sealing, etc., to prevent leakage. Site clearing, grouting, etc., incidental to and required for specific construction features is included as part of the construction features.

04 Dams	This feature includes dams and all other water collecting and storage facilities, whether man-made or natural, together with appurtenant diversion, regulation, and delivery facilities and spillways, outlet works, and power intake works, whether separate from the dam or not. In the case where the powerhouse is an integral part of the intake dam, the cost of the power intake dam is included in the feature "Power Plant." Any auxiliary dams or spillways detached from the main structures and floating trash and drift booms and barriers are included in this feature. The power intake works include such power items as forebay, penstocks, tunnels, surge tank, gates, operating equipment, and appurtenances. Service roads and service railroads on the dam are included in this feature. The additional cost of relocating highways and railroads across the dam is included in the feature "Relocations."
05 Locks	This feature includes facilities to provide for passage of waterborne traffic, including gates, valves, operating mechanisms, cribs, fills, lock walls, guide and guard walls, operating buildings, and excavation therefore. The lock structure is considered that part of the work within the limit lines extending from the upper end of the upper guide or guard walls to the lower end of the lower guide or guard walls, including dolphins within the lock approaches for tie up, guard, or guide purposes. Excavation or dredging• required in approaches outside of the limits defined above for the lock structure is included in the feature "Channels and Canals." The cost of a cofferdam or the properly allocable amount thereof, if required, is charged to this feature. Locks provided in connection with facilities for the prevention of encroachment of salt water are included in this feature. Locks in connection with fish facilities are included in the feature "Fish and Wildlife Facilities."
06 Fish and Wildlife Facilities	This feature includes items such as ladders, elevators, locks and related facilities for passage of fish at dams and navigation locks and maintenance of fish runs; and provision for wildlife preservation.
07 Power Plant	This feature includes those facilities specifically required for the production of power other than those included in the feature "Dams," and consists of the following: powerhouse, turbines and governors, generators, accessory electrical equipment, miscellaneous power plant equipment, switchyard, and tailrace improvement for power. In the case where the powerhouse is an integral part of the power intake dam, the cost of the power intake dam is included in this feature. Where the structure of a dam also forms the foundation of the powerhouse, such foundation is considered a part of the dam. Units for production of power for the operation only of power for the operation only of navigation, flood control, or other purpose projects (excluding those projects with power as a feature) are included in other than this feature. The cost of a cofferdam or appropriate part is charged to this feature.
08 Roads, Railroads and Bridges	This feature includes permanent roads, railroads, and bridges required for access and other purposes in connection with the construction and operation of the project. This feature does not include roads, railroads, and bridges chargeable to the feature "Relocations," access roads to recreation facilities and areas, which will be charged to the feature "14. Recreation Facilities," and service roads and service railroads on structures.
09 Channels and Canals	This feature includes all forms of excavation (including dredging, preparation of spoil disposal area, and attendant facilities) necessary for the development and construction of channels, harbors, and canals for navigation purposes; and deepening, providing new, or improving existing watercourses for flood control and major drainage. Excavation of natural watercourse to provide adequate depths for navigation is included. Excavation for specific structures, such as dams and locks used in the development of waterways and conservation of water resources, is included with such structures. The removal of trees, brush, accumulated snags, drift, debris, water hyacinths and other aquatic growths from canals, harbors, and channels in navigable streams and tributaries thereof for navigational included in this feature. Excavation, clearing, and removal of accumulated snags, drifts, debris, and vegetable growth from streams for flood control and major drainage purposes also is included. Included in this feature are revetments, linings, dikes, and bulkheads constructed as channel improvement works for flood control or navigation, as against such items constructed for bank stabilization only. Also included are jetties constructed in connection with flood control channel improvements.
10 Breakwaters and Seawalls	This feature includes breakwaters, seawalls, piers, and like improvements constructed in connection with the protection of beaches, harbors, shores•, and port facilities against the force of waves and encroachment of seas or lakes by direct wave action. Jetties, groins, and like structures provided in seas, lakes, tidewater reaches of rivers and canals, and harbors to control water flow and current, to maintain depth of channels, and to provide protection, are included in this feature.
11 Levees and Floodwalls	This feature includes embankments and walls constructed to protect areas from inundation by overflow from creeks, rivers, lakes, canals, and other bodies of water. This feature consists of such items as: service roads on levee crown or landside berms, road ramps, closure structures, seepage control measures, erosion protection measures on levee slopes and on berms and bank slops when an integral part of the levees or floodwalls; and drainage facilities, constructed to provide means for the passage of accumulated drainage and seepage water and sewage from the protected area over or through levees and floodwalls, comprising such items as interceptor and collection sewers and ditches, and pressurized sewers and drainage structures, including outfalls through levees or floodwalls. Pumping plants are included in the feature "Pumping Plants." Levees locally called dikes are included in this feature.
13 Pumping Plants	This feature includes pumping plants construction to pass accumulated drainage and seepage water and sewage from the protected area over or through levees and floodwalls.
14 Recreation Facilities	This feature includes access roads; parking areas; public camping and picnicking areas, including tables and fireplaces; water supply; sanitary facilities; boat launching ramps; directional signs; and other facilities constructed primarily for public recreational use, including essential safety measures in connection therewith. The latter includes, as appropriate, sheltered anchorage areas for small craft, bathing areas readily accessible and reasonably safe, and safety provisions for visitors and fishermen in the project area. (Boat launching ramps, anchorage areas and beaches should be provided during construction to the extent they will definitely be needed and can be accomplished more economically than at a later date.)
15 Floodway Control and Diversion Structures	This feature includes floodway control and diversion structures to provide for the release of flood waters from streams where discharges exceed flood capacity of the stream, including items such as diversion dams, gated or ungated discharge structures, training walls, stilling basin, and those adjacent embankment sections forming part of the control structure. Construction of channels and levees not forming part of the main control structure, but necessary for operation of such structures is included in the appropriate feature "Channels and Canals" or "Levees and Floodwalls."
16 Bank Stabilization	This feature includes revetments, linings, training dikes, and bulkheads for stabilization of banks of watercourses to prevent erosion, sloughing, or meandering. Bank stabilization constructed in navigation channels or in connection with flood control channel improvement is included in• the feature "Channels and Canals."
17 Beach Replenishment	This feature includes replacement of eroded beaches, for purposes of recreation and shore protection, by direct deposit of materials obtained by dredging or land excavation.
19 Buildings, Grounds and Utilities	This feature includes permanent facilities such as operators' quarters, administration and shop buildings, storage buildings and areas, garage buildings and areas, community buildings, local streets and sidewalks, landscaping, and electric, gas, water, and sewage facilities. Where space in a dam, powerhouse, or other basic structure is used in lieu of construction of any of the above-mentioned buildings, such allocated space is not separated from the basic structure. Communication systems are• included in the feature "Permanent Operating Equipment."
20 Permanent Operating Equipment	This feature includes all project-owned operation and maintenance tools and equipment, such as laboratory, shop, warehousing, communications, and transportation equipment, and office furniture and equipment. The cost of installing sedimentation and degradation measuring facilities, including the surveys requisite to locating and monumenting range layouts, is charged to this feature. •The cost of planning the installation of sedimentation and degradation ranges is charged to the feature "Engineering and Design."
30 Engineering and Design	This feature includes all engineering, design, surveys, preparation of detailed plans and specifications, and related work required for the construction of the project, including relocations. Surveys and planning required in connection with land acquisition are charged to the features "Lands and Damages" or "Relocations," as applicable. Engineering and design performed by hired labor or as a pay item under a contract is included in this feature.
31 Supervision and Administration	This feature includes such functions as inspection, supervision, project office administration, and distributive costs of area office and general overhead charged to the project. Costs for OCE and Division Office Executive Direction and Management are not charged to Construction, General but to the General Expenses appropriation title.

Date of Index Factors: 30-Sep-21

CWCCIS ESCALATION CALCULATION

Enter Code below

19 **BUILDINGS, GROUNDS & UTILITIES** **23 th row**

Pick FY Quarter - Check Dates	FY Quarter	Dates	Index	
Estimate Pricing Level Date:	**2021Q1**		905.63	/
Middle Point of Construction Date:	**2022Q1**		1,025.80	=

Escalation Percentage: -> 113.27%

Paste the Web Address into browser for downloadable (.pdf) source of factors:

Feature	**07 POWER PLANT**			
	Month	Day	Year	CWCCIS
Construction Start	**10**	**12**	**2024**	2025Q1
Construction End	**3**	**12**	**2030**	2030Q2
Midpoint	6	27	2027	2027Q3
Feature	**NOT USED**			
	Month	Day	Year	CWCCIS
Construction Start	**1**	**1**	**2000**	2000Q2
Construction End	**1**	**1**	**2001**	2001Q2
Midpoint	7	2	2000	2000Q4
Feature	**NOT USED**			
	Month	Day	Year	CWCCIS
Construction Start	**1**	**1**	**2000**	2000Q2
Construction End	**1**	**1**	**2001**	2001Q2
Midpoint	7	2	2000	2000Q4
Feature	**NOT USED**			
	Month	Day	Year	CWCCIS
Construction Start	**1**	**1**	**2000**	2000Q2
Construction End	**1**	**1**	**2001**	2001Q2
Midpoint	7	2	2000	2000Q4
Feature	**NOT USED**			
	Month	Day	Year	CWCCIS
Construction Start	**1**	**1**	**2000**	2000Q2
Construction End	**1**	**1**	**2001**	2001Q2
Midpoint	7	2	2000	2000Q4
Feature	**NOT USED**			
	Month	Day	Year	CWCCIS
Construction Start	**1**	**1**	**2000**	2000Q2
Construction End	**1**	**1**	**2001**	2001Q2
Midpoint	7	2	2000	2000Q4
Feature	**NOT USED**			
	Month	Day	Year	CWCCIS
Construction Start	**1**	**1**	**2000**	2000Q2
Construction End	**1**	**1**	**2001**	2001Q2
Midpoint	7	2	2000	2000Q4

	Days
January	31
February	28.25
March	31
April	30
May	31
June	30
July	31
August	31
September	30
October	31
Novermber	30
December	31

Use this sheet to determine the midpoint of construction.

Cells with gray fill and blue text are input cells.

Cells with yellow fill are output cells.