US Army Corps of Engineers®

Oakland Harbor Turning Basins Widening

Revised Draft Integrated Feasibility Report and Environmental Assessment

APPENDIX B5:

Cost Engineering

December 2021

Revised March 2023

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1. Introduction

This cost appendix corresponds with the Oakland Harbor Turning Basins Widening Navigation feasibility study. The appendix provides a summary explanation of the project assumptions and other cost related aspects of the project. Greater detail on many project topics can be found in the other technical appendices.

Table 1: First Costs Alternative B (IHTB Only)

Alt B, Inner Harbor Turning Basins (IHTB) Only Navigation feasibility study							
October 2022 Price Level							
Feasibility Report Cost Estimate Summary							
Feat. Acct.	**Description**	**Qty**	**UoM**	**Subtotal**	**Cont. %**	**Cont. $$**	**Total Cost**
01	**LANDS AND DAMAGES**	**1**	**LS**	**$90,846,000**	**0%**	**$0**	**$90,846,000**
01	**LANDS AND DAMAGES ADMIN COSTS**	**1**	**LS**	**$430,000**	**0%**	**$0**	**$430,000**
02	**RELOCATIONS**	**1**	**LS**	**$2,285,000**	**0%**	**$0**	**$2,285,400**
06	**FISH& WILDLIFE FACILITIES**	**1**	**LS**	**$3,240,000**	**36.0%**	**$1,166,000**	**$4,406,000**
12	**NAVIGATION PORTS & HARBORS**	**1**	**LS**	**$182,170,000**	**36.0%**	**$65,581,000**	**$247,751,000**
30	**PLANNING, ENGINEERING AND DESIGN**	**1**	**LS**	**$30,970,000**	**36.0%**	**$11,149,000**	**$42,119,000**
31	**CONSTRUCTION MANAGEMENT**	**1**	**LS**	**$13,139,000**	**36.0%**	**$4,730,000**	**$17,869,000**
	TOTAL			**$323,835,000**	**25.6%**	**$82,627,000**	**$405,707,000**

Table 2: First Costs Alternative C (OHTB Only)

Alt C, Outer Harbor Turning Basins (OHTB) Only Navigation feasibility study							
October 2022 Price Level							
Feasibility Report Cost Estimate Summary							
Feat. Acct.	**Description**	**Qty**	**UoM**	**Subtotal**	**Cont. %**	**Cont $$**	**Total Cost**
01	**LANDS AND DAMAGES**	**1**	**LS**	**$0**	**0%**	**$0**	**$0**
01	**LANDS AND DAMAGES ADMIN COSTS**	**1**	**LS**	**$0**	**0%**	**$0**	**$0**
02	**RELOCATIONS**	**1**	**LS**	**$0**	**0%**	**$0**	**$0**
06	**FISH& WILDLIFE FACILITIES**	**1**	**LS**	**$0**	**0%**	**$0**	**$0**
12	**NAVIGATION PORTS & HARBORS**	**1**	**LS**	**$66,422,000**	**36.0%**	**$23,912,000**	**$90,334,000**
30	**PLANNING, ENGINEERING AND DESIGN**	**1**	**LS**	**$10,958,000**	**36.0%**	**$3,945,000**	**$14,903,000**
31	**CONSTRUCTION MANAGEMENT**	**1**	**LS**	**$4,649,000**	**36.0%**	**$1,764,000**	**$6,323,000**
	TOTAL			**$82,029,000**	**36.0%**	**$29,530,000**	**$111,559,000**

Table 3: First Costs Alternative D (Combo Inner and Outer Harbor Turning Basins)

Alt D, Combo Inner and Outer Harbor Turning Basins Navigation feasibility study							
October 2022 Price Level							
Feasibility Report Cost Estimate Summary							
Feat. Acct.	**Description**	**Qty**	**UoM**	**Subtotal**	**Cont. %**	**Cont $$**	**Total Cost**
01	**LANDS AND DAMAGES**	**1**	**LS**	**$90,846,000**	**0%**	**$0**	**$90,846,000**
01	**LANDS AND DAMAGES ADMIN COSTS**	**1**	**LS**	**$430,000**	**0%**	**$0**	**$430,000**
02	**RELOCATIONS**	**1**	**LS**	**$2,285,000**	**0%**	**$0**	**$2,285,400**
06	**FISH& WILDLIFE FACILITIES**	**1**	**LS**	**$3,240,000**	**36.0%**	**$1,166,000**	**$4,406,000**
12	**NAVIGATION PORTS & HARBORS**	**1**	**LS**	**$248,592,000**	**36.0%**	**$89,493,000**	**$338,085,000**
30	**PLANNING, ENGINEERING AND DESIGN**	**1**	**LS**	**$41,928,000**	**36.0%**	**$15,094,000**	**$57,002,000**
31	**CONSTRUCTION MANAGEMENT**	**1**	**LS**	**$17,788,000**	**36.0%**	**$6,404,000**	**$24,192,000**
	TOTAL			**$405,109,000**	**27.7%**	**$112,157,000**	**$517,266,000**

Table 4: First Costs Alternative D-2, Recommended Plan, Combo Inner and Outer Harbor Turning Basins

Alt D-2, Recommended Plan Combo Inner and Outer Harbor Turning Basins Navigation feasibility study							
October 2022 Price Level							
Feasibility Report Cost Estimate Summary							
Feat. Acct.	**Description**	**Qty**	**UoM**	**Subtotal**	**Cont. %**	**Cont $$**	**Total Cost**
01	**LANDS AND DAMAGES**	**1**	**LS**	**$90,846,000**	**0%**	**$0**	**$90,846,000**
01	**LANDS AND DAMAGES ADMIN COSTS**	**1**	**LS**	**$430,000**	**0%**	**$0**	**$430,000**
02	**RELOCATIONS**	**1**	**LS**	**$2,285,000**	**0%**	**$0**	**$2,285,000**
06	**FISH& WILDLIFE FACILITIES**	**1**	**LS**	**$3,240,000**	**36.0%**	**$1,166,000**	**$4,406,000**
12	**NAVIGATION PORTS & HARBORS**	**1**	**LS**	**$250,591,000**	**36.0%**	**$90,213,000**	**$340,804,000**
30	**PLANNING, ENGINEERING AND DESIGN**	**1**	**LS**	**$42,258,000**	**36.0%**	**$15,213,000**	**$57,471,000**
31	**CONSTRUCTION MANAGEMENT**	**1**	**LS**	**$17,928,000**	**36.0%**	**$6,454,000**	**$24,382,000**
	TOTAL			**$407,578,000**	**27.7%**	**$113,046,000**	**$520,624,000**

2. Basis of Costs

2.1 Navigation Ports & Harbors

The basis of the majority of the cost estimate for the recommended plan rests with the work associated with the excavation and removal of material to deepen and widen the harbor turning basins. These construction activities include concrete pavement removal, land excavation, bulkhead removal, bulkhead installation, dredging and hauling.

2.2 Sediment & Soil Assumptions

Howard Terminal:

• Top 15' (Below Ground Surface (BGS) to lowest level of groundwater contact); Assume 90% material will require disposal at a Class II Landfill; assume the remaining 10% of material requires Class 1 Landfill disposal.

• 15' BGS to contact with Old Bay Mud/Merritt Sand/Posey Formation (OBM/MS) Suitable for Wetland Non-Cover (Montezuma Wetlands).

• Below contact point with OBM/MS, suitable for any reuse (wetland cover, construction, ocean disposal)

• Groundwater can be released to the Bay during construction unless the historic sheetpile wall behind the wharf is breeched for construction. In that case, groundwater will require treatment prior to release to the Bay (or alternative disposal). Further, the new bulkhead will need to be constructed to prevent discharges to the Bay unless the groundwater is completely remediated.

Alameda:

• Top 15' BGS to lowest level of groundwater contact; Assume 95% material will require disposal at a Class II Landfill and 5% of the volume will require Class I landfill disposal.

• 15' BGS to contact with OBM/MS Suitable for Wetland Non-Cover (Montezuma Wetlands).

• Below contact point with OBM/MS, suitable for any reuse (wetland cover, construction, ocean disposal).

• Groundwater can be released to the Bay during construction.

Schnitzer Steel:

• OBM/MS suitable for any reuse or disposal.

• Groundwater within the site liner will require treatment and offsite disposal. Groundwater below monitoring wells can be discharged to the Bay.

• Any bulkhead will need to be designed to meet environmental mitigation needs (contain and possibly treat groundwater).

All Exposed Inner Harbor Sediments (currently not under land):

• Young Bay Mud (and Recent Bay Mud) acceptable as Wetland Non-Cover at Montezuma Wetlands.

• OBM/MS Suitable for any reuse.

• For the basin area between Schnitzer and Howard Terminal assume 20% of the volume excavated between Schnitzer and Howard require Class II disposal. That is, this material will require placement at Berth 10 – dredge rehandling site – for drying prior to landfill disposal.

All Exposed Outer Harbor Sediments (currently not under land):

• Young Bay Mud (and Recent Bay Mud) acceptable as Wetland Non-Cover at Montezuma Wetlands.

• OBM/MS Suitable for any reuse.

2.3 Lands & Damages

Cost estimates for real estate activities associated with the recommended plan were provided by the Real Estate specialists and appraisers of the PDT. Real Estate costs include all anticipated government labor, such as for property appraisers and attorneys, demolition and disposal of impacted private properties and estimated business impacts or required relocations (separate from utility relocations).

2.4 Environmental Mitigation

Costs associated with environmental mitigation (Fish & Wildlife Facilities, WBS Account 06) were provided by biologists from the study PDT. See the appropriate appendices for discussion of these costs.

2.5 Planning, Engineering and Design

The cost was developed for all activities associated with the planning, engineering and design effort. The cost for this account includes the preparation of Design Documentation Reports, plans, and specifications for the Oakland Harbor Turning Basins Widening Navigation, and engineering support during construction through project completion. It includes all the in-house labor based upon work-hour requirements, material and facility costs, travel, and overhead.

2.6 Construction Management

The cost was developed for all construction management activities from pre-award requirements through final contract closeout. This cost includes the in-house labor based upon work-hour requirements, materials, facility costs, support contracts, travel and overhead. The cost was developed based on the input from the construction division in accordance with the Civil Works Breakdown Structure (CWBS) and includes, but is not limited to, anticipated items such as the salaries of the resident engineer and staff, surveyors, inspectors, drafters, clerical, and custodial personnel; operation, maintenance and fixed charges for transportation and for other field equipment; field supplies; construction management, general construction supervision; and project office administration, distributive cost of area office and general overhead charged to the project.

3. Contingencies

An Abbreviated Risk Analysis (ARA) has been performed to generate risk based contingency rates for utility relocations, environmental mitigations, construction, PED (planning, engineering and design), and construction management.

4. Construction Equipment and Production

The equipment, labor, and production rate assumptions (Table 12 to Table 28) were created using past construction experience from SPN Chief of Civil Design Section, as well as construction production rates from Texas Department of Transportation (2020).

Table 1: Concrete Pavement Removal Activity

Concrete Pavement Removal Activity (01)

Production Rate /8-10 hours/crew	150	CY
1 Crew Including:		
Backhoe	1	each
Concrete Saw	1	each
Dozer/Front Loader	1	each
Dump Truck	2	each
Equipment Operator	4	person
Labor	4	person

Table 2: Sheetpile/ Bulkhead Installation Activity

Sheetpile/ Bulkhead Installation Activity (02)

Production Rate /8-10 hours/crew	700	SF
1 Crew Including:		
Backhoe	1	each
Crane	1	each

Diesel Hammer (Delmag D30)	1	each
Dump Truck	1	each
Equipment Operator	3	person
Labor	5	person

Table 3: Land Excavation Activity

Land Excavation Activity (03)

Production Rate/8-10 hours/crew	1,500	CY
1 Crew Including:		
Excavator	2	each
Dozer	0	each
Dump Truck	2	each
Equipment Operator	4	person
Labor	6	person

Table 4: Hauling Activity

Hauling Activity (04)

Production Rate/8-10 hours/crew	1,500	CY
1 Crew Including:		
Excavator	2	each
Dump Truck with Trailers (10 CY)/ 2 Trips/Truck/day	75	each
Equipment Operator	2	each
Driver	75	person
Labor	4	person

Table 5: Anchor/ Tie back Installation Activity

Batter Pile Installation Activity – Land side (05)

Production Rate /8-10 hours/crew	450	LF
1 Crew Including:		
Backhoe/Front Ldr	1	each
Drilling Rig	1	each
Crane	1	each
Pile Hammer	1	each
Vibrator	1	each
Equipment Operator	4	person
Labor	5	person

Table 6: Howard Pile Removal Activity

Howard Pile Removal Activity (06H)

Production Rate/8-10 hours/crew	10	each
1 Crew Including:		
Barge	1	each
Dive Vessel	1	each
Crane	1	each
Excavator	1	each
Vibrator	1	each
Dive Compressor	1	each
Generator	1	each
Equipment Operator	5	person
Labor	8	person

Table 7: Alameda Pile Removal Activity

Alameda Pile Removal Activity (06A)

Production Rate/8-10 hours/crew	20	each
1 Crew Including:		
Barge	1	each
Dive Vessel	1	each
Crane	1	each
Excavator	1	each
Vibrator	1	each
Dive Compressor	1	each
Generator	1	each
Equipment Operator	6	person
Labor	8	person

Table 8: Batter Pile Removal Activity

Al Batter Pile Removal Activity (O5A1)

Production Rate/8-10 hours/crew	5	each
1 Crew Including:		
Barge	1	each
Dive Vessel	1	each
Crane	1	each
Excavator	1	each

Vibrator	1	each
Dive Compressor	1	each
Generator	1	each
Equipment Operator	5	person
Labor	8	person

Table 9: Sheetpile/Bulkhead Removal Activity

Sheetpile/Bulkhead Removal Activity (06A-W)

Production Rate/8-10 hours/crew	1,250	SF
1 Crew Including:		
Barge	2	each
Dive Vessel	1	each
Crane	1	each
Excavator	1	each
Torch	1	each
Dive Compressor	1	each
Generator	1	each
Equipment Operator	6	person
Labor	8	person

Table 10: Dredging Activity

Dredging Activity (08)

Production Rate/24-7/crew	6,000	CY
1 Crew Including:		
Dredge	1	each
Crane w/ Clamshell	1	each
Barge Ship/Scow	2	each
Equipment Operator	21	person
Labor	5	person
Tugboat	2	each

Table 11: Warehouse Demo Activity

Warehouse Demo Activity (09) [1]

Production Rate/8-10 hours/crew	10,000	SF
1 Crew Including:		
Excavator	1	each

Roll-off High Dumpster	4	each
Demo Dump Truck	2	each
Concrete Saw	2	each
Torch	2	each
Compressor	1	person
Equipment Operator	3	person
Labor	10	person
[1] - Does not include asbestos abatement. Assume 3-person crew, 4,000 SF per day abatement rate.		

Table 12: Pile Hauling Activity

Alameda Pile Hauling Activity (10A)

Production Rate/8-10 hours/crew	20	each
1 Crew Including:		
Excavator	1	each
Dump Truck with Trailers/2Trip/Truck/day	1	each
Driver	1	person
Labor	4	person

Table 13: Berth 10 Class II Loading Activity (11)

Berth 10 Class II Loading (11)

Production Rate/24-7/crew	5,000	CY
1 Crew Including:		
Crane w/ Clamshell	1	each
Barge Ship/Scow	2	each
Excavator	1	each
Dozer	1	each
Equipment Operator	23	person
Labor	5	person
Tugboat	1	each

Table 14: Berth 10 Class II Loading Activity (12)

Berth 10 Class II Hauling (12)

Production Rate/24-7/crew	750	CY

1 Crew Including:		
Excavator	1	each
Dozer	1	each
Dump Truck with Trailers (10 CY) 2 Trips/Truck/day	38	each
Driver	38	person
Equipment Operator	2	person
Labor	2	person

Table 15: Pile Hauling Activity

Pile Hauling Activity (10H)

Production Rate/8-10 hours/crew	10	each
1 Crew Including:		
Excavator	1	each
Dump Truck with Trailers/2Trip/Truck/day	1	each
Driver	1	person
Labor	4	person

Table 16: In-water Pile Driving Activity

In-water Pile Driving Activity (07H2-W, 06A2-W)

Production Rate/ /8-10 hours/crew	350	CY
1 Crew Including:		
Backhoe/Frontloader	1	each
Dive Vessel	1	each
Crane	1	each
Diesel Hammer (Delmag D30)	1	each
Equipment Operator	3	person
Labor	5	person

Table 17: In-water Pile Driving Activity

In-water Pile Driving Activity (02S-W)

Production Rate/ /8-10 hours/crew	350	CY
1 Crew Including:		
Backhoe/Frontloader	1	each
Dive Vessel	1	each
Crane	1	each
Diesel Hammer (Delmag D30)	1	each
Equipment Operator	3	person
Labor	5	person

Using the assumptions above, the construction phasing was created for each impacted area of the project (Table 29 to Table 33).

Table 18: Howard Terminal Construction Phasing

Howard Terminal

Item No.	Project Item	QTY		Crew No.	Working Days
01H	Concrete Pavement Removal Area	12,780	SY	1	13
02H	Sheetpile/ Bulkhead Installation	42,250	SF	1	121
06H	Howard Pile Removal Activity	300	EA	1	33
10H	Pile Hauling	300	EA	1	17
03H	Land Excavation	72,407	CY	1	48
04H	Hauling	72,407	CY	1	48
05H	Anchor/ Tie back Installation	1,300	LF	1	4
07H	Sheetpile/ Bulkhead Removal	58,500	SF	1	59
08H	Dredging	191,667	CY	1	27

Table 19: Alameda Construction Phasing

Alameda

Item No.	Project Item	QTY		Crew No.	Working Days
09A	Warehouse Demo Activity	260,000	SF	1	26
01A	Concrete Pavement Removal Area	24,000	SY	1	24
02A	Sheetpile/ Bulkhead Installation	68,250	SF	1	195
03A	Land Excavation	135,370	CY	1	90
04A	Hauling	135,370	CY	1	90
06A	Alameda Pile Removal Activity	2,300	EA	1	128
10A	Pile Hauling	2,300	EA	1	128
05A	Anchor/ Tie back Installation	2,100	LF	1	7
06A	Sheetpile/ Bulkhead Removal	81,250	SF	1	81
07A	Dredging	358,333	CY	1	51

Table 20: Schnitzer Steel Construction Phasing

Schnitzer Steel

Item No.	Project Item	QTY		Crew No.	Working Days
01S-W	Bulkhead Installation - In Water	23,100	SF	1	33
02S-W	Batter Pile Installation - In Water	2,380	LF	1	5
03S-W	Rip Rap Installation	5,997	CY	1	19

Table 21: All Exposed Inner Harbor Sediments Construction Phasing

All Exposed Inner Harbor Sediments (Dredging)

Item No.	Project Item	QTY		Crew No.	Working Days
07IN	Dredging	143,291	CY	1	24
11IN	Berth 10 Class II Loading	9,690	CY	1	2
12IN	Hauling (Berth 10)	9,690	CY	1	13

Table 22: Outer Harbor Sediment Construction Phasing

Outer Harbor Sediment Dredging

Item No.	Project Item	QTY		Crew No.	Working Days
07OH	Dredging - YBM	1,341,853	CY	1	224

5. References:

Reference materials used to prepare the cost estimate, along with the basis for the estimate and any applicable facts and/or assumptions impacting the estimate, are documented below.

- USACE Engineer Regulation, ER 1110-2-1150, Engineering and Design for Civil Works Projects
- USACE Engineering Regulation, ER 1110-1-1300, Cost Engineering Policy And General Requirements
- USACE Engineering Regulation, ER 1110-2-1302, Civil Works Cost Engineering
- USACE Engineering Technical Letter, ETL 1110-2-573, Construction Cost Estimating Guide for Civil Works
- USACE Engineering Manual, EM 1110-2-1304, Civil Works Construction Cost Index System (CWCCIS)
- USACE Engineering Pamphlet, EP 1110-1-8, Vol. 07, Construction Equipment Ownership and Operating Expense Schedule

6. Total Project Cost Summary (TPCS)

The TPCS was prepared using the latest TPCS excel spreadsheet provided by the USACE, Walla Walla District. The TPCS incorporates the construction cost developed in the MCACES (MII), the project markups, and the functional costs. The TPCS addresses inflation through project completion (accomplished by escalation to mid-point of construction of this project) per ER 1110-2-1302. It is based on the scope of the Recommended Plan and the official project schedule. The TPCS includes Federal and Non-Federal costs for Lands and Damages, all construction features, PED, S&A, along with the appropriate contingencies and escalation associated with each of these activities.

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

PROJECT: **OAKLAND HARBOR TURNING BASIN WIDENING, ALT. B, INNER HARBOR ONLY**

DISTRICT: **San Francisco District**

PREPARED: **1/10/2023**

PROJECT NO: P2# 476976
LOCATION: OAKLAND, CALIFORNIA

POC: **CHIEF, COST ENGINEERING, Warren Tan**

This Estimate reflects the scope and schedule in report; OAKLAND HARBOR TURNING BASIN WIDENING

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 *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*	Spent Thru: **1-Oct-22** ($K)	**TOTAL FIRST COST** ($K) *K*	NFLATE (%) *L*	COST ($K) *M*	CNTG ($K) *N*	FULL ($K) *O*
02	RELOCATIONS	$2,285	$0	0.0%	$2,285	0.0%	$2,285	$0	$2,285	$0	$2,285	12.5%	$2,572	$0	$2,572
04	DAMS	$0	$0	-	$0	-	$0	$0	$0	$0	$0	-	$0	$0	$0
05	LOCKS	$0	$0	-	$0	-	$0	$0	$0	$0	$0	-	$0	$0	$0
06	FISH & WILDLIFE FACILITIES	$3,240	$1,166	36.0%	$4,406	0.0%	$3,240	$1,166	$4,406	$0	$4,406	14.6%	$3,693	$1,358	$5,051
07	POWER PLANT	$0	$0	-	$0	-	$0	$0	$0	$0	$0	-	$0	$0	$0
12	NAVIGATION PORTS & HARBORS	$182,170	$65,581	36.0%	$247,751	0.0%	$182,170	$65,581	$247,751	$0	$247,751	15.5%	$210,364	$75,731	$286,094
18	CULTURAL RESOURCE PRESERVATION	$0	$0	-	$0	-	$0	$0	$0	$0	$0	-	$0	$0	$0
	#N/A	$0	$0	-	$0	-	$0	$0	$0	$0	$0	-	$0	$0	$0
	CONSTRUCTION ESTIMATE TOTALS:	$187,695	$66,748		$254,443	0.0%	$187,695	$66,748	$254,443	$0	$254,443	15.4%	$216,628	$77,089	$293,718
01	LANDS AND DAMAGES	$90,846	$0	0.0%	$90,846	0.0%	$90,846	$0	$90,846	$0	$90,846	15.5%	$104,906	$0	$104,906
01	NFS Admin Cost	$240	$0	0.0%	$240	0.0%	$240	$0	$240	$0	$240	15.5%	$277	$0	$277
01	FED Admin Cost	$190	$0	0.0%	$190	0.0%	$190	$0	$190	$0	$190	15.5%	$219	$0	$219
30	PLANNING, ENGINEERING & DESIGN	$30,970	$11,149	36.0%	$42,119	0.0%	$30,970	$11,149	$42,119	$0	$42,119	8.6%	$33,646	$12,113	$45,758
31	CONSTRUCTION MANAGEMENT	$13,139	$4,730	36.0%	$17,869	0.0%	$13,139	$4,730	$17,869	$0	$17,869	13.4%	$14,900	$5,364	$20,265
	PROJECT COST TOTALS:	$323,080	$82,627	25.6%	$405,707		$323,080	$82,627	**$405,707**	$0	**$405,707**	14.6%	$370,577	$94,566	$465,143

_____ **CHIEF, COST ENGINEERING, Warren Tan**

_____ **PROJECT MANAGER, Erika Powell**

_____ **CHIEF, REAL ESTATE, Adam Olso**

_____ **CHIEF, PLANNING, Thomas Kendall**

_____ **CHIEF, ENGINEERING, Son Ha**

_____ **CHIEF, OPERATIONS, Nicholas Malasavage**

_____ **CHIEF, CONSTRUCTION, Jere Harper**

_____ **CHIEF, CONTRACTING, Mary Fronck**

_____ **CHIEF, PM-PB, xxxx**

CHIEF, DPM, xxx

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ESTIMATED TOTAL PROJECT COST: **$465,143**

Filename: TPCS_Alt B Oakland

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

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

PROJECT: OAKLAND HARBOR TURNING BASIN WIDENING

DISTRICT: San Francisco District

PREPARED: 1/10/2023

LOCATION:
OAKLAND,
CALIFORNIA

POC:

CHIEF,
COST
ENGINEERI
NG, Warren
Tan
This Estimate
reflects the
scope and
schedule in
report;

OAKLAND
HARBOR
TURNING
BASIN
WIDENING

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared: 10-Jan-23 Effective Price Level: 1-Oct-22				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 (%) RISK BASED 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
02	RELOCATIONS	$2,285	$0	0.0%	$2,285	0.0%	$2,285	$0	$2,285	2027Q3	12.5%	$2,572	$0	$2,572
	#N/A	$0	$0	0.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
	#N/A	$0	$0	0.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
06	FISH & WILDLIFE FACILITIES	$3,240	$1,166	36.0%	$4,406	0.0%	$3,240	$1,166	$4,406	2028Q1	14.0%	$3,693	$1,358	$5,051
07	POWER PLANT	$0	$0	0.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
12	NAVIGATION PORTS & HARBORS	$182,170	$65,581	36.0%	$247,751	0.0%	$182,170	$65,581	$247,751	2028Q3	15.5%	$210,364	$75,731	$286,094
18	CULTURAL RESOURCE PRESERVATION	$0	$0	0.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
	#N/A	$0	$0	0.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
	CONSTRUCTION ESTIMATE TOTALS:	$187,695	$66,748	35.6%	**$254,443**		$187,695	$66,748	$254,443			$216,628	$77,089	$293,718
01	LANDS AND DAMAGES	$90,846	$0	0.0%	$90,846	0.0%	$90,846	$0	$90,846	2028Q3	15.5%	$104,906	$0	$104,906
01	NFS Admin Cost	$240	$0	0.0%	$240	0.0%	$240	$0	$240	2028Q3	15.5%	$277	$0	$277
01	FED Admin Cost	$190	$0	0.0%	$190	0.0%	$190	$0	$190	2028Q3	15.5%	$219	$0	$219
30	PLANNING, ENGINEERING & DESIGN													
1.0%	Project Management	$1,877	$676	36.0%	$2,553	0.0%	$1,877	$676	$2,553	2026Q2	8.0%	$2,027	$730	$2,756
2.0%	Planning & Environmental Compliance	$3,754	$1,351	36.0%	$5,105	0.0%	$3,754	$1,351	$5,105	2026Q2	8.0%	$4,054	$1,459	$5,513
7.0%	Engineering & Design	$13,139	$4,730	36.0%	$17,869	0.0%	$13,139	$4,730	$17,869	2026Q2	8.0%	$14,188	$5,108	$19,295
1.0%	Reviews, ATRs, IEPRs, VE	$1,877	$676	36.0%	$2,553	0.0%	$1,877	$676	$2,553	2026Q2	8.0%	$2,027	$730	$2,756
1.0%	Life Cycle Updates (cost, schedule, risks)	$1,877	$676	36.0%	$2,553	0.0%	$1,877	$676	$2,553	2026Q2	8.0%	$2,027	$730	$2,756
1.0%	Contracting & Reprographics	$1,877	$676	36.0%	$2,553	0.0%	$1,877	$676	$2,553	2026Q2	8.0%	$2,027	$730	$2,756
1.0%	Engineering During Construction	$1,877	$676	36.0%	$2,553	0.0%	$1,877	$676	$2,553	2028Q3	13.4%	$2,129	$766	$2,895
1.0%	Planning During Construction	$1,877	$676	36.0%	$2,553	0.0%	$1,877	$676	$2,553	2028Q3	13.4%	$2,129	$766	$2,895
0.5%	Project Operations	$938	$338	36.0%	$1,276	0.0%	$938	$338	$1,276	2026Q2	8.0%	$1,013	$365	$1,378
1.0%	Adaptive Management and Monitoring	$1,877	$676	36.0%	$2,553	0.0%	$1,877	$676	$2,553	2026Q4	8.0%	$2,027	$730	$2,756
31	CONSTRUCTION MANAGEMENT													
6.0%	Construction Management	$11,262	$4,054	36.0%	$15,316	0.0%	$11,262	$4,054	$15,316	2028Q3	13.4%	$12,772	$4,598	$17,370
0.0%	Project Operation:	$0	$0	36.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
1.0%	Project Management	$1,877	$676	36.0%	$2,553	0.0%	$1,877	$676	$2,553	2028Q3	13.4%	$2,129	$766	$2,895
	CONTRACT COST TOTALS:	$323,080	$82,627		$405,707		$323,080	$82,627	$405,707			$370,577	$94,566	$465,143

Filename: TPCS_Alt B Oakland

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

PROJECT: **OAKLAND HARBOR TURNING BASIN WIDENING, ALT. C, OUTER HARBOR ONLY**

DISTRICT: **San Francisco District**

PREPARED: **1/10/2023**

PROJECT NO: P2# 476976
LOCATION: OAKLAND, CALIFORNIA

POC: **CHIEF, COST ENGINEERING, Warren Tan**

This Estimate reflects the scope and schedule in report; OAKLAND HARBOR TURNING BASIN WIDENING

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)						TOTAL PROJECT COST (FULLY FUNDED)			
						Program Year (Budget EC): 2021 Effective Price Level Date: 1 OCT 20									
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-22 ($K)	TOTAL FIRST COST ($K)	NFLATE (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	($K)	*K*	*L*	*M*	*N*	*O*
02	RELOCATIONS	$0	$0	-	$0	-	$0	$0	$0	$0	$0	-	$0	$0	$0
04	DAMS	$0	$0	-	$0	-	$0	$0	$0	$0	$0	-	$0	$0	$0
05	LOCKS	$0	$0	-	$0	-	$0	$0	$0	$0	$0	-	$0	$0	$0
06	FISH & WILDLIFE FACILITIES	$0	$0	36.0%	$0	0.0%	$0	$0	$0	$0	$0	-	$0	$29	$29
07	POWER PLANT	$0	$0	-	$0	-	$0	$0	$0	$0	$0	-	$0	$0	$0
12	NAVIGATION PORTS & HARBORS	$66,422	$23,912	36.0%	$90,334	0.0%	$66,422	$23,912	$90,334	$0	$90,334	15.5%	$76,702	$27,613	$104,314
18	CULTURAL RESOURCE PRESERVATION	$0	$0	-	$0	-	$0	$0	$0	$0	$0	-	$0	$0	$0
	#N/A	$0	$0	-	$0	-	$0	$0	$0	$0	$0	-	$0	$0	$0
	CONSTRUCTION ESTIMATE TOTALS:	$66,422	$23,912		$90,334	0.0%	$66,422	$23,912	$90,334	$0	$90,334	15.5%	$76,702	$27,642	$104,343
01	LANDS AND DAMAGES	$0	$0	0.0%	$0	-	$0	$0	$0	$0	$0	-	$0	$0	$0
01	NFS Admin Cost	$0	$0	#DIV/0!	$0	-	$0	$0	$0	$0	$0	-	$0	$0	$0
01	FED Admin Cost	$0	$0	#DIV/0!	$0	-	$0	$0	$0	$0	$0	-	$0	$0	$0
30	PLANNING, ENGINEERING & DESIGN	$10,958	$3,945	36.0%	$14,903	0.0%	$10,958	$3,945	$14,903	$0	$14,903	8.6%	$11,905	$4,286	$16,190
31	CONSTRUCTION MANAGEMENT	$4,649	$1,674	36.0%	$6,323	0.0%	$4,649	$1,674	$6,323	$0	$6,323	13.4%	$5,272	$1,898	$7,170
	PROJECT COST TOTALS:	$82,029	$29,530	36.0%	$111,559		$82,029	$29,530	**$111,559**	$0	**$111,559**	14.5%	$93,879	$33,825	$127,704

_____ **CHIEF, COST ENGINEERING, Warren Tan**

_____ **PROJECT MANAGER, Erika Powell**

_____ **CHIEF, REAL ESTATE, Adam Olso**

_____ **CHIEF, PLANNING, Thomas Kendall**

_____ **CHIEF, ENGINEERING, Son Ha**

_____ **CHIEF, OPERATIONS, Nicholas Malasavage**

_____ **CHIEF, CONSTRUCTION, Jere Harper**

_____ **CHIEF, CONTRACTING, Mary Fronck**

_____ **CHIEF, PM-PB, xxxx**

CHIEF, DPM, xxx

_____

ESTIMATED TOTAL PROJECT COST: **$127,704**

Filename: TPCS_Oakland

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

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

PROJECT: OAKLAND HARBOR TURNING BASIN WIDENING

DISTRICT: San Francisco District

PREPARED: 1/10/2023

LOCATION:

OAKLAND, CALIFORNIA

POC:

CHIEF, COST ENGINEERING, Warren Tan

This Estimate reflects the scope and schedule in report;

OAKLAND HARBOR TURNING BASIN WIDENING

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared: 10-Jan-23 Effective Price Level: 1-Oct-22				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 (%) RISK BASED 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
02	RELOCATIONS	$0	$0	0.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
	#N/A	$0	$0	0.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
	#N/A	$0	$0	0.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
06	FISH & WILDLIFE FACILITIES	$0	$0	36.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$29	$29
07	POWER PLANT	$0	$0	0.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
12	NAVIGATION PORTS & HARBORS	$66,422	$23,912	36.0%	$90,334	0.0%	$66,422	$23,912	$90,334	2028Q3	15.5%	$76,702	$27,613	$104,314
18	CULTURAL RESOURCE PRESERVATION	$0	$0	0.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
	#N/A	$0	$0	0.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
	CONSTRUCTION ESTIMATE TOTALS:	$66,422	$23,912	36.0%	**$90,334**		$66,422	$23,912	$90,334			$76,702	$27,642	$104,343
01	LANDS AND DAMAGES	$0	$0	0.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
01	NFS Admin Cost	$0	$0	0.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
01	FED Admin Cost		$0	0.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
30	PLANNING, ENGINEERING & DESIGN													
1.0%	Project Management	$664	$239	36.0%	$903	0.0%	$664	$239	$903	2026Q2	8.0%	$717	$258	$975
2.0%	Planning & Environmental Compliance	$1,328	$478	36.0%	$1,806	0.0%	$1,328	$478	$1,806	2026Q2	8.0%	$1,434	$516	$1,950
7.0%	Engineering & Design	$4,650	$1,674	36.0%	$6,324	0.0%	$4,650	$1,674	$6,324	2026Q2	8.0%	$5,021	$1,808	$6,829
1.0%	Reviews, ATRs, IEPRs, VE	$664	$239	36.0%	$903	0.0%	$664	$239	$903	2026Q2	8.0%	$717	$258	$975
1.0%	Life Cycle Updates (cost, schedule, risks)	$664	$239	36.0%	$903	0.0%	$664	$239	$903	2026Q2	8.0%	$717	$258	$975
1.0%	Contracting & Reprographics	$664	$239	36.0%	$903	0.0%	$664	$239	$903	2026Q2	8.0%	$717	$258	$975
1.0%	Engineering During Construction	$664	$239	36.0%	$903	0.0%	$664	$239	$903	2028Q3	13.4%	$753	$271	$1,024
1.0%	Planning During Construction	$664	$239	36.0%	$903	0.0%	$664	$239	$903	2028Q3	13.4%	$753	$271	$1,024
0.5%	Project Operations	$332	$120	36.0%	$452	0.0%	$332	$120	$452	2026Q2	8.0%	$359	$129	$488
1.0%	Adaptive Management and Monitoring	$664	$239	36.0%	$903	0.0%	$664	$239	$903	2026Q4	8.0%	$717	$258	$975
31	CONSTRUCTION MANAGEMENT													
6.0%	Construction Management	$3,985	$1,435	36.0%	$5,420	0.0%	$3,985	$1,435	$5,420	2028Q3	13.4%	$4,519	$1,627	$6,146
0.0%	Project Operation:	$0	$0	36.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
1.0%	Project Management	$664	$239	36.0%	$903	0.0%	$664	$239	$903	2028Q3	13.4%	$753	$271	$1,024
	CONTRACT COST TOTALS:	$82,029	$29,530		$111,559		$82,029	$29,530	$111,559			$93,879	$33,825	$127,704

Filename: TPCS_Oakland

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

PROJECT: **OAKLAND HARBOR TURNING BASIN WIDENING, ALT. D COMBO INNER AND OUTER HARBORS**

DISTRICT: **San Francisco District**

PREPARED: **1/10/2023**

PROJECT NO: P2# 476976
LOCATION: OAKLAND, CALIFORNIA

POC: **CHIEF, COST ENGINEERING, Warren Tan**

This Estimate reflects the scope and schedule in report; OAKLAND HARBOR TURNING BASIN WIDENING

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-22** ($K)	**TOTAL FIRST COST** ($K)	NFLATE (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*		*K*	*L*	*M*	*N*	*O*
02	RELOCATIONS	$2,285	$0	0.0%	$2,285	0.0%	$2,285	$0	$2,285	$0	$2,285	12.5%	$2,572	$0	$2,572
04	DAMS	$0	$0	-	$0	-	$0	$0	$0	$0	$0	-	$0	$0	$0
05	LOCKS	$0	$0	-	$0	-	$0	$0	$0	$0	$0	-	$0	$0	$0
06	FISH & WILDLIFE FACILITIES	$3,240	$1,166	36.0%	$4,406	0.0%	$3,240	$1,166	$4,406	$0	$4,406	14.6%	$3,693	$1,358	$5,051
07	POWER PLANT	$0	$0	-	$0	-	$0	$0	$0	$0	$0	-	$0	$0	$0
12	NAVIGATION PORTS & HARBORS	$248,592	$89,493	36.0%	$338,085	0.0%	$248,592	$89,493	$338,085	$0	$338,085	15.5%	$287,065	$103,344	$390,409
18	CULTURAL RESOURCE PRESERVATION	$0	$0	-	$0	-	$0	$0	$0	$0	$0	-	$0	$0	$0
	#N/A	$0	$0	-	$0	-	$0	$0	$0	$0	$0	-	$0	$0	$0
	CONSTRUCTION ESTIMATE TOTALS:	$254,117	$90,660		$344,777	0.0%	$254,117	$90,660	$344,777	$0	$344,777	15.4%	$293,330	$104,702	$398,032
01	LANDS AND DAMAGES	$90,846	$0	0.0%	$90,846	0.0%	$90,846	$0	$90,846	$0	$90,846	15.5%	$104,906	$0	$104,906
01	NFS Admin Cost	$240	$0	0.0%	$240	0.0%	$240	$0	$240	$0	$240	15.5%	$277	$0	$277
01	FED Admin Cost	$190	$0	0.0%	$190	0.0%	$190	$0	$190	$0	$190	15.5%	$219	$0	$219
30	PLANNING, ENGINEERING & DESIGN	$41,928	$15,094	36.0%	$57,022	0.0%	$41,928	$15,094	$57,022	$0	$57,022	8.6%	$45,551	$16,398	$61,949
31	CONSTRUCTION MANAGEMENT	$17,788	$6,404	36.0%	$24,192	0.0%	$17,788	$6,404	$24,192	$0	$24,192	13.4%	$20,173	$7,262	$27,435
	PROJECT COST TOTALS:	$405,109	$112,157	27.7%	$517,266		$405,109	$112,157	**$517,266**	$0	**$517,266**	14.6%	$464,456	$128,362	$592,818

_____ **CHIEF, COST ENGINEERING, Warren Tan**

_____ **PROJECT MANAGER, Erika Powell**

_____ **CHIEF, REAL ESTATE, Adam Olso**

_____ **CHIEF, PLANNING, Thomas Kendall**

_____ **CHIEF, ENGINEERING, Son Ha**

_____ **CHIEF, OPERATIONS, Nicholas Malasavage**

_____ **CHIEF, CONSTRUCTION, Jere Harper**

_____ **CHIEF, CONTRACTING, Mary Fronck**

_____ **CHIEF, PM-PB, xxxx**

CHIEF, DPM, xxx

_____

ESTIMATED TOTAL PROJECT COST: **$592,818**

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

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

PROJECT: OAKLAND HARBOR TURNING BASIN WIDENING

DISTRICT: San Francisco District

PREPARED: 1/10/2023

LOCATION:

OAKLAND, CALIFORNIA

POC:

CHIEF, COST ENGINEERING, Warren Tan

This Estimate reflects the scope and schedule in report;

OAKLAND HARBOR TURNING BASIN WIDENING

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared: 10-Jan-23 Effective Price Level: 1-Oct-22				Program Year (Budget EC): 2023 Effective Price Level Date: 1 OCT 22								
				RISK BASED										
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
02	RELOCATIONS	$2,285	$0	0.0%	$2,285	0.0%	$2,285	$0	$2,285	2027Q3	12.5%	$2,572	$0	$2,572
	#N/A	$0	$0	0.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
	#N/A	$0	$0	0.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
06	FISH & WILDLIFE FACILITIES	$3,240	$1,166	36.0%	$4,406	0.0%	$3,240	$1,166	$4,406	2028Q1	14.0%	$3,693	$1,358	$5,051
07	POWER PLANT	$0	$0	0.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
12	NAVIGATION PORTS & HARBORS	$248,592	$89,493	36.0%	$338,085	0.0%	$248,592	$89,493	$338,085	2028Q3	15.5%	$287,065	$103,344	$390,409
18	CULTURAL RESOURCE PRESERVATION	$0	$0	0.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
	#N/A	$0	$0	0.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
	CONSTRUCTION ESTIMATE TOTALS:	$254,117	$90,660	35.7%	**$344,777**		$254,117	$90,660	$344,777			$293,330	$104,702	$398,032
01	LANDS AND DAMAGES	$90,846	$0	0.0%	$90,846	0.0%	$90,846	$0	$90,846	2028Q3	15.5%	$104,906	$0	$104,906
01	NFS Admin Cost	$240	$0	0.0%	$240	0.0%	$240	$0	$240	2028Q3	15.5%	$277	$0	$277
01	FED Admin Cost	$190	$0	0.0%	$190	0.0%	$190	$0	$190	2028Q3	15.5%	$219	$0	$219
30	PLANNING, ENGINEERING & DESIGN													
1.0%	Project Management	$2,541	$915	36.0%	$3,456	0.0%	$2,541	$915	$3,456	2026Q2	8.0%	$2,744	$988	$3,732
2.0%	Planning & Environmental Compliance	$5,082	$1,830	36.0%	$6,912	0.0%	$5,082	$1,830	$6,912	2026Q2	8.0%	$5,488	$1,976	$7,463
7.0%	Engineering & Design	$17,788	$6,404	36.0%	$24,192	0.0%	$17,788	$6,404	$24,192	2026Q2	8.0%	$19,208	$6,915	$26,123
1.0%	Reviews, ATRs, IEPRs, VE	$2,541	$915	36.0%	$3,456	0.0%	$2,541	$915	$3,456	2026Q2	8.0%	$2,744	$988	$3,732
1.0%	Life Cycle Updates (cost, schedule, risks)	$2,541	$915	36.0%	$3,456	0.0%	$2,541	$915	$3,456	2026Q2	8.0%	$2,744	$988	$3,732
1.0%	Contracting & Reprographics	$2,541	$915	36.0%	$3,456	0.0%	$2,541	$915	$3,456	2026Q2	8.0%	$2,744	$988	$3,732
1.0%	Engineering During Construction	$2,541	$915	36.0%	$3,456	0.0%	$2,541	$915	$3,456	2028Q3	13.4%	$2,882	$1,037	$3,919
1.0%	Planning During Construction	$2,541	$915	36.0%	$3,456	0.0%	$2,541	$915	$3,456	2028Q3	13.4%	$2,882	$1,037	$3,919
0.5%	Project Operations	$1,271	$458	36.0%	$1,729	0.0%	$1,271	$458	$1,729	2026Q2	8.0%	$1,372	$494	$1,867
1.0%	Adaptive Management and Monitoring	$2,541	$915	36.0%	$3,456	0.0%	$2,541	$915	$3,456	2026Q4	8.0%	$2,744	$988	$3,732
31	CONSTRUCTION MANAGEMENT													
6.0%	Construction Management	$15,247	$5,489	36.0%	$20,736	0.0%	$15,247	$5,489	$20,736	2028Q3	13.4%	$17,291	$6,225	$23,516
0.0%	Project Operation:	$0	$0	36.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
1.0%	Project Management	$2,541	$915	36.0%	$3,456	0.0%	$2,541	$915	$3,456	2028Q3	13.4%	$2,882	$1,037	$3,919
	CONTRACT COST TOTALS:	$405,109	$112,157		$517,266		$405,109	$112,157	$517,266			$464,456	$128,362	$592,818

Filename: TPCS_Alt D

PROJECT: **OAKLAND HARBOR TURNING BASIN WIDENING, ALT. E, LPP COMBO INNER AND OUTER HARBORS**

DISTRICT: **San Francisco District**

PREPARED: **1/10/2023**

PROJECT NO: P2# 476976
LOCATION: OAKLAND, CALIFORNIA

POC: **CHIEF, COST ENGINEERING, Warren Tan**

Note: The TPCS below shows the estimate for Alt D-2 with electric dredging. This cost is considered a betterment and is not reflected in the array of alternatives in the main report.

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-22 ($K)	TOTAL FIRST COST ($K)	NFLATE (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*		*K*	*L*	*M*	*N*	*O*
02	RELOCATIONS	$2,285	$0	0.0%	$2,285	0.0%	$2,285	$0	$2,285	$0	$2,285	12.5%	$2,572	$0	$2,572
04	DAMS	$0	$0	-	$0	-	$0	$0	$0	$0	$0	-	$0	$0	$0
05	LOCKS	$0	$0	-	$0	-	$0	$0	$0	$0	$0	-	$0	$0	$0
06	FISH & WILDLIFE FACILITIES	$3,240	$1,166	36.0%	$4,406	0.0%	$3,240	$1,166	$4,406	$0	$4,406	14.6%	$3,693	$1,358	$5,051
07	POWER PLANT	$0	$0	-	$0	-	$0	$0	$0	$0	$0	-	$0	$0	$0
12	NAVIGATION PORTS & HARBORS	$263,444	$94,840	36.0%	$358,284	0.0%	$263,444	$94,840	$358,284	$0	$358,284	15.5%	$304,216	$109,518	$413,734
18	CULTURAL RESOURCE PRESERVATION	$0	$0	-	$0	-	$0	$0	$0	$0	$0	-	$0	$0	$0
	#N/A	$0	$0	-	$0	-	$0	$0	$0	$0	$0	-	$0	$0	$0
	CONSTRUCTION ESTIMATE TOTALS:	$268,969	$96,006		$364,975	0.0%	$268,969	$96,006	$364,975	$0	$364,975	15.4%	$310,481	$110,876	$421,357
01	LANDS AND DAMAGES	$90,846	$0	0.0%	$90,846	0.0%	$90,846	$0	$90,846	$0	$90,846	15.5%	$104,906	$0	$104,906
01	NFS Admin Cost	$240	$0	0.0%	$240	0.0%	$240	$0	$240	$0	$240	15.5%	$277	$0	$277
01	FED Admin Cost	$190	$0	0.0%	$190	0.0%	$190	$0	$190	$0	$190	15.5%	$219	$0	$219
30	PLANNING, ENGINEERING & DESIGN	$44,382	$15,978	36.0%	$60,360	0.0%	$44,382	$15,978	$60,360	$0	$60,360	8.6%	$48,217	$17,358	$65,575
31	CONSTRUCTION MANAGEMENT	$18,828	$6,778	36.0%	$25,606	0.0%	$18,828	$6,778	$25,606	$0	$25,606	13.4%	$21,352	$7,687	$29,039
	PROJECT COST TOTALS:	$423,455	$118,762	28.0%	$542,217		$423,455	$118,762	**$542,217**	$0	**$542,217**	14.6%	$485,452	$135,921	$621,373

_____ **CHIEF, COST ENGINEERING, Warren Tan**

_____ **PROJECT MANAGER, Erika Powell**

_____ **CHIEF, REAL ESTATE, Adam Olso**

_____ **CHIEF, PLANNING, Thomas Kendall**

_____ **CHIEF, ENGINEERING, Son Ha**

_____ **CHIEF, OPERATIONS, Nicholas Malasavage**

_____ **CHIEF, CONSTRUCTION, Jere Harper**

_____ **CHIEF, CONTRACTING, Mary Fronck**

_____ **CHIEF, PM-PB, xxxx**

CHIEF, DPM, xxx

_____

ESTIMATED TOTAL PROJECT COST: **$621,373**

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

PROJECT: OAKLAND HARBOR TURNING BASIN WIDENING

DISTRICT: San Francisco District

PREPARED: 1/10/2023

LOCATION: OAKLAND, CALIFORNIA

POC: CHIEF, COST ENGINEERING, Warren Tan

This Estimate reflects the scope and schedule in report; OAKLAND HARBOR TURNING BASIN WIDENING

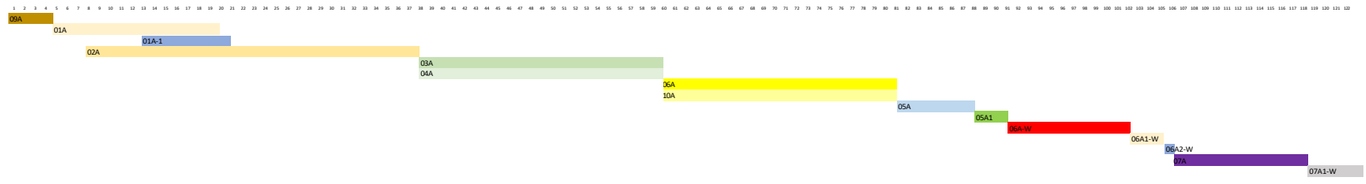
Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared: 10-Jan-23 Effective Price Level: 1-Oct-22				Program Year (Budget EC): 2023 Effective Price Level Date: 1 OCT 22								
WBS NUMBER A	Civil 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
02	RELOCATIONS	$2,285	$0	0.0%	$2,285	0.0%	$2,285	$0	$2,285	2027Q3	12.5%	$2,572	$0	$2,572
	#N/A	$0	$0	0.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
	#N/A	$0	$0	0.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
06	FISH & WILDLIFE FACILITIES	$3,240	$1,166	36.0%	$4,406	0.0%	$3,240	$1,166	$4,406	2028Q1	14.0%	$3,693	$1,358	$5,051
07	POWER PLANT	$0	$0	0.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
12	NAVIGATION PORTS & HARBORS	$263,444	$94,840	36.0%	$358,284	0.0%	$263,444	$94,840	$358,284	2028Q3	15.5%	$304,216	$109,518	$413,734
18	CULTURAL RESOURCE PRESERVATION	$0	$0	0.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
	#N/A	$0	$0	0.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
	CONSTRUCTION ESTIMATE TOTALS:	$268,969	$96,006	35.7%	**$364,975**		$268,969	$96,006	$364,975			$310,481	$110,876	$421,357
01	LANDS AND DAMAGES	$90,846	$0	0.0%	$90,846	0.0%	$90,846	$0	$90,846	2028Q3	15.5%	$104,906	$0	$104,906
01	NFS Admin Cost	$240	$0	0.0%	$240	0.0%	$240	$0	$240	2028Q3	15.5%	$277	$0	$277
01	FED Admin Cost	$190	$0	0.0%	$190	0.0%	$190	$0	$190	2028Q3	15.5%	$219	$0	$219
30	PLANNING, ENGINEERING & DESIGN													
1.0%	Project Management	$2,690	$968	36.0%	$3,658	0.0%	$2,690	$968	$3,658	2026Q2	8.0%	$2,905	$1,046	$3,950
2.0%	Planning & Environmental Compliance	$5,379	$1,936	36.0%	$7,315	0.0%	$5,379	$1,936	$7,315	2026Q2	8.0%	$5,808	$2,091	$7,899
7.0%	Engineering & Design	$18,828	$6,778	36.0%	$25,606	0.0%	$18,828	$6,778	$25,606	2026Q2	8.0%	$20,331	$7,319	$27,650
1.0%	Reviews, ATRs, IEPRs, VE	$2,690	$968	36.0%	$3,658	0.0%	$2,690	$968	$3,658	2026Q2	8.0%	$2,905	$1,046	$3,950
1.0%	Life Cycle Updates (cost, schedule, risks)	$2,690	$968	36.0%	$3,658	0.0%	$2,690	$968	$3,658	2026Q2	8.0%	$2,905	$1,046	$3,950
1.0%	Contracting & Reprographics	$2,690	$968	36.0%	$3,658	0.0%	$2,690	$968	$3,658	2026Q2	8.0%	$2,905	$1,046	$3,950
1.0%	Engineering During Construction	$2,690	$968	36.0%	$3,658	0.0%	$2,690	$968	$3,658	2028Q3	13.4%	$3,051	$1,098	$4,149
1.0%	Planning During Construction	$2,690	$968	36.0%	$3,658	0.0%	$2,690	$968	$3,658	2028Q3	13.4%	$3,051	$1,098	$4,149
0.5%	Project Operations	$1,345	$484	36.0%	$1,829	0.0%	$1,345	$484	$1,829	2026Q2	8.0%	$1,452	$523	$1,975
1.0%	Adaptive Management and Monitoring	$2,690	$968	36.0%	$3,658	0.0%	$2,690	$968	$3,658	2026Q4	8.0%	$2,905	$1,046	$3,950
31	CONSTRUCTION MANAGEMENT													
6.0%	Construction Management	$16,138	$5,810	36.0%	$21,948	0.0%	$16,138	$5,810	$21,948	2028Q3	13.4%	$18,302	$6,589	$24,890
0.0%	Project Operation:	$0	$0	36.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
1.0%	Project Management	$2,690	$968	36.0%	$3,658	0.0%	$2,690	$968	$3,658	2028Q3	13.4%	$3,051	$1,098	$4,149
	CONTRACT COST TOTALS:	$423,455	$118,762		$542,217		$423,455	$118,762	$542,217			$485,452	$135,921	$621,373

Howard Terminal

	Activity	ADJ QTY	
01H	Concrete Pavement Removal	6,689	CY
01H-1	Concrete Pavement Hauling	6,689	CY
02H	Sheetpile/ Bulkhead Installation	59,675	SF
06H	Howard Pile Removal Activity	798	EA
10H	Pile Hauling	798	EA
03H	Land Excavation	24,847	CY
04H	Hauling	24,847	CY
05H	Batter Pile Installation	10,005	LF
~~07H-W~~	~~Sheetpile/ Bulkhead Removal~~	0	
07H1-W	Bulkhead Installation - **In water**	5,968	SF
07H2-W	Batter Pile Installation - **In Water**	1,000	LF
08H	Dredging (below 15')	244,148	CY
07H3-W	Rip Rap Installation	8,361	CY

Alameda

	Activity	QTY	
09A	**Warehouse Demo Activity**	175,900	SF
01A	Concrete Pavement Removal	10,658	CY
01A-1	Concrete Pavement and Warehouse Debris Hauling	58,385	CY
02A	Sheetpile/ Bulkhead Installation	81,468	SF
03A	Land Excavation	159,868	CY
04A	Hauling	159,868	CY
06A	Alameda Pile Removal Activity	4,188	EA
10A	Pile Hauling	4,188	EA
05A	Batter Pile Installation	14,030	LF
05A1-W	Removal Existing Batter Pile	54	EA
06A-W	Sheetpile/ Bulkhead Removal	62,755	SF
06A1-W	Bulkhead Installation - **In Water**	8,347	SF
06A2-W	Batter Pile Installation - **In Water**	1,404	LF
07A	Dredging (Below 15')	479,605	CY
07A1-W	Rip Rap Installation	11,696	CY



Schnitzer

01S-W	Bulkhead Installation - **In Water**	23,100	SF
02S-W	Batter Pile Installation - **In Water**	2,380	LF
03S-W	Rip Rap Installation	5,997	CY

Inner Harbor Sediments

07IN	Dredging	143,291	CY
11IN	Berth 10 Class II Loading	9,690	CY
12IN	Hauling (Berth 10)	9,690	CY

Outer Harbor

07OH	Dredging	1,341,853	CY

Turning Basin Combined Construction Schedule

*Assuming construction starts in Fall 2027