

# Tacoma Harbor, WA Feasibility Study Project Management Plan

A Partnership of  
the U.S. Army Corps of Engineers and  
the Port of Tacoma

November 2018

**About the Project Management Plan:**

The Project Management Plan (PMP) provides a summary of tasks required to complete the feasibility study and includes schedule and cost information, as well as documents revisions / updates to the PMP over the course of the study.

The scope and scale of tasks within the PMP are developed based on the decisions to be made during the study and the Project Delivery Team's (PDT) use of available management and decision-making tools, such as Decision Management Plans (DMPs) and Risk Registers (RRs).

The PMP is a living document, revised as key study decisions are made that shape the tasks and level of detail of the study, no less frequently than each milestone in the study. The first PMP developed will, by necessity, have less detail on tasks to be completed after initial decision points and milestones, including the selection of a tentatively selected plan / recommended plan. As the PMP is revised, it will provide updates of tasks that have been completed to date and additional tasks required to complete the feasibility study analysis and report.

Sponsor and U.S. Army Corps of Engineers (USACE) acceptance of the task descriptions, and time and cost estimates addressed in this PMP constitute agreement of the PMP overall, with the understanding that more detail will be provided for future tasks and milestones as the study progresses.

The information contained in this PMP will also be used to update appropriate budgetary and other related documents for the feasibility study.

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Tacoma Harbor, WA

**Project Management Plan Acceptance Sheet**

I have reviewed this document and certify that it contains accurate content and is sufficient to guide the execution of the Tacoma GI Project.

Product Delivery Management Team Member

Date

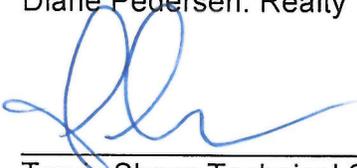
  
David Cook: General Investigations Program Manager 11/13/2018

  
Jessica Winkler: Civil Projects and Programs Branch Chief 11/13/2018

  
Laura Boerner: Planning, Environmental and Cultural Resources Branch Chief 11/13/2018

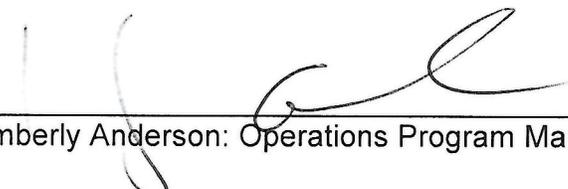
  
Catherine Petroff: H&H Branch Chief 11/15/18

  
Diane Pedersen: Realty Technical Resources Branch Chief 11/14/18

  
Travis Shaw: Technical Services Branch Chief 11/16/18

  
Guy Green: Design Branch Chief 11/13/18

  
Glen Smith: Operations Technical Support Branch Chief 11/14/18

  
Kimberly Anderson: Operations Program Management Branch Chief 11.14.18

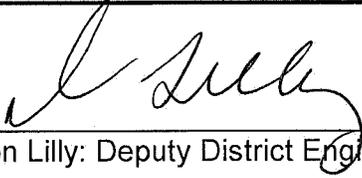
Tacoma Harbor, WA

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Final Approval  
Tacoma GI Project Management Plan

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Date

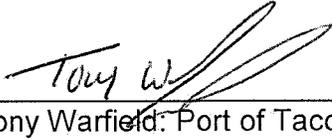


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Damon Lilly: Deputy District Engineer, Seattle District

11/19/18

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Tony Warfield: Port of Tacoma

11/15/18

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## Acronyms

ATR	Agency Technical Review
Corps	U.S. Army Corps of Engineers
DQC	District Quality Control
DX	Directorate of Expertise
EC	Engineer Circular
EA	Environmental Assessment
EIS	Environmental Impact Statement
EM	Engineer Manual
ER	Engineer Regulation
FY	Fiscal Year
GDM	General Design Memorandum
GIS	Geographic Information Systems
HEC	Hydrologic Engineering Center
HH&C	Hydrology, Hydraulics and Coastal
HQUSACE	Headquarters, U.S. Army Corps of Engineers
IEPR	Independent External Peer Review
IPR	In-Progress Review
MLLW	Mean Lower Low Water
NWD	Northwest Division
NWS	Seattle District
OMB	Office of Management and Budget
PED	Pre-Construction Engineering and Design
PCX	Planning Center of Expertise
PM	Project Manager
PMP	Project Management Plan
PDT	Project Delivery Team
PDMT	Project Delivery Management Team
RIT	Regional Integration Team
SACCR	Schedule and Cost Change Request
USACE	U.S. Army Corps of Engineers
VE	Value Engineering
VM	Value Management
VT	Vertical Team
WBS	Work Breakdown Structure
WRDA	Water Resources Development Act

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**Foreword:**

The U.S. Army Corps of Engineers, Seattle District (NWS), along with the non-federal sponsor, the Port of Tacoma (Port), signed a Feasibility Cost Share Agreement (FCSA) on August 21, 2018, to undertake the *Tacoma Harbor, WA* navigation improvement feasibility study. The undertaking will document the feasibility of deepening the Blair and Sitcum Waterways of Tacoma Harbor to increase National Economic Development (NED) by facilitating more cost effective deep draft commercial navigation while taking into account the environmental impacts and opportunities of such a project.

The purpose of the economic analysis in this feasibility study is to estimate the NED benefits associated with harbor improvements that are designed to allow for efficient navigation in Tacoma Harbor by the existing and future deep-draft vessel fleet. The purpose of the environmental analysis in this study is to assess the environmental impacts of navigation improvements, including channel deepening. The Feasibility Report (FR) will include a net benefit analysis and the integrated National Environmental Policy Act (NEPA) documentation will disclose the environmental effects of navigation improvements. The FR and Environmental Assessment (EA)/Environmental Impact Study (EIS) will also present details of NWS and Port participation needed to implement a plan. For simplicity's sake, the integrated document will be referred to as FR/EIS in the rest of this version of the PMP. The NEPA document type will be revised in future versions if the PDT determines the NEPA document will be an EA.

The Port requested in letters to NWS in 2016, 2017 and 2018 to evaluate reauthorization of the federal navigation channel in the Blair Waterway to depths of up to -57 feet Mean Lower Low Water (MLLW) and authorization of a federal navigation channel in the Sitcum Waterway to depth of -57 feet MLLW. NWS believes this project falls under the Categorical Exemption described in Section 3-2 (Navigation) of Engineer Regulation (ER) 1105-2-100. As noted in ER 1105-2-100, for harbor and channel deepening studies where the non-Federal sponsor has identified constraints on channel depths, it is not required to analyze project plans greater (deeper) than the plan desired by the sponsor. During scoping it was discussed that the depth would include 10% under keel, which when rounded to whole numbers would be -58 feet MLLW. The Port of Tacoma was part of this discussion and agreed. As such, the scope of the study is to determine the economic justification and environmental impacts of deepening the Blair and Sitcum Waterways to -58 feet MLLW.

**Project Management Plan Tasks:**

Tasks to reach the Alternatives Milestone in 2018:

1. 1<sup>st</sup> Iteration of Risk Informed Planning with key PDT disciplines – 6 September
2. Complete Initial "6 pieces of paper" – 24 September
3. Complete 2<sup>nd</sup> Iteration of Risk Informed Planning Charette – 25 September
4. Section 1002 letter to Port, posted to website, copy to Northwestern Division (NWD) Regional Integration Team (RIT) - 13 November
5. Complete Review and Endorsement of Review Plan by Deep Draft Navigation Planning Center of Expertise (DDN-PCX) – 13 November
6. Approval of Initial PMP – 14 November
7. Alternatives Milestone Meeting – 15 November
8. Complete Review and Approval of Review Plan by Major Subordinate Command (MSC) – 16 November
9. Review Plan posted to website – 19 November
10. Alternatives Milestone Memorandum for Record (MFR) – 22 November

**Table 1 - Schedule**

<u>Activities/Milestones:</u>	<u>Baseline</u>	<u>Actual/ Projected</u>
FCSA Signing	21-Aug-18	<b>21-Aug-18</b>
PMP Approval	19-Nov-18	16-Nov-18
Review Plan Posted	19-Nov-18	19-Nov-18
Alternatives Milestone	19-Nov-18	15-Nov-18
TSP	21-Oct-19	
Release Draft FR	21-Nov-19	
ADM	23-Mar-20	
Final Feasibility Report	23-Dec-20	
NWD Transmittal Letter	31-MAR-21	
Chief's Report	21-AUG-21	

**Key Assumptions:**

Assumptions made in development of the schedule include:

- Existing planning guidance regarding durations between planning milestones is being used, in coordination with the MSC, to inform study schedule.
- Ship Sim will be done in time for use of data during alternatives evaluation before TSP Milestone.
- Existing Commodity data will be used.
- An initial decision regarding Type I IEPR will be made during preparation of the initial Review Plan, but may change depending on NEPA document type and/or cost of alternatives.

- A decision regarding EIS vs EA will be made prior to the Alternatives Milestone.

Additional information regarding assumptions can be found in:

1. Draft Review Plan, Appendix A
2. Draft Decision Management Plan(s), Appendix B
3. Detailed Scope document prepared by the PDT, Appendix C

**Project Delivery Team:**

<b>Discipline</b>	<b>PDT</b>
PM	Kristine Ceragioli
GI Program Manager	David Cook
Planning	Don Kramer - Lead Tobie LaRoy
Econ	Charyl Barrow Walker Messer
Environmental	Nancy Gleason - Lead Kaitlin Whitlock
Cultural Resources	Kara Kanaby - Lead Alaina Harmon
H&H	Dave Michalsen
HTRW	Kristen Kerns
Cost Engineering	Ian Pumo
Soils Section	Keith Rudie
Geology	David Sullivan
DMMO	Kelsey van der Elst
Navigation	John Hicks
Real Estate	Omar Vega
Office of Counsel	Stacy Kassoover
Tribal Liaison	Lori Morris
PAO	Patricia Graesser

Additional information regarding each disciplines scope of work can be found in Appendix C.

**Summary Cost Estimates:**

The study budget is approximately \$2,576,567, which accounts for both the study budget and a 10% contingency. Each member of the PDT has prepared a budget estimate for the work in which they are responsible. District Quality Control (DQC) and Agency Technical Review (ATR) costs are also included in the budget estimate. The budget has been developed based on products required for achieving the 5 milestones under the Civil Works 3x3x3 planning paradigm. The study baseline cost estimate is summarized by project milestone and by resource category in Table 2. For a detailed break out of study costs, please see Appendix D, Detailed Study Budget.

The Corps Project Manager (PM) will allocate funds to the PDT for completion of products and deliverables. The PM is responsible for management of all contingency. Technical leads are responsible for sub-allocations and detailed budgeting for their assigned products.

**Table 1 - Summary of Costs by Resource & Milestone**

Tacoma Harbor Feasibility Budget	LABOR HOURS	TOTAL BUDGET	TOTAL CONTINGENCY	AMM	TSP	ADM	Final Report	Chief's Report
PM	2,383.25	\$298,123.10	\$29,812.31	\$45,483.31	\$73,915.88	\$53,194.47	\$78,977.34	\$16,926.00
PLANNING	1,915.18	\$235,096.60	\$23,509.66	\$14,419.20	\$107,024.40	\$54,299.00	\$41,346.00	\$16,308.00
ENV	2,344.52	\$241,504.34	\$24,150.43	\$38,936.48	\$112,803.88	\$48,303.86	\$37,294.55	\$4,165.57
H&H	1,345.62	\$188,760.40	\$18,876.04	\$32,604.00	\$111,992.80	\$36,036.00	\$6,177.60	\$0.00
ENV-TECH	1,356.00	\$70,448.00	\$7,044.80	\$19,278.00	\$19,754.00	\$12,614.00	\$11,186.00	\$7,616.00
CULTURAL RESOURCES	1,093.86	\$52,420.50	\$5,242.05	\$16,278.00	\$24,852.00	\$6,165.00	\$5,125.50	\$0.00
OPS-NAV	136.29	\$17,875.50	\$1,787.55	\$3,550.50	\$5,624.00	\$3,552.00	\$5,149.00	\$0.00
DMMO	661.94	\$70,492.00	\$7,049.20	\$34,748.00	\$16,640.00	\$10,178.00	\$8,926.00	\$0.00
COST ENG	541.62	\$69,516.22	\$6,951.62	\$4,735.50	\$23,263.50	\$21,254.50	\$16,439.00	\$574.00
REAL ESTATE	286.90	\$36,958.85	\$3,695.89	\$6,438.35	\$15,553.45	\$4,691.68	\$8,800.94	\$1,474.44
ECON	3,748.37	\$473,141.15	\$47,314.12	\$78,852.25	\$221,101.70	\$109,275.50	\$33,266.70	\$8,735.00
Geology	18.08	\$1,904.00	\$190.40	\$1,904.00	\$0.00	\$0.00	\$0.00	\$0.00
GEO-TECH	116.70	\$13,074.50	\$1,307.45	\$1,172.50	\$5,118.00	\$1,428.00	\$5,356.00	\$0.00
Review Costs	0.00	\$359,000.00	\$35,900.00	\$3,000.00	\$92,000.00	\$207,000.00	\$57,000.00	\$0.00
AE-SERVICES	0.00	\$315,000.00	\$31,500.00	\$0.00	\$315,000.00	\$0.00	\$0.00	\$0.00
PLANNING MENTOR	252.00	\$33,252.00	\$0.00	\$4,000.00	\$2,750.00	\$2,000.00	\$4,500.00	\$2,500.00
OTHER	0.00	\$100,000.00	\$10,000.00	\$0.00	\$100,000.00	\$0.00	\$0.00	\$0.00
<b>TOTAL BUDGET</b>	<b>16,200.33</b>	<b>\$2,576,567.16</b>	<b>\$254,331.52</b>	<b>\$305,400.09</b>	<b>\$1,247,393.61</b>	<b>\$569,992.01</b>	<b>\$319,544.63</b>	<b>\$58,299.01</b>

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**Work in Kind:**

The Port has proposed to provide work in-kind (WIK) to contribute to its portion of the cost share (50%) of the total study cost. In-kind work must be accounted for in the general description of PMP tasks and cost estimates. Items being considered for work in-kind are:

- Preparation of a Sediment Sampling and Analysis Plan
- Sediment Sampling and Collection
- Sediment Testing and Characterization
- Public Outreach Support
- Graphics Support

Estimates for work in-kind associated with Sediment Sampling will be provided and an amount for the cost share will be identified prior to this work being initiated. The Port is required to submit quarterly accounts of the work in-kind and PDT participation to receive credit for those efforts.

**Table 3 - Anticipated funding stream needed to meet FCSEA/Schedule:**

**Funds Allocation Table**

Fiscal Year	Federal Share	Non-Federal Share	Total
2018	\$500,000	\$500,000	\$1,000,000
2019	\$300,000	\$300,000	\$600,000
2020	\$600,000	\$600,000	\$1,200,000
2021	\$100,000	\$100,000	\$200,000
Total	\$1,500,000	\$1,500,000	\$3,000,000

Estimate of annual funding needs



# Appendix A: Review Plan

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DEPARTMENT OF THE ARMY  
CORPS OF ENGINEERS, NORTHWESTERN DIVISION  
PO BOX 2870  
PORTLAND OR 97208-2870

CENWD-PDD

02 JAN 2019

MEMORANDUM FOR Commander, Seattle District (CENWS-PMP/Ms. Laura Boerner)

SUBJECT: Tacoma Harbor, Washington, Integrated Feasibility Report and Environmental Assessment Review Plan Approval

1. References:

a. CENWS-PMP Memorandum dated 21 Nov 2018, SUBJECT: Review Plan and Type I IEPR Exclusion Endorsement Request for Tacoma Harbor, Washington, Integrated Feasibility Report and Environmental Assessment (EA).

b. CESAM-PD-D Memorandum dated 20 Nov 2018, SUBJECT: Review Plan (RP) Endorsement, Tacoma Harbor, Washington, Integrated Feasibility Report and Environmental Assessment (EA).

c. Tacoma Harbor Review Plan dated 20 Nov 2018.

d. Tacoma Harbor Review Plan Checklist for Decision Documents dated 20 Nov 2018.

e. EC 1165-2-217 Review Policy for Civil Works dated 20 February 2018.

f. CECW-P Memorandum dated 7 Jun 2018, SUBJECT: Revised Delegation of Authority in Section 2034(a)(5)(A) of the Water Resources Development Act of 2007 (WRDA 2007), as amended (33 U.S.C. 2343).

2. Per the process and requirements outlined in reference e, NWS has submitted a Review Plan (RP) for the subject study following the model template for Deep Draft Navigation (DDN) Studies and a request for an exclusion from Type I Independent External Peer Review (IEPR).

3. Per reference b, the RP has been reviewed and endorsed by the DDN Planning Center of Expertise (PCX), including the request for a Type I IEPR exclusion.

4. Reference f delegates approval for IEPR exclusions to the MSC Commander.

5. Appropriate NWD staff have reviewed the RP and request for IEPR exclusion and all comments have been addressed.

CENWD-PDD

SUBJECT: Tacoma Harbor, Washington, Integrated Feasibility Report and Environmental Assessment Review Plan Approval

6. The RP is hereby approved and the request for an IEPR exclusion is granted. As cost estimates are developed for the tentatively selected plan, the district should inform NWD as soon as possible if the cost is anticipated to exceed \$200 million so the decision on the IEPR exclusion can be re-visited. The RP must be posted on the District internet site and made available for public comment.

7. Please contact Tim Fleeger at 503-808-3851 or [timothy.m.fleeger@usace.army.mil](mailto:timothy.m.fleeger@usace.army.mil), if you have further questions regarding this matter.

4 Encls

1. CENWP-PMP Memo 21-NOV-2018
2. CESAM-PD-D Memo 20-NOV-2018
3. Review Plan 20-NOV-2018
4. RP Checklist 20-NOV-2018



D. PETER HELMLINGER, P.E.  
BG, USA  
Commanding



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
US ARMY CORPS OF ENGINEERS  
SOUTH ATLANTIC DIVISION  
60 FORSYTH STREET SW, ROOM 10M15  
ATLANTA, GA 30303-8801

CESAM-PD-D

20 November 2018

MEMORANDUM FOR MR. DONALD KRAMER (CENWS-PMP) U.S. ARMY CORPS OF ENGINEERS, SEATTLE DISTRICT, 4735 EAST MARGINAL WAY SOUTH, SEATTLE, WASHINGTON 98124

SUBJECT: Review Plan (RP) Endorsement, Tacoma Harbor, Washington, Integrated Feasibility Report and Environmental Assessment (EA)

1. The subject document (Enclosure 1) has been presented to the Deep Draft Navigation Planning Center of Expertise (DDNPCX) for its review and endorsement in accordance with Engineer Circular 1165-2-217, Review Policy for Civil Works, dated 20 February 2018.
2. The Tacoma Harbor study will evaluate potential channel deepening, widening, and turning basin improvements. Dredged material placement options to be assessed include open water, upland, and beneficial use. An EA will be prepared.
3. Exclusion from Type I Independent External Peer Review (IEPR) will be pursued by the District. The District's risk informed assessment leading to that conclusion is documented in Sections 5 and 6.E. of the RP. Based upon the information presented, it appears as though the study does not meet any of the mandatory triggers requiring Type I IEPR. Further, no other circumstances have been identified that would warrant determination from the Chief of Engineers that IEPR is needed. Accordingly, the DDNPCX supports the District's request for a waiver from Type I IEPR. Upon conclusion of the IEPR exclusion request process, the study's RP should be updated to reflect the results of that coordination.
4. The RP was reviewed for technical sufficiency and policy compliance by the undersigned. The RP checklist that documents that review is provided as Enclosure 2.
5. The DDNPCX recommends the RP for approval by the Major Subordinate Command (MSC) Commander. Following approval, the District is requested to provide the DDNPCX with a copy of the MSC Commander's Approval Memorandum and a link to where the RP is posted on the District website. Prior to posting, the names of individuals identified in the RP should be removed (Attachment 1 of the RP).
6. Thank you for the opportunity to assist in the preparation of the RP. Please coordinate any review related efforts outlined in the RP with the undersigned at (251) 694-3842.

OTTO.KIMBERLY.PER  
SONS.1230779984

Digitally signed by  
OTTO.KIMBERLY.PER; RC4SHA1281230779984  
DN: cn=US Government, o=DDO, ou=PEL,  
ou=USCA, cn=OTTO.KIMBERLY.PER; RC4SHA1230779984  
Date: 2018.11.20 15:37:21 -0500

Encls

KIMBERLY P. OTTO  
Review Manager, DDNPCX

CF:

CENWS-PM (Barrow, Ceragioli)  
CESAD-PDP (Bush, Small, Stratton)

**REVIEW PLAN**  
**20 November 2018**

**1. OVERVIEW**

This review plan (RP) defines the scope and level of peer review for the following study:

- **Study Name:** Tacoma Harbor, Washington
- **P2 Number:** 465354
- **Federal Project:** Tacoma Harbor, Pierce County, Washington
- **Decision Document - Type:** Integrated Feasibility Report/Environmental Assessment (EA) Document
- **Project Type:** Single Purpose Deep Draft Navigation
- **Congressional Authorization Required:** Yes
- **District:** Seattle District (NWS)
- **District Contact:** Project Manager
- **Major Subordinate Command (MSC):** Northwestern Division (NWD)
- **MSC Contact:** District Support Planner
- **Review Management Organization (RMO):** Deep Draft Navigation Planning Center of Expertise (DDNPCX)
- **RMO Contact:** DDNPCX Review Manager

**2. KEY REVIEW PLAN DATES**

<b>Action</b>	<b>Date - Actual</b>
RMO Endorsement of RP	20 Nov 2018
MSC Approval of RP	2 Jan 2019
Independent External Peer Review (IEPR) Exclusion Approval	2 Jan 2019
Has RP changed since PCX endorsement?	No
Last RP revision	Initial RP
RP posted on District Website	Initial RP, pending approval before posting
Congressional notification	Initial RP, pending approval before notifications

**3. MILESTONE SCHEDULE (as of 20 Nov 2018)**

Action	Date - Scheduled	Date – Actual	Status – Complete?
Alternatives Milestone Meeting (AMM)	15 Nov 2018	15 Nov 2018	Yes
Tentatively Selected Plan (TSP)	21 Oct 2019		No
Release Draft Report to Public	Nov 2019		No
Agency Decision Milestone (ADM)	23 Mar 2020		No
Final Report Transmittal	23 Dec 2020		No
DCG-CEO Briefing	Feb 2021		No
Chief’s Report	NLT 21 Aug 2021		No

**4. BACKGROUND**

- **Date of ‘Background’ Information:** 20 Nov 2018
- **RP References:**
  - Engineer Circular (EC) 1165-2-217, Review Policy for Civil Works, 20 February 18
  - EC 1105-2-412, Assuring Quality of Planning Models, 31 March 2011
  - Engineer Regulation (ER) 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 November 2007
  - Director’s Policy Memorandum Civil Works Programs 2018-05, Improving Efficiency and Effectiveness in U.S. Army Corps of Engineers (USACE) Civil Works Project Delivery (Planning Phase and Planning Activities), 3 May 2018
  - Director of Civil Works (DCW) Memorandum, Revised Delegation of Authority in Section 2034(a)(5)(A) of the Water Resources Development Act of 2007 (WRDA 2007), as amended (33 U.S.C. 2343), 7 June 2018
  - Tacoma Harbor, WA Project Management Plan, Draft dated November 2018
- **Authority:** Section 209 of the Rivers and Harbors Act of 1962, Public Law (P.L.) 87-874
- **Sponsor:** Port of Tacoma
- **SMART Planning Status:** The study is 3x3x3 compliant, based on initial scoping.
- **Project Area:** The Tacoma Harbor federal navigation project consists of Hylebos waterway, Blair waterway, two training walls at the mouth of the Puyallup River, and the City waterway (Thea Foss) (Figure 1). The Port initially requested that this feasibility study focus on the Blair and Sitcum waterways for navigation improvements, both of which have an existing channel depth of -51 feet Mean Lower Low Water (MLLW). Actual width of the Blair waterway varies, in some sections, from its federally authorized width. These two waterways provide deep draft navigation accessible from the Pacific Ocean through Puget Sound and Commencement Bay. The Hylebos Waterway was not included in the Port’s study request because there is no containerized cargo or other commodities that require additional depth.

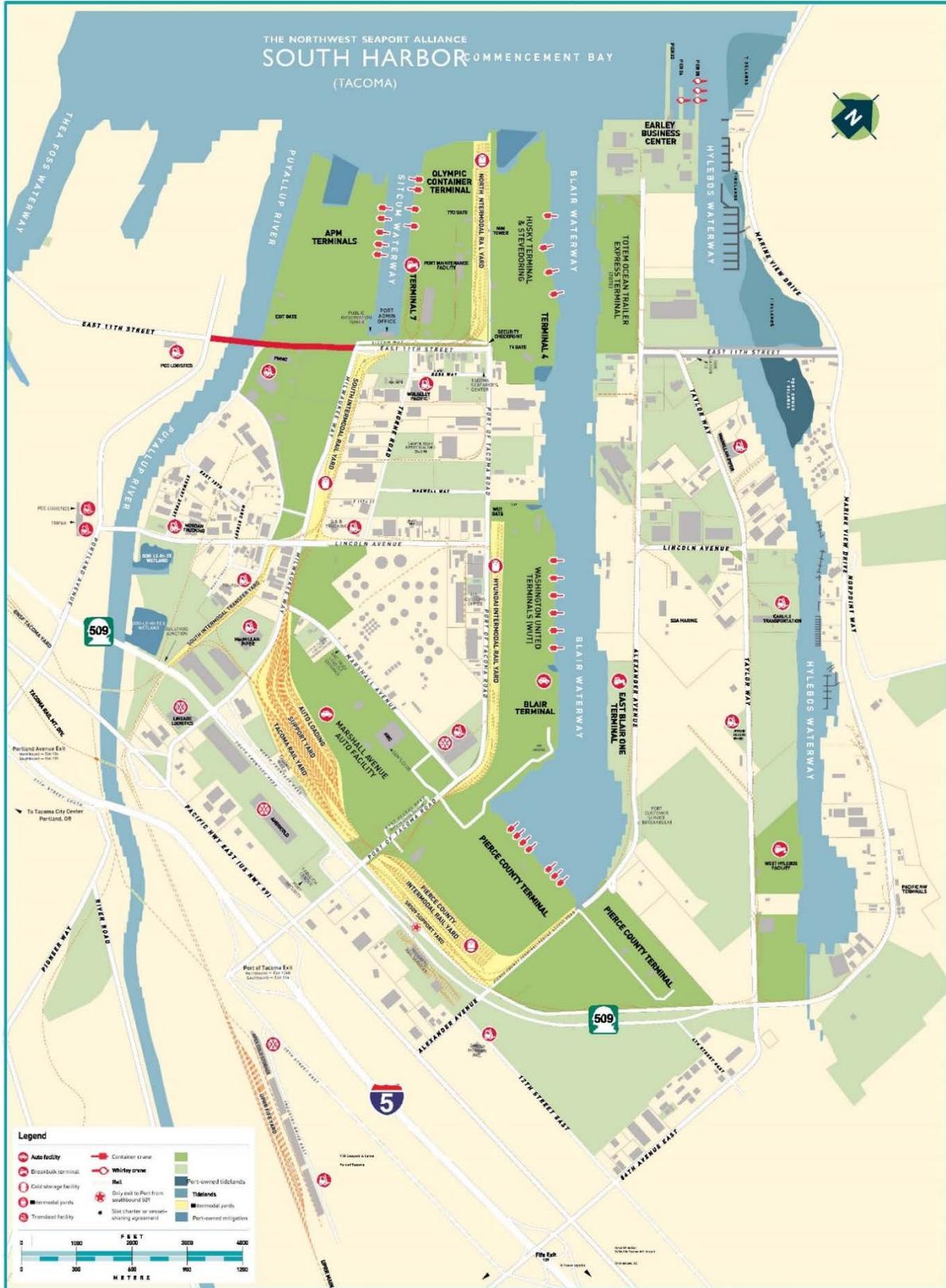


Figure 1. Study Area (Source: Northwest Seaport Alliance)

- Blair Waterway is approximately 2.75 miles long including the turning basin. The authorized dimensions are 520 feet wide from the mouth to 11th Street, 345 feet through the 11th Street reach, 520 feet from 11th street to Lincoln Avenue, 330 feet from Lincoln Avenue to the turning basin, and a 1,300 foot turning basin, all to a depth of -51 feet MLLW. Modifications at Husky Terminal have effectively widened the channel from 330 feet to approximately 450 feet just beyond Husky terminal, though this width has not been federally authorized to date.
  - Sitcum waterway is not a federal waterway and is narrower than the Blair Waterway with approximate dimensions of 450 feet wide from pier head to pier head, and 2,200 feet in length to the end of West Sitcum terminal.
- **Problem Statement:** The purpose of navigation improvements at Tacoma Harbor is to achieve transportation cost savings for vessels transiting study area channel segments. The existing channel depth requires containerships to light-load and face tide delays. As containerships with greater capacity and deeper sailing drafts replace the fleet currently calling Tacoma Harbor, depth-related transportation costs will increase. Without improvements, ships at Tacoma will not realize economies of scale afforded by the larger container ships projected to call in the future. Tide restrictions, light loading, or other operational inefficiencies will be compounded by the future fleet.
- **Study/Project Goals and Objectives:**
    - **National Objective:** The Federal objective of water and related land resources project planning is to contribute to national economic development consistent with protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, treaties, and other Federal planning requirements.
    - **Planning Objectives**
      - Achieve transportation cost savings thru increased economic efficiencies of vessels transiting study area channel segments at Tacoma Harbor over the 50-year period of analysis.
      - To the extent practicable, consider ancillary environmental benefits over the 50 year period of analysis within the study area of the project.
- **Description of Action:** The feasibility study will analyze alternatives for navigation improvements to include potential waterway deepening, widening, and expansion of the turning basin in the Blair Waterway. The study will evaluate a full range of reasonable alternatives, including the No Action Alternative. Each action alternative includes a dredged material placement measure, which could be open water, upland, or beneficial use placement. Specific placement alternatives for each action alternative will be identified following the Alternatives Milestone, during evaluation of alternatives and selection of a Tentatively Selected Plan (TSP).

On 14 November 2018, following a request from the non-Federal sponsor, the Sitcum Waterway was removed from the study scope. The port's reasons for reducing the study scope were as follows:

- The Port has made substantial investments in the infrastructure of the Blair Waterway; project deepening and toe walls are the last features required for that waterway to accommodate larger vessels;
- After doing further design and cost analysis the Port found that the Sitcum Waterway would require a very significant investment in docks, toe walls, and backlands to facilitate larger

vessels calling on that waterway. Given recent and near-term investments in both Seattle and Tacoma Harbors, a major investment in the Sitcum Waterway was determined to be unlikely within the next 10 years;

- The Port has a 10-year lease in place with a domestic carrier for the West Sitcum Terminal; that carrier has indicated that it will not need a deeper channel depth for its domestic services; and
  - Larger vessels have begun calling on the Blair Waterway, as evidenced by a 14,000+ TEU ship which recently called on the Pierce County Terminal. The Port wants to focus their financial and staff resources to address those immediate needs.
- **Federal Interest:** Cost estimates will be developed during the alternatives evaluation phase following the Alternatives Milestone. The project first cost is not expected to exceed \$200 million based on recent Seattle Harbor costs for -57 feet MLLW deepening of two waterways. Note: If additional study suggests that the project first cost may exceed \$200 million, the review plan will be updated and any review related assumptions impacted by that determination will likewise be updated. However, the federal interest will focus on transportation efficiencies on the Blair waterway. The Blair waterway is currently -51 feet MLLW. In the past decade, ships calling at the Port of Tacoma have increased in size and draft at a dramatic pace. The larger vessels have draft requirements deeper than -51 feet MLLW when fully laden, and therefore will face tidal delays and other transportation inefficiencies when arriving and departing the waterways. The Port of Tacoma is a rapidly expanding major port, ranking as the 25th largest U.S. port in terms of total tonnage, and the 4th largest container gateway when combined with the Port of Seattle. Tacoma Harbor is an important gateway for U.S. Commerce. It is a geographically important port of entry, as the closest U.S. container port to Asia.

The Northwest Seaport Alliance (NWSA) was formed in August 2015, unifying management of marine cargo facilities and cargo business at the Ports of Tacoma and Seattle to strengthen the Puget Sound gateway and attract more marine cargo and jobs for the region. The sponsor has made significant investment in Husky Terminal on the Blair waterway with dock realignment and strengthening and commissioning four cranes that can handle the largest ships in the world, with another four on order. The Port also made substantial investments in Washington United Terminal (WUT) including berth lengthening and purchase of new cranes. Given the large sunk cost at Husky Terminal and WUT for the recommended design vessel (currently a Generation IV containership with nominal twenty foot equivalent unit (TEU) capacity ranging from 15,500 to 19,000 TEUs), economic justification for improvements to the Federal project is highly likely. Other terminals on the Blair waterway would require some Local Service Facility (LSF) improvements and would therefore result in increased economic costs for those channel segments.

- **Risk Identification:** The following summarizes the most significant study, schedule, or budget risks that were evaluated by the PDT as of 20 November 2018. This project has low potential risk to pose a significant threat to human life or the environment. Additional risks are documented in a study risk register.
  - **Risk 1:** The Federal channel may overlap the berthing areas in some portions of the waterway.
    - Background: Channel design guidelines in EM 1110-2-1613 recommend a wider channel to accommodate the design vessel in the Blair waterway.
    - Recommended Risk Management Strategies:

- Conduct feasibility-level ship simulation to determine if a channel width narrower than the EM guidelines is feasible.
- Clearly display where berthing areas overlap with the Federal channel and adjust cost-sharing accordingly.
- **Risk 2:** Assumptions regarding quantities of dredged material requiring upland disposal may be under- or over-estimated.
  - Background: Due to time constraints on relevancy of data for construction (5 to 6-year limit for data relevancy), a full Dredged Material Management Program (DMMP) suitability determination will be completed during the PED phase.
  - Recommended Risk Management Strategies:
    - Conduct feasibility-level sediment sampling and partial DMMP testing after Alternatives Milestone.
    - Develop conservative estimates for quantity of material requiring upland disposal and include the risk of potential change in quantities for upland disposal in cost contingency.
    - Conduct a full DMMP suitability determination during PED.
    - Conduct additional coordination with EPA if contaminated sediments are identified in the feasibility-level sediment sampling results.

## 5. FACTORS AFFECTING THE SCOPE AND LEVEL OF REVIEW

- A. Is it likely that part(s) of the study will be challenging (EC 1165-2-217, paragraph 7.a.(1))? No. It is unlikely parts of the study will be challenging. Action alternatives consist of deepening an existing navigation channel within an existing Federal navigation project to improve efficiency of vessel operations. As a result, it is unlikely that project modification would have significant technical, institutional, or social challenges. There is a large amount of existing information available from the non-federal sponsor and other sources that the PDT is using. In addition, NWS completed a similar deep draft navigation study at Seattle Harbor in 2018, which is informing the Tacoma Harbor study both in terms of existing information and team expertise. The non-federal sponsor both requested and fully supports the study.
- B. Provide a preliminary assessment of where the project risks are likely to occur and assess the magnitude of those risks (EC 1165-2-217, paragraph 7.a.(1)). See Section 4, Risk Assessment, for a current summary of high and medium risks for this study. These risks have been evaluated in a risk register and work is scoped to reduce these risks throughout the feasibility study phase. Key uncertainties include berthing area overlap with the federal channel, sediment suitability for open water disposal, channel design constraints, LSF improvements and associated costs, and economic justification of measures carried forward for economic and NEPA evaluation.
- C. Is there a significant threat to human life associated with aspects of the study or with failure of the project or proposed project (Type I IEPR - EC 1165-2-217, paragraph 11.d(1)(a), and SAR - paragraph 12.h.)? No. The Seattle District Chief of Engineering does not foresee that there will be significant threat to human life. The project will not be justified by life safety and does not involve significant threat to human life/safety assurance. The recommended plan is likely to involve typical channel dredging of existing navigation channels and placement of sediment in open water or upland disposal sites. The project is likely to involve traditional methods of dredging and traditional

methods of placement of dredged material. This project would be for an activity (dredging and placement) for which there is ample experience within USACE.

- D. Is the estimated total cost of the project greater than \$200 million (EC 1165-2-217, paragraph 11.d(1)(b))? Cost for the project is not known at this time (20 November 2018); however, total costs of project alternatives are unlikely to exceed \$200 million. Additional work is planned to determine dredge quantities, open water suitability, and associated costs. Costs will be revised prior to the TSP milestone when sediment sampling and conceptual costs have been developed for project alternatives. There is potential for economic costs which include local service facilities (LSF) to exceed \$200 million; however, LSF improvements are not considered part of estimated total cost as outlined in EC 1165-2-217, paragraph 11.d(1)(b). If additional study suggests project first cost may exceed \$200 million, the review plan will be updated and any review related assumptions impacted by that determination will likewise be updated.
- E. Will the study/project require an environmental impact statement (EC 1165-2-217, paragraph 11.d(1)(b))? Preliminary analysis indicates an Environmental Impact Statement (EIS) will not be necessary. Information gathered in the scoping phase and at an interagency meeting held on 25 October 2018 support development of an Environmental Assessment (EA) and not an EIS.
- F. Has the Governor of an affected state requested a peer review by independent experts (EC 1165-2-217, paragraph 11.d(1)(c))? No, the Governor of Washington has not requested a peer review by independent experts.
- G. Has the Chief of Engineers determined that the project study is controversial due to significant public dispute over the size, nature, or effects of the project or the economic or environmental costs or benefits of the project (EC 1165-2-217, paragraph 11.d(1)(d))? No, the Chief of Engineers has not determined the project study is controversial.
- H. Is the study/project likely to involve significant public dispute as to the project's size, nature, or effects (EC 1165-2-217, paragraph 11.d(1)(e))? No. The types of navigation improvements identified for evaluation during the study are not anticipated to significantly change existing operations at the Port. In addition, the project site is in a highly modified estuary and preliminary analysis indicates impacts to the environment to be less than significant.
- I. Is the study/project likely to involve significant public dispute as to the economic or environmental cost or benefit of the project (EC 1165-2-217, paragraph 11.d(1)(f))? No. The project is assumed to have positive, long-term economic effects for the public through a reduction in forecasted vessel traffic and transportation costs. Preliminary analysis indicates impacts would not generate significant public dispute; however, results of the EA analysis, scoping, and meeting with agencies and tribes are necessary to confirm this assumption. As of 20 November 2018, one tribe has indicated they have concerns and have requested a staff-level meeting to discuss those concerns. The main concerns received to date relate to presence of ESA-listed species and other aquatic organisms, suspension of contaminants, and the project's relation to the LNG facility and cumulative impacts of these two projects within Commencement Bay.
- J. Is the information in the decision document or anticipated project design likely to contain influential scientific information or be a highly influential scientific assessment – i.e., be based on novel methods, involve innovative materials or techniques, present complex challenges for interpretation,

contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices (Type I IEPR - EC 1165-2-217, paragraph 11.d(1)(g); SAR paragraph 12.i.(1); and paragraph 15.d)? No. The final Feasibility Report/EA document and supporting documentation will contain standard engineering, economic, and environmental analyses and information. Information in the decision document is unlikely to be based on novel methods, involve the use of innovative materials or techniques, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices. The project does not contain influential scientific information and will not include any highly influential scientific assessments. The recommended plan is likely to involve typical channel dredging of existing navigation channels and placement of sediment in open water or upland disposal sites. This project would be for an activity (dredging and placement) for which there is ample experience within USACE.

- K. Does/will the study/project have significant interagency interest (EC 1165-2-217, paragraph 7.f(1))? The study will likely have significant interagency interest due to the project location within treaty-reserved fishing areas and near tribal lands, ESA-listed species, marine mammals, cultural resources, and an existing Superfund Site with a completed remedy. However, close coordination with natural resource agencies and tribes such as the U.S. Environmental Protection Agency, National Marine Fisheries Service, U.S. Fish and Wildlife Service, Washington Department of Fish and Wildlife, and the Puyallup Tribe of Indians is typical and expected for projects in western Washington due to environmental and tribal resources of the region. In addition, no significant impacts have been identified at this point that would be expected to generate large-scale controversy. A list of resources considered for detailed effects analysis in the EA, with rationale for inclusion or exclusion, was developed and shared with natural resource agencies and interested tribes. We also informed them that the Corps believes this is an EA and not an EIS. There were no comments from the agencies that this should be an EIS; however, the Puyallup Tribe does have concerns that will be discussed in a future staff-level meeting. No new resources or concerns were identified by these agencies or tribes that were not already included in the list of resources for detailed analysis. At this point of preliminary analysis and scoping, there has been no indication that we should prepare an EIS or that significant controversy should be expected. Therefore, an EA will be prepared with the typical level of interagency coordination unless a significant impact is determined which would warrant preparation of an EIS under the NEPA process.
- L. Are there any other circumstances that would lead the Chief of Engineers to determine Type I IEPR is warranted (EC 1165-2-217, paragraph 11.d(1)(h))? No, none of the concerns noted are anticipated to result in significant public dispute.
- M. Is the project expected to have more than negligible adverse impacts on scarce or unique tribal, cultural, or historic resources (EC 1165-2-217, paragraph 11.d(4)(a))? Current information indicates that the project is not expected to have more than a negligible adverse impact on unique tribal, cultural or historic resources. At this time no unique tribal resources have been identified. Background research indicate both archaeological and historic resources in or near the project area; however, it is not anticipated at this time that there will be more than a negligible adverse impact. There is a possibility for buried cultural resources within the project area. Archaeological monitoring will occur during feasibility-level sediment sampling to determine if there are buried resources. Should buried cultural resources be identified they will be evaluated in accordance with Section 106 of the National Historic Preservation Act.

- N. Is the project expected to have substantial adverse impacts on fish and wildlife species and their habitat prior to the implementation of mitigation measures (EC 1165-2-217, paragraph 11.d(4)(a))? No. The project evaluates improvements to an authorized Federal navigation project, in a highly modified estuary. Preliminary analysis indicates that impacts to fish and wildlife, including their habitat, are expected to be less than significant. To the extent practicable, environmental concerns can be addressed through mitigation measures of avoidance, minimization, or compensation, and through public education and outreach efforts. Based on a 25 October 2018 meeting with natural resource agencies and tribes, an Environmental Assessment (EA) will be completed to document the environmental effects of the proposed plan, unless the analysis reveals a significant impact which would warrant an EIS.
- O. Is the project expected to have, before implementation of mitigation measures, more than a negligible adverse impact on an endangered or threatened species or their designated critical habitat (EC 1165-2-217, paragraph 11.d(4)(a))? No. Preliminary analysis indicates that impacts to threatened or endangered species, or their designated critical habitat, will not be more than a negligible adverse impact due to implementation of conservation measures.
- P. Does the project study pertain to an activity for which there is ample experience within the USACE and industry to treat the activity as being routine (EC 1165-2-217, paragraph 11.d(4)(b))? Yes. The recommended plan is likely to involve standard methods of dredging and placement of dredged material to include evaluation of open water, upland, and/or beneficial use options as sediment quality allows. This project would be for an activity (dredging and placement) for which there is ample experience within USACE.
- Q. Does the project study have minimal life safety risk (EC 1165-2-217, paragraph 11.d(4)(b))? Yes. The Seattle District Chief of Engineering does not foresee that there will be significant threat to human life. The project will not be justified by life safety and does not involve significant threat to human life/safety assurance. The recommended plan is likely to involve typical channel dredging of existing navigation channels and placement of sediment in open water or upland sites. The project is likely to involve traditional methods of dredging and traditional methods of placement of dredged material. This project would be for an activity (dredging and placement) for which there is ample experience within USACE.
- R. Does the project design require redundancy, resiliency, and/or robustness, unique construction sequencing, or a reduced or overlapping design/construction schedule (EC 1165-2-217, paragraph 12.i.(2))? No. The project design is not anticipated to require redundancy, resiliency, and/or robustness, unique construction sequencing, or a reduced or overlapping design and construction schedule.
- S. Will the project have unique construction sequencing or a reduced or overlapping design construction schedule (e.g., significant project features will be accomplished using the Design-Build or Early Contractor Involvement delivery systems) (EC 1165-2-217, paragraph 12.i.(3))? No. The project design is not anticipated to require unique construction sequencing, or a reduced or overlapping design and construction schedule.

## 6. REVIEW EXECUTION PLAN

This RP section provides a general description of each type of review and identifies the reviews anticipated for this study/project.

### A. Types of Review

- 1) **District Quality Control (DQC)**. DQC is an internal review process of basic science and engineering work products focused on fulfilling the project quality requirements of the project management plan. All decision documents (including data, analyses, environmental compliance documents, etc.) undergo DQC review.
- 2) **Agency Technical Review (ATR)**. ATR is performed to assess whether study/project analyses are technically correct and comply with USACE guidance and whether documentation explains the analyses and results in a clear manner. Further, the ATR team will ensure that proper and effective DQC has been performed (as assessment of which will be documented in the ATR report) and will ensure that the product is consistent with established criteria, guidance, procedures, and policy. If significant life safety issues are involved in a study or project, a safety assurance review should be conducted during ATR. At a minimum, ATR of the draft and final decision documents and supporting analyses is required (EC 1165-2-217, paragraph 9.i.(3)); however, targeted reviews may be scheduled as needed.
- 3) **Independent External Peer Review**. Type I IEPR may be required for decision documents under certain circumstances. IEPR is the most independent level of review and is applied in cases that meet criteria where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside of USACE is warranted. A risk-informed decision is made as to whether Type I IEPR is appropriate. If the District anticipates requesting an exclusion from Type I IEPR, that effort should be coordinated with the RMO for assessment prior to submitting to the MSC for approval. Should IEPR be required, the RMO should be contacted at least three months in advance of the anticipated start of the concurrent review period to allow sufficient time to obtain contract services. If required, Type I IEPR will be managed by an Outside Eligible Organization, external to USACE. Neither the public nor scientific or professional societies would be asked to nominate potential external peer reviewers.
- 4) **Cost Engineering Review**. All decision documents will be coordinated with the Cost Engineering and ATR Mandatory Center of Expertise (MCX). The MCX will provide the cost engineering expertise needed on the ATR team and will provide certification of cost estimates. The RMO is responsible for coordinating with the MCX for cost reviews. Cost reviews may occur as part of the draft/final report ATRs but the schedule for specific reviews may also vary. Accordingly, the PDT should coordinate closely with the MCX and the RMO to ensure cost review needs are met.
- 5) **Model Review and Approval/Certification**. Engineer Circular (EC) 1105-2-412 established the process and requirements for ensuring the quality of planning models. The EC mandates use of certified or approved planning models for all planning activities to ensure that planning products are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions regarding the availability of data, transparent, and described in sufficient detail to address any limitations of the model or its use.

- 6) **Policy and Legal Compliance Reviews.** All decision documents will be reviewed throughout the study process for compliance with law and policy. ER 1105-2-100, Appendix H, and Director’s Policy Memo (DPM) Civil Works (CW)/Director of Civil Works (DCW) memos, provide guidance on policy and legal compliance reviews. These reviews culminate in determination whether report recommendations, supporting analyses, and coordination comply with law and policy and whether the decision document warrants approval or further recommendation to higher authority by the home MSC Commander.
  
- 7) **Public Review.** The home District will post the RMO endorsed and MSC approved RP on the District’s public website. Internet posting of the RP provides opportunity for the public to comment on that document. It is not considered a formal comment period, and there is no set timeframe for public comment. The PDT should consider any comments received and determine if RP revisions are necessary. During the public comment period, the public will also be provided with the opportunity to review and comment on the draft and final reports. Should IEPR be required, public comments will be provided to the IEPR panel for consideration.

**B. Anticipated Project Reviews and Estimated Costs**

Table 1 provides the estimated schedule and cost for reviews anticipated for this study. An EA will be assumed until such a time that impacts rise to a level of significance and require an EIS, at which time this table and related sections will be updated.

**Table 1: Tacoma Harbor, WA – Anticipated Reviews as of 20 November 2018**

Product to undergo Review	Review	Start Date	End Date	Cost	Complete
Work-in-Kind <sup>1</sup>	Project Delivery Team members	Jan 2019	May 2019	n/a	No
Draft Feasibility Report and EA	District Quality Control	Sep 2019	Oct 2019	\$38,000 <sup>2</sup>	No
	Agency Technical Review	Oct 2019	Dec 2019	\$57,000 <sup>3</sup>	No
	Policy and Legal Review	Oct 2019	Dec 2019	n/a	No
Final Feasibility Report and EA	District Quality Control	Oct 2020	Nov 2020	\$38,000	No
	Agency Technical Review	Nov 2020	Dec 2020	\$57,000 <sup>3</sup>	No
	Policy and Legal Review	Dec 2020	Feb 2021	n/a	No

<sup>1</sup>Products and analyses provided by the non-Federal sponsor as in-kind services are subject to DQC, ATR, and IEPR and will therefore be included in those subsequent reviews. Specific work includes a feasibility-level sediment sample and partial DMMP testing, but there may be other items provided by the non-Federal sponsor.

<sup>2</sup> Estimated DQC review cost for draft and final report is based on 12 Disciplines at \$130/hour for 24 hours, could be up to \$140/hour but extra hours have been included.

<sup>3</sup> Estimated cost for Draft and Final Report ATRs does not include the cost of ATR Team Lead participation in milestone meetings or other engagement/coordination beyond that directly related with those ATRs. The estimated cost for ATR of the Draft Report is based upon the following assumptions:

- ATR Team Lead – 32 hours, \$130/hour
- ATR Team – 9 Technical Disciplines, 40 hours/discipline, average \$130/hour
- RMO – 40 hours, \$143/hour

<sup>3</sup> Estimated cost for ATR of the Final Report is based upon the following assumptions:

- ATR Team Lead – 32 hours, \$130/hour
- ATR Team – 9 Technical Disciplines, 32 hours/discipline- average, average \$130/hour
- RMO – 40 hours, \$143/hour

**C. District Quality Control**

The home district shall manage DQC and will appoint a DQC Lead to oversee that review (see EC 1165-2-217, section 8.a.1).

**1) Review Team Expertise.** Table 2 identifies the required DQC team expertise.

**Table 2: Required DQC Expertise**

DQC Team Disciplines	Expertise Required
DQC Lead	A senior professional with extensive experience preparing Civil Works decision documents and conducting DQC. The lead may also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc.).

<b>DQC Team Disciplines</b>	<b>Expertise Required</b>
Plan Formulation	A senior water resources planner with experience in formulation, evaluation, and selection of alternatives for deep draft navigation.
Economics <sup>1</sup>	The Economics reviewer should be a senior Economist with experience in deep draft navigation studies and be familiar with HarborSym.
Environmental Resources	The Environmental Resources reviewer should have extensive knowledge of Pacific Northwest biology, specifically knowledge of endangered coastal species (salmonids and marine mammals) and experience on coastal projects. The reviewer should also have expertise in evaluating the impacts of deep draft navigation improvements / dredging projects and dredged material placement requirements. The reviewer should also have experience with environmental coordination, federal environmental regulations, and NEPA requirements.
Cultural Resources	The Cultural Resources reviewer should have expertise in evaluating the impacts associated with deep draft navigation channel improvement and dredging projects as well as extensive knowledge of underwater archaeology. The reviewer should also be familiar with the National Environmental Policy Act / National Historic Preservation Act (NHPA) requirements for deep draft navigation projects.
Hydrology, Hydraulics and Coastal (HH&C) Engineer	The HH&C engineering reviewer should be knowledgeable in the field of hydraulics, have a thorough understanding of open channel dynamics, and have experience in deep draft navigation studies/projects.
Geotechnical Engineer	The Geotechnical Engineering reviewer will have an understanding of the behavior of soils, site characterization, material management, slope stability, and the analysis and placement of dredged material.
Hazardous, Toxic, and Radiological Waste (HTRW)	The reviewer should have senior level knowledge of legacy sediment contamination characteristics and remediation as it relates to Superfund actions. The reviewer should also have a mid-level understanding of policy implications from the presence of HTRW at a Civil Works study site, including a general knowledge of Comprehensive Environmental Response, Compensation, and Liability Act / Superfund processes.
Dredged Material Management	The reviewer should have experience in dredged material management, sediment characterization, suitability determinations, and disposal plans as they relate to deep draft navigation planning projects.
Cost Engineering	The reviewer should have experience evaluating cost requirements for a deep draft navigation channel improvement project. The reviewer will also be familiar with the computer modeling techniques that will be used in the study, including the models listed in Section F of this Review Plan.
Operations	The reviewer should have experience in the operation and maintenance of deep draft navigation projects to include channel maintenance, dredging, placement, beneficial use, and upland site management.
Real Estate	The reviewer should have expertise in the real estate requirements of deep draft navigation projects.

<sup>1</sup>The economics DQC team member will be identified by the DDNPCX (Operations Order (OPORD) 2012-15).

**2) Documentation of DQC.** Quality Control should be performed continuously throughout the study. In compliance with Planning Bulletin 2018-01, Feasibility Study Milestones, DQC of milestone submittals is required. Certification of DQC completion is required at the draft and final report stages. Documentation of DQC should follow the District Quality Manual and the MSC Quality Management Plan. An example DQC Certification statement is provided in EC 1165-2-217 (Figure F). DrChecks software will be used to document DQC review comments, responses, and issue resolution.

Documentation of the completed DQC review (i.e., all comments, responses, issue resolution, and DQC certification) will be provided to the MSC, RMO, and ATR Team leader prior to initiating an ATR. The ATR team will assess the quality of the DQC performed and provide a summary of that assessment in the ATR report. Missing or inadequate DQC documentation can result in the start of subsequent reviews being delayed (see EC 1165-2-217, Section 9).

**D. Agency Technical Review**

ATR will be performed on the draft and final decision documents and supporting analyses (EC 1165-2-217, paragraph 9.i.(3)). The RMO will manage the ATR. ATR will be performed by a qualified team from outside the home district that is not involved in the day-to-day production of the project/product. ATR will be performed by a team whose members are certified or approved by their respective Communities of Practice (CoPs) to perform reviews. The RMO will identify an ATR lead and ATR team members. Neither the home District nor the MSC will nominate review team members. The ATR team lead will be from outside the home MSC. The ATR team lead is expected to participate in the study’s milestone meetings (PB 2018-01), the cost of which is not included in the estimates provided in Table 1.

**1) Review Team Expertise.** Table 3 identifies the anticipated disciplines and ATR team expertise required for study efforts. Changes to Planning and Engineering Models documented in Section F will be revised prior to identification of the ATR review team to insure adequate expertise in methods and models.

**Table 3: Required ATR Team Expertise**

ATR Team Disciplines	Expertise Required
ATR Lead	The ATR lead will be a senior professional with extensive experience preparing Civil Works decision documents and conducting ATR. The lead should have the skills to manage a virtual team through an ATR. The lead may serve as a reviewer for a specific discipline (e.g., plan formulation, economics, etc.).
Plan Formulation	A senior water resources planner with experience in leading a team through a deep draft navigation channel improvement study and analysis of dredged material placement requirements.

<b>ATR Team Disciplines</b>	<b>Expertise Required</b>
Economics	A senior deep draft navigation Economist with experience performing economic evaluations for channel deepening/widening projects, experience evaluating containerized trade is required. Typically, two economics reviewers will be required: one to review the Economics appendix and another to review HarborSym inputs/outputs of economic modeling. The reviewers will be familiar with the computer modeling techniques that will be used in the study, including the models listed in Section F of this Review Plan which include HarborSym, RECONS, and potentially IWR Planning Suite.
Environmental Resources	A reviewer with expertise in evaluating the impacts associated with deep draft navigation improvements / dredging projects and dredged material placement requirements, including beneficial use assessments. The reviewer should also be experienced with environmental coordination and NEPA requirements for deep draft navigation projects. The reviewer should also be familiar with Pacific Northwest biology, specifically knowledge of endangered coastal species including salmonids and marine mammals.
Cultural Resources	A reviewer with expertise evaluating impacts associated with deep draft navigation channel improvement and dredging projects, as well as extensive knowledge of underwater archaeology. The reviewer should also be familiar with the environmental coordination and NEPA/ NHPA requirements for deep draft navigation projects.
HH&C Engineer	A reviewer with experience designing deep draft navigation channels, channel maintenance, and placement (including beneficial use), and a thorough understanding of open channel dynamics. The reviewer will be familiar with the HH&C computer modeling techniques that will be used in the study, including the models listed in Section F of this Review Plan which may include MDFATE/MPFATE, CMS, Delta 3D, ADCIRC, ADH, STWAVE, CADET, and ERDC Ship/Tow Simulator.
HTRW	The HTRW reviewer should have senior level experience with legacy sediment contamination characteristics and remediation as it relates to Superfund actions. The reviewer should also have an in depth understanding of policy implications from the presence of HTRW at a Civil Works study site, including a general knowledge of Comprehensive Environmental Response, Compensation, and Liability Act / Superfund processes. The reviewer should also have a working knowledge of DMMP requirements and how they relate to HTRW. Knowledge of beneficial use of sediments is also preferred.
Cost Engineering	A reviewer will be identified by the Cost MCX and will have experience evaluating cost requirements for a deep draft navigation project (channel deepening, widening, placement site construction, beneficial use, etc.) The reviewer will be familiar with the cost engineering related computer modeling techniques that will be used in the study, including the models listed in Section F of this Review Plan (MCACES, ProUCL, Abbreviated Risk Analysis, CSRA, TPCS, and CEDEP).
Operations	The reviewer should have experience in the operation and maintenance of deep draft navigation projects, to include channel maintenance dredging, placement, beneficial use, and upland site management.
Real Estate	The reviewer should have expertise in the real estate requirements of deep draft navigation improvement projects.

ATR Team Disciplines	Expertise Required
Climate Preparedness and Resilience/ HH&C Reviewer	A member of the Climate Preparedness and Resiliency CoP or a HH&C Climate reviewer will participate on the ATR team. Another reviewer can fulfill this requirement as long as that reviewer has the required expertise.
Geotechnical Engineering	The reviewer will have an understanding of the behavior of soils, site characterization, material management, slope stability, and the analysis and placement of dredged material.

**2) Documentation of ATR.** DrChecks will be used to document ATR comments, responses, and issue resolution. Comments should be limited to those needed to ensure product adequacy. All members of the ATR team should use the four part comment structure (EC 1165-2-217, Section 9(k)(1)). If a concern cannot be resolved by the ATR team and PDT, it will be elevated to the vertical team for resolution using the issue resolution process identified in EC 1165-2-217. The comment(s) can then be closed in DrChecks by noting the concern has been elevated for resolution. The ATR Lead will prepare a Statement of Technical Review Report (see EC 1165-2-217, Section 9), for both draft and final decision documents. Any unresolved issues will be documented in the ATR report prior to certification. The Statement of Technical Review (ATR completion) should always include signatures from the ATR Lead, Project Manager, and RMO, and the Certification of ATR should always include signatures from the District’s Chiefs of Engineering and Planning Divisions.

**E. Independent External Peer Review**

Type I IEPR is managed outside of USACE and is typically conducted on studies. Type I IEPR panels assess the adequacy and acceptability of the economic and environmental assumptions and projections, project evaluation data, economic analysis, environmental analyses, engineering analyses, formulation of alternative plans, methods for integrating risk and uncertainty, models used in the evaluation of environmental impacts of proposed projects, and biological opinions of the project study.

This section currently reflects a scope to not conduct a Type I IEPR as of 20 November 2018.

**1) Decision on Type I IEPR.** Based on risks analyzed and the decision to proceed with an EA NEPA document, as well as other criteria analyzed in Section 11 of EC 1165-2-217 and Section 5 of this Review Plan, the team will seek a waiver from Type I IEPR as the decision document does not meet any of the mandatory triggers for Type I IEPR. Risks to this recommendation include future study of sediment suitability, project first costs, economic costs and benefits. While projects in the Pacific Northwest have public interest, the study is evaluating impacts in highly modified urban waterways that are not used for fish migration or spawning, and both waterways have been remediated for HTRW. These correlate with the summaries provided in Section 5 for criteria B-E and K. Other criteria analyzed in EC 1165-2-217, Section 11, would not require a Type I IEPR. There is at least one alternative that will likely be economically justified and would provide a benefit to the region and the nation.

Additionally, the following were considered:

- *The consequences of non-performance on project economics, the environmental and social well-being (public safety and social justice);*

Should the project not perform as expected, the impact would be a lower than expected benefit to NED, which does not impact human life and/or safety. Non-performance of the project would not affect the well-being of the general public and/or environment, but may negatively affect vessels that utilize the project. There is no residual risk to account for in this project due to the fact that the project purpose does not address or directly affect human health and safety.

- *Whether the product is likely to contain influential scientific information or be highly influential scientific assessment; and*  
Design of navigation improvements to Tacoma Harbor will be based upon previously developed and utilized methods of analysis and will not contain influential scientific information or be a highly influential scientific assessment.
  
- *If and how the decision document meets any of the possible exclusions described in EC 1165-2-217 (paragraph 11.d.(4)).*  
This project meets exclusion (a) as described on page 36 of EC 1165-2-217:
  - It is not anticipated to include an EIS;
  - The Chief of Engineers has not determined it to be controversial;
  - It is anticipated to have no more than negligible adverse impacts on scarce or unique tribal, cultural, or historic resources;
  - It is anticipated to have no substantial adverse impacts on fish and wildlife species and their habitat prior to the implementation of mitigation measures; and
  - Before implementation of mitigation measures, it is anticipated to have no more than a negligible adverse impact on a species listed as endangered or threatened species under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) or the critical habitat of such species designated under such Act.

**2) Decision on Type II IEPR.** Type II IEPR, Safety Assurance Review, is managed outside of the USACE and is performed on design and construction activities for any project where potential hazards pose a significant threat to human life. For Type II IEPRs, a panel is convened to review the design and construction activities before construction begins and periodically thereafter until construction activities are completed.

The PDT has assessed this single purpose deep draft navigation project and determined that it does not meet the criteria for conducting Type II IEPR:

- The Federal action is not justified by life safety and failure of the project will not pose a significant threat to human life.
  
- The project does not involve the use of innovative materials or techniques where the engineering is based on novel methods; it does not present complex challenges for interpretations; it does not contain precedent-setting methods or models; and it does not present conclusions that are likely to change prevailing practices. Proposed improvements are to existing navigation channels within an existing harbor, a portion of which is an authorized Federal navigation project. Construction and maintenance techniques have been standardized and no new techniques are expected to be utilized for design and construction activities.
  
- The project design does not require redundancy, resiliency, or robustness as the design of navigation improvements at Tacoma Harbor will be based upon previously developed and

utilized construction techniques which do not require redundancy, resiliency, and/or robustness.

- The project does not have unique construction sequencing or a reduced or overlapping design construction schedule.

**F. Model Certification or Approval**

EC 1105-2-412 mandates the use of certified or approved models for all planning activities to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. Planning models are any models and analytical tools used to define water resources management problems and opportunities; to formulate potential alternatives to address study area problems and take advantage of opportunities; to evaluate potential effects of alternatives; and to support decision making. The use of a certified/approved planning model does not constitute technical review of a planning product. The selection and application of the model and assessment of input and output data is the responsibility of the users and is subject to DQC, ATR, and IEPR (if required). The following models may be used to develop the decision document.

**Table 5: Planning Models**

<b>Model Name and Version</b>	<b>Brief Model Description and How It Will Be Used in the Study</b>	<b>Certification / Approval</b>
HarborSym 1.5.8.3	HarborSym is a discrete event Monte-Carlo simulation model designed to facilitate economic analyses of proposed navigation improvement projects in coastal harbors. Incorporating risk and uncertainty, the model will be used to estimate transportation cost savings (benefits) attributable to fleet and loading changes under future with project conditions.	Certified
Regional Economic System (RECONS)	RECONS is a regional economic impact modeling tool that estimates jobs, income, sales and value added associated with Corps Civil Works and ARRA spending, as well as stemming from effects of additional economic activities. The model will be used to estimate the regional economic impacts of project implementation.	Certified
IWR Planning Suite v2.0.6.0	IWR Planning Suite is a software designed to assist with the formulation and comparison of alternative plans for ecosystem restoration and may be needed to evaluate beneficial use placement alternatives. Performs Cost Effectiveness/ Incremental Cost Analysis (CE/ICA).	Certified

EC 1105-2-412 does not address engineering models used in planning. The responsible use of well-known and proven USACE developed and commercial engineering software will continue. The professional practice of documenting the application of the software and modeling results will be

followed. The USACE Scientific and Engineering Technology Initiative has identified many engineering models as preferred or acceptable for use in studies. These models should be used when appropriate. The selection and application of the model and the input and output data is the responsibility of the user and is subject to DQC, ATR, and IEPR (if required). The following models may be used to develop the decision document as of 20 November 2018, and will be revised once we know which models will be applied to this study (e.g., Delft 3D and Adaptive Hydraulic Modeling (ADH)).

**Table 6: Engineering Models**

<b>Model Name and Version</b>	<b>Brief Model Description and How It Will Be Used in the Study</b>	<b>Model Certification / Acceptance Status</b>
MDFATE/MPFATE - Multiple Placement Fate of Dredged Material	MPFATE was developed under the USACE Dredging Research Program (DRP) (Hales 1995) and was formerly known as Open Water Disposal Area Management Simulation (ODAMS) program (Moritz and Randall 1995). MPFATE is a site management tool that bridges the gap between the Short Term FATE of dredged material (STFATE) model and the Long Term FATE of dredged material (LTFATE). It will be used to study the disposal of material in a non-dispersive open-water placement site.	Allowed
CMS – Coastal Modeling System	The Coastal Modeling System is an integrated suite of numerical models for simulating flow, waves, sediment transport, and morphology change in coastal areas. The system is designed for practical applications in navigation channel performance and sediment management for coastal inlets and adjacent beaches in order to improve the usage of USACE Operation and Maintenance Funds. The CMS is intended as a research and engineering tool that can be used on desk-top computers. The CMS takes advantage of the Surface-water Modeling System (SMS) interface for grid generation and model setup, as well as plotting and post-processing.	Allowed

Model Name and Version	Brief Model Description and How It Will Be Used in the Study	Model Certification / Acceptance Status
Delft 3D	<p>Delft 3D is a multi-dimensional suite of hydrodynamic, sediment transport, and morphologic modules for estuarine and coastal environments.</p> <p>The FLOW module of Delft3D is a multi-dimensional hydrodynamic and transport simulation program which calculates non-steady flow and transport phenomena resulting from tidal and meteorological forcing on a curvilinear, boundary fitted grid or spherical coordinates. The MOR module computes sediment transport (both suspended and bed total load) and morphological changes for an arbitrary number of cohesive and non-cohesive fractions. Both currents and waves act as driving forces. An essential feature of the MOR module is the dynamic feedback with the FLOW and WAVE modules, which allow the flows and waves to adjust themselves to the local bathymetry and allows for simulations on any time scale from days (storm impact) to centuries (system dynamics). It will be used to evaluate shoaling due to littoral transport and to assess the potential changes to the transport system due to channel modifications.</p>	Allowed
Adaptive Hydraulic Modeling (ADH)	<p>ADH is a state-of-the-art Adaptive Hydraulics Modeling system. It is capable of handling both saturated and unsaturated groundwater, overland flow, three-dimensional Navier-Stokes flow, and two- or three-dimensional shallow water problems. ADH contains other essential features such as wetting and drying and wind effects. It will be used to provide model forcing in the Ship/Tow Simulator to evaluate the safety of ship maneuverability of the alternatives.</p>	Allowed
STWAVE – Steady State spectral WAVE	<p>STWAVE simulates depth-induced wave refraction and shoaling, current-induced refraction and shoaling, depth- and steepness-induced wave breaking, diffraction, parametric wave growth because of wind input, and wave-wave interaction and white capping that redistribute and dissipate energy in a growing wave field. It will be used to provide model forcing in the sediment transport, water quality and Ship/Tow Simulator models.</p>	CoP Preferred
ERDC Ship/Tow Simulator	<p>The Ship/Tow Simulator features two bridges set up for real-time ship maneuvering, and were specifically developed for evaluating navigation channel designs, modifications, and safety issues. Located at ERDC, Coastal and Hydraulics Laboratory, the model portrays currents, wind and wave conditions, shallow water effects, bank forces, ship handling, ship to ship interaction (in a meeting and passing or overtaking and passing situation), fender forces, anchor forces, and tug assistance. It will be used to evaluate the safety of ship maneuverability of the alternatives.</p>	Allowed

<b>Model Name and Version</b>	<b>Brief Model Description and How It Will Be Used in the Study</b>	<b>Model Certification / Acceptance Status</b>
Channel Design and Evaluation Tool (CADET)	Probabilistic risk analysis techniques to evaluate the accessibility of channel reaches for multiple vessel geometries, loading, and wave conditions.	CoP Preferred
Microcomputer Aided Cost Engineering System (MCACES), MII	Microcomputer Aided Cost Engineering System (MCACES) is the cost estimating software program tools used by cost engineering to develop and prepare Class 3 Civil Works cost estimates.	Civil Works Cost Engineering and Agency Technical Review MCX mandatory
ProUCL Version 5.00	Statistical software used to estimate costs of alternatives and the TSP	Enterprise
Abbreviated Risk Analysis, Cost Schedule Risk Analysis	Cost risk analyses identify the amount of contingency that must be added to a project cost estimate and define the high risk drivers. The analyses will include a narrative identifying the risks or uncertainties. During the alternatives evaluation, the PDT will assist the cost engineer in defining confidence/risk levels associated with the project features within the abbreviated risk analysis. For the Class 3 estimate, an evaluation of risks will be performed using Crystal Ball Cost Schedule Risk Analysis for construction costs over \$40 million or the Abbreviated Risk Analysis for projects under \$40 million.	Civil Works Cost Engineering and Agency Technical Review MCX mandatory
Total Project Cost Summary (TPCS)	The TPCS is the required cost estimate document that will be submitted for either division or Headquarters, U.S. Army Corps of Engineers (HQUSACE) approval. The Total Project Cost for each Civil Works project includes all Federal and authorized non-Federal costs represented by the Civil Works Work Breakdown Structure features and respective estimates and schedules, including the lands and damages, relocations, project construction costs, construction schedules, construction contingencies, planning and engineering costs, design contingencies, construction management costs, and management contingencies.	Civil Works Cost Engineering and Agency Technical Review MCX mandatory
Corps of Engineers Dredge Estimating Program (CEDEP)	CEDEP is the required software program that will be used for dredging estimates using floating plants. CEDEP contains a narrative documenting reasons for decisions and selections made by the cost engineer. Software distribution is restricted as it is considered proprietary to the Government.	Civil Works Cost Engineering and Agency Technical Review MCX mandatory
Arc-GIS	Used to visually represent alternatives and the TSP.	Enterprise
Automated Risk Assessment Modeling System	Used to visually represent risks of alternatives and the TSP.	Enterprise

## **G. Policy and Legal Compliance Reviews**

Policy and legal compliance reviews for draft and final planning decision documents are delegated to the MSC (see Director’s Policy Memorandum 2018-05, paragraph 9).

**1) Policy Review.** The policy review team is identified through the collaboration of the MSC Chief of Planning and Policy and the HQUSACE Chief of the Office of Water Project Review. The team is identified in Attachment 1 of this Review Plan. The makeup of the Policy Review team will be drawn from Headquarters (HQUSACE), the MSC, the Planning Centers of Expertise, and other review resources as needed.

- The Policy Review Team will be invited to participate in SMART Planning Milestone meetings as well as other key meetings held during the development of decision documents (e.g., In-Progress Reviews, Issue Resolution Conferences, etc.).
- Input from the Policy Review team should be documented in a Memorandum for Record (MFR) produced for each engagement with the team. The MFR should be distributed to all meeting participants.
- As appropriate, PDTs should capture policy review input in the study/project risk register. Those items should be addressed/discussed at future meetings until the issues are resolved. Any key decisions pertaining to risk or other considerations should be documented in a MFR.

**2) Legal Review.** A representative(s) from Office of Counsel (OC) will be assigned to participate on the policy and legal compliance review team. The OC member(s) may originate from the District, MSC, and/or HQUSACE. The MSC Chief of Planning and Policy will coordinate membership and participation with the office chiefs.

- Legal review input may be captured in a MFR for a particular meeting or milestone or as a separate legal memorandum.
- OC will determine how to document legal review input provided for each study/project.

**ATTACHMENT 1: TEAM ROSTERS**

<b>PROJECT DELIVERY TEAM</b>			
<b>Name</b>	<b>Office</b>	<b>Position</b>	<b>Phone Number</b>
		Planner	
		Project Manager	
		Economist	
		Economist	
		Environmental Resources	
		Environmental Resources	
		Cultural Resources	
		Cultural Resources	
		H&H/Coastal Engineer	
		Geology	
		Geotechnical Engineering	
		HTRW	
		Cartographer	
		Cost Engineer	
		Operations/Navigation	
		Operations/Navigation	
		Dredged Material/Sediment Management	
		Counsel	
		Public Affairs Office	

<b>DISTRICT QUALITY CONTROL TEAM</b>			
Name	Office	Position	Phone Number
		DQC Lead, Biologist	
		Planner	
		Economist	
		Environmental Resources	
		Cultural Resources	
		H&H/Coastal Engineering	
		Geotechnical Engineering	
		HTRW	
		Real Estate Specialist	
		Cost Engineering	
		Operations/Navigation	
		Dredged Material/Sediment Management	
		Counsel	
		Tribal Liaison	

<b>AGENCY TECHNICAL REVIEW TEAM</b>			
Name	Office	Position	Phone Number
		ATR Lead	
		Plan Formulation	
		Economics	
		Environmental Resources	
		Cultural Resources	
		HH&C Engineer	
		Geotechnical Engineer	
		HTRW	
		Cost Engineering	
		Operations	
		Real Estate	
		Climate Preparedness and Resilience/ HH&C Reviewer	

<b>VERTICAL TEAM</b>			
<b>Name</b>	<b>Office</b>	<b>Position</b>	<b>Phone Number</b>
		District Support Planner	
		NWD Plan Formulation	
		NWD Planning, Environmental Resources & Fish Policy Chief	
		NWD Economics	
		NWD Environmental	
		NWD Navigation Program	
		NWD Engineering	
		DDNPCX Director	
		NWD RIT Deputy	
		NWD RIT Planner	
		NWD RIT Programs	

<b>POLICY REVIEW TEAM</b>			
<b>Name</b>	<b>Office</b>	<b>Position</b>	<b>Phone Number</b>
		Review Manager	
		Plan Formulation	
		Economics	
		Environmental	
		Cultural Resources	
		Hydraulics & Hydrology	
		Climate Change	
		Real Estate	
		Counsel (at NWD)	
		Navigation Program	

**ATTACHMENT 2: ACRONYMS AND ABBREVIATIONS**

<b><u>Term</u></b>	<b><u>Definition</u></b>	<b><u>Term</u></b>	<b><u>Definition</u></b>
ATR	Agency Technical Review	NWS	Seattle District
CW	Civil Works	NWSA	Northwest Seaport Alliance
DCW	Director of Civil Works	OEO	Outside Eligible Organization
DDNPCX	Deep Draft Navigation Planning Center of Expertise	OPORD	Operations Order
DMMP	Dredged Material Management Program	PCX	Planning Center of Expertise
DPM	Director's Policy Memo	PDT	Project Delivery Team
DQC	District Quality Control/Quality Assurance	PMP	Project Management Plan
EA	Environmental Assessment	PL	Public Law
EC	Engineer Circular	QMP	Quality Management Plan
EIS	Environmental Impact Statement	QA	Quality Assurance
ER	Engineer Regulation	QC	Quality Control
Home District/MSD	The District or MSD responsible for the preparation of the decision document	RMC	Risk Management Center
HQUSACE	Headquarters, U.S. Army Corps of Engineers	RMO	Review Management Organization
HTRW	Hazardous, Toxic, and Radioactive Waste	RP	Review Plan
IEPR	Independent External Peer Review	SAR	Safety Assurance Review
MCX	Mandatory Center of Expertise	TPCS	Total Project Cost Summary
MLLW	Mean Lower Low Water	TEU	Twenty foot equivalent unit
MSC	Major Subordinate Command	USACE	U.S. Army Corps of Engineers
NEPA	National Environmental Policy Act		
NWD	Northwestern Division		

# Appendix B: Decision Management Plans

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U.S. Army Corps of Engineers

Seattle District

## Tacoma Harbor, WA Decision Management Plan

*To the: Alternatives*

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### STRATEGY TO MAKE THE PLANNING DECISION

#### Event 1

Identify and screen management measures.

#### Event 2

Combine measures to identify an array of alternatives.

#### Event 3

Conduct Alternatives Milestone meeting.

### KEY STRATEGY ISSUES

NWS discussed these two events with NWD Planning before and during the 6 Sep 2018 rapid iteration meeting and the 25 Sep 2018 Planning Charrette. Initial iteration at 6 Sep 2018 rapid iteration meeting. Second planning iteration at 25 Sep 2018 planning charrette. No significant strategy issues identified.

### DECISION CRITERIA

This DMP has the following decision criteria and metrics.

#### Criteria 1:

Is the measure already being carried out by a non-Federal entity?

#### Metric 1:

Yes / No.

**Description:**

Qualitatively apply criterion.

**Methods, Models and Procedures:**

Apply criteria during 6 Sep 2018 rapid iteration meeting including PDT members from Planning, PM, Econ, H&H, Environmental, HTRW, Dredged Material Management Office, and including NWD District Support Planner and sponsor representatives. Also apply criteria during 25 Sep 2018 planning charrette including full PDT, NWD Planning, Econ, Engineering, HQUSACE RIT Planner, DDNPCX, and sponsor representatives.

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**Criteria 2:**

Does the measure meet the primary planning objective? “Achieve transportation cost savings to and from Tacoma Harbor to the extent possible.”

**Metric 2:**

Yes / No

**Description:**

Qualitatively apply criterion.

**Methods, Models and Procedures:**

Apply criteria during 6 Sep 2018 rapid iteration meeting including PDT members from Planning, PM, Econ, H&H, Environmental, HTRW, Dredged Material Management Office, and including NWD District Support Planner and sponsor representatives. Also apply criteria during 25 Sep 2018 planning charrette including full PDT, NWD Planning, Econ, Engineering, HQUSACE RIT Planner, DDNPCX, and sponsor representatives.

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**Criteria 3:**

Can the measure be designed to avoid or minimize the impacts outlined in the planning constraints?

**Metric 3:**

Yes / No

**Description:**

Qualitatively apply criterion.

**Methods, Models and Procedures:**

Apply criteria during 6 Sep 2018 rapid iteration meeting including PDT members from Planning, PM, Econ, H&H, Environmental, HTRW, Dredged Material Management Office, and including NWD District Support Planner and sponsor representatives. Also apply criteria during 25 Sep 2018 planning charrette including full PDT, NWD Planning, Econ, Engineering, HQUSACE RIT Planner, DDNPCX, and sponsor representatives.

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**Criteria 4:**

Based on site-specific conditions, is the measure technically feasible or applicable as a navigation improvement measure?

**Metric 4:**

Yes / No

**Description:**

Qualitatively apply criterion.

**Methods, Models and Procedures:**

Apply criteria during 6 Sep 2018 rapid iteration meeting including PDT members from Planning, PM, Econ, H&H, Environmental, HTRW, Dredged Material Management Office, and including NWD District Support Planner and sponsor representatives. Also apply criteria during 25 Sep 2018 planning charrette including full PDT, NWD Planning, Econ, Engineering, HQUSACE RIT Planner, DDNPCX, and sponsor representatives.

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***Metric Summary and Responsibility***

<b>Metric</b>	<b>Metric Name</b>	<b>Assigned To</b>	<b>Due By</b>
1	Yes / No.	Donald Kramer	09/25/2018
2	Yes / No	Donald Kramer	09/25/2018
3	Yes / No	Donald Kramer	09/25/2018
4	Yes / No	Donald Kramer	09/25/2018

**SCHEDULE SUMMARY**

This section specifies the timeline for making the planning decision.

<b>Event</b>	<b>Event Name</b>	<b>Due By</b>
1	Identify and screen management measures.	09/25/2018
2	Combine measures to identify an array of alternatives.	09/25/2018
3	Conduct Alternatives Milestone meeting.	11/15/2018



U.S. Army Corps of Engineers

Seattle District

## Tacoma Harbor, WA Decision Management Plan

*To the: Tentatively Selected Plan*

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### STRATEGY TO MAKE THE PLANNING DECISION

#### Event 1

Evaluate and compare alternatives to select a tentatively selected plan (TSP).

#### Event 2

Conduct TSP milestone meeting.

### KEY STRATEGY ISSUES

NOTE - THE 'BY WHEN' DATES FOR METRICS AND THE SCHEDULE SUMMARY DATES ARE NOT ACTUAL DATES- THE DATES ENTERED NOW ARE ONLY FOR THE PURPOSES OF SAVING THE DMP IN IWR APT. ACTUAL DATES WILL BE ADDED BEFORE ALTERNATIVES MILESTONE BASED ON DETAILED P2 SCHEDULE. Apply criteria during alternatives, evaluation/comparison stage of the study, following Alternatives Milestone, in order to identify a TSP. Strategy - including data needs, data collection methods and timing, and risks and uncertainties, were discussed during 6 Sep 2018 rapid iteration meeting including PDT members from Planning, PM, Econ, H&H, Environmental, HTRW, Dredged Material Management Office, and including NWD District Support Planner and sponsor representatives. Also discussed during 25 Sep 2018 planning charrette including full PDT, NWD Planning, Econ, Engineering, HQUSACE RIT Planner, DDNPCX, and sponsor representatives.

### DECISION CRITERIA

This DMP has the following decision criteria and metrics.

#### Criteria 1:

Is the alternative complete, effective, efficient, and acceptable?

**Metric 1:**

Apply four P&G criteria using Yes / No.

**Description:**

Qualitatively apply the four P&G criteria.

**Methods, Models and Procedures:**

Apply criteria during PDT meetings.

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**Criteria 2:**

What are the environmental impacts of the alternative?

**Metric 2:**

Evaluation of impacts to physical, biological, and other relevant resources.

**Description:**

Apply the criterion qualitatively and quantitatively.

**Methods, Models and Procedures:**

Development of draft NEPA documentation in the integrated draft feasibility report/NEPA document.

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**Criteria 3:**

What are the economic benefits of the alternative?

**Metric 3:**

Transportation cost savings (\$\$ value)

**Description:**

Quantitative assessment.

**Methods, Models and Procedures:**

HarborSym.

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**Criteria 4:**

What is the cost of the alternative?

**Metric 4:**

Cost (\$\$ value).

**Description:**

Quantitative assessment.

**Methods, Models and Procedures:**

MCASES cost estimate - parametric estimate.

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**Criteria 5:**

What are the net benefits of the alternative?

**Metric 5:**

Net benefits.

**Description:**

Quantitative assessment.

**Methods, Models and Procedures:**

Economic evaluation.

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**Criteria 6:**

What is the benefit-cost ratio of the alternative?

**Metric 6:**

Benefit-cost ratio (numerical ratio; e.g., 4:1).

**Description:**

Quantitative assessment.

**Methods, Models and Procedures:**

Economic evaluation.

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**Criteria 7:**

How much sediment is suitable for open water placement vs. upland vs. beneficial use?

**Metric 7:**

Quantities of sediment.

**Description:**

Quantitative assessment.

**Methods, Models and Procedures:**

Partial sediment suitability determination will provide quantities.

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**Criteria 8:**

What are the incremental costs vs. incremental benefits of the alternative?

**Metric 8:**

Numerical ratio of incremental costs and benefits.

**Description:**

Quantitative assessment.

**Methods, Models and Procedures:**

Economic evaluation.

***Metric Summary and Responsibility***

<b>Metric</b>	<b>Metric Name</b>	<b>Assigned To</b>	<b>Due By</b>
1	Apply four P&G criteria using Yes / No.	Donald Kramer	12/31/2018
2	Evaluation of impacts to physical, biological, and other relevant resources.	Kaitlin Whitlock	12/31/2018
3	Transportation cost savings (\$\$ value)	Walker Messer	12/31/2018
4	Cost (\$\$ value).	Ian Pumo	12/31/2018
5	Net benefits.	Walker Messer	12/31/2018
6	Benefit-cost ratio (numerical ratio; e.g., 4:1).	Walker Messer	12/31/2018
7	Quantities of sediment.	Kelsey Van Der Elst	12/31/2018
8	Numerical ratio of incremental costs and benefits.	Walker Messer	12/31/2018

**SCHEDULE SUMMARY**

This section specifies the timeline for making the planning decision.

<b>Event</b>	<b>Event Name</b>	<b>Due By</b>
1	Evaluate and compare alternatives to select a tentatively selected plan (TSP).	12/31/2018
2	Conduct TSP milestone meeting.	12/31/2018

# Appendix C: Detailed Scope of Work

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# Tacoma Harbor Feasibility Study

## Detailed Scope of Work

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### **Alternatives Milestone (90 Days)**

Project Development Team (PDT) will identify problems, opportunities, objectives, and constraints. PDT will also identify existing conditions and future without project conditions using available data to the extent possible. All possible management measures (e.g. deepening, widening, non-structural) to address the problems will be identified and subsequently formulated into a focused array of alternatives (Assume approximately 3-5 alternatives for each Waterway). In this milestone phase, the PDT will also identify the criteria that will be used to evaluate and compare the alternatives based on the study objectives to select a Tentatively Selected Plan (TSP). At the conclusion of this phase of work, the Vertical PDT agrees on the focused array of alternatives and the PDT's proposed path forward for continuing feasibility. The PDT should continue strategic interactions with the vertical team (including NWD, the NWD Regional Integration Team (RIT), ATR lead (if identified at this time), Deep Draft Navigation Planning Center of Expertise (DDN-PCX), and policy review lead (if identified during this time)) during in-progress reviews (IPRs) and informal communication, as needed.

### **Deliverables:**

1. Feasibility Report (FR)/National Environmental Policy Act (NEPA) Outline & Existing Conditions
  - a. Existing Conditions
  - b. Design Vessel
  - c. Focused Array of Alternatives
2. Risk Register
3. Report Summary (Plan Formulation (PF) lead)
4. Decision Log (PF)
5. Decision Management Plan (DMP) (PF)

### **Overall PDT Tasks:**

- PDT Meetings
- Focused PDT Scoping Meeting (1 day)
- Charrette (1-2 days)
- NEPA Scoping Meeting (Prep & Meeting)
- Interagency Meeting (1 day; Focused PDT to Attend)
- Determine Whether EA or EIS is Appropriate
- Initiate Sediment Characterization
- Existing and Future Without Project Conditions Analysis: H&H, Environmental, HTRW, etc.
- Site Visit
- Initial Plan Formulation Activities: Identify measures, initial array of alternatives

- SMART Planning Documents: Report Summary, Decision Log, Risk Register, Decision Management Plan (DMP)
- Project Management Plan (PMP), including Review Plan (RP)
- Prep for Alternatives Milestone Meeting
- Alternatives Milestone Meeting

### **Discipline Specific Scopes:**

- **Economics:**
  - Economics team will do enough initial data collection and analysis to help inform the design vessel(s) selection
  - Collect historical data and establish existing condition
  - Analyzing data: Commodities, vessel calls
  - Establish baseline/existing condition for economics
  - Prep for and attend charrette/kickoff workshop, including PCX designated lead economist
  - Prep for and attend NEPA scoping meeting
  - Prep for and attend Alternatives Milestone meeting, including at least one IPR with the Vertical Team
  - Prep for and attend PDT meetings
  - General coordination/meetings with Port of Seattle and Puget Sound Pilots
  - Provide input for the development of the report synopsis, decision log, Decision Management Plan (DMP), and planning risk register
  - Determine transportation cost – vessel trip analysis (existing)
  - Write initial draft economics appendix through existing conditions
  - Complete cursory existing condition and Future Without Project condition (FWOP) economics to inform Federal interest and alternatives development and screening
  - Compile existing conditions and FWOP documentation into Draft FR/NEPA
- **Environmental Coordination:**
  - Prep for and attend meetings: PDT, charrette, NEPA scoping, Alternatives Milestone
  - NEPA scoping process to determine (a) whether an EA is sufficient or if an EIS is warranted and (b) which resources will be analyzed in detail in Draft FR/NEPA
  - NEPA Work plan for whole feasibility phase; seek cooperating agency if EIS is required
  - Develop Memorandum Of Understanding with any cooperating agencies if EIS is required
  - Write Notice of Intent and submit to Federal Register if EIS is required
  - Work with PF to refine Draft FR/NEPA outline; NEPA Purpose & Need Statement
  - Establish maximum possible area of effect on environmental resources
  - Start investigating beneficial use opportunities for dredged material
  - Determine whether underwater noise study is needed
  - Write Existing Conditions description for major environmental resources of concern
  - Background research on potential major issues
  - Communications to natural resource agencies

- Meeting with natural resource agencies and Tribes to scope Draft FR/NEPA environmental analysis
- Work with PF to compile scoping comments from public (unless this is contracted)
- Letters to tribal natural resources departments to solicit initial feedback
- Present project at Semi-Annual Dredge Meeting
- Mapping of significant environmental resources
- Initiate FWCA Scope of Work and MIPR agreement with USFWS
- **Cultural Resources:** existing conditions, Section 106 consultation with SHPO and Tribes. Area of Potential Effect (APE) letters, Tribal Knowledge & Concerns letter & Letter
  - Attend PDT meetings
  - Attend Kickoff Charrette meeting (2 days)
  - Compile existing data/background research on both Blair and Sitcum waterways for existing conditions
  - Review FS/NEPA outline
  - Writing Existing Conditions Section (Deliverable)
  - Add information to Risk Register (Deliverable)
  - Prepare SHPO APE letter and Tribal Knowledge and Concerns Deliverable) **Note: This task might carry over into the tentatively selected plan**
  - ASSUMPTIONS:
    - SHPO Notification/APE documentation Letter and Tribal Notification letters will be prepared and send out at end of Alternative Milestone or beginning of TSP. **Note: This task is dependent on having enough information to inform SHPO/Tribes on what the project is.**
    - Assume Tribal Knowledge and Concerns letters will be separate from other Tribal letters.
    - Assume we only have to consult with Suquamish, Muckleshoot, Puyallup, Squaxin, Nisqually and Snoqualmie Tribes. . This information will need to be verified with Tribal Liaison.
    - Lori Morris Tribal Liaison will review the Tribal Notification letters
    - Assume existing conditions section will be reviewed during DQC
- **Hydraulics, Hydrology and Coastal (HH&C)**
  - Attend PDT meetings
  - Attend Charrette
  - Determine Design Vessel for each Waterway & Terminal
  - Develop federal navigation channel design per EC
  - Coordinate with Puget Sound Pilots to discuss existing and future operations (including required underkeel clearance)
  - Scope Feasibility Level Ship Simulation Study (FLSSS) with ERC-CHL
  - Develop dredging quantities associated with each project alternative. Both Fed NAV channel and local service facility (LSF) berthing areas
- **Geotech & Geology**
  - Attend PDT meetings
  - Prepare Site Characterization Report

- Scope soil boring field work with DMMO and HTRW for slope stability related design improvements and dredgability information
- **HTRW:**
  - Prep for and attend meetings: PDT, charrette, Alternatives Milestone
  - Review existing documents to develop without project conditions and status of Superfund activities;
  - provide NEPA scoping support, if needed
  - Provide technical support related to beneficial use, if needed
  - provide support, if needed, regarding disposal requirements
  - Coordinate with counsel to establish cost share assumptions
  - Coordinate with counsel to establish HTRW classification assumptions and issues related to Superfund
  - Coordinate with EPA regarding scope of project
  - Support scoping for future sediment characterization, if warranted
- **Cost Engineering:**
  - Attend PDT meetings
  - Attend kickoff charrette meeting
  - Attend alternative milestone meeting
  - Participate in formulation of initial array of alternatives
  - We will screen the initial array of alternatives based on qualitative parameters, so no cost products are required for the Alternatives Milestone
  - Provide input in planning risk register, report synopsis and decision log
- **Navigation:**
  - Attend PDT meetings
- **Real Estate:**
  - Attend PDT meetings
- **Dredged Material Management Office (DMMO):**
  - Attend PDT meetings
  - Develop scope and budget for advisory-level sediment characterization
  - Coordinate sediment characterization SAP, sampling, data report and results determination with the DMMP agencies
  - Provide support on disposal related issues
  - Develop estimate on fraction of dredged material suitable for in-water disposal
- **Plan Formulation:**
  - Prep for and lead Focused PDT one-day workshop
  - Prep for and attend charrette/kickoff workshop
  - Prep for and attend NEPA scoping meeting
  - Prep for and attend Alternatives Milestone meeting (AMM), including at least one IPR with the Vertical Team
  - Prepare AMM MFR and coordinate vertical team concurrence
  - Prep for and attend PDT meetings
  - General coordination/meetings with Port of Tacoma, Natural Resource Agencies, and other key stakeholder groups

- Facilitate identification/documentation of problems, opportunities, goals, objectives, and constraints
- Facilitate identification/documentation of management measures
- Facilitate screening of measures; formulation of initial array of alternatives; identification of focused array of alternatives (multiple meetings/workshops); includes documentation
- Facilitate identification of screening criteria for final array of alternatives; includes documentation
- Develop report summary, decision log, decision management plan, and planning risk register
- Work with Environmental lead and Cultural Resources lead to develop/refine Draft FR/NEPA outline
- Compile existing conditions documentation into Draft FR/NEPA
- Work with Environmental lead and Cultural Resources lead to compile scoping comments from public (unless this is contracted)
- Prepare draft RP, including coordination with PDT for input, coordination with other district, DDN-PCX, and NWD staff on review, PCX endorsement, and NWD approval.

### **Tentatively Selected Plan Milestone ( ~9 Months)**

During this phase of the feasibility study, the PDT develops conceptual designs and parametric cost estimates for the focused array of alternatives. Economic and environmental evaluations will be completed to inform selection of a final array of alternatives (approximately 1-3 alternatives per waterway) and ultimately a Tentatively Selected Plan (TSP). A DOTS Request for Ship Sim will be executed and Ship Sim will be completed during TSP, if needed. Results from Ship Sim will be incorporated into the final report. The TSP Milestone meeting ensures Vertical Team concurrence on the TSP or the Locally Preferred Plan (LPP) that will be released as part of the draft feasibility study report for public and agency review. The Draft FR/NEPA will be drafted and DQC will be completed prior to TSP milestone.

#### **Deliverables:**

1. Draft Feasibility Study & Environmental Impact Statement
2. Risk Register
3. Report Summary (PF)
4. Decision Log (PF)
5. Decision Management Plan for Agency Decision Milestone (ADM) (PF)

#### **Overall PDT Tasks:**

- PDT Meetings
- Stakeholder/Agency Outreach Meetings
- Evaluation and comparison of alternatives
- Conceptual cost estimate (Local Service Facility (LSF) provided by sponsor)
- Conceptual design

- Analyze beneficial use site opportunities, including Saltchuk
- Ship Sim preliminary evaluation by ERDC
- Economic analysis (BCR)
- Sediment Characterization Completed
- Environmental analysis (Requires completed sediment analysis)
- Select TSP
- Write Draft FR/NEPA + Appendices
- DQC of Draft FR/NEPA + Appendices (including OC review)
- Response to DQC comments; revise Draft FR/NEPA
- SMART Planning Documents: Report Summary, Decision Log, Risk Register, DMP
- Prep for TSP Milestone Meeting (multiple IPRs)
- TSP Milestone Meeting

### **Discipline Specific Scopes:**

- **Economics:** finalize data collection, set up HarborSym, develop commodity forecast and vessel call lists, model alternatives to determine net benefits and benefit-cost ratio (BCR), sensitivity analysis.
  - Analysis of without project and with project conditions
  - Determine transportation cost – vessel trip analysis (Future Without Project/Future With Project)
  - Determine FWOP and FWP commodity composition
  - Determine FWOP and FWP vessel fleet composition
  - Develop commodity inputs to HarborSym model
  - Construct HarborSym vessel call database for FWOP and FWP
  - Develop HarborSym model for FWOP and FWP
  - Initial HarborSym Model runs/model calibration
  - Conduct HarborSym model runs
  - Evaluate HarborSym model outputs
  - Estimate preliminary, deepening benefits
  - Incremental analysis for widening measures/model runs (if included as a measure)
  - Receive project costs from cost engineering, including O&M costs and calculate average annual costs
  - Compute NED benefits and BCR
  - Write initial draft economics appendix
  - Prep for and attend TSP Milestone meeting, including at least two IPRs with the Vertical Team (this task also assumes that a DDN-PCX representative will attend the TSP meeting in person with TDY travel to NWS)
  - Prep for and attend PDT meetings
  - General coordination/meetings with Port of Tacoma, pilots, and other key stakeholder groups
  - Provide economics input for screening/identification of final array of alternatives and associated documentation
  - Provide economics input to the identification and documentation of TSP

- Update report summary, decision log, decision management plan, and planning risk register
- Develop Draft FR/NEPA report sections
- DQC responses and report revisions
- **Environmental Coordination:**
  - Prep for and attend meetings: PDT, Draft FR/NEPA coordination, IPRs, TSP
  - Info gathering to include in Draft FR/NEPA – compile details into Environmental Appendix
  - Underwater noise study (if necessary)
  - Alternatives screening and trade-offs analysis
  - Continue to investigate beneficial use sites with potential for aquatic resource delineation depending on site locations (coordinate with other disciplines as necessary)
  - Decide on selected beneficial use site and analyze environmental aspects.
  - Write environmental sections of Draft FR/NEPA (special concern: underwater noise, greenhouse gas emissions analysis, duration of dredging, potential for release of contaminants to water column)
  - Draft materials for 401 water quality certification (Write CWA 404(b)(1) analysis, write Joint Aquatic Resource Permitting Application (JARPA) and supporting documents, water quality monitoring plan, area of mixing extension request; including beneficial use site(s) if applicable)
  - Draft Coastal Zone Management Act (CZMA) consistency determination
  - Initial assessment of compliance with Marine Mammal Protection Act (MMPA) requires underwater noise analysis
  - Fish & Wildlife Coordination Act report coordination with USFWS
  - Meeting with natural resource agencies to evaluate alternatives and potential mitigation options
  - Monitoring and adaptive management plan for mitigation proposal (if necessary)
  - Begin drafting Endangered Species Act (ESA) documents
  - Present project at Semi-Annual Dredge Meeting
  - Communicate initial environmental impact assessment to Tribes for feedback (staff level meeting)
  - Provide guidance to tech editor and make revisions after tech edit
  - Answer questions for Cost Estimator re: environmental/mitigation features
- **Cultural Resources:**
  - Attend PDT meetings
  - Attend any meeting with Sponsor as necessary
  - If sediment sampling and/or geological borings are necessary than an archaeologist will monitor (Note Sponsor could hire a contractor, too)
  - Attend any Tribal or SHPO meetings if a meeting is requested
  - Send out Determination and Findings letters to SHPO and Tribes letters after TSP is selected (Deliverable) Note the D&F letters should be sent once we are fairly certain of our TSP and there will be no big changes to the design or depth
  - Prepare cultural resources sections in NEPA document (Deliverable)

- Update planning risk register (Deliverable)
- DQC review to be done by other archaeologist in Branch on CR sections
- **Hydraulics, Hydrology and Coastal (HH&C)**
  - Finalize federal navigation channel design per EC
  - Finalize assumptions with Puget Sound Pilots to discuss existing and future operations (including required underkeel clearance)
  - Develop existing conditions hydraulics, sediment transport, and geomorphology write-up for Environmental Assessment. Update existing hydraulic model to assist with this effort.
  - Investigate sediment transport patterns near mouth of Puyallup River and how this may impact sedimentation at the entrance to the Sitcum Waterway.
  - Execute feasibility level ship simulation study at Engineering Research and Development Center - Coastal Hydraulics Laboratory (ERDC-CHL) or other approved facility
  - Finalize dredging quantities associated with each project alternative. Both Fed NAV channel and local service facility (LSF) berthing areas
  - Develop dredged material placement plan (i.e. beneficial reuse / open water disposal / upland disposal).
  - Evaluate historic survey data to estimate shoaling trends in each waterway. Use this information to forecast future O&M dredging demands.
  - Work with Cost engineering to develop dredging and disposal related costs and risks. Develop assumptions for dredge production and constructability. Attend Cost Risk Analysis Meeting.
  - Write HH&C Appendix
  - Lead Ship Sim DOTS request, develop quantities and disposal plan for focused array.
- **Geotech**
  - Attend PDT meetings
  - Scope soil borings field work with DMMO and HTRW for slope stability related design improvements
  - Identify where side slope improvements are required.
  - Develop conceptual designs for LSF improvements and/or side slope stability
- **HTRW:**
  - Prep for and attend meetings: PDT meetings, TSP Meeting
  - Conduct Phase 1 Environmental Site Assessment
  - Continue coordination with counsel related to cost share, HTRW classification of materials, and issues related to Superfund
  - Continue coordination with EPA
  - Provide technical support regarding beneficial use, if needed
  - Review results of sediment sampling to help inform TSP formulation.
  - Support development of planning risk register, decision management plan, etc.
  - Help draft feasibility report/environmental documentation
  - Participate in DQC (senior reviewer from ET section, comment response/resolution)
- **Cost Engineering:**

- Prep for and attend meetings: PDT, Draft FR/NEPA coordination, IPRs, TSP
- Develop cost appendix
- QC review of LSF improvement estimates provided by sponsor
- Develop 2-6 conceptual cost estimates for screening. For each estimate, include the following supporting documents:
  - Dredging cost estimates
  - Upland disposal cost estimates
  - Saltchuk beneficial reuse site estimates
  - LSF improvement estimates (by sponsor)
  - Construction schedules
  - Cost & schedule risk analyses
  - Total Project Cost Summaries (deliverable for economics)
- Continue to support development of planning risk register and decision log
- Coordinate with PDT
  - Environmental to provide mitigation features of work
  - Cultural Resources to provide potential work impacts due to finding historic structures
  - HTRW to provide recommendations on handling of HTRW materials and cost share implications
  - Coastal & Navigation to provide input on construction sequencing, production rates, crew sizing, likely contractors, and plant availability
  - DMMO to provide input on dredged material disposal options
- **Navigation:**
  - Attend PDT meetings
- **Real Estate:**
  - Attend PDT meetings
- **Dredged Material Management Office (DMMO):**
  - Prepare for and attend PDT meetings
  - Determine sampling requirements for sediment characterization
  - Develop scope and cost estimate for sediment characterization WIK
  - Provide support to Environmental, as needed, on sediment quality issues
  - Coordinate with Port of Tacoma, the Port's contractor for characterization and the DMMP agencies to complete sediment characterization
  - Provide advisory-level determination on sediment suitability for open-water disposal
  - Provide support for evaluation of suitability of dredged material for beneficial use, as needed
  - Support development of risk register
- **Plan Formulation:**
  - Prep for and attend TSP Milestone meeting, including at least two IPRs with the Vertical Team
  - Prepare TSP MFR and coordinate vertical team concurrence
  - Prep for and attend PDT meetings
  - General coordination/meetings with Port of Tacoma, Natural Resource Agencies, and other key stakeholder groups

- Provide ancillary support to conceptual design team, cost estimating, real estate, and economics lead; general coordination during design activities
- Facilitate screening/identification of final array of alternatives and associated documentation
- Facilitate and document evaluation, comparison, and trade-offs for final array of alternatives
- Facilitate identification and documentation of TSP
- Update report summary, decision log, decision management plan, and planning risk register
- Develop Draft FR/NEPA; coordinate with appropriate disciplines for development of Draft FR/NEPA appendices
- DQC and OC responses and report revisions
- General DQC, ATR, IEPR coordination

## **Agency Decision Milestone (~6 Months)**

This milestone occurs after completion of the concurrent review of the Draft FR/NEPA. Comments from public, Agency Technical Review (ATR), HQ Policy Review, and Independent External Peer Review (IEPR) of the Draft FR/NEPA will need to be responded to and resolved prior to the ADM. Revision of the Draft FR/NEPA based on concurrent review comments is not required before the ADM can occur, but can be in-progress. At this milestone the team will discuss and get concurrence from the VT on significant review comments, how they were resolved, and path forward for completion of feasibility level designs.

### **Deliverables:**

1. Concurrent Review Summary (PF)
2. Report Summary (PF)
3. Decision Log (PF)
4. Planning Risk Register
5. Decision Management Plan (PF)

### **Overall PDT Tasks:**

- PDT Meetings
- ATR Review (response to comments + report revisions)
- IEPR Review (contracting cost + response to comments + report revisions)
- NWD Review (response to comments + report revisions)
- Policy Review (response to comments + report revisions)
- Public Review (response to comments + report revisions)
- Public Meeting; 45-day public review period
- SMART Planning Documents: Report Summary, Decision Log, Risk Register, DMP
- Prep for ADM Milestone Meeting (multiple IPRs)
- ADM Milestone Meeting

### **Discipline Specific Scopes:**

- **Economics:**
  - Regional Economic Development (RED) Analysis
  - Risk and Uncertainty: Develop HarborSym vessel call database for risk & uncertainty scenarios
    - Run HarborSym for risk/uncertainty scenarios
    - Evaluate HarborSym outputs of risk/uncertainty scenarios
    - Compute NED benefits
    - Calculate BCR for risk/uncertainty scenarios
    - Complete NED benefit analysis
  - Widening analysis of the depth which reasonably maximized net benefits (if widening is included)
  - Multiport analysis
  - Prep for and attend ADM Milestone meeting, including one IPR with the Vertical Team
  - Prep for and attend PDT meetings

- General coordination/meetings with Port of Tacoma, Natural Resource Agencies, Puget Sound Pilots, and other key stakeholder groups
- Prep for and attend public meeting
- Update report summary, decision log, decision management plan, and planning risk register
- Develop report summary abstract, concurrent review summary, and planning risk register summary
- Respond to ATR comments + report revisions (ATR for economics may include two economic reviewers – one for the HarborSym model, and one for the report)
- Respond to IEPR comments + report revisions
- Respond to NWD comments + report revisions
- Respond to HQ comments + report revisions
- Respond to public comments + report revisions
- **Environmental Coordination:**
  - Prep for and attend meetings: PDT, concurrent review meetings, Public Meeting, IPRs, ADM
  - Coordinate court reporter for public meeting.
  - Continue writing Biological Assessment and begin ESA consultation
  - Submit materials to Ecology for 401 certification and CZM concurrence
  - Mitigation design; refine the Monitoring and Adaptive Management Plan (if necessary)
  - Coordination with Tribes on any fisheries issues
  - Present project at Semi-Annual Dredge Meeting
  - Coordinate for Final CAR from USFWS
  - Responses and revisions to document per concurrent reviews
- **Cultural Resources:**
  - Attend PDT meetings
  - Response to DQC/ATR/IEPR/NWW/Public Review Comments and revise CR sections as necessary
  - Update Risk Register
  - Attend Public Scoping Meeting
  - Respond to ATR comments + report revisions (if any)
  - Respond to IEPR comments + report revisions (if any)
  - Respond to NWD comments + report revisions (if any)
  - Respond to HQ comments + report revisions (if any)
  - Respond to public comments + report revisions (if any)
  -
- **HTRW:**
  - Coordination with counsel on remaining issues related to cost share, HTRW classification, and Superfund
  - Coordination with EPA
  - Prep for and attend public meeting
  - Update report summary, decision log, decision management plan, and planning risk register

- Develop report summary abstract, concurrent review summary, and planning risk register summary
- Respond to ATR comments + report revisions
- Respond to IEPR comments + report revisions
- Respond to NWD comments + report revisions
- Respond to HQ comments + report revisions
- **Hydraulics, Hydrology, and Coastal (HH&C)**
  - Prep for and attend meetings: PDT, concurrent review meetings, Public Meeting, IPRs, ADM
  - respond to concurrent reviews & update report
  - Respond to DQC, ATR, IEPR comments and revise report/Engineering Appendix
  - Respond to public comments + report revisions
- **Geotech**
  - Prep for and attend meetings: PDT, concurrent review meetings, Public Meeting, IPRs, ADM
  - Respond to DQC, ATR, IEPR comments and revise report/Engineering Appendix
  - Respond to public comments + report revisions
- **Cost Engineering:**
  - Prep for and attend meetings: PDT, Draft FR/NEPA coordination, IPRs, TSP
  - Develop cost appendix
  - Prep for and attend meetings: PDT, concurrent reviews, Public Meeting, IPR, ADM
  - Respond to DQC/ATR/IEPR/NWW/Public Review Comments
  - Update cost appendix
  - QC Review of updated LSF improvement estimates provided by sponsor
  - Update 2-6 conceptual cost estimates for NED analysis. For each estimate, include the following supporting documents:
    - Dredging cost estimates
    - Upland disposal cost estimates
    - Saltchuk beneficial reuse site estimates
    - LSF improvement estimates (by sponsor)
    - Construction schedules
    - Cost & schedule risk analyses
    - Total Project Cost Summaries (deliverable for economics)
  - Support plan form's development of planning risk register and decision log
  - Support econ's analysis of NED
- **Navigation:**
  - Attend PDT meetings
- **Real Estate:**
  - Attend PDT meetings
- **Dredged Material Management Office (DMMO):**
  - Prep for and attend meetings: PDT, concurrent review meetings, Public Meeting, IPRs, ADM
  - Respond to DQC, ATR, IEPR comments and revise report/DMMP suitability determination Appendix

- Respond to public comments + report revisions
- 
- **Plan Formulation:**
  - Prep for and attend ADM meeting, including one IPR with the Vertical Team
  - Prep for and attend PDT meetings
  - General coordination/meetings with Port of Tacoma, Natural Resource Agencies, and other key stakeholder groups
  - Prep for and attend public meeting
  - Update report summary, decision log, decision management plan, and planning risk register
  - Develop report summary abstract, concurrent review summary, and planning risk register summary
  - Respond to ATR comments + report revisions
  - Respond to IEPR comments + report revisions
    - Include time for IEPR contract coordination with DDN-PCX
  - Respond to policy and legal review comments + report revisions
  - Respond to public comments + report revisions
  - Prepare ADM MFR and coordinate vertical team concurrence

## **Final Report Milestone / DCG-CEO Briefing (Civil Works Review Board)**

PDT completes the feasibility (35%) level design and finalizes the FR/NEPA. DQC and ATR review will take place and the PDT will update the FR/NEPA based on comments. The DCG-CEO Briefing (previously Civil Works Review Board) is the corporate checkpoint to determine if the final feasibility study report and NEPA document, and the proposed Report of the Chief of Engineers, are ready to be released for State and Agency review, as required by the Flood Control Act of 1944, as amended (33 U.S.C. 701-1).

### **Deliverables:**

1. Final Feasibility Study & Environmental Impact Statement
2. Draft Record of Decision (ECRB)
3. Draft Biological Assessment (ECRB)
4. Report Summary (PF)
5. Decision Log (PF)
6. Risk Register
7. Decision Management Plan (PF)

### **Overall PDT Tasks:**

- PDT Meetings
- Stakeholder/Agency Outreach Meetings
- Feasibility-level design
- Feasibility-level cost estimate (LSF estimates by sponsor)

- Feasibility-level real estate
- Update Final FR/NEPA + comment response + report revisions
- DQC of Final FR/NEPA + comment response + report revisions
- ATR of Final FR/NEPA + comment response + report revisions
- Prep for DCG-CEO Briefing
- DCG-CEO Briefing

## **Discipline Specific Scopes:**

- **Economics:**
  - Prep for the DCG-CEO Meeting, including at least two IPRs with the Vertical Team
  - Prep for and attend PDT meetings
  - General coordination/meetings with Port of Tacoma, Natural Resource Agencies, and other key stakeholder groups
  - Update Final FR/NEPA + Economic Appendix
  - DQC responses and report revisions
  - ATR responses and report revisions
- **Environmental Coordination:**
  - Finalize FR/NEPA per all review comments
  - Draft Record of Decision or Finding of No Significant Impact (FONSI)
  - Complete ESA consultation
  - Finalize mitigation plans
  - Present project at Semi-Annual Dredge Meeting
  - Coordinate receiving all necessary compliance documents (401, BiOp, CZMA, FWCA CAR, etc.)
- **Cultural Resources:**
  - Attend PDT meetings
  - Responses to any outstanding comments for Cultural resources
- **Assumptions:**
  - No meetings with the SHPO
  - No meetings with Tribes (either Government to Government or staff to staff)
- **HTRW:**
  - Prep for and attend CWRB, including at least two IPRs with the Vertical Team
  - Prep for and attend PDT meetings
  - Coordination with Counsel on any outstanding HTRW/Superfund issues
  - Coordination with EPA
  - Update Final FR/NEPA + Phase I Environmental Site Assessment Appendix
  - Update planning risk register
  - DQC responses and report revisions
  - ATR responses and report revisions
- **Cost Engineering:**
  - Prep for and attend meetings: PDT, CWRB, IPRs
  - Respond to DQC and ATR comments
  - Develop cost appendix
  - QC review of LSF improvement estimates provided by sponsor

- Develop feasibility level estimate for recommended plan, including supporting docs:
  - Dredging cost estimates
  - Upland disposal cost estimates (if required)
  - Saltchuk beneficial reuse estimates (if required)
  - LSF improvement estimates (by sponsor)
  - Construction schedule
  - Cost & schedule risk analysis
  - Total project cost summary (deliverable for economics)
- Continue to coordinate with PDT, similar to previous deliverables.
- **Hydraulics, Hydrology, and Coastal (HH&C):** finalize report based on concurrent review
- **Navigation:**
  - Attend PDT meetings
- **Real Estate:**
  - Attend PDT meetings
- **Dredged Material Management Office (DMMO):**
  - Attend PDT meetings
  - Update planning risk register
  - Support presentation at Semi-Annual dredge meeting, as needed
- **Plan Formulation:**
  - Prep for and attend DCG-CEO Briefing, including at least two IPRs with the Vertical Team
  - Prepare DCG-CEO Briefing MFR and coordinate vertical team concurrence
  - Prep for and attend PDT meetings
  - General coordination/meetings with Port of Tacoma, Natural Resource Agencies, and other key stakeholder groups
  - Provide ancillary support to design team, cost estimating, and real estate; general coordination during design activities
  - Update Final FR/NEPA + Appendices
  - ATR responses and report revisions, if necessary for Plan Form (otherwise, general coordination with ATR team)
  - Coordinate final routing, DPM/DE review of Final FR/NEPA package
  - Coordinate transmittal of Final FR/NEPA package to NWD
  - Development of DCG-CEO Briefing documentation package (items TBD)
  - Travel time + cost for DCG-CEO Briefing

## Chief's Report Milestone

After the final feasibility study report is submitted to HQUSACE, a Chief's Report is developed and staffed through the appropriate HQUSACE offices. Once the Chief of Engineers signs the report signifying approval of the project recommendation, the Chief of Staff signs the notification letters forwarding the Report of the Chief of Engineers (Chief's Report) to the chairpersons of the Senate Committee on Environment and Public Works, and the House of Representatives Committee on Transportation and Infrastructure. The signed Chief's Report is then returned to

the Regional Integration Team (RIT), which prepares the final package for the Office of the Assistant Secretary of the Army for Civil Works (OASA (CW)).

**Deliverables:**

1. Chief's Report

**Overall PDT Tasks:**

- State & Agency Review
- Develop Chief's Report Package
- HQ/ASA(CW) Coordination

**Discipline Specific Scopes:**

- **Project Management & Plan Formulation**
  - General coordination with NWD/HQ/ASA(CW)
  - General State & Agency Review coordination
  - Input/review of Chief's Report and other final documentation
- **Economics**
  - Final cost share, BCR and net benefit information for Chief's Report and coordination with NWD/HQ/ASA(CW), if needed
- **Environmental**
  - Coordination with reviewing agencies for state and agency review
  - Assist PF with final package assembly
- **HTRW**
  - Coordination with EPA regarding state and agency review
  - Coordination with counsel for any outstanding HTRW issues
- **Cost Engineering**
  - Support economics (assume 1-2 days)
  - Review and revise FR/NEPA