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.

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, if you have further questions regarding this matter.

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

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

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

REPLY TO
ATTENTION OF

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.

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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

Action	Date - Actual
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.

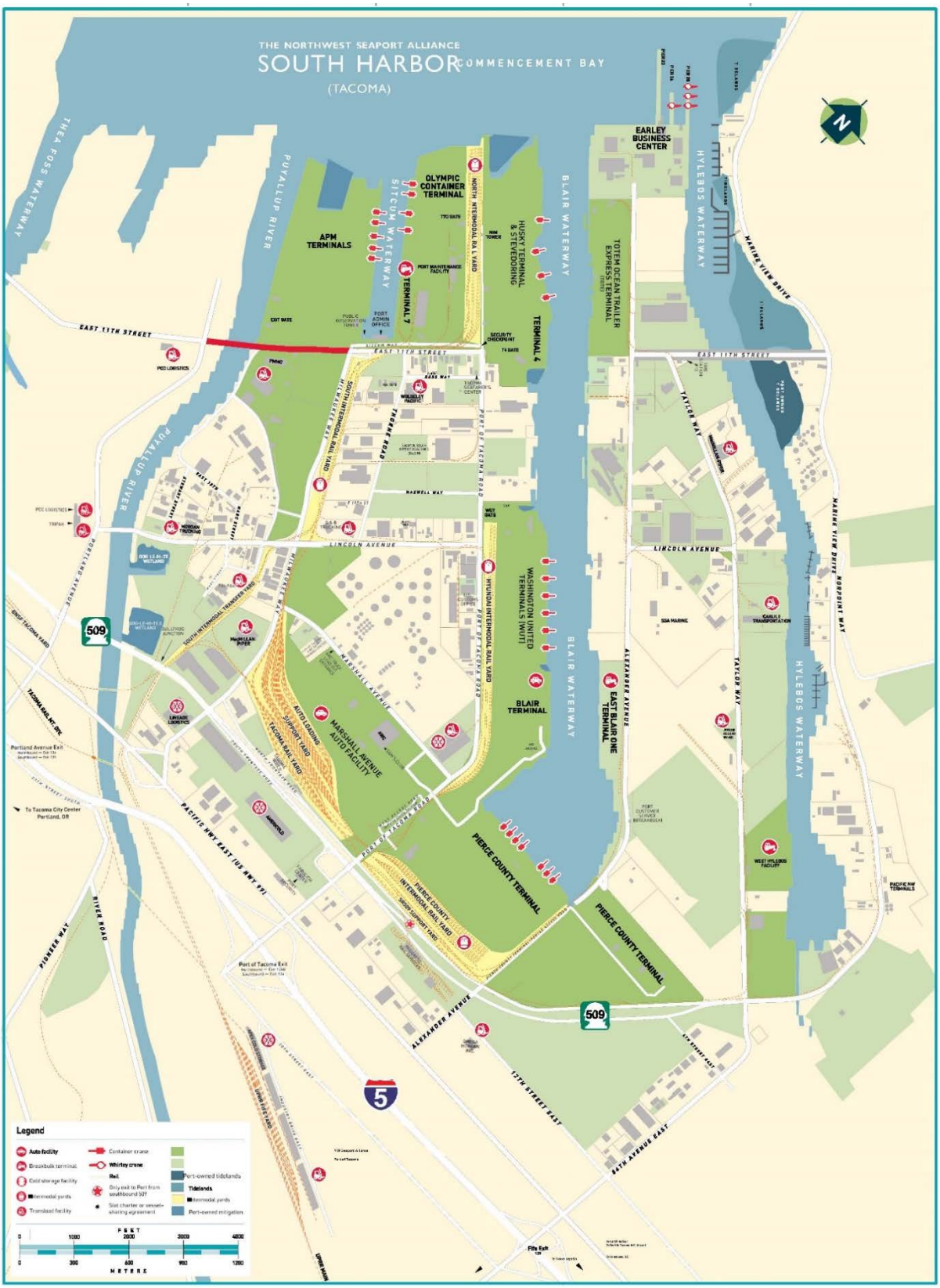

Figure 1. Study Area (Source: Northwest Seaport Alliance)

- 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 Assessement (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 [1]	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[2]	No
	Agency Technical Review	Oct 2019	Dec 2019	$57,000[3]	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[3]	No
	Policy and Legal Review	Dec 2020	Feb 2021	n/a	No

[1]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.

[2] 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.

[3] 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

[3] 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.).

DQC Team Disciplines	Expertise Required
Plan Formulation	A senior water resources planner with experience in formulation, evaluation, and selection of alternatives for deep draft navigation.
Economics[1]	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.

[1]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 though a deep draft navigation channel improvement study and analysis of dredged material placement requirements.

ATR Team Disciplines	Expertise Required
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

Model Name and Version	Brief Model Description and How It Will Be Used in the Study	Certification / Approval
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 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

Model Name and Version	Brief Model Description and How It Will Be Used in the Study	Model Certification / Acceptance Status
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	Delft 3D is a multi-dimensional suite of hydrodynamic, sediment transport, and morphologic modules for estuarine and coastal environments. 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.	Allowed
Adaptive Hydraulic Modeling (ADH)	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.	Allowed
STWAVE – Steady State spectral WAVE	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.	CoP Preferred
ERDC Ship/Tow Simulator	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.	Allowed

Model Name and Version	Brief Model Description and How It Will Be Used in the Study	Model Certification / Acceptance Status
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

PROJECT DELIVERY TEAM			
Name	Office	Position	Phone Number
		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	

DISTRICT QUALITY CONTROL TEAM			
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	

AGENCY TECHNICAL REVIEW TEAM			
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	

VERTICAL TEAM			
Name	Office	Position	Phone Number
		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	

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

ATTACHMENT 2: ACRONYMS AND ABBREVIATIONS

Term	Definition	Term	Definition
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/MSC	The District or MSC 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		