REVIEW PLAN

Auke Bay Navigation Improvements Study

Section 204 of the Flood Control Act of 1948, Public Law 80-858

Integrated Feasibility Report and Environmental Assessment

Auke Bay, Alaska

Alaska District

MSC Approval Date: 09 June 2025

Last Revision Date: None

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US Army Corps
of Engineers ®

Auke Bay Navigation Improvements Review Plan

June 2025

1. Overview

- **Study Name**: Auke Bay Navigation Improvements Study
- **Location**: Auke Bay, Juneau, Alaska
- P2 Number: 466106
- **Decision Document Type**: Integrated Feasibility Report and Environmental Assessment (EA)
- Congressional Approval Required: Yes
- **Project Purpose**: Project for Juneau and Auke Bay, Floating Wave Attenuator, Alaska, authorized pursuant to section 204 of the Flood Control Act of 1948 (62 Stat. 1181).
- **Non-Federal Sponsor:** City and Borough of Juneau, Alaska.

2. Points of Public Contact for Questions/Comments on Review Plan:

District: Alaska District (POA)
District Contact: POA Project Manager, 907-753-2539

Major Subordinate Command (MSC): Pacific Ocean Division (POD)
MSC Contact: POD Planning and Policy Chief, 808-835-4625

Review Management Organization (RMO): Deep Draft Navigation Planning Center of Expertise (DDNPCX)
RMO Contact: DDNPCX Review Manager, 251-694-3842

3. Key Review Plan Dates

Date of RMO Endorsement of Review Plan	*30 May 2025*
Date of MSC Approval of Review Plan	*Pending*
Date of Independent External Peer Review Exclusion Approval	*N/A*
Has the Review Plan changed since RMO Endorsement?	*N/A*
Date of Last Review Plan Revision	*N/A*
Date of Review Plan Web Posting	

4. Milestone Schedule and Other Dates

Action	Scheduled	Actual	Status – Complete?
Feasibility Cost Share Agreement Signed	09/03/2024	09/03/2024	*YES*
Alternatives Milestone	12/12/2024	12/12/2024	*YES*
Tentatively Selected Plan (TSP)	10/22/2026		
Release Draft Report to Public	12/21/2026		
Agency Decision Milestone	09/03/2027		
Final Report Transmittal	11/03/2027		
Chief's Report	03/03/2028		

5. Background

5.1 References

Engineer Regulation (ER) 1165-2-217 – Water Resources Policies and Authorities – Civil Works Review Policy, 2 September 2024

Engineer Circular 1105-2-412 – Planning – Assuring Quality of Planning Models, 31 March 2011

Planning Bulletin 2013-02, Subject: Assuring Quality of Planning Models (EC 1105-2-412), 31 March 2013

Office of Management and Budget, Final Information Quality Bulletin for Peer Review, Federal Register Vol. 70, No. 10, January 14, 2005, pp 2664-267

The online USACE Planning Community Toolbox provides more review reference information at:
https://planning.erdc.dren.mil/toolbox/current.cfm?Title=Peer%20Review&ThisPage=Peer&Side=No

POD Civil Works Quality Management Plan, November 2022

Auke Bay Navigation Improvements Feasibility Study, Project Management Plan, January 2025

5.2 Authority

This project is authorized by Section 204 of the Flood Control Act of 1948, Public Law 80-858, as amended.

"The Secretary of the Army is hereby authorized and directed to cause preliminary examinations and surveys for flood controls and allied purposes ... to be made under the direction of the Chief of Engineers, in drainage areas of the United States and

Territorial possessions, which include the following named localities: ... Harbors and Rivers in Alaska, with a view to determining the advisability of improvements in the interest of navigation, flood control, hydroelectric power, and related water uses."

Additionally, the Water Resources Development Act (WRDA) of 2022 included:

SEC. 8397. EXPEDITED COMPLETION OF PROJECTS AND STUDIES.
(a) AUTHORIZED PROJECTS AND STUDIES.—The Secretary shall, to the maximum extent practicable, expedite completion of the following projects and studies:

(1) PROJECTS.—
(A) Project for Juneau and Auke Bay, Floating Wave Attenuator, Alaska, authorized pursuant to section 204 of the Flood Control Act of 1948 (62 Stat. 1181).

5.3 Sponsor

The non-federal sponsor (NFS) is the City and Borough of Juneau, Alaska. The original Letter of Intent (LOI) received from the NFS is dated 11 May 2017.

5.4 Study Area

Auke Bay is located approximately 12 miles west of downtown Juneau, AK (Figure 1). Statter Harbor is a City owned, operated, and maintained moorage facility within Auke Bay. Statter Harbor is located south of Glacier Highway, near the highway's intersection with the Mendenhall Loop Road. A floating breakwater that is owned and maintained by the City of Juneau provides partial protection to the public moorage within Statter Harbor along with partial protection for one private marine, Fisherman's Bend Marina (Figure 2). Statter Harbor includes transient and permanent moorage within the naturally deep water immediately north of the floating breakwater. The float system is connected to shore, where there is a public boat launch ramp and parking area. Fisherman's Bend is located north of the breakwater's west entrance. Within Auke Bay, there are also several private residential docks, piers, and floats, private commercial deep-water docks, and a state ferry terminal.

5.5 Problem Statement

Auke Bay is home to several marine facilities operated by the City and Bureau of Juneau and is experiencing navigational inefficiencies. The navigational inefficiencies in Auke Bay stem from overcrowding, unmet moorage demand, transient moorage and rafting of vessels. In addition, the system is experiencing excessive wear to moorage facilities and damage to vessels.

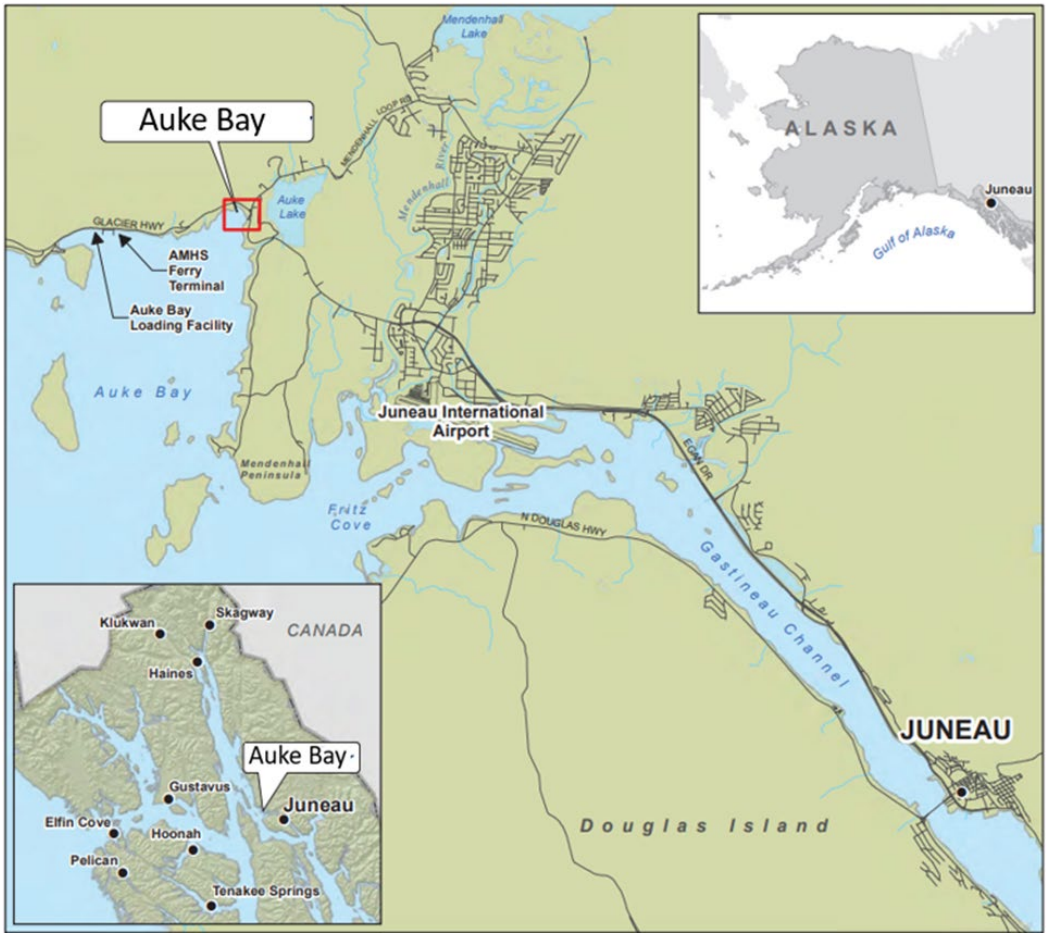

Figure 1. Location of Auke Bay, Alaska

5.6 Study Opportunities

- Improve efficiencies of vessel operations.
- Foster future marine partnerships.
- Improve water quality and other natural features.
- Reduce vessel damages in moorage areas.
- Improve long-term community resilience for rural, marine dependent users.
- Alleviate unmet moorage demand.
- Enhance recreation experience.

5.7 Study Goals and Objectives

- Reduce transportation and delay costs to harbor users
- Improve economic conditions for region
- Reduce damages to vessels and harbor infrastructure

5.8 Study Constraints

Any enacted solution will avoid or minimize the following constraints:

- Avoid or mitigate for any impacts to historic and cultural resources.
- Avoid or mitigate for any impacts to environmental resources.

Study-specific considerations identified during the charrette included:

- Limited ability to expand existing upland facilities due to natural geography, real estate availability, and excessive costs

5.9 Planning Considerations

- Plans should consider the whole navigation system within Auke Bay to avoid negative impacts to other facilities.

5.10 Management Measures and Screening

5.10.1 Harbor Locations

Potential harbor locations in or near Auke Bay were identified during the charrette. Five potential harbor locations, labeled A through E, are shown in Figure 2.

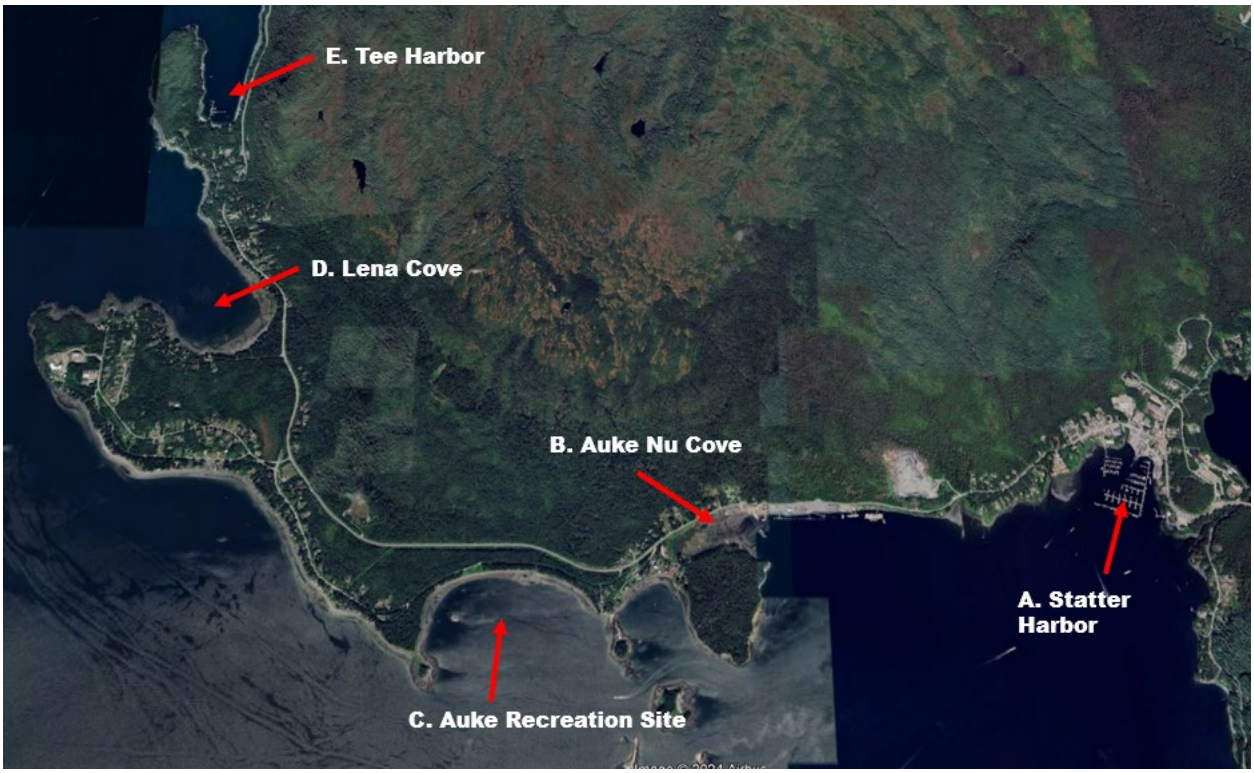

Figure 2. Potential Harbor Locations.

This initial array of locations was screened by the project delivery team (PDT). Two locations, Tee Harbor and Lena Cove, are located outside Auke Bay. Tee Harbor has

an existing private marina and limited access and parking, and Lena Cove is within the Tongass National Forest with a similar lack of infrastructure. Two sites within Auke Bay, Auke Recreation site and Auke Nu Cove, were screened as well. Auke Recreation site is located within US Forest Service Land, and Auke Nu Cove has a conservation easement restricting development. Both Auke Recreation and Auke Nu Cove are important recreational areas and heavily used as natural parks. This screening process resulted in one location within Auke Bay, Statter Harbor, as a potentially suitable location. Screening criteria is summarized in Table 1.

Table 1. Auke Bay Location Screening Summary.

Project Locations		Carried Forward (Yes/No)	Screening Comments
A	Statter Harbor	Yes	• Existing infrastructure • Owned, operated, and maintained by the non-Federal Sponsor
B	Auke Nu Cove	No	• No existing marine infrastructure/facilities. • Special Aquatic Sites (i.e., eelgrass) present. • Dredging would be required due to shallow depth. • Disposal of dredged materials. • Development not possible due to conservation easement restrictions for 31.96 acres at Auke Nu cove (Corps Permit No. POA-2005-2019-2).
C	Auke Recreation	No	• US Forest Service Land • Extensive public use of park • Important cultural resource
D	Lena Cove	No	• Uplands within Tongass National Forest • Extensive public use of Lena Beach Picnic Site • Eelgrass and extensive tidelands • No roads or infrastructure • Not within Auke Bay
E	Tee Harbor	No	• Existing harbor and tidelands lease • No public property • No roads or infrastructure • Not within Auke Bay

5.10.2 Management Measures and Alternative Plans

A variety of measures were identified during the 3-day charrette. Structural measures considered potentially applicable were carried forward for Auke Bay (Table 2), with the exclusion of the rubble mound breakwater and dredging, as the identified location is over 120’ deep. As the study progresses, additional measures could be identified, and others could be screened out.

Table 2. Structural measures and initial screening

Measures	Carried Forward (Yes/No)
GNF – Structural	
Rubble mound breakwater	No
Floating breakwater	Yes
Floating vertical wave barrier	Yes
Dredging	No
Turning basin	No
Entrance channel	No
LSF- Structural	
Road	No
Harbor support facilities	Yes
Docks	Yes
Moorage basin	Yes
Float system	Yes
Uplands	No

Non-structural measures identified during the charrette have been initially screened with one not carried forward (Table 3), as meteorological equipment is currently available.

Table 3. Non-structural measures and initial screening

Non-Structural Measures	Carried Forward (Yes/No)	Screening Comments
Meteorological equipment	No	Already locally available
Aids to Navigation	Yes	Coast Guard responsibility
Reconfigure floats	No	Space is currently maximized
ADA Compliance	Yes	Statter Harbor is currently compliant, any alterations will need to be compliant
Procedural control for harbor accessibility/limitation	Yes	Necessary for any alternative
Mariculture	Yes	An opportunity for Auke Bay marine partnerships
Expand "No Wake Zone"	Yes	US Coast Guard expand no wake zone to all of Auke Bay – will depend on vessel safety

6. Future Without Project Conditions (FWOP)

The Future Without Project condition is the No Action Alternative. The anticipated Future Without Project Conditions are a compounding of the problems the harbor is currently experiencing.

- Inefficiencies and delays experienced by harbor users are expected to continue in Auke Bay. This includes costs such as above-normal damages to vessels and

infrastructure, avoidable travel, opportunity cost of time, and uncaptured subsistence and recreation benefits.

- Inefficiencies and delays driven by harbor congestion and over-crowding within Auke Bay that are expected to continue. This is supported by the number of boats waitlisted by the harbor: there are currently 124 vessels waitlisted for reserve slips, with a wait time of 10 years reported.
- Harbor infrastructure within Auke Bay is expected to continue to deteriorate, resulting in continued high maintenance and repair costs and/ or reduced protection for vessels in the harbor.

7. Initial Array of Alternatives.

The Statter Harbor location carried forward would allow alternatives based on combinations of major plan components. Alternatives address multiple measures identified as potential solutions to navigational inefficiencies in Auke Bay and Statter Harbor. These measures are intended to allow the maximum flexibility in potential harbor design.

No Action Alternative: No Action alternative assumes no Federal action. There would be no change from the operations, maintenance and configuration of Statter Harbor.

Alternative 1: Expand No Wake, include Mariculture Framework.
Alternative 1 includes non-structural measures of expanding the current no-wake zone to lessen wake and incorporating floating mariculture offshore of the existing floating breakwater. For this alternative, mariculture would include the cultivation of kelp from suspended systems.

Alternative 2: Floating Breakwater. Alternative 2 includes either an anchored or pile supported floating breakwater that will maintain the existing capacity of the moorage basin.

Alternative 3: Expanded Basin with Floating Breakwater.
Alternative 3 expands the existing basin to allow increased moorage on an expanded float system or anchoring area with either an anchored or pile supported floating breakwater.

Alternative 4: Floating Vertical Wave Barrier. Alternative 4 includes a pile supported floating vertical wave barrier that will maintain the existing capacity of the moorage basin.

Alternative 5: Expanded Basin with Vertical Wave Barrier, Increased Wake Protection: Alternative 5 expands the existing basin to allow increased moorage with an expanded float system or anchoring area with a pile supported floating vertical wave barrier.

Comparison of Alternatives. At this time only a qualitative analysis of alternatives has been considered, based on the parameters described in the Federal Interest section below. It is anticipated that Alternative 1 would have a considerably lower cost, but less benefits. Alternative 2 through Alternative 5 incorporates either a floating wave breakwater or vertical wave barrier and are likely to have more benefits, but a higher cost. Alternatives 3 and 5 expand the basin, increasing benefits. The difference in cost in using an anchored chain or pile supports for the floating structure is not yet known. All alternatives are carried forward. At this time, it is anticipated that most alternatives will result in positive net benefits and be National Economic Development (NED) justified.

8. Federal Interest:

Federal interest in navigation was established by the Commerce Clause of the Constitution and subsequent court decisions. The navigation mission is accomplished through a combination of capital improvement projects and operation and maintenance of existing harbor and waterway projects. Capital improvement activities include the planning, design, and construction of new navigation projects or the modification of existing projects. Capital improvements, and operation and maintenance activities are performed for the navigation of shallow and deep-draft vessels using the Nation's harbors and waterways. Small boat harbors are typically shallow draft facilities with depths equal to or shallower than -14 feet mean lower low water (MLLW). Small boat harbors are multiuse harbors serving a wide variety of vessel types, such as commercial fishing, subsistence, recreation, and government and research vessels.

This feasibility study is being conducted under authority granted by Section 204 of the Flood Control Act of 1948, Public Law 80-858, as amended, to examine the advisability of navigational improvement. In addition, the study is pursued under Sec. 8397 of WRDA 2022 which directs the Secretary of the Army (CW) to expedite the study for Juneau and Auke Bay, Floating Wave Attenuator, Alaska .

9. Dredged Material Management Plan

No dredging will be associated with this project.

10. Risk Identification

Conditions now or in the future are not expected to impose a significant threat to human life or the environment. Potential study risks presented below could impact study schedule and / or costs.

11. Factors Affecting The Scope And Level Of Review

A. **Is it likely that part(s) of the study will be challenging (ER 1165-2-217, paragraph 3.6.1)**? The project study does not have any significant technical, institutional, or social challenges. The study consists of evaluation of a range of wave

attenuation alternatives to reduce transportation and delay costs to harbor users, improve economic conditions for region, and reduce damages to vessels and harbor infrastructure. Since Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA) species will likely be present in the project area (Auke Bay), and pile driving would be necessary for some alternatives, formal consultation for Incidental Take Authorization (ITA) either as an Incidental Harassment Authorization (IHA) or a Letter of Authorization (LOA) could be needed, depending on the alternative selected. Collecting the data necessary for this consultation could delay the study; however, the information needed to make a decision on an IHA/LOA is not available at this stage of project development.

B. **Provide a preliminary assessment of where the project risks are likely to occur and assess the magnitude of those risks (ER 1165-2-217, paragraph 3.6.1/3.6.2.2).**

- ESA/MMPA Policy Compliance - An Incidental Take Authorization (ITA) from NMFS/USFWS will likely be required due to potential piledriving activities, and the details required to submit a complete ITA application/request will not be available until the Preconstruction, Engineering, and Design (PED) phase. The PDT is planning to request an ESA/MMPA Policy Waiver to extend ESA/MMPA compliance into PED. POA has had success obtaining 4 similar waivers on other projects. Failure to obtain ESA/MMPA policy waiver will lead to cost and schedule impacts in PED. (Medium Risk)

- Sponsor Collected Wave Data – The wave models that are required for the design of the project require validation by real data. The sponsor is deploying a spotter Buoy to collect wave data that will be used to validate wave models to be used in the study analysis. There is a risk that the sponsor is unable to retrieve/collect the data. (Low Risk)

- Delay of Physical Modeling until after TSP – Any final recommended design will require physical modeling to verify the wave transmission coefficient, forces on the floating structure, and mooring forces on the anchor chain, piles, and/or tension cables. Delaying the physical modeling until after TSP saves time and money by reducing the number of alternative designs being evaluated with the physical model. To evaluate the engineering effectiveness of the alternatives, a computational fluid dynamics (CFD) model will be used to establish preliminary wave transmission coefficients and forces for design and the physical model will be used to optimize the TSP. It is more efficient to combine establishing the wave transmission coefficient with the computational fluid dynamics model and physical modeling. The Coastal Hydraulics Lab (CHL) is providing the CFD team. ERDC is building the scaled structures to be tested, and the Oregon State University wave flume tank will be used for the physical model. (Low Risk).

- Limited Engineering Guidance - Project is complex and will have a unique structural design. To date the PDT has been unable to locate any current USACE

engineering manuals that will cover the likely alternatives. POA has established a team from across the USACE enterprise to analyze and develop criteria for a wave attenuator in this location. Additionally, there are existing USACE projects that the design can be leveraged to establish applicability of the design, research papers that discuss floating wave attenuator design, and ASCE guidance on how to approach the design of these unique types of structures. (Medium Risk)

- Establish Wave Transmission Coefficient - Establishing the wave transmission coefficient will require specialized support/expertise outside of the District. The team will be depending on ERDC to help develop and verify this critical piece of information. Some of the ERDC team members have never worked on Civil Works reimbursable projects. To mitigate this risk, POA will hold monthly check-in calls with ERDC to ensure modeling is progressing as needed to maintain schedule and will have in-person meetings at critical decision points and to review the final output. (Medium Risk)

- Fisherman's Bend – The owners of Fisherman's Bend Harbor, a privately owned harbor partially protected by the Statter Harbor Breakwater and within the area of analysis, have not responded to any inquiries from the Sponsor or District. The study may not be able to gain any economic data related to the facility even though it is within the area of analysis. The harbor facility is poorly maintained and may not be usable over the entire 50-year period of analysis. Due to the high value of moorage in the area it is likely that the facility owner will either repair or sell the facility rather than allowing it to become defunct. All available data at this point is showing that most of the vessel traffic goes through Statter Harbor. Therefore, data from Statter harbor will reflect most of the economic activity in the area. (Low Risk)

- Pile Supports – Incorporating pile supports into any design would require pile installation greater than 120' in unknown soil conditions. Pile driving requires expensive site investigation to determine driving conditions. This risk is rated Medium; however, the POA Geotechnical team reviewed the performance of pile supported structures constructed around Juneau to assess constructability risk and found that pile-supported wave attenuators are a viable option for this study. (Medium Risk)

- Delayed Geophysical Investigation – Delaying any geophysical data collection until PED would lead to data gaps/poor understanding of the sub-bottom geology and would eliminate the ability to consider pile supported alternatives. The PDT recommendation includes geotechnical investigation during feasibility, funded as work in kind (WIK) by the Sponsor. The Geotechnical investigation will be funded by the Sponsor as WIK; however, POA will be performing all soil identification and sampling. Geotechnical data collection during feasibility phase will allow pile design to be included as an alternative measure in the study. Having the sponsor perform this work creates schedule efficiencies. There is no indication that geophysical investigation will significantly change design conditions. (High

Risk)

- Cultural Resources - Impacts to known and unknown cultural resources could require additional stakeholder coordination and consultation, extending the project timeline. The uplands around Statter Harbor contain 21 previously documented cultural sites, three of which have been determined eligible for listing on the National Register of Historic Places (NRHP). Most (17) sites in the area have already been declared or recommended ineligible for the NRHP and will not require mitigation. Additionally, the area contains a previously undocumented petroglyph site, two shipwrecks, and facilities at the NOAA-NMFS research complex that have not yet been evaluated for their eligibility to the NRHP. Mitigation under the National Historic Preservation Act (NHPA) may be required if the project impacts these sites. This risk is primarily related to impacting culturally sensitive areas during construction. The team will mitigate this risk by conducting a survey to identify and delineate cultural sites in the area and communicate these locations during plan development. Should impacts be unavoidable, the budget estimate includes funding to apply standard Section 106 NHPA processes. (Low Risk)

- Real Estate – Identifying an on-shore lay-down yard for construction may be difficult given upland constraints near Auke Bay. (Low Risk)

- Real Estate – Utilities may have to be located, depending on project design. (Low Risk)

- Cost Impacts – Inflation is predicted to increase during the project. The PDT will need to account for inflation risk when developing contract and IGE cost estimates. (Low Risk)

- Cost – Large floating breakwaters and floating vertical wave barriers are unique features. Recent historical bid data for floating breakwaters is available; floating vertical wave barriers consist of components that are typical construction features. (Low Risk)

- PDT Readiness – The study will require a project team who is adequately prepared with the availability, skills, resources, and alignment to produce a quality product on schedule and within budget. Any team members, from both the Government and any Architect-Engineer (AE) assisting on the project must be qualified and have a clear understanding of their roles and responsibilities. (Low Risk)

C. **Is there a significant threat to human life associated with aspects of the study or failure of the project or proposed project (ER 1165-2-217, paragraph 3.6.2.2.2)?** The project improvements will be justified through a comprehensive benefits strategy and will not be justified by life safety. There are no significant threats to

human life associated with either construction of the proposed improvements, operation, and maintenance of the proposed project, or with project failure.

There is no residual risk to account for in this project due the fact that the project purpose does not address or directly affect human health and safety. This life safety assessment has been reviewed by the District Chief of Engineering and has his concurrence.

D. **Does/will the study/project have significant interagency interest (ER 1165-2-217, paragraph 3.7.2.2)?** The project is anticipated to have less than significant interagency interest. During development of the EA and in accordance with the requirements of all applicable federal environmental laws, POA will coordinate with the relevant state and federal resource agencies to address such interests. A set of charrette meetings was held on 24-25 September 2024, which did not generate significant public interest; public interest was typical of that usually encountered for a small boat harbor project.

Close coordination with natural resource agencies and tribes is typical and expected for projects in Alaska 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.

E. **Is the estimated total cost of the project greater than $200 million (ER 1165-2-217, paragraph 6.4.1)?** No; however, alternative selection, initial design, and cost estimates have not been performed at this stage of project development.

F. **Has the Governor of an affected state requested a peer review by independent experts (ER 1165-2-217, paragraph 6.4.2**)? No. There has been no request by the Governor of Alaska for peer review by independent experts and such a request is not anticipated.

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 (ER 1165-2-217, paragraph 6.4.3)?** No. The study/project is not likely to be controversial due to significant public dispute as to its size, nature, or effects of the project as the proposed project has community support.

The Corps will hold public meetings to discuss any public concerns associated with the proposed project throughout the duration of the feasibility study. During the public charrette meetings held in Juneau from 24-25 September 2024, no public concerns were raised.

H. **Has another agency requested IEPR due to significant environmental impacts (ER 1165-2-217, paragraph 6.5.1.1)?** No agency has requested an IEPR.

I. **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 (ER 1165-2-217, paragraphs 6.5.2 and 7.4.1.1)?** No. While floating wave attenuators and vertical wave barriers have not been used widely across Alaska, they have been used extensively globally. The Engineering Technical Lead has established a team with extensive experience.

J. **Will the study/project require an environmental impact statement (EIS) (ER 1165-2-217, paragraph 6.6.1)?** No. The PDT is currently assuming an EA will be sufficient under the National Environmental Policy Act (NEPA). This decision will continue to be evaluated as the study progresses. USACE assessment of the significance of the potential environmental impacts of the alternatives in the final array carried forward for analysis will determine if an EIS is necessary.

K. **Is the project expected to have more than negligible adverse impacts on scarce or unique tribal, cultural, or historic resources (ER 1165-2-217, paragraph 6.6.1.2)?** No. Impacts to known and unknown cultural resources could require additional stakeholder coordination and consultation, extending the project timeline. The uplands around Statter Harbor contain 21 previously documented cultural sites, three of which have been determined eligible for listing on the NRHP. Additionally, the area contains a previously undocumented petroglyph site, two shipwrecks, and facilities at the NOAA-NMFS research complex that have not yet been evaluated for their eligibility to the NRHP. Cultural mitigation may be required if the project cannot avoid impacts to these sites. The project area is not yet defined, and therefore, the need for and type of mitigation is unknown. When additional information is obtained during the study process, the assessment will be updated.

L. **Is the project expected to have substantial adverse impacts on fish and wildlife species and their habitat prior to the implementation of mitigation measures (ER 1165-2-217, paragraph 6.6.1.3)?** No. This project will not involve dredging or nearshore habitat disturbance. Pile driving may occur, but the impacts of these activities are common for projects in Alaska. Timing windows for fish, marine mammal observers, and shutdown zones are likely. USACE has been coordinating with Habitat and Protected Resource Divisions of National Marine Fisheries Service.

M. **Is the project expected to have, before mitigation measures, more than a negligible adverse impact on an endangered or threatened species or their designated critical habitat (ER 1165-2-217, paragraph 6.6.1.4)?** Pile driving may be necessary for project construction. If pile driving is necessary, prior to the implementation of mitigation measures, the project would have more than a negligible adverse impact on endangered or threatened species or their designated critical habitat. Impacts would cease post implementation. Environmental windows would be established and avoided as appropriate. Avoidance measures to be taken during project

implementation will be included, if applicable, under the mitigation section of the EA. The PDT is assuming that all alternatives will require blasting until the geotechnical analysis to inform this decision is complete; however, blasting is not anticipated. If the analysis determines that blasting is not necessary, more than negligible adverse impacts to ESA-listed species or their critical habitat will not be expected. As such, this RP and subsequent planning documents will continue to be revised as more geotechnical analysis becomes available. The requirement to obtain an ITA (either IHA or LOA) is anticipated.

N. **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 (ER 1165-2-217, paragraph 6.6.2.2)?** POA Hydraulics and Hydrology (H&H) has accounted for the design time, numerical modeling, and physical modeling required to support the complex, unique design and produce adequate cost estimates to screen alternatives for TSP. The PDT has already coordinated with structural engineer ATR reviewers, CFD modeling experts, and physical modeling experts to ensure the tools and timelines exist to support the feasibility study.

12. Review Execution Plan

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

12.1 Types of Review

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. DQC of the draft and final decision documents and supporting analyses is required. Additionally, DQC of milestone submittals is required (EP 1105-2-61)).

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. ATR of the draft and final decision documents and supporting analyses is required (ER 1165-2-217, paragraph 5.3). Targeted reviews may be scheduled as needed. A site visit is not required for the ATR team.

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 closely coordinate review related needs with both the MCX and RMO.

Independent External Peer Review (IEPR). 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. The PDT performs a risk-informed assessment whether IEPR is appropriate and documents that assessment/ recommendation in the RP (ER 1165-2-217, paragraph 6.5.2). 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, IEPR will be managed by an Outside Eligible Organization (OEO), external to USACE. Neither the public nor scientific or professional societies would be asked to nominate potential external peer reviewers.

Model Review and Approval/Certification. EC 1105-2-412 provides 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.

Quality Assurance Review (QA). CEPOD has responsibility for QA. QA includes verifying that the overall project quality control activities are effective in producing a work product that meets the desired end quality. QA activities include reviewing work performed by the District (including implementation of the DQC and ATR processes) and the ATR Team.

Policy and Legal Compliance Reviews (P&LCR). All decision documents will be reviewed throughout the study process for compliance with law and policy. ER 1105-2-100 (Appendix H) and DPM CW/DCW memos, provide guidance on P&LCRs. 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 POD Commander.

Public Review. POA will post the RMO endorsed and POD 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.

12.2 Anticipated Project Reviews and Estimated Costs

Table 4 provides the estimated schedule and cost for reviews anticipated for this study.

Table 1: Auke Bay Navigational Improvements Study, Juneau, Alaska – Anticipated Reviews and Costs

Product to Undergo Review	Review	Start Date (MO/DA/YR)	End Date (MO/DA/YR)	Cost	Complete
Economic Spreadsheet Model	Approval for use			$22,500[1]	No
Pre-AMM Submittals	DQC	12/02/2024	12/05/2024	$5,000	Yes
Pre-TSP Milestone Submittals	DQC	09/29/2026	10/12/2026	$5,000	No
Draft Feasibility Report and EA	DQC	11/24/2026	12/21/2026	$55,700	No
	ATR[2]	01/21/2027	03/10/2027	$94,000	No
	Public Review	12/21/2026	01/20/2027	N/A	No
	IEPR	N/A	N/A	N/A	N/A
	P&LCR	01/21/2027	03/10/2027	N/A	No
H&H Model and Inputs	Targeted ATR	TBD	TBD	$10,000[3]	No
Pre-ADM Submittals	DQC	08/05/2027	08/25/2027	$20,000	No
Final Feasibility Report and EA	DQC	10/04/2027	10/18/2027	$32,500	No
	ATR	10/19/2027	11/03/2027	$ 94,000	No
	P&LCR	11/04/2027	03/03/2028	N/A	No
In-kind Products[4] Wave Data Collection	DQC, ATR				No
In-kind Products[5] Geotechnical Drilling	DQC, ATR				No
ATR Lead Participation in Milestone Meetings		As scheduled	As scheduled	$1,500	No

[1] Estimated cost is for a simple spreadsheet model; total cost could vary based upon model complexity.
[2] The basis for estimated ATR costs is provided in Attachment 2 of this RP.
[3] Estimated cost is for one reviewer.
[4] Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC, ATR, and IEPR. In-kind services will consist of the non-federal sponsor providing the PDT with access to sites to perform testing; therefore, reviews are not applicable.
[5] Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC, ATR, and IEPR. In-kind services will consist of the non-federal sponsor providing the PDT with access to sites to perform testing; therefore, reviews are not applicable.

12.3 District Quality Control

POA shall manage DQC and will appoint a DQC Lead to oversee that review (ER 1165-2-217, paragraph 4.4.2).

12.3.1 Review Team Expertise.

Table 5 identifies the required expertise for the DQC team.

Table 2. Expertise required for the DQC team

DQC Team Disciplines	Expertise Required
DQC Review Lead	The DQC Review Lead should be a senior professional who has no production role in the work product. with extensive experience preparing CW decision documents and conducting DQC. The lead may also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc.).
Plan Formulation	A senior water resources planner with experience in harbors and SMART Planning.
Economics[1]	A senior economist with experience with harbors and mixed subsistence-cash economies. The reviewer should also have familiarity with the economic models identified in Table 7.
Environmental Resources	Expertise in evaluating the impacts associated with harbors, dredged material placement, and beneficial use options. Should also be experienced with environmental coordination, NEPA requirements, ESA requirements, MMPA, and the unique needs and lifestyles of subsistence communities.
Cultural Resources	Expertise in evaluating the impacts associated with harbors and dredging, as well as familiarity with environmental coordination and NEPA/National Historic Preservation Act (NHPA).
Hydrology, Hydraulics and Coastal (HH&C) Engineer	Expert in the field of coastal hydraulics and have a thorough understanding of analyses of winds, waves, currents, hydrodynamic-salinity, harbor/channel design, and breakwater construction. A registered professional engineer is recommended. The reviewer should also have familiarity with the HH&C models identified in Table 8. The HH&C Engineer is anticipated to complete the Infrastructure and Installation Resilience DQC review.
Geotechnical Engineer/Geologist	Experienced in geotechnical investigation practices including soil classification, the design of breakwater foundations, and the classification of rip rap and core materials for suitability in use of breakwater construction. A registered, professional engineer is recommended.
Cost Engineer	Familiar with cost estimating using the Microcomputer Aided Cost Engineering System (MCACES) model and preparation of an MII Cost Estimate. The reviewer will be Certified Cost Technician, Certified Cost Consultant, or Certified Cost Engineer. The reviewer should also have familiarity with the cost engineering models identified in Table 8.
Structural Engineer	Expert in the field of structural engineering with experience in steel and concrete structures. Have a thorough understanding of force transfer, load path, material mechanics, cyclical loading, tension analysis using quintenary equations and finite element analysis for steel and concrete structures. DQC reviewer (structural engineer) should also possess high proficiency in computer modeling. A registered professional engineer is recommended. The reviewer

DQC Team Disciplines	Expertise Required
	should have expertise in the design and analyses of wave attenuation structures using steel and concrete.
Real Estate	The real estate reviewer will be experienced in Federal CW real estate law, policy, and guidance, development of Real Estate Plans for CW studies, particularly regarding tribal lands, village corporation lands and regional corporation lands, and application of navigational servitude.

[1]The economics DQC team member will be identified by the DDNPCX (OPORD 2012-15).

12.3.2 Documentation of DQC.

Quality Control should be performed continuously throughout the study. DrChecks software will be used to document DQC review comments, responses, and issue resolution. 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 ER 1165-2-217 (Appendix D).

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 (ER 1165-2-217, paragraph 5.2.2).

12.4 Agency Technical Review

ATR is mandatory for draft and final decision documents and supporting analyses (ER 1165-2-217, paragraph 5.3). The RMO will manage the ATR. ATR will be performed by a qualified team from outside POA 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 POA nor POD will nominate review team members. The ATR team lead will be from outside POD. The ATR team lead is expected to participate in the study's milestone meetings (PB 2018-01).

12.4.1 Review Team Expertise. Table 6 identifies the anticipated disciplines and ATR team expertise required for study efforts.

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 CW 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	The plan formulation reviewer should be a senior water resources planner with experience in leading a team through a small boat harbor study and analysis of dredged material placement requirements.
Economics	A senior economist with experience evaluating small boat harbor improvements and mixed subsistence-cash economies. The reviewer should have expertise with the types of economic models identified in Table 7.
Environmental Resources	Expertise in evaluating the impacts associated with harbors and dredged material placement/ beneficial use options. Should also be experienced with environmental coordination, NEPA requirements, ESA requirements, MMPA, and the unique needs and lifestyles of subsistence communities.
Cultural Resources	Expertise in evaluating the cultural impacts associated with harbors and dredging, as well as familiarity with environmental coordination and NEPA/NHPA.
HH&C Engineer	Expert in the field of coastal hydraulics and have a thorough understanding of analyses of winds, waves, currents, hydrodynamic-salinity, harbor/channel design, and breakwater construction. The reviewer should also have expertise with the HH&C engineering models identified in Table 8.
Geotechnical Engineer / Geologist	Experienced in geotechnical investigation practices including soil classification, the design of breakwater foundations, the classification of rip rap and core materials for suitability in use of breakwater construction, and dredged material placement, including beneficial use. A registered professional engineer is recommended.
Cost Engineer	Familiar with cost estimating using the MCACES model and preparation of an MII Cost Estimate. The reviewer will be Certified Cost Technician, Certified Cost Consultant, or Certified Cost Engineer. Coordination with the Cost Engineering MCX will be required for their selection of the cost engineering reviewer and to obtain Cost Engineering MCX certification of the cost estimate. The reviewer should also have expertise with the cost engineering models identified in Table 8.
Structural Engineer	Expert in the field of structural engineering with experience in steel and concrete structures. Have a thorough understanding of force transfer, load path, material mechanics, cyclical loading, tension analysis using quintenary equations and finite element analysis for steel and concrete structures. The PDT structural engineer should also possess high proficiency in computer modeling. A registered professional engineer is recommended. The reviewer should have expertise in the design and analyses of wave attenuation structures using steel and concrete.
Real Estate	The real estate reviewer will be experienced in Federal CW real estate law, policy, and guidance, development of Real Estate Plans for CW studies, particularly in regard to application of navigational servitude.

ATR Team Disciplines	Expertise Required
Infrastructure and Installation Resilience	A member of the Infrastructure and Installation Resilience CoP reviewer will participate on the ATR team.

12.4.2 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 (ER 1165-2-217, paragraph 5.8.3). 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 ER 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 (ER 1165-2-217, paragraph 5.11), 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) includes signatures from the ATR Lead, Project Manager, and RMO, and the Certification of ATR includes signatures from the District's Chiefs of Engineering and Planning Divisions.

12.5 Independent External Peer Review

12.5.1 Decision on IEPR.

IEPR is managed outside of USACE and is typically conducted on studies. 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.

Based upon the criteria identified in ER 1165-2-217 the PDT's risk informed assessment that the study/project **does not warrant an** IEPR is based upon the following, as documented in detail in Section 5 of this RP:

- Risk Informed Decision (ER 1165-2-217, paragraph 6.5.2) - Conducting an IEPR may benefit or add value to the project study. The project: has minimal life safety risks; may be novel, controversial, or precedent setting; does not have significant interagency interest or significant economic, environmental and social effects to the Nation; and will include evaluations for which there is ample experience within USACE and can be considered as routine.

- Mandatory Decision - The decision document does not meet any of the mandatory conditions or triggers for an IEPR (paragraph 6.4, Figure 6.1 of ER 1165-2-217): the total project cost is likely to be less than the $200M; the Governor of Alaska has not requested peer review by independent experts; and the Chief of Engineers has not determined that the project study is controversial due to significant public dispute over either the size, nature, or effects of the project or the economic or environmental costs or benefits of the project.

- Discretionary Decision (ER 1165-2-217, paragraph 6.5.1) – There have been no requests for an IEPR to be conducted from heads of federal or state agencies charged with reviewing the project.

12.6 Safety Assurance Review

12.6.1 Decision on Safety Assurance Review.

Safety Assurance Review (SAR) 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 SARs, a panel is convened to review the design and construction activities before construction begins and periodically thereafter until construction activities are completed.

The District Chief of Engineering has assessed this navigation project and determined that it DOES NOT meet the criteria for conducting a SAR:

- 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 may involve the use of innovative materials or techniques where the engineering is based on novel methods, it does not present complex challenges for interpretations, may contain precedent-setting methods or models, and does not present conclusions that are likely to change prevailing practices;

- The project design does not require redundancy, resiliency, or robustness; and

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

The SAR determination will be revisited and confirmed prior to initiating the design phase and documented in the PED phase Review Plan.

12.7 Policy and Legal Compliance Review

In accordance with EP 1105-2-61, policy and legal compliance reviews (P&LCRs) for draft and final planning decision documents are delegated to the MSC responsible for the execution of the study.

With input from POD and Headquarters, USACE (HQUSACE) functional leaders and through collaboration with the Chief of Office of Water Project Review (OWPR), the POD Chief of Planning and Policy is responsible for establishing a competent interdisciplinary P&LCR team (EP 1105-2-61). The composition of the policy review team will be drawn from HQUSACE, POD, the Planning Center of Expertise (PCX), and other review resources as needed. The identification of Counsel members will follow the

procedures set forth by the HQUSACE Chief Counsel, as coordinated by HQUSACE and POD Counsel functional leaders. The POD Chief of Planning and Policy and the Chief of OWPR will collaborate to identify and endorse a P&LCR Manager from among the P&LCR team identified for the study. The manager may be a POD, PCX, or HQUSACE employee. The team is identified in Attachment B of this RP.

The P&LCR team will:

- Provide advice and support to the PDT and decision makers at the District, POD, HQUSACE, and Assistant Secretary of the Army (CW) levels.
- Engage at both the POD and HQUSACE levels, ensuring that the vertical teaming aspect of SMART planning is maintained.
- Help guide PDTs through project development and the completion of policy and legally compliant documents, identifying policy and legal issues as early as possible such that issues can be addressed while minimizing impacts to study and project costs and schedules.
- Provide impartial and unbiased recommendations, advice, and support to decision makers.

12.8 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 4: Planning Models

Model Name/Version (Discipline)	Brief Model Description and How It Will Be Used in the Study	Certification / Approval
IWR-Planning Suite II, v. 2.0.9 (Economics)	IWR-Planning Suite is a water resources investment decision support tool originally built for the formulation and evaluation of ecosystem restoration alternative plans; however, it is now more widely used by all USACE business lines for evaluation of actions involving monetary and non-monetary cost and benefits. This model will be utilized to conduct Cost Effectiveness/Incremental Cost Analysis (CE/ICA), if needed.	Certified
Regional Economic System (RECONS) (Economics)	RECONS is a regional economic impact modeling tool that estimates jobs, income, and sales associated with Corps CW spending and additional economic activities. The model will be used to estimate the regional economic impacts of project implementation.	Certified
SBH Spreadsheet Model (Economics)	Spreadsheet model may be used to quantify and annualize benefits not captured in other models (i.e., SBH Simulation Model, RECONS)	Single Use Approval will be required.
Geospatial Suitability Index (GSI) Toolbox (ER)	This toolkit is intended primarily for USACE ecosystem restoration planning; however, index models are also often applied for impact assessment, compensatory mitigation, and wetland regulatory issues. A multi-criteria index model of an ecosystem defining the quality of suitable habitat. Habitat suitability is defined as an index score from 0-1, where 0 is less suitable habitat and 1 is most suitable. The assignment of scores is based on individual parameter values and suitability index tables developed from peer-reviewed literature, expert opinion, or existing USACE certified models.	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.

Table 5: Engineering Models

Model Name/Version (Discipline)	Brief Model Description and How It Will Be Used in the Study	Certification / Approval
AutoCAD Civil3D	Comprehensive detailed design and documentation software for civil infrastructure.	NA
STWAVE	A steady-state, finite difference, spectral model based on the wave action balance equation. The purpose is to provide an easy-to-apply, flexible robust model for nearshore wind-wave growth and propagation.	CoP Preferred
OpenFOAM	A computation fluid dynamics model that can evaluate the hydraulic response for the floating wave attenuator designs will be utilized. This model will be used to establish transmission coefficients for the alternatives and support the analysis for mooring forcings.	CoP Preferred
Physical Model	A flume study of the TSP will be used to refine the dimensions for the floating wave attenuator and check the transmission coefficient analysis from the OpenFOAM.	TBD[1]
Micro-computer Aided Cost Engineering System (MCACES) 2nd Generation (MII)	A tool used by cost engineers to develop and prepare all Civil Works cost estimates. Using the features in this system, cost estimates are prepared uniformly allowing cost engineers throughout USACE to function as one virtual cost engineering team.	Cost Engineering MCX Required Model
Abbreviated Risk Analysis, Cost Schedule Risk Analysis (Cost Engineering)	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) (Cost Engineering)	The TPCS is the required cost estimate document that will be submitted for either division or 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

[1] POD EN is investigating review requirements for physical models developed during the feasibility phase. Once those efforts are complete, the RP will be updated and re-coordinated, as appropriate.

13. Documents Distributed Outside the Government

For information distributed for review to non-governmental organizations, the following disclaimer shall be placed on documents:

“This information is distributed solely for the purpose of pre-dissemination review under applicable information quality guidelines. It has not been formally disseminated by USACE. It does not represent and should not be construed to represent any agency determination or policy.”

ATTACHMENT : REVIEW PLAN CHANGE LOG

(Delete this attachment before posting the Review Plan on the District web page.)

Revision Date	Description of Change	Page / Paragraph Number