REVIEW PLAN

Elliott Bay Seawall, Washington
Coastal Storm Damage Reduction Study

Feasibility Report

Seattle District

Revised February 2011

US Army Corps
of Engineers®
Seattle District

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1. PURPOSE AND REQUIREMENTS

a. Purpose. This Review Plan defines the scope and level of review for the Elliott Bay Seawall, Washington, Coastal Storm Damage Reduction Study Feasibility Report.

b. References

(1) Engineering Circular (EC) 1165-2-209, Civil Works Review Policy, 31 Jan 2010
(2) Engineering Regulation (ER) 1105-2-100, Planning Guidance Notebook
(3) EC 1165-2-203, Policy Compliance Review Checklist, 15 October 1996
(4) EC 1105-2-407, Planning Models Improvement Program: Model Certification, 31 May 2005
(5) EC 1105-2-408, Peer Review of Decision Documents, 31 May 2005
(6) ER 1110-2-12, Quality Management, 30 Sep 2006
(7) Elliott Bay Seawall, Coastal Storm Damage Reduction Study Project Management Plan, revised 2010

c. Requirements. This Review Plan was developed in accordance with EC 1165-2-209, which establishes the procedures for ensuring the quality and credibility of U.S. Army Corps of Engineers' (Corps) decision documents through independent review. The EC outlines three levels of review: District Quality Control (DQC), Agency Technical Review (ATR), and Independent External Peer Review (IEPR). In addition to these three levels of review, decision documents are subject to policy and legal compliance review, real estate gross appraisal review, and, if applicable, model certification/approval. These various elements shall be documented in the Review Plan as part of the Project Management Plan (PMP).

2. STUDY INFORMATION

a. Study/Project Authority: This Study is authorized under Section 209 of the Puget Sound and Adjacent Waters Flood Control Act of 1962 (Public Law 87-874) and by the Committee on Transportation and Infrastructure, U.S. House of Representatives, House Resolution 2704, September 25, 2002, which reads as follows:

> *Resolved by the Committee on Transportation and Infrastructure of the United States House of Representatives, That the Secretary of the Army is requested to review the Comprehensive Study of Water and Related Land Resources for Puget Sound and Adjacent Waters, State of Washington, dated 1971, and other pertinent Reports to determine whether modification and recommendations contained therein are advisable at the present time in the interest of storm damage prevention, shoreline protection, environmental restoration and protection, and related purposes in Elliott Bay, Washington, including the rehabilitation of the Alaskan Way Seawall.*

The Feasibility Study was initiated in August, 2004 with signing of a Feasibility Cost Sharing Agreement between U.S. Army Corps of Engineers, Seattle District (USACE) and

the City of Seattle Department of Transportation (SDOT). The Feasibility Study authority was subsequently modified in Section 4096(a) of WRDA 2007 which states:

> *a. In General. – The study for rehabilitation of the Elliott Bay Seawall, Seattle, Washington being carried out under Committee Resolution 2704 of the Committee on Transportation and Infrastructure of the House of Representatives adopted September 25, 2002, is modified to include a determination of the feasibility of reducing future damage to the seawall from seismic activity.*

b. Implementation Guidance. Seattle District has drafted WRDA 2007 implementation guidance. USACE Headquarters (USACEHQ) has not yet approved this guidance. Representative McDermott's office requested Seattle district provide legislative language for a possible WRDA 2010. The language would request project authorization subject to an approved report by the ASA(CW) and would require the Corps to count seismic damages as a damage category.

c. Decision Documents. Elliott Bay Seawall, Washington, Coastal Storm Damage Reduction Study, Feasibility Report and Environmental Impact Statement.

The purpose of the Feasibility Study is to determine if there is a Federal interest in providing shoreline protection from coastal erosion and increasing environmental protection along Seattle's central waterfront. Consistent with Section 4096(a) of WRDA 2007, the Feasibility Study also evaluates potential risk reduction from seismic events. The Feasibility Study will investigate and identify potential solutions to identified water resource problems and recommend either for or against Federal participation in the implementation of a storm damage reduction/risk management project and ecosystem restoration projects.

The Sponsor's objective is a long-term solution to tidal and storm damage that will protect public infrastructure and economic activity in the project area and may include novel and precedence-setting approaches; and the implementation of environmental restoration features in the nearshore area in the vicinity of the existing seawall. In addition, the non-Federal sponsor has an interest in adding recreation features in conjunction with the proposed project as betterments. The recommended plan that will be set forth in the Feasibility Report must be both a technically viable and an implementable solution to the storm damage and ecosystem problems.

The final decision documents will consist of the Feasibility Report and Environmental Impact Statement. The Feasibility Report will provide complete documentation of the study analyses, results, and recommendations for Federal implementations. The Feasibility Report will also document compliance with all applicable guidance, statutes, Executive Orders and Administration policy. The Feasibility Report and Environmental Impact Statement will thus be the basis for recommendation by the Assistant Secretary of the Army, Civil Works (ASA-CW) for Congressional authorization.

d. Study Description. Following the Nisqually earthquake of February 2001, SDOT, Washington State Department of Transportation (WSDOT) and Federal Highway Administration (FHWA) inspected both the seawall and the Alaskan Way Viaduct for earthquake damage. The inspection revealed that the earthquake had damaged the viaduct but not the seawall. It revealed, however, that continuous wave and tidal erosion have caused severe deterioration of the seawall and subsurface erosion of the area behind the seawall. Both structures are now considered to be at or near the ends of their design lives.

In 2001, the City and their partner agencies formed a team that began planning the replacement of the viaduct and the seawall. The SR 99 Alaskan Way Viaduct and Seawall Replacement Project (AWVSRP) partners, are comprised of FHWA, WSDOT, and SDOT. The AWVSRP included the evaluation of the rebuilding or replacement of the Elliott Bay seawall due to the essential transportation functions of SR 99. The AWVSRP team has put significant effort into developing alternatives and examining their costs, benefits, and impacts.

The Corps is now partnering with SDOT, the non-Federal sponsor, to initiate a study focusing on Coastal Storm Damage Reduction. The main objective of the project will be to provide protection to the downtown waterfront from tidal and storm wave action that causes erosion of soils following failure of the seawall. The Corps began the planning process by evaluating the work already performed.

The Corps' Reconnaissance Report, approved by USACEHQ on 17 October, 2003, demonstrated that there is a Federal interest in pursuing a feasibility study to examine the potential for a project that will protect the public facilities and economic activities along the Elliott Bay shoreline from coastal storm damages. Information contained in the Reconnaissance Report, as well as that in the City's previous engineering analyses and the AWVSRP Team's draft EIS will be used as a base from which to continue the required detailed project development and implementation studies. The Feasibility Report generated from this study will thus reflect current problems and opportunities, the desires of the sponsor and views of the public, and establish final planning criteria and objectives used to formulate plans. The study report will also identify additional measures necessary to meet the final planning objectives and document the formulation and evaluation of alternative plans and basis for plan selection.

The study area includes those portions of downtown Seattle, WA and vicinity that could be impacted by coastal storm damages and shoreline erosion along Elliott Bay, including potential failure of the existing Elliott Bay Seawall and subsequent shoreline erosion and potential environmental effects on the Elliott Bay near-shore ecosystem. Physical damages in the primary study area are expected to result in damages to the regional transportation network (highways, local streets, railroad lines, and ferry system), downtown businesses, and public utilities and poses a threat to public safety.

Measures considered for coastal storm damages included non-structural (relocation of structures, utilities, and transportation lines), rock revetment, post-failure shoreline stabilization followed by seawall rebuild, and various new seawall designs. Preliminary

analysis of the potential measures concluded that non-structural solutions do not adequately provide for public safety and the need to retain transportation and utility systems in the waterfront area. Furthermore, a post-failure stabilization followed by seawall rebuild is more expensive than other measures that provide the same level of protection, and does not address public safety issues. Finally, the construction of a rock revetment post-failure also does not meet public safety issues, and has significant environmental impacts to the near-shore area. Therefore, the remaining plan formulation process will focus on various types of seawall reconstruction.

Measures under consideration for ecosystem restoration include a bench to provide shallow water habitat in front of the system, anchoring systems for kelp, and "bumpy" features in the wall to encourage growth of intertidal species.

Factors Affecting the Scope and Level of Review. The scope and appropriate level of review will be determined based on the following factors:

- The Elliott Bay Seawall study & project warrants a Type I IEPR as the project has significant interagency interest, is very controversial, has significant economic, environmental, and social effects, and requires an EIS. The IEPR will include elements of a SAR for the coastal storm elements.

- The seawall is located in a highly urbanized and developed area.
    - The threat to Human life/safety is considered to be high. The project area contains high volumes of traffic (vehicle, pedestrian, and commercial) and is an active part of the community year-round. Any potential project must account for human life/safety threats.
    - Maintaining access to local businesses, residential developments, and public infrastructure during construction is imperative.

- Potential Environmental Impacts
    - The project may impact fish and wildlife. Footprints exceeding the current seawall footprint could present a reasonable threat to fish and wildlife living near the shore of Elliott Bay.
    - Areas of potential contaminated fill behind the existing seawall present numerous environmental challenges to address during design and construction.

- A number of properties in the project area are part of existing National Register historic districts, or meet the criteria for designation as City of Seattle historic landmarks.

- The study area is within the aboriginal territory of the Duwamish, a Puget Salish or Lushootseed speaking group that lived in winter villages on the shores of Elliott Bay, Lake Washington, Lake Union, and Salmon Bay. Potential project lands within the study area have a high probability for hunter-gatherer, ethnographic, and historic period archeological resources.

- The project is likely to be controversial; there will likely be public dispute as to the size, nature, economic costs, environmental costs, and other factors associated with the project.

- The project is considered to have significant interagency interest. The project will impact City, County, State, and Federal agencies, as well as local tribes and community interest groups.

- Estimated total project costs range from $350 Million to $800 Million; however, these estimates are incomplete and require additional analysis as the design phase begins.

- The design of the project will likely be highly controversial as many locally preferred options will be presented by different agencies and groups in the Seattle area.

- The project study does not contain influential scientific information. Proven construction and design techniques are being explored and will not require additional research and analysis. The goal of the study is to find a technically viable and implementable solution for storm damages.

e. In-Kind Contributions. The local sponsor for this project is the SDOT. Work performed by SDOT must be included in the study PMP and be pre-approved by the Corps. In-kind contributions by the SDOT will require District Quality Control (DQC), Agency Technical Review (ATR), and Independent External Peer Review (IEPR) of the work performed.

WRDA 2007, Section 4096(b) and Section 4096(c) state the following details relating to in-kind contributions for this study:

> *b. Acceptance of Contributions. – In carrying out the study, the Secretary may accept contributions in excess of the non-Federal share of the cost of the study from the non-Federal interest to the extent that the Secretary determines that the contributions will facilitation completion of the study.*
>
> *c. Credit. – The Secretary shall credit toward the non-Federal share of the cost of any project authorized by law as a result of the study the value of contributions accepted by the Secretary under subsection (b).*

USACEHQ has not yet approved implementation guidance for this language.

In-kind activities, costs, and products may include, but are not limited to:

- Public involvement
- Geotechnical analysis and data
- Engineering and design efforts through the City and its contractors
- Environmental and cultural studies
- Project management for the City's efforts
- Preliminary designs and costs for 10% design.

- Design for the recommended plan(s).
- Attendance at meetings and coordination with the Corps PDT

The above list will be updated as specific in-kind activities, costs, and products are identified.

f. Project Delivery Team (PDT). The PDT is presented in Table 1. The project manager is the main point of contact at the Seattle District for additional information this project and the Review Plan; Jessie Winkler, Jessica.G.Winkler@usace.army.mil, (206) 764-3462

Table 1. Project Delivery Team Roster

Discipline	Name	Organization
Project Manager	Jessie Winkler	CENWS-PM-CP
Program Manager	Lori Morris	CENWS-PM-CP
Asst. Project Manager	Paul Massart	CENWS-PM-CP
Program Analyst	Patti Bauccio	CENWS-PM-CP
Plan Formulation	Linda Smith	CENWS-PM-PL-PF
Plan Formulation	Keely Domville	CENWS-PM-PL-PF
Economist	Douglas Symes	CENWP-PM-FE
Economist	Charyl Francois	CENWS-PM-PL
Environmental Resources	Pat Cagney	CENWS-PM-PL-ER
Cultural Resource Specialist	Ron Kent	CENWS-PM-PL-ER
Civil Engineer	Jen West	CENWS-EN-DB-CS
Soils/Geotechnical Engineer	Paul Anderson	CENWS-EC-DB-CS
Structural Engineer	David Wong	CENWS-EC-DB-AS
Coastal Engineer	David Michalsen	CENWS-EC-HH-HE
HTRW	Marlowe Laubach	CENWS-EN-GB-ET
Real Estate	Kevin Kane	CENWS-RE-RS
Public Affairs	Andrea Takash	CENWS-PA
Cost Engineering	Laura Orr	CENWS-EC-CO-CA
Office of Counsel	Craig Juckniess	CENWS-OC
Project Manager (Non-Fed sponsor)	Brian Holloway	SDOT
Project Manager (Non-Fed sponsor)	Stephanie Brown	SDOT

3. DISTRICT QUALITY CONTROL

a. General. DQC for decision documents covered by EC 1165-2-209 is managed by the home district in accordance with the MSC and District Quality Management Plans. All draft products and deliverables will be reviewed within the district as they are developed by the PDT to ensure they meet project and customer objectives, comply with regulatory and engineering guidance, and meet customer expectations of quality. Work products will be forwarded to the appropriate Branch Chiefs of disciplines directly involved with the development of the document. The Branch Chiefs will determine the most appropriate person to carry out the review of the document.

b. Products for Review. All work products and reports, evaluations, and assessments shall undergo necessary and appropriate DQC, including National Environmental Policy Act (NEPA) documents, other environmental compliance products, and any in-kind services provided by the local sponsor. Additionally, the PDT is responsible for a complete reading of the report to assure the overall integrity of the report, technical appendices, and the recommendations before approval by the District Commander.

c. Documentation of DQC. DrChecks[sm] review software will be used to document all DQC comments, responses, and associated resolutions accomplished throughout the review process. Relevant DQC records will be reviewed during each ATR event and the ATR team will provide comments as to the adequacy of the DQC effort for the associated product.

4. AGENCY TECHNICAL REVIEW

a. General. ATR for decision documents covered by EC 1165-2-209 is managed by the appropriate Planning Center of Expertise (PCX). The ATR shall ensure that the product is consistent with established criteria, guidance, procedures, and policy. The ATR will assess whether the analyses presented are technically correct and comply with published USACE guidance, and that the document explains the analyses and the results in a reasonably clear manner for the public and decision makers. Products will be reviewed against published guidance, including ER's, EC's, manuals, engineering technical letters, and bulletins.

b. Products for Review. Products estimated for Agency Technical Review (ATR) include, but are not limited to: Feasibility Scoping Meeting (FSM) Read-Ahead Report; Environmental Impact Statement (EIS); Alternative Briefing Formulation (AFB) documentation; draft and final NEPA/SEPA and other environmental compliance documentation; and draft and final Feasibility Report (FR).

c. Required ATR Team Expertise. The current ATR plan is to include 11 reviewers from the disciplines listed below that are required to develop the draft and final Feasibility Report/Environmental Impact Statement. ATR team members are from outside the home district; the ATR team leader is from outside the home MSC. The established ATR team is listed in Table 2.

- Plan Formulation
- Environmental/NEPA
- Cultural Resources
- Hydrology & Hydraulics (H&H) – Coastal Engineering
- Geotechnical
- Civil
- Seismic Engineering
- Structural Engineering
- Economics
- Real Estate
- Cost Estimating

Table 2. Agency Technical Review Team Roster

Discipline	Name	Office/Agency
CSDR-PCX; Planning Policy and Economics	Larry Cocchieri, Rich Ring	CENAD-PSD-P
Review Team Lead	Barbara Blumeris	CENAE-EP-PS
Plan Formulation	Tom Pfeifer	CENAN-PL-FC
Environmental	Cathy Rogers	CENAE-EP-VE
Coastal Engineer	David Yang	CENAN-EN-H
Civil/Coastal Engineer	Diane Rahoy	CENAN-EN-H
Geotechnical	William Harrison	CENWW-EC-D-GT
Structural Engineer	David Rackmales	CENAN-EN-DC-S
Seismic Engineer	Michael Chen	CENAN-EN-DC
Economics	Ed O'Leary	CENAE-EP-VC
Real Estate	Adam Oestereich	CENAB-RE-C
Cost Estimating	POC – Jim Neubauer	CENWW-EC-X
Geologist	Ben Baker	CENAN-EN-DC-G

Attachment 2 of this Review Plan contains contact information for the ATR Team.

d. Documentation of ATR. DrChecks[sm] review software will be used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. Comments should be limited to those that are required to ensure adequacy of the product. The ATR team leader will prepare a Review Report which includes a summary of each unresolved issue; each unresolved issue will be raised to the vertical team for resolution.

ATR may be certified when all ATR concerns are either resolved or referred to USACE Headquarters (USACEHQ) for resolution and the ATR documentation is complete. Certification of ATR should be completed, based on work reviewed to date, for the FSM, AFB, draft report, and final report.

e. Status of ATR. ATR of the Feasibility Report Read-Ahead, Economic Appendix, and Nearshore Environmental Model was completed in July 2010. All comments were successfully resolved.

5. INDEPENDENT EXTERNAL PEER REVIEW

a. General. Type I IEPR is conducted for decision documents if there is a vertical team decision (involving the district, MSC, PCX, and USACEHQ members) that the covered subject matter meets certain criteria (described in EC 1165-2-209) where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside the USACE is warranted. IEPR is conducted by nationally recognized technical experts outside of the Corps of Engineers. IEPR is coordinated by the appropriate PCX and managed by an Outside Eligible Organization (OEO) external to the USACE. The OEO is responsible for selection of the reviewers, though the Corps can nominate candidates. The scope of the review will address all underlying planning, engineering, including safety

assurance, economics, and environmental analyses performed, not just one aspect of the project.

Type I IEPR is typically conducted on study phase decision documents. Type I IEPR contract is 100% federal cost and limited to $500,000. Because of safety issues, the Type I IEPR will include elements of SAR.

b. Decision on IEPR. Type I IEPR will be performed on the Feasibility Report/Environment Impact Statement. Type I IEPR will be completed in accordance with the requirements outlined in EC 1165-2-209 Civil Works Review Policy.

Type I IEPR is required because of the following project conditions:

- Report is a decision document with an estimated total project cost in excess of $45 million dollars
- An Environmental Impact Statement will be generated as part of this study
- The project/study likely involves significant threat to human life/safety
- The project/study will likely be highly controversial

A Safety Assurance Review is required on the Coastal storm damage aspects of the recommended project due to the risk to public safety if the project does not function successfully.

c. Products for Review. Type I IEPR will review the draft Feasibility Report/Environmental Impact Statement. Additional Type I IEPR reviews of key interim products will be determined as the study progresses and will be performed in accordance with EC 1165-2-209 Civil Works Review Policy paragraph 11.

d. Required IEPR Panel Expertise. IEPR reviewers will be selected by an Outside Eligible Organization. Candidates will be nominated by the Corps. The likely disciplines and expertise required for IEPR are presented below in Table 3. Additional technical areas requiring IEPR may be identified during the study/review process. The table will be updated when team members are established.

- Plan Formulation – knowledge of coastal storm damage protection projects, and ecosystem restoration (marine)
- Environmental/NEPA – knowledge of northwest marine ecosystems and experience with NEPA documents, HTRW
- Cultural Resources- knowledge of Northwest tribal culture and history, historic structures
- Hydrology & Hydraulics (H&H) – Coastal Engineering – knowledge of seawalls and coastal dynamics.
- Geotechnical- knowledge of seawall conditions
- Civil- familiarity with seawalls, marine environments
- Seismic Engineering- knowledge of structural/geotechnical issues under seismic stress conditions
- Structural Engineering – knowledge of seismic conditions, seawalls

- Economics – familiarity with ecosystem restoration and coastal storm damage
- Real Estate – familiarity with urban real estate issues
- Cost Estimating – knowledge of ecosystem restoration requirements, seawall construction.

Table 3. Independent External Peer Review Panel Members

Discipline	Name	Company
Review Team Lead		
Plan Formulation		
Environmental		
Coastal Engineer		
Civil/Coastal Engineer		
Geotechnical		
Structural Engineer		
Seismic Engineer		
Economics		
Real Estate		
Cost Estimating		
Geologist		

e. Documentation of IEPR. DrChecks[sm] review software will be used to document all IEPR comments, responses and associated resolutions accomplished throughout the review process. The IEPR panel will submit a final review report containing the panel's economic, engineering, and environmental analysis of the project. The report will include the panel's assessment of the adequacy and acceptability of the methods, models, and analyses used by the Corps. The final review report will be submitted by the IEPR panel no later than 60 days following the close of the public comment period for the draft Feasibility Report and Environmental Impact Statement. The District and PCX will disseminate the final IEPR Review Report, USACE response, and all other materials related to the IEPR on the internet and include them in the applicable decision document.

6. MODEL CERTIFICATION AND APPROVAL

a. General. The use of certified or approved models for all planning activities is required by EC 1105-2-407. This policy is applicable to all planning models currently in use, models under development and new models. Engineering models are not covered under this EC. Regulations for engineering models are currently being considered under the Engineering and Construction Science and Engineering Technology (SET) initiative. Until regulation is developed, the responsible use of well known and proven USACE developed and commercial engineering software will continue and the professional practice of documenting the application of the software and modeling results will be followed. Any regulations developed under the SET initiative will implemented and guide the certification and approval process for all engineering models. The appropriate PCX will be responsible for model certification/approval. Both the planning models (including the certification/approval status

of each model) and engineering models used in the development of the decision document are described below.

b. Planning Models. The following planning models are anticipated to be used:

- Economics: Elliott Bay Seawall Damage Assessment Model (EBSDAM)
- Environmental: Nearshore Ecosystem Conceptual Model and Evaluation Matrix

c. Engineering Models. The following engineering models are anticipated to be used:

- Cost Engineering: MII
- Structural Engineering: Limit Analysis Using Passive Wedge
- Wave transformation analysis: STWAVE model
- USACE Beach-FX Coastal Storm Damage Evaluation
- Displacement-Based Modeling: FLAC Model

d. Model Approvals – The ATR of the FSM Read-Ahead included the Economic Appendix and Nearshore model. No issues were left unresolved over either model. The PDT will request one-time use approval of both models through the ATR team.

7. REVIEW SCHEDULES AND COSTS

a. Status of Reviews. DQC was completed in 2009 for the FSM Read-Ahead, Economic Appendix, and Environmental Model Appendix. ATR of the same documents was initiated in January 2010. ATR reviews were completed in July 2010. In FY11, with new funding, the Economics and Environmental models will be reviewed for approval. A geotechnical report prepared by SDOT for this project has been through DQC and requires ATR in FY11.

b. ATR Schedule and Cost. The ATR schedule and cost estimate is presented in Table 4. The table will be updated as dates and cost estimates are determined.

Table 4. ATR Schedule

Task	Date	Estimated Cost
ATR of FSM Documents	July 2010	$47,000
ATR of 10% Design Cost Estimate	April 2011	$10,000
ATR of 35% LPP Design Cost Estimate	Decemeber 2011	$20,000
ATR of 35% NED Design Cost Estimate	December 2011	$20,000
ATR of AFB Documents	July 2012	$54,800

ATR of draft FR/EIS	April 2013	$54,800
ATR of final FR/EIS	May 2014	$54,800
Total:		$261,400

c. IEPR Schedule and Cost. The IEPR schedule and cost estimate is presented in Table 5. The table will be updated as dates and cost estimates are determined.

Table 5. IEPR Schedule

Task	Date	Estimated Cost
PCX Coordination of IEPR	July 2012	$35,000
TYPE I IEPR of draft FR/EIS	July 2012	$500,000*
Total:		$535,000

*Estimated contract for (11) reviewers

d. Model Certification/Approval Schedule and Cost. The model certification/approval schedule and cost estimate is presented in Table 6. The table will be updated as dates and cost estimates are determined.

Table 6. Model Approval Schedule

Model	Date	Estimated Cost
Elliott Bay Seawall Damage Assessment Model (EBSDAM)	FY11	$20,000
Nearshore Ecosystem Conceptual Model and Evaluation Matrix	FY11	$10,000
Limit Analysis Using Passive Wedge	TBD	TBD
Total:		

8. PUBLIC PARTICIPATION

The public will be invited to comment directly to the PDT through informal and formal public scoping meetings and public review comment periods programmed into the feasibility schedule. This includes but will not be limited to documents developed for the FSM, AFB, NEPA documentation, and Draft and Final FR/EIS. The opportunity for the public to nominate reviewers will be provided. Public input will be available to the ATR and IEPR teams to ensure public comments have been considered in development of the draft and final FR/EIS.

This Review Plan and the accompanying Project Management Plan will be posted to the District web site for public review once it is approved by the MSC.

9. PCX COORDINATION

Review plans for decision documents and supporting analyses outlined in EC 1165-2-209 are coordinated with the appropriate PCX based on the primary purpose of the basic decision document to be reviewed. The lead PCX for this study is the Coastal Storm Damage Reduction PCX (CSDR-PCX); Planning Policy and Economics. The lead PCX will coordinate with the Cost Engineering Directory of Expertise (DX) to conduct ATR of cost estimates.

10. MSC APPROVAL

Northwestern Division is the MSC that oversees the Seattle District, and is responsible for approving the Review Plan. A MSC approval letter is required for each review plan and must be signed by the MSC Commander. The Commander's approval should reflect vertical team input (involving district, MSC, PCX, and USACEHQ members) as to the appropriate scope and level of review for the decision document. Like the PMP, the Review Plan is a living document and may change as the study progresses. Changes to the Review Plan should be approved by following the process used for initially approving the plan. In all cases the MSC will review the decision on the level of review and any changes made in updates to the project. A Review Plan for the subsequent project phase (Design and Implementation) will be included with the final decision document submittal.

11. REVIEW PLAN POINTS OF CONTACT

Questions and/or comments on this Review Plan can be directed to the following points of contact:

- Jessie Winkler, Project Manager, 206-764-3462
- Valerie Ringold, Northwest Division, 503-808-3984
- Larry Cocchieri, Coastal Storm Damage Reduction PCX, 718-765-7071

ATTACHMENT 1: GLOSSARY

Agency Technical Review (ATR):
ATR is an in-depth review, managed within USACE, and conducted by a qualified team outside of the home district that is not involved in the day-to-day production of the project/product. The purpose of this review is to ensure the proper application of clearly established criteria, regulations, laws, codes, principles and professional practices. The ATR team reviews the various work products and assure that all the parts fit together in a coherent whole. ATR teams will be comprised of senior USACE personnel (Regional Technical Specialists, etc.), and may be supplemented by outside experts as appropriate. To assure independence, the leader of the ATR team shall be from outside the home Major Subordinate Command (MSC).

District Quality Control (DQC):
DQC is the review of basic science and engineering work products focused on fulfilling the project quality requirements defined in the PMP. It is managed in the home district and may be conducted by staff in the home district as long as they are not doing the work involved in the study, including contracted work that is being reviewed. Basic quality control tools include a Quality Management Plan providing for seamless review, quality checks and reviews, supervisory reviews, Project Delivery Team (PDT) reviews, etc. Additionally, the PDT is responsible for a complete reading of the report to assure the overall integrity of the report, technical appendices and the recommendations before approval by the District Commander.

Independent External Peer Review (IEPR):
IEPR is the most independent level of review, and is applied in cases that meet certain 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. Any work product, report, evaluation, or assessment that undergoes DQC and ATR may also be required to undergo IEPR. IEPR is coordinated by the appropriate Planning Center of Expertise (PCX) and managed by an Outside Eligible Organization (OEO) external to the USACE. The OEO will select panel members using the National Academies of Science (NAS) policy for selecting reviewers. The scope of review will be scalable to the work product being reviewed and will address all underlying planning and engineering, including safety assurance, economics, and environmental analyses performed, not just one aspect of the project. Type I IEPR is generally for decision documents whereas Type II IEPR is generally for implementation documents.

(i) Type I IEPR is mandatory if any of the following are true: 1) Significant threat to human life; 2) Total estimated project cost is > $45M; 3) A request is made for independent peer review by a State Governor of an affected state; 4) Chief of Engineers determines 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. If a decision document does not automatically trigger a Type I IEPR, a risk-informed recommendation will be developed. Type I IEPR is discretionary where a request is made by the head of a Federal or state agency charged with reviewing the project study if he/she determines that the project is likely to have significant adverse impacts.

(ii) Type II IEPR – Safety Assurance Review (SAR). All design and construction activities addressing hurricane and storm risk management; flood risk management; and other projects where existing and potential hazards pose a significant threat to human life are required to undergo SAR. External panels will review the design and construction activities prior to initiation of physical construction and periodically thereafter until construction activities are completed on a regular schedule sufficient to inform the Chief of Engineers on the adequacy, appropriateness, and acceptability of the design and construction activities for the purpose of assuring public health, safety, and welfare.

Model Certification/Approval:
EC 1105-2-407 requires certification (for Corps models) or approval (for non-Corps models) of planning models used for all planning activities. The EC defines planning models as any models and analytical tools that planners use to define water resources management problems and opportunities, to formulate potential alternatives to address the problems and take advantage of the opportunities, to evaluate potential effects of alternatives, and to support decision-making.

Outside Eligible Organization:
An organization that:

(1) is described in section 501(c)(3), and exempt from Federal tax under section 501(a), of the Internal Revenue Code of 1986;
(2) is independent;
(3) is free from conflicts of interest;
(4) does not carry out or advocate for or against Federal water resources projects; and
(5) has experience in establishing and administering peer review panels.

Peer Review:
Peer Review is the process of subjecting research, assumptions, analyses, and conclusions to the scrutiny of others who are experts in the same field. Peer review requires a community of experts in a given (and often narrowly defined) field, who are qualified and able to perform impartial review.

Policy and Legal Compliance Review:
Decision documents will be reviewed throughout the study process for their compliance with law and policy. These reviews culminate in determinations that the recommendations in the reports and the supporting analyses and coordination comply with law and policy, and warrant approval or further recommendation to higher authority. Guidance for policy and legal compliance reviews is addressed further in Appendix H, ER 1105-2-100, Planning Guidance Notebook. DQC and ATR will address compliance with pertinent USACE policies. IEPR teams are not expected to be knowledgeable of Army and administration polices, nor are they expected to address such concerns. The home district Office of Counsel is responsible for the legal review of each decision document and signing a certification of legal sufficiency.

Real Estate Review Certification:
Real Estate Gross Appraisals are used to support final decision documents or other aspects of project approval, authorization, and funding. These reports are subject to policy compliance

review. Gross appraisal reports must contain an appropriate certification by a qualified review appraiser.

ATTACHMENT 2: ATR TEAM CONTACT INFORMATION

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