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U.S. ARMY CORPS OF ENGINEERS, NORTH ATLANTIC DIVISION  
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MAR 13 2015

CENAD-PD-P

MEMORANDUM FOR Commander, Baltimore District, (CENAB-PP-C/Christopher Nolta) City Crescent Building 10 South Howard Street Baltimore, MD 21201

SUBJECT: Review Plan Approval for Baltimore Harbor and Channels 50-Foot Project, Maryland and Virginia General Reevaluation Report

1. Reference, Baltimore Harbor and Channels 50-Foot Project, Maryland and Virginia General Reevaluation Report prepared by Baltimore District dated January 2015.
2. The Deep Draft Navigation Planning Center of Expertise of the South Atlantic Division is the lead office to execute the referenced Review Plan. The Review Plan includes Independent External Peer Review.
3. The above referenced Review Plan has been approved for execution and is subject to change as study circumstances require, consistent with study development under the Project Management Business Process. Subsequent revisions to this Review Plan or its execution will require new written approval from this office.
4. Point of contact is Mr. Larry Cocchieri, 347-370-4571, Lawrence.J.Cocchieri@usace.army.mil.

Encl  
Review Plan, Baltimore Harbor  
and Channels 50-Foot



KENT D. SAVRE  
Brigadier General, USA  
Commanding

## **REVIEW PLAN**

Baltimore Harbor and Channels 50-Foot Project, Maryland and Virginia  
General Reevaluation Report

Baltimore District

**MSC Approval Date:** Pending  
**Last Revision Date:** 29 January 2015



**US Army Corps  
of Engineers®**

# REVIEW PLAN

## Baltimore Harbors and Channels 50-Foot Project, Maryland and Virginia General Reevaluation Report

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## 1. PURPOSE AND REQUIREMENTS

a. **Purpose.** This Review Plan, which is part of the Project Management Plan, defines the scope and level of peer review for the Baltimore Harbor and Channels 50-Foot Project, Maryland and Virginia General Reevaluation Report.

### b. References

- (1) Engineering Circular (EC) 1165-2-214, Civil Works Review Policy, 5 Dec 2012
- (2) EC 1105-2-412, Assuring Quality of Planning Models, 31 Mar 2011
- (3) Engineering Regulation (ER) 1110-1-12, Quality Management, 30 Sep 2006
- (4) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007
- (5) Baltimore Harbor and Channels 50-Foot Project Management Plan (PMP), under development
- (6) Planning Division, Civil Project Development Branch, Quality Management Plan, 7 October 2009

c. **Requirements.** This review plan was developed for this single purpose navigation project in accordance with EC 1165-2-214, which establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products by providing a seamless process for review of all Civil Works projects from initial planning through design, construction, and operation, maintenance, repair, replacement and rehabilitation (OMRR&R). The EC outlines four general levels of review: District Quality Control/Quality Assurance (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR), and Policy and Legal Compliance Review. In addition to these levels of review, decision documents are subject to cost engineering review and certification (per EC 1165-2-214) and planning model certification/approval (per EC 1105-2-412).

## 2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

The RMO is responsible for managing the overall peer review effort described in this Review Plan. The RMO for decision documents is typically either a Planning Center of Expertise (PCX) or the Risk Management Center (RMC), depending on the primary purpose of the decision document. The RMO for the peer review effort described in this Review Plan is the Deep Draft Navigation Planning Center of Expertise (DDN-PCX).

The RMO will coordinate with the Cost Engineering Mandatory Center of Expertise (MCX) to ensure the appropriate expertise is included on the review teams to assess the adequacy of cost estimates, construction schedules and contingencies.

### 3. STUDY INFORMATION

- a. **Decision Document.** A General Reevaluation Report (GRR) will be prepared for the Baltimore Harbor and Channels 50-Foot Project, Maryland and Virginia. A GRR documents the results of a General Reevaluation of a previously completed study, in this case the Baltimore Harbor and Channels 50-Foot Project, which is required due to changed conditions and/or assumptions. The results may affirm the previous plan of widening channels to authorized widths ; reformulate and modify it for alternate widths, as appropriate; or find that no plan for widening is currently justified. The level of approval for a GRR is Headquarters, U.S. Army Corps of Engineers (HQUSACE) and will not require Congressional authorization, unless the selected plan proposes new work that was not in the current authorization. In accordance with the National Environmental Policy Act (NEPA), a Supplemental Environmental Impact Statement (EIS) or Environmental Assessment (EA) will be developed in addition to the GRR to address any environmental impacts associated with the project.
- b. **Study/Project Description.** The Baltimore Harbor and Channels 50-Foot project is a single purpose deep draft navigation project located in the Maryland and Virginia waters of the Chesapeake Bay (please reference Attachment 5 for a map of the study area). The project was originally authorized by Section 101 of the River and Harbor Act of 1970 (PL 91-611), as amended by Section 909 of the Water Resources Development Act (WRDA) of 1986, and recommended for phased construction in 1985 via a supplement to a 1981 General Design Memorandum (GDM). The 1985 Supplement to the 1981 GDM recommended a phased implementation to "hasten commencement" of the project, with the second phase being implemented "at a future date to be determined." Phase I of project implementation, completed in 1990, provided a 50-foot deep main shipping channel from the Virginia Capes to Fort McHenry in Baltimore Harbor. In addition, the project includes the Curtis Bay Channel, the East Channel, and the West Channel which are dredged to depths of 50 feet, 49 feet, and 40 feet, respectively, with all three channels authorized to a width of 600 feet. Due to financial and dredged material placement capacity constraints at the time, several channel components of the 50-foot project were not constructed to the authorized widths during Phase I. Two of the three 1000-foot wide Virginia channels were only constructed to a width of 800 feet, the 800-foot wide Maryland channels were only constructed to 700 feet, and the 600-foot wide Curtis Bay Channel was only constructed to a width of 400 feet. Phase II of implementation was envisioned to construct the project channels to their authorized widths once funding and dredged material storage became available.

Since 1986, the maritime industry has continued to utilize increasingly larger vessels to make port calls in Baltimore Harbor. The current channels were designed for dry bulk and tanker ships of up to 150,000 Deadweight Tonnes (DWT), which corresponds to beam widths of about 145 feet and draft depths up to 50 feet. While

ships may have a draft of up to 50 feet, the channels are designed to accommodate 5 foot under keel clearance; therefore, vessels generally draft less than 50 feet. The current channel dimensions are generally adequate for today's vessel traffic, but the vessel pilots and shipping companies are concerned that the narrow channel widths are beginning to negatively impact shipping efficiency. Currently, deeper and wider vessels sometimes experience safety problems passing other ships in the narrow channels, which results in time delays and increased shipping costs. These ships typically anchor south of the Maryland channels and wait for other ships to pass. Furthermore, in 2015 when the Panama Canal improvements are scheduled to be completed, large ships requiring 50-foot channels and with beam widths of 160-feet will frequently experience shipping delays when making calls in the Port of Baltimore if the channels remain at the current dimensions. Currently, Baltimore is one of two East Coast ports that can accommodate this ship size.

The non-Federal sponsor, the Port of Baltimore, has requested that the Baltimore District execute Phase II of implementation and construct the project to the originally authorized channel dimensions. However, due to the lapse in time since Phase I of the project was constructed, the North Atlantic Division has required that a General Reevaluation be conducted to consider whether widening the existing project channels, according to the originally authorized plan, is still in the Federal Interest and to allow for reformulation of the plan, as appropriate, to develop new alternatives. The estimated cost of widening the existing channels to the authorized project dimensions is approximately \$118M.

**c. Factors Affecting the Scope and Level of Review.**

- It is not likely that the study will be challenging, as it is the reevaluation of a previously authorized and partially constructed project. There is already a large quantity of existing information and prior reports available for use in the study and the reevaluation of the previously authorized plan is not expected to be technically challenging. The non-Federal sponsor, the Port of Baltimore, has requested and fully supports the study and because the project has already been constructed, it is unlikely that there would be significant social and/or institutional concern for the acceptability of modifying the project;
- This project is relatively low risk, considering that it is only the continued construction of an existing Federal Navigation Project to meet the authorized design criteria. However, there is some uncertainty, as in any study, as to whether implementing Phase II (or a reformulated alternative) is still economically justified and environmentally acceptable. There may be environmental constraints, considering the size of the project and the fact that it is located in the Chesapeake Bay. These potential risks are inherent to any USACE study or project and are not expected to inhibit successful implementation of this project. The project is not anticipated to have more than negligible impacts on scarce or unique tribal, cultural, or historic resources;
- The project will not be justified by life safety features and does not involve significant threat to human life. The Baltimore Harbor 50-Foot project is a single

use deep draft navigation project that will be economically justified based on the reduction in the value of resources required to transport commodities, or NED benefits, as outlined in ER 1105-2-100. Should the project not perform as expected, the impact would be a lower than expected benefit to National Economic Development, which does not impact human life and/or safety. Non-performance of the project would not affect the well-being of the general public and/or environment, but may negatively affect vessels that utilize the project and may affect the efficiency of port operations. There is no residual risk to account for in this project due to the fact that the project purpose does not address or directly affect human health and safety. Climate and sea level change would not be a risk to this project and would instead likely improve the function of the project by providing a deeper channel as sea level increases, though there may be impacts to landside port infrastructure;

- There has not been a request for a peer review by independent experts by the Governor of Virginia or Maryland;
- The study/project is not likely to involve significant public dispute as to its size, nature, or effects due to the fact that it is only a reevaluation of an authorized and partially constructed project. The proposed widening of the existing project would only increase the size of the channels as consistent with the design criteria of originally authorized plan which, upon its approval, was economically justified, environmentally acceptable, and engineeringly feasible;
- The study/project is not likely to involve significant public dispute as to the economic cost or benefit of the project. The non-Federal sponsor requested that the project be constructed to its authorized design criteria and is very supportive of the project. Their eagerness reflects the importance of maintaining and completing the project to authorized widths to accommodate existing and future commercial vessel traffic in the Port of Baltimore. The maritime industry also supports the project, as it is expected to increase the efficiency of the Port of Baltimore, which is a significant economic driver in the region and the nation;
- The information in the GRR or anticipated project design is not likely to be based on novel methods, involve the use of 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. It is a reevaluation of an authorized, existing Federal Navigation Project;
- The project design is not anticipated to require redundancy, resiliency and/or robustness, unique construction sequencing, or a reduced or overlapping design construction schedule. The project design has already been authorized and does not present unique considerations or challenges for construction.

**d. In-Kind Contributions.** Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC, ATR, and IEPR. The in-kind products and analyses to be provided by the non-Federal sponsor will be determined as part of PMP development. They will be included in a revised review plan when and if they are identified.

#### 4. DISTRICT QUALITY CONTROL (DQC)

All decision documents (including supporting data, analyses, environmental compliance documents, etc.) shall undergo DQC. DQC is an internal review process of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Project Management Plan (PMP). The home district (Baltimore) shall manage DQC. Documentation of DQC activities is required and should be in accordance with the Quality Manual of the Baltimore District and the home MSC (North Atlantic Division).

- a. **Documentation of DQC.** DQC is documented in a Quality Control Report (QCRR), which summarizes the reviewed product, review process, and major issues and their resolution. The QCRR, which is signed by the project delivery team (PDT) and the DQC team, will be provided to the ATR team at each review. The DQC process is outlined in the Baltimore District Planning Division, Civil Project Development Branch, Quality Management Plan.
- b. **Products to Undergo DQC.** The draft and final GRR, as well as all technical products, appendices, environmental compliance documents, read ahead materials (if required), and products developed in coordination with outside sources, will undergo DQC. DQC will be conducted in accordance with the Baltimore District Planning Division, Civil Project Development Branch, Quality Management Plan.

#### 5. AGENCY TECHNICAL REVIEW (ATR)

ATR is mandatory for all decision documents (including supporting data, analyses, environmental compliance documents, etc.). The objective of ATR is to ensure consistency 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 results in a reasonably clear manner for the public and decision makers. ATR is managed within USACE by the designated RMO and is conducted by a qualified team from outside the Baltimore District that is not involved in the day-to-day production of the project/product, and are free from conflicts of interest. ATR teams will be comprised of senior USACE personnel and may be supplemented by outside experts as appropriate. The ATR team lead will be from outside the home MSC. The DDN-PCX will select ATR team members, and potential reviewers will not be nominated by the home district or MSC.

- a. **Products to Undergo ATR.** ATR will be conducted on the draft and final GRR as well as all accompanying technical products, appendices, and environmental compliance documents. As consistent with the new SMART Planning process and increased vertical team involvement throughout the study process, ATR will be performed on various technical products as they are completed. Examples of



products to undergo ATR using this approach are economic model outputs. Conducting ATR on technical products as they become available will ensure that the analyses and assumptions developed during the study have been reviewed and accepted before major milestones are reached. ATR will be performed on documentation prepared for the Agency Decision Milestone and Final Report Milestone. Additional ATR of key technical and interim products, MSC-specific milestone documentation, and In-Progress Review (IPR) documentation will occur depending on the study needs and the requirements of the MSC/District Quality Management Plans.

- b. Required ATR Team Expertise.** Due to the nature of the analyses, it is appropriate that the ATR team include experts from various relevant disciplines that have experience in deep draft navigation studies/projects. In particular, it is important that the economist and plan formulation reviewers also are familiar with the planning principles and procedures associated with a general reevaluation study. The DDN-PCX, in cooperation with the PDT and vertical team will determine the final make-up of the ATR team. The following table lists the disciplines that should be included on the ATR team and the descriptions of the expertise required for each. It is recommended that at minimum, these eight disciplines are represented in the final ATR team. However, in the interest of efficiency, team members with more than one expertise are preferred if possible.

<b>ATR Team Members/Disciplines</b>	<b>Expertise Required</b>
ATR Lead	The ATR lead should be a senior professional with extensive experience in preparing Civil Works decision documents and conducting ATR. The lead should also be familiar with SMART Planning processes and have the necessary skills and experience to lead a virtual team through the ATR process. The ATR lead may also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc).
Planning	The planning reviewer should be a senior water resources planner with experience in deep draft navigation studies and be familiar with general reevaluation study requirements and the SMART Planning process.
Economics	The economics reviewer should be a senior economist/water resources planner with experience in deep draft navigation studies and be familiar with general reevaluation study requirements and plan formulation process. The economics reviewer should also be familiar with HarborSym.
Environmental Resources	The environmental reviewer should have expertise in the impacts associated with navigation projects and

	dredging as well as extensive knowledge of estuarine and coastal ecology. The reviewer should also be familiar with the environmental coordination and NEPA requirements for deep draft navigation projects.
Hydraulic Engineering	The hydraulic engineering reviewer should be an expert in the field of hydraulics and have a thorough understanding of open channel dynamics and have experience in deep draft navigation studies/projects. The reviewer should also be familiar with computer modeling techniques that will be used in the study.
Cost Engineering	The cost engineering reviewer should be an expert in the field, be certified by the Cost Engineering MCX, and have experience in deep draft navigation studies/projects.
Operations	The operations reviewer should have expertise in the operations of deep draft navigation studies/projects.
Real Estate	A real estate plan will be prepared for this document, though it is expected to be limited because new and maintenance material will be placed at the Poplar Island Environmental Restoration Project, owned and operated by USACE, or the Cox Creek and Masonville Dredged Material Containment Facilities, owned and operated by MPA. The real estate reviewer should have expertise in evaluating real estate requirements for deep draft navigation projects.

**c. Documentation of ATR.** DrChecks 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 four key parts of a quality review comment will normally include:

- (1) The review concern – identify the product’s information deficiency or incorrect application of policy, guidance, or procedures;
- (2) The basis for the concern – cite the appropriate law, policy, guidance, or procedure that has not been properly followed;
- (3) The significance of the concern – indicate the importance of the concern with **regard** to its potential impact on the plan selection, recommended plan components, efficiency (cost), effectiveness (function/outputs), implementation responsibilities, safety, Federal interest, or public acceptability; and
- (4) The probable specific action needed to resolve the concern – identify the action(s) that the reporting officers must take to resolve the concern.

In some situations, especially addressing incomplete or unclear information, comments may seek clarification in order to then assess whether further specific concerns may exist.

The ATR documentation in DrChecks will include the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any discussion, including any vertical team coordination (the vertical team includes the district, RMO, MSC, and HQUSACE), and the agreed upon resolution. If an ATR concern cannot be satisfactorily resolved between the ATR team and the PDT, it will be elevated to the vertical team for further resolution in accordance with the policy issue resolution process described in either ER 1110-1-12 or ER 1105-2-100, Appendix H, as appropriate. Unresolved concerns can be closed in DrChecks with a notation that the concern has been elevated to the vertical team for resolution.

At the conclusion of each ATR effort, the ATR team will prepare a Review Report summarizing the review. Review Reports will be considered an integral part of the ATR documentation and shall:

- Identify the document(s) reviewed and the purpose of the review;
- Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- Include the charge to the reviewers;
- Describe the nature of their review and their findings and conclusions;
- Identify and summarize each unresolved issue (if any); and
- Include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

ATR may be certified when all ATR concerns are either resolved or referred to the vertical team for resolution and the ATR documentation is complete. The ATR Lead will prepare a Statement of Technical Review certifying that the issues raised by the ATR team have been resolved (or elevated to the vertical team). A Statement of Technical Review should be completed, based on work reviewed to date, for the Tentatively Selected Plan, draft report, and final report. A sample Statement of Technical Review is included in Attachment 2.

## **6. 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 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. A risk-informed decision, as described in EC 1165-2-214, is made as to whether IEPR is appropriate.

IEPR panels will consist of independent, recognized experts from outside of the USACE in the appropriate disciplines, representing a balance of areas of expertise suitable for the review being conducted. There are two types of IEPR:

- **Type I IEPR.** Type I IEPR reviews are managed outside the USACE and are conducted on project studies. Type I IEPR panels assess the adequacy and acceptability of the economic and environmental assumptions and projections, project evaluation data, economic analysis, environmental analyses, engineering analyses, formulation of alternative plans, methods for integrating risk and uncertainty, models used in the evaluation of environmental impacts of proposed projects, and biological opinions of the project study. Type I IEPR will cover the entire decision document or action and will address all underlying engineering, economics, and environmental work, not just one aspect of the study. For decision documents where a Type II IEPR (Safety Assurance Review) is anticipated during project implementation, safety assurance shall also be addressed during the Type I IEPR per EC 1165-2-214.
  - **Type II IEPR.** Type II IEPR, or Safety Assurance Review (SAR), are managed outside the USACE and are conducted on design and construction activities for hurricane, storm, and flood risk management projects or other projects where existing and potential hazards pose a significant threat to human life. Type II IEPR panels will conduct reviews of the design and construction activities prior to initiation of physical construction and, until construction activities are completed, periodically thereafter on a regular schedule. The reviews shall consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health safety and welfare.
- a. Decision on IEPR.** Type I IEPR will be conducted on the general reevaluation study because the total project cost is expected to be in excess of \$100M, which exceeds the \$45M cost trigger for Type I IEPR per the criteria in Appendix D of EC 1165-2-214. There is no significant threat to human life and there has not been an official request by the Governors of the affected states (Maryland and Virginia) or by the head of a Federal or state agency. Because the project is not justified by and is not expected to impact human life or safety, Type II IEPR is not considered appropriate for this project. This determination is based on the criteria for Type II IEPR in Appendix E of EC 1165-2-214 and the project design does not require redundancy, resiliency, robustness, or a unique construction sequencing and/or overlapping design construction schedule. The project does not involve the use of innovative materials or techniques where the engineering is based on novel methods, presents complex challenges for interpretations, contains precedent-setting methods or models, or present conclusions that are likely to change prevailing practices.
- b. Products to Undergo Type I IEPR.** IEPR will be conducted on the GRR as well as all accompanying technical products, appendices, and environmental compliance

documents. Additional IEPR of key technical and interim products, MSC-specific milestone documentation, and In-Progress Review (IPR) documentation may also occur depending on the study needs and the requirements of the MSC/District Quality Management Plans.

- c. Required Type I IEPR Panel Expertise.** Due to the nature of the analyses, it is appropriate that the IEPR panel include experts from various relevant disciplines that have experience in deep draft navigation studies/projects. The PDT will make the initial assessment of the expertise needed based on the PMP and factors affecting the scope and level of review outlined in Section 3 of the review plan. The decision on the final number of reviewers and their expertise will be made by the DDN-PCX after coordination with the PDT. No candidates for the IEPR shall be suggested by the PDT, the DDN-PCX, or the MSC. Using the National Academies of Science (NAS) policy for selecting reviewers, the Outside Eligible Organization (OEO) will manage the reviews and select an independent recognized panel of experts that is free of conflict of interest. The following table lists the disciplines that should be included on the IEPR team and the descriptions of the expertise required for each. It is recommended that at minimum, these three disciplines are represented in the final IEPR team. However, in the interest of efficiency, team members with more than one expertise are preferred if possible.

<b>IEPR Panel Members/Disciplines</b>	<b>Expertise Required</b>
Economics	The Economics Panel Member should be a Navigation Economist with experience in deep draft navigation projects/studies.
Environmental	The Environmental Panel Member must have expertise in the impacts associated with navigation projects and dredging as well as extensive knowledge of estuarine and coastal ecology. The reviewer should also be familiar with the environmental coordination and NEPA requirements for deep draft navigation projects.
Hydraulic Engineering	The Hydraulic Engineering Panel Member should be an expert in the field of hydraulics and have a thorough understanding of open channel dynamics and have experience in deep draft navigation studies/projects. The reviewer should also be familiar with computer modeling techniques that will be used in the study.
Plan Formulation	The Plan Formulation Panel Member should have experience in evaluating Corps of Engineers deep draft navigation projects and should be knowledgeable of NED analysis and evaluating and comparing alternative plans for USACE,

**d. Documentation of Type I IEPR.** The IEPR panel comments will be compiled by the OEO and should address the adequacy and acceptability of the economic, engineering, and environmental methods, models, and analyses used. IEPR comments should generally include the same four key parts as described for ATR comments in Section 5.c of this review plan. The OEO will prepare a final Review Report that will accompany the publication of the final decision document and shall:

- Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- Include the charge to the reviewers;
- Describe the nature of their review and their findings and conclusions; and
- Include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

The final Review Report will be submitted by the OEO no later than 60 days following the close of the public comment period for the draft decision document. USACE shall consider all recommendations contained in the Review Report and prepare a written response for all recommendations adopted or not adopted. The final decision document will summarize the Review Report and USACE response. The Review Report and USACE response will be made available to the public, including through electronic means on the internet.

## **7. POLICY AND LEGAL COMPLIANCE REVIEW**

All decision documents will be reviewed throughout the study process for their compliance with law and policy. Guidance for policy and legal compliance reviews is addressed in Appendix H, ER 1105-2-100. 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 by the home MSC Commander. DQC and ATR augment and complement the policy review processes by addressing compliance with pertinent published Army policies, particularly policies on analytical methods and the presentation of findings in decision documents.

## **8. COST ENGINEERING MANDATORY CENTER OF EXPERTISE (MCX) REVIEW AND CERTIFICATION**

All decision documents shall be coordinated with the Cost Engineering MCX, located in the Walla Walla District. The MCX will assist in determining the expertise needed on the ATR team and Type I IEPR team (if required) and in the development of the review

charge(s). The MCX will also provide the Cost Engineering MCX certification. The RMO is responsible for coordination with the Cost Engineering MCX.

## 9. MODEL CERTIFICATION AND 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, for the purposes of the EC, are defined 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. The use of a certified/approved planning model does not constitute technical review of the planning product. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, and IEPR (if required).

EC 1105-2-412 does not cover engineering models used in planning. 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. As part of the USACE Scientific and Engineering Technology (SET) Initiative, many engineering models have been identified as preferred or acceptable for use on USACE studies and these models should be used whenever appropriate. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, and IEPR (if required).

- a. **Planning Models.** The following planning model is anticipated to be used in the development of the decision document:

<b>Model Name and Version</b>	<b>Brief Description of the Model and How It Will Be Applied in the Study</b>	<b>Certification / Approval Status</b>
HarborSym Suite	The HarborSym Program is a Monte Carlo simulation of vessel traffic for coastal harbors that estimates transportation cost changes due to harbor improvements including: vessel time in harbor, inefficient delay times, and the transportation cost from prior/next port and overseas distance. It also incorporates risk and uncertainty. It will be used to measure potential benefits of proposed harbor and/or channel improvements to Baltimore Harbor.	Certified

**b. Engineering Models.** The following engineering models are anticipated to be used in the development of the decision document:

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Approval Status
ADCIRC	<p>The ADvanced CIRculation model (ADCIRC), is a two-dimensional, depth-integrated, barotropic time-dependent long wave, hydrodynamic circulation model. ADCIRC can be applied to computational domains encompassing the deep ocean, continental shelves, coastal seas, and small-scale estuarine systems for simulations that require months to years time. In a single simulation, ADCIRC can provide tide and storm surge elevations and velocities corresponding to each node over a very large domain encompassing regional domains such as the western North Atlantic Ocean, the Caribbean Sea, and the Gulf of Mexico.</p> <p>ADCIRC will be used only for the simulation of circulation for use by ERDC in conducting a ship simulation study.</p>	HH&C CoP Preferred Model

## 10. REVIEW SCHEDULES AND COSTS

A preliminary project schedule is shown in the table below.

Date	Activity/Milestone
April 2014	PMP Approval
May 2014	Execute FCSA
December 2014	Complete Ship Simulation Model
March 2015	Complete Analyses and Cost Estimates
September 2015	Tentatively Selected Plan Milestone
March 2016	Agency Decision Milestone
November 2016	Agency Decision Milestone
May 2017	Signed Chief's Report

**a. ATR Schedule and Cost.** A detailed schedule has not yet been developed at this early stage of the study, but it is expected that the draft GRR will be available for ATR in May of 2015. The PCX has advised that 45 days be allotted for ATR of the decision document and the estimated cost is approximately \$60,000. ATR will be continual during the SMART planning for this study, and therefore, the costs and schedule will be refined at a later date.



**b. Type I IEPR Schedule and Cost.** A detailed schedule has not yet been developed at this early stage of the study, but it is expected that the draft GRR will be available for IEPR in July of 2015. The PCX has advised that 90 days be allotted for IEPR of the decision document and that the district begin coordinating with them 60 days prior to the date that IEPR should begin to ensure that there is enough time to develop the contracts necessary for the review. It is estimated that IEPR for the IEPR for this study will cost approximately \$200,000.

**c. Model Certification/Approval Schedule and Cost.** N/A

## **11. PUBLIC PARTICIPATION**

Public participation for this effort will be conducted as appropriate and required by USACE, NEPA, and other Federal and non-Federal laws and policies.

A Stakeholder Involvement Plan will be developed near the beginning of study initiation. Stakeholders will be updated and involved throughout the study via email and postal mail. All documents developed during the study will be posted on the NAB website. The NEPA scoping process will also provide a means for public participation in the study process. The ATR team will be provided any relevant or significant public comments. A State/agency review will be performed at the final report milestone.

Additionally, the public will be able to comment during the study process. Comments and responses will be documented by the date the comment was received, and provided as an attachment that will follow the assessment through the development, review, and approval process. This will include comments from all ATRs and comments received from the public throughout the study process.

## **12. REVIEW PLAN APPROVAL AND UPDATES**

The North Atlantic Division Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input (involving district, MSC, RMO, and HQUSACE 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. The home district is responsible for keeping the Review Plan up to date. Minor changes to the review plan since the last MSC Commander approval are documented in Attachment 3. Significant changes to the Review Plan (such as changes to the scope and/or level of review) should be re-approved by the MSC Commander following the process used for initially approving the plan. The latest version of the Review Plan, along with the Commanders' approval memorandum, should be posted on the Home District's webpage. The latest Review Plan should also be provided to the RMO and home MSC.

### **13. REVIEW PLAN POINTS OF CONTACT**

Public questions and/or comments on this review plan can be directed to the following points of contact:

- Andrew Roach, Study Manager: 410-962-8156
- Rena Weichenberg, Planning & Policy Division, North Atlantic Division: 347-370-4571
- Paul Sabalis, Civil Works Integration Division, North Atlantic Division: 347-370-4589
- Johnny Grandison, Deep Draft Navigation PCX: 251-694-3804

**ATTACHMENT 1: TEAM ROSTERS**

<b>Project Delivery Team</b>				
<b>Name</b>	<b>Role</b>	<b>Phone</b>	<b>E-Mail</b>	<b>Credentials/Years Experience</b>
<b>USACE</b>				
Dan Bierly	Account Manager	410-962-6139	Daniel.M.Bierly@usace.army.mil	District Planning Coordinator/20
Justin Callahan	Project Manager	410-962-6693	Justin.Callahan@usace.army.mil	PM, Physical Scientist/20
Karla Roberts	Study Manager	410-962-3065	Karla.A.Roberts@usace.army.mil	Planner/4
NAO Economist	Economist	757-201-		Economist
Mark Mendelsohn	Environmental Specialist	410-962-9499	Mark.Mendelsohn@usace.army.mil	Biologist/30
Israel Miller	Design Manager	410-962-5667	Israel.Y.Miller@usace.army.mil	Civil Engineer/10
Kevin Brennan	Chief, Navigation Section	410-962-6113	Kevin.M.Brennan@usace.army.mil	Chief, Navigation Section/25
Michael Snyder, P.E	Geotechnical Specialist	410-962-4314	Michael.R.Snyder2@usace.army.mil	Civil Engineer/30
Catherine Perkins	Engineering Team, Civil	410-962-4283	Catherine.J.Perkins@usace.army.mil	Civil Engineer/8
Craig Holmesley	Real Estate	410-962-4944	Craig.R.Homesley@usace.army.mil	Chief, Civil Projects Support Branch, Real Estate Division
Luan Ngo	Cost Engineer	410-962-3322	Luan.T.Ngo@usace.army.mil	Cost Engineer/10
<b>• State Offices</b>				
Dave Bibo		410-385-4466		Maryland Port Authority
Eric Nielson	President	410-276-1337		Assoc. of Maryland Pilots
<b>• ATR Team - TBD</b>				

**Project Delivery Team**

<b>Name</b>	<b>Role</b>	<b>Phone</b>	<b>E-Mail</b>	<b>Credentials/Years Experience</b>
<b>• Vertical Team</b>				
Laura Cameron	Planner	202-761-0108	Laura.L.Cameron@usace.army.mil	HQUSACE-RIT
Paul Sabalis	NAB Program Manager	347-370-4589	Paul.Sabalis@usace.army.mil	CENAD-PD-CS
Rena Weichenberg	Water Resources Planner	347-370-4568	Rena.Weichenberg@usace.army.mil	CENAD-PD-PP
<b>• PCX</b>				
Johnny Grandison	Review Manager	251-694-3804	Johnny.L.Grandison@usace.army.mil	DDN-PCX

**ATTACHMENT 2: SAMPLE STATEMENT OF TECHNICAL REVIEW FOR DECISION DOCUMENTS**

**COMPLETION OF AGENCY TECHNICAL REVIEW**

The Agency Technical Review (ATR) has been completed for the <type of product> for <project name and location>. The ATR was conducted as defined in the project's Review Plan to comply with the requirements of EC 1165-2-214. During the ATR, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions, methods, procedures, and material used in analyses, alternatives evaluated, the appropriateness of data used and level obtained, and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing US Army Corps of Engineers policy. The ATR also assessed the District Quality Control (DQC) documentation and made the determination that the DQC activities employed appear to be appropriate and effective. All comments resulting from the ATR have been resolved and the comments have been closed in DrChecks<sup>sm</sup>.

SIGNATURE

Name

ATR Team Leader

Office Symbol/Company

Date

SIGNATURE

Name

Project Manager

Office Symbol

Date

SIGNATURE

Name

Architect Engineer Project Manager<sup>1</sup>

Company, location

Date

SIGNATURE

Name

Review Management Office

Representative

Office Symbol

Date

**CERTIFICATION OF AGENCY TECHNICAL REVIEW**

Significant concerns and the explanation of the resolution are as follows: Describe the major technical concerns and their resolution.

As noted above, all concerns resulting from the ATR of the project have been fully resolved.

*SIGNATURE*

Name

Chief, Engineering Division

Office Symbol

Date

*SIGNATURE*

Name

Chief, Planning Division

Office Symbol

Date

<sup>1</sup> Only needed if some portion of the ATR was contracted

**ATTACHMENT 3: REVIEW PLAN REVISIONS**

<b>Revision Date</b>	<b>Description of Change</b>	<b>Page / Paragraph Number</b>
15 April 2014	Updated project delivery team roster	13

#### ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

<u>Term</u>	<u>Definition</u>	<u>Term</u>	<u>Definition</u>
ASA(CW)	Assistant Secretary of the Army for Civil Works	NED	National Economic Development
ATR	Agency Technical Review	NEPA	National Environmental Policy Act
CSDR	Coastal Storm Damage Reduction	O&M	Operation and maintenance
DPR	Detailed Project Report	OMB	Office and Management and Budget
DQC	District Quality Control/Quality Assurance	OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
DX	Directory of Expertise	OEO	Outside Eligible Organization
EA	Environmental Assessment	OSE	Other Social Effects
EC	Engineer Circular	PCX	Planning Center of Expertise
EIS	Environmental Impact Statement	PDT	Project Delivery Team
EO	Executive Order	PAC	Post Authorization Change
ER	Ecosystem Restoration	PMP	Project Management Plan
FDR	Flood Damage Reduction	PL	Public Law
FEMA	Federal Emergency Management Agency	QMP	Quality Management Plan
FRM	Flood Risk Management	QA	Quality Assurance
		QC	Quality Control
GRR	General Reevaluation Report	RED	Regional Economic Development
Home District/MS	The District or MSC responsible for the preparation of the decision document	RMC	Risk Management Center
HQUSACE	Headquarters, U.S. Army Corps of Engineers	RMO	Review Management Organization
IEPR	Independent External Peer Review	RTS	Regional Technical Specialist
ITR	Independent Technical Review	SAR	Safety Assurance Review
LRR	Limited Reevaluation Report	TSP	Tentatively Selected Plan
MSC	Major Subordinate Command	USACE	U.S. Army Corps of Engineers
NAD	North Atlantic Division	WRDA	Water Resources



<u>Term</u>	<u>Definition</u>	<u>Term</u>	<u>Definition</u>
			Development Act

