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US ARMY CORPS OF ENGINEERS, NORTH ATLANTIC DIVISION
FORT HAMILTON MILITARY COMMUNITY
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MAY 23 2014

CENAD-PD-P

MEMORANDUM FOR Commander, U.S. Army Corps of Engineers, New York District,
(CENAN-PP-C/Daniel Falt) 26 Federal Plaza New York, NY 10278

SUBJECT: Review Plan Approval for Hashamomuck Cove, New York

1. Attached is the Review Plan for the Hashamomuck Cove study prepared by New York District in accordance with EC 1165-2-214, Civil Works Review.
2. The Review Plan was coordinated with the North Atlantic Division Coastal Storm Risk Management Planning Center of Expertise, the lead office to execute this plan. The Review Plan includes a current risk informed decision for exclusion from Type I Independent External Peer Review (IEPR) for this study. An IEPR exclusion request was not been made, as it is early in the study and a plan has yet to be formulated. Final approval for exclusion must be obtained from the Director of Civil Works.
3. I hereby approve this Review Plan, which 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 the NAD Commander.
4. The point of contact is Mr. Larry Cocchieri, Deputy Director, USACE National Planning Center for Coastal Storm Risk Management, 347-370-4571.

Encl
Review Plan, Hashamomuck
Cove


KENT D. SAVRE
Brigadier General, USA
Commanding

REVIEW PLAN

Hashamomuck Cove, New York
Feasibility Report

New York District

MSC Approval Date: 14 December 2012
Last Revision Date: 21 April 2014



**US Army Corps
of Engineers®**

REVIEW PLAN

Hashamomuck Cove, New York
Feasibility Report

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1. PURPOSE AND REQUIREMENTS

- a. Purpose. This Review Plan defines the scope and level of peer review for the Hashamomuck Cove, New York, feasibility report.
- b. References.
 - (1) Engineering Circular (EC) 1165-2-214, Civil Works Review, 15 Dec 12
 - (2) EC 1105-2-412, Assuring Quality of Planning Models, 31 Mar 11
 - (3) Engineering Regulation (ER) 1110-1-12, Quality Management, 30 Sep 06
 - (4) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 0
 - (5) Hashamomuck Cove, New York feasibility study PMP
 - (6) New York District Quality Management Plan(s)
- c. Requirements. This review plan was developed 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

- a. 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 PCX-CSR, Coastal Storm Risk Management.
- b. 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. The Hashamomuck Cove, New York Feasibility Study is a General Investigations, PL113-2-funded study with alternatives which will most likely require approval of the USACE Director of Civil Works (a Director's Report) and authorization for construction from the Assistant Secretary of the Army for Civil Works. The National Environmental Policy Act will likely require an Environmental Assessment be prepared along with the document.

- b. Study/Project Description. The study will identify and evaluate Coastal Storm Risk Management (CSRM) options along the general Hashamomuck Cove shoreline, in Suffolk County, New York. The decision document will present planning, engineering, and implementation details of the recommended plan to assess existing conditions along the shoreline and to allow final design and construction to proceed subsequent to approval of the plan.
 - (1) The private bulkheads along the various commercial and residential properties along the general Hashamomuck Cove shoreline, which extends approximately 1.5 miles along County Road 48, are vulnerable to storm damage, and the beach fronting them has been subject to substantial erosion over the past four decades. County Road 48 is also threatened by undermining along two undeveloped parcels with no bulkhead. County Road 48 is the primary of two access routes on the north fork of Long Island to the ferry at Orient Point, making it an integral part of the interstate highway system.

 - (2) Solutions to be considered in the feasibility study are the implementation of structural measures at either or both of the undeveloped parcels, repair or reconstruction of the existing bulkheads, construction of a dune, and placement of beachfill as well as non-structural measures such as road relocation and buyouts of homes—ultimately to protect County Road 48. Ecosystem restoration in conjunction with these solutions will be considered. Estimated costs of a recommended plan vary widely at this point in the planning process, but it will likely range from \$10M to \$40M.

- c. Factors Affecting the Scope and Level of Review. This section addresses the factors affecting the risk informed decisions on the appropriate scope and level of review. The discussion is intended to be detailed enough to assess the level and focus of review and support the PDT, the PCX, and vertical team decisions on the appropriate level of review and types of expertise represented on the various review teams. Numbered issues are addressed as follows:
 - (1) If parts of the study will likely be challenging (with some discussion as to why and why not and, if so, in what ways – consider technical, institutional, and social challenges, etc.)

The most challenging part of the study is the evaluation of both without- and with-project conditions given the dynamic nature of a coastal focus. Current conditions are most significantly influenced by hydrologic conditions. The analysis includes three-dimensional, finite-difference, physics-based numerical codes used for modeling coastal conditions. These models, EDUNE and BEACH-FX, are used in other coastal studies along both shores of Long Island. Therefore, the Hashamomuck Cove project can benefit from and adapt in response to lessons learned elsewhere.

- (2) A preliminary risk assessment of where the project risks are likely to occur and what the magnitude of those risks might be (e.g., what are the uncertainties and how might they affect the success of the project):

Any proposed project is considered low risk overall. The potential for failure is low because it would involve straight forward concepts with numerous successful national applications. The alternatives presented in the Reconnaissance report include: 1) acquisition, relocation (in locations where the structures are impacted by erosion or wave attack and where real estate is readily available for relocation), or building retrofits and (2) seawalls, revetments, bulkheads, road raising, beach and dune fill, and groins.

- (3) If the project will be justified by life safety or if the project likely involves significant threat to human life/safety assurance, consider at minimum the safety assurance measures described in EC 1165-2-214 including, but not necessarily limited to, the consequences of non-performance of project economics, the environmental and social well-being (public safety and social justice); residual risk; uncertainty due to climate variability, etc.

Any proposed project likely involves a minimal threat to human life/safety assurance since there would be consequences of project non-performance, though those consequences are most likely still less severe than the without-project future conditions. The scale of a recommended project is yet to be determined.

- (4) If there is a request by the Governor of an affected state for a peer review by independent experts:

There has not been such a request.

- (5) If the project is likely to involve significant public dispute as to the size, nature, or effects of the project:

The potential for dispute regarding project implementation is low because the recommended plan will take into account public concerns. The uncertainty of success of the project is low because the methods used for evaluating the project are standard.

- (6) If the project is likely to involve significant public dispute as to the economic or environmental cost or benefit of the project:

Any Proposed project may have significant economic, environmental, and social impacts to the nation in that its failure will leave vulnerable the more major of the two transportation routes connecting the eastern end of Interstate 495 and the Interstate highway system in Connecticut (via the ferry at Orient Point). Any Proposed project is not likely to have significant environmental or social impacts to the nation in that it will have neither adverse impacts on scarce or unique cultural, historic, or tribal resources nor adverse impacts on fish and wildlife species, or their habitat, or any endangered species. Additionally, a socio-economic analysis will be prepared and at least one public meeting will be held.

- (7) If information in the decision document or anticipated project design is 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.

Standard methods of analysis will be employed including traffic surveys along County Road 48 and well-documented techniques for evaluating coastal processes.

- (8) If the project design is anticipated to require redundancy, resiliency, and/or robustness, unique construction sequencing, or reduced or overlapping design construction schedule:

The project is likely to use standard equipment and techniques previously used many times in the past. For example, the placement of dredged or upland material has been employed historically, and the construction of groins is common to many beach fill designs. The measures to be considered are not expected to require redundancy, unusual resiliency and/or robustness, unique construction sequencing or reduced or overlapping design construction schedule.

- 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 include: topographic mapping, aerial photography, utility surveys, transportation analyses, real estate surveys, and preliminary alternatives development.

4. DISTRICT QUALITY CONTROL (DQC). All decision documents, which include supporting data, analyses, environmental compliance documents, etc.) shall undergo DQC. 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 shall manage DQC, and documentation of DQC activities is required and in accordance with the Quality Manual of the District and the home MSC.

- a. Documentation of DQC. District Quality Control is documented using a Quality Control Report, which is managed in the New York District and signed by those members performing the DQC, and the Division Chiefs of the major technical offices responsible for producing the report.
- b. Products to Undergo DQC. Interim and final products and ultimately the Feasibility report and appendices and the EA
- c. Required DQC Expertise. The expertise of the DQC review team consists of Section Chiefs and subject matter experts or regional technical specialists in the fields of Plan Formulation, NEPA compliance, Engineering Design and Analysis, and Real Estate.

5. AGENCY TECHNICAL REVIEW (ATR). ATR is mandatory for all decision documents to include 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 clear manner for the public and decision makers. The designated RMO manages the ATR and is conducted by a qualified team from outside the home district not involved in the day-to-day production of the project product. ATR teams are comprised of senior USACE personnel and supplemented by outside experts as appropriate. The ATR team lead is from outside the home MSC.

- a. Products to Undergo ATR. ATR will be conducted on the report synopsis and supporting material for the Agency Decision Milestone (ADM), Draft Report (including NEPA and supporting documentation), and Final Report (including NEPA and supporting documentation). Additional ATR of key technical and interim products, MSC-specific milestone documentation, and In-Progress Review (IPR) documentation. Where practicable, technical products that support subsequent analyses will be reviewed prior to being used in the study and may include: surveys and mapping; hydrology and hydraulics; coastal engineering; geotechnical investigations; economic, environmental, cultural, and social inventories; annual damage and benefit estimates; cost estimates; real estate requirements; etc.
- b. Required ATR Team Expertise. An ATR Team Leader and eight technical disciplines are appropriate to review the products leading to the feasibility report and EA including: plan formulation; economics; environmental resources; coastal engineering; geotechnical engineering; civil engineering; cost engineering; and real estate. All members are well versed in the conduct of Coastal Storms Risk Management studies. In particular, experience in use of traffic surveys and

computation of delay disruption data will be advantageous. Reviewers should be from outside the project district, and the review lead should be from outside the project MSC.

ATR Team Members/Disciplines	Expertise Required
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 have the necessary skills and experience to lead a virtual team through the ATR process. Typically, the ATR lead will also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc).
Plan Formulation	The Planning reviewer should be a senior water resources planner with experience in the plan formulation process. The reviewer should be familiar with evaluation of alternative plans for coastal storms risk management projects.
Economics	The economics reviewer should be a senior water resource economist with experience in coastal storms risk management projects; experience with use of traffic surveys and delay/disruption analysis will be advantageous.
Environmental Resources	The environmental resources reviewer should be a senior NEPA compliance specialist with experience in coastal storms risk management projects.
Coastal Engineering	The coastal engineering reviewer should be a senior engineer with experience with coastal storms risk management projects.
Geotechnical Engineering	The geotechnical reviewer should be a senior engineer experienced in geotechnical analyses for storms risk management projects.
Civil Engineering	The civil engineering reviewer should be a senior engineer with experience in coastal storms risk management projects.
Cost Engineering	The cost engineering reviewer should be a senior engineer with experience in coastal storms risk management projects. A separate process and coordination is also required through the Walla Walla District MCX for cost engineering and ATR.
Real Estate	The real estate reviewer should be a senior real estate specialist with experience in coastal storms risk management projects.

Risk Analysis	The risk analysis reviewer will be experienced with performing and presenting risk analyses in accordance with ER 1105-2-101 and other related guidance, including familiarity with how information from the various disciplines involved in the analysis interact and affect the results. This review can be combined with either the Economics or H&H reviews.
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- c. Documentation of ATR. DrChecks review software is used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. Comments should be limited to those required to ensure adequacy of the product. The four key parts of a quality review comment 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 be 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.
- d. In some situations, especially addressing incomplete or unclear information, comments may seek clarification to assess if further specific concerns exist.
- e. 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 vertical team coordination with 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 was elevated to the vertical team for resolution.
- f. At the conclusion of each ATR effort, the ATR team will prepare a Review Report summarizing the review. Review Reports are considered an integral part of the ATR documentation and shall:

- (1) Identify the reviewed documents and the purpose of the review;
 - (2) Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on the credentials and relevant experiences of each reviewer;
 - (3) Include the charge to the reviewers;
 - (4) Describe the nature of their review, and the findings, and conclusions;
 - (5) Identify and summarize each unresolved issue; and
 - (6) Include a verbatim copy of each reviewer's comments (with or without specific attributions), or represent the views of the whole group and include any disparate and dissenting views.
- g. 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 AFB, draft report, and final report. A sample Statement of Technical Review is included in Attachment 2.

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

- a. Under certain circumstances, IEPR may be required for decision documents. IEPR is the most independent level of review, and applies in cases that meet certain criteria where the risk and magnitude the proposed project are such that a critical examination by a qualified team outside USACE is warranted. A risk-informed decision, described in EC 1165-2-214, determines if on IEPR is appropriate. IEPR panels consist of independent, recognized experts from outside USACE in the appropriate disciplines, representing a balance of areas of expertise suitable for the review. There are two types of IEPR:
- (1) Type I IEPR reviews are managed outside of USACE and 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. The Type I IEPR will cover the entire decision document or action and address all underlying engineering, economics, and environmental work. 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.

- (2) Type II IEPR or Safety Assurance Review (SAR), are managed outside USACE and 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 conduct reviews of the design and construction activities prior to initiation of physical construction and, until construction activities are completed, and periodically thereafter on a regular schedule. The reviews consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health safety and welfare.

b. Decision on IEPR.

- (1) The decision document does not meet the mandatory triggers for the Type I IEPR described in Paragraph 11.d.(1) and Appendix D of EC 1165-2-214; also:

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

Based on the potential alternatives discussed in the Reconnaissance Report, there are minimal consequences. This project reduces the present and future risk of coastal storm damages. If in the future such potential benefits are no longer considered viable, the project could be re-examined to modify the future investment of the Nation's resources.

- (b) whether the product is likely to contain influential scientific information or be highly influential scientific assessment:

No. No innovative information is expected to result from the study or the potential project.

- (c) and if and how the decision document meets any of the possible exclusions described in Paragraph 11.d.(3) and Appendix D of EC 1165-2-214:

No. See below.

- (2) The status of any request to conduct IEPR from the head of a Federal or state agency charged with reviewing the project, if applicable:

N/A

- (3) And if the proposed project meets the criteria for conducting Type II IEPR described in Paragraph 2 of Appendix D of EC 1165-2-214, including:

- (a) If the Federal action is justified by life safety or failure of the project would pose

a significant threat to human life:

The expectation that the project would only reduce the risk of damage from coastal storms. Design storm exceedence would not increase such risks. However, it is too early in the study to definitively determine that there is no risk to human life if any proposed project fails because no proposed project has yet been formulated.

(b) If the project involves 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 presents conclusions that are likely to change prevailing practices:

No. This project is not complex and the study is not expected to present challenges for interpretation, set precedents, etc.

(c) If the project design requires redundancy, resiliency, or robustness:

It is too early in the study to make this determination definitively because no proposed project has yet been formulated. However, it is not expected that any proposed project design would require redundancy, resiliency, or robustness.

(d) or if the project has unique construction sequencing or a reduced or overlapping design construction schedule.

(1) It is too early in the study to make this determination definitively because no proposed project has been formulated. However, it is not expected that any proposed project design would have unique construction sequencing or a reduced or overlapping design construction schedule.

(2) In conclusion, since definitive determinations on items 3a, 3c, and 3d cannot be made, Type I IEPR is recommended at this point.

c. Products to Undergo Type I IEPR. Will be conducted on the report synopsis and supporting material for the Agency Decision Milestone (ADM), Draft Report (including NEPA and supporting documentation), and Final Report (including NEPA and supporting documentation).

d. Required Type I IEPR Panel Expertise. Eight technical disciplines were determined appropriate for Type I IEPR of the products leading to the feasibility report and EA including: plan formulation, economics, environmental resources, coastal engineering, geotechnical engineering, civil engineering, cost engineering, and real estate. All should be well versed in the conduct of Coastal Storms Risk Management studies. In particular, experience in use of traffic surveys and computation of delay/disruption data will be advantageous.

Type I IEPR Team Members/Disciplines	Expertise Required
Plan Formulation	The Planning reviewer should be a senior water resources planner with experience in the plan formulation process. The reviewer should be familiar with evaluation of alternative plans for coastal storms risk management projects.
Economics	The economics reviewer should be a senior water resource economist with experience in coastal storms risk management projects; experience with use of traffic surveys and delay/disruption analysis will be advantageous.
Environmental Resources	The environmental resources reviewer should be a senior NEPA compliance specialist with experience in coastal storms risk management projects.
Coastal Engineering	The coastal engineering reviewer should be a senior engineer with experience with coastal storms risk management projects.
Geotechnical Engineering	The geotechnical reviewer should be a senior engineer experienced in geotechnical analyses for storms risk management projects.
Civil Engineering	The civil engineering reviewer should be a senior engineer with experience in coastal storms risk management projects.

e. Documentation of Type I IEPR. The IEPR panel will be selected and managed by an Outside Eligible Organization (OEO) per EC 1165-2-214, Appendix D. Panel comments will be compiled by the OEO and will 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 described for ATR comments in Section 4.d. The OEO will prepare a final Review Report to accompany the publication of the final decision document and shall:

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

f. 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 available to the public, and include 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 not at some later point determined to be waived) and in the development of the review charge. The MCX will also provide the Cost Engineering certification. The RMO is responsible for coordination with the Cost Engineering MCX.

9. MODEL CERTIFICATION AND APPROVAL

a. EC 1105-2-412 mandates using 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 or 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.

b. 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 Corps studies and 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 not at some later point determined to be waived).

(1) Planning Models. The following planning models may be used in the development of the decision document. Should additional or different models be determined to be used in the study, this plan will be updated.

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Certification / Approval Status
BEACH-FX	BEACH-FX is a computer simulation that combines EDUNE results with economic valuations of building in the coastal environment	Certified

(2) 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
M2D: a hydrodynamics model	This is a widely-used and models hydrodynamics, including tides, currents, and sedimentation, within navigation channels.	Not certified and not CoP-listed; developed after the Shore Protection Manual
STWave: model of wave climate	This is a widely-used and takes historic wind, fetch, and wave data to simulate the wave climate along a shoreline and probabilistically predict wave action and surge elevations into the future.	not certified; CoP-preferred
Spreadsheet model for storm damages on bulkheads and structures behind them	This is widely used by New York District and uses wave equations and assumptions of wave scour from the USACE Shore Protection Model, and wave overtopping equations recommended in USACE EM-1110-2-1614 "Design of Coastal Revetments, Seawalls, and Bulkheads" to simulate failure conditions for bulkheads and wave undermining of roads.	Not certified and not CoP-listed, referenced in Shore Protection Manual

EDUNE	This is widely used by New York District, and calculates erosion and wave climate prediction, and is based on the equilibrium profile theory, as is the Corps model, SBEACH. The erosion prediction is utilized in simulating structure undermining.	Not certified and not CoP-listed; developed after the Shore Protection Manual
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10. REVIEW SCHEDULES AND COSTS

a. ATR Schedule and Cost. The estimated schedule has ATR taking place in October 2014 for the submission of the report synopsis and supporting materials for the ADM; which is scheduled for March 2015. The ATR budget of \$25,000 includes participation of the ATR Lead in milestone conferences to address the ATR process and any significant and unresolved ATR concerns.

b. Type I IEPR Schedule and Cost. The estimated schedule for Type I IEPR is schedule for October 2014 for the submission of the report synopsis and supporting materials for the ADM; the ADM, which is scheduled for March 2015. The Type I IEPR budget of \$170,000 includes participation of the Type I IEPR Lead in milestone conferences to address the Type I IEPR process and any significant and unresolved Type I IEPR concerns.

c. Model Certification/Approval Schedule and Cost. N/A based on the models expected to be used.

11. PUBLIC PARTICIPATION. There have been and will be opportunities for public comment. Public comments and questions will be made available in the final EA, which will be scoped in accordance with regulation.

12. REVIEW PLAN APPROVAL AND UPDATES

a. The CENAD 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 is 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 Commander’s approval memorandum, will be posted on the Home District webpage. The latest Review Plan will 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:

- a. Nathanael Wales, Plan Formulator, 917-790-8731
- b. Hibba Wahbeh, Sandy Coastal Management Division, Program Manager,
347-370-4779
- c. Lawrence Cocchieri, RMO, 347-370-4571

ATTACHMENT 1: TEAM ROSTERS

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Chief, Environmental Section	Pete Weppler	Peter.M.Weppler@usace.army.mil	917-790-8634
Cultural Specialist	Heather Morgan	Heather.M.Morgan@usace.army.mil	917 790-8730
Real Estate Specialist	David Andersen	David.C.Andersen@usace.army.mil	917 790-8456

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 feasibility report for Hashamomuck Cove, New York. 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 DrCheckssm.

SIGNATURE

Name
ATR Team Leader
Office Symbol/Company

Date

SIGNATURE

Name
Project Manager
Office Symbol

Date

SIGNATURE

Name
Architect Engineer Project Manager¹
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

¹ Only needed if some portion of the ATR was contracted

ATTACHMENT 3: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number
13 March 2014	Risk-informed decision on Type I IEPR is updated to reflect that it is too early in the study to make a definitive determination on risk to human life; the plan now calls for Type I IEPR	6
13 March 2014	A Type I IEPR schedule and cost are provided	10.b

ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

Term	Definition	Term	Definition
AFB	Alternative Formulation Briefing	NED	National Economic Development
ASA(CW)	Assistant Secretary of the Army for Civil Works	NER	National Ecosystem Restoration
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
EA	Environmental Assessment	OEO	Outside Eligible Organization
EC	Engineer Circular	OSE	Other Social Effects
EIS	Environmental Impact Statement	PCX	Planning Center of Expertise
EO	Executive Order	PDT	Project Delivery Team
ER	Ecosystem Restoration	PAC	Post Authorization Change
FDR	Flood Damage Reduction	PMP	Project Management Plan
FEMA	Federal Emergency Management Agency	PL	Public Law
FRM	Flood Risk Management	QMP	Quality Management Plan
FSM	Feasibility Scoping Meeting	QA	Quality Assurance
GRR	General Reevaluation Report	QC	Quality Control
Home District/MS	The District or MSC responsible for the preparation of the decision document	RED	Regional Economic Development
HQUSACE	Headquarters, U.S. Army Corps of Engineers	RMC	Risk Management Center
IEPR	Independent External Peer Review	RMO	Review Management Organization
ITR	Independent Technical Review	RTS	Regional Technical Specialist
LRR	Limited Reevaluation Report	SAR	Safety Assurance Review
MCX	Mandatory Center of Expertise	USACE	U.S. Army Corps of Engineers
MSC	Major Subordinate Command	WRDA	Water Resources Development Act