DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS NORTH ATLANTIC DIVISION
FORT HAMILTON MILITARY COMMUNITY
302 GENERAL LEE AVENUE
BROOKLYN, NY 11252-6700

REPLY TO
ATTENTION OF

JUL 3 0 2013

CENAD-PD-PP

MEMORANDUM FOR COMMANDER, U.S. Army Corps of Engineers, Baltimore District, (CENAB-PL), City Crescent Building, 10 South Howard Street, Baltimore, MD 21201

SUBJECT: Review Plan Approval for North Atlantic Coast Comprehensive Study

1. The attached Review Plan for the subject study has been prepared in accordance with EC 1165-2-214, Civil Works Review.

2. The Review Plan has been coordinated with the Coastal Storm Risk Management Planning Center of Expertise of the North Atlantic Division, which is the lead office to execute this plan, with assistance from South Atlantic Division. For further information, contact Mr. Larry Cocchieri at 347-370-4571. The Review Plan includes independent external peer review.

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 this office.

Encl
as

KENT D. SAVRE
Brigadier General, USA
Commanding

REVIEW PLAN

North Atlantic Coast Comprehensive Study

National Planning Center of Expertise for Coastal Storm Risk Management

MSC Approval Date: July 30, 2013
Last Revision Date: N/A

US Army Corps
of Engineers ®

REVIEW PLAN

North Atlantic Coast Comprehensive Study

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1. PURPOSE AND REQUIREMENTS

a. **Purpose.** This Review Plan defines the scope and level of peer review for the North Atlantic Coast Comprehensive Study (NACCS).

b. **References**

(1) Engineering Circular (EC) 1165-2-214, Civil Works Review, 15 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) ER 5-1-11, USACE Business Process, 1 November 2006
(6) EC 1165-2-212, Sea-Level Change Considerations for Civil Works Programs, 1 Oct 2011
(7) NACCS Project Management Plan (PMP), May 2013

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

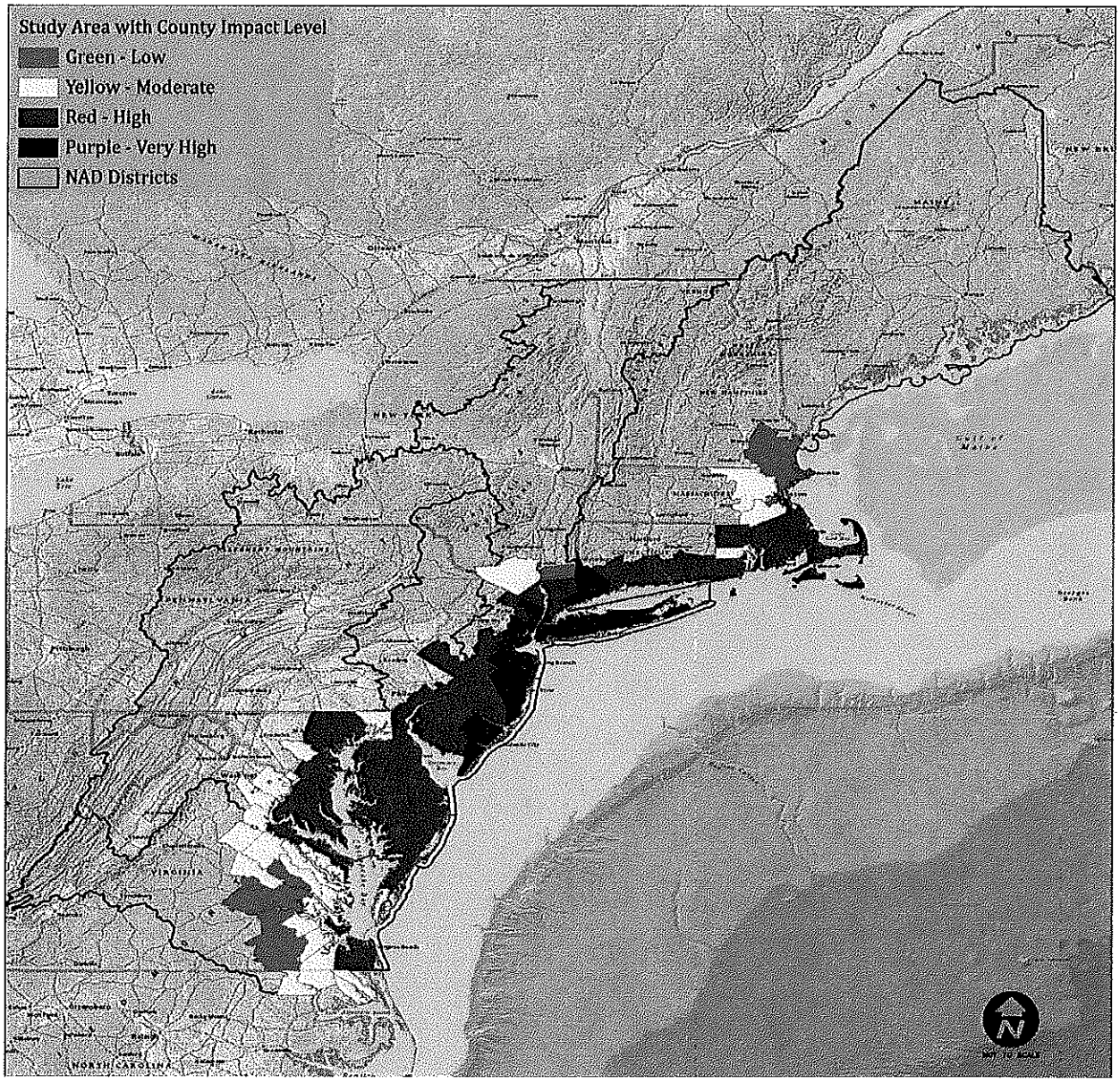
The RMO is responsible for managing the overall peer review effort described in this Review Plan. The RMO for decision documents is typically either a Planning Center of Expertise (PCX) or the Risk Management Center (RMC), depending on the primary purpose of the decision document. The RMO for the peer review effort described in this Review Plan is the Coastal Storm Risk Management PCX (CSRM-PCX). Since the CSRM-PCX is affiliated with the North Atlantic Division, staff from the South Atlantic Division will serve on behalf of the CSRM-PCX for RMO responsibilities.

Feasibility level project cost estimates (M-CACES) will not be completed as part of the NACCS, so coordination with the Cost Engineering Directory of Expertise is not required.

3. STUDY INFORMATION

a. **Study Document.** The NACCS includes several products: (1) an Assessment of Impacts and Effects from Hurricane Sandy, (2) storm suite modeling, (3) a Coastal GIS geodatabase and analyses, and (4) a coastal risk reduction framework report. The coastal risk reduction framework report will serve as the primary document for review, which incorporates and/or describes the other three products. Approval of the study products and the coastal strategy will be with the MSC and no Congressional authorization will be required. No National Environmental Policy Act (NEPA) documentation will be generated during the strategy development.

b. **Study/Project Description**. Post-tropical Hurricane Sandy impacted the mid-Atlantic coastline in October 2012. The highest storm surges and greatest inundation on land occurred in the states of New Jersey, New York, and Connecticut, especially in and around the New York City metropolitan area. The following figure presents the location of the study area by county, defined as a coastal area affected by the farthest extent of Hurricane Sandy storm surge, as well as the composite impacts associated with the storm as it occurred completed by FEMA.



The NACCS will ultimately provide the risk reduction and rebuilding principles necessary to ensure a collaborative approach to the proper planning and implementation of a sustainable and robust coastal landscape system.

The goals of the NACCS are to:

- Reduce risk to which vulnerable coastal populations are subject, and
- Ensure a sustainable and robust coastal landscape system, considering future sea level rise scenarios and climate change, to reduce risk to vulnerable population, ecosystems and infrastructure.

The NACCS authority and appropriations were included in Public Law 113-2, the Disaster Relief Recovery Act of 2013, dated January 29, 2013:

"For an additional amount for ''Investigations'' for necessary expenses related to the consequences of Hurricane Sandy, $50,000,000, to remain available until expended to expedite at full Federal expense studies of flood and storm damage reduction: Provided, That using $29,500,000 of the funds provided herein, the Secretary of the Army shall expedite and complete ongoing flood and storm damage reduction studies in areas that were impacted by Hurricane Sandy in the North Atlantic Division of the United States Army Corps of Engineers: Provided further, That using up to $20,000,000 of the funds provided herein, the Secretary shall conduct a comprehensive study to address the flood risks of vulnerable coastal populations in areas that were affected by Hurricane Sandy within the boundaries of the North Atlantic Division of the Corps: Provided further, That an interim report with an assessment of authorized Corps projects for reducing flooding and storm risks in the affected area that have been constructed or are under construction, including construction cost estimates, shall be submitted to the Committees on Appropriations of the House of Representatives and the Senate not later than March 1, 2013: Provided further, That an interim report identifying any previously authorized but unconstructed Corps project and any project under study by the Corps for reducing flooding and storm damage risks in the affected area, including updated construction cost estimates, that are, or would be, consistent with the comprehensive study shall be submitted to the appropriate congressional committees by May 1, 2013: Provided further, That a final report shall be submitted to the appropriate congressional committees within 24 months of the date of enactment of this division: Provided further, That as a part of the study, the Secretary shall identify those activities warranting additional analysis by the Corps, as well as institutional and other barriers to providing protection to the affected coastal areas: Provided further, That the Secretary shall conduct the study in coordination with other Federal agencies, and State, local and Tribal officials to ensure consistency with other plans to be developed, as appropriate: Provided further, That using $500,000 of the funds provided herein, the Secretary shall conduct an evaluation of the performance of existing projects constructed by the Corps and impacted by Hurricane Sandy for the purposes of determining their effectiveness and making recommendations for improvements thereto: Provided further, That as a part of the study, the Secretary shall identify institutional and other barriers to providing comprehensive protection to affected coastal areas and shall provide this report to the Committees on Appropriations of the House of Representatives and the Senate within 120 days of enactment of this division: Provided further, That the amounts in this paragraph are designated by the Congress as being for an emergency requirement pursuant to section 251(b)(2)(A)(i) of the

Balanced Budget and Emergency Deficit Control Act of 1985: Provided further, That the Assistant Secretary of the Army for Civil Works shall provide a monthly report to the Committees on Appropriations of the House of Representatives and the Senate detailing the allocation and obligation of these funds, beginning not later than 60 days after enactment of this division."

The study will be collaborative, comprehensive and integrated. USACE will complete the study in collaboration with federal, tribal, state and local government representatives, other non-government organizations, academia, technical experts and interested parties. The end product will consist of (1) an assessment of impacts and effects from Hurricane Sandy, (2) storm suite modeling, (3) a coastal GIS geodatabase and analyses, and (4) a coastal risk reduction framework report.

The tremendous opportunity to perform a comprehensive study for coastal flood risk reduction throughout the entire North Atlantic Division planning area also brings many challenges. There will be a myriad of coastal flood risk problems, needs, opportunities and a range of diverse measures will be identified. The collaborative effort, vast geographic area, diverse coastal topography, complex oceanographic characteristics will be a large undertaking. The study process must entail a systematic, logical progression of planning and consensus building along the way to result in a truly comprehensive study.

The NACCS will consider future sea level rise scenarios, and integrate economic, climatological, engineering, environmental, and societal data and analyses to evaluate risk reduction opportunities and strategies. The coastal risk reduction framework report will be the blueprint for actions throughout the system, implementable across multiple agencies, to increase resiliency and reduce risk to vulnerable populations, property, ecosystems and infrastructure. The NACCS will draw from and be consistent with the Hurricane Sandy Rebuilding Task Force, Interagency Ocean Policy Task Force, Climate Change Adaptation Task Force, and Principles and Guidelines for federal agencies.

c. **Factors Affecting the Scope and Level of Review.** The following are factors that will affect the scope and level of review.

- No non-Federal sponsor – 100-percent Federal effort.
- The project delivery team (PDT) is comprised of engineers and scientists of various disciplines and from numerous organizations within USACE and across interagencies.
- Vast geographic area, diverse coastal topography, and complex oceanographic characteristics.
- Due to scale of NACCS, extensive coastal flood risk problems, needs, opportunities and a range of diverse measures will be identified.
- The storm suite modeling and the coastal risk reduction framework report will include a characterization of existing conditions and a forecast of future without-project conditions.
- In addition to the no-action alternative, the coastal strategy documentation will include a suite of strategies for future investigation by USACE and other entities/stakeholders. Coastal engineering measures and strategies, including structural, non-structural, and policy and programmatic, will be identified and evaluated using criteria associated with coastal engineering, economic, environmental, and social considerations for improved resiliency.
- High level of interagency coordination and collaboration. Partnerships with non-governmental organizations shall be utilized to facilitate coordination and collaboration with

federal, state, and local governmental representatives, as well as other non-governmental organizations and academia.

- Accelerated schedule necessary to deliver the coastal risk reduction framework report to Congress by January 29, 2015, assuming full federal appropriations.
- ATR of the coastal risk reduction framework report will be completed in accordance with EC 1165-2-214, "Civil Works Review."
- IEPR of the coastal risk reduction framework report is not required by EC 1165-2-214, "Civil Works Review" because it is not a decision document.
- **It should be noted that the NACCS is not a decision document leading directly to implementation or construction. Additional feasibility or similar studies will be required in order to properly evaluate and design specific risk reduction projects. It is during this next step that site specific recommendations may be subject to additional quality control, agency technical review, model review/certification and independent external peer review.**

d. In-Kind Contributions. Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC, ATR, and IEPR. Since there will be no feasibility cost sharing agreement with a non-Federal sponsor, there will be no in-kind contributions

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 PMP. Documentation of DQC activities is required and should be in accordance with the Quality Manual of the District and the home MSC. Since the NACCS is a study being conducted by the CSRM-PCX, there is no home District under which DQC would occur. To address the DQC requirements for NACCS, the NACCS PDT will manage DQC of various products developed within their respective disciplines. Additionally, as part of DQC, a representative from the USACE environmental advisory board will also participate during the study to review the draft and final risk reduction framework report.

a. Documentation of DQC. DQC is documented in a quality control review report (QCRR), which summarizes the reviewed product, review process, and major issues and their resolution. DrChecks may be used. This QCRR, signed by the PDT and the DQC team, will be provided with any product submittal.

b. Products to Undergo DQC. Although not a decision document, the documentation of the study products will undergo DQC, as well as the technical products that are documented. DQC will be conducted by the NACCS PDT leads in accordance with their respective District's organization Quality Management Plan.

5. 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 home district that is not involved in the day-to-day production of the project/product. 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. For the NACCS, the South Atlantic Division will coordinate ATR activities on behalf of the CSRM-PCX.

a. **Products to Undergo ATR.** Although the study is not producing any decision documents, an ATR will still be conducted. Specific products to undergo ATR include the draft and final coastal risk reduction framework report and supporting materials, analyses and tools.

b. **Required Review Team Expertise.** The expertise represented on the ATR team reflects the significant expertise involved in the work effort and generally mirrors the expertise on the PDT. The ATR Team Leader follows the requirements as outlined in the "ATR Lead Checklist" developed by the National Planning Centers of Expertise. The following table provides a list of disciplines included on the ATR team and descriptions of the expertise required. Expertise should combined, whenever possible, to reduce the number of separate reviewers and to control costs.

ATR Team Members/Disciplines	Expertise Required
ATR Lead	The ATR lead should be a senior professional with extensive experience in preparing civil works documents and conducting ATR. The lead should also 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 the formulation aspect of coastal flood risk management studies.
Economics	The Economics reviewer should be a senior level economist with experience in evaluating the benefits and costs associated with a coastal flood risk management study, including the use of HEC-FDA.
Environmental Resources	The Environmental reviewer should be a senior biologist or ecologist with experience in with flood risk management studies, especially tidal wetland enhancement. The reviewer should also have expertise in NEPA compliance and impacts assessment.
Cultural Resources	The Cultural Resources reviewer should be a senior archaeologist.
Hydrology, Hydraulics, and Coastal (HH&C) Engineering	The HH&C engineering reviewer should be a senior level HH&C engineer with experience associated with design and construction of hurricane and storm damage risk reduction projects, including levees, floodwalls, retaining walls, pump stations, gate well structures, utility penetrations, stop log and sandbag gaps and other closure structures, interior drainage, drainage structures, etc. The reviewer must be experienced in computer modeling techniques for storm and wave analysis modeling such as ADCIRC and STWAVE, sediment transport, as well as sea level change policy
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.

Civil Engineering	The Civil Engineering reviewer should be a senior civil engineer familiar with structural and nonstructural coastal flood risk management measures.
Cost Engineering	The Cost Engineering reviewer should be a senior cost engineer.
Real Estate	The Real Estate representative should be an expert in real estate acquisition and appraisals.

c. **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 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 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.

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[sm] 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[sm] 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 draft and final coastal risk reduction framework report and supporting materials, analyses and tools. A sample Statement of Technical Review is included in Attachment 3.

6. 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. Application of an IEPR requires a risk informed decision considering the following factors (Appendix D of EC 1165-2-214):

a) The consequences of nonperformance on project economics, the environment, and social well-being (public safety and social justice).

b) Whether the product is likely to contain influential scientific information or be highly influential scientific assessment.

c) If and how the study meets any of the possible IEPR exclusions described in Paragraph 11.d. (3) and Appendix D of EC 1165-2-214.

d) If and how the study contains a mandatory triggers for IEPR.

The NACCS is not a USACE decision document, and, therefore, is not required to undergo IEPR as described in EC 1165-2-214. However, the National Academy of Science (NAS) will independently review the draft NACCS report and offer considerations/comments for development of the final report. This was approved by HQUSACE in the Memorandum for the Record for the NACCS 20 May 2013 In-progress Review.

b. Products to Undergo Type I IEPR. The draft report, available ~January-March 2014, will be reviewed by the NAS. Considerations/comments will be provided to the PDT for development of the final report.

c. Required Type I IEPR Panel Expertise. NAS will provide considerations/comments for this study. The expertise represented should be similar to those on the ATR team. The panel will include the necessary expertise to assess the engineering, environmental, and economic adequacy of the document as required by EC 1165-2-214, Appendix D. Below is an example of expertise that may be utilized.

IEPR Members/Disciplines	Expertise Required
Civil Works Planning	The Panel Member should be from academia, a public agency, a non-governmental entity, or an Architect-Engineer or Consulting Firm with a minimum of 10 years demonstrated experience in public works planning with a Master's Degree in a relevant field. Direct experience working for or with USACE is highly preferred but not required. The panel member shall have a minimum of five years experience directly dealing with the USACE six-step planning process, which is governed by ER 1105-2-100, Planning Guidance Notebook. Panel Member must be very familiar with USACE plan formulation process, procedures, and standards as it relates to hurricane and coastal storm damage risk reduction, including structural and non-structural and innovative risk reduction strategies.
Economist	The panel member should be from academia, a public agency, a non-governmental entity, or an Architect-Engineer or Consulting Firm with a minimum of 10 years demonstrated experience in public works planning, with a minimum MS degree or higher in economics. Five years experience related to the use of HEC-FDA software is required. In addition, the panel member should have experience related to regional economic development, and be capable of evaluating traditional National Economic Development plan benefits as social benefits associated with hurricane and coastal storm damage risk reduction projects.

Biologist/Ecologist	The panel member should be a scientist from academia, a public agency, a non-governmental entity, or an Architect-Engineer or Consulting Firm with a minimum 10 years demonstrated experience in evaluation and conducting NEPA impact assessments, including cumulative effects analyses. The panel member should have experience with the Endangered Species Act, essential fish habitat, the Marine Mammals Protection Act, and the Coastal Barrier Resources Act. The panel member should have particular knowledge of construction impacts on marine and terrestrial ecology of coastal regions of the mid-Atlantic coast of North America. The panel member should have a minimum of a Master's Degree or higher in an appropriate field of study. Active participation in related professional societies is encouraged.
Hydrology, Hydraulics, and Coastal (HH&C) Engineering	The HH&C engineering reviewer should be a senior level HH&C engineer with experience associated with design and construction of hurricane and storm damage reduction projects, including levees, floodwalls, retaining walls, pump stations, gate well structures, utility penetrations, stop log and sandbag gaps and other closure structures, interior drainage, drainage structures, etc. The reviewer must be experienced in computer modeling techniques for storm and wave analysis modeling such as ADCIRC and STWAVE, sediment transport, as well as sea level change policy requirements.
Civil/Cost Engineering	The panel member should be an engineer from academia, a public agency, a non-governmental entity, or an Architect-Engineer or Consulting Firm with a minimum 10 years demonstrated experience in evaluating hurricane and coastal storm damage risk reduction projects, including sacrificial measures associated with dunes and beaches as well as sea walls, levees, and sector gates/locks.

d. **Documentation of Type I IEPR.** NAS will select and manage the reviewers. Comments will be compiled by NAS and should address the adequacy and acceptability of the economic, engineering and environmental methods, models, and analyses used. Comments should generally include the same four key parts as described for ATR comments in Section 5.c above. The NAS will prepare a final set of considerations/comments that may accompany the publication of the final 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 IEPR final comments will be submitted by NAS. USACE shall consider all comments in developing the final NACCS report.

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. The NACCS will be conducted with monthly to quarterly in-progress reviews with HQUSACE staff. HQUSACE will conduct policy review of the draft and final NACCS reports.

8. COST ENGINEERING DIRECTORY OF EXPERTISE (DX) REVIEW AND CERTIFICATION

All decision documents shall be coordinated with the Cost Engineering DX, located in the Walla Walla District. The DX 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 DX will also provide the Cost Engineering DX certification. The RMO is responsible for coordination with the Cost Engineering DX. The NACCS is not a decision document and will not include a recommendation for implementation, so Cost Engineering DX ATR is not required.

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 models are anticipated to be used in the development of the NACCS:

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Certification / Approval Status
HEC-FDA 1.2.5a	The Hydrologic Engineering Center's Flood Damage Reduction Analysis (HEC-FDA) program provides the capability for integrated hydrologic engineering and economic analysis for formulating and evaluating flood risk management plans using risk-based analysis methods. The program may be used to evaluate future without- and with-project scenarios to estimate damages prevented.	Certified

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

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Certification / Approval Status
ADCIRC	The Advanced Circulation Model (ADCIRC) is a hydrodynamic circulation numerical model that simulates water level and current over an unstructured gridded domain. Run as a two-dimensional or three-dimensional (2-D or 3-D) model, ADCIRC is used	Approved
STWAVE	Input to ADCIRC	Approved
WAM	Input to ADCIRC	Approved

10. REVIEW SCHEDULES AND COSTS

a. **Schedule and Cost.** The anticipated cost of the reviews is approximately $150,000 for DQC, $120,000 for ATR, and not to exceed $400,000 for IEPR, including travel costs.

Review Milestone	Scheduled Date(s)
DQC of Draft Coastal Risk Reduction Framework Report	Ongoing
ATR of Draft Coastal Risk Reduction Framework Report	November 2013
NAS, Agency (federal, state, NGO, etc), Tribal and Public Review of Draft Coastal Risk Reduction Framework Report	~January 2014 (upon OASA(CW) approval to release the draft NACCS
DQC of Final Coastal Risk Reduction Framework Report	June 2014
ATR of Draft Coastal Risk Reduction Framework Report	July 2014

b. **Model Certification/Approval Schedule and Cost.** There are no planning or engineering models that will be used in the study that require model review for approval or certification.

11. PUBLIC PARTICIPATION

USACE will conduct comprehensive outreach and collaboration with Federal, tribal, state and local agencies as well as non-governmental organizations for input relevant to the scope and scale of the coastal risk reduction framework report. This may include travel and up to six facilitated meetings or workshops at key areas throughout the North Atlantic Division, as well as webinars and follow up coordination with specific disciplines. USACE has established a public website (www.nad.usace.army.mil/CompStudy) to provide information and updates on the study as it progresses.

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 document. Like the PMP, the Review Plan is a living document and may change as the study progresses. The Baltimore District is responsible for keeping the Review Plan up to date. 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, will be posted on North Atlantic Division's approved review plan webpage. The latest Review Plan should also be provided to the RMO.

13. REVIEW PLAN POINTS OF CONTACT

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

- David Robbins, Project Manager, Baltimore District
  410-962-0685, David.W.Robbins@usace.army.mil

- Joseph Vietri, Chief, Planning and Policy Division, North Atlantic Division
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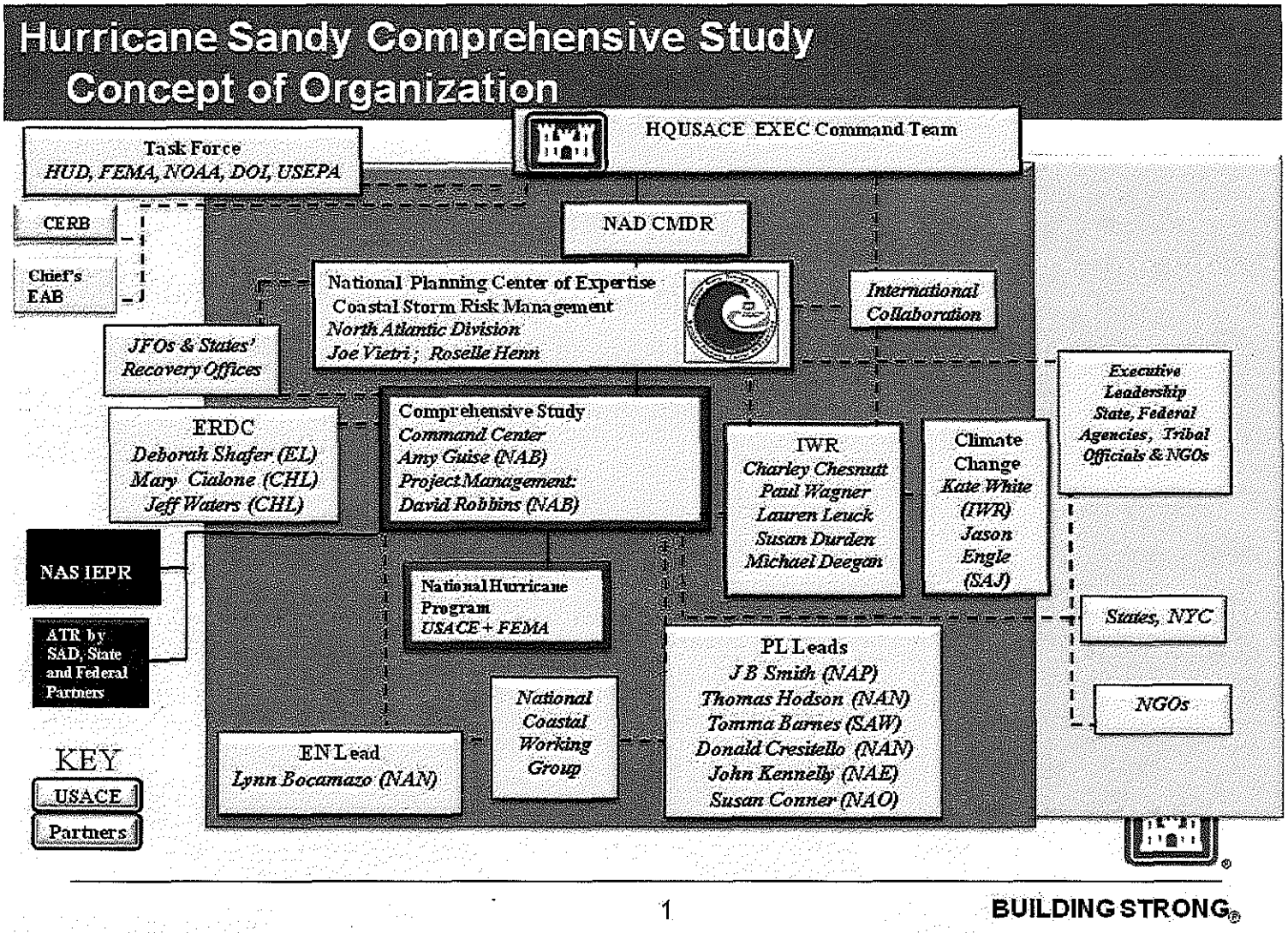
ATTACHMENT 1: TEAM ROSTERS
PDT



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Name	Role	Affiliation/ Office Symbol
Joseph Vietri	CSRM-PCX, Director	CSRM-PCX
Roselle Henn	CSRM-PCX, Deputy Director, Comprehensive Study	CSRM-PCX
Amy Guise	CSRM-PCX, CENAB Command Center	CSRM-PCX
David Robbins	Project Manager	CSRM-PCX
Karla Roberts	Assistant Project Manager	CSRM-PCX
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Thomas Hodson	Lead Economist	CENAN-PL; Command Center
Lynn Bocamazo	Lead Engineer	CENAN-EN; Command Center
Tomma Barnes	Lead Biologist	Command Center
Kate White	Sea Level Change USACE Lead	IWR
Jason Engle	Sea Level Change Comprehensive Lead	CESAJ-EN
Charley Chesnutt	Coastal Expert	IWR
Donald Cresitello	Lead Integrator of New York City Component; NY/NJ Harbor	CENAN-PL
Joseph Forcina	Sandy Program Lead	CENAD-P
Lauren Leuck	Environmental Scientist	IWR
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Michael Deegan	Economist	IWR
Paul Wagner	Green Infrastructure Lead	IWR
Shawn Komlos	Planning and Policy	NAD RIT

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Mary Cialone	Coastal Hydraulic Laboratory	ERDC
John Kennelly	NAE main point of contact	CENAE-PL
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Jared Scott	GIS expert	CENAB-PL
Marc Paiva	Cultural Lead	CENAE-EP-VC
John Haynes	Archeologist	CENAO-PL
Alicia Gould	Task Force Liaison	Presidential Task Force
Kevin Werner/Tammy Dickinson	Task Force – Science	Presidential Task Force
Craig Homesley	Real Estate	CENAB-RE
Ken Holder/Justin Ward	Public Affairs Lead	CENAD-PA
Chris Augsburger	Public Affairs	CENAB-PA

ATR Team

Discipline	Name	Email	Phone Number	Credentials	Years of Exp.
Manager	Not Assigned	TBD	TBD	TBD	TBD
Engineering	Not Assigned	TBD	TBD	TBD	TBD
Research	Not Assigned	TBD	TBD	TBD	TBD
	Not Assigned	TBD	TBD	TBD	TBD
	Not Assigned	TBD	TBD	TBD	TBD
	Not Assigned	TBD	TBD	TBD	TBD
	Not Assigned	TBD	TBD	TBD	TBD

Vertical Team

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ATTACHMENT 2: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number

ATTACHMENT 3: 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
CSRM	Coastal Storm Risk Management	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
FSM	Feasibility Scoping Meeting	QC	Quality Control
GRR	General Reevaluation Report	RED	Regional Economic Development
Home District/MSC	The District or MSC responsible for the preparation of the decision document	RMC	Risk Management Center
HQUSACE	Headquarters, U.S. Army Corps of Engineers	RMO	Review Management Organization
IEPR	Independent External Peer Review	RTS	Regional Technical Specialist
ITR	Independent Technical Review	SAR	Safety Assurance Review
LRR	Limited Reevaluation Report	USACE	U.S. Army Corps of Engineers
MSC	Major Subordinate Command	WRDA	Water Resources Development Act