DEPARTMENT OF THE ARMY
SOUTH ATLANTIC DIVISION, CORPS OF ENGINEERS
ROOM 10M15, 60 FORSYTH ST., S.W.
ATLANTA GA 30303-8801

REPLY TO
ATTENTION OF

CESAD-PDS-P

20 August 2010

MEMORANDUM FOR Commander, Jacksonville District (CESAJ-PD/Rebecca Griffith)

SUBJECT: Broward County Shore Protection Project, North County Line to Hillsboro Inlet (Segment 1) General Reevaluation Report (GRR) and NEPA Document – Review Plan

1. References:

a. Memorandum, CESAJ-PD, dated 26 April 2010, subject as above (enclosed 1).

b. EC 1105-2-407, Planning Models Improvement Program: Model Certification, 31 May 2005 (expired 30 June 2007 but remains valid guidance).

c. Engineering Regulation (ER) 110-2-12, Quality Management, 30 September 2006.

d. Project Management Plan, ST. Broward County Shore Protection Project, Segment 1 General Reevaluation Report (GRR).

e. EC 1165-2-209, Civil Works Review Policy, 31 January 2010.

2. In accordance with EC 1165-2-209, Civil Works Review Policy, 31 January 2010, the Review Plan (RP) dated December 2009 for the Broward County Shore Protection Project, North County Line to Hillsboro Inlet (Segment 1) General Reevaluation Report (GRR) and NEPA Document has been reviewed and revised by this office, and is approved as revised (encl 2). We concur with the conclusion that independent external peer review (IEPR) of this project is required.

3. Several of South Atlantic Division's concerns that have been incorporated into the revised review plan are: (a) Ensuring that the model approval process is undertaken prior to submittal of the draft report, (b) Obtaining the names of members of the Agency Technical Review Team, and (c) Ensuring that the triggers regarding Type II IEPR and Safety Assurance Reviews are properly stated.

4. The district should take steps to post the MSC-approved Final RP and a copy of this approval memorandum to the SAJ District public internet website and provide a link to the National Planning Center of Expertise for Coastal Storm Damage Reduction (PCX-CSDR) for their use. Before posting to the web site the names of Corps/Army employees should be removed.

5. The SAD point of contact for this action is Ms. Karen Dove-Jackson, at (404) 562-5225.

FOR THE COMMANDER:

Encl

WILBERT V. PAYNES
Chief, Planning and Policy
Community of Practice

CF:
Larry Cocchieri (CENAD-PCX-CSDR)

5/20 11:

Rec'd by KT 4/28/2010

APR 26 2010

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
P.O. BOX 4970
JACKSONVILLE, FLORIDA 32232-0019

REPLY TO
ATTENTION OF

CESAJ-PD

MEMORANDUM FOR CHIEF, PLANNING DIVISION, SOUTH ATLANTIC DIVISION

SUBJECT: Broward County Shore Protection Project, North County Line to Hillsboro Inlet (Segment 1) General Reevaluation Report (GRR) and NEPA Document – Review Plan

1. Reference: EC 1165-2-209, Civil Works Review Policy, 31 January 2010.

2. I hereby request approval of the subject Review Plan (RP) and concurrence with the conclusion that Independent External Peer Review (JEPR) of this project is necessary because it triggers criteria provided in the above reference. Total project cost is projected to exceed $45M, and an Environmental Impact Statement (EIS) is required. The RP has been coordinated with and endorsed by the Coastal Storm Damage Reduction Planning Center of Expertise (PCX). The RP complies with all applicable policies and provides an adequate Agency Technical Review (ATR) and JEPR of the plan formulation, engineering, environmental analyses, and other aspects of the plan development. It is our understanding that non-substantive changes to this RP, should they become necessary, are authorized by CESAD. The Review Plan, Review Plan Checklist and PCX endorsement are enclosed.

3. The District will post the MSC-approved Final RP to its web site and provide a link to the PCX for their use.

4. The SAJ point of contact is James M. Baker, CESAJ Review Coordinator, Planning Division, CESAJ-PD-PW, (904) 232-2698.

FOR REBECCA S. GRIFFITH, Ph.D, PMP
Chief, Planning Division

3Encls

Encl 1

REVIEW PLAN

BROWARD COUNTY SHORE PROTECTION PROJECT
NORTH COUNTY LINE to HILLSBORO INLET (SEGMENT I)
GENERAL REEVALUATION REPORT and NEPA Document

U.S. ARMY CORPS OF ENGINEERS, JACKSONVILLE DISTRICT

20 August 2010

US Army Corps of Engineers ®

REVIEW PLAN

BROWARD COUNTY SHORE PROTECTION PROJECT
NORTH COUNTY LINE to HILLSBORO INLET (SEGMENT I)
GENERAL REEVALUATION REPORT and NEPA Document

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1. PURPOSE AND REQUIREMENTS

a. Purpose. This stand-alone review plan defines the scope and level of peer review for the Broward County Shore Protection Project, North County Line to Hillsboro Inlet (Segment 1) General Reevaluation Report (GRR) and NEPA Document. The review plan supports the Project Management Plan for the subject project, current December 2009 version.

b. References

(1) Engineering Circular (EC) 1165-2-209, Civil Works Review Policy, 31 Jan 2010
(2) EC 1105-2-407, Planning Models Improvement Program: Model Certification, 31 May 2005 (expired 30 June 2007 but reflects current Corps requirements and guidance)
(3) Engineering Regulation (ER) 1110-1-12, Quality Management, 21 Jul 06, change 1 of 30 Sep 2006
(4) Project Management Plan, Broward County Shore Protection Project, Segment 1 General Reevaluation Report (GRR), dated May 2004

c. Requirements. This review plan was developed in accordance with EC 1165-2-209, which establishes the procedures for ensuring the quality and credibility of U.S. Army Corps of Engineers (USACE) projects, through independent review. The ECs outline three levels of review for planning studies: District Quality Control, Agency Technical Review, and Independent External Peer Review. In addition to these three levels of review, decision documents are subject to policy and legal compliance review and, if applicable, safety assurance review and model certification/approval.

(1) District Quality Control (DQC). DQC is the review of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Project Management Plan (PMP). It is managed in the home district and may be conducted by staff in the home district as long as they are not doing the work involved in the study, including contracted work that is being reviewed. Basic quality control tools include a Quality Management Plan providing for seamless review, quality checks and reviews, supervisory reviews, Project Delivery Team (PDT) reviews, etc. Additionally, the PDT is responsible for a complete reading of the report to assure the overall integrity of the report, technical appendices and the recommendations before approval by the District Commander. Also, prior to District Commander approval, the Chiefs of Planning, Engineering, Real Estate, Office of Counsel, and Deputy for Project Management will assure compliance with appropriate regulations. The Major Subordinate Command (MSC)/District quality management plans address the conduct and documentation of this fundamental level of review; DQC is not addressed further in this review plan.

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

(3) Independent External Peer Review (IEPR). IEPR is the most independent level of review, and is applied in cases that meet certain criteria where the risk and magnitude of the

proposed project are such that a critical examination by a qualified team outside of USACE is warranted. IEPR is generally required for feasibility and reevaluation studies and modification reports with Environmental Impact Statements (EIS). IEPR is managed through the appropriate Planning Center of Expertise (PCX) , working with an outside eligible organization (OEO) that is described in Internal Revenue Code Section 501(c) (3), is exempt from Federal tax under section 501(a), of the Internal Revenue Code of 1986; is independent; is free from conflicts of interest; does not carry out or advocate for or against Federal water resources projects; and has experience in establishing and administering IEPR panels. The scope of review will address all the underlying planning, engineering, including safety assurance, economics, and environmental analyses performed, not just one aspect of the project. There are two types of IEPR: Type I is generally for decision documents and Type II is generally for implementation products.

(i) Type I IEPR. Type I IEPRs 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 an biological opinions of the project study. Type I IEPRs will cover the entire decision document or action and will address all the 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 1165-2-209.

(ii) Type II IEPR. Type II IEPRs, or Safety Assurance Reviews (SAR), are managed outside the USACE and are conducted on design and construction activities for any 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.

(4) Policy and Legal Compliance Review. Decision documents will be reviewed throughout the study process for their compliance with law and policy. These reviews culminate in Washington-level 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 Chief of Engineers. Guidance for policy and legal compliance reviews is addressed further in Appendix H, ER 1105-2-100, Planning Guidance Notebook. When policy and/or legal concerns arise during DQC or ATR that are not readily and mutually resolved by the PDT and the reviewers, the District will seek issue resolution support from the MSC and HQUSACE in accordance with the procedures outlined in Appendix H, ER 1105-2-100. IEPR teams are not expected to be knowledgeable of Army and administration polices, nor are they expected to address such concerns. The home district Office of Counsel is responsible for the legal review of each decision document and signing a certification of legal sufficiency.

(5) Model Certification/Approval. EC 1105-2-407 requires certification (for Corps models) or approval (for non-Corps models) of planning models used for all planning activities. Planning models 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. Engineering software is being addressed under the Engineering and Construction (E&C) Science and Engineering Technology (SET) initiative. Until an appropriate process that documents the quality of commonly used engineering software is developed through the SET initiative, engineering activities in support of planning studies shall proceed as in the past. 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.

2. STUDY INFORMATION

a. Decision Document. The purpose of the Broward County Shore Protection Project, Segment 1 General Reevaluation Report (GRR) is to re-evaluate the feasibility of a project that provides shoreline protection and reduces storm damages upon about 4 miles of shorefront. An Environmental Impact Statement (EIS) will be required. Initial beach fill is authorized along the City of Deerfield Beach shorefront, and periodic nourishment is authorized along the entire 4 miles of Segment I from the north county line to Hillsboro Inlet. The GRR is required and being prepared because authorization for this unconstructed segment was provided in1965. However, at this time, it is not anticipated that additional Congressional authorization will be required. The EIS will, particularly, address significant issues such as turtle nesting, endangered corals and hardbottom substrates.

b. Study Description. The study area is located along the Atlantic Ocean coastal shoreline of Broward County, on the east coast of Florida. Segment I of the project consists of about 4 miles of shorefront, of which 1.8 miles is located along the City of Deerfield Beach. Separate studies are being utilized for Segments II and III, which are also part of the shore protection project authorized in 1965, and for which, portions have been constructed by Broward County since 1970.

This single-purpose coastal storm damage reduction study will consist of reviewing the erosion problems along the Atlantic Ocean shoreline of Broward County, Florida, in the vicinity of Deerfield Beach; identifying problem areas; defining specific alternative solutions to problems based on identified needs and physical constraints; identifying environmental, fish and wildlife, and cultural resources in the study area; defining and evaluating alternatives to address problems, preparing construction, operation and maintenance cost estimates for the considered alternatives; computing annual costs and annual benefits (inclusive of incidental recreation benefits) for the various alternatives; evaluating the engineering and economic feasibility of each alternative; assessing environmental impacts of the selected alternative(s) including impacts on biological resources, socioeconomic resources, cultural resources, and land use; determining possible environmental mitigation measures; developing costs for the recommended alternative; and preparing the required documentation to present studies, findings and recommendations.

An initial matrix of non-structural and structural alternatives designed to solve the erosion problems in the study area are presented below:

NS-1 – No-Action. The no-action plan is the continuation of existing conditions.

NS-2 – Coastal Construction Control Line. This management measure provides for potential changes to the coastal construction control line (CCCL) or building regulations that could be implemented by the State of Florida.

NS-3 - Moratorium on Construction. This management measure would not permit new construction in the area vulnerable to storm damages adjacent to the study area. As properties are damaged, reconstruction would not be permitted.

NS-4 - Establish a No-Growth Program. This management measure would allow for existing structures and limited reconstruction following storm damage, but would not allow for an increased number of structures within the area vulnerable to storm damages adjacent to the study area.

NS-5 - Relocation of Structures. The relocation of the structures measure would allow the area to continue to erode and the land in this area would be lost.

NS-6 - Flood Proofing of Structures. Flood proofing of existing structures and regulation of flood plain and shorefront development are management measures that state and local governments could implement.

NS-7 - Condemnation of Structures and Land Acquisition. Structures within the area vulnerable to storm damage would be identified for acquisition. Structures on the parcels would be demolished and natural areas restored. Such parcels would become public property and would reduce the number of structures vulnerable to storm damages.

S-1 - Seawalls. The construction of additional concrete seawalls or improvements to and maintenance of the existing bulkheads/seawalls would provide a significant degree of protection.

S-2 - Revetments. This measure would involve placement of large rock, designed to withstand the wave environment, along the existing bluff line.

S-3 - Beach Nourishment. This management measure includes initial construction of a beach fill and future renourishments at regular intervals.

S-4 - Groins. A series of groins in the problem area would help hold a beach in front of existing development and prevent further losses of land. The construction of groins would have to be supplemented with nourishment so that adjacent beaches would not be starved of sand.

S-5 – Submerged Artificial Reefs. This management measure would use the perched beach concept to limit the amount of underwater fill and retain the dry beach for a longer period. This would be accomplished by placement of a submerged artificial reef in shallow water with beach fill material placed “perched” behind the reef structure.

S-6 – Nearshore Placement. Dredged material would be placed in the nearshore to provide wave attenuation benefits, nourishment of the active profile, or a combination of both.

S-7 - Breakwaters. Breakwaters reduce the amount of wave energy reaching the shoreline in their lee. The breakwaters would be constructed of large size rock with foundation materials to prevent subsidence.

S-8 - Dunes and Vegetation. Dunes maintain a sand repository that, during storms, provides sacrificial sand before structures would be damaged. In so doing, the dune system provides a

measure of public safety and property protection. Proper vegetation on dunes increases sand erosion resistance by binding the sand together via extensive root masses penetrating deep into the sand.

S-9 – Feeder Beach System. A feeder beach system is placement of beach nourishment material updrift of the study area in quantities sufficient enough to allow for sediment transport into the study area.

c. Study Authority. The project was authorized by the River and Harbor Act of 1965. Preparation of a General Reevaluation Report (GRR) for Segment I was authorized by the Conference Report for FY 2003 Appropriations (H.R. 108-10 pg. 808). The initial authorization for the overall project provided for construction by the local sponsor with reimbursement of the Federal share of eligible costs. This authorization was provided in House Document No. 91/89 dated 18 February 1965, as described in the Chief's Report dated 15 June 1964.

d. Project Delivery Team (PDT). The PDT consists of representatives of the City of Deerfield Beach, as non-Federal sponsor, and Jacksonville District staff. Team members are listed in Attachment 1, to this Review Plan. In 2006 the City of Deerfield Beach signed a Design Agreement for the Corps to prepare the GRR and NEPA document for all of Segment I.

e. In-Kind Contributions. There are no planned in-kind non-Federal sponsor contributions.

3. AGENCY TECHNICAL REVIEW (ATR)

a. General. ATR is managed by the appropriate Planning Center of Expertise (PCX) with appropriate consultation with the allied Communities of Practice such as engineering and real estate. The ATR shall ensure that the product is consistent with established criteria, guidance, procedures, and policy. The ATR will assess whether the analyses presented are technically correct and comply with published USACE guidance, and that the document explains the analyses and the results in a reasonably clear manner for the public and decision makers. Members of the ATR team will be from outside the home district. The ATR lead will be from outside the home MSC. The leader of the ATR team will participate in milestone conferences and the Civil Works Review Board (CWRB) to address review concerns.

b. Products for Review.

(1) FSM Materials
(2) AFB Materials
(3) Draft Report/Draft EIS Materials
(4) Final Feasibility Report/EIS

c. Required ATR Team Expertise. The relevant National Planning Center of Expertise, in this case for Coastal Storm Damage Reduction (PCX-CSDR), has ultimate responsibility for accomplishing ATR. The PCX-CSDR is requested to establish an ATR team from outside the District with ATR lead from outside the Division, and to provide Agency Technical Review of the FSM Materials, AFB Materials, Draft and Final report. Also, a Cost Estimating Directory of Expertise (Cost Dx) has been established at the Corps Walla Walla District (NWW). The draft report cost estimate is also to be reviewed by the Cost Dx. The review team will acquire cost estimation review by the Cost Dx. Cost Dx quality assurance of the MCACES cost estimate review is part of the scope of ATR. Subsequent

review of risk analysis, schedule and total project cost, leading to cost certification follows on its own path, concurrent to the Corps report approval process.

Seven (7) technical disciplines were determined to be appropriate for review of the report including: plan formulation, economics, environmental/NEPA compliance (including mitigation modeling), coastal engineering, geotechnical, cost, and real estate. All should be well-versed in conduct of coastal storm damage reduction studies. A listing of recommended ATR Team expertise follows/

ATR Team Members/Disciplines	Expertise Required
ATR Lead- USACE, New England District	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 plan formulation reviewer should be a senior water resources planner with experience in coastal storm damage reduction projects.
Economics	The economics reviewer should be a senior water resources economist with experience in coastal storm damage reduction projects.
NEPA Compliance	The NEPA compliance reviewer should be a senior environmental resources specialist with experience in coastal storm damage reduction projects.
Coastal Engineering	The coastal engineering reviewer should be a senior engineer with experience in coastal storm damage reduction projects.
Geotechnical Engineering	The geotechnical engineering reviewer should be a senior engineer with experience in coastal storm damage reduction projects.
Cost Engineering	The cost engineering reviewer should be a senior engineer with experience in coastal storm damage reduction projects.
Real Estate	The real estate reviewer should be a senior real estate specialist with experience in coastal storm damage reduction projects.

d. 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 areview comment will 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 when 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 coordination, and lastly the agreed upon resolution. The ATR team will prepare a Review Report which includes a summary of each unresolved issue; each unresolved issue will be raised to the vertical team for resolution. Review Reports will be considered an integral part of the ATR documentation 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.

ATR may be certified when all ATR concerns are either resolved or referred to HQUSACE through the MSC for resolution and the ATR documentation is complete. Certification of ATR should be completed, based on work reviewed to date, for the Draft Report, and Final Report.

4. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

a. General. A Type I IEPR is conducted for decision documents if there is a vertical team decision (involving the district, MSC, PCX, and HQUSACE members) that the covered subject matter meets certain criteria where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside the USACE is warranted. A Type I IEPR is coordinated by the appropriate PCX and managed by an Eligible Outside Organization (OEO) external to the USACE. Type I IEPR panels shall evaluate whether the interpretations of analysis and conclusions based on analysis are reasonable. To provide effective review, in terms of both usefulness of results and credibility, the review panels should be given the flexibility to bring important issues to the attention of decision makers; however, review panels should be instructed to not make a recommendation on whether a particular alternative should be implemented, as the Chief of Engineers is ultimately responsible for the final decision on a planning or reoperations study. Type I IEPR panels will accomplish a concurrent review that covers the entire decision document and will address all the underlying engineering, economics, and environmental work, not just one aspect of the study. Whenever feasible and appropriate, the office producing the document shall make the draft decision document available to the public for comment at the same time it is submitted for review (or during the review process) and sponsor a public meeting where oral presentations on scientific issues can be made to the reviewers by interested members of the public. A Type I IEPR panel or OEO representative will participate in the CWRB. A Type II IEPR is on design and construction activities where potential hazards pose a significant threat to human life.

b. Factors Affecting Scope and Level of Review.

In order to determine if a Type I IEPR is warranted for this particular project, an evaluation was conducted of the following triggering factors. Evaluations of individual decision criteria are provided below:

- Is an Environmental Impact Statement required for this study?

An EIS will be required. There are environmentally significant hard bottom habitat in the area, endangered corals and turtle nesting habitat.

- Is the report likely to contain influential scientific information or be a highly influential scientific assessment?

  No. This is expected to be a reasonably routine reevaluation of a previously authorized project, dealing with issues that are similar to other projects of the same type.

- Would a selected plan be likely to pose a significant threat to human life?

Not expected, due to absence of permanent water control structures, pump stations, levees, dams, etc. However, EC 1165-2-209 requires that safety assurance factors be considered for coastal storm damage reduction projects.

- Is total project cost estimated to exceed $45M? –

  It is likely that the estimate, including renourishments, would exceed the cost threshold.

- Requested by affected State Governor?

  Not at this time.

- Request by head of a reviewing Federal Agency, if determined likely to have an adverse impact on environmental, cultural, or other resources under his/her jurisdiction (after implementation of proposed mitigation plans)?

  Not at this time.

- Significant public dispute as to size, nature or effects?

  Potential effects upon environmentally significant hard bottom habitat in the area, endangered corals and turtle nesting habitat will be addressed by the EIS.

- Significant public dispute as to the economic or environmental cost or benefit?

  No, none anticipated at this time.

- Plan based on novel methods, presents complex challenges for interpretation, contains precedent-setting methods or models, or presents conclusions that are likely to change prevailing practices?

  No. Corps standard coastal storm damage reduction evaluation methods will be employed.

- Any other circumstances where the Chief of Engineers determined IEPR is warranted?

  No.

c. Decision on IEPR.

As indicated in the above considerations, a Type I IEPR is warranted because total project cost is projected to exceed $45M and an EIS is required, both of which trigger the requirement for a Type I IEPR. A Type II IEPR/ SAR is not currently planned. The need for a Type II IEPR/SAR will continue to be assessed as this project progresses through the decision document phase and into the implementation phase. If at any point during project development a Type II IEPR/SAR is determined to be appropriate, this review plan will be revised to require a Type II IEPR/SAR. The following addresses Type I IEPR, only.

d. Products for Review. The draft GRR and EIS will be subjected to IEPR concurrently with public review of the draft report/EIS that occurs as part of NEPA compliance. Noteworthy issues of risk include:

(1) Numerical modeling using the GENESIS shoreline change model, due to the extensive array of existing coastal stabilization structures (detached groins) along Deerfield Beach. Most of these structures are buried, but could present difficulties fitting them in to the GENESIS model grid.
(2) The offshore bathymetry is very complex and will prove to be a challenge in the STWAVE wave refraction numerical modeling. Detailed LIDAR survey data is available to construct a detailed bathymetric grid to achieve maximum modeling accuracy.
(3) Nearshore hardbottom (exposed rock and coral reef) exists along most of the length of the Segment I project area. The presence of these hardbottom areas presents difficulties in sediment transport modeling, and will complicate the NEPA and permitting processes.
(4) This beach nourishment project would be low risk with respect to potential impacts to life and safety, having low potential to pose hazards that would have significant threat to human life.

e. Type I IEPR Panel. It is initially envisioned the panel will be composed of 5 members, and it is anticipated that the Type I IEPR team will be comprised of individuals from technical disciplines significant in the preparation of the report. Technical disciplines determined to be appropriate for this review include: Plan Formulation, Economics, Coastal Ecology/Biology, Coastal Engineering, and Geotechnical Engineering. The Type I IEPR will address both government and sponsor prepared content. Any public input by the time of the review will be provided. The PCX will use contracting instruments to determine the Type I IEPR members and manage the Type I IEPR process. The PCX will manage the Type I IEPR contract. The contracted organization will accomplish the Type I IEPR for the PCX. Contractor management tasks will include identifying, contacting, and selecting reviewers; preparing scopes of work and procuring contracts with reviewers; compiling review comments, compiling District/Sponsor response to comments and compiling comments and responses into an IEPR Report.

f. Documentation of Type I IEPR. DrChecks review software will be used to document the Type I IEPR comments and aid in the preparation of the Review Report. Comments should address the adequacy and acceptability of the economic, engineering and environmental methods, models, and analyses used. Type I IEPR comments should generally include the same four key parts as described for ATR comments in Section 3.d. The OEO will be responsible for compiling and entering comments into DrChecks. The Type I IEPR team will prepare a Review Report that will accompany the publication of the final report for the project 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 Type I IEPR panel no later than 60 days following the close of the public comment period for the draft decision document. The report will be considered and documentation prepared on how issues were resolved or will be resolved by the District Commander before the district report is signed. The recommendations and responses will be

presented to the CWRB by the District Commander with a Type I IEPR panel or OEO representative participating, preferably in person.

5. MODEL CERTIFICATION AND APPROVAL

a. General. The Corps requires the use of certified or approved models for all planning activities. This requirement is applicable to all planning models currently in use, models under development and new models. The appropriate PCX will be responsible for model certification/approval. The goal of certification/approval is to establish that planning products are theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. The use of a certified or approved model does not constitute technical review of the planning product. Independent review of the selection and application of the model and the input data and results is still required through conduct of DQC, ATR, and, if appropriate, Type I IEPR. Independent review is applicable to all models, not just planning models. Both the planning models (including the certification/approval status of each model) and engineering models used in the development of the decision document are described below:

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

- Beach fx– Certified – Beach fx is a data driven economics model which will assist in evaluating and analyzing the benefits and life cycle costs of coastal storm damage reduction projects. It is a Corps-developed national model that does not require certification specific to this individual project.

- IWR Plan – Certified - The US Army Corps of Engineers Institute for Water Resources has developed IWR Planning Suite Decision Support Software to assist with the formulation and comparison of alternative plans. IWR Planning Suite will assist with plan formulation by combining solutions to planning problems and calculating the additive effects of each combination, or "plan." IWR Planning Suite will also assist with plan comparison by conducting cost effectiveness and incremental cost analyses (CE/ICA), identifying the plans which are the best financial investments, and displaying the effects of each on a range of decision variables.

- Mitigation models – Not Certified - UMAM and/or HEA - Use of the Habitat Equivalency Analysis (HEA) Model is required by NOAA. UMAM is a Florida state required Uniform Mitigation Assessment Method. Both of these models are basically simple equations that provide a "language" for the Corps and NOAA/Florida to determine acres of required mitigation. One, or both, will require approval for use, by the PCX. Review of model applications, sufficient to support a PCX approval for use, will be pursued as quickly as possible and prior to preparation of the draft report.

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

- GENESIS modeling - The GENEralized Model for SImulating Shoreline Change (GENESIS) model (Hanson and Kraus, 1989) will be used to model the shoreline changes and sediment transport quantities and with and without project improvements, for this study. GENESIS provides a numerical method for determining long term shoreline change on an open coast in response to spatial and temporal differences in longshore sediment transport. The model can be calibrated to site specific conditions which are defined by shoreline surveys, sediment budget analyses, wave conditions, offshore bathymetry, coastal armoring, beach fills, and offshore breakwaters.

- STWAVE - The STWAVE model is a two dimensional numerical wave transformation model that will be used to evaluate the wave climate in and around the project area, including the borrow site. Model runs will include both with and without project conditions. Model results will be used in the assessment of nearshore sediment processes associated with project fill alternatives and in the evaluation of nearshore impacts due to borrow site excavation.

- SBeach - SBEACH is a geomorphic-based numerical simulation model for predicting beach, berm and dune erosion due to storm waves and water levels. SBEACH will be applied to this coastal project to: determine storm-induced beach response as a function of storm intensity for existing profile conditions; evaluate beach fill design alternatives; and, in conjunction with a site-specific runup and overtopping module, predict dune/seawall/revetment overtopping rates.

6. REVIEW SCHEDULES AND COSTS

a. ATR Schedule and Cost.

(1) ATR Schedule

(a) FSM Materials ATR - Oct 2010
(b) AFB Materials ATR– Oct 2011
(c) Draft Feasibility Report & EIS ATR - May 2012
(d) Final Feasibility Report & EIS ATR - Feb 2013

(2) ATR Cost - $120K.

b. Type I IEPR Schedule and Cost. Type I IEPR will be conducted concurrently with public review of the draft report. It is currently scheduled for November, 2012 and expected to cost approximately $150K, in rough order of magnitude.

c. Model Certification/Approval Schedule and Cost. The use of mitigation models, UMAM and HEA, will be evaluated by the PCX for approval prior to preparation of the draft report. For cost estimate, see section 9, below. The models will be reviewed for technical soundness, theory, computational correctness, technical quality, usability and system quality, in compliance with EC 1105-2-407.

7. PUBLIC PARTICIPATION

A minimum of two public information sessions will be held, one near the beginning of the study to inform the general public of study initiation and study goals, and the other near the end of the study to formally present the results of the study. The Government and the Sponsor will conduct the meetings jointly. The Government and/or the Sponsor will prepare fact sheets and information papers as needed. Public information sessions will be designed in a manner, which best provides information to interested and affected publics. Significant and relevant public comments, as they become available, will be incorporated into report iterations and provided to ATR and Type I IEPR reviewers.

8. CONSOLIDATED SCHEDULE

- FSM Materials ATR – Oct 2010
- AFB Materials ATR – Oct 2011
- Draft Feasibility Report &EIS ATR - May 2012
- Mitigation Models Approval for use – May 2012

- Draft Feasibility Report/EIS Public/Agency Review – Nov 2012
- Draft Feasibility Report/EIS Type I IEPR – (concurrent with public review) Nov 2012
- Final Feasibility Report/EIS ATR – Feb 2013

9. CONSOLIDATED COSTS

- FSM Materials ATR – $25K
- AFB Materials ATR - $30K
- Draft Feasibility Report & EIS ATR – $40K
- Mitigation Models Approval for Use (cost included in item above)
- Draft Report/EIS Type I IEPR – $1500K
- Final Report/EIS ATR – $25K

10. PCX COORDINATION

The lead Planning Center of Expertise (PCX) for this study is the Planning Center of Expertise for Coastal Storm Damage Reduction, PCX-CSDR.

Also, a Cost Estimating Directory of Expertise (Cost Dx) has been established at the Corps Walla Walla District (NWW). The draft report cost estimate will be reviewed by the Cost DX. The PCX-CSDR is responsible for coordination with the Cost DX.

11. CORPS DIVISION/MSC APPROVAL

The Corps South Atlantic Division (SAD) is the MSC-level approving authority for this review plan (RP).

Like the PMP, the RP is a living document and may change as the study progresses. Substantive changes to the RP should be approved by following the process used for initially approving the RP. In all cases the MSC will review the decision on the level of review and any changes made in updates to the project.

12. REVIEW PLAN POINTS OF CONTACT

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

- Jacksonville District Review Manager, 904-232-2698
- Jacksonville District Project Manager, 904-232-2113
- South Atlantic Division Point of Contact, 404-562-5228
- Coastal Storm Damage Reduction National Center of Expertise (PCX-CSDR), 718-765-7071

ATTACHMENT 1: Project Delivery Team

Sponsor: City of Deerfield Beach Staff:

U.S Army Corps of Engineers (USACE) Staff:

Jacksonville District (CESAJ) Staff:

Programs and Project Management Division

Project Manager	**CESAJ-DP-CF**
Project Management	CESAJ-DP-CF
Programs Management	**CESAJ-DP-B**

Engineering Division

Hydrology and Hydraulics	CESAJ-EN-WC
Hydrology and Hydraulics	CESAJ-EN-WC
Geotechnical	CESAJ-EN-G
Geotechnical	CESAJ-EN-G
Levee and Waterways	CESAJ-EN-DW
Specifications	**CESAJ-EN-DC**
Cost Engineering	**CESAJ-EN-C**
Cost Engineering	**CESAJ-EN-C**
Value Engineering Officer	CESAJ-EN-T

Planning Division

Plan Formulation	**CESAJ-PD-PN**
Plan Formulation	CESAJ-PD-PN
Environmental	CESAJ-PD-EC
Environmental	CESAJ-PD-EC
Environmental	**CESAJ-PD-EP**
Environmental	CESAJ-PD-EQ
Environmental	CESAJ-PD-EQ
Socio-Economic	CESAJ-PD-D
Socio-Economic	CESAJ-PD-D

Construction Division

Construction	CESAJ-CD-M

Construction	CESAJ- CD-Q
Operations Division	
Operations	CESAJ-O
Contracting Division	
A-E & Construction	CESAJ-CT-C
Real Estate Division	
Acquisition	CESAJ-RE-A
Appraisal	**CESAJ-RE-S**
Office of Counsel	**CESAJ-OC**
Regulatory Division	
Permits	CESAJ-RD-SS
Corporate Communications Office	CESAJ-CC