# DRAFT REVIEW PLAN

## SABINE PASS TO GALVESTON BAY, TEXAS
## FEASIBILITY STUDY

**U.S. Army Corps of Engineers**
**Galveston District**

**MSC Approval Date: Pending**
**Last Revision Date:** November, 2012

US Army Corps
of Engineers ®

**DRAFT REVIEW PLAN**

**Sabine Pass to Galveston Bay, Texas**
**Feasibility Study**

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## 1. PURPOSE AND REQUIREMENTS

**a. Purpose.** This Review Plan defines the scope and level of peer review for the Sabine Pass to Galveston Bay, Texas Integrated Feasibility Report and Environmental Impact Statement. This is a new feasibility study. The study has recently completed a re-scoping effort and has conducted a planning charette at the end of a reconnaissance period prior to executing a Feasibility Cost Sharing Agreement with the Texas General Land Office (GLO). As of November, 2012, the Feasibility Cost-Sharing Agreement (FCSA) between the USACE and Texas General Land Office (non-Federal sponsor) has not been executed. Execution of the FCSA is anticipated to occur by January 2013. It is anticipated that coordination with the planning center of expertise and the vertical team will result in future revisions to this review plan once the study is funded and the feasibility study phase is initiated.

**b. References**

(1) Engineering Circular (EC) 1165-2-209, Civil Works Review Policy, Change#1 31 Jan 2010
(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) Sabine Pass to Galveston Bay, Texas Draft Project Management Plan

**c. Requirements.** This review plan was developed in accordance with EC 1165-2-209, 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 1165-2-209) 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 U.S Army Corps of Engineers (USACE) Planning Center of Expertise for Coastal Storm Damage Reduction (PXC-CSDR) located in the North Atlantic Division.

The RMO will coordinate with the Cost Engineering Directory of Expertise (DX) 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 Sabine Pass to Galveston Bay, Texas study will result in a Draft Feasibility Report decision document and environmental impact statement (EIS) that will require Congressional authorization. Authorization for the study is derived from a resolution from the Committee on Environmental and Public Works dated June 23, 2004 and entitled "Coastal Texas Protection and Restoration Study". The Committee on Environment and Public Works, U.S. Senate has requested that in accordance with Section 110 of the Rivers and Harbors Act of 1962 the Secretary of the Army develop a comprehensive plan for severe erosion along coastal Texas for the purposes of shoreline erosion and coastal storm damages, providing for environmental restoration and protection, increasing natural sediment supply to coast, restoring and preserving marshes and wetlands, improving water quality, and other related purposes to the interrelated ecosystem along the coastal Texas area.

The study fits into the overall concept of the authorization to conduct an integrated and coordinated approach to locating and implementing opportunities for Coastal Storm Risk Management (CSDRM) and ecosystem restoration (ER). The purpose of the study is to develop a recommendation(s) for a CSRM and/or ER project within the six coastal counties of the Upper Texas Coast between Sabine Pass and Galveston Bay. Pursuant to the National Environmental Policy Act (NEPA), an Environmental Impact Statement (EIS) will be integrated in the FR. The Approval level for the report is the Chief of Engineers, Headquarters, U.S. Army Corps of Engineers (HQUSACE).

**b. Study/Project Description.**

**Project Background**

The Sabine Pass to Galveston Bay study area encompasses six coastal counties of the upper Texas coast (Figure 1). The study sponsor is the Texas General Land Office. Over 5 million people reside in the six counties, which include the 4th largest U.S. city (Houston), and 3 other metropolitan areas (Beaumont/Port Arthur/Orange, Galveston/Texas City and Freeport/Surfside). The population of the counties is projected to increase to over 9 million within the next fifty years. In addition to the at risk population, three of the 9 largest oil refineries in the world, 40 percent of the nation's petrochemical industry, 25 percent of the nation's petroleum-refining capacity, and 3 of the 10 largest US seaports are also located in the study area. The growing population, communities and nationally significant industries are severely vulnerable to risks from coastal storm events. Approximately 2.26 million people across the study area live within a storm-surge inundation zone and estimates for a one month closure of the Houston Ship Channel alone are upwards of $60 billion in damages to the national economy. Figure 1 presents the study area.

The passage of Hurricane Ike and the significant physical and economic damage it brought has highlighted the need for a system wide approach to storm damage risks to the six county region of the upper Texas Coast. This region is home to more than five million people, three of the Nation's top ten deep-draft ports, 40 percent of the Nation's petrochemical industry, and three large bay and estuary systems. It is expected that on-going relative sea-level rise and erosion will continue to degrade the existing lines of defense while future storms have the potential to impact nationally important habitats as well as several areas important to the economic engine of the nation. Hurricane Ike caused an estimated $29 billion in property damages. An economic impact study conducted by the Texas Engineering Extension Service and Texas A&M University Department of

Agricultural Economics identified an additional $142 billion in economic losses in the 12 months following Hurricane Ike's initial impact.

The study will follow the COE feasibility study process and will investigate structural and non-structural measures such as:

- Non-structural (buyouts, raising structures, flood warning systems, floodplain management, regional sediment management, etc.).
- Structural (Raising roadways, levees, flood walls, flood gates, breakwaters, marsh/dune/shoreline restoration, hardening of infrastructure.

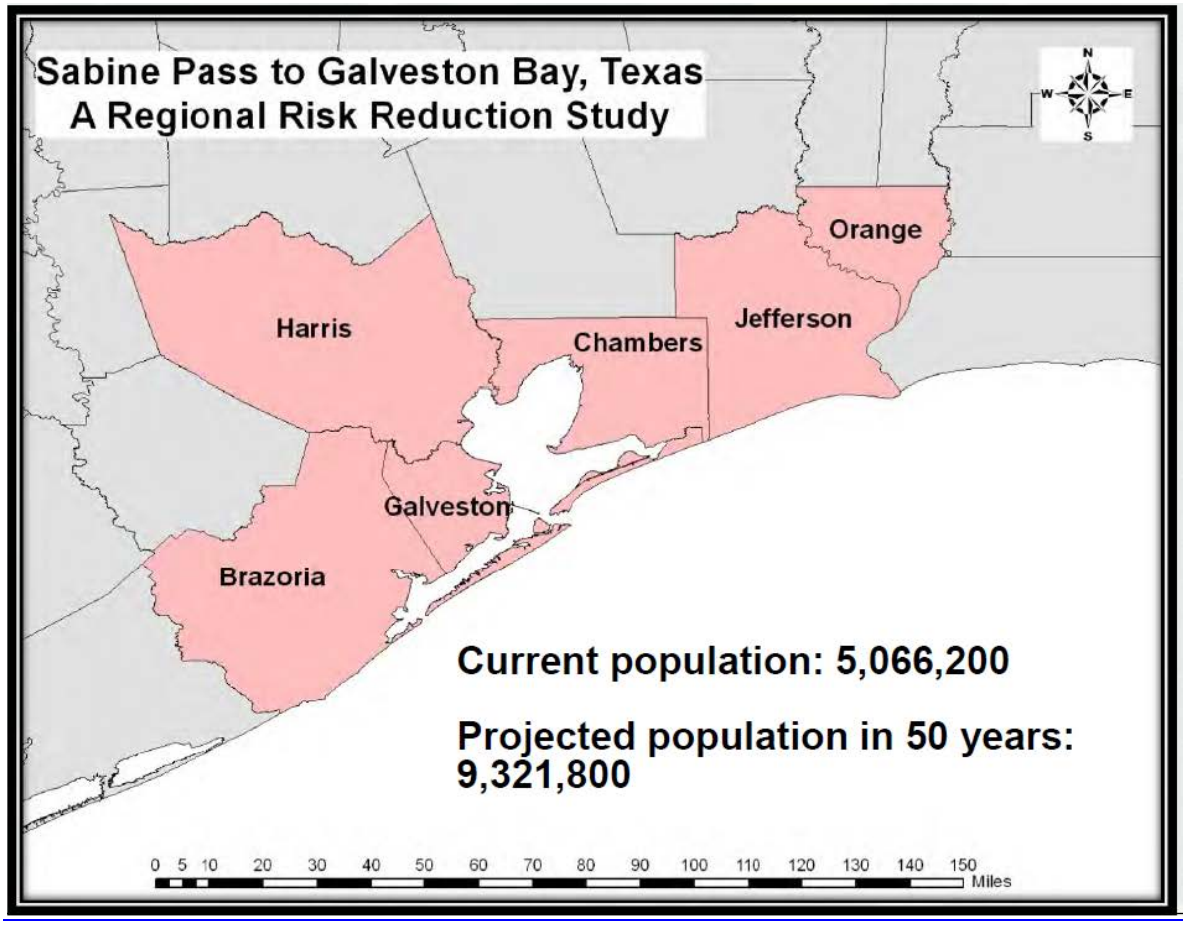


**Figure 1. Project Study Area**

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

It is anticipated that the draft feasibility report will recommend large structural solutions such as levee and surge gates. The cost estimates for construction of these alternatives would exceed the $45 million dollars. Accordingly, the project would undergo both Agency Technical Review (ATR) and Independent External Peer Review (IEPR).

**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 are anticipated to include: Components of the EIS, Economic Analysis, and Real Estate Plan.

## 4. DISTRICT QUALITY CONTROL (DQC)

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

**Documentation of DQC.** DQC is the review of basic science and engineering work products focused on fulfilling the project quality requirements. It is managed by the Galveston 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 (QMP) 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. For the Sabine Pass to Galveston Bay study, non-PDT members and/or supervisory staff will conduct this review for major draft and final products. It is expected that the Major Subordinate Command (MSC)/District QMP addresses the conduct and documentation of this fundamental level of review. District Quality Control will be documented using the Dr. Checks review software/website.

## 5. AGENCY TECHNICAL REVIEW (ATR)

ATR is mandatory for all decision documents (including supporting data, analyses, environmental compliance documents, etc.). The objective of ATR is to ensure consistency with established criteria, guidance, procedures, and policy. The ATR will assess whether the analyses presented are technically correct and comply with published USACE guidance, and that the document explains the analyses and results in a reasonably clear manner for the public and decision makers. ATR is managed within USACE by the designated RMO and is conducted by a qualified team from outside the 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.

**a. Products to Undergo ATR.** The product to undergo ATR will be the draft Feasibility Report and Environmental Assessment. ATR is required for this study and will focus on the following:

(1) Review of the planning study process,
(2) Review of the economics analysis
(3) Review of anticipated environmental impacts and proposed mitigation
(4) Completeness of study and support documentation

**b. Required ATR Team Expertise.**

| 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. 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 coastal storm damage reduction studies. |
| Economics | Economics reviewer should be an senior economist with experience in conducting benefits and costs analyses associated with coastal storm damage reduction projects. |
| Environmental Resources | The Environmental Resources reviewer should have strong background in coastal ecosystems, as well as Federal and Texas environmental laws and regulations. |
| Civil / Structural Engineering | Engineering reviewer should have extensive experience with coastal storm damage reduction and ecosystem restoration projects. |
| Real Estate | The Real Estate (RE) reviewer should have knowledge in reviewing RE Plans for feasibility studies. |
| Cost Engineering/Estimating | The Cost Engineering / Estimating reviewer should be a reviewer with experience in coastal storm damage reduction. |

**c. Documentation of ATR.** DrChecks review software will be used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. Comments should be limited to those that are required to ensure adequacy of the product. The four key parts of a quality review comment will normally include:

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

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

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

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

## 6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

IEPR may be required for decision documents under certain circumstances. IEPR is the most independent level of review, and is applied in cases that meet certain criteria where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside of USACE is warranted. A risk-informed decision, as described in EC 1165-2-209, 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 1165-2-209.

- 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.**

Due consideration was given to Paragraph 15 of EC 1165-2-209 as well as Appendix D of the same EC. The scope of the draft Feasibility Report and study require a Type I IEPR. Because of public safety concerns associated with coastal storm damage risk reduction, we anticipate the need for Type II IEPR review during PED as well. Safety Assurance will also be addressed during the Type I IEPR per Paragraph 2.c.(3) of Appendix D of EC 1165-2-209.

- **Mandatory IEPR Triggers** - EC 1165-2-209 identifies four mandatory triggers for Type I IEPRs:
  - Project is a significant threat to human life.
  - Where the estimated total cost of the project, including mitigation costs, is greater than $45 million.
  - Where the Governor of an affected State requests a peer review by independent experts.
  - Where the Director of Civil Works (DCW) or the Chief of Engineers (CE) determines that the project study is controversial due to significant public dispute over either the size, nature, or effects of the project or the economic or environmental costs or benefits of the project.

**b. Products to Undergo Type I IEPR.** IEPR will be conducted for the Draft Integrated Feasibility Report and Environmental Impact Statement and supporting documentation.

**c. Required Type I IEPR Panel Expertise.** At minimum, the panel should include the necessary expertise to assess the engineering, environmental, and economic adequacy of the decision document as required by EC 1165-2-209, Appendix D. The PDT has made an initial assessment of what expertise is needed based on the PMP and the factors affecting the scope and level of review outlined in the review plan. It is expected that coordination with the PCX and the Outside Eligible Organization (OEO) will determine the final participants on the panel.

| IEPR Panel Members/Disciplines | Expertise Required |
|---|---|
| Economics | The Economics Panel Member should have experience in water resource economic evaluation or review, working directly for or with USACE, and have experience with CSDR and ER. The reviewer should also have experience reviewing federal water resource economic documents justifying construction efforts, an understanding of social well-being and regional economic development, and an understanding of traditional natural economic development benefits. |
| Environmental (Ecology) | The Ecology Panel Member should have experience in describing and evaluating the complex relationships and dynamics of coastal ecosystems and experience assessing the consequences of altering environmental conditions. |
| Environmental (NEPA Impact Assessment) | The NEPA Impact Assessment Panel Member should have experience in evaluating and conducting NEPA impact assessments, conducting cumulative effects analyses, as well as experience with complex multi-objective public. The reviewer should work projects with competing trade-offs and have experience in determining the scope and appropriate methodologies for impact assessment and analyses for a variety of projects with high public and interagency interest. The reviewer should also have experience determining the scope and appropriate methodologies for impact assessment and analyses for projects having impacts to nearby sensitive habitats. |
| Coastal Engineering | The coastal engineering reviewer should have extensive experience in estuarine systems and be familiar with USACE applications of standard USACE hydrologic and hydraulic computer models. |
| Geotechnical (estuarine and coastal) | The geotechnical (estuarine and coastal) engineering reviewer should have geotechnical studies and design of flood control works including channel modifications, an understanding of traditional natural economic development benefits, and be familiar with geotechnical practices used in Texas site investigation planning and implementation including modification of channels, minimizing environmental impacts, coastal processes, and geomorphology. |

**d. Documentation of Type I IEPR.** The IEPR panel will be selected and managed by an Outside Eligible Organization (OEO) per EC 1165-2-209, Appendix D. Panel comments will be compiled by the OEO and should address the adequacy and acceptability of the economic, engineering and environmental methods, models, and analyses used. IEPR comments should generally include the same key parts as

described for ATR comments above. The OEO will prepare a final Review Report that will accompany the publication of the final decision document and shall:

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

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

If IEPR of interim products are performed, these reviews should be documented in interim Review Reports. The interim Review Reports will be incorporated into the final Review Report. The official USACE response to the IEPR panel recommendations will be provided to the final Review Report only. Initial responses to IEPR panel recommendations will be developed and documented by the PDT and provided to the vertical team for consideration in developing the official USACE response. The use of DrChecks to document the IEPR comments and initial District responses is not required, but its use may be negotiated with the OEO.

**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 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. Given the small scope/scale nature of the project, coordination with Walla Walla resulted in a determination that the DX review of the Cost Engineering documents will occur concurrent with the ATR review.

## 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 Corps 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 SMART Planning guidelines for conducting feasibility studies (no more than $3 million and within 3 years) limits the amount and level of modeling and encourages the use of existing information. It is anticipated that after upon execution of the Feasibility Cost-Sharing Agreement and start of the Feasibility Study phase, further coordination with the PCX-CSDR and the vertical team with determine which models will be used during the feasibility study. The following planning models have been identified for potential use 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** | **Certification / Approval Status** |
|---|---|---|
| HEP-HSI, or WVA | The PDT anticipates use of Habitat Evaluation Procedure (HEP) Habitat Suitability Index (HSI) models and/or the Wetland Value Assessment (WVA) model to quantify, to the extent possible, potential impacts associated with the project or outputs of proposed ecosystem restoration. All U.S. Fish and Wildlife Service (USFWS) HSI models were approved by HQ for use (Policy Guidance on Certification of Ecosystem Output Models, 8/13/2008, Recommendation 3) and require no further approval or certification." The USFWS WVA model has been certified and is approved for use along the upper Texas Gulf shoreline. The selection and application of these models will require ATR review. | Certified HEP HSI and/or WVA models |
| HAZUS MH 2.1 | The PDT anticipates use of HAZUS to estimate reduction in damages associated with alternatives. Initial screening would be done at a high level and would use output derived from ADCIRC to determine height of surge flooding. It is anticipated that additional coordination with the PCX-CSDR and The draft | Level 3 Review of Regional / Local Model (Approval for Single Use is |

| | | |
|---|---|---|
| | Feasibility Report presents an economic analysis to support the relocation of the mooring basin and dropping the GIWW alternate / reroute across Corpus Christi Bay. | Pending) |

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

| Model Name and Version | Brief Description of the Model and How It Will Be Applied in the Study | Approval Status |
|---|---|---|
| Mii - cost estimating models | Cost Engineering's model for developing cost. | Cost Engineering Approved Model |
| Crystal Ball Risk Based Analysis | Cost Engineering's model for determining risk in cost estimating. | Cost Engineering Approved Model |
| ADCIRC | storm surge model to determine extent of flood inundation | |

**10. REVIEW SCHEDULES AND COSTS**

**a. ATR Schedule and Cost.**

As of November, 2012, the Feasibility Cost-Sharing Agreement (FCSA) between the USACE and non-Federal Sponsor has not been executed. Execution of the FCSA is anticipated to occur by January 2013. The ATR and IEPR schedules are dependent on execution of the FCSA and will be developed within 60 days after execution.

Estimated schedule for ATR of the draft Integrated Feasibility Report and EIS

ATR Review of Draft Reports — Pending execution of FCSA
ATR Certification of Draft Reports
Public Review of Draft Reports
ATR Certification of Final Reports

- The estimated cost for ATR is $75,000 including the participation of the ATR Lead in milestone conferences and the Civil Works Review Board (CWRB) meeting to address the ATR process and any significant and/or unresolved ATR concerns.

**b. Type I IEPR Schedule and Cost.**

| TASK | Date |
|---|---|
| IEPR Initiation | Pending execution of FCSA |
| IEPR Certification | |
| IEPR backcheck/followup Initiation | |
| IEPR backcheck/followup Certification | |
| Chief of Engineer's IEPR Summary Report | |

- The estimated cost for IEPR is $400,000.

**c. Model Certification/Approval Schedule and Cost.** As part of the Feasibility Report, the District is performing an economic analysis to support the recommendations of the report. The estimated

cost for certification of the analysis is $35K. Schedule will be developed within 60 days of FCSA execution.

**11. PUBLIC PARTICIPATION**

Four USACE and non-Federal Sponsor public scoping meetings were conducted in 2012 for this project. These meetings occurred in Jefferson, Harris, Galveston, and Brazoria Counties. It is anticipated that the public will not be asked to nominate potential peer reviewers. Public participation will also include a public meeting to present the draft integrated report and a public review and comment period for the Draft Integrated Feasibility Report and EIS. Significant public comments will be provided to the reviewers prior to certification. The comments received during the public review of the draft report and their responses will be included in the final Integrated Feasibility Report and EIS. A public review will also be held on the final report.

**12. REVIEW PLAN APPROVAL AND UPDATES**

The Southwestern Division Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input (involving district, MSC, RMO, and HQUSACE members) as to the appropriate scope and level of review for the decision document. Like the PMP, the Review Plan is a living document and may change as the study progresses. The home district is responsible for keeping the Review Plan up to date. Changes to the review plan will be documented in Attachment 3. Significant changes to the Review Plan (such as changes to the scope and/or level of review) should be re-approved by the MSC Commander following the process used for initially approving the plan. The latest version of the Review Plan, along with the Commanders' approval memorandum, should be posted on the Home District's webpage. The latest Review Plan should also be provided to the RMO and home MSC.

**13. REVIEW PLAN POINTS OF CONTACT**

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

| | | |
|---|---|---|
| | Chief, Planning Section | |
| | Planning Lead | |
| | ATR Team Lead | |

**Planning Center of Expertise for Inland Navigation**

| NAME | TITLE/ORG. | PHONE | EMAIL |
|---|---|---|---|
| | Director, PCX-CSDR | | |
| | Deputy Director , PCX-CSDR | | |

**ATTACHMENT 1: TEAM ROSTERS**

**PDT Roster**

| NAME | TITLE/ORG. | PHONE | EMAIL |
|---|---|---|---|
| | Project Manager<br>CESWG-PM-J | | |
| | Planning Lead<br>CESWG-PE-PL | | |
| | Environmental Lead<br>CESWG-PE-PR | | |
| | Economist<br>CESWL-PE | | |
| | Cost Engineer<br>CESWG-EC-PS | | |
| | Real Estate<br>CESWG-RE | | |

**DQC Roster**

| NAME | TITLE/ORG. | PHONE | EMAIL |
|---|---|---|---|
| | Chief, Planning Section | | |
| | Chief, Environmental Section | | |
| | Chief, Geotechnical & Structures Section | | |
| | Chief, General Engineering Section | | |
| | Real Estate, Technical Services Branch | | |
| | | | |
| | Chief, Professional Services | | |

**ATR Roster**

| NAME | ATR Discipline/ORG. | PHONE | EMAIL |
|---|---|---|---|
| Pending | ATR Lead | | |
| | Costs/Walla Walla | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

**Vertical Team POC's**

| NAME | TITLE/ORG. | PHONE | EMAIL |
|---|---|---|---|
| | MSC PLANNING COORDINATOR FOR SWG | | |
| | CHIEF, SWD PLANNING DIVISION | | |
| | REGIONAL INTEGRATION TEAM | | |

## ATTACHMENT 2: SAMPLE STATEMENT OF TECHNICAL REVIEW FOR DECSION DOCUMENTS

### COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the *<type of product>* for *<project name and location>*. The ATR was conducted as defined in the project's Review Plan to comply with the requirements of EC 1165-2-209. During the ATR, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions, methods, procedures, and material used in analyses, alternatives evaluated, the appropriateness of data used and level obtained, and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing US Army Corps of Engineers policy. The ATR also assessed the District Quality Control (DQC) documentation and made the determination that the DQC activities employed appear to be appropriate and effective. All comments resulting from the ATR have been resolved and the comments have been closed in DrChecks[sm].

*SIGNATURE* _____ Date _____

*Name*
ATR Team Leader
*Office Symbol/Company*

*SIGNATURE* _____ Date _____

*Name*
Project Manager
*Office Symbol*

*SIGNATURE* _____ Date _____

*Name*
Architect Engineer Project Manager[1]
*Company, location*

*SIGNATURE* _____ Date _____

*Name*
Review Management Office Representative
*Office Symbol*

**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* Date
Chief, Engineering Division
*Office Symbol*

*SIGNATURE* _____ _____

*Name* Date
Chief, Planning Division
*Office Symbol*

[1] Only needed if some portion of the ATR was contracted

**ATTACHMENT 3: REVIEW PLAN REVISIONS**

| Revision Date | Description of Change | Page / Paragraph Number |
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**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 |
| 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 |
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