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

CESAD-PDP

16 September 2020

MEMORANDUM FOR Commander, Mobile District, 109 St. Joseph Street, Mobile, AL 36602

Subject: Request for Approval of the Review Plan for Mexico Beach, Florida, Coastal Storm Risk Management Study

1. References:

a. Memorandum, CESAM-PD-FP, 26 August 2020, subject: Request for Approval of the Review Plan for Mexico Beach, Florida, Coastal Storm Risk Management Study.

b. Engineer Circular (EC) 1165-2-217, Water Resources Policies and Authorities, Review Policy for Civil Works, February 2018.

c. Memorandum, CECW-P, 7 June 2018, subject: Revised Delegation of Authority in Section 2034(a)(5)(A) of the Water Resources Development Act of 2007 (WRDA 2007), as amended (33 U.S.C. 2343).

2. Mobile District prepared the review plan for the Mexico Beach Coastal Storm Risk Management Feasibility Study consistent with EC 1165-2-217. The District coordinated the review plan with the National Planning Center of Expertise for Coastal Storm Risk Management (CSRM-PCX), which is the lead office to execute this review plan. For further information, contact Larry Cocchieri, Deputy, CSRM-PCX at (347) 370-4571.

3. I approve this review plan and exclusion from Type 1 Independent External Peer Review. The approved review plan is subject to change as circumstances require, consistent with study development under the project management business process. Subsequent revisions to this approved review plan due to significant changes in the study, study scope, or level of review will require new written approval from this office.

4. The point of contact for this action is David Bauman at (404) 562-5202 or David.J.Bauman@usace.army.mil.

Digitally signed by KELLY.JASON.ERIK.1095067405

JASON E. KELLY, PMP
Colonel, EN
Commanding

DRAFT REVIEW PLAN
Updated September 2020

Project Name: Mexico Beach, Florida Coastal Storm Risk Management (CSRM) Study

P2 Number: 483958

Decision Document Type: Feasibility Report

Project Type: Coastal Storm Risk Management

District: Mobile

District Contact: Plan Formulator – (251) 694-3832

Major Subordinate Command (MSC): South Atlantic Division

MSC Contact: Mobile District Point of Contact – (404) 562-5202

Review Management Organization (RMO): Planning Center of Expertise for Coastal Storm Risk Management (PCX-CSRM)

RMO Contact: PCX-CSRM Coordinator – (347) 370-4571

Key Review Plan Dates

Date of RMO Endorsement of Review Plan: 5 AUG2020
Date of MSC Approval of Review Plan: 17 SEP 2020
Date of IEPR Exclusion Approval: 17 SEP 2020
Has the Review Plan changed since PCX Endorsement? No
Date of Last Review Plan Revision: None
Date of Review Plan Web Posting: 18 SEP 2020
Date of Congressional Notifications:

Milestone Schedule

Milestone	Scheduled	Actual	Complete
FCSA		15 APR 2020	Y
Alternatives Milestone	2 JUL 2020	2 JUL 2020	Y
Tentatively Selected Plan	30 JUN 2021		
Release Draft Report to Public	4 AUG 2021		
Agency Decision Milestone	12 NOV 2021		
Final Report Transmittal	23 AUG 2022		
Senior Leaders Briefing	10 OCT 2022		
Chief's Report/Director's Report	16 FEB 2023		

Note: Feasibility Cost Share Agreement executed

Project Fact Sheet
March 2019

Project Name: Mexico Beach, Bay and Gulf Counties, Florida Coastal Storm Risk Management (CSRM) Study

Location: Mexico Beach, Florida

Authority: The study's authority is contained in the Senate Resolution adopted on 21 April 1970 by the Committee on Public Works, in accordance with Section 110 of the Rivers and Harbors Act of 1962.

Sponsor: City of Mexico Beach, Bay and Gulf Counties, Florida

Type of Study: Feasibility Study and Environmental Assessment

SMART Planning Status: The study is 3x3x3 compliant

Project Area: Mexico Beach, Bay and Gulf Counties, Florida is located in the northwestern part of the State of Florida. The study area extends for approx. 40 miles along Gulf of Mexico frontage in both Bay and Gulf County, Florida and the inland area exposed to inundation from coastal storm surge and sea level rise. Figure 1 presents the study area.

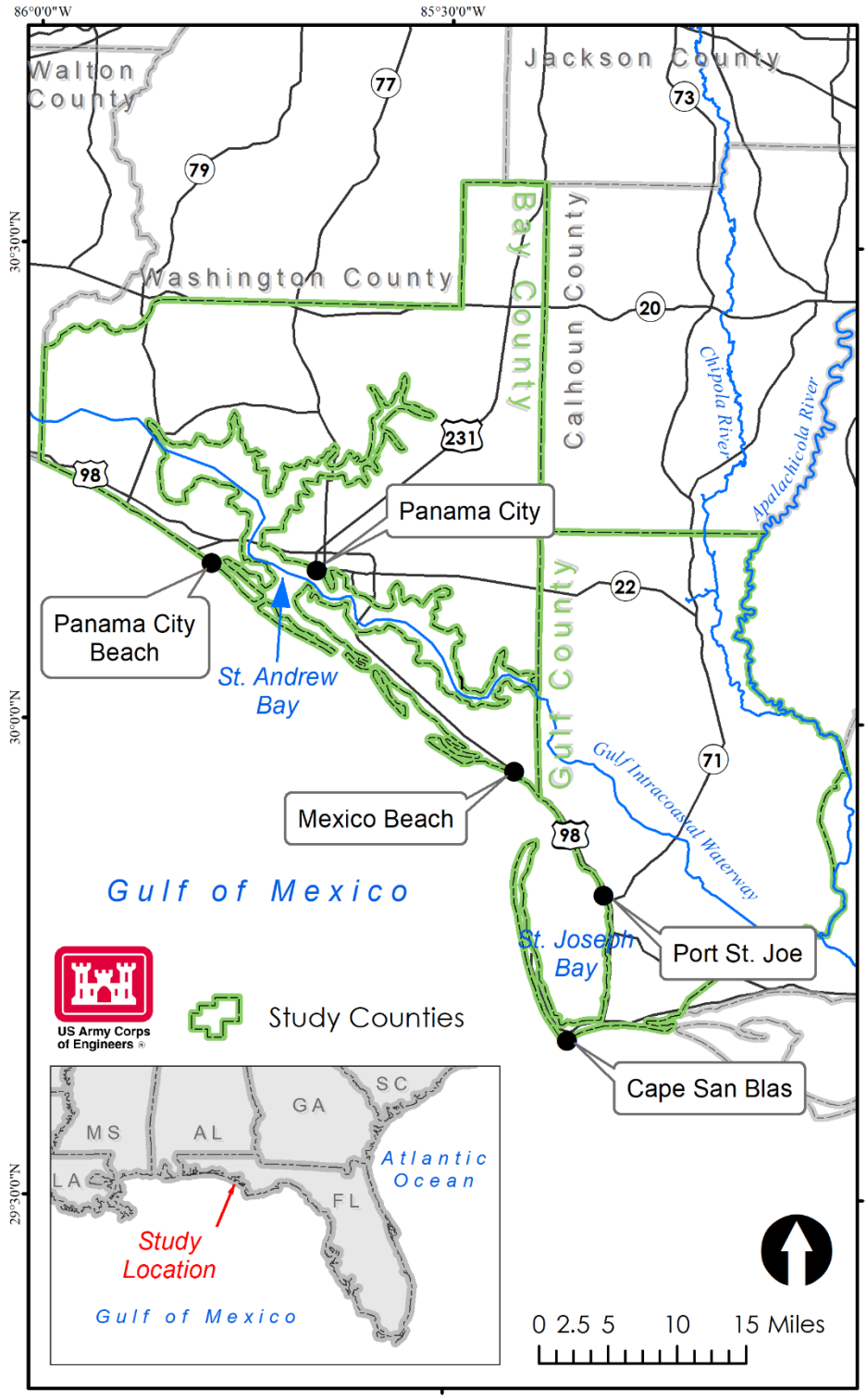

Figure 1-1: Study Area

Problem Statement: Coastal storm damages and critical shoreline erosion is occurring along the Bay and Gulf Counties, Florida shoreline. Coastal storm saltwater intrusion

produces impacts to the backbay aquatic ecosystem. Several environmental habitats, including dunes, beach and shoreline, are degrading. The inland area of Mexico Beach is also subject to increased risk of flooding from coastal storms.

Federal Interest: Examination of the historic storm damage and erosion that exists along the Mexico Beach, Florida shoreline indicates that there are opportunities for Federal project participation in the study area. Estimates of potential damages from hurricanes and tropical storms exceed the costs of providing a measure of coastal storm risk management. Coastal storm risk management is needed to address damages resulting from inundation, waves and erosion caused by tropical storms and hurricanes within the study area. Possible measures to address damages include beach and dune fill, shoreline structures, and acquisition and elevating of residential and commercial structures. The anticipated costs range from $25 million to $50 million.

Risk Identification: Coastal storm damage and critical shoreline erosion in developed areas can pose a threat to human life or safety and infrastructure. This threat can be significant if affected residents do not heed advance warnings regarding approaching coastal storms. Any project to address coastal storm damage may reduce the threat to infrastructure but there will continue to remain a residual threat due to coastal storms.

1. FACTORS AFFECTING THE LEVELS OF REVIEW

Scope of Review. This section discusses factors affecting the risk informed decisions on the appropriate levels of review.

- Will the study likely be challenging?
  The study will consist of analysis of coastal storm damage caused by inundation, waves and erosion along the Gulf shorelines as well as inland areas exposed to inundation from coastal storms and sea level rise. Examination of those problems and assessment of potential solutions are not anticipated to be exceptionally challenging.

- Provide a preliminary assessment of where the project risks are likely to occur and assess the magnitude of those risks.
  Uncertianty in the assessment of economic impacts from future storms present a high risk for the project. Recent damages from Hurricane Michael and the subsequent reconstruction are likely to reduce the amount property loss that could be expected from future storms. Uncertainty in borrow source locations and quantities/quality of material present a high risk for the project. Uncertainty with sea level change projections (Eustatic and Subsidence) and extreme weather events/impacts (hurricanes, storm surge impacts, etc.) present a moderate risk for the project.

- Is the project likely to be justified by life safety or is the study or project likely to involve significant life safety issues?

Potential structural solutions to reduce coastal storm damages from inundation, waves and erosion are likely to include beach and dune fill and/or hardened structures (revetments, bulkheads, groins, geotubes, etc.). These types of solutions are formulated to reduce coastal storm damage and do not reduce the risk to life and safety.

- Has the Governor of an affected state requested a peer review by independent experts?

  The Florida Governor has not requested a peer review by independent experts.

- Will it likely involve significant public dispute as to the project's size, nature, or effects?

  The project is not likely to involve significant public dispute on size, nature, or effects.

- Is the project/study likely to involve significant public dispute as to the economic or environmental cost or benefit of the project?

  The study will not likely involve significant public dispute as to the economic or environmental cost or benefit of the project.

- Is the information in the decision document or anticipated project design likely to be based on novel methods, involve innovative materials or techniques, present complex challenges for interpretation, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices?

  The information in the decision document is not likely based on novel methods or techniques, present complex challenges for interpretation, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices.

- Does the project design require redundancy, resiliency, and/or robustness, unique construction sequencing, or a reduced or overlapping design/construction schedule?

  Should a project be justified to address coastal storm damages from inundation, waves and erosion the proposed work will likely require periodic maintenance to maintain functionality. In order to reduce the needed maintenance cycle a robust and resilient project will be considered.

- Is the estimated total cost of the project greater than $200 million?

  The anticipated total cost of the project is expected to be less than $200 million.

- Will an Environmental Impact Statement be prepared as part of the study?

  It is anticipated that there will not be significant environmental impacts and that an Environmental Assessment (EA) will be prepared.

- Is the project expected to have more than negligible adverse impacts on scarce or unique tribal, cultural, or historic resources?

  The project is not expected to have more than negligible adverse impacts on scarce or unique tribal, cultural, or historic resources.

- Is the project expected to have substantial adverse impacts on fish and wildlife species and their habitat prior to the implementation of mitigation measures?

  The project is not expected to have substantial adverse impacts on fish and wildlife species and their habitat.

- Is the project expected to have, before mitigation measures, more than a negligible adverse impact on an endangered or threatened species or their designated critical habitat?

  The project is not expected to have more than a negligible adverse impact on an endangered or threatened species or their designated critical habitat.

2. REVIEW EXECUTION PLAN

This section describes each level of review to be conducted. Based upon the factors discussed in Section 1, this study will undergo the following types of reviews:

District Quality Control (DQC). All decision documents (including data, analyses, environmental compliance documents, etc.) undergo DQC. This internal review process covers basic science and engineering work products. It fulfils the project quality requirements of the Project Management Plan (PMP).

Agency Technical Review (ATR). ATR is performed by a qualified team from outside the home district that is not involved in the day-to-day production of the project/product. These teams will be comprised of certified USACE personnel. The ATR Team Lead will be from outside the home MSC. If significant life safety issues are involved in a study or project a safety assurance review would be conducted during ATR.

Independent External Peer Review (IEPR). Type I IEPR may be required for decision documents under certain circumstances. This is the most independent level of review, and is applied in cases that meet criteria where the risk and magnitude of the project are such that a critical examination by a qualified team outside of USACE is warranted. A risk-informed decision is made as to whether Type I IEPR is appropriate. As detailed further within this Review Plan a Type I IEPR exclusion waiver is being requested.

Cost Engineering Review. All decision documents shall be coordinated with the Cost Engineering Mandatory Center of Expertise (MCX). The MCX will assist in determining the expertise needed on the ATR Team. The MCX will provide the Cost Engineering certification. The RMO is responsible for coordinating with the MCX for the reviews. These reviews typically occur as part of ATR.

Model Review and Approval/Certification. EC 1105-2-412 mandates the use of certified or approved models for all planning work to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions.

Policy and Legal Review. All decision documents will be reviewed for compliance with law and policy. Engineer Reulation (ER) 1105-2-100, Appendix H provides guidance on policy and legal compliance reviews. These reviews culminate in determinations that report recommendations 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. These reviews are not further detailed in this section of the Review Plan.

Table 1 provides the schedules and costs for reviews. The specific expertise required for the teams are identified in later subsections covering each review. These subsections also identify requirements, special reporting provisions, and sources of more information.

Table 1: Levels of Review

Product(s) to undergo Review	Review Level	Start Date	End Date	Cost	Complete
Engineering and Economic Modeling	Targeted ATR	*9/15/2020*	*10/1/2020*	$7500	No
Engineering and Economic Modeling	Targeted ATR	*Jan 2021*	*Jan 2021*	$7500	No
Engineering and Economic Modeling	Targeted ATR	*TBD (If needed)*	*TBD*		No
Draft Feasibility Report and EA	District Quality Control	*7/1/2021*	*8/4/2021*	$25,000	No
Draft Feasibility Report and EA	Agency Technical Review	*8/5/2021*	*9/1/2021*	$30,000	No
Draft Feasibility Report and EA	Policy and Legal Review	*8/5/2021*	*9/1/2021*	n/a	No
Final Feasibility Report and EA	District Quality Control	*4/1/2022*	*4/30/2022*	$25,000	No
Final Feasibility Report and EA	Agency Technical Review	*5/1/2022*	*6/1/2022*	$35,000	No
Final Feasibility Report and EA	Policy and Legal Review	*6/1/2022*	*6/30/2022*	n/a	No

a. DISTRICT QUALITY CONTROL

The home district shall manage DQC and will appoint a DQC Lead to manage the local review (see EC 1165-2-217, section 8.a.1). The DQC Lead should prepare a DQC Plan and provide it to the RMO and MSC prior to starting DQC reviews. Table 2 identifies the required expertise for the DQC team.

Table 2: Required DQC Expertise

DQC Team Disciplines	Expertise Required
DQC Lead	A senior professional with extensive experience preparing Civil Works decision documents and conducting DQC. The lead may also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc.).
Planning	A senior water resources planner familiar with the plan formulation process and experienced in general planning policy and guidance.
Economics	The reviewer will have a minimum of five years general experience as a Corps economist, preferably with prior experience working on the specific type of study involved. A senior economist with an understanding of hydrologic data to recognize sufficiency and appropriate utilization in alternative evaluation, including risk assessment. The team member will have an understanding of economic related requirements as depicted in EM 1110-2-1619 and ER1105-2-101. The team member will also have knowledge of Corps accepted benefits and costs utilized in storm and flood risk management analysis and applicable models (Beach-*fx*).
Environmental Resources	A senior environmental resources specialist with experience with environmental evaluation and compliance requirements pursuant to the "Procedures for Implementing NEPA" (ER 200-2-2), national environmental laws and statutes, applicable Executive Orders, and other Federal planning requirements for Civil Works projects, including mitigation planning.
Cultural Resources	A senior cultural resource specialist with experience with cultural resource survey methodology, area of potential effects, Section 106 of the National Historic Preservation Act, and state and Federal laws/executive orders pertaining to American Indian Tribes.
Engineering - Coastal Hydrology and Hydraulics	The reviewer will have a minimum of ten years general experience as an H&H engineer, preferably

	with prior experience working on the specific type of study involved. The coastal, H&H engineering reviewer should have extensive knowledge in the field of hydrology and hydraulics and have a thorough understanding of coastal processes, beach fill projects, coastal structures, non-structural solutions involving relocation and elevating structures, Beach-*fx* modeling as well as other coastal models (e.g. WAM, ADCIRC, STWAVE, SBEACH CSHORE, and GENESIS, etc.).
Engineering – Geotechnical	The reviewer will have at least ten years of relevant experience as a geotechnical engineer. Engineers who are certified in the Engineering and Construction Community of Practice are preferred. Professional registration is also preferred. A geotechnical engineer with experience with geotechnical investigations and design necessary for coastal storm risk management projects.
Cost Engineering	A senior cost engineer with experience in SMART Planning, with experience using required cost estimation software; working knowledge of construction and scheduling and coastal projects; capable of making professional determinations based on experience.
Real Estate	The Real Estate reviewer will have experience in development of SMART Planning Real Estate Plans and will have experience in preparing real estate plans for Coastal Storm Risk Management studies and projects.

Documentation of DQC. Quality Control should be performed continuously throughout the study. DQC will include overarching quality checks of all assumptions, data, computations, graphs, and products. Quality checks will answer the following questions:

1) Is the identified CSRM problem well understood and are the risks properly characterized?
2) Has an appropriate array of alternatives been selected to solve the CSRM problem?
3) Are the identified measures and alternatives applicable and practicable to meet stated objectives?
4) Are the proposed construction methods appropriate?
5) Are the schedules and cost estimates reasonable?
6) What risk of cost and schedule growth potential exists?
7) Are there lessons learned that that need to be considered?
8) Do the analyses and design comply with USACE criteria and policy requirements?

A specific certification of DQC completion is required at the draft and final report stages. Documentation of DQC should follow the District Quality Manual and the MSC Quality Management Plan. An example DQC Certification statement is provided in EC 1165-2-217, on page 19 (see Figure F).

Documentation of completed DQC should be provided to the MSC, RMO and ATR Team Leader prior to initiating an ATR. The ATR Team will examine DQC records and comment in the ATR report on the adequacy of the DQC effort. Missing or inadequate DQC documentation can result in delays to the start of other reviews (see EC 1165-2-217, section 9).

b. AGENCY TECHNICAL REVIEW

The ATR will assess whether the analyses are technically correct and comply with guidance, and that documents explain the analyses and results in a clear manner. An RMO manages ATR. The review is conducted by an ATR Team whose members are certified to perform reviews. Lists of certified reviewers are maintained by the various technical Communities of Practice (see EC 1165-2-217, section 9(h)(1)). Table 3 identifies the disciplines and required expertise for this ATR Team.

Table 3: Required ATR Team Expertise

Discipline	Required Expertise
ATR Lead	The ATR Lead will be a senior professional with extensive experience in preparing Civil Works decision documents and conducting ATR. The lead should also have the necessary skills and experience to lead a virtual team through the ATR process. Typically, the ATR Lead will also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc.)
Plan Formulation	The Planning reviewer will be a senior water resources planner with experience in the plan formulation process. The reviewer should be familiar with evaluation of alternative plans for coastal storms risk management projects.
Environmental Resources	The environmental resources reviewer will be a senior NEPA compliance specialist with experience in coastal storms risk management projects, particularly projects in urbanized coastal areas. Expertise with living shorelines and natural and nature based features for CSRM is also preferred.
Economics	The economics reviewer will be a senior water resource economist with experience in coastal storms risk management project.

Engineering – Coastal, Hydrology and Hydraulics	The engineer will have at least ten years of relevant experience. The coastal, H&H engineering reviewer will have extensive knowledge in the field of hydrology and hydraulics and have a thorough understanding of coastal processes, climate change assessment, beach fill projects, coastal structures, non-structural solutions involving relocation and elevating structures, Beach-*fx* modeling as well as other coastal models (e.g. WAM, ADCIRC, STWAVE, SBEACH CSHORE and GENESIS, etc.).
Climate Preparedness and Resilience	Team member will have expertise in climate change and sea level change assumptions as it relates to coastal studies.
Structural Engineering	Team member will have expertise in the field of structural engineering, especially in design and review of floodwalls, bulkheads, and revetments. A registered professional engineer is required.
Geotechnical Engineering	Team member will have expertise in geotechnical engineering, specifically beach nourishment, floodwall, road-raising, bulkheads and/or coastal structures, and berm construction. A registered professional engineer is required.
Risk Reviewer	Team member will have 'knowledge and experience in accordance with ER 1105-2-101.
Real Estate	The Real Estate reviewer will have experience in development of SMART Planning Real Estate Plans and will have experience in preparing real estate plans for Coastal Storm Risk Management studies and projects.
Cost Engineering	Team member will have expertise in cost estimating for similar projects in MII. Review includes construction schedules and contingencies. The team member will be a Certified Cost Technician, a Certified Cost Consultant, or a Certified Cost Engineer. As the Cost Engineering Center of Expertise, Walla Walla District will assign this team member as part of a separate effort coordinated by the ATR Team Lead.

Documentation of ATR. DrChecks will be used to document all ATR comments, responses and resolutions. Comments should be limited to those needed to ensure product adequacy. If a concern cannot be resolved by the ATR Team and Project Delivery Team (PDT), it will be elevated to the Vertical Team for resolution using the EC 1165-2-217 issue resolution process. Concerns can be closed in DrChecks by noting the concern has been elevated for resolution. The ATR Lead will prepare a Statement of Technical Review (see EC 1165-2-217, Section 9), for the draft and final reports, certifying that review issues have been resolved or elevated. ATR may be certified when all

concerns are resolved or referred to the Vertical Team and the ATR documentation is complete.

Targeted ATR. Targeted ATR's would occur prior to review of the draft report and provided interim review at critical points throughout the study process as outlined in the July 2020 memo Subject: Policy for Targeted Agency Technical Review of Flood Risk Management and Coastal Storm Risk Management Planning Studies. PDT will coordinate with ATR lead to schedule the Targeted ATR(s) and provided additional funding as necessary.

c. 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 1165-2-217 is made to determine if IEPR is appropriate for this project and is described below.

(i) Type I IEPR.

Type I IEPR is managed outside of the USACE and conducted on 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.

Decision on Type I IEPR. This study is not expected to trigger any of the mandatory triggers for Type I IEPR including:

• Total Project Costs – Based on the screening to date the total project costs is not expected to exceed the $200 million threshold;
• The State Governor has not requested a review;
• The project study is not expected to be controversial in size, nature, effects, economics, environmental, costs or estimated benefits;
• The project is not likely to have a significant adverse impact on environmental, cultural, or other resources;
• The information reviewed and generated as a part of this study is not expected to be based on novel methods, doesn't present complex challenges for interpretation, does not contain precedent-setting method or models and is not likely to present conclusions that are likely to change prevailing practices.

A project study may be excluded from Type I IEPR in cases where none of the above mandatory triggers are met and:
• The project does not include an EIS;

• The DCW or the Chief determines that the project is not controversial and has no more than negligible adverse impacts on scarce or unique tribal, cultural, or historic resources or substantial adverse impacts on fish and wildlife species and endangered or threatened species under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) or the critical habitat.

The study is expected to require an integrated feasibility report and EA. The project is not expected to have adverse effects on the tribal, cultural or historic areas or any adverse effects on Endangered Species.

Based on the guidance published in EC 1165-2-217and the fact that the types of projects that will be recommended (e.g., beach fills, natural and nature based features, acquisition or elevation of homes) the District does not believe life safety is a significant issue and a Type 1 IEPR will not be required.

Products to Undergo Type I IEPR. The Draft Integrated Coastal Storm Risk Management Feasibility and Environmental Assessment Feasibility Report, including supporting documentation will not undergo IEPR. All products will be reviewed by the PDT and undergo DQC and ATR. This includes products that are produced by the non-Federal sponsor as in-kind services, though the PDT does not anticipate the non-Federal sponsor producing any in-kind services at this time.

Required Type I IEPR Panel Expertise. If at some point it was determined that IEPR is required, it will be conducted by a minimum of four IEPR team members. Table 4 lists the disciplines that are anticipated to undergo IEPR are economics, environmental, coastal engineering and geotechnical engineering.

Table 4: Required Type I IEPR Panel Expertise

IEPR Panel Member Disciplines	Expertise Required
Economics	Experience in analysis of demographics, land use, and flood damage assessments discussion of other social effects (OSE) associated with flood risk; and economic justification of FRM projects in accordance with current USACE policy.
Environmental	Inland environmental resources specialist with experience with environmental evaluation and compliance requirements pursuant to the “Procedures for Implementing NEPA” (ER 200-2-2), national environmental laws and statutes, applicable Executive Orders, and other Federal planning requirements for Civil Works projects, including mitigation planning.

Coastal Hydraulics & Engineering .	The coastal hydraulics and engineering reviewer will be an expert in the field of coastal processes and modeling and have a thorough understanding of computer modeling techniques that will be used such as Beach-*fx* and HEC-FDA.
Geotechnical Engineering	Team member should have expertise in geotechnical engineering as it pertains to coastal projects, to include beach nourishment and project designs that meet Corps standards. A registered professional engineer is required.

Documentation of Type I IEPR. Panel comments should address the adequacy and acceptability of the economic, engineering, and environmental methods, models, and analyses used. The outside managing organization 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 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. Reviews of the interim products will be documented in interim Review Reports using the same format as presented above for the final Review Report. The interim Review Reports will be incorporated into the final Review Report.

(ii) Type II IEPR.

The second kind of IEPR is Type II IEPR. These Safety Assurance Reviews are managed outside of the USACE and are conducted on design and construction for coastal storm risk management projects or other projects where existing and potential hazards pose a significant threat to human life. A Type II IEPR Panel will be convened to review the design and construction activities before construction begins, and until construction activities are completed, and periodically thereafter on a regular schedule.

Decision on Type II IEPR.

Based on the project as currently envisioned, the District Chief of Engineering, as the Engineer-In-Responsible-Charge, does not recommend a Type II IEPR Safety Assurance Review of this project at this time. A risk-informed decision concerning the timing and the appropriate level of reviews for the project implementation phase will be prepared and submitted for approval in an updated Review Plan prior to initiation of the design/implementation phase of this project.

d. MODEL CERTIFICATION OR APPROVAL

Use of certified or approved models are mandated by EC 1105-2-412 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 are any models and analytical tools used 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 a planning product. The selection and application of the model and the input and output data is the responsibility of the users and is subject to DQC, ATR, and IEPR. Table 5 lists the planning models that will be used for this study.

Table 5: Planning Models

Model Name and Version	Brief Model Description and How It Will Be Used in the Study	Certification / Approval
Beach-*fx*	USACE program which employs an event-based Monte Carlo life cycle simulation to estimate storm damage in the with and without project condition along the coast.	Certified/CoP Preferred
G2CRM		Approved for use on FY 18 Supplemental Studies and expected to be certified by the end of FY20

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. The professional practice of documenting the application of the software and modeling results will be followed. The USACE Scientific and Engineering Technology Initiative has identified many engineering models as preferred or allowed for use in studies. These models should be used when 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. Table 6 lists the Engineering Models expected to be used as the study progresses.

Table 6. Engineering Models

Model Name and Version	Brief Model Description and How It Will Be Used in the Study	Certification / Approval
Generalized Model for Simulating Shoreline Change (GENESIS)	GENESIS is used to develop net longshore sediment transport rates, magnitudes and directions based on breaking wave climate.	Allowed for use*
WAM	WAM is a third generation global ocean wave prediction model. The model predicts directional spectra as well as wave properties such as significant wave height, mean wave direction and frequency, swell wave height and mean direction for the simulated storms.	CoP Preferred
Advance Circulation Model (ADCIRC)	ADCIRC is a two-dimensional, depth-integrated, barotropic time-dependent long wave, hydrodynamic circulation model. The model is used to simulate tides, wind driven circulation and hurricane storm.	CoP Preferred
Steady State Spectral Wave (STWAVE)	STWAVE is a half-plane model for nearshore wind-wave growth and propagation. STWAVE simulates depth-induced wave refraction and shoaling, current-induced refraction and shoaling, depth- and steepness-induced wave breaking, diffraction, parametric wave growth because of wind input, and wave-wave interaction and white capping that redistribute and dissipate energy in a growing wave field.	CoP Preferred
Storm-induced Beach Change Model (SBEACH)	SBEACH simulates cross-shore beach, berm, and dune erosion produced by storm waves and	Allowed for use*(Will coordinate with engineering VT regarding

	water levels. It also allows simulation of dune erosion in the presence of a hard bottom.	use of Cshore in place of SBEACH

* There are no CoP preferred substitutes.

e. POLICY AND LEGAL REVIEW

Policy and legal compliance reviews for draft and final planning decision documents are delegated to the MSC (see Director's Policy Memorandum 2018-05, paragraph 9).

(i) Policy Review.

The Policy Review Team is identified through the collaboration of the MSC Chief of Planning and Policy and the HQUSACE Chief of the Office of Water Project Review. The team is identified in Attachment 1 of this Review Plan. The makeup of the Policy Review Team will be drawn from Headquarters (HQUSACE), the MSC, the Planning Centers of Expertise, and other review resources as needed.

- The Policy Review Team will be invited to participate in key meetings during the development of decision documents as well as SMART Planning Milestone meetings. These engagements may include In-Progress Reviews, Issue Resolution Conferences or other Vertical Team meetings plus the milestone events.

- The input from the Policy Review Team should be documented in a Memorandum for the Record (MFR) produced for each engagement with the team. The MFR should be distributed to all meeting participants.

- In addition, teams may choose to capture some of the policy review input in a risk register if appropriate. These items should be highlighted at future meetings until the issues are resolved. Any key decisions on how to address risk or other considerations should be documented in an MFR.

(ii) Legal Review.

Representatives from the Office of Counsel will be assigned to participate in reviews. Members may participate from the District, MSC and HQUSACE. The MSC Chief of Planning and Policy will coordinate membership and participation with the office chiefs.

- In some cases legal review input may be captured in the MFR for the particular meeting or milestone. In other cases, a separate legal memorandum may be used to document the input from the Office of Counsel.

- Each participating Office of Counsel will determine how to document legal review input.

ATTACHMENT 1: TEAM ROSTERS

PROJECT DELIVERY TEAM			
Name	**Office**	**Position**	**Phone Number**
[redacted]	CESAM-PM-C	Project Manager	[redacted]
[redacted]	CESAM-PD-FP	Plan Formulator	[redacted]
[redacted]	CESAM-PD-FE	Economist	[redacted]
[redacted]	CESAM-PD-D	Economist	[redacted]
[redacted]	CESAM-EN-TC	Engineering Technical Lead	[redacted]
[redacted]	CESAM-EN-HH	Coastal Hydraulics & Hydrology	[redacted]
[redacted]	CESAM-EN-GG	Geotechnical Engineering	[redacted]
[redacted]	CESAM-EN-E	Cost Engineering	[redacted]
[redacted]	CESAM-PD-EC	Environmental Engineer	[redacted]
[redacted]	CESAM-OP-GW	Operations	[redacted]
[redacted]	CESAM-PD-EI	Cultural Resources	[redacted]
[redacted]	CESAM-RE	Real Estate	[redacted]

DISTRICT QUALITY CONTROL TEAM			
Name	**Office**	**Position**	**Phone Number**
[redacted]	SAM-PD-F	Branch Chief of Plan Formulation	[redacted]
[redacted]	SAM-PM-C	Chief of Project Management	[redacted]
[redacted]	SAM-EN-H	Chief of Water Resources	[redacted]
[redacted]	SAM-EN-TC	Chief of Cost Engineering	[redacted]
[redacted]	SAM-EN-GG	Chief of Geotechnical	[redacted]
[redacted]	SAM-PD-EI	Chief of Environmental	[redacted]
[redacted]	SAM-RE	Real Estate	[redacted]
[redacted]	SAJ-PD-D	Chief Economist	[redacted]
[redacted]	SAM-PD-FP	Chief of Plan Formulation	[redacted]

AGENCY TECHNICAL REVIEW TEAM			
Name	**Office**	**Position**	**Phone Number**
[redacted]	NAE	Team Lead/Planning	[redacted]
[redacted]		Economics	
[redacted]		Environmental	
[redacted]		Engineering	
[redacted]		Real Estate	
[redacted]		Climate Preparedness and Resilience	
[redacted]		Structural Engineering	
[redacted]		Geotechnical Engineering	
[redacted]		Risk Reviewer	
[redacted]		Cost Engineering	

VERTICAL TEAM			
Name	**Office**	**Position**	**Phone Number**
[redacted]	CESAD-PDP	Chief, Planning and Policy	[redacted]
[redacted]	CECW-SAD	SAD RIT	[redacted]
[redacted]	CENAD-PD-X	PCX-CSRM	[redacted]
[redacted]	CENAD-PD-X	PCX-CSRM	[redacted]
[redacted]	CECW-PC	OWPR Advisor	[redacted]
[redacted]	CESAD-PDO	SAD Coastal Program Manager	[redacted]

POLICY REVIEW TEAM			
Name	**Office**	**Position**	**Phone Number**
[redacted]	CESAD-PD	Review Manager	[redacted]
[redacted]	CECW-PD	Economics	[redacted]
[redacted]	CESAD-PDP	Environmental	[redacted]
[redacted]	CESAD-PD	Plan Formulation	[redacted]
[redacted]	CESAD-RBT	Engineering	[redacted]
[redacted]	CENWP	Climate Change	[redacted]
[redacted]	CESAD-PD	Real Estate	
[redacted]	CESAD-OC	Counsel	[redacted]