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PACIFIC OCEAN DIVISION, U.S. ARMY CORPS OF ENGINEERS  
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CEPOD-PDC

JUN 22 2020

MEMORANDUM FOR Commander Honolulu Engineer District (CEPOH-PP-C/Milton Yoshimoto), Building 230, Fort Shafter, HI 96858-5440

SUBJECT: Review Plan Approval for Saipan Beach Road Coastal Storm Risk Management Feasibility Study, Island of Saipan, Commonwealth of the Northern Mariana Islands

1. References:

- a. Engineering Circular 1165-2-217, Review Policy for Civil Works, 20 Feb 18.
  - b. Review Plan for the Saipan Beach Road Coastal Storm Risk Management Feasibility Study, Commonwealth of the Northern Mariana Islands, Honolulu District, U.S. Army Corps of Engineers (Encl).
2. This memorandum constitutes approval of the Review Plan for the Saipan Beach Road Coastal Storm Risk Management Feasibility Study, Commonwealth of the Northern Mariana Islands, Honolulu District, U.S. Army Corps of Engineers, which does not include a Type I Independent External Peer Review.
3. The approved Review Plan is subject to change as circumstances require, consistent with project development under the Project Management Business Process. Subsequent significant revisions to this Review Plan or its execution require my written approval.
4. POC is Mr. Jason Norris, Senior Economist, Pacific Ocean Division at 304-942-7041 or at [Jason.M.Norris@usace.army.mil](mailto:Jason.M.Norris@usace.army.mil).

Encl

THOMAS J. TICKNER, PMP  
Brigadier General, USA  
Commanding

# REVIEW PLAN

May 2020

**Project Name:** Saipan Beach Road Coastal Storm Risk Management Study

**P2 Number:** 3B3691

**Decision Document Type:** Feasibility Report & Environmental Assessment

**Project Type:** Single-Purpose Coastal Storm Risk Management

**District:** Honolulu District (POH)

**Major Subordinate Command (MSC):** Pacific Ocean Division (POD)

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

## **Key Review Plan Dates**

**Date of RMO Endorsement of Review Plan:** 06 May 2020

**Date of MSC Approval of Review Plan:** 22 June 2020

**Date of IEPR Exclusion Approval:** N/A

**Has the Review Plan changed since PCX Endorsement?** Yes

**Date of Last Review Plan Revision:** 28 May 20

**Date of Review Plan Web Posting:** Pending

**Date of Congressional Notifications:** Pending

## **Milestone Schedule**

	<b><u>Scheduled</u></b>	<b><u>Actual</u></b>	<b><u>Complete</u></b>
<b><u>FCSA Execution:</u></b>	Mar 20	10 Mar 20	Yes
<b><u>Alternatives Milestone:</u></b>	Jun 20	(enter date)	No
<b><u>Tentatively Selected Plan:</u></b>	May 21	(enter date)	No
<b><u>Release Draft Report to Public:</u></b>	Jun 21	(enter date)	No
<b><u>Agency Decision Milestone:</u></b>	Oct 21	(enter date)	No
<b><u>Final Report Transmittal:</u></b>	Aug 22	(enter date)	No
<b><u>Briefing of HQUSACE PL Chief:</u></b>	Oct 22	(enter date)	No
<b><u>Chief's Report:</u></b>	Feb 23	(enter date)	No

## Project Fact Sheet

May 2020

**Project Name:** Saipan Beach Road Coastal Storm Risk Management Study

**Location:** Island of Saipan, Commonwealth of the Northern Mariana Islands (CNMI)

**Authority:** Section 444 of the Water Resources Development Act of 1996, as amended and Additional Supplemental Appropriations for Disaster Relief Act of 2019

**Sponsor:** Government of CNMI

**Type of Study:** Coastal Storm Risk Management

**SMART Planning Status:** This study is anticipated to be 3x3x3 compliant.

**Project Area:** The island of Saipan is one of 22 islands of the self-governing CNMI located in the Western Pacific (Figure 1). In addition to being the capital of CNMI, Saipan is also the center of business and population of the U.S. Commonwealth.

**Figure 1. Study Area.**



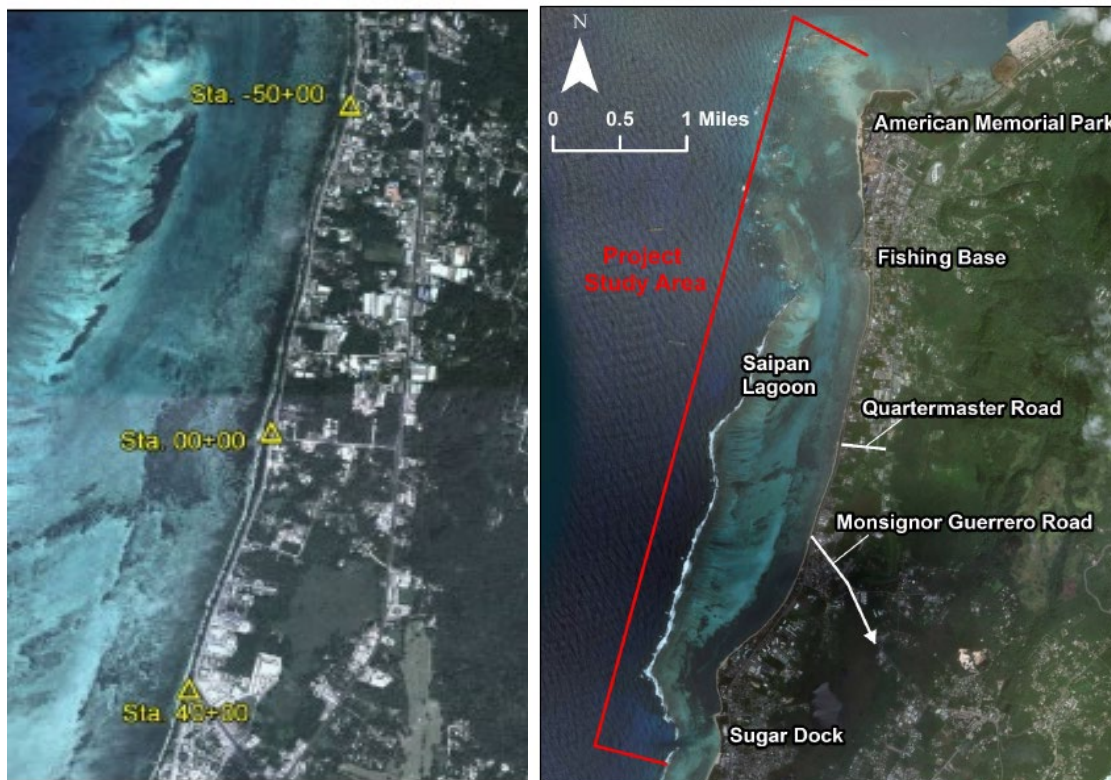
The 46.5mi<sup>2</sup> island is located 3,800mi west of Hawaii and 1,400mi south of Japan. Formed by coral reef uplift, Saipan is largely composed of limestone with gently sloping topography with a few mountain peaks. The project area is a broad, shallow lagoon sheltered by a barrier reef with the beach a mix of calcareous sand and volcanic alluvium. Tropical cyclones and heavy rains are frequent occurrences and contribute to an average yearly precipitation of 70in.

Beach Road is the main public thoroughfare on Saipan and the only coastal highway on the island. The shoreline in the project area ranges from 50-100ft from to the seaward traffic lane of Beach Road (Figures 2 and 3). A pedestrian pathway between the road and shoreline provides recreational opportunities. While evacuation routes differ based on village and location of shelters, Beach Road is often used to access higher ground during storm

events, and the highway connects more than six villages that lie on the western coast of the island.

**Problem Statement:** Long-term coastal erosion is threatening Saipan Beach Road, a primary territorial highway and main public thoroughfare on the island of Saipan. The shoreline in the project area is in close proximity to the seaward traffic lane of Beach Road. In addition, a significant storm event (e.g., typhoon) may result in catastrophic failure of Saipan Beach Road due to storm-induced erosion. Potential damages include storm-induced flooding of landward infrastructure; utility, water line, and sewer line impacts; and traffic detours or delays.

**Figures 2 (left) and 3 (right):** Saipan Beach Road Shoreline Assessment Study Area (USACE, 2015) and Garapan Area Shoreline Assessment Study Area in red (DOI-OIA, CNMI-BECQ, USACE, 2017)



**Federal Interest:** Long-term coastal erosion threatens Saipan Beach Road, a primary territorial highway and one of two main public thoroughfares on the island of Saipan. While evacuation routes differ based on village and location of shelters, Beach Road is often used to access higher ground during storm events, and the highway connects more than six villages that lie on the western coast of the island. The shoreline in the project area is in close proximity to the seaward traffic lane of Beach Road. Coastal erosion, including erosion as a result of coastal storms undermines the cross section of Beach Road. Additional damages include storm-induced flooding of landward infrastructure; utility, water line, and sewer line impacts; and traffic detours or delays, including delays in emergency responses. Potential damages would be reduced given

the design and implementation of shoreline stabilization measures. Beach Road meets the eligibility requirements for the Federal-aid Highway Program (FHWA) and therefore there is a federal interest in protecting the road.

The feasibility study will identify coastal flood hazards and potential coastal storm risk management measures for critical areas within a 2-mile stretch of shoreline from the Fisherman's Memorial to the Chalan Monsignor Guerrero Road. The study will formulate potential alternative plans that provide coastal storm risk management benefits and document the results in a decision document which will serve as the basis for project construction authorization. The alternative plans will be evaluated for engineering adequacy, economic viability, environmental acceptability and project non-federal sponsor support. An analysis of the alternative plans that address coastal storm risk management needs will be conducted to identify the National Economic Development Plan.

**Risk Identification:** The problems identified for the study include effects resulting from coastal erosion and coastal storm events, which pose a damage risk to Saipan Beach Road, property and structures, and human health and safety. Based on historical storm events in the project area, there is a minimal risk to loss of life.

The study is not anticipated to be technically, institutionally, or socially challenging. The project will use the same design and construction techniques that have been used in the past on similar projects throughout the region. The project will not be justified by life safety nor does it involve significant threat to human life/safety assurance.

## **1. FACTORS AFFECTING THE LEVELS OF REVIEW**

### **Scope of Review.**

- Will the study likely be challenging? No. The study consists of evaluation of a range of small-scale coastal storm risk management alternatives commonly implemented in the region. Accordingly, the study does not have any significant technical, institutional, or social challenges.
- Provide a preliminary assessment of where the project risks are likely to occur and assess the magnitude of those risks. The risks associated with the project are minimal. Project risks are most likely to be in residual risks, meaning that coastal erosion may still occur within and near the study area depending on the solution that is ultimately recommended. The study is not anticipated to be technically, institutionally, or socially challenging. The project will use the same design and construction techniques that have been used in the past on similar coastal projects throughout the region.
- Is the project likely to be justified by life safety or is the study or project likely to involve significant life safety issues? No. The project will not be justified by life safety – it will be justified by reduction in damages to infrastructure. The project alternatives



would not add significant threat to human life/safety assurance, but would rather incidentally reduce the risk of flooding problems related to human safety, quality of life, and resilience.

- Has the Governor of an affected state requested a peer review by independent experts? No. The Governor of CNMI has not requested a peer review by independent experts.

- Will the it likely involve significant public dispute as to the project's size, nature, or effects? No. Based on prior public involvement activities, there is significant interest in constructing coastal storm risk management features along Saipan Beach Road.

- Is the project/study likely to involve significant public dispute as to the economic or environmental cost or benefit of the project? No. The project has been well coordinated with the public during prior study efforts including multiple public outreach events. In general, the public is supportive of the project and there is not 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? No. Project design will be based on similar coastal storm risk management projects in the region.

- Does the project design require redundancy, resiliency, and/or robustness, unique construction sequencing, or a reduced or overlapping design/construction schedule? No. Project alternatives include standard coastal storm risk management features implemented across the region. The project design is not anticipated to require redundancy, resiliency, or robustness, unique construction sequencing, or an overlapping design/construction schedule.

- Is the estimated total cost of the project greater than \$200 million? No. Alternatives being evaluated for the projects are small-scale and are expected to cost well under \$200 million. The project area is relatively small (2 miles long) and alternative footprints are anticipated to be somewhat confined. Implementation of typical structural coastal storm risk management features will likely result in plan costs greater than \$10 million. However, implementation of smaller, non-structural alternatives (e.g., planting) may result in an estimated total project cost of less than \$10 million, which may fall within the cost limits of a CAP Section 103 authority.

- Will an Environmental Impact Statement be prepared as part of the study? No. It is currently anticipated than an Environmental Impact Statement will not be required. However, if potentially significant impacts are identified during the preparation of the Environmental Assessment, and EIS will be prepared as part of the study.

- Is the project expected to have more than negligible adverse impacts on scarce or unique tribal, cultural, or historic resources? No. The project is not expected to have more than negligible adverse impacts to 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? No. The project is not expected to have substantial adverse impacts on fish and wildlife species.
- 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? No. The project is not expected to have more than a negligible adverse impact on endangered or threatened species.

## 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 fulfills the project quality requirements of the Project Management Plan.

**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 should 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.

**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 and IEPR teams. 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. 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**

<b>Product(s) to undergo Review</b>	<b>Review Level</b>	<b>Start Date</b>	<b>End Date</b>	<b>Cost</b>	<b>Complete</b>
Draft Feasibility Report and EA	District Quality Control	Apr 21	May 21	\$45,000	No
Draft Feasibility Report and EA	Agency Technical Review	Jun 21	Jul 21	\$50,000	No
Draft Feasibility Report and EA	Policy and Legal Review	Jun 21	Aug 21	n/a	No
Final Feasibility Report and EA	District Quality Control	May 22	Jun 22	\$35,000	No
Final Feasibility Report and EA	Agency Technical Review	Jun 22	Jul 22	\$40,000	No
Final Feasibility Report and EA	Policy and Legal Review	Aug 22	Oct 22	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**

<b>DQC Team Disciplines</b>	<b>Expertise Required</b>
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 with experience in formulation, evaluation, and selection of alternatives for coastal storm risk management.
Economics	The Economics reviewer should have experience in evaluating coastal storm risk management projects including economic analyses required to support alternatives evaluation and plan selection.
Environmental and Cultural Resources	The Environmental Resources reviewer should have knowledge of Pacific Island biology and experience on coastal projects. Knowledge of Federal regulations and NEPA is also required.
Coastal Engineering	The Coastal Engineering reviewer should have experience designing coastal storm risk management projects including typical structural and non-structural features, and have knowledge of General Investigation requirements for coastal storm risk management engineering. Knowledge of Beach-FX modeling is also required.
Cost Engineering	The Cost Engineering reviewer should have experience using Micro-Computer Aided Cost Estimating System (MCASES) and experience developing cost estimates for coastal storm risk management projects.
Real Estate	The Real Estate reviewer should have experience developing Real Estate Plans supported by appropriate analyses for coastal storm risk management projects.
Office of Counsel	An OC reviewer will conduct a legal sufficiency review.

**Documentation of DQC.** Quality Control should be performed continuously throughout the study. 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**

<b>ATR Team Disciplines</b>	<b>Expertise Required</b>
ATR Lead	A senior professional with extensive experience preparing Civil Works decision documents and conducting ATR. The lead should have the skills to manage a virtual team through an ATR. The lead may serve as a reviewer for a specific discipline (such as planning).
Planning	A senior water resources planner with experience in formulation, evaluation, and selection of alternatives for coastal storm risk management.
Economics	The Economics reviewer(s) must be certified for review of coastal storm risk management projects. Depending upon availability, two economics reviewers may be required, one for reviewing the assumptions, methodologies, analysis and conclusions and the other for reviewing economics modeling.
Environmental Resources	<p>The Environmental Resources reviewer should have knowledge of Pacific Island biology and experience on coastal projects. Knowledge of Federal regulations and NEPA is also required.</p> <p>The Environmental Resources reviewer may be combined with the Cultural Resources reviewer.</p>
Cultural Resources	<p>The Cultural Resources Reviewer should be a senior archaeologist with experience on Section 106 compliance for coastal storm risk management studies.</p> <p>The Cultural Resources reviewer may be combined with the Environmental Resources reviewer.</p>

Coastal Engineering	The Coastal Engineering reviewer should have experience designing coastal storm risk management projects including typical structural and non-structural features, and have knowledge of General Investigation requirements for coastal storm risk management engineering. Knowledge of Beach-FX modeling is also required.
Real Estate	The Real Estate reviewer will have experience in development of SMART Planning Real Estate Plans and will have experience in verification of considerations of utility relocations, staging, and dredged material disposal.
Climate Preparedness and Resilience CoP Reviewer	A member of the Climate Preparedness and Resiliency Community of Practice (CoP) will participate in the ATR review. The reviewer may be combined with the Coastal Engineering reviewer.
Cost Engineering	The Cost Engineering reviewer will be identified by the Cost MCX and will have experience using Micro-Computer Aided Cost Estimating System (MCACES) and experience developing cost estimates for coastal storm risk management projects.

**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 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.

### **c. INDEPENDENT EXTERNAL PEER REVIEW**

#### **(i) Type I IEPR.**

**Decision on Type I IEPR.** Based on a risk-informed decision process referencing CECW-CE Memorandum dated 05 April 2019 (Subject: Interim Guidance on Streamlining Independent External Peer Review for Improved Civil Works Project Delivery), Type I IEPR will not be required. The project does not meet any of the three mandatory triggers for Type I IEPR outlined in the CECW-CE Memorandum: the estimated project cost is well under \$200 million; the Governor of CNMI has not requested peer review; and the Chief of Engineers has not determined the project is controversial due to significant public dispute over the size, nature, or effects of the project or environmental costs or benefits of the project.

#### **(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 hurricane, storm and flood 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.** A decision regarding whether or not to conduct Type II IEPR will be made at a later date.

#### **d. MODEL CERTIFICATION OR 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 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: Planning Models.** The following models may be used to develop the decision document:

<b>Model Name and Version</b>	<b>Brief Model Description and How It Will Be Used in the Study</b>	<b>Certification / Approval</b>
Beach-fx	Beach-fx is a life-cycle simulation model that evaluates the physical performance and economic benefits and costs of coastal storm risk management projects, particularly beach nourishment along sandy shores.	Approved

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 acceptable 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: Engineering Models.** These models may be used to develop the decision document:

<b>Model Name and Version</b>	<b>Brief Model Description and How It Will Be Used in the Study</b>	<b>Approval Status</b>
FUNWAVE	FUNWAVE is a shallow water phase-resolving Boussinesq-type numerical wave model used for modeling surface wave transformation from deep water to the swash zone, as well as wave-induced circulation inside the surfzone.	Approved for use
Microcomputer Aided Cost Engineering System (MCACES) 2 <sup>nd</sup> Generation (MII)	The MCACES MII construction cost estimating software, developed by Building Systems Design, Inc., is a tool used by cost engineers to develop and prepare all USACE Civil Works cost estimates. Using the features in this system, cost estimates are prepared uniformly allowing cost engineering throughout USACE to function as one virtual cost engineering team.	Cost Engineering MCX Required Model / Enterprise Model

## **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.