

**REVIEW PLAN**  
May 2019

**Project Name:** Proctor Creek, Atlanta, Georgia, Study

**P2 Number:** 473361

**Decision Document Type:** Feasibility Report

**Project Type:** Flood Risk Management

**District:** Mobile District

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

**Major Subordinate Command (MSC):** South Atlantic Division

**MSC Contact:** Division Point of Contact – (404) 562-5202

**Review Management Organization (RMO):** Flood Risk Management – Planning Center of Expertise

**RMO Contact:** FRM-PCX SAD Regional Manager – (314) 331-8404

**Key Review Plan Dates**

Action	Status
Date of RMO Endorsement of Review Plan	18 Apr 2019
Date of MSC Approval of Review Plan	24 May 2019
Date of IEPR Exclusion Approval	24 May 2019
Has the Review Plan changed since PCX Endorsement?	No
Date of Last Review Plan Revision	None
Date of Review Plan Web Posting	31 May 2019
Date of Congressional Notifications	Pending

**Milestone Schedule**

<b>Milestone</b>	<b>Scheduled</b>	<b>Actual</b>	<b>Complete</b>
<b>Alternatives Milestone</b>	21 Feb 2019	21 Feb 2019	Yes
<b>Tentatively Selected Plan</b>	29 Nov 2019		
<b>Release Draft Report to Public</b>	23 Mar 2020		
<b>Agency Decision Milestone</b>	28 May 2020		
<b>Final Report Transmittal</b>	31 Mar 2021		
<b>Senior Leaders Briefing</b>	23 Apr 2021		
<b>Chief's Report or Director's Report</b>	30 Jun 2021		

**Project Fact Sheet**  
May 2019

**Project Name:** Proctor Creek, Atlanta, Georgia, Study

**Location:** Atlanta, Georgia

**Authority:** The study's authority is contained in the 1994 House Resolution 2445 - Review the reports of the Chief Engineers on the Apalachicola, Chattahoochee, and Flint Rivers, Georgia and Florida...to determine whether modifications of the recommendations...in the interest of environmental quality, water quality, water supply, flood damage reduction and other purposes, including a comprehensive, coordinated watershed master plan for metropolitan Atlanta, Georgia.

**Sponsor:** City of Atlanta, Georgia

**Type of Study:** Flood Risk Management Feasibility Study

**SMART Planning Status:** The study is 3x3x3 compliant

**Project Area:** The study area includes the Proctor Creek Watershed which lies completely within the City of Atlanta, Fulton County, Georgia. The watershed consists of approximately 24 miles of the urban stream. The drainage area contains approximately 16 square miles. Proctor Creek passes through an urbanized area. Because the creek lies in an urbanized area, there is a need to reduce the potential for flood damages along the creek. Development occurred in this area prior to implementation of the National Flood Insurance Program (NFIP) and, as a consequence, occurred in what was later determined to be the 100-year floodplain. Development since that time has had to comply with the restrictions of the NFIP.

Flooding in the City of Atlanta generally occurs in the winter and spring when storms lasting two or three days blanket the area with heavy rainfall. Since 1960, long duration frontal storms of this type were reported in February 1961, April 1963, March 1975, April 1979, September 1989, March 1990, July 2005, March 2007, and September 2009. The rainfall in March 1975 is recorded as causing the highest recorded stage on Proctor Creek.

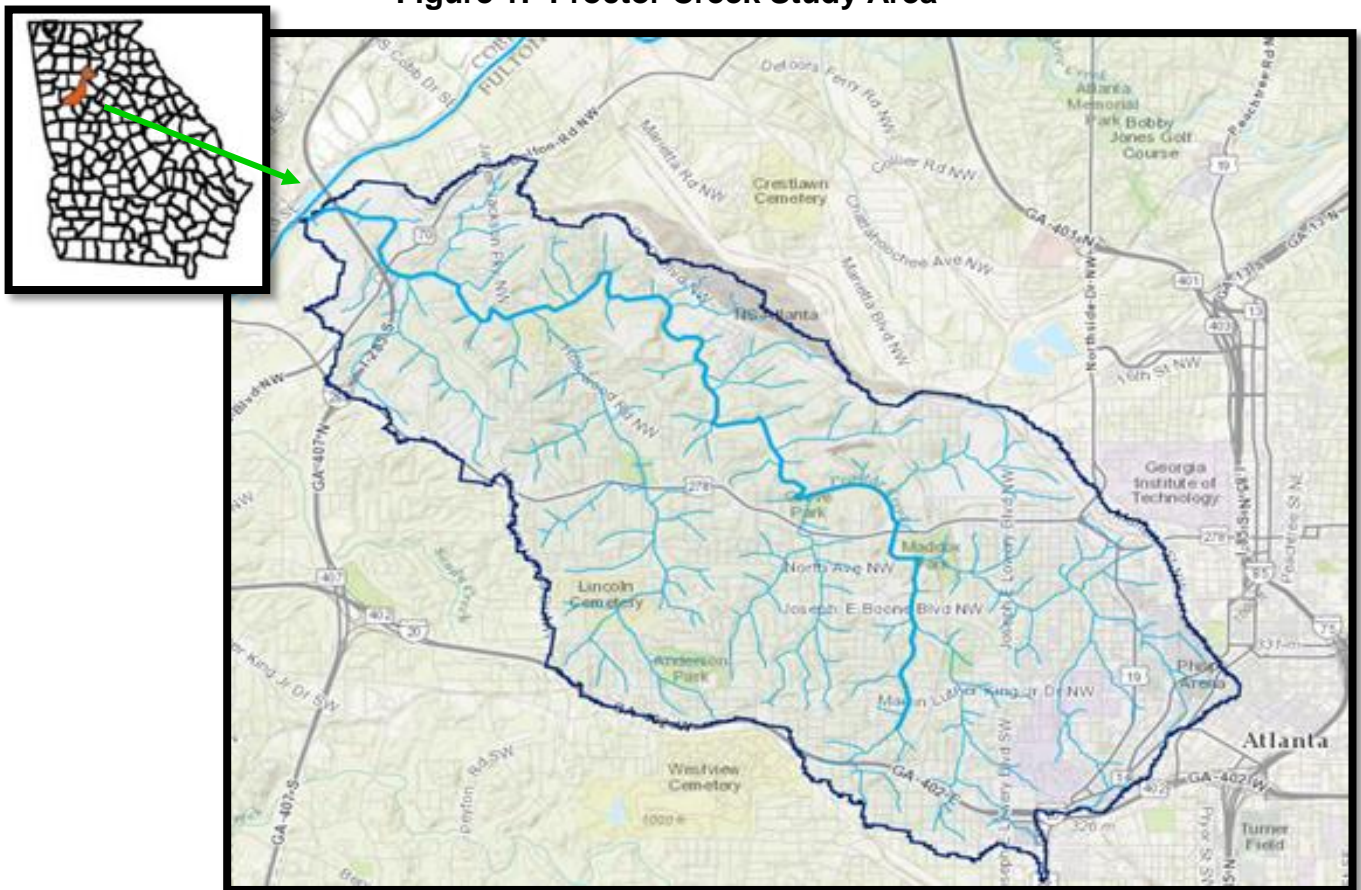
**Problem Statement:** The area experiences flooding from a number of small tributaries that run through the area as well as the mainstem of Proctor Creek. The floodplain contains approximately 255 structures in the 0.2% annual chance of exceedance (500-year) floodplain.

**Federal Interest:** Based on storm and flooding history, it appears there are opportunities for Federal project participation to reduce the flood risk to properties located along Proctor Creek in the City of Atlanta, Georgia. The possible management measures that would ordinarily be considered to reduce the flood risk include channel

modification, bridge/culvert modification, detention/retention, levees/floodwalls, channel diversion, buyouts, flood proofing, structure elevation, land use regulations, and flood warning system. Examination of the management measures through a screening process eliminated from further consideration the measures of levees/floodwalls, channel diversion, flood proofing, structure elevation, land use regulation and flood warning system. Considering the remaining measures to be analyzed (channel modification, bridge/culvert modification, detention/retention, and buyouts), the anticipated project costs are expected to be less than \$25 million.

**Risk Identification:** There are currently no structures (dams, levees) constructed in the floodplain that pose a significant or immediate threat to human life or safety in the study area. This could change if a structural solution is the recommended plan and is ultimately implemented. All critical infrastructure is outside of the FEMA 100-year floodplain. At this time the study, implementation, and performance risks are low to medium.

**Figure 1: Proctor Creek Study Area**



## 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? There are no anticipated challenges that will arise from this study.
- Provide a preliminary assessment of where the project risks are likely to occur and assess the magnitude of those risks. There is uncertainty in the sufficiency of existing data to develop the tentatively selected plan including flood impacts, physical conditions, hydrodynamic conditions, environmental conditions, and tax assessor data. This uncertainty presents a moderate risk for the project. Historic properties have been identified within the vicinity of Proctor Creek and the study area is considered to be historically and culturally sensitive. A proposed project could have the potential to adversely affect the historic and cultural setting. This uncertainty presents a moderate to high 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? The project is not likely to be justified by life safety, nor is it likely to involve significant life safety issues. While there are no structures (dams, levees) constructed in the floodplain that pose a significant or immediate threat to human life or safety in the study area, flooding, particularly in a residential area, does have an inherent risk of life safety for the residents. While the flooding along the creek has been characterized as flashy, there has been no indication of loss of life from previous flood events; however, flash flooding also carries a risk to life safety. After initial screening of measures, potential alternatives include limited structural measures such as channel modification, bridge/culvert modification and detention/retention. Any measure being proposed will have to complement a proposed Federal ecosystem restoration project authorized for implementation. If a structural solution is determined to be the selected plan, failure of a structure could involve a threat to life safety. Structural solutions will be designed to minimize this threat to the extent possible but there remains a possibility that the recommended solution could increase in the life safety risk to the population.
- Has the Governor of an affected state requested a peer review by independent experts? The Georgia Governor has not requested a peer review by independent experts.
- Will the study likely involve significant public dispute as to the project's size, nature, or effects? Based on discussions with the project sponsor and input received from the initial public scoping meeting, 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? Based on discussions with the project sponsor and input received from the initial public scoping meeting, 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? It is not likely that any of the information in the decision document will be 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? The project does not require unusual redundancy, resiliency, and/or robustness, unique construction sequencing, or a reduced or overlapping design/construction schedule.
- Is the estimated total cost of the project greater than \$200 million? The anticipated total cost of the project is less than \$200 million.
- Will an Environmental Impact Statement (EIS) be prepared as part of the study? It is anticipated that there will not be significant environmental impacts and that an Environmental Assessment will be sufficient to describe impacts. Preparation of EIS is not anticipated.
- Is the project expected to have more than negligible adverse impacts on scarce or unique tribal, cultural, or historic resources? Historic properties have been identified within the vicinity of Proctor Creek, and the study area is considered to be historically and culturally sensitive. The area is a focal point of the Civil Rights Movement and includes the birthplace of Dr. Martin Luther King, Jr. Specific attention will be paid to these resources during project analysis to assure that there will not be more than negligible adverse impacts.
- 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.** 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.

**Agency Technical Review.** 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.** 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 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. 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	<a href="#"><u>01/15/20</u></a>	<a href="#"><u>02/19/20</u></a>	\$50,000	No
Draft Feasibility Report and EA	Agency Technical Review	<a href="#"><u>03/23/20</u></a>	<a href="#"><u>04/30/20</u></a>	\$60,000	No
Draft Feasibility Report and EA	Type I IEPR <sup>1</sup>	<a href="#"><u>TBD</u></a>	<a href="#"><u>TBD</u></a>	<a href="#"><u>TBD</u></a>	No
Draft Feasibility Report and EA	Policy and Legal Review	<a href="#"><u>03/23/20</u></a>	<a href="#"><u>04/30/20</u></a>	n/a	No
Final Feasibility Report and EA	District Quality Control	<a href="#"><u>12/01/20</u></a>	<a href="#"><u>01/15/21</u></a>	\$40,000	No
Final Feasibility Report and EA	Agency Technical Review	<a href="#"><u>01/29/21</u></a>	<a href="#"><u>02/26/21</u></a>	\$40,000	No
Final Feasibility Report and EA	Policy and Legal Review	<a href="#"><u>04/01/21</u></a>	<a href="#"><u>04/30/21</u></a>	n/a	No

*NOTE: This table may also be used to identify future review work in follow-on phases of a project. This may include products prepared during the pre-construction engineering and design phase or products prepared as part of planning for the Operations and Maintenance phase of a project.*

<sup>1</sup> *Exclusion from Type I IEPR is being requested concurrent with approval of this Review Plan*

**a. DISTRICT QUALITY CONTROL**

The Mobile 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 riverine flood risk management.
Economics	A senior economist with experience in analysis of demographics, land use, and flood damage assessments using HEC-FDA; HEC-FIA; use of RECONS model to address regional economic development (RED) associated with a project; discussion of other social effects (OSE) associated with flood risk; and economic justification of FRM projects in accordance with current USACE policy.
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.
Hydrology/Hydrologic Engineer	A hydrologist with experience in urban hydrology, HEC-HMS and associated one and/or two-dimensional models, floodplain delineation, familiarity with inland hydrology and climate change, risk and uncertainty analysis, and a number of other closely associated technical subjects. The hydrologic reviewer could also serve as the hydraulic reviewer.
Hydraulic Engineering	A hydraulic engineer with experience with river hydraulics, HEC-RAS and associated one and/or two-dimensional models, hydrologic statistics, sediment transport analysis,

	channel stability analysis, risk and uncertainty analysis, and a number of other closely associated technical subjects. The hydraulic reviewer could also serve as the hydrology reviewer.
Engineering – Geotechnical	A geotechnical engineer experienced with hydraulic design/construction in Piedmont soils
Cost Engineering	A senior cost engineer with experience using required cost estimation software; working knowledge of construction and FRM; capable of making professional determinations based on experience.
Real Estate	A real estate specialist with experience in development of SMART Planning Real Estate Plans and have experience in real estate fee/easement acquisition and residential/business relocations for Federal and/or Federally-Assisted Programs as needed for implementation of Civil Works projects.

**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**

ATR Team Disciplines	Expertise Required
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, economics, environmental resources, etc.).
Plan Formulator	A Planning reviewer must be certified to perform ATR and will be a senior water resources planner with experience in riverine flood risk management.
Economics	The reviewer must be certified to perform ATR and is a senior economist with experience in analysis of demographics, land use, and flood damage assessments using HEC-FDA; HEC-FIA; use of RECONS model to address RED associated with a project; discussion of OSE associated with flood risk; and economic justification of FRM projects in accordance with current USACE policy.
Environmental Resources	The reviewer must be certified to perform ATR and is 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.
Hydrology/Hydrologic Engineer	A hydrologist with experience in urban hydrology, HEC-HMS and associated one and/or two-dimensional models, floodplain delineation, familiarity with inland hydrology and climate change, risk and uncertainty analysis, and a number of other closely associated technical subjects. The hydrologic reviewer could also serve as the hydraulic reviewer.
Hydraulic Engineering	A hydraulic engineer with experience with river hydraulics, HEC-RAS and associated one and/or two-dimensional models, hydrologic statistics, sediment transport analysis, channel stability analysis, risk and uncertainty analysis, and a number of other closely associated technical subjects. The hydrologic reviewer could also serve as the hydrology reviewer.

Civil Design	A civil engineer with experience in the development of FRM projects, including selection and evaluation of project sites and alignments, characterization of real estate requirements, and identification of facility/utility relocations.
Engineering - Geotechnical	A geotechnical engineer experienced with hydraulic design/construction in Piedmont soils.
Cost Engineering	The cost engineer reviewer shall be a Walla Walla Cost Mandatory Center of Expertise/Technical Center of Expertise approval cost reviewer. A cost engineer with experience using required cost estimation software; working knowledge of construction and FRM; capable of making professional determinations based on experience.
Real Estate	A real estate specialist with experience in development of SMART Planning Real Estate Plans and have experience in real estate fee/easement acquisition and residential/business relocations for Federal and/or Federally-Assisted Programs as needed for implementation of Civil Works projects.
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 should have knowledge of inland hydrologic climate change assessment policy and practice. This role can be filled by another discipline.
Risk and Uncertainty	A subject matter expert in multi-discipline flood risk analysis to ensure consistent and appropriate identification, analysis, and written communication of risk and uncertainty. This role can be filled by another discipline.

**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.**

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.

As noted earlier, the project is not likely to be justified by life safety, nor is it likely to involve significant life safety issues. There are no structures (dams, levees) constructed in the floodplain that pose a significant or immediate threat to human life or safety in the study area. The flooding along the creek has been characterized as flashy and there has been no indication of loss of life from previous flood events. After initial screening of measures, potential alternatives include limited structural measures such as channel modification, bridge/culvert modification and detention/retention. These measures would be analyzed to work synergistically with a proposed Federal ecosystem restoration project authorized for implementation in the study area. If a structural solution is determined to be the selected plan, failure of a structure could involve a threat to life safety; however, all structural solutions will be designed to minimize this threat. An increase in the life safety risk to the population is not anticipated.

**Decision on Type I IEPR.** Per 5 April 2019, CECW-CE memorandum "Interim Guidance on Streamlining Independent External Peer Review (IEPR) for Improved Civil Works Product Delivery," there are three mandatory conditions that determine whether Type I IEPR must be undertaken. These conditions are: when the estimated total cost of the project, including mitigation costs, is greater than \$200 million; when the Governor of an affected state requests a peer review by independent experts; and when the Chief of Engineers determines the project study is controversial due to significant public dispute over the size, nature, or effects of the project or the economic or environmental costs or benefits of the project (including but not limited to projects requiring an environmental impact statement (EIS)). As detailed in Section 1, this project does not meet any of these mandatory conditions and, therefore, the need for a Type I IEPR is not warranted.

**(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.** There is insufficient detail available at this time determine whether or not to conduct a Type II IEPR. A determination on the need for a Type II IEPR will be made when the study moves into the Implementation Phase.

**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 4: 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>
HEC-FDA 1.4.2	The program integrates hydrologic engineering and economic analysis to formulate and evaluate plans using risk-based analysis methods. It will be used to evaluate/compare plans to aid in selecting a recommended plan.	Certified
HEC-FIA 2.2	The program integrates hydrologic engineering to determine the consequences from a single event. The consequences HEC-FIA computes include economic losses (losses to structures and their contents), agricultural losses, and expected life loss from these hydraulic events. HEC-FIA may be used based on the need to access the impacts of non-structural solutions.	Certified
RECONS	The model incorporates impact area data, as well as multipliers, direct ratios (jobs to sales, income to sales,	Certified

	etc.), and geographic capture rates. RECONS will be used to determine the RED benefits of the alternatives.	
HEP (Habitat Evaluation Procedures)	The Habitat Evaluation Procedures (HEP) is an established approach to assessment of natural resources. The HEP approach has been well documented and is approved for use in USACE projects as an assessment framework that combines resource quality and quantity over time, and is appropriate throughout the United States. The Habitat Suitability Index (HSI) models are the format for quantity determinations that are applied within the HEP framework. Only HEP models which have been certified or approved for use will be utilized for this study. ATR of input data is required in all instances.	Certified or Approved for Use

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

Model Name and Version	Brief Model Description and How It Will Be Used in the Study	Approval Status
HEC-RAS 5.0 (River Analysis System)	The software performs 1-D steady and unsteady flow river hydraulics calculations and has capability for 2-D (and combined 1-D/2-D) unsteady flow calculations. It will be used for steady flow analysis to evaluate the future without-project and future with-project conditions.	HH&C CoP Preferred Model
HEC-HMS 4.3 (Hydrologic Modeling System)	The Hydrologic Modeling System (HEC-HMS) is designed to simulate the complete hydrologic processes of dendritic watershed systems. The software includes many traditional hydrologic analysis procedures such as event infiltration, unit hydrographs, and hydrologic routing. HEC-HMS also includes procedures necessary for continuous simulation including evapo-transpiration, snowmelt, and soil moisture accounting.	HH&C CoP Preferred 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.

## ATTACHMENT 1: TEAM ROSTERS

<b>PROJECT DELIVERY TEAM</b>			
<i>Name</i>	<i>Office</i>	<i>Position</i>	<i>Phone Number</i>
	SAM-PD-FP	Plan Formulator	
	SAM-PM-C	Project Manager	
	SAM-EN-HH	ETL and H&H Engineer	
	SAM-PD-FE	Economics	
	SAM-EN-TC	Cost Engineer	
	SAM-EN-GG	Geotechnical Engineer	
	SAM-PD-EI	Biologist	
	SAM-RE	Real Estate	
	SAM-PD-EI	Cultural Resources	

<b>DISTRICT QUALITY CONTROL TEAM</b>			
<i>Name</i>	<i>Office</i>	<i>Position</i>	<i>Phone Number</i>
	SAM-PD-FP	Plan Formulator	
	SAM-PM-C	Project Manager	
	SAM-EN-HH	Hydraulics & Hydrology	
	SAM-PD-FE	Economics	
	SAM-EN-TC	Cost Engineer	
	SAM-EN-GG	Geotechnical Engineer	
	SAM-PD-EI	Biologist	
	SAM-RE	Real Estate	
	SAM-PD	Cultural Resources	
	SAM-OC	Counsel	

<b>AGENCY TECHNICAL REVIEW TEAM</b>			
<i>Name</i>	<i>Office</i>	<i>Position</i>	<i>Phone Number</i>
	CEMVN-PD-PER	/Team Lead	
		Plan Formulation	
		Economics	
		Biologist	
		Cultural Resources	
		Hydrology/Hydraulics	
		Engineer (Geotechnical/Cost)	
		Real Estate	

<b>VERTICAL TEAM</b>			
<i>Name</i>	<i>Office</i>	<i>Position</i>	<i>Phone Number</i>
	CESAD-PDP	Policy & Procedures	
	CESAD-RBT	Engineering & Construction	
	CESAD-HERD	Review Manager	
	CESAD-PDP	Planning Lead	
	CENAD-PD-PP	Economic	
	CECW-PC	Plan Formulation	
	CESAD-PDR	Real Estate	
	CECC-SAD	Counsel	
	CEMVP-EC-H	Hydraulics	
	FRM-PCX	Planning	
	SAD-RIT	Regional Communication	

<b>POLICY REVIEW TEAM</b>			
<i>Name</i>	<i>Office</i>	<i>Position</i>	<i>Phone Number</i>
	CESAD-PDH	Review Manager	
	CECW-PC	Economics	
	CESAD-PDP	Environmental	
	CECW-PC	Plan Formulation	
	CESAD-RBT	Engineering	
	CEMVP-EC-H	Climate Change	
	CESAD-OC	Counsel	
	CESAD-PDR	Real Estate	