

REVIEW PLAN

July 2020

Project Name: Lumber River Basin NC Flood Risk Management Study - Feasibility

P2 Number: 488285

Decision Document Type: Feasibility Report

Project Type: Flood Risk Management

District: Charleston District

District Contact: Senior Project Manager, 843-329-8096

Major Subordinate Command (MSC): South Atlantic Division

MSC Contact: Senior Plan Formulator, (404) 562-5226

Review Management Organization (RMO): FRM-PCX

RMO Contact: Deputy Director, 415-503-6852

Key Review Plan Dates

Date of RMO Endorsement of Review Plan: 20 July 2020

Date of MSC Approval of Review Plan: Pending

Date of IEPR Exclusion Approval: N/A

Has the Review Plan changed since PCX Endorsement? N/A

Date of Last Review Plan Revision: N/A

Date of Review Plan Web Posting: N/A

Date of Congressional Notifications: N/A

Milestone Schedule

	<u>Scheduled</u>	<u>Actual</u>	<u>Complete</u>
<u>Alternatives Milestone:</u>	21-Jul-2020	21-Jul-2020	Yes
<u>Tentatively Selected Plan:</u>	18-Jun-2021		No
<u>Release Draft Report to Public:</u>	20-Aug-2021		No
<u>Agency Decision Milestone:</u>	06-Dec-2021		No
<u>Final Report Transmittal:</u>	22-Nov-2022		No
<u>Chief's Report:</u>	08-Apr-2023		No

Project Fact Sheet

July 2020

Project Name: Lumber River Basin Flood Risk Management Study

Location: North Carolina

Authority: Senate Committee on Public Works Resolution adopted October 15, 1968;
House Committee on Public Works Resolution adopted on December 11, 1969

Sponsor: State of North Carolina, Department of Environmental Quality

Type of Study: Feasibility

SMART Planning Status: This study is 3x3x3 compliant.

Project Area: The North Carolina study area begins in the Sandhills eco-region, south of Biscoe in Montgomery County, and extends southeast through Lumberton and Boardman, before reaching the South Carolina border near Fair Bluff. The study area extends beyond the North Carolina border into South Carolina until the Lumber River meets the Little Pee Dee River, below Nichols, South Carolina. The basin covers about 1750 square miles and encompasses all or part of 10 counties in North and South Carolina.

Problem Statement: The communities of Lumberton, Fair Bluff and Boardman, NC and Nichols, SC have a history of riverine flooding that occurs from rainfall during storm and hurricane events. The communities were severely impacted by Hurricanes Matthew (2016), and Florence (2018) when rainfall from these large storm events caused widespread flooding that resulted in damage to residential and commercial buildings and roadways, including the 3 week closure of a 60 mile stretch of Interstate 95 in 2016.

Federal Interest: The communities of the Lumber River Basin have been very active in pursuing measures to reduce future damages from flooding. Due to recurring riverine flooding resulting from severe rain events, the State of North Carolina has requested USACE to pursue a feasibility study to analyze potential measures to reduce the risk of future flood damages in the basin. The project was included in the 2019 Additional Supplemental Appropriations for Disaster Relief. The FCSA was signed 8 April 2020.

Risk Identification: Flood risk to human life, structures, and their contents has been identified in recent severe flood events resulting from rain associated with Hurricanes Matthew and Florence. The risk of flooding resulting in economic damage to structures and loss of life is likely to be exacerbated in the future as development within the basin increases, and as climate change increases the intensity and frequency of future storm events. The risk associated with this study is identification of implementable alternatives across multiple focal areas, as well as basin wide alternatives that reduce localized

flooding or reduce overall life-risk in the basin and improve community resilience to these flood events. Large structural alternatives are unlikely to be economically justified.

Fig. 1. Location of the Lumber River Basin, NC.



1. FACTORS AFFECTING THE LEVELS OF REVIEW

Scope of Review.

- Will the study likely be challenging?

From a technical standpoint, the PDT does not anticipate challenges outside the normal activities required for a flood risk management project. However, the study will be challenging as a result of the large area being considered. The PDT will develop a plan formulation strategy to identify focal areas within the basin to target analysis and consider alternatives in a manner consistent with completing the study within three years and under \$3 million. Geographic screening of the basin for areas most at risk of life safety concerns will need to be accomplished prior to application and screening of potential management measures.

- Provide a preliminary assessment of where the project risks are likely to occur and assess the magnitude of those risks.

The study area is approximately 1750 square miles with multiple population centers at risk from flooding. The communities of Lumberton, Fair Bluff and Boardman, NC and Nichols, SC were severely impacted from riverine flooding from rain during Hurricane Matthew (2016) and most recently with Hurricane Florence (2018). Additionally, the flooding during Hurricane Matthew caused the closure of a 60 mile stretch of Interstate 95, part of a critical evacuation route. Identification, grouping and selection of alternatives that address both local and regional flooding will require a substantial level of effort. The area under consideration requires a well-developed plan formulation strategy in order to ensure appropriate management measures are identified and incorporated into viable alternative plans.

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

The primary flood damages from the Lumber River main stem are from flooding in the City of Lumberton, the Town of Boardman, the Town of Fair Bluff as well as unincorporated areas of Robeson and Columbus counties in North Carolina, and the town of Nichols, South Carolina. Flooding within this portion of Lumber Basin is a result of large rainfall events from hurricanes flooding the interior river systems. These events are generally forecasted well in advance, so residents have ample time to evacuate prior to the flood event

A flood risk analysis and mitigation study was conducted by the state of North Carolina. This study identified upstream detention basins locations but found they were not economically viable measures. The study further identified other measures both structural and non-structural, that were deemed to be more economically

justified. Therefore, the team does not believe it is likely the study will recommend implementation of measures or alternatives that have significant life safety concerns in the event of non-performance or design exceedance associated with detention basins. If it becomes likely that a measure with significant life safety concerns will be recommended, the need for additional levels of review will be revisited at that point.

For these reasons, any projects identified through this feasibility study are unlikely to have a significant life safety component either for justification or post-implementation as confirmed by the SAC Chief of Engineering.

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

The Governor of North Carolina 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 PDT does not anticipate significant public dispute regarding the nature and recommendation of this study. It is unlikely this study will require an Environmental Impact Statement.

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

There is unlikely to be significant public dispute regarding the economic and/or environmental impacts of the project. The project is expected to have minimal environmental impact and is expected to protect important drivers of the local economy.

- 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?

This study is not based on using novel methods, does not present complex challenges for interpretation, does not contain precedent-setting methods or models, and does not present conclusions that alter the originally authorized study.

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

This will not require any unique redundancy, resiliency, robustness, or construction actions outside those normally necessary for flood risk management projects.

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

The estimated project cost will be less than \$200M based on the identified scope of the study.

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

The PDT expects NEPA compliance to be completed through an Environmental Assessment (EA) and Finding of No Significant Impact (FONSI).

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

At this time, it appears unlikely that the project will have a more than negligible impact on unique tribal, cultural and historic resources. Resources will be identified throughout the planning process and the team will determine if impacts may result from the implementation of the recommended Federal action and identify appropriate mitigation if required.

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

At this time, it appears unlikely that the project will have a more than negligible impact on fish and wildlife species and their habitat. During the planning process the team will identify adverse impacts on fish or wildlife species or their habitat (whether or not they are listed as endangered or threatened under the Endangered Species Act of 1973) and will identify appropriate mitigation as necessary.

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 fulfills 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.

Cost Engineering Review. All decision documents shall be coordinated with the Cost Engineering Mandatory 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.

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

Product(s) to undergo Review	Review Level	Start Date	End Date	Cost	Complete
Draft Feasibility Report and Integrated EA	District Quality Control	07/29/21	08/16/21	\$25,000	No
Draft Feasibility Report and Integrated EA	Agency Technical Review	08/19/21	10/01/21	\$60,000	No
Draft Feasibility Report and Integrated EA	Policy and Legal Review	08/19/21	10/01/21	n/a	No
Final Feasibility Report and Integrated EA	District Quality Control	08/22/22	09/05/22	\$25,500	No
Final Feasibility Report and Integrated EA	Agency Technical Review	09/07/22	10/20/22	\$65,000	No
Final Feasibility Report and Integrated EA	Legal Sufficiency Review	10/21/22	11/19/22	n/a	No
Final Feasibility Report and Integrated EA	Policy and Legal Review	11/23/22	02/15/23	n/a	No

Note: Following completion of the AMM, the PDT will coordinate with the FRM-PCX to scope appropriate targeted ATR of the H&H and economic technical analyses and modeling and will update the RP accordingly. Review timeframes include the time for review and PDT response.

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 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.).
Plan Formulation	A senior water resources planner with experience in flood risk management planning. Experience integrating uncertainties in analyses (H&H, geotechnical, cost engineering, and economics) into plan comparison and selection is required.
Economics	A senior economist with thorough knowledge of the various economic analyses utilized in feasibility study (life safety, transportation, flood damage). Has capability and experience to estimate and communicate likely variance in the outcomes of models, analyses, and designs.
Environmental Resources	A senior environmental specialist with experience in the National Environmental Policy Act and all applicable laws and Executive Orders.
Cultural Resources	A senior cultural specialist with experience in Cultural Resources, the Natural Historic Preservation Act and all applicable laws and Executive Orders.
Hydraulic Engineering	A senior engineer with experience in the field of hydraulics and hydrology. They will have a thorough understanding of the application of structural and non-structural flood risk management solutions, and computer modeling techniques. Has capability and experience to estimate and communicate likely variance in the outcomes of models, analyses, and designs. Is familiar with climate preparedness and resiliency policy and requirements for feasibility reports.
Structural Engineering	A senior engineer with knowledge of stability analyses and design of structural flood risk reduction and protection solutions.
Geotechnical Engineering	A senior geotechnical engineer with a thorough knowledge and experience in geotechnical considerations related to flood risk management projects (e.g., slope stability). Has capability and experience to estimate and communicate

	likely variance in the outcomes of models, analyses, and designs.
Cost Engineering	A senior engineer and expert in the field of cost engineering. They must have a thorough knowledge of and experience in costing structural and non-structural flood risk management solutions. Has capability and experience to estimate and communicate likely variance in the outcomes of models, analyses, and designs.
Civil Design/ Engineering	A senior engineer and expert in the field of civil engineering. They must have a thorough knowledge of and experience with civil design products (e.g., site selection, project development, real estate, and relocations) related to flood risk reduction and protection solutions.
Real Estate	A senior real estate specialist with experience preparing Real Estate Plans and in the acquisition of LERRD's. The realty specialist(s) will have experience in residential and utility/facility relocation (Public Law 91-646).

Documentation of DQC. DrChecks will be used to document all DQC comments, responses and resolutions. Quality Control should be performed continuously throughout the study. A specific certification of DQC completion is required. 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.

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. The ATR team will be assigned once the review plan has been approved by the MSC and endorsed by the RMO.

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 will have the skills to manage a virtual team through an ATR.
Plan Formulation	The plan formulation lead will have experience preparing and reviewing Civil Works decision documents, developing plan formulation strategies and integrating technical analyses into the SMART planning framework.
Economics	The economist will be a senior economist and have a thorough knowledge of the various economic analyses utilized in a flood risk management feasibility study (life safety, transportation, flood damage). Has capability and experience to estimate and communicate likely variance in the outcomes of models, analyses, and designs. Is familiar with HEC-FDA. Based on the initial array of alternatives familiarity with LifeSim may be needed should certain alternatives move forward for consideration . The PDT will communicate that need with the ATR lead prior to the TSP milestone to ensure the identified reviewer has that capacity.
Environmental Resources	A senior environmental specialist with experience with the National Environmental Policy Act and all applicable laws and Executive Orders.
Cultural Resources	A senior cultural specialist with experience in Cultural Resources, the Natural Historic Preservation Act and all applicable laws and Executive Orders.
Hydraulic Engineering	A senior engineer with expertise in the field of hydraulics and hydrology. They will have a thorough understanding of the application of structural and non-structural flood risk management solutions, and computer modeling techniques (HEC-HMS 5.07, HEC-GeoHMS 10.2 in ArcMAP, and HEC-RAS). Has capability and experience to estimate and communicate likely variance in the outcomes of models, analyses, and designs. Is familiar with HEC RAS 5.0.
Structural Engineering	A senior engineer and expert in the field of structural engineering. They must have a thorough knowledge of stability analyses and design of structural flood risk reduction and protection solutions.
Civil Design/Engineering	A senior engineer and expert in the field of civil engineering. They must have a thorough knowledge of and experience with civil design products (e.g., site selection, project development, real estate, and relocations) related to flood risk reduction and protection solutions.
Geotechnical Engineering	A senior geotechnical engineer with a thorough knowledge and experience in geotechnical considerations related to flood risk management projects (e.g., slope stability). Has capability and experience to estimate and communicate

	likely variance in the outcomes of models, analyses, and designs.
Cost Engineering	Cost MCX staff or Cost MCX Pre-Certified Professional as assigned by the Walla Walla Cost Engineering Mandatory Center of Expertise with experience in preparing cost estimates. Has capability and experience to estimate and communicate likely variance in the outcomes of models, analyses, and designs.
Real Estate	A senior real estate specialist with preparation of Real Estate Plans and experience in acquisition of LERRD's. The realty specialist(s) will have experience in residential and utility/facility relocation (Public Law 91-646).
Climate Preparedness and Resilience CoP Reviewer	A member of the Climate Preparedness and Resiliency Community of Practice (CoP) with experience in climate change impacts to inland flood risk management projects.
Flood Risk Analysis Reviewer	Subject matter expert in multi-discipline flood risk analysis to ensure consistent and appropriate identification, analysis, and written communication of risk and uncertainty.

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) 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 (see EC 1165-2-217, pages 31-32, for example ATR Completion/Certification Sheet).

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.

Decision on Type I IEPR. A Type I IEPR will not be performed for the Lumber River Basin Flood Risk Management Study for the following reasons (see Section 1 for additional detailed discussion):

- o The project does to meet any of the mandatory triggers for conducting Type I IEPR:

- The total project cost is not anticipated to exceed \$200 million,
 - There has been no request by a Governor to conduct Type I IEPR, and
 - The project is not controversial.
- Beyond the mandatory triggers, a risk-informed decision was also made that the study would not significantly benefit from an independent external peer review for the following reasons:
- It is not expected to have adverse impacts on any fish or wildlife species or their habitat whether or not they are listed as endangered or threatened under the Endangered Species Act of 1973.
 - This study is not based on novel methods, does not present complex challenges for interpretation, does not contain precedent-setting methods or models, and does not present conclusions that alter the originally authorized study.
 - The PDT does not believe the level of life safety risk warrants independent external peer review at this time. All communities within the study area are part of a State-wide risk assessment conducted by the state of North Carolina's Emergency Management Office. This study attempted to identify and mitigate potential life safety concerns.

The Nature of the flooding along with existing state level emergency management systems make justification of projects identified based solely on life safety considerations highly unlikely.

The management measures under consideration prior to the Alternatives Milestone are relatively routine and within the core competencies of the agency. The risk of loss of life related to initially identified management measure is low, as such the outcomes of this study would not significantly benefit from an independent external peer review.

(i) Type II IEPR.

The second kind of IEPR is Type II IEPR. These Safety Assurance Reviews (SAR) 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. For the reasons discussed in Scope of Review and in the Decision on Type I IEPR, this document does not involve significant life safety concerns

that warrant a Type II IEPR, as confirmed by the SAC Chief of Engineering and Construction. Therefore a Type II IEPR would not be considered at this time. Dependent on the TSP, this decision may be revisited during Preconstruction Engineering and Design and updated to the Review Plan moving into the design and 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 5: Planning Models. The following 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	Certification / Approval
HEP Models	The Habitat Evaluation Procedures (HEP) is an established approach to assess natural resources. The HEP approach has been well documented and is approved for use in Corps 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. While the exact models have yet to be determined, 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
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-LifeSim 1.01	The program is a spatially-distributed dynamic simulation modeling system for estimating potential life loss and direct economic damages from floods. The	Certified for use in loss of life estimation.

	software will be used for estimating potential life loss only.	
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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:

Model Name and Version	Brief Model Description and How It Will Be Used in the Study	Approval Status
HEC-RAS 5.07 (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 4.5	This software is designed to simulate the complete hydrologic processes of a dendritic watershed system. It will be used to develop inflow frequency and inflow hydrographs for HEC-RAS if 2-D an unsteady state calculations are needed. It could also be used to develop better estimates of various storm events (e.g., 50- and 100-year storms).	HH&C CoP Preferred Model
HEC GeoHMS 10.2	HEC_GeoHMS uses ArcGIS and the spatial analyst extension to develop a number of hydrologic modeling inputs for HEC HMS. This ArcMAP application is used to develop the watershed characteristics to import into HEC_HMS. This software allows for analysis of digital terrain data, and transforms the drainage paths and watershed boundaries into a hydrologic data structure, representing the drainage network.	HH&C CoP Preferred Model

e. POLICY AND LEGAL REVIEW

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

(ii) 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
Nova Robbins	CESAC-PMP	Project Manager	(843) 329-8096
Nancy Parrish	CESAC-PME	Plan Formulation	(843) 329-8050
Susan Horton	CESAC-PME	Plan Formulation	
Steven Yates	CELRH-PX-NC	Economist	(304) 399-5697
Kurt Buchanan	CELRH-NC	Economist	(304) 399-5187
Andrea Hughes	CESAC-PME	Environmental Specialist	(843) 329-8145
Nathan Bryan	CESAS-EN-GS	Geotechnical Engineer	(912) 652-5314
Tom Murphy	CESAC-EN-D	Civil Engineer	(843) 329-8137
Rico Jenkins	CESAC-ENG	Cost Engineer	(843) 329-8236
Mikala Randich	CESAC-OP	Geospatial Specialist	TBD
Lindsey Larocque	CESAC-EN	H&H Engineer	TBD
Joan Oliver	CESAS-RE-RM	Realty Specialist	(912) 652-5914
James F Choate III	CESAD-OC	Office of Counsel	
Brian Choate	CESAS-DP-C	Cultural Specialist	(904) 232-1806
Jami Buchanan	CELRH-PM-PD-F	Plan Formulator Mentor	(304) 399-5347

DISTRICT QUALITY CONTROL TEAM			
Name	Office	Position	Phone Number
Diane Perkins	CESAC-PME	Plan Formulation	(843) 329-8182
Bethney Ward	CESAC-PME	Environmental Specialist	(843) 329-8162
TBD	CESAS-EN-GS	Geotechnical Engineer	
TBD	CELRH-NC	Economist	
TBD	CESAJ-RE	Realty Specialist	
TBD		H&H Engineer	
TBD		Office of Counsel	
TBD		Civil Engineer	
TBD		Cost Engineer	
TBD		Cultural	

AGENCY TECHNICAL REVIEW TEAM			
Name	Office	Position	Phone Number
		ATR Lead/Plan Formulation	
[Name]	[Office]	Economics	[Phone #]
[Name]	[Office]	Environmental Resources	[Phone #]

[Name]	[Office]	Cultural Resources	[Phone #]
[Name]	[Office]	Hydraulic Engineering	[Phone #]
[Name]	[Office]	Structural Engineering	[Phone #]
[Name]	[Office]	Geotechnical Engineering	[Phone #]
[Name]	[Office]	Civil Design/Engineering	[Phone #]
[Name]	[Office]	Cost Engineering	[Phone #]
[Name]	[Office]	Real Estate	[Phone #]
[Name]	[Office]	Climate Preparedness and Resilience CoP Reviewer	[Phone #]
[Name]	[Office]	Flood Risk Analysis Reviewer	[Phone #]

Note: Multiple areas of expertise will be represented by individual reviewers to the extent possible. Despite the decreased number of reviewers on the ATR team, all 11 areas of expertise will be represented.

VERTICAL TEAM			
Name	Office	Position	Phone Number
Eric Bush	CESAD-PDP	SAD Chief of Planning & Policy	404-562-5220
Patrick O'Donnell	CESAD-PDP	Sr. Plan Formulator	404-562-5226
Chris Smith	CESAD-RBT	SAD Chief, Business Technical Division	404-562-5107
Jackie Keiser	CESAD-PDH	SAD Chief Hurricane Emergency Restoration Division	904-232-3915
Sue Wilcox	CECW-SAD	Sr. SAD RIT Water Resources Planner	904-472-5776
Nick Applegate	FRM-PCX	Economist	916-557-6711
Debby Scerno	CESAD-PDP	Sr. Environmental Planner	404-562-5227
Brad Schwichtenberg	CEMP-SPD-RIT	Deputy Chief, SPD RIT	202-761-1367

POLICY REVIEW TEAM			
Name	Office	Position	Phone Number
Kenitra Stewart	CESAD-CC	Review Lead	404-562-5229
Scott Nicholson	CESAD-PF	Plan Formulation Team Lead	202-761-7770
Mark Shafer	CESWD-PDP	Environmental Engineer	469-487-7020
Max Millstein	CESAD-ECON	Economist	404-562-5096

Cynthia Turner	CESAD-RE	Realty Specialist	404-309-4259
Neil Purcell	CESAD-OC	Office of Counsel	202-761-4102
Michael Wolz	CESAD-E&C	Engineering and Construction	404-562-5120
Kate White	CESAD-CC	Climate Preparedness and Resilience	202-761-4163