MVD DECISION DOCUMENT REVIEW PLAN[1]

May, 2020

Project Name: CAP Section 205, Eureka, MO
P2 Number: 467147

Decision Document Type: Feasibility Report with integrated Environmental Assessment

Project Type: Flood Risk Management

District: St. Louis District
District Contact: Project Manager, Matt Jones, 314-331-8293

Major Subordinate Command (MSC): Mississippi Valley Division (MVD)
MSC Contact:

Review Management Organization (RMO): *MVD*
RMO Contact:

Key Review Plan Dates

Date of RMO Endorsement of Review Plan: Pending
Date of MSC Approval of Review Plan: Pending
Date of IEPR Exclusion Approval:
Per the memorandum dated 5 April 2019, Subject: Interim Guidance on Streamlining Independent External Peer Review (IEPR) for Improved Civil Works Product Delivery, paragraph 6.c., no Type I IEPR is required if the project/study does not include an EIS and is being conducted under the USACE Continuing Authorities Program.
Has the Review Plan changed since RMO Endorsement? N/A
Date of Last Review Plan Revision: NONE
Date of Review Plan Web Posting: Pending
Date of Congressional Notifications: Pending

Milestone Schedule

	Scheduled	Actual	Complete
FCSA Signing:	19 Feb 2020	19 Feb 2020	Yes
Alternatives Milestone:	17 Jun 2020	17 June 2020	Yes
Tentatively Selected Plan:	N/A		
Release Draft Report to Public:	N/A		
MSC Decision Milestone:	N/A	(enter date)	No

[1] This template is available for use by MVD districts. It is intended for use in scoping reviews for decision documents. A different review plan template is available for use in work in the design and implementation phases.

Release Report to Public:	N/A	(enter date)	No
Final Report Transmittal:	N/A	(enter date)	No
Senior Leaders Briefing:	N/A		
Chief's Report or Director's Report:	N/A		
Final Report Approval (MVD):	N/A	(enter date)	No

Project Fact Sheet
May, 2020

Project Name: CAP Section 205, Eureka, MO

Location: Eureka, MO

Authority: **Section 205** of the 1948 Flood Control Act authorizes the Corps of Engineers to study, design, and construct small flood risk management projects in partnership with non-Federal government agencies, such as cities, counties, special authorities, or units of state government. Projects are planned and designed under this authority to provide the same complete flood risk management project that would be provided under specific congressional authorizations. The maximum Federal cost for planning, design, and construction of any one project is $10 million.

Sponsor: City of Eureka

Type of Study: Flood Risk Management Feasibility Study with Integrated Environmental Assessment

SMART Planning Status: N/A

Project Area: The City of Eureka is located approximately 30 miles southwest of St. Louis, Missouri within the Meramec River Basin.

Problem Statement: In the last 5 years, the City of Eureka experienced two floods of record which damaged homes, businesses, schools, and critical infrastructure. The Meramec River flood in December 2015, located within the declared area for federal disaster assistance (DR-4250-MO), impacted more than 4% of homes in the City with more than $2.2M in documented damages and estimated infrastructure damages of approximately $2M. Two-thirds of the historic downtown district was impacted. Approximately sixteen months later in May 2017, record flood levels of the Meramec River were recorded in the City, which was again included in the declared area for federal disaster assistance (DR-4317-MO). The flooding problems in the City of Eureka include 1) flooding of residences and businesses including structures in the historic downtown area and 2) flooding of public structures and infrastructure such as Eureka Senior High School, emergency response routes such as Highway 109, and wastewater treatment facilities.

Federal Interest: Federal interest for flood risk management in the City of Eureka is based on preliminary information regarding the frequency of flooding, the potential magnitude of traffic impacts, and the number of structures flooded up through the 1% ACE event. Initial evaluation (as described below) indicates that it is likely that there is at least one alternative that would reduce the risk of flood damages in Eureka, Missouri, and result in positive net National Economic Development (NED) benefits.

Risk Identification: There are opportunities to reduce the risk of economic damages due to flooding and increase risk awareness in the City. An additional opportunity is to reduce risks to life safety during and following flood events. In both the 2015 and 2017 flood events, Highway 109 was inundated, which posed a risk to emergency responders as they were required to stage staff and equipment on private property north of the flooded reach of Hwy 109 so that they could reach citizens

in need. The Eureka Wastewater Treatment Plant was also inundated causing pump station failures, which posed a public health and environment risk. Some structures located in downtown Eureka along South Central Avenue had flood depths between 4 and 5 feet during the 2015 event. While there were no deaths during either of these events, flood waters from the Meramec River and its tributaries do pose a risk to life safety.

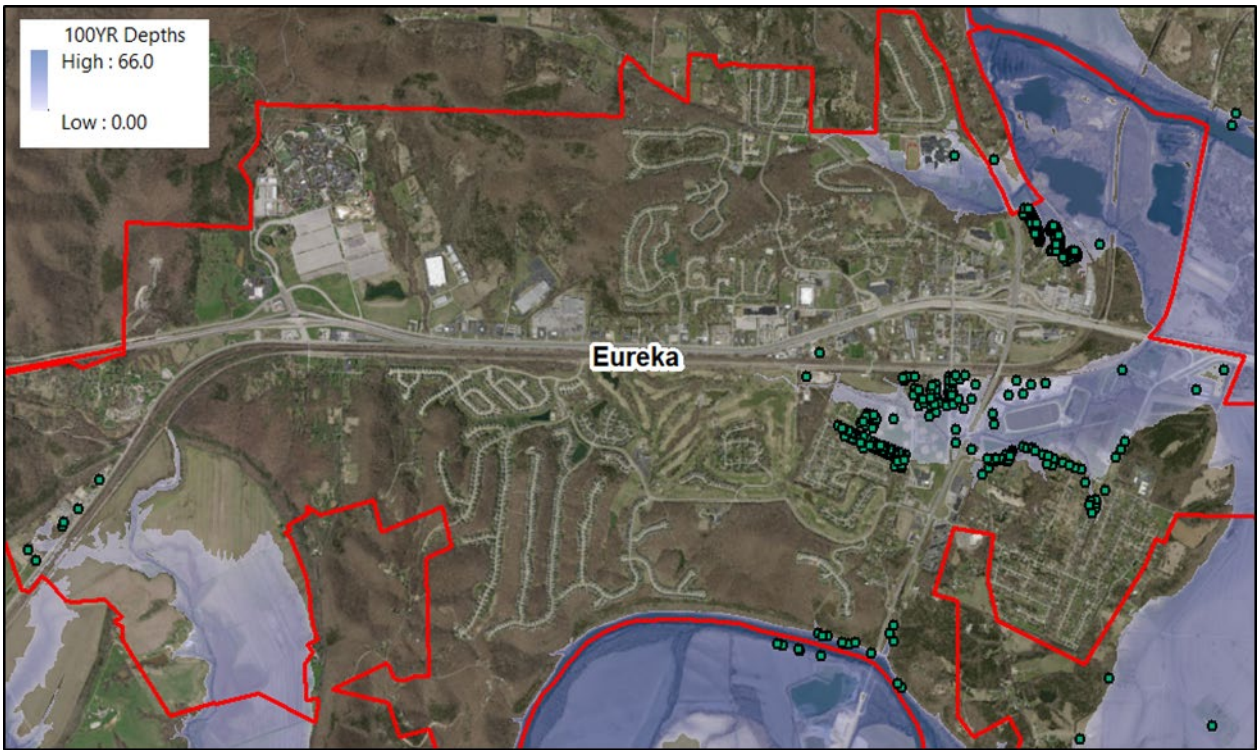

Figure 1. City of Eureka with 1% AEP Floodplain Overlay and Structures

1. FACTORS AFFECTING THE LEVELS AND SCOPE OF REVIEWS

Mandatory IEPR Triggers.

- Is the estimated total project cost, including mitigation, greater than $200 million? **No**
- Has the Governor of an affected state requested a peer review by independent experts? **No**
- Will an Environmental Impact Statement be prepared as part of the study? **No**
- Will the project likely involve significant public dispute as to the project's size, nature, or effects? **No**
- Is the project/study likely to involve significant public dispute as to the economic or environmental cost or benefit of the project? **No**

Scope of Review.

- Will the study likely be challenging? No. The study will consist of formulating common alternatives to address the risks associated with flooding. It should not be overly challenging in nature.

- Provide a preliminary assessment of where the project risks are likely to occur and assess the magnitude of those risks. There is medium to low risk and uncertainty regarding potential alternatives in and around a FEMA buyout area.

- Is the project likely to be justified by life safety or is the study or project likely to involve significant life safety issues? No. It is not anticipated that the project will be justified solely on the basis of life safety. While all flooding presents life safety issues, we anticipate the project to recommend an economically justified 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. Standard methods and models will be employed during the study and there is no indication that the alternatives' designs will vary from common USACE design standards.

- Does the project design require redundancy, resiliency, and/or robustness, unique construction sequencing, or a reduced or overlapping design/construction schedule? No. It is anticipated that all alternatives' designs and construcution methods will follow standard USACE requirements.

- Is the project expected to have more than negligible adverse impacts on scarce or unique tribal, cultural, or historic resources? No. The PDT is aware of National Register eligible archaeological sites within the vicinity of the project area. Any potential impacts to historic properties identified will be minimized or avoided to the maximum extent practicable during the study process.

- 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. Based on preliminary investigations, it does not appear that the project would substantially impact fish and wildlife

species. Any potential impacts to fish and wildlife species identified will be minimized or avoided to the maximum extent practicable during the study process.

- 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. Based on preliminary investigations, it does not appear that there will be more than a negligible adverse impact on an endangered or threatened species in the vicinity of the project area. Any measures to address flooding will be mindful of the presence of threatened and endangered 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. 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.

Independent External Peer Review. Per the memorandum dated 5 April 2019, Subject: Interim Guidance on Streamlining Independent External Peer Review (IEPR) for Improved Civil Works Product Delivery, paragraph 6.c., no Type I IEPR is required if the project/study does not include an EIS and is being conducted under the USACE Continuing Authorities Program.

Cost Engineering Review. All decision documents shall be coordinated with the Cost Engineering Center of Expertise (CX). The CX will assist in determining the expertise needed on the ATR and IEPR teams. The CX will provide the Cost Engineering certification. The RMO is responsible for coordinating with the CX for the reviews. This study is scheduled to follow the "typical" cost process where review of alternatives costs will occur during the ATR of the draft Feasibility Report and prior to the ATR of the final Feasibility Report, a cost review of the recommended plan will occur and cost certification will be acquired.

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, and Director's Policy Memorandum 2019-01, both provide 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.

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: Schedule and Costs of Review

Product(s) to undergo Review	Review Level	Start Date	End Date	Cost	Complete
Planning Model Review	Model Review (see EC 1105-2-412)	N/A	N/A	N/A	N/A
Draft Feasibility Report / EA	District Quality Control	N/A	N/A	$5,500.00	No
Draft Feasibility Report / EA	Agency Technical Review	N/A	N/A	$20,000.00	No
Draft Feasibility Report / EA	Policy and Legal Review	N/A	N/A	N/A	No
Final Feasibility Report / EA	District Quality Control	N/A	N/A	$5,000.00	No
Final Feasibility Report / EA	Agency Technical Review	N/A	N/A	$5,000.00	No
Final Feasibility Report / EA	Policy and Legal Review	N/A	N/A	N/A	No
List any In-kind Products (use separate lines for multiple products if applicable)	ID review levels (DQC, ATR, IEPR)	N/A	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). Table 2 identifies the required expertise for the DQC team.

Table 2: Required DQC Expertise

DQC Team Disciplines	Expertise Required
DQC Lead	A 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).
Project Management	The Project Management reviewer will have extensive knowledge of project management, budgeting and financial systems, and project scheduling.
Plan Formulation	The Plan Formulation reviewer will be experienced in flood risk management studies.
Economics	The Economics reviewer will be experienced in flood risk management studies, including consequences modeling utilizing HEC-LifeSim and HEC-FDA.
Environmental and NEPA Compliance	The Environmental Compliance reviewer will be experienced in the National Environmental Policy Act (NEPA) process, Endangered Species Act (ESA), environmental laws, regulations, and executive orders, habitat evaluation proceedures, mitigation requirements, and have a biological background that includes experience with flood risk management measures associated with riverine flooding.
Environmental Quality	The Environmental Engineer reviewer will be experienced in performing and reviewing Phase 1 assessments for HTRW and environmental quality concerns.
Cultural Resources	The Cultural Resources reviewer will be experienced in cultural resources and tribal issues, regulations, and laws.
Hydraulic & Hydrologic Engineering	The H&H Engineering reviewer will have extensive experience in the fields of hydrology and hydraulics and have a thorough understanding rivereine flooding, modeling, and interior drainage analysis.
Geotechnical Engineering	The Geotechnical Engineering reviewer will have extensive experience in the field of geotechnical engineering and have experience with issues related to structural flood risk management measures including but not limited to levee/berm construction, water control structure construction, pump station construction, and potential nonstructural features and the modeling associated with each.
Civil Engineering	The Civil Engineering reviewer will have experience in flood risk management studies.
Cost Engineering	The Cost Engineering reviewer will have experience in flood risk management studies.

Regulatory	The Regulatory reviewer will have experience with Section 10 or 404 permitting as well as experience in preparing a 404(b)1 analysis.
Real Estate	The Real Estate reviewer will be experienced in flood risk management studies.

Required Disciplines for Each DQC. The draft report DQC will require review from all disciplines identified in Table 2. The final report DQC will only require review of the changes made to the report since the previous DQC. The disciplines required for the final DQC will be identified as the final report is being finalized. It will likely involve many but not all of the disciplines in Table 2.

Documentation of DQC. Quality Control will be performed continuously. A specific certification of DQC completion is required at the draft and final report stages. Documentation of DQC will 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 will 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). The DQC team will follow the Recommended Best Planning Practice identified below.

Recommended Best Planning Practice: Use DrChecks software to document DQC. Attach a DrChecks report to the DQC Certification to help illustrate the thoroughness of the DQC.

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. The 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 (the ATR Lead will be from outside of the home MSC)	A senior professional with extensive experience preparing Civil Works decision documents and conducting ATR. The lead may also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc).
Plan Formulation	The Plan Formulation reviewer will be experienced in flood risk management studies.
Economics	The Economics reviewer will be experienced in flood risk management studies, including consequences modeling utilizing HEC-LifeSim and HEC-FDA.
Environmental and NEPA Compliance	The Environmental Compliance reviewer will be experienced in the National Environmental Policy Act (NEPA) process, Endangered Species Act (ESA), environmental laws, regulations, and executive orders, habitat evaluation proceedures, mitigation requirements, and have a biological background that includes experience with flood risk management measures associated with riverine flooding.
Environmental Quality	The Environmental Engineer reviewer will be experienced in performing and reviewing Phase 1 assessments for HTRW and environmental quality concerns.
Cultural Resources	The Cultural Resources reviewer will be experienced in cultural resources and tribal issues, regulations, and laws.
Hydraulic & Hydrologic Engineering	The H&H Engineering reviewer will have extensive experience in the fields of hydrology and hydraulics and have a thorough understanding rivereine flooding, modeling, and interior drainage analysis.
Geotechnical Engineering	The Geotechnical Engineering reviewer will have extensive experience in the field of geotechnical engineering and have experience with issues related to structural flood risk management measures including but not limited to levee/berm construction, water control structure construction, pump station construction, and potential nonstructural features and the modeling associated with each.
Civil Engineering	The Civil Engineering reviewer will have experience in flood risk management studies.
Cost Engineering	The Cost Engineering reviewer will have experience in flood risk management studies.
Real Estate	The Real Estate reviewer will be experienced in flood risk management studies.

Documentation of ATR. DrChecks will be used to document all ATR comments, responses and resolutions. Comments will 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 to resolve using the EC 1165-2-217 issue resolution process. Concerns can be closed in DrChecks by noting the concern has been elevated. 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. The ATR team will follow the Recommended Best Planning Practice identified below.

Recommended Best Planning Practice: All members of the ATR team will use the four part comment structure (see EC 1165-2-217, Section 9(k)(1)).

c. INDEPENDENT EXTERNAL PEER REVIEW

(i) Type I IEPR.

Decision on Type I IEPR: Per the memorandum dated 5 April 2019, Subject: Interim Guidance on Streamlining Independent External Peer Review (IEPR) for Improved Civil Works Product Delivery, paragraph 6.c., no Type I IEPR is required if the project/study does not include an EIS and is being conducted under the USACE Continuing Authorities Program.

(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. Once the project has been more defined, the life safety impacts will be reevaluated and a determination will be made as to whether or not a SAR will be performed in the implementation phase. The decision will be documented in the implementation review plan.

Decision on Safety Assurance Review: As there is insufficient information at this time, a decision on performing a SAR will be made at a later date and ~~this~~ the implementation phase RP will be updated to reflect that decision.

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
HEC-FDA 1.4.2	HEC-FDA estimates structure, content, vehicle, and other miscellaneous damages across a study area using hydraulic outputs for eight different stage-frequencies. HEC-FDA is a study based model, meaning it provides an estimate of the amount of damages you can expect annually on a project based on model inputs.	Certified
HEC-LifeSim 2.0	HEC-LifeSim estimates life loss by simulating population redistribution during an evacuation caused by a hydraulic scenario. HEC-LifeSim is an event based model, meaning it	Version 1.0 Certfied

	provides estimated damages and life loss for particular events. Version 2.0 is not a certified model, but is currently undergoing certification process.	
USFWS Habitat Suitability Index Models	The Habitat Evaluation Procedure (HEP) is a species habitat approach to impact assessment using selected evaluation species documented with an index, the Habitat Suitability Index (HSI). This value is derived from an evaluation of key habitat components to compare existing habitat conditions and optimum habitat conditions for the species of interest. There are over 150 models for invertebrates, fish, amphibians, reptiles, birds, mammals, and communities. As the project progresses, a determination will be made as to which HEP models are most appropriate for use. Low risk and uncertainty using these planning models.	Approved
IWR-Planning Suite II	The IWR-Planning Suite II was developed by the Institute for Water Resources as accounting software to compare habitat benefits among alternatives. This model will be used to determine best buy alternatives and incremental cost analysis of alternatives. Low risk and uncertainty using this planning model.	Certified

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 will 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 5.0.7	HEC-RAS is a computer program that models the hydraulics of water flow through natural rivers and other channels. The computer program has the capability to model the effects from one and two-dimensional flow conditions as well as sediment transfer capabilities. The program was developed by the United States Army Corps of Engineers in order to manage the rivers, harbors, and other public works under the Corps jurisdiction. HEC-RAS will use its 1D and 2D capabilities to analyze computed water surface elevations for various frequency storm events in investigating the feasibility of reducing economic damages and reducing risks due to flooding in	HH&C CoP Preferred

	Eureka, MO. HEC-RAS will be used to analyze a recommended project plan in addition to up to four different alternative plans.	
HEC-HMS 4.3	The Hydrologic Modeling System (HEC-HMS) is designed to simulate the precipitation-runoff processes of drainage basins. The program is designed to analyze stormwater runoff conditions from a wide range of geographic areas. Hydrographs produced by the program are used directly or in conjunction with other software for studies of water availability, urban drainage, flow forecasting, future urbanization impact, reservoir spillway design, flood damage reduction, floodplain regulation, and systems operation. HEC-HMS may be used to verify computed Meramec River flowrates for various frequency flow events that were developed as part of an existing Meramec River study at Eureka, MO.	HH&C CoP Preferred

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 will be documented in a Memorandum for the Record (MFR) produced for each engagement with the team. The MFR will 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 will be highlighted at future meetings until the issues are resolved. Any key decisions on how to address risk or other considerations will 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.