DECISION DOCUMENT REVIEW PLAN

Lansing and Calumet City, Illinois
Continuing Authorities Program Section 205
Small Flood Risk Management Project

Chicago District

LRD Commander Approval Date: 4 May 2020

Revision Date: N/A

US Army Corps
of Engineers ®

1. PURPOSE, AUTHORITY, STUDY DESCRIPTION, AND PRODUCTS

   a. Purpose. This review plan defines levels and scopes of review required for the feasibility phase products.

   b. Authority. Section 205 of The Flood Control Act of 1948, as amended.

   c. Study Description. This study was initiated to investigate non-structural and structural measures that can address flood risks in the Village of Lansing, Illinois and the City of Calumet City, Illinois. The non-Federal sponsors for this study are the Village of Lansing and City of Calumet City. While existing non-Federal levee systems on both banks of the Little Calumet River provide some level of protection for the communities adjacent to the river, there have been instances of flooding within the leveed areas since the levee systems were constructed in the 1980s. In September 2008, the Lansing Levee experienced an overtopping event, and flood waters extended to a large apartment complex. While the Calumet City Levee has not had an overtopping event, the 50 acre-foot reservoir filled in September 2008 and April 2013, and active seepage and ponding occurred on the landward side of the levee in February 2018.

      The levee systems have not been adequately maintained. Both the Lansing Levee and Calumet City Levee systems have been inspected by USACE Chicago District through previous Planning Assistance to States and Non-Federal Inventory and Review (I&R) study efforts. The Non-Federal I&R reports for Lansing and Calumet City were completed in September 2018, and the condition assessments for both levee systems were documented as ‘Unacceptable’ according to the criteria established through the National Levee Safety Program.

      Based on the investigations conducted to support the Federal Interest Determination (FID) Report approved by LRD on April 11, 2019, alternatives to be considered during the feasibility phase to manage flood risks include rehabilitation and elevation of portions of the levee systems, rehabilitation or replacement of existing pump station equipment, and non-structural measures. It is expected that alternative plans will use established and proven measures for addressing flood risks. Therefore, it is not expected that there will be any significant technical, institutional, or social challenges associated with the design of the recommended plan. Based on the screening level HTRW investigation, there do not appear to be high risk environmental issues within the project area. Additionally, through preliminary investigations, there do not appear to be threatened and endangered species or high quality habitat in the area. The major risk to project implementation is real estate acquisition. No easements are currently in place, and any structural alternatives would require the non- federal sponsors to acquire easements for properties adjacent to the levees, which include numerous individual residential properties.

d. Feasibility Study Products. The feasibility study products/documents to be prepared and reviewed are listed in the following table. The table includes only formally documented reviews. Interim products will also be reviewed on an ongoing basis, as described in the LRC Feasibility Phase Quality Control/Quality Assurance procedures.

Product/Document	DQC	ATR	IEPR I	Policy/Legal
Interim Products				
• HEC-FDA (Existing/Future Conditions)	X			
• HEC-RAS (Existing/Future Conditions)	X			
• HEC-HMS (Existing/Future Conditions)	X			
• MII Cost Estimate	X			
• Geotechnical Engineering (Soil boring for Calumet City Levee to be completed via in-kind services)	X			
• Risk Assessment	X			
• Real Estate Map and Gross Appraisal	X			
Integrated Detailed Project Report (DPR) and Environmental Assessment (Main Report)	X	X		X
Economic Appendix	X	X		X
Real Estate Appendix	X	X		X
Engineering Appendices				
• Hydrology and Hydraulic (H&H)	X	X		X
Engineering	X	X		X
• Civil Engineering	X	X		X
• Cost Estimate	X	X		X
• HTRW Assessment	X	X		X
Environmental Coordination Appendix				
• Public and Agency Review	X	X		X
• FONSI	X	X		X
• Cultural Resources Report	X	X		X

2. REVIEW REQUIREMENTS

a. Types of Review. The feasibility phase activities and documents are required to be reviewed in accordance with ER 1110-1-12 and EC 1165-2-217. Based upon the factors under each heading, this study will undergo the following reviews: District Quality Control (DQC); Agency Technical Review (ATR); Policy and Legal Review; and Public Review. These reviews are described in greater detail below.

(1) District Quality Control (DQC): DQC procedures will be performed for all study products. Formally documented DQC will, at a minimum, be completed for, the Draft Detailed Project Report, the Final Detailed Project Report, and all supporting documents. LRC Office of Counsel will be consulted to provide

legal review and guidance during the feasibility study development and review process.

a. Chicago District will perform and manage DQC procedures in accordance with the Chicago District DQC process.
b. DQC will be documented with a summary report / certification.
c. Supervisors within each area of responsibility will assign appropriate, qualified staff to perform QC on their respective products. Personnel performing QC shall have the necessary expertise to address compliance with Corps policy.
d. LRC Office of Counsel will conduct a legal sufficiency review after the completion of DQC and before submitting the DPR to the MSC.
e. The following disciplines are required for the DQC for this flood risk management study:

DQC Team Technical Disciplines and Expertise		
Technical Discipline	Peer DQC Reviewer	Chief Level DQC Reviewer*
Plan Formulation	Each peer-level DQC reviewer will have no production role in the study/project and will have the necessary expertise/experience to thoroughly review the study products identified in paragraph (1).	PMD-EP Chief
Economist		
Civil Engineer		TSD-DC Chief
Cost Estimator		
Structural Engineer		TSD-TD Chief
Mechanical Engineer		
Real Estate Specialist		RE Chief (Regional) and MSC RE Appraiser
Biologist/Cultural Resources		PMD-EF Chief
Geotechnical Engineer		TSD-DG Chief
Hydrology and Hydraulic Engineer		TSD-DH Chief
Environmental Engineer		
Policy and Legal		Office of Counsel
* TSD Chief is the Levee Safety Officer and will also review		

(2) Agency Technical Review (ATR): ATR will be scaled to a level commensurate with the risk and complexity of the products to be reviewed. The ATR will assess whether the analyses presented are technically correct and comply with published USACE guidance, and that the document explains the analyses and results in a reasonably clear manner for the public and decision makers. ATR is mandatory for all decision documents (including supporting data, analyses, environmental compliance documents, etc.).

a. ATR is managed within USACE by the designated RMO and is conducted by a qualified team from outside the home district that is not involved in the day-to-day production of the project/product. The team lead will be from outside LRD.
b. All ATR reviewers must be certified to perform ATR by USACE. Multiple disciplines may be covered by a single reviewer based on appropriate experience, expertise, and certification. Due to categorization of study

risks in Section 1c, LRC anticipates that the following disciplines may be able to be covered by a single reviewer:

- Economics and Plan Formulation
- Civil, Structural, Mechanical, and Geotechnical
- Environmental Engineering and Biology/Cultural Resources
- Hydraulics, Hydrology, and Climate Preparedness and Resiliency

c. The ATR review will be documented using DrChecks and an ATR Summary Report and Certification.

ATR Disciplines	Expertise Required	Justification / Rationale
ATR Lead	The ATR lead should be a senior professional preferably with experience in preparing CAP Section 205 decision documents and conducting ATR. The lead should also have the necessary skills and experience to lead a virtual team through the ATR process.	The ATR lead is necessary to coordinate all ATR activities. The ATR lead may also serve as a reviewer for a specific discipline.
LSOG Member	The Levee Senior Oversight Group (LSOG) member(s) should be a senior professional preferably with experience in preparing CAP Section 205 decision documents and conducting ATR.	ECB 2019-15 requires that LSOG members from relevant disciplines will participate in the ATR team for studies involving existing levees. The LSOG member(s) may also serve as a reviewer for a specific discipline.
Plan Formulation	The Plan Formulation Reviewer should be a senior planner with experience in flood risk management (FRM) plan formulation, evaluation of structural and non-structural measures, and CAP Section 205 projects.	A Plan Formulation Reviewer is necessary to review the plan formulation of structural and non-structural FRM measures and alternatives.

ATR Disciplines	Expertise Required	Justification / Rationale
Economics	The Economics Reviewer should be experienced with FRM studies, HEC-FDA, and with the evaluation of structural and non-structural measures.	An Economics Reviewer is necessary to review the WOPC & WPC HEC-FDA modeling.
Biology/Cultural Resources	The Biology/Cultural Resources Reviewer should be experienced in the analysis of impacts as required by the National Environmental Policy Act (NEPA) and other applicable laws, regulations, and executive orders.	A Biology/Cultural Resources Reviewer is necessary to review NEPA scoping and other applicable environmental compliance documentation.
Hydrology and Hydraulic (H&H) Engineering	The Hydrology and Hydraulic (H&H) Engineering Reviewer should be an expert in the field of hydraulics and have a thorough understanding of open channel one-dimensional and two-dimensional unsteady flow hydraulic models and have a knowledge of the application of levees and flood walls, flap-gate control structures, and non-structural solutions involving flood warning systems.	An H&H Engineering Reviewer is necessary to review the WOPC & WPC modeling.
Climate Preparedness and Resiliency (CRP)	The CRP Reviewer must be certified by the CRP Community of Practice (CoP) in the Corps of Engineers Review Certification and Access Program (CERCAP).	As required by Engineering and Construction Bulletins (ECB) 2018-14, at least one member of an ATR Team for projects covered by this ECB, at least one reviewer will be CRP certified. The CRP CoP may help identify those who can perform, assist, or review qualitative assessments. The CRP reviewer may also serve as a reviewer for a specific discipline.

ATR Disciplines	Expertise Required	Justification / Rationale
Civil Engineering	The Civil Engineering Reviewer should be experienced with the design of FRM projects, specifically levees, floodwalls, and nonstructural measures.	The Civil Engineering Reviewer is necessary to review design of structural and non-structural alternatives.
Structural Engineering	The Structural Engineering Reviewer should be experienced with the design of FRM projects, specifically pump houses.	The Structural Engineering Reviewer is necessary to review the design of alternatives related to the pump house structural deficiencies.
Mechanical Engineering	The Mechanical Engineering Reviewer should be experienced with the design of FRM projects, specifically pump houses.	The Mechanical Engineering Reviewer is necessary to review the design of alternatives related to the pump house mechanical deficiencies.
Geotechnical Engineering	The Geotechnical Engineering Reviewer should be experienced with the design of FRM projects, specifically levees and floodwalls.	The Geotechnical Engineering Reviewer is necessary to review the design of structural alternatives.
Environmental Engineering	The Environmental Engineering Reviewer should be experienced in analysis of HTRW impacts in urban and suburban areas.	An Environmental Reviewer is necessary to review HTRW documentation.
Cost Engineering	The Cost Engineering Reviewer will have experience preparing cost estimates for levee, floodwall, pump house, and nonstructural FRM measures and alternatives.	A Cost Engineering Reviewer is required by the Cost Mandatory Center of Expertise (MCX). A Cost MCX staff member or Pre-Certified Professional will be assigned by the Walla Walla MCX.
Real Estate	The Real Estate Reviewer will have experience with preparing real estate plans for structural and non-structural FRM projects.	A Real Estate Reviewer is necessary because real estate is a driving risk for the study, as documented in Section 2b of the Review Plan. The study will evaluate structural and/or non-structural alternatives that may require acquisition of residential

ATR Disciplines	Expertise Required	Justification / Rationale
		real estate. The Real Estate Reviewer will be approved by the Real Estate CoP as a FRM reviewer.

(3) Type I Independent External Peer Review (IEPR): A Type I IEPR is not required based on the mandatory triggers outlined in the Memorandum for Major Subordinate Command (MSC) and District Commanders dated April 05, 2019; the memorandum provides interim guidance on streamlining IEPR for improved civil works product delivery. This feasibility study does not meet any of the three mandatory IEPR triggers for the following reasons:

a. The estimated total cost of the project, including mitigation costs, is not greater than $200 million.
b. The Governor of Illinois has not requested a peer review by independent experts.
c. The study is not controversial due to significant public dispute over size, nature, or effects of the project or the economic or environmental costs or benefits of the project.

An IEPR would not provide additional benefit to the study for the following reasons:

a. This study does not include the development or use of any novel methods.
b. This project does not pose likely threats to health and public safety.
c. There is no anticipated inter-agency interest.
d. Chicago District has not received a request from the head of any Federal or State agency for an IEPR.
e. The proposed project is not anticipated to have unique construction sequencing or a reduced or overlapping design construction schedule.

(4) Type II Independent External Peer Review (IEPR): Since this document does not involve life safety concerns, as confirmed by the LRC Chief of Engineering and Construction in the District Chief of Engineering Assessment of Life-Safety Risk, a Type II IEPR would not be considered.

(5) Policy and Legal Review: The draft and final document will be reviewed for their compliance with law and policy. Guidance for policy and legal compliance reviews is addressed in Appendix H, ER 1105-2-100. These reviews culminate in determinations that the recommendations in the report and the supporting analyses and coordination comply with law and policy.

(6) Public Participation:

a. Chicago District will include a public involvement program designed to meet NEPA requirements and solicit public and government agency input.
b. Chicago District shall contact agencies with regulatory review for coordination as required by applicable laws and procedures.

3. MODEL CERTIFICATION OR APPROVAL. The following models may be used to develop the decision documents:

Planning Models		
Model Name and Version	Model Description and How It Will Be Used	Certification / Approval
HEC-FDA 1.4.2 (Flood Damage Analysis)	The Hydrologic Engineering Center's Flood Damage Reduction Analysis (HEC-FDA) program provides the capability for integrated hydrologic engineering and economic analysis for formulating and evaluating flood risk management plans using risk-based analysis methods. The program will be used to evaluate and compare the future without- and with-project plans along the Little Calumet River.	Certified December 2, 2014
FQI V11 (Floristic Quality Index)	This assessment tool was designed to be used as an all-inclusive method for assessing the quality of plant communities. The FQI was originally developed for the Chicago Region, but has since been developed for regions and states throughout North America. This method assesses the sensitivity of individual plant species that inhabit an area. Each native species is assigned a coefficient of conservatism ranging from "0 to 10, with "0" assigned to species that are highly tolerant to disturbance and are considered general in their habitat distribution and "10" assigned to species with a very low tolerance to disturbance and displaying a very specific relationship to a certain habitat type. This model will be used to assess the ecological value of the existing site condition, determine whether there is a need for mitigation, and evaluate proposed mitigation measures, based on the function of the plant community.	Certified November 17, 2017

Engineering Models		
Model Name and Version	Model Description and How It Will Be Used	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 program will be used to generate hydrographs for the watershed to be used as inputs to the HEC-RAS hydraulic models.	HH&C CoP Preferred Model
MII	MII is the second generation of the Micro-Computer Aided Cost Estimating System (MCACES). It is a detailed cost estimating software application that was developed in conjunction with Project Time & Cost LLC. MII provides an integrated cost estimating system (software and databases) that meets the U.S. Army Corps of Engineers (USACE) requirements for preparing cost estimates.	Enterprise Model

4. REVIEW SCHEDULE AND BUDGET. The schedule and budgets for formal reviews are shown in below table. Ongoing quality control will take place during the study as documented in the LRC DQC process. The total estimated cost to conduct DQC, ATR, policy and legal, and public review activities is $116K. Below is the timeline for review activities.

Product and Review Schedule				
Product(s) to undergo Review	Review Level	Start Date	Finish Date	Budget ($)
Geotechnical Engineering (NFS soil borings)	District Quality Control	11 NOV 2019	30 NOV 2019	$--†
HEC-RAS and HEC-HMS	District Quality Control	12 NOV 2019	10 JAN 2019	$--†
Real Estate Map	District Quality Control	24 FEB 2019	28 FEB 2019	$--†
Gross Appraisal	District Quality Control (including LRD Review)	2 MAR 2019	24 APR 2019	$--†
MII Cost Estimate	District Quality Control	2 MAR 2019	1 MAY 2019	$--†
HEC-FDA	District Quality Control	30 MAR 2019	8 MAY 2019	$--†
Levee Risk Assessments	District Quality Control	TBD‡	TBD‡	$--†
Draft Detailed Project Report and Integrated Environmental Assessment (DPR & IEA)	District Quality Control & LRC Policy and Legal Sufficiency Review	8 JUL 2020*	19 AUG 2020*	$25K
Draft DPR & IEA	Agency Technical Review	3 SEPT 2020*	5 NOV 2020*	$42K
Draft DPR & IEA	LRD Policy and Legal Review (MDM)	3 SEPT 2020*	10 NOV 2020*	$5K
Draft DPR & IEA	Public and Agency Review	37 SEPT 2020*	16 NOV 2020*	$4K
Final DPR & IEA	District Quality Control	1 DEC 2020*	21 DEC 2020*	$10K
Final DPR & IEA	Agency Technical Review	1 DEC 2020*	11 JAN 2021*	$25K

Product and Review Schedule				
Product(s) to undergo Review	Review Level	Start Date	Finish Date	Budget ($)
Final DPR & IEA	LRD Policy and Legal Review	12 JAN 2021*	2 APR 2021*	$5K

† Costs included in the overall study budget

‡ Dependent upon I&R SLRA funding availability

* Scheduled Dates will be revised with Actual Dates

ATTACHMENT 1 – Contacts

Function	Name (Last, First)	Phone	Office
RMO Contact	[redacted]	[redacted]	CELRD-PDS-P
MSC Contact	[redacted]	[redacted]	CELRD-PD-S

PROJECT DELIVERY TEAM			
Function/Discipline	Name (Last, First)	Phone	Office
Project Manager (Lead)	[redacted]	[redacted]	CELRC-PM-PM
Planner	[redacted]	[redacted]	CELC-PMD-EP
Biologist & Cult. Resources*	[redacted]	[redacted]	CELRC-PM-PL-E
Geotechnical Engineer	[redacted]	[redacted]	CELRC-TS-D-G
Economist	[redacted]	[redacted]	CELC-PMD-EP
Civil Engineer	[redacted]	[redacted]	CELRC-TS-D-C
Cost Engineer	[redacted]	[redacted]	CELRC-TS-D-C
Hydrology and Hydraulic Engineer	[redacted]	[redacted]	CELRC-TS-D-HH
Structural Engineer	[redacted]	[redacted]	CELRC-TSD-DT
Mechanical Engineer	[redacted]	[redacted]	CELRC-TSD-DT
Environmental Engineer	[redacted]	[redacted]	CELRC-TS-D-HE
Real Estate	[redacted]	[redacted]	CELRE-RE-O
* LRC can support basic cultural resources coordination tasks. If significant cultural resources concerns are identified during the feasibility phase, LRC will coordinate with an Archeologist from another District to support the study.			

DQC TEAM			
Function/Discipline	Name (Last, First)	Phone	Office
Planner	[redacted]	[redacted]	CELC-PMD-EP
Biologist & Cult. Resources	[redacted]	[redacted]	CELRC-PMD-EF
Geotechnical Engineer	[redacted]	[redacted]	CELRC-TS-D-G
Economist	[redacted]	[redacted]	CELC-PMD-EP
Civil Engineer	[redacted]	[redacted]	CELRC-TS-D-C
Cost Engineer	[redacted]	[redacted]	CELRC-TS-D-C
Hydrology and Hydraulic Engineer	[redacted]	[redacted]	CELRC-TS-D-HH
Engineering (Levee Fragility)*	[redacted]*	[redacted]	CELRL-EDT-G
Structural Engineer	[redacted]	[redacted]	CELRC-TSD-DT
Mechanical Engineer	[redacted]	[redacted]	CELRC-TS-D-T
Environmental Engineer	[redacted]	[redacted]	CELRC-TSD-DH
Real Estate (LRC)	[redacted]	[redacted]	CELRE-RE-O
Real Estate (MSC)	[redacted]	[redacted]	CELRE-RE-O
Policy and Legal	[redacted]	[redacted]	CELRC-OC
* Request to include from LRD Economist to DQC new levee fragility approach			

ATR TEAM			
Function/Discipline	Name (Last, First)	Phone	Office
ATR Lead	[redacted]	[redacted]	CEMVP-PD-F
LSOG Member	TBD		
Plan Formulation	TBD		
Economics	[redacted]*	[redacted]	CELRL-PM-P
Biology/Cultural Resources	TBD		
Hydrology and Hydraulic (H&H) Engineering	TBD		
Climate Preparedness and Resiliency (CRP)	TBD		
Civil Engineering	TBD		
Structural Engineering	TBD		
Mechanical Engineering	TBD		
Geotechnical Engineering	TBD		
Environmental Engineering	TBD		
Cost Engineering	TBD		
Real Estate	TBD		
* Request to include from LRD Economist to DQC new levee fragility approach			

MSC POLICY AND LEGAL REVIEW TEAM			
Function/Discipline	Name (Last, First)	Phone	Office
Plan Formulation			
Economics			
Biology/Cultural Resources			
Hydrology and Hydraulic (H&H) Engineering			
Civil Engineering			
Structural Engineering			
Mechanical Engineering			
Geotechnical Engineering			
Environmental Engineering			
Cost Engineering			
Real Estate			