



DEPARTMENT OF THE ARMY  
U.S. ARMY CORPS OF ENGINEERS, NORTH ATLANTIC DIVISION  
FORT HAMILTON MILITARY COMMUNITY  
302 JOHN WARREN AVENUE  
BROOKLYN, NY 11252-6700

CENAD-PD-P (1105-2-10c)

9 Apr 2024

MEMORANDUM FOR Commander, U.S. Army Corps of Engineers, New York District,  
26 Federal Plaza New York, NY 10278-0090

SUBJECT: Request for Approval of the Hoosic River, MA Flood Risk Management (FRM)  
Feasibility Study Review Plan

1. Reference Memorandum, CENAN-PP-C, dated 30 January 2024, subject as above.
2. The Flood Risk Management Planning Center of Expertise of the South Pacific Division (SPD) is the lead office to execute the referenced Review Plan. The Review Plan includes Independent External Peer Review.
3. The enclosed Review Plan is approved for execution and is subject to change as study circumstances require, consistent with study development under the Project Delivery Business Process. Subsequent revisions to this Review Plan or its execution require new written approval from NAD.
4. The point of contact is Mr. Larry Cocchieri, NAD Planning Program Manager at 347-370-4571 or Lawrence.J.Cocchieri@usace.army.mil.

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DEPARTMENT OF THE ARMY  
US ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT  
JACOB JAVITS FEDERAL BUILDING  
26 FEDERAL PLAZA  
NEW YORK, NY 10278-0090

CENAN-PP-C

January 30, 2024

MEMORANDUM FOR COMMANDER, U.S. Army Corps of Engineers North Atlantic Division,  
302 John Warren Avenue, Fort Hamilton Community, Brooklyn, New York 11252 (ATTN:  
Metallo)

SUBJECT: Transmittal of the Review Plan – Hoosic River Flood Risk Management Feasibility  
Study (P2#: 503230)

1. Reference:

- a. Engineer Regulation (ER) 1165-2-217, Civil Works Review Policy, 1 MAY 2021.
2. The New York District (NAN) in collaboration with the Baltimore District (NAB) is requesting review and approval of the enclosed Review Plan (enclosure 1) for the Hoosic River Flood Risk Management Feasibility Study prepared in accordance with ER 1165-2-217 (reference 1a).
3. The Hoosic River FRM Feasibility Study may include life safety concerns from flood risk from existing infrastructure as detailed in the Review Plan. The NAB Chief of Engineering has made a risk-informed determination that this study warrants an Independent External Peer Review (IEPR), which will be conducted after the draft report package is released for concurrent review. This decision is detailed in the Review Plan (enclosure 1).
4. The Review Plan has been coordinated with the Flood Risk Management Planning Center of Expertise (FRM-PCX) as the review management organization and endorsed by the FRM-PCX in the enclosed memorandum (enclosure 2).
5. Please direct any questions or requests for information to Ms. Laura Searles, Lead Planner at (410)-371-2855, [Laura.K.Searles@usace.army.mil](mailto:Laura.K.Searles@usace.army.mil).

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1. Hoosic River FRM,  
Feasibility Study Review Plan
2. FRM-PCX Endorsement Memorandum

ALEXANDER L YOUNG  
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**Review Plan**  
19 March 2024

**1. Project Summary**

**Project Name:** Hoosic River Flood Risk Management (FRM) Feasibility Study

**Location:** North Adams, MA

**P2 Number:** 503230

**Decision and Environmental Compliance Document Type:** Feasibility Report, Environmental Assessment

**Congressional Authorization Required:** Yes

**Project Purpose(s):** Flood Risk Management; Ecosystem Restoration

**Non-Federal Sponsor:** The City of North Adams, Massachusetts

**Points of Public Contact for Questions/Comments on Review Plan:**

**District:** New York District

**District Contact:** Project Manager – 917-790-8030

**Major Subordinate Command (MSC):** North Atlantic Division (NAD)

**MSC Contact:** District Support Team – Civil Works Integration Division – 347-370-4608

**Review Management Organization (RMO):** USACE National Planning Center of Expertise for Flood Risk Management PCX-FRM

**RMO Contact:** Regional FRM Manager – 304-399-5842

**Key Review Plan Dates**

|  |             |
|--|-------------|
| Date of RMO Endorsement of Review Plan             | 19 Jan 2024 |
| Date of MSC Approval of Review Plan                | Pending     |
| Date of IEPR Exclusion Approval                    | N/A         |
| Has the Review Plan changed since RMO Endorsement? | N/A         |
| Date of Last Review Plan Revision                  | None        |
| Date of Review Plan Web Posting                    | TBD         |

**Milestone Schedule and Other Dates**

|   | <b>Scheduled</b> | <b>Actual</b> |
|---|------------------|---------------|
| <b>FCSA Execution</b>                           | 21 AUG 2023      | 21 AUG 2023   |
| <b>Alternatives Milestone</b>                   | 13 DEC 2023      | 13 DEC 2023   |
| <b>Tentatively Selected Plan</b>                | 08 SEP 2025      | TBD           |
| <b>Release Draft Report to Public</b>           | 07 NOV 2025      | TBD           |
| <b>Agency Decision Milestone</b>                | 12 MAR 2026      | TBD           |
| <b>Final Report Transmittal District to MSC</b> | 09 APR 2027      | TBD           |
| <b>State &amp; Agency Briefing</b>              | TBD              | TBD           |
| <b>Chief's Report or Director's Report</b>      | 12 AUG 2027      | TBD           |

## 2. References

Engineer Regulation 1165-2-217 – Water Resources Policies and Authorities – Civil Works Review Policy, 1 May 2021.

Engineer Circular 1105-2-412 – Planning – Assuring Quality of Planning Models, 31 March 2011.

Planning Bulletin 2013-02, Subject: Assuring Quality of Planning Models (EC 1105-2-412), 31 March 2013.

Engineering Pamphlet (EP) 1105-2-61, Planning - Feasibility and Post-Authorization Study Procedures and Report Processing Requirements, 01 July 2023.

Office of Management and Budget, Final Information Quality Bulletin for Peer Review, Federal Register Vol. 70, No. 10, January 14, 2005, pp 2664-267

The online USACE Planning Community Toolbox provides more review reference information at: <https://planning.erdc.dren.mil/toolbox/current.cfm?Title=Peer%20Review&ThisPage=Peer&Side=No>.

## 3. Review Execution Plan

The general plan for executing all required independent reviews is outlined in the following two tables.

Table 1 lists each study product to be reviewed. The table provides the schedules and costs for the anticipated reviews. Teams also determine whether a site visit will be needed to support each review. The decisions about site visits are documented in the table. As the review plan is updated, the team will note each review that has been completed.

Table 2 identifies the specific expertise and role required for the members of each review team. The table identifies the technical disciplines and expertise required for members of review teams. In most cases, the team members will be senior professionals in their respective fields. In general, the technical disciplines identified for a District Quality Control (DQC) team will be needed for an Agency Technical Review (ATR) team. Each ATR team member will be certified to conduct ATR by their community of practice. If Independent External Peer Review (IEPR) is warranted, panel membership will reflect disciplines representing the areas of expertise applicable to the review being conducted. The table is set up to concisely identify common types of expertise that may be applicable to one or more of the reviews needed for a study.

**Table 1: Schedule and Costs of Reviews**

| Product to undergo Review   | Review Level   | Site Visit | Start Date  | End Date    | Cost                   | Complete |
|---|--|------------|-------------|-------------|------------------------|----------|
| Floristic Quality Assessment  | Model Spreadsheet Review                               | Yes        | 19 APR 2024 | 19 MAY 2024 | \$8,000                | No       |
| Brook Trout   | Model Spreadsheet Review                               | Yes        | 19 MAY 2024 | 19 JUN 2024 | \$6,000                | No       |
| Hydrology & Hydraulic Modeling  | Targeted DQC (FWOP)                                    | No         | 18 JUL 2024 | 14 AUG 2024 | \$4,100 <sup>1</sup>   | No       |
| Hydrology & Hydraulic Modeling  | Targeted DQC (FWP)                                     | No         | 03 JAN 2025 | 30 JAN 2025 | \$4,100 <sup>1</sup>   | No       |
| Hydrology & Hydraulic Modeling  | Targeted ATR (FWOP)                                    | No         | 15 AUG 2024 | 18 SEP 2024 | \$10,800 <sup>2</sup>  | No       |
| Hydrology & Hydraulic Modeling  | Targeted ATR (FWP)                                     | No         | 31 JAN 2025 | 06 MAR 2025 | \$10,800 <sup>2</sup>  | No       |
| Economic Modeling   | Targeted DQC   | No         | 11 DEC 2024 | 07 JAN 2025 | \$4,100 <sup>1</sup>   | No       |
| Economic Modeling   | Targeted ATR   | No         | 08 JAN 2025 | 11 FEB 2025 | \$6,300 <sup>2</sup>   | No       |
| Cost Engineering  | Targeted DQC   | No         | 01 JAN 2025 | 31 JAN 2025 | \$4,100 <sup>1</sup>   | No       |
| Cost Engineering  | Targeted ATR   | No         | 03 FEB 2025 | 07 MAR 2025 | \$6,300 <sup>2</sup>   | No       |
| Draft Integrated Feasibility Report (IFR) / Environmental Assessment (EA) or Environmental Impact Statement | DQC  | No         | 18 AUG 2025 | 06 NOV 2025 | \$28,000 <sup>1</sup>  | No       |
| Draft IFR/ EA or EIS  | Public Comment under National Environmental Policy Act | No         | 07 NOV 2025 | 08 DEC 2025 | N/A                    | No       |
| Draft IFR/ EA or EIS  | ATR  | No         | 07 NOV 2025 | 16 JAN 2026 | \$75,600 <sup>2</sup>  | No       |
| Draft IFR/ EA or EIS  | IEPR   | No         | 07 NOV 2025 | 20 FEB 2026 | \$230,000 <sup>3</sup> | No       |
| Draft IFR/ EA or EIS  | Policy and Legal Compliance Review                     | No         | 07 NOV 2025 | 16 JAN 2026 | N/A                    | No       |
| Final IFR / EA or EIS   | DQC  | N/A        | 09 SEP 2026 | 07 JAN 2027 | \$22,400 <sup>1</sup>  | No       |

| Product to undergo Review   | Review Level  | Site Visit | Start Date  | End Date    | Cost                  | Complete |
|---|---|------------|-------------|-------------|-----------------------|----------|
| Final IFR/ EA or EIS  | ATR   | N/A        | 08 JAN 2027 | 18 MAR 2027 | \$44,100 <sup>2</sup> | No       |
| Final IFR/ EA or EIS  | Policy and Legal Compliance Review  | N/A        | 13 APR 2027 | 03 MAY 2027 | N/A                   | No       |
| Final IFR / EA or EIS   | Release Final Report under National Environmental Policy Act  | Yes        | TBD         | TBD         | N/A                   | No       |
| Review Management Organization – Coordination and Participation (Primary)   | An RMO will participate in most key meetings including In-Progress Reviews, Issue Resolution Meetings and SMART Milestone Meetings            | No         | N/A         | N/A         | \$6,000               | No       |
| Review Management Organization – Coordination and Participation (Secondary) | The Secondary RMO will participate in most key meetings including In-Progress Reviews, Issue Resolution Meetings and SMART Milestone Meetings | No         | N/A         | N/A         | \$3,000               | No       |

**Table 2: Review Teams - Disciplines and Expertise**

| Discipline / Role                   | Expertise  | DQC | ATR | IEPR |
|-------------------------------------|--|-----|-----|------|
| DQC Team Lead                       | Extensive experience preparing Civil Works decision documents and leading DQC. The lead may serve as a DQC reviewer for a specific discipline (planning, economics, environmental, etc.).  | Yes | No  | No   |
| ATR Team Lead                       | Professional with extensive experience preparing Civil Works decision documents and conducting ATR. Skills to manage a virtual team through an ATR. The lead may serve on the ATR team for a specific discipline (such as planning, economics, or environmental work).   | No  | Yes | No   |
| IEPR Manager                        | Planner with extensive knowledge of IEPR policy and procedures and contract management and oversight skills.   | No  | No  | Yes  |
| Planning                            | The Planning reviewer must be a senior water resources planner with experience in flood risk management projects, SMART planning principles, complex planning investigations, water resources and watershed planning and have experience relevant to issues to be determined throughout the course of the study.   | Yes | Yes | Yes  |
| Economics                           | Experience with applying theory, methods and tools used in the economic evaluation of water resources projects, including assessment economic damages and life loss.   | Yes | Yes | Yes  |
| Environmental Resources             | Experience with environmental evaluation and compliance requirements, national environmental laws and statutes, applicable Executive Orders, and other planning requirements.  | Yes | Yes | Yes  |
| Cultural Resources                  | Experience with cultural resource survey methods, area of potential effects, National Historic Preservation Act Section 106, and state and Federal laws pertaining to American Indian Tribes.  | Yes | Yes | No   |
| Hydrology and Hydraulic Engineering | Engineer with experience applying hydrologic and hydraulic engineering principles and technical tools to project planning, design, construction, and operation. Reviewer must be an expert in the field of hydrology and hydraulics, have a thorough understanding of open channel systems, the effects of management practices and low impact development on hydrology, the use of non-structural systems as they apply to flood proofing, warning systems, and evacuation, and the use of HEC computer modeling systems.   | Yes | Yes | Yes  |
| Geotechnical Engineering            | The panel member should be a senior-level geotechnical engineer with experience in the field of geotechnical engineering, analysis, design, and construction of flood walls, concrete chutes, embankment/concrete dams and levees. The Panel Member should have knowledge and experience in the investigation and evaluation of seepage and piping, settlement, slope stability, and flood wall design. The Panel Member should have experience in failure mode analysis, risk assessment of embankment/concrete dams and levees, and evaluating risk reduction measures for flood risk management projects. | Yes | Yes | Yes  |
| Cost Engineering                    | Experience using cost estimation software; working knowledge of water resource project construction; capable of making professional determinations using experience.   | Yes | Yes | No   |

| Discipline / Role                    | Expertise   | DQC | ATR | IEPR |
|--------------------------------------|---|-----|-----|------|
| Civil Engineering                    | The Civil Engineering reviewer should be an expert in the field of civil engineering, especially in review of flood risk management studies. Reviewer will have experience reviewing Life Safety Risks.   | Yes | Yes | Yes  |
| Levee Safety                         | Experience with levee safety with additional experience preferred for modifications to existing levee structures.   | Yes | Yes | Yes  |
| Civil – Structural Engineering       | Experience with structural engineering methods. Reviewer must be familiar with structural analysis of solutions for flood risk management including levees, floodwalls, flood chutes, levee setbacks, and dam modification.   | Yes | Yes | No   |
| Real Estate                          | Experience developing Real Estate Plans and experience in real estate fee/easement acquisition and residential/business relocations for Federal and/or Federally Assisted Programs for implementation of Civil Works projects.  | Yes | Yes | No   |
| Climate Preparedness and Resilience* | A member of the Climate Preparedness and Resiliency Community of Practice knowledgeable of inland hydrology climate change assessment policy and practice.  | Yes | Yes | No   |
| Hazardous, Toxic, Radioactive Wastes | Experience in HTRW evaluation and USACE requirements for HTRW sites in accordance with applicable environmental laws.   | Yes | Yes | No   |
| Risk and Uncertainty                 | For decision documents involving hydrologic, hydraulic, and/or flood risk related risk management measures, include on the ATR team an expert on multi-discipline flood risk analysis to ensure consistent and appropriate identification, analysis, and written communication of risk and uncertainty. | Yes | Yes | No   |

\* If a qualified individual is identified, this discipline may be combined with another relevant discipline.



#### 4. Documentation of Reviews

**Documentation of DQC.** Quality Control will be performed continuously. A specific certification of DQC completion will be prepared at the base conditions (existing and future), draft and final report stages. Documentation of DQC will follow the District Quality Manual and the MSC Quality Management Plan. DrChecks will be used for documentation of DQC comments. An example DQC Certification statement is provided in ER 1165-2-217, Appendix D. Documentation of completed DQC, to include the DQC checklist, will be provided to the MSC, RMO and the ATR Team leader. The ATR team will examine DQC records and comment in the ATR report on the adequacy of the DQC effort.

**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. All members of the ATR team will use the four-part comment structure (see ER 1165-2-217, Section 5).

- The review concern – identify the product’s information deficiency or incorrect application of policy, guidance, or procedures;
- The basis for the concern – cite the appropriate law, policy, guidance, or procedure that has not been properly followed;
- The significance of the concern – indicate the importance of the concern with regard to its potential impact on the plan selection, recommended plan components, efficiency (cost), effectiveness (function/outputs), implementation responsibilities, safety, Federal interest, or public acceptability; and
- The probable specific action needed to resolve the concern – identify the action(s) that the reporting officers must take to resolve the concern.

In some situations, especially addressing incomplete or unclear information, comments may seek clarification in order to then assess whether further specific concerns may exist.

The ATR documentation in DrChecks will include the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any discussion, including any vertical team coordination (the vertical team includes the Districts, RMO, MSC, and HQUSACE), and the agreed upon resolution. If a concern cannot be resolved by the ATR team and PDT, it will be elevated to the vertical team to resolve using the issue resolution process in ER 1165-2-217, Section 5.9. Unresolved concerns will be closed in DrChecks by noting the concern has been elevated. ATR documentation will include an assessment by the ATR team of the effectiveness of DQC. The ATR Lead will prepare a Statement of Technical Review (see ER 1165-2-217, Section 5.11, and Appendix D), for the draft and final reports, certifying that review issues have been resolved or elevated. ATR will be certified when all concerns are resolved or referred to the vertical team and the ATR documentation is complete.

At the conclusion of each ATR effort, the ATR team will prepare a Review Report summarizing the review. Review Reports will be considered an integral part of the ATR documentation and shall:

- Identify the document(s) reviewed and the purpose of the review;

- Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- Include the charge to the reviewers;
- Describe the nature of their review and their findings and conclusions;
- Identify and summarize each unresolved issue (if any); and
- Include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

ATR may be certified when all ATR concerns are either resolved or referred to the vertical team for resolution and the ATR documentation is complete. The ATR Lead will prepare a Statement of Technical Review certifying that the issues raised by the ATR team have been resolved (or elevated to the vertical team). A Statement of Technical Review should be completed, based on work reviewed to date, for the draft report, and final report.

**Documentation of IEPR.** The Outside Eligible Organization (OEO) will submit a final Review Report no later than 60 days after the end of the draft report public comment period. USACE shall consider all recommendations in the final Review Report and prepare a written response for all recommendations. The final decision document will summarize the Review Report and USACE response and will be posted on the internet. The IEPR panel will be selected and managed by an OEO per EC 1165-2-209, Appendix D. Panel comments will be compiled by the OEO and should address the adequacy and acceptability of the economic, engineering and environmental methods, models, and analyses used. IEPR comments should generally include the same four key parts as described for ATR comments in Section 4.d above. The OEO will prepare a final Review Report that will accompany the publication of the final decision document and shall:

- Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- Include the charge to the reviewers;
- Describe the nature of their review and their findings and conclusions; and
- Include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

**Documentation of Model Review.** Planning models require compliance with EC 1105-2-412. Models developed by the Corps of Engineers are certified and models developed by others are approved. Certifications or approvals may be specific to a single study, a regional application or for nationwide application. Completion of a model review is documented in a memorandum from the Director of a Planning Center of Expertise and should accompany reporting packages for study decisions.

## 5. Supporting Information

## Study or Project Background

### Study Authority

The Hoosic River Study was authorized in a resolution of the Committee on Transportation and Infrastructure of the U.S. House of Representatives on 2 Dec 2010, House Docket 2828, House Document 182.

The resolution states:

*Resolved by the Committee on Transportation and Infrastructure of the United States House of Representatives that the Secretary of the Army review the report on the Hoosic River Basin at North Adams in Massachusetts, Bennington in Vermont and Hoosick Falls in New York authorized in House Document 182, Seventy-sixth Congress, First Session, as well as other pertinent reports, to determine whether modifications of the recommendations therein are advisable in the interest of environmental restoration, streambank stabilization, flood risk management, watershed management, floodplain management, and other allied purposes in the Hoosic River Watershed, Massachusetts, Vermont and New York.*

Additional study authorization is authorized by the resolution adopted in the Water Resources Development Act (WRDA) 2020, §§(a)(2) [Public Law §204(a)(2)(L)]:

*A feasibility study for a project for flood risk management, Hoosic River, Massachusetts.*

### Feasibility Cost Sharing Agreement with the Non-Federal Sponsor

A Feasibility Cost Sharing Agreement (FCSA) was executed between USACE/New York District and the non-Federal sponsor, City of North Adams, on 21 August 2023. As per Article 1.a of the FCSA, the parties agree to work together to identify:

*...a coordinated and implementable flood risk management solution to alleviate environmental degradation problems along the Hoosic River and examine legacy project modifications for improvements to the environment. The study will determine if there is a technically feasible, economically justified and environmentally compliant recommendation for Federal participation in the flood risk management, ecosystem restoration, infrastructure, recreation, and natural resource management challenges in and along the Hoosic River in North Adams, MA.*

### Study or Project Area

The study area for this interim response to the study authority is the Hoosic River within the boundaries of North Adams, Massachusetts. The Hoosic River is a 73.6 mile-long tributary of the Hudson River. Within the borders of North Adams, MA, the study area includes approximately 6 miles of the Hoosic River from the North Branch where it enters North Adams, MA to the east part of town along the Main Branch where it exits North Adams (NB-2, NB-3, MB-1, MB-2, and MB-3). Additionally, the study area will include approximately 3.5 miles of the South Branch of the Hoosic River from where it enters North Adams to where it joins the North Branch into the Main Branch (SB-3 and SB-4). This area includes historical downtown North Adams, MA, and agricultural, industrial, recreational, and residential areas within the boundaries shown in Figure 1. This area also includes a concrete channel that flows through downtown North Adams. MB-4, NB-1, SB-1, and

SB-2 are located outside of the footprint of North Adams and will only be modeled and formulated for items that impact the areas within North Adams.

### Study or Project Area Map

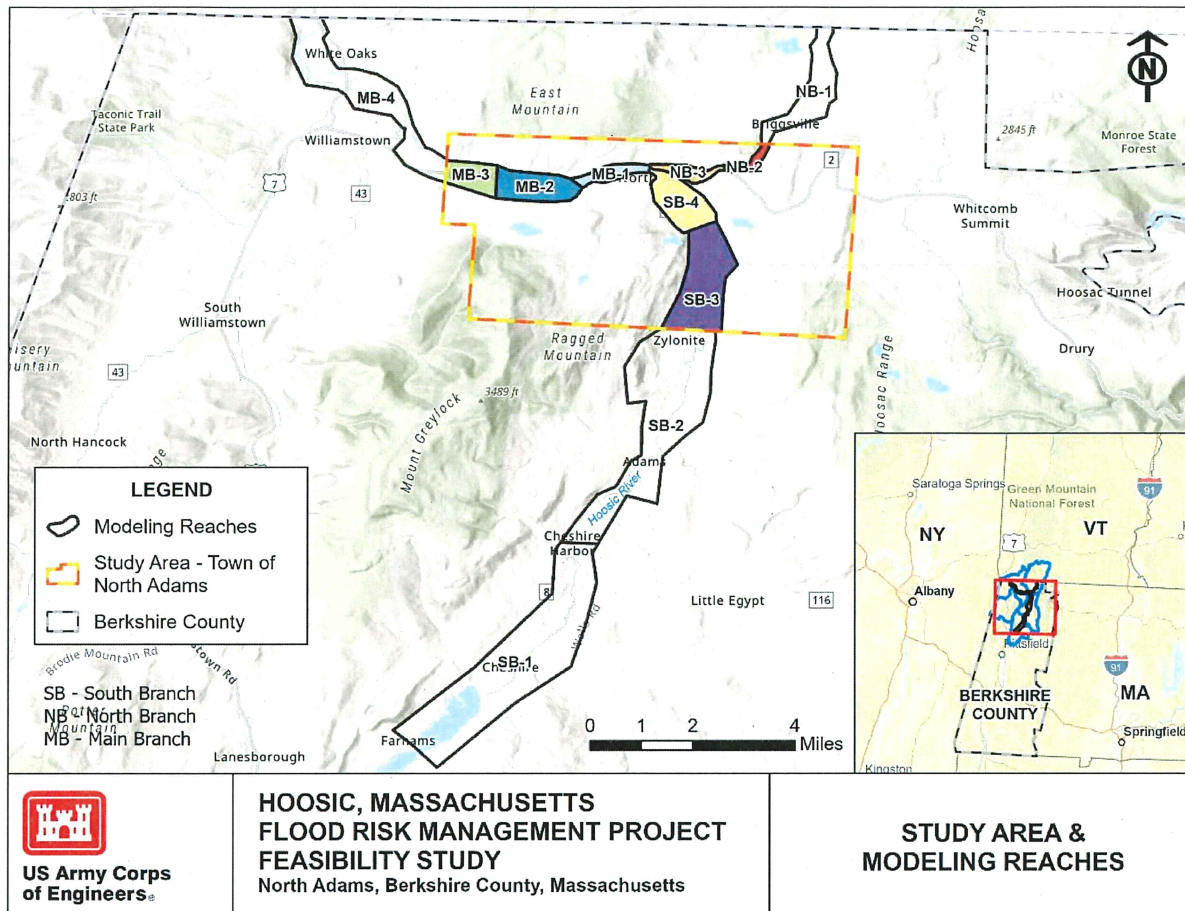


Figure 1 – Study Area Map

### Problem Statement

Before the installation of the Federal floodwalls and levees, North Adams, MA experienced multiple devastating flood events including the “Great Hurricane of 1938” where 2 deaths were reported and multiple injuries. During a flood in 1948, severe damages were seen throughout North Adams. With the help of the Federal government, the City of North Adams installed multiple levees and floodwalls including a concrete chute to help reduce flood risk throughout the City. This system has been in place since 1961 and has served as sufficient flood risk management up to and through Hurricane Irene in 2011. Since 2013, several floodwall panels have fallen and deterioration has been noted by the City, which poses a risk to the future performance of the system. While no deaths have been documented in North Adams within the last 50 years due to flooding, portions of the population are exposed to flood risks from the Hoosic River if the deteriorating system were to fail. Flooding from the Hoosic River could also impact the sizeable Environmental Justice communities located in North Adams (66% of the population). The existing Federal flood control projects are still performing their

intended use but are creating potential hazards for the City's residents, infrastructure and property due to their age. Additionally, the majority of the study area is not connected to the surrounding floodplain and the Federal projects have contributed to a loss of habitat for native species.

### **Problems**

- Flooding from the Hoosic River poses risks to people and property in North Adams, MA.
- The concrete chute system is at the end of its life, has a documented history of construction deficiencies, and is deteriorating in multiple locations along the channel.
- Loss of habitat to support aquatic resources including native brook trout in channelized portions of the river. The concrete channel may have contributed to conditions unsuitable for the perpetuation of wild trout populations.
- There are multiple dams along the Hoosic River that block fish passage up and downstream, including a 51.5-foot-high dam installed in 1960.
- The majority of the site is not connected to the surrounding floodplain, reducing the availability of natural flood storage and riparian/aquatic habitat.
- Economically disadvantaged communities within and surrounding the study area are more vulnerable during and after a flood event because they may lack resources to prepare for or evacuate during a flood.

### **Opportunities**

Within North Adams, there are **opportunities** to...

- Reduce the risk of flooding from the Hoosic River in economically disadvantaged communities in North Adams, MA.
- Establish habitat for cold and warm water fishes including native brook trout.
- Enhance access to the river by providing passive recreational opportunities such as hiking trails along the sides of the river system.
- Reintroduce habitat and benthic environments to the Hoosic River by creating a more naturalized riverbed.
- Reconnect portions of the Hoosic River to its floodplain.
- Maintain the current level of flood risk management while restoring aquatic ecosystem.

### **Goals, Objectives, and Constraints**

Goals:

- Minimize loss of human life and damage to property due to flooding from the Hoosic River in Massachusetts.
- Minimize the burden on disadvantaged communities by providing safe and reliable flood protection infrastructure.
- Minimize loss of human life and property due to the impairment or loss of the concrete levee system within the Hoosic River.
- Minimize impacts from climate change in North Adams, MA such as increased flooding due to changes in water elevations and rainfall.
- Improve flood resilience and recovery systems within North Adams, MA.
- Restore natural stream conditions along the channel bottom and sides to restore habitat for trout and aquatic macro-invertebrates. Remove existing dams that currently block fish passage to restore the trout fishery and spawning habitat in the affected downstream area.

Reduce overall water temperatures in the location of the concrete channel to restore the trout fishery and spawning habitat within and downstream of the FRM project. Improve public access to the river and create a functional and visually pleasing open space amenity.

#### Objectives:

Objectives to be achieved over a 50-year period of analysis from 2030 to 2080 for this study include opportunities to:

1. Reduce risks to life, health, safety, and property associated with riverine flooding from the Hoosic River in North Adams, MA.
2. Reduce risks of failure within the FRM USACE-constructed system in North Adams, MA.
3. Improve community resiliency.
4. Reduce the risk of flooding from the Hoosic River in economically disadvantaged communities and historic properties in North Adams, MA.
5. Increase the quantity or quality of riverine habitat within North Adams, MA to benefit native fish and wildlife resources.

#### Constraints:

- Avoid decreasing the existing level of protection to the community.
- Avoid increasing flood risk in any areas adjacent to the project area without mitigation.
- Avoid impacts to economically disadvantaged communities and socially vulnerable populations in the study area from proposed FRM features.

### **Future Without Project Conditions**

The City of North Adams, MA is experiencing deterioration of the existing concrete levee system and several floodwall sections have collapsed. If this project does not occur, further deterioration of the system will continue and could potentially cause flooding within the City. The City's resiliency to climate change would remain the same and the Federal project would continue to negatively impact the river water temperature. The City will collect data on current stormwater conditions to alleviate flooding due to aging infrastructure within North Adams.

### **Types of Measures/Alternatives Being Considered**

This study will develop a comprehensive plan to address multiple purposes including flood risk management and ecosystem restoration. An array of structural and non-structural alternatives will be formulated for the flood risk management and ecosystem restoration objectives. Alternatives may include measures such as levees and floodwalls, channel modification, nature-based features, and elevation of structures. Ecosystem restoration features to be evaluated may include restoration of riverine habitat. The initial array of alternatives is below.



**Table 3: Initial Array of Alternatives**

| <b>Alternative</b>    | <b>Alternative Description</b>  |
|-----------------------|---|
| <b>Alternative 0</b>  | No Action   |
| <b>Alternative 1A</b> | Concrete Chute Rehabilitation in Downtown North Adams   |
| <b>Alternative 1B</b> | Comprehensive System Rehabilitation in Downtown North Adams   |
| <b>Alternative 2</b>  | Comprehensive System Rehabilitation and Aquatic Ecosystem Restoration   |
| <b>Alternative 3A</b> | Comprehensive System Rehabilitation, Levee Setbacks, Channel Modification<br>Concrete Low-Flow Channel, and Ecosystem Restoration |
| <b>Alternative 3B</b> | Comprehensive System Rehabilitation, Levee Setbacks, Channel Modification<br>Naturalized Channel, and Ecosystem Restoration       |
| <b>Alternative 4</b>  | Concrete Chute Wall Rehabilitation, Levee Setbacks, Comprehensive Ecosystem<br>Restoration, and Fish Passage Improvements         |
| <b>Alternative 5</b>  | Hoosic River Renewal Concept – Concrete Chute Rehabilitation, Levee Setbacks,<br>Floodplain Restoration, and River Access Trails  |
| <b>Alternative 6</b>  | Comprehensive Concrete Chute Rehabilitation; Diversion Tunnel in Downtown<br>North Adams  |
| <b>Alternative 7</b>  | Offline Storage at Adams Mine with Diversion Structures for High-Flow Events  |
| <b>Alternative 8</b>  | Comprehensive System Rehabilitation and Nonstructural Measures Plan   |

### Estimated Cost/Range of Costs

Costs of the alternatives range from \$4.7 million to \$812.8 million using a Level 5 Cost Estimate as seen in the estimate table below.

**Table 4: Focused Array of Alternatives**

| Alternative    | Alternative Description  | Level 5 Cost Estimate | Range (-20% to +50%) |
|----------------|--|-----------------------|----------------------|
| Alternative 0  | No Action  | \$0                   | \$0                  |
| Alternative 1A | Concrete Chute Rehabilitation in Downtown North Adams  | \$5.9M                | \$4.7M to \$8.8M     |
| Alternative 1B | Comprehensive System Rehabilitation in Downtown North Adams  | \$231.6M              | \$185.3M to \$347.4M |
| Alternative 2  | Comprehensive System Rehabilitation and Aquatic Ecosystem Restoration  | \$397.4M              | \$317.9M to \$596.1M |
| Alternative 3A | Comprehensive System Rehabilitation, Levee Setbacks, Channel Modification Concrete Low-Flow Channel, and Ecosystem Restoration | \$491.6M              | \$393.3M to \$737.4M |
| Alternative 3B | Comprehensive System Rehabilitation, Levee Setbacks, Channel Modification Naturalized Channel, and Ecosystem Restoration       | \$447.2M              | \$357.8M to \$670.9M |
| Alternative 4  | Concrete Chute Wall Rehabilitation, Levee Setbacks, Comprehensive Ecosystem Restoration, and Fish Passage Improvements         | \$560.8M              | \$448.6M to \$841.2M |
| Alternative 5  | Hoosic River Renewal Concept – Concrete Chute Rehabilitation, Levee Setbacks, Floodplain Restoration, and River Access Trails  | \$499.0M              | \$399.2M to \$748.4M |
| Alternative 6  | Comprehensive Concrete Chute Rehabilitation; Diversion Tunnel in Downtown North Adams  | \$244.2M              | \$195.3M to \$366.2M |
| Alternative 7  | Offline Storage at Adams Mine with Diversion Structures for High-Flow Events   | \$222.4M              | \$177.9M to \$333.6M |
| Alternative 8  | Comprehensive System Rehabilitation and Nonstructural Measures Plan  | TBD                   | TBD                  |



## **6. Models to be Used in the Study**

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 following planning models may be used to develop the decision document:

**Table 5: Planning Models.**

| <b>Model Name and Version</b>                                       | <b>Brief Model Description and How It Will Be Used in the Study</b>   | <b>Certification / Approval</b>   |
|---|---|---|
| Hydrologic Engineering Center - Flood Damage Analysis (HEC-FDA) 2.0 | 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 in Green Brook Upper Basin and to aid in the selection of a recommended plan to manage flood risk.  | Certified   |
| RECONS  | Regional Economic System (RECONS) is an economic model, designed to provide accurate and defensible estimates of regional economic impacts and contributions associated with USACE projects, programs, and infrastructure.  | Certified   |
| TotalRisk 1.0   | TotalRisk is a flexible, and scalable, risk analysis program that connects the components of flood risk analysis: hazard, response and consequences. TotalRisk natively interacts with LifeSim v2.0 to estimate life risk.  | Certification Pending, anticipated in the 1 <sup>st</sup> quarter of FY24 |
| LifeSim   | LifeSim program is an agent-based estimation software that simulates population distribution during a flood to estimate life loss and direct damages. LifeSim may be used to estimate life loss during a flood event.   | Certified   |
| IWR Planning Suite II Version 2.0.9                                 | The IWR Planning Suite II supports formulation, evaluation, and comparison of study alternatives involving non-monetary costs and benefits. It automates computations associated with the Cost Effectiveness and Incremental Cost Analyses (CEICA) and facilitates its documentation.   | Certified   |
| Brook Trout Habitat Suitability Index (Sept. 1982 and 1986)         | Index-Based models for determining habitat suitability for Brook Trout.   | Approved for Regional Use*  |
| Floristic Quality Assessment  | Provides a standardized method of rapidly assessing the condition of a vegetated area based on the plant species that are present. FQA works by assigning each plant species a value from 0 to 10. This value is called a Coefficient of Conservatism, or C Value. Values of 0 indicate species that are highly tolerant of human activities and have general environmental needs, while higher values represent higher fidelity to a specific habitat and low tolerance to anthropogenic disturbances. Common floristic quality metrics include Mean C (the mean of C Values for all | Approved for Regional Use*  |

|  |   |  |
|--|---|--|
|  | species present in an inventory or along a transect) and the Floristic Quality Index (FQI), the Mean C multiplied by the square root of the total number of species). |  |
|--|---|--|

\*Spreadsheet approval anticipated 19 May 2024 for FQA and 19 June 2024 for Brook Trout HSI.

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. For example, HH&C models need to comply with the requirements of HH&C CoP Enterprise Standard 08101.

These engineering models may be used to develop the decision document:

**Table 6: Engineering Models.**

| <b>Model Name and Version</b> | <b>Brief Model Description and How It Will Be Used in the Study</b>  | <b>Approval Status</b> |
|-------------------------------|--|------------------------|
| HEC-SSP                       | HEC-SSP software allows users to perform statistical analyses of hydrologic data (Flow frequency analysis);  | Approved               |
| HEC-HMS                       | HEC-HMS is designed to simulate the complete hydrologic processes of dendritic watershed systems (Hydrograph creation)   | Approved               |
| HEC-RAS (6.4.1)               | HEC-RAS allows the user to perform one-dimensional steady flow, one and two-dimensional unsteady flow calculations, sediment transport/mobile bed computations, and water temperature/water quality modeling | Approved               |
| GeoStudio                     | Geotechnical model used to perform analysis of bearing, settlement, seepage analysis, and stability for slopes, walls, and foundations.  | Approved               |

## 7. Factors Affecting Level and Scope of Review

All planning products are subject to the conduct and completion of District Quality Control. Most planning products are subject to Agency Technical Review and a smaller sub-set of products may be subject to Independent External Peer Review and/or Safety Assurance Review. Information in this section helps in the scoping of reviews through the considerations of various potential risks.

### Objectives of the Reviews

#### DISTRICT QUALITY CONTROL (DQC)

The home district will manage DQC and will appoint a DQC Lead to manage the local review (see ER 1165-2-217, Chapter 4). The DQC Team members should not be involved in the production of any of the products reviewed.

## AGENCY TECHNICAL REVIEW (ATR)

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 will manage the ATR. The ATR will be performed by a team whose members are certified to perform reviews. Lists of certified reviewers are maintained by the various technical Communities of Practice (see ER 1165-2-217, Chapter 5.5.3).

## POLICY AND LEGAL COMPLIANCE REVIEW

The objective of this review is to ensure the supporting analyses and coordination comply with law and policy and warrant approval or further recommendation to higher authority by the home MSC Commander.

## INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

IEPR is managed outside of the USACE and conducted on studies. The IEPR panel will 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.

### Assessing the Need for IEPR

#### Mandatory IEPR Triggers

- Has the Chief of Engineers determined the project is controversial? **No, the Chief of Engineers has not determined that the 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.**
- Has the Governor of an affected state requested an IEPR? **No, the Governor of Massachusetts has not requested a peer review by independent experts.**
- Is the cost of the project more than \$200 million? **Yes. Nearly all alternatives are more than \$200M.**

#### Discretionary IEPR

- Has the head of another Federal agency requested an IEPR? **No.**

### Assessing Other Risk Considerations

- Will the study likely be challenging? If so, describe how?
  - This study is likely to be slightly challenging from a Hydraulic and Hydrological Engineering (H&H) and Real Estate (RE) perspective.
    - At this stage, there is a lack of accurate flood inundation mapping data for the North Branch and a portion of the South Branch which does not allow the PDT to portray an accurate representation for structural and nonstructural opportunities for the Alternatives Milestone. The PDT is utilizing currently existing data to including USGS data for the Main Branch, but is still missing portions of the study area. Therefore, the PDT will need to develop a new

model for the Hoosic River within North Adams, incorporating existing data, which will take additional time and effort.

- The PDT is currently proposing levee and floodwall setbacks as one of the alternatives, which could require significant efforts from Real Estate. Additionally, since the majority of the City sits adjacent to the Hoosic River, real estate could have issues obtaining land or easements from landowners.
- Provide a preliminary assessment of where the project risks are likely to occur and assess the magnitude of those risks.
  - The highest risk to the cost estimate of this project is the required amount of engineering analysis needed to reach a feasibility level of design up to and past the Tentatively Selected Plan (TSP). In developing their cost estimates, the PDT assumed the need for engineering analysis of 3 of the moderately complicated alternatives leading up to the TSP and one alternative moving past the TSP. The PDT identified complicating factors for this site including existing infrastructure, lack of available data for the North Branch and parts of the South Branch of the Hoosic River, and lack of useable geotechnical data to determine the existing conditions of the floodwall and levee systems. The PDT determined that additional funding would be needed to accomplish the tasks and provide a feasibility level design. To reduce the risk to the project, additional funding (\$1.3M) was added to the project budget for geotechnical drilling and borings, H&H modeling, the 4-year extended schedule, and other complicating factors outlined in the VTAM.
  - One of the highest risks to the schedule of this project is the lack of recent USACE flood inundation mapping. The study may need additional time outside of the 3x3 schedule to prepare H&H modeling and a 4-year schedule will be requested through an Additional Resource Request.
  - Encountering HTRW within the project area is a high risk due to the current concrete channel system abutting historic properties where manufacturing and milling occurred.
  - Within the local project, there is a risk that deterioration is worse than we thought and depending on which alternatives move forward, there may be additional costs based on the level of deterioration.
  - If excavation is required based on the selected alternative within the concrete system, bedrock may be encountered which could increase the cost and decrease the benefit-cost ratio to perform rock excavation.
- Is the project likely to be justified by life safety or is the study or project likely to involve significant life safety issues? Briefly describe the life risk, including the District Chief of Engineering's assessment as to whether there is a significant threat to human life associated with aspects of the study or failure of the project or proposed projects.
  - Before the installation of the Federal floodwalls and levees, North Adams, MA experienced multiple devastating flood events including the "Great Hurricane of 1938" where 2 deaths were reported and multiple injuries. During a flood in 1948, damages were seen throughout North Adams and the Federal government, at the request of the City, installed floodwalls and levees to mitigate flood risk within the City. This system has been in place since 1961 and has served as sufficient flood risk management up to and through Hurricane Irene in 2011. Since 2013, several floodwall panels have fallen and deterioration has been noted by the City, which poses a risk to

the future performance of the system. While no deaths have been documented in North Adams within the last 50 years due to flooding, portions of the population are exposed to flood risks from the Hoosic River if the deteriorating system were to fail. Additionally, the City of North Adams's population contains significant and sizeable Environmental Justice communities (66% of the population).

- 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? If so, how?
  - It is unlikely that information in the decision document or proposed project design will be based on novel methods, involve the use of 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.
- Does the project design require redundancy, resiliency, and/or robustness, unique construction sequencing, or a reduced or overlapping design/construction schedule? If so, how?
  - Due to the work that may be required in the Federal flood chute and other existing floodwalls and levees, it is likely that the project design would require redundancy and/or resiliency. More specifically, the proposed project design would need to factor in the existing alignment and conditions of the flood chutes, levees, and floodwalls during construction in order to maintain the same level of protection for the community. Due to the amount of water flowing through the system, the construction schedule will likely be positioned to avoid construction during high-flow seasons. However, unique construction sequencing and a reduced or overlapping design/construction schedule is not expected for this project.
- Is the project expected to have more than negligible adverse impacts on scarce or unique tribal, cultural, or historic resources? If so, what are the anticipated impacts?
  - Specific project impacts and effects are unknown at this time. The PDT is currently investigating adverse impacts on scarce, unique, tribal, cultural and historic resources. The study area does contain historic resources, but specific impacts and effects are being identified.
- Is the project expected to have substantial adverse impacts on fish and wildlife species and their habitat prior to the implementation of mitigation measures? If so, describe the impacts?
  - The PDT does not expect significant adverse effects to fish and wildlife or their habitat from the study alternatives.
- 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? If so, what are the anticipated impacts?
  - Northern long-eared bat hibernaculum is documented in the southern portion of the study area. The Hoosic River south branch is about 475 feet east of the ¼ mile buffer zone for northern long-eared bat hibernaculum. There is potential for minor impacts (noise disturbance) to the northern long-eared bat if the project occurred in this area.

## 8. Risk Informed Decisions on Level and Scope of Review

**Targeted ATR.** Will a targeted ATR be conducted for the study? **Yes.**

The intended target of the review is a new HEC-RAS model for the Hoosic River within North Adams, MA since there is currently a lack of reliable data on flood inundation extent. By including a Targeted ATR for the future-without-project (FWOP) and future-with-project modeling (FWP), the PDT will have additional feedback from technical experts throughout the model development, thereby creating a better product. Additionally, a targeted ATR will be conducted for the economics appendix which will include a review of the HEC-FDA (FWP and FWOP), HEC-LifeSim, and RECONS models.

**IEPR Decision.** The Baltimore District Chief of Engineering has made a risk-informed recommendation to conduct an IEPR for the feasibility study based on life safety concerns associated with significant modification or rehabilitation of an existing flood risk management project. Modification of the existing channel and levee/floodwall infrastructure would require consideration of the life safety implications of such an action. Additionally, the mandatory trigger for cost may be exceeded since the majority of the alternatives have a cost over \$200 million. This decision is documented in the Risk Informed Decision Memo signed 12 DEC 2023.

**Safety Assurance Review.** Safety Assurance Reviews are managed outside of the USACE and are conducted on design and construction products for hurricane, storm and flood risk management projects, or other projects where existing and potential hazards pose a significant threat to human life. In some cases, significant life safety considerations may be relevant to planning decisions. These cases may warrant the development of relevant charge questions for consideration during reviews such as ATR or IEPR. In addition, if the characteristics of the recommended plan warrant a Safety Assurance Review, a panel will be convened to review the design and construction activities on a regular schedule before construction begins and until construction activities are completed.

**Decision on Safety Assurance Review.** An IEPR is recommended for this project, which may incorporate a safety assurance review. This decision is documented in the Risk Informed Decision Memo as signed on 12 DEC 2023.

## 9. Policy and Legal Compliance Review

Policy and legal compliance review of draft and final planning decision documents is delegated to the MSC (see Director's Policy Memorandum 2019-01).

### (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 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.
- 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.

## **10. Public Comment**

This Review Plan will be posted on the District's website. Public comments on the scope of reviews, technical disciplines involved, schedules and other considerations may be submitted to the District for consideration. If the comments result in a change to the Review Plan, an updated plan will be posted on the District's website.

## **11. Documents Distributed Outside the Government**

For information distributed for review to non-governmental organizations, the following disclaimer shall be placed on documents:

*“This information is distributed solely for the purpose of pre-dissemination review under applicable information quality guidelines. It has not been formally disseminated by USACE. It does not represent and should not be construed to represent any agency determination or policy.”*



## Appendix A - Brief Description of Each Type of Review

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 and accompanying components will undergo DQC. This internal review covers basic science and engineering work products. It fulfills the project quality requirements of the Project Management Plan. The DQC team will read all reports and appendices. The review must evaluate the correct application of methods, validity of assumptions, adequacy of basic data, correctness of calculations (error-free), completeness of documentation, and compliance with guidance and standards. Districts are required to check all computations and graphics by having the reviewer place a highlight (e.g., place a “red dot”) on each annotation and/or number indicating concurrence with the correctness of the information shown.

NAB shall manage DQC but will engage DQC reviewers from New York District whenever possible to ensure the disciplines are aware of the differences in local and regional issues at NAN. Documentation of DQC activities is required and should be in accordance with the Quality Manual of the District and the home MSC.

- Documentation of DQC. DQC will be documented through the use of Dr Checks and a DQC report, which will be signed by all reviewers.
- Products to Undergo DQC. Products that will undergo DQC include all interim products/milestone reports, as well as major technical components to the integrated feasibility study. Additionally, a targeted DQC will be performed for the FWOP and FWP HEC-RAS modeling and Economic modeling.
- Required DQC Expertise. DQC will be performed by Senior Level staff or Subject Matter Experts within each of the Districts (New York and Baltimore).

**Agency Technical Review.** ATR will be 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.

The objective of ATR is to ensure consistency with established criteria, guidance, procedures, and policy. 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 managed within USACE by the designated Review Management Organization (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. ATR teams will be comprised of senior USACE personnel and may be supplemented by outside experts as appropriate. The ATR team lead will be from outside the home MSC.

- Products to Undergo ATR. The products that will undergo ATR include the Draft IFR and NEPA document and report appendices, and the Final Report and NEPA document and appendices. A targeted ATR will be performed for the FWOP and FWP HEC-RAS modeling and Economic modeling.

**Independent External Peer Review.** IEPR is required for this decision document. 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. Certain criteria dictate mandatory performance of IEPR and other considerations may lead to a discretionary decision to perform IEPR. A risk-informed decision, as described in EC 1165-2-209, is made as to whether IEPR is appropriate. For this study, a risk-informed decision has been made that IEPR is appropriate. The information in Section 1 – Factors Affecting the Scope of Review – informed the decision to conduct IEPR. IEPR panels will consist of independent, recognized experts from outside of the USACE in the appropriate disciplines, representing a balance of areas of expertise suitable for the review being conducted.

**Cost Engineering Review.** All decision documents will be coordinated with the Cost Engineering Mandatory Center of Expertise (MCX). The MCX assisted in determining the expertise needed on the ATR and IEPR teams. The MCX will provide the Cost Engineering certification. The RMO is responsible for coordinating with the MCX for the reviews. These reviews occur as part of ATR.

**Model Review and Approval/Certification.** The use of certified or approved planning models for all planning work is required to ensure the models are technically and theoretically sound, compliant with policy, computationally accurate, and based on reasonable assumptions. Engineering models must comply with standards set by the appropriate Engineering Community of Practice. Since there is no approved flood inundation model for the study area, the model will need to be completed and reviewed by a targeted ATR.

**Policy and Legal Compliance Review.** 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.

**Public Review.** The District will post the Review Plan and approval memo on the District's internet site. Public comment on the adequacy of the Review Plans will be accepted and considered. Additional public review will occur when the report and environmental compliance document(s) are released for public and agency comment for a period of 30 days.



DEPARTMENT OF THE ARMY  
U.S. ARMY CORPS OF ENGINEERS  
SOUTH PACIFIC DIVISION  
450 GOLDEN GATE AVENUE  
SAN FRANCISCO CALIFORNIA 94102-3661

CESPD-PDP (FRM-PCX)

19 January 2024

MEMORANDUM FOR Amy Guise, Chief Planning Division, Baltimore District, U.S. Army Corps of Engineers (CENAB-PL)

SUBJECT: FRM-PCX Endorsement of the Review Plan for the Hoosic River, Massachusetts, Flood Risk Management Feasibility Study

1. References:

- a. Engineer Regulation (ER) 1165-2-217, Civil Works Review Policy, 1 May 2021.
- b. CECW-P Memorandum, Subject: Model Coordination for Civil Works Planning Studies, 28 July 2023.

2. The Flood Risk Management Planning Center of Expertise (FRM-PCX) endorses the subject review plan, dated 19 January 2024, for approval by the North Atlantic Division (NAD).

3. The FRM-PCX, as the assigned Review Management Organization (RMO), coordinated with the New York District (NAN) and the Baltimore District (NAB) in the development of the review plan, and reviewed the enclosed plan for compliance with references 1a and 1b. The review was coordinated with the Ecosystem Restoration Planning Center of Expertise (ECO-PCX) because the study purposes include both flood risk management and ecosystem restoration. The FRM-PCX coordination and review were led by Ms. Natalie McKinley, FRM-PCX Regional Manager for the study, with support from Mr. Charles "Chip" Hall, ECO-PCX Account Manager. All review comments have been satisfactorily resolved.

4. The FRM-PCX concurs with the level and scope of review identified and supported in the review plan, including the decision to perform Independent External Peer Review (IEPR). The anticipated total project cost of a recommended plan is anticipated to exceed the mandatory IEPR trigger of \$200 million, with most of the alternative plans exceeding this cost threshold. Additionally, the NAB Chief of Engineering has recommended IEPR be performed based on a risk-informed assessment of the potential for significant threat to human life associated with flooding.

5. The FRM-PCX confirmed the models listed in the review plan are reasonable for use in the study and are all appropriately approved or certified with a few exceptions. TotalRisk is pending FRM-PCX certification. Certification of TotalRisk is anticipated in the 2<sup>nd</sup> quarter of FY24 and no certification issues related to study execution are anticipated. The Floristic Quality Assessment and the Brook Trout Habitat Suitability Index Models are approved for regional use; however, each of these require a model spreadsheet review. The spreadsheet reviews have been coordinated with the ECO-PCX and spreadsheet approval is anticipated for the two models in May and June 2024, respectively.

CESPD-PDP (FRM-PCX)

SUBJECT: FRM-PCX Endorsement of the Review Plan for the Hoosic River, Massachusetts,  
Flood Risk Management Feasibility Study

6. The FRM-PCX confirmed NAN and NAB has prepared model user checklists, enclosed, to address requirements in reference 1.b. Checklists were provided to the FRM-PCX for all proposed models.

7. Please include this memorandum when transmitting the review plan for approval by NAD. Upon approval of the review plan, please provide a copy of the approved plan, a copy of the approval memorandum, and the link to where the plan is posted on the District website to Ms. McKinley.

8. Thank you for the opportunity to assist in the preparation of the review plan. Please coordinate the Agency Technical Review (ATR) and IEPR efforts outlined in the review plan, and any future updates to the plan, with Ms. McKinley.

**Eric Thaut**

Digitally signed by Eric Thaut  
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Encls

ERIC THAUT  
Deputy Director, Flood Risk Management  
Planning Center of Expertise

CF:

CELRH-PMD-F (McKinley)

CEMVP-PDF (Opsahl)

CENAB-PLP (Searles)

CENAN-PP-C (Greenwald)

CELRN-PM-P (Hall)

CEMVD-PD (McCain)

CEMVK-EC-P (Calla)

CELRH-MXG (Robinette)

CENAD-PD-PP (Metallo)