DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
2600 ARMY PENTAGON
WASHINGTON, DC 20310-2600

Proposed Report

DAEN

SUBJECT: Kentucky River, Beattyville, Kentucky, Flood Risk Management

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on flood risk management recommendations for the Kentucky River, Beattyville Flood Risk Management Project, Lee County, Kentucky. It is accompanied by the report of the Louisville District engineer. This study is a final response to the authorization in Section 6 of the Flood Control Act of 1939, Public Law (PL) 76-396. The authorization provided that the Secretary of the Army perform examinations and studies for flood control on the Kentucky River and its Tributaries, Kentucky. Preconstruction engineering and design activities will continue under the study authority.

2. The reporting officers recommend authorizing a risk management system of features that will reduce life and safety risk and the risk of damages to residential and commercial structures within Beattyville, KY. The Recommended Plan is the Total Net Benefits Plan. A National Economic Development (NED) policy exception was approved by the Assistant Secretary of the Army for Civil Works on 23 December 2024 largely based on other social effects. The Recommended Plan includes the following system of nonstructural features:

a. Development of a Flood Warning Emergency Evacuation Plan (FWEEP);

b. Acquisition of 12 structures currently within the floodway and installation of recreation features to support beneficial reuse of the floodway;

c. Wet floodproofing of 30 commercial structures, including 8 structures identified as essential and 22 identified as historic intended to provide flood risk reduction up to 3.6 to 0.7 percent annual exceedance probability event range depending on each structure’s existing first floor elevation;

d. Dry floodproofing of 10 commercial structures, including 8 structures identified as essential and 2 identified as historic intended to provide flood risk reduction up to 5.8 to 1.6 percent annual exceedance probability event range depending on each structure’s existing first floor elevation;

e. Elevation of 1 historic residential structure intended to provide flood risk reduction up to the 1.6 percent annual exceedance probability event.

The FWEEP, recreation features, and floodway acquisitions would be one separable element. The essential structures would be one separable element, and the historic structures would be one separable element.

3. Lee County is the non-federal cost sharing sponsor for all features of the project. In addition to the Recommended Plan, this study acknowledges and relies upon the nonfederal sponsor's additional floodplain management responsibilities and emergency response actions in conjunction with state and Federal Emergency Management Agency (FEMA) related programs to mitigate the plan's residual risk including potential life loss and damages to critical infrastructure. Based on October 2025 price levels, the estimated total project first cost is $33,829,000. The total project first cost includes the value of lands, easements, rights-of-way, relocations (LERR) estimated to be $2,286,000. The Recommended Plan requires 7 fee acquisitions and permanent relocation costs for the floodway buyouts and 10 permanent easement acquisitions for implementation of the FWEEP. The Recommended Plan will require the non-federal sponsor to acquire 41 permanent floodproofing easements after each property owner enters into a participation agreement with the non-federal sponsor; however, no compensation will be paid for these acquired interests. As part of the participation agreements, temporary relocation assistance may be offered. Deed restrictions in the form of restrictive covenants would be used in lieu of a permanent easement for structures owned by the non-federal sponsor identified for floodproofing. Cost sharing is applied in accordance with the provisions of Section 103 of the Water Resources Development Act (WRDA) of 1986 (33 U.S.C. § 2213), as follows:

a. The federal share of the project first cost for initial construction is estimated at $28,706,000 and the non-federal share, which includes the cost of LERR, is estimated at $5,123,000, which equates to 84.9 percent federal and 15.1 percent non-federal. This cost share apportionment is based on an ability-to-pay analysis conducted pursuant to Section 103(m) of WRDA 1986.

b. The additional annual cost of operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) for the Recommended Plan is estimated to be $12,000. OMRR&R activities are considered 'de-minimis', requiring only periodic inspections and monitoring by the non-federal sponsor to ensure compliance with applicable real estate restrictions. Ultimately, each individual property owner will be responsible for maintenance of their elevated or floodproofed structure/home. The NFS will be responsible for 100 percent of the cost of project OMRR&R.

4. Based on a 3.0% discount rate and a 50-year period of analysis, the equivalent average annual benefits are estimated at $792,125 and equivalent average annual costs are estimated at $1,523,831, with equivalent average annual net benefits of

$731,706 and a benefit-to-cost ratio (BCR) of 0.52 to 1. $31,869,000 in project first costs are allocated to the authorized purpose of flood risk management. $1,960,000 in project first cost are allocated to the authorized purpose of recreation.

5. The Recommended Plan represents the Total Net Benefits Plan, providing greater regional economic, other social, and environmental benefits than the NED Plan. The approved NED policy exception extended application of floodproofing and elevation measures to 41 additional essential (16) and historic (25) structures. Inclusion of these additional structures within the Recommended Plan further reduces risks to life and safety and environmental impacts resulting from their direct inundation and further promotes long-term community cohesion beyond the NED Plan. Reducing risks to structures essential for municipal functioning (e.g., police station, health and senior services, grocery store) increases long-term community resilience by decreasing the impact of and time to recover from future flood events. Reducing risks to historic structures helps to preserve historic resources and cultural identity.

6. The study report fully describes flood risk to structures and life safety associated with inland flooding. The Recommended Plan was formulated to reduce the risk of flood damages to residential and commercial structures, including historic structures and structures that provide essential services. The Recommended Plan would greatly reduce, but not eliminate future damages and residual risk would remain. The recommended plan reduces expected annual damages by approximately 24 percent relative to the without project conditions. The residual risk, along with the potential consequences, has been communicated to the NFS and will become a requirement of any communication and evacuation plan.

7. Implementation strategies for the risk management system would be a shared responsibility conducted in coordination with the non-federal sponsor. Separable elements have been identified to aid in efficient and effective implementation:

a. Separable element 1, which includes the FWEEP, floodway acquisitions, and recreation features, will be executed by the U.S. Army Corps of Engineers (USACE) using the traditional federal procurement method. USACE will contract design and construction services. The contractors will be responsible for permits and all construction requirements, while the non-federal sponsor will manage real estate acquisition and utility/facility relocations.

b. Separable elements 2 and 3 include floodproofing of the essential and historic structures, respectively, and will be led by the non-federal sponsor under the authority of Section 204 of the Water Resources Development Act (WRDA) of 1986. This provision allows the non-federal sponsor to manage project execution and request reimbursement for the federal cost share upon completion of approved discrete project segments. A discrete segment is defined as all work needed for completion of floodproofing measures for each individual structure. Before initiating construction of the

project, a separable element, or a discrete segment thereof, the non-federal sponsor must submit design work plans for review and approval by the USACE Louisville District Commander. After construction and inspection of each discrete element, USACE will certify the work and process reimbursements, pending availability of federal funds. A 5% retainage will be held until each separable element is fully complete. Closeout of each discrete element includes documentation, inspection, and insurance certification by property owners.

8. All compliance with required applicable environmental laws and regulations has been completed. The recommended plan will not significantly impact the natural environment and is expected to provide long-term, moderate beneficial impacts to environmental resources.

9. In accordance with USACE policy on the review of decision documents, all technical, engineering, and scientific work underwent an open, dynamic, and rigorous review process. The comprehensive review process included District Quality Control Review, Agency Technical Review, and Headquarters Policy and Legal Compliance review to confirm the planning analyses, alternative design and safety, and the quality of decisions. Washington-level review indicates that the plan recommended by the reporting officers complies with all essential elements of the U.S. Water Resources Council's Economic and Environmental Principles, Requirements, and Guidelines for Water and Land Related Resources Implementation Studies, as well as other administrative and legislative policies and guidelines. The views of interested parties, including federal, state, and local agencies, were considered and all comments from public reviews have been addressed and incorporated into the final report documents where appropriate.

10. USACE decision documents recognize cost risk and uncertainty surrounding implementation. All cost estimates will carry a degree of uncertainty. The estimated total project first cost for the Recommended Plan at the 80% confidence interval is estimated at $33,829,000. This project carries a degree of uncertainty such that if the main drivers described below are realized, the first cost for the Recommended Plan could increase to approximately $39,125,000. The recommended plan has various construction and non-construction components. These components range from 0.2 to 64 percent in project definition. The overall recommended plan is at 35 percent design. Based on the recommended project design of the construction components and scope definition of the non-construction components, the total project cost is designated as a Class 3 estimate. The total project first cost includes a contingency value of $9,020,000, which is approximately 36 percent of the estimated base project cost of $24,809,000. The cost contingencies are intended to cover cost and schedule increases due to the identified project risks and their probability of occurrence.

Changes to assumptions or the basis of design can result in additional risks not currently identified. For the Recommended Plan project first costs, the currently known

major uncertainty drivers are the following: 1) forthcoming guidance could change the anticipated plan proposed during Feasibility which may set back our anticipated completion date for the study; 2) inherent risk of post-award contract changes due to differing conditions, user directed changes, design deficiencies, and/or claims; 3) if the baseline cost or assumption are flawed then there could be cost and/or schedule; 4) variation in major material costs and bid assumptions; 5) ability of the NFS to provide their share of funds and obtain all required real estate interests in a timely fashion as reflected in the project schedule; and 6) any changes to assumptions on productivity, construction sequencing due to funding allocations and future market conditions can affect overall project cost. As the project moves into the next phases, USACE will focus risk management and mitigation on the primary cost and other significant risk drivers to the extent within USACE control. However, there still exists the potential for other unanticipated and uncontrollable changes in environmental or economic conditions that could further increase the total project first cost beyond the current estimate and/or necessitate changes in the project's design.

11. In full consideration of the risks as documented in the preceding paragraphs in this report, I concur in the findings, conclusions, and recommendation of the reporting officers. Accordingly, I recommend that flood risk management improvements for Beattyville, KY be authorized in accordance with the reporting officers' Recommended Plan at an estimated cost of $ 33,829,000 for initial construction, with such modifications as in the discretion of the Chief of Engineers may be advisable. Federal implementation of the project for flood risk management includes, but is not limited to, the following items of local cooperation to be undertaken by the NFS in accordance with applicable federal laws, regulations, and policies:

a. Provide 13.25% of construction costs allocated to nonstructural flood risk management and 50% of construction costs allocated to recreation, as further specified below:

(1) Provide, during design, 16% of design costs, in accordance with the terms of a design agreement entered into prior to commencement of design work for the project;

(2) Provide all lands, easements, rights-of-way, and placement areas and perform all relocations determined by the Federal government to be required for the project;

(3) Provide, during construction, any additional contribution necessary to make its total contribution equal to at least 13.25% of construction costs for nonstructural flood risk management and 50% of construction costs for recreation;

b. Prevent obstructions or encroachments on the project (including prescribing and enforcing regulations to prevent such obstructions or encroachments) that might

reduce the level of flood risk reduction the project affords, hinder operation and maintenance of the project, or interfere with the project's proper function;

c. Keep the recreation features, access roads, parking areas, and other associated public use facilities, open and available to all on equal terms;

d. Inform affected interests, at least yearly, of the extent of risk reduction afforded by the flood risk management features; participate in and comply with applicable Federal floodplain management and flood insurance programs; prepare a floodplain management plan for the project to be implemented not later than one year after completion of construction of the project; and publicize floodplain information in the area concerned and provide this information to zoning and other regulatory agencies for their use in adopting regulations, or taking other actions, to prevent unwise future development and to ensure compatibility with the project;

e. Operate, maintain, repair, rehabilitate, and replace the project or functional portion thereof at no cost to the Federal government, in a manner compatible with the project's authorized purposes and in accordance with applicable Federal laws and regulations and any specific directions prescribed by the Federal government;

f. Give the Federal government a right to enter, at reasonable times and in a reasonable manner, upon property that the NFS owns or controls for access to the project to inspect the project, and, if necessary, to undertake work necessary to the proper functioning of the project for its authorized purpose;

g. Hold and save the Federal government free from all damages arising from design, construction, operation, maintenance, repair, rehabilitation, and replacement of the project, except for damages due to the fault or negligence of the Federal government or its contractors;

h. Perform, or ensure performance of, any investigations for hazardous, toxic, and radioactive wastes (HTRW) that are determined necessary to identify the existence and extent of any HTRW regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. 9601-9675, and any other applicable law, that may exist in, on, or under real property interests that the Federal government determines to be necessary for construction, operation, and maintenance of the project;

i. Agree, as between the Federal government and the non-federal sponsor, to be solely responsible for the performance and costs of cleanup and response of any HTRW regulated under applicable law that are located in, on, or under real property interests required for construction, operation, and maintenance of the project, including the costs of any studies and investigations necessary to determine an appropriate

response to the contamination, without reimbursement or credit by the Federal government;

j. Agree, as between the Federal government and the NFS, that the NFS shall be considered the owner and operator of the project for the purpose of CERCLA liability or other applicable law, and to the maximum extent practicable shall carry out its responsibilities in a manner that will not cause HTRW liability to arise under applicable law; and

k. Comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended, (42 U.S.C. 4630 and 4655) and the Uniform Regulations contained in 49 C.F.R Part 24, in acquiring real property interests necessary for construction, operation, and maintenance of the project including those necessary for relocations, and placement area improvements; and inform all affected persons of applicable benefits, policies, and procedures in connection with said act.

12. The recommendation contained herein reflects the information available at this time and current departmental policies governing formulation of individual projects. It does not reflect program and budgeting priorities inherent in the formulation of a national civil works construction program or the perspective of higher review levels within the Executive Branch. Consequently, the recommendation may be modified before it is transmitted to the Congress as a proposal for authorization and implementation funding. However, prior to transmittal to Congress, the NFS, interested federal agencies, and other parties will be advised of any significant modifications and will be afforded an opportunity to comment further.

WILLIAM H. “BUTCH” GRAHAM, JR.
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