



DEPARTMENT OF THE ARMY  
CHIEF OF ENGINEERS  
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WASHINGTON, D.C. 20310-2600

DAEN

OCT 29 2021

SUBJECT: Valley Creek Flood Risk Management, Bessemer and Birmingham, Alabama

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on flood risk management in the cities of Bessemer and Birmingham, Alabama. It is accompanied by the report of the Kansas City District Commander. This feasibility study was authorized by House Resolution Docket 2477 Village Creek, Jefferson County, Alabama, adopted March 7, 1996 by the Committee on Transportation and Infrastructure, which requested the "review of the report of the Chief of Engineers dated December 23, 1982 on Village Creek, Jefferson County, Alabama and other pertinent reports with a view to determining whether modifications of the recommendations contained therein are advisable at this time, in the interest of environmental quality, water quality, flood damage reduction, and other purposes, including a comprehensive, coordinated watershed master plan for the watersheds in metropolitan Birmingham, Alabama, including Village Creek, Five Mile Creek and Valley Creek." Pre-construction engineering and design (PED), if funded, would continue under the authority cited above.

2. The reporting officers recommend authorizing the National Economic Development (NED) Plan for flood risk management and recreation for the cities of Bessemer and Birmingham, Alabama as well as several surrounding municipalities. The principal features of the plan include:

a. One overbank (off-channel) detention area located adjacent to Valley Creek at river mile 53.37 with a surface area of approximately 9.5 acres and a total storage area of approximately 98 acre-feet for the purpose of reducing peak water surface elevations along Valley Creek;

b. One overbank (off-channel) detention area located adjacent to Valley Creek at river mile 52.62 with a surface area of approximately 19.0 acres and total storage area of approximately 184 acre-feet for the purpose of reducing peak water surface elevations along Valley Creek; and

c. Recreation features consisting of gravel trails around each detention area, approximately 20 benches, and signage.

3. The non-federal sponsor is the City of Bessemer, Alabama. Based on October 2021 price levels, the estimated total first cost of the recommended plan is \$27,311,000 with

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\$27,130,000 for flood risk management measures and \$181,000 for recreation features. In accordance with the cost sharing provisions of Section 103 of the Water Resources Development Act (WRDA) of 1986, as amended (33 U.S.C. §2213), the non-federal sponsor must contribute a minimum of 35 percent of construction costs for flood risk management measure, up to a maximum of 50 percent of construction costs, with a minimum 5 percent cash contribution. The remaining portion of the non-federal share can be provided in lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas (LERRDs); in-kind contributions; cash; or a combination. The federal share of the costs for the flood risk management measures is estimated to be \$17,635,000 and the non-federal share is estimated to be \$9,496,000. The non-federal costs include the value of LERRDs estimated to be \$4,127,000. The costs for recreation features are shared 50 percent federal and 50 percent non-federal. The federal and non-federal shares of the costs for recreation features is estimated to be \$90,500 each. The non-federal sponsor would be responsible for operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of the project at \$52,000 per year, which would include mowing, control of vegetation and burrowing animals, routine inspections, cleaning woody debris and trash from the inlet, outlet and basin, and repair of berm erosion, outlet pipes, and riprap.

4. Based on a 2.25 percent discount rate and a 50-year period of analysis, the total average annual equivalent cost, including OMRR&R, is estimated to be \$1,023,000, of which \$1,014,000 is for the flood risk management measures and \$8,000 is for the recreation features. The total average annual equivalent benefits are \$2,728,000, of which \$2,324,000 is from the flood risk management measures and \$404,000 is from the recreation features. Total average annual equivalent net benefits are \$1,705,000, of which \$1,310,000 are from the flood risk management measures and \$396,000 are from the recreation features. The benefit to cost ratio (BCR) is 2.3 for the flood risk management measures and 49.3 for the recreation features. The BCR for the combined flood risk management and recreation plan is 2.7.

5. While the recommended plan is expected to provide substantial flood risk reduction to structures in Bessemer and Birmingham, Alabama and other surrounding municipalities, some residual risk remains. The detention basins provide maximum flood risk management benefits at a four percent Annual Exceedance Probability (AEP), and provide some benefits up to a one percent AEP. Therefore, large, infrequent flood events or localized rain events occurring below the detention basins may still cause flooding. Additionally, there is risk of failure of containment berms that surround the detention basins. However, a life safety and critical infrastructure risk assessment show that there is negligible life risk associated with failure of the berms. The residual risks have been communicated to the non-federal sponsor, who understands and agrees with the assessment of the plan.

6. An environmental assessment was prepared in accordance with the National Environmental Policy Act. The recommended plan has been designed to avoid or

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minimize environmental impacts while maximizing safety and economic benefits to the community and would not have significant adverse effects on the quality of the human environment.

7. In accordance with U.S. Army Corps of Engineers guidance on review of decision documents, all technical, engineering, and scientific work underwent an open, dynamic, and rigorous review process to ensure technical quality. This included district quality control review, agency technical review, and headquarters policy and legal compliance review. An exclusion from Independent External Peer Review was granted on 22 June 2021. A Safety Assurance Review will be conducted during PED.

8. Washington level review indicates that the project recommended by the reporting officers is technically sound, cost effective, both environmentally and socially acceptable, and economically justified. The plan complies with all essential elements of the 1983 U.S. Water Resources Council's Economic and Environmental Principles and Guidelines for Water and Land Related Resources Implementation studies. The recommended plan complies with other administrative and legislative policies and guidelines. Also, the views of interested parties, including federal, state, and local agencies have been considered.

9. I concur with the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the plan to reduce flood risk to Birmingham and Bessemer, Alabama along Valley Creek be authorized in accordance with the reporting officers' recommended plan at an estimated project first cost of \$27,311,000 with such modifications as in the discretion of the Chief of Engineers may be advisable. My recommendation is subject to cost sharing and other applicable requirements of federal laws, regulations, and policies. Federal implementation of the project for structural flood risk management and recreation includes, but is not limited to, the following required items of local cooperation to be undertaken by the non-federal sponsor in accordance with applicable federal laws, regulations, and policies:

a. Provide a minimum of 35 percent, up to a maximum of 50 percent, of construction costs allocated to flood risk management, and 50 percent of construction costs allocated to recreation, as further specified below:

i. Provide, during design, 35 percent of design costs, in accordance with the terms of a design agreement entered into prior to commencement of design work for the project;

ii. Pay, during construction, a contribution of funds equal to 5 percent of construction costs allocated to flood risk management;

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iii. Provide all real property interests, including placement area improvements, and perform all relocations determined by the Federal Government to be required for the project; and

iv. Provide, during construction, any additional contribution necessary to make its total contribution equal to at least 35 percent of construction costs for flood risk management and 50 percent 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 non-federal sponsor 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,

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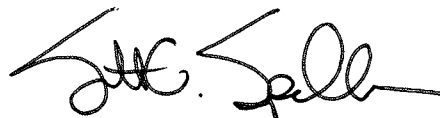
Compensation, and Liability Act (CERCLA), 42 U.S.C. §9601-§9675, and any other applicable law, that may exist in, on, or under real property interests that the Federal Government determines to be necessary for construction, operation, and maintenance of the project;

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 non-federal sponsor, that the non-federal sponsor 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 CFR 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.

10. The recommendations contained herein reflect the information available at this time and current departmental policies governing formulation of individual projects. These recommendations do not reflect program and budgeting priorities inherent in the formulation of national civil works construction program nor the perspective of higher review levels within the Executive Branch. Consequently, the recommendations may be modified before they are transmitted to Congress for authorization and/or implementation funding. However, prior to transmittal to the Congress, the non-federal sponsor, the State of Alabama, interested federal agencies and other parties will be advised of any modifications and will be afforded an opportunity to comment further.



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Lieutenant General, USA  
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