



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

DAEN

OCT 16 2015

SUBJECT: Mill Creek Flood Risk Management Study, Nashville, Tennessee

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on managing flood risk along Mill Creek, Nashville, Tennessee. It is accompanied by the report of the district and the division engineers. These reports partially respond to resolutions of the U.S. House of Representatives Committee on Transportation and Infrastructure, adopted September 4, 1995 and December 7, 2005. These resolutions requested the Secretary of the Army to review pertinent reports on the Cumberland River and its tributaries to determine whether any modifications of the recommendations contained therein are advisable in the interest of environmental restoration and protection, flood damage reduction, enhancement and control of water quality, stream bank protection, regional water systems, recreation, greenways, and other watershed management improvements. Preconstruction engineering and design activities would continue under the authority of the September 4, 1995 and December 7, 2005 resolutions.

2. The reporting officers recommend authorizing a National Economic Development (NED) plan of structural and nonstructural features to manage flood risks along Mill Creek and its tributaries. The NED plan includes constructing a 377-acre-foot capacity storm water detention basin at mile 3.67 on Sevenmile Creek, modifying the Briley Parkway bridge and widening the Mill Creek channel at mile 7.1, raising nine residential structures in-place above the 1-percent chance flood elevation, and purchasing and removing 80 frequently damaged residential structures located in the regulated floodway of Mill Creek and its tributaries. The purchase and removal of frequently damaged structures will, to the extent practicable, be implemented on a willing seller basis; however, eminent domain will be utilized when determined to be warranted. Acquisition of structures for removal will comply with the provisions of the Uniform Relocations Assistance and Real Property Acquisition Policies Act (P.L. 91-646), as amended, and the uniform regulations contained in 49 Code of Federal Regulations, Part 24, including the provision of payment of relocation assistance benefits to eligible recipients. The recommended plan would not have significant adverse effects; consequently, no mitigation measures, beyond best management practices and avoidance, or compensation measures would be required. All features are located in Nashville, Tennessee.

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3. The City of Nashville Metro Water Services, representing the Metropolitan Government of Nashville and Davidson County, is the non-federal cost-sharing sponsor for all flood risk management features. Based on October 2014 price levels, the estimated project first cost of the NED plan, which includes both structural and nonstructural flood risk management features is \$28,504,000. This amount includes \$9,342,000 allocated to structural flood risk management and \$19,162,000 associated with a nonstructural flood risk management program. The total cost of lands, easements, rights-of-way, relocations, and disposal (LERRD) is estimated at \$20,482,000. This amount includes \$3,571,000 allocated to structural project features and \$16,912,000 associated with nonstructural project features. In accordance with the cost sharing provisions of Section 103 of the Water Resources Development Act (WRDA) of 1986, as amended by Section 202 of WRDA 1996, the federal share of the project first cost of the structural and nonstructural flood risk management features would be about \$5,304,000 (56.8 percent) and \$12,455,000 (65 percent), respectively, and \$17,759,000 (62 percent) overall. The non-federal share of the first costs of the structural and nonstructural flood risk management features would be about \$4,038,000 (43.2 percent) and \$6,707,000 (35 percent), respectively, and \$10,745,000 (38 percent) overall. The City of Nashville Metro Water Services will be responsible for the operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of the project after construction, a cost currently estimated at about \$52,000 per year.

4. Based on a 3.375-percent discount rate and a 50-year period of economic evaluation, the total equivalent annual costs of the project are estimated to be \$1,251,000 including OMRR&R. The equivalent annual benefits are estimated to be \$2,390,000 with net average annual benefits of \$1,139,000. The benefit-cost ratio is approximately 1.9 to 1. Implementing the NED plan will reduce expected average annual flood damages by about 44 percent. Equivalent annual residual damages are estimated at \$3,070,000.

5. In accordance with the current Engineer Circular on review of decision documents, all technical, engineering and scientific work underwent an open, dynamic and vigorous review process to ensure technical quality. This included District Quality Control, Agency Technical Review, Policy and Legal Compliance Review, Cost Engineering Mandatory Center of Expertise Review and Certification, Independent External Peer Review (IEPR), and the review and approval of technical models. The IEPR was completed by Battelle Memorial Institute. The IEPR panel consisted of four members with expertise in economics and civil works planning, environmental review and environmental policy, hydrologic and hydraulic engineering, and geotechnical and structural engineering. The review panel identified and documented 14 final comments. Of these, one comment was designated as having high significance, three as having medium-to-high significance, seven as having medium significance, and three as having medium-to-low significance. All IEPR review comments have been resolved. There

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have been no significant changes to the plan formulation, engineering assumptions, and environmental analyses that supported the decision-making process and plan selection. All comments from the above referenced reviews will be addressed and incorporated into the final documents as appropriate. A safety assurance review (Type II IEPR) of the structural flood risk management components of the project will be conducted during the design phase of the project.

6. Washington level review indicates that the plan recommended by the reporting officers is technically sound, environmentally and socially acceptable, and on the basis of congressional directives, economically justified. The plan complies with all essential elements of the 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 Administration and legislative policies and guidelines. The views of interested parties, including federal, state and local agencies have been considered.

7. I concur with the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the plan to reduce flood damages along Mill Creek and its tributaries at Nashville, Tennessee be authorized in accordance with the reporting officers' recommended plan at an estimated project first cost of \$28,504,000 with such modifications as in the discretion of the Chief of Engineers may be advisable. My recommendation is subject to cost sharing, financing, and other applicable requirements of federal and state laws and policies, including Section 103 of WRDA 1986, as amended, 33 U.S.C. § 2213. The non-federal sponsors will provide the non-federal cost share and all LERRD. Further, the non-federal sponsors will be responsible for all OMRR&R. This recommendation is subject to the non-federal sponsors agreeing to comply with all applicable federal laws and policies, including but not limited to:

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

b. Provide a minimum of 35 percent, but not to exceed 50 percent of total structural flood risk management costs as further specified below:

(1) Provide, during the first year of construction, any additional funds necessary to pay the full non-federal share of design costs allocated by the government to the structural flood risk management features;

(2) Provide, during construction, a contribution of funds equal to 5 percent of total structural flood risk management costs;

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(3) Provide all lands, easements, and rights-of-way, including those required for relocations, the borrowing of material, and the disposal of dredged or excavated material; perform or ensure the performance of all relocations; and construct all improvements required on lands, easements, and rights-of-way to enable the disposal of dredged or excavated material all as determined by the government to be required or to be necessary for the construction, operation, and maintenance of the structural flood risk management features;

(4) Provide, during construction, any additional funds necessary to make its total contribution for structural flood risk management equal to at least 35 percent of total structural flood risk management costs;

c. Provide 35 percent total nonstructural flood risk management costs as further specified below:

(1) Provide, during the first year of construction, any additional funds necessary to pay the full non-federal share of design costs allocated by the government to the nonstructural flood risk management features;

(2) Provide all lands, easements, and rights-of-way, including those required for relocations, the borrowing of material, and the disposal of dredged or excavated material; perform or ensure the performance of all relocations; and construct all improvements required on lands, easements, and rights-of-way to enable the disposal of dredged or excavated material all as determined by the government to be required or to be necessary for the construction, operation, and maintenance of the nonstructural flood risk management features;

(3) Provide, during construction, any additional funds necessary to make its total contribution for nonstructural flood risk management equal to 35 percent of total nonstructural flood risk management costs;

d. Not less than once each year, inform affected interests of the extent of protection afforded by the project.

e. Agree to participate in and comply with applicable federal floodplain management and flood insurance programs.

f. Comply with Section 402 of the WRDA of 1986, as amended (33 U.S.C. 701b-12), which requires a non-federal interest to prepare a floodplain management plan within one year after the date of signing a project partnership agreement, and to implement such plan not later than one year after completion of construction of the project.

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g. 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 protection levels provided by the project.

h. Prevent obstructions or encroachments on the project (including prescribing and enforcing regulations to prevent such obstructions or encroachments) such as any new developments on project lands, easements, and rights-of-way or the addition of facilities which might reduce the level of protection the project affords, hinder operation and maintenance of the project, or interfere with the project's proper function.

i. For so long as the project remains authorized, operate, maintain, repair, rehabilitate, and replace the project, or functional portions of the project, including any mitigation features, at no cost to the federal government, in a manner compatible with the project's authorized purposes and in accordance with applicable federal and state laws and regulations and any specific directions prescribed by the federal government.

j. Hold and save the United States free from all damages arising from the construction, OMR&R of the project and any betterments, except for damages due to the fault or negligence of the United States or its contractors.

k. Perform, or ensure performance of, any investigations for hazardous substances that are determined necessary to identify the existence and extent of any hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Public Law 96-510, as amended (42 U.S.C. 9601-9675), that may exist in, on, or under lands, easements, or rights-of-way that the federal government determines to be required for construction, operation, and maintenance of the project. However, for lands that the federal government determines to be subject to the navigation servitude, only the federal government shall perform such investigations unless the federal government provides the non-federal sponsor with prior specific written direction, in which case the non-federal sponsor shall perform such investigations in accordance with such written direction.

l. Assume, as between the federal government and the non-federal sponsor, complete financial responsibility for all necessary cleanup and response costs of any hazardous substances regulated under CERCLA that are located in, on, or under lands, easements, or rights-of-way that the federal government determines to be required for construction, operation, and maintenance of the project.

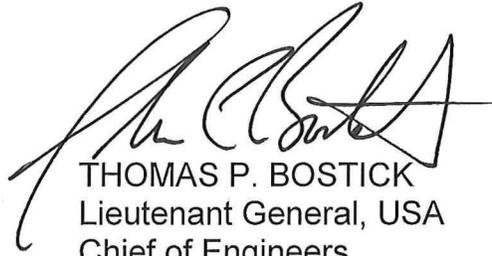
m. Agree, as between the federal government and the non-federal sponsor, that the non-federal sponsor shall be considered the operator of the project for the purpose of CERCLA liability, and to the maximum extent practicable, operate, maintain, repair,

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rehabilitate, and replace the project in a manner that will not cause liability to arise under CERCLA.

8. 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 non-federal sponsor, the state, interested federal agencies, and other parties will be advised of any significant modifications and will be afforded an opportunity to comment further.



THOMAS P. BOSTICK
Lieutenant General, USA
Chief of Engineers