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

DAEN

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SUBJECT: Jordan Creek Flood Risk Management Study, Springfield Missouri

THE SECRETARY OF THE ARMY

1. I submit, for transmission to the Congress, my report on the study of flood risk management along Jordan Creek in Springfield, Missouri. It is accompanied by the report of the district and the division engineers. This report is an interim response to a resolution by the Committee on Public Works of the United States Senate, adopted 11 May 1962. This resolution requested "to review the reports on the White River and Tributaries, Missouri and Arkansas, printed in House Document Numbered 499, Eighty-third Congress, second session, and other reports, with a view to determining the advisability of modifying the existing project at the present time, with particular reference to developing a comprehensive plan of improvement for the basin in the interest of flood-control, navigation, hydro-electric power development, water supply, and other purposes, coordinated with related land resources." Preconstruction, engineering and design activities for the Jordan Creek Flood Risk Management project will continue under the authority provided by the resolution cited above.

2. The reporting officers recommend authorization of a plan for flood risk management along Jordan Creek in Springfield, Missouri. The recommended plan includes flood risk management features consisting of five regional detention basins and 2,100 feet of channel widening. Two detention basins are situated on the North Branch and three are located on the South Branch of Jordan Creek. Collectively, these basins provide 165 acre-feet of storage and a seven to eight percent decrease in flows through the downtown area. The channel work will occur south of downtown Springfield from Scenic Avenue on Wilsons Creek to approximately 350 feet north of the Bennett Street Bridge on Jordan Creek (area referred to as Reach 1). The channel widening includes the replacement of one Railroad Bridge and the addition of a flood diversion structure. The top width of the widened channel will vary from 100 feet to 360 feet. The recommended plan, the National Economic Development (NED) plan, will nearly eliminate flood damages along Jordan Creek in Reach 1 from a 1 in 500 annual chance exceedance (ACE) flood event (.2 percent chance of occurring in any given year). The channel improvements will also allow emergency flood fighting vehicles to respond to emergencies. The project will reduce expected annual flood damages along Jordan Creek by 65 percent, with the greatest reduction occurring in Reach 1. The project will also reduce traffic interruptions and disruptions to health and safety services.

3. The recommended plan is the NED plan. The estimated project first cost of the recommended plan, based on October 2012 price levels, is $20,500,000. In accordance with the cost sharing provision of Section 103 of the Water Resources Development Act (WRDA) 1986, as amended

by Section 202 of WRDA 1996, the federal share of the first costs of the flood damage reduction features will be $13,200,000 (64.6 percent) and the non-federal share will be $7,300,000 (35.4 percent). The cost of the lands, easements, rights-of-way, relocations and dredged or excavated material disposal areas is estimated to be $6,270,000. The minimum cash contribution of five percent is $1,030,000 to be provided by the sponsor. Specific project features were developed to minimize adverse impacts to natural resources. Since there are no remaining significant environmental impacts, compensatory mitigation is not required for this project. The City of Springfield is responsible for the operation, maintenance, repair, replacement and rehabilitation (OMRR&R) of the project after construction, a cost currently estimated to be about $230,000 annually. In addition to the above, the City of Springfield would be fully responsible for performing the investigation, cleanup and response of hazardous materials on the project site. The cost of hazardous material work is estimated to be no more than $340,000 and is solely the non-federal sponsor's responsibility. Based on a 3.75 percent discount rate, October 2012 price levels and a 50-year period of analysis, the total equivalent average annual cost of the project is estimated to be $1,170,000, including OMRR&R. The selected plan is not designed to any specific protection level. It will reduce average annual flood damages by 65 percent with the greatest reduction occurring in Reach 1. The selected plan will leave average annual residual damages in the watershed estimated at $1,730,000. The equivalent average annual benefit is estimated to be $3,130,000. The benefit-cost ratio is approximately 2.7 to 1.

4. The recommended plan was developed in coordination and consultation with various federal, state and local agencies using a systematic and regional approach to formulating solutions and evaluating the benefits and impacts that would result. The feasibility study evaluated flood risk management problems and opportunities for the entire study area of about 14 square-miles. Risk and uncertainty were addressed during the study by completing a cost risk analysis and a sensitivity analysis that evaluated the potential impacts of a change in economic assumptions. Flooding will still occur through the downtown area of Springfield, Missouri; however, there is minimal chance for a loss of life. The residual risks were explained to the sponsor and they understand and agree with this analysis.

5. In accordance with the Corps 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 an Agency Technical Review (ATR), an Independent External Peer Review (IEPR), and a Corps Headquarters policy and legal review. All concerns of the ATR were addressed and incorporated into the final report. An IEPR was completed by Battelle Memorial Institute in March 2013. A total of 15 comments were documented. In summary, the IEPR comments related to report inconsistencies and deficiencies in information. All comments were addressed by report revisions, and subsequently closed.

6. Washington level review indicated that the plan recommended by the reporting officers is technically sound, 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. The views of interested parties, including federal, state and local agencies, were considered. Comments received from agencies during review of the draft feasibility report and environmental assessment indicated no adverse impacts from the selected plan. The U.S. Fish and Wildlife Service (USFWS) requested a low flow channel be added to the project to reduce potential scour. The USFWS comment was taken into consideration in the final report by adding a description of the low flow channel option. The suggested design change will be further examined during the pre-construction engineering and design phase. During state and agency review, comments were received from the Environmental Protection Agency (EPA) and the Missouri Department of Transportation (MoDOT). EPA was critical of the integration of the project report and NEPA document. MoDOT asked for continued coordination with them on technical issues as design and construction progresses.

7. I concur in the findings, conclusion and recommendations of the reporting officers. Accordingly, I recommend that improvements for flood risk management for the Jordan Creek Flood Risk Management Project be authorized generally in accordance with the reporting officer's recommended plan at an estimated project first cost of $20,500,000. My recommendation is subject to cost sharing, financing and other applicable requirements of ederal and state laws and policies, including Public Law 99-662, the Water Resources Development Act of 1986, as amended, and in accordance with the following required items of cooperation that the non-federal sponsor shall, prior to project implementation, agree to perform.

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

(1) Provide the required non-federal share of design costs allocated by the government to flood risk management in accordance with the terms of a design agreement entered into prior to commencement of design work for the flood risk management features;

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

(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 flood risk management features;

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

b. Not use funds from other federal programs, including any non-federal contribution required as a matching share, to meet any of the non-federal obligations for the project unless the federal agency providing the federal portion of such funds verifies in writing that such funds are authorized to be used to carry out the project;

c. Not less than once each year, inform affected interests of the extent of protection afforded by the flood risk management features;

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

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

f. 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 flood risk management features;

g. Prevent obstructions or encroachments on the project (including prescription and enforcement of regulations to prevent such obstructions or encroachments) such as any new developments on project lands, easements or rights-of-way, or the addition of facilities that might reduce the level of protection of the flood risk management features, hinder operation and maintenance of the project or interfere with the project's proper function;

h. Comply with all 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. 4601-4655), and the Uniform Regulations contained in 49 CFR Part 24, in acquiring lands, easements and rights-of-way required for construction, operation and maintenance of the project, including those necessary for relocations, the borrowing of materials or the disposal of dredged or excavated material; and inform all affected persons of applicable benefits, policies and procedures in connection with said Act;

i. For so long as the project remains authorized, OMRR&R 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. 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 for

the purpose of completing, inspecting, operating, maintaining, repairing, rehabilitating or replacing the project;

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

l. Keep and maintain books, records, documents or other evidence pertaining to costs and expenses incurred pursuant to the project, for a minimum of 3 years after completion of the accounting for which such books, records, documents or other evidence are required, to the extent, and in such detail, as will properly reflect total project costs, and in accordance with the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to state and local governments at 32 Code of Federal Regulations (CFR) Section 33.20;

m. Comply with all applicable federal and state laws and regulations, including, but not limited to: Section 601 of the Civil Rights Act of 1964, Public Law 88-352 (42 U.S.C. 2000d) and Department of Defense Directive 5500.11 issued pursuant thereto; Army Regulation 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army"; and all applicable federal labor standards requirements including, but not limited to, 40 U.S.C. 3141- 3148 and 40 U.S.C. 3701 – 3708 (revising, codifying and enacting without substantial change the provisions of the Davis-Bacon Act (formerly 40 U.S.C. 276a *et seq.*), the Contract Work Hours and Safety Standards Act (formerly 40 U.S.C. 327 *et seq.*), and the Copeland Anti-Kickback Act (formerly 40 U.S.C. 276c *et seq.*);

n. 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 sponsors with prior specific written direction, in which case, the non-Federal sponsors shall perform such investigations in accordance with such written direction;

o. Assume, as between the federal government and the non-federal sponsors, complete financial responsibility for all necessary cleanup and response costs of any hazardous substances regulated under the 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;

p. Agree, as between the federal government and the non-federal sponsors, that the non-federal sponsors shall be considered the operators of the project for the purpose of CERCLA liability, and to the maximum extent practicable, OMRR&R the project in a manner that will not cause liability to arise under CERCLA; and

q. Comply with Section 221 of Public Law 91-611, Flood Control Act of 1970, as amended (42 U.S.C. 1962d-5b), and Section 103(j) of the WRDA 1986, Public Law 99-662, as amended (33 U.S.C. 2213(j)), which provides that the Secretary of the Army shall not commence the construction of any water resources project or separable element thereof, until each non-federal interest has entered into a written agreement to furnish its required cooperation for the project or separable element.

8. The recommendation contained herein reflects the information available at this time and current departmental policies governing formulation of individual projects. It neither reflects program and budgeting priorities inherent in the formulation of a national Civil Works construction program, nor the perspectives of higher review levels within the executive branch. Consequently, the recommendations may be modified before they are transmitted to the Congress as proposals for authorization and implementation funding. However, prior to transmittal to the Congress, the non-federal sponsor, the state, 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
Chief of Engineers