



DEPARTMENT OF THE ARMY

CHIEF OF ENGINEERS
2600 ARMY PENTAGON
WASHINGTON, DC 20310-2600

REPLY TO
ATTENTION OF

DAEN

APR 30 2015

SUBJECT: City of Manhattan, Kansas Flood Risk Management Study

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on proposed modifications to the City of Manhattan, Kansas flood protection project authorized by the U.S. Congress in Section 203 of the Flood Control Act of 1954, Public Law 83-780. It is accompanied by the report of the district and the division engineers. These reports were prepared under the authority of Section 216 of the Flood Control Act of 1970, Public Law 91-611, which authorizes the Secretary of the Army to review the operation of projects constructed by the U.S. Army Corps of Engineers when found advisable due to significantly changed physical, economic or environmental conditions. Preconstruction engineering and design activities, if funded, would be continued under the Section 216 authority.

2. The reporting officers recommend authorization of a plan to modify the existing project to improve flood risk management in the vicinity of the City of Manhattan, Kansas. The existing project which consists of a single 5.5-mile earthen levee unit along the left bank of the Kansas River (3.1 miles) and the right bank of the Big Blue River (2.4 miles), two pumping stations, interior drainage gate wells, relief wells and under seepage control berms provides flood risk management for 1,600 acres of urban industrial, commercial, public, and residential development including 2,300 structures (including about 1,700 residential structures) with an estimated population of 7,600. Approximately \$1.2 billion in private and local governmental investments are protected by the levee unit. The recommended modification plan would include raising approximately 14,600 feet of levee (includes 10,200 feet of levee plus adding a 500 feet levee tie-back extension on the northern end of the project on the Big Blue River and 3,900 feet on the Kansas River) generally on the landward side of the existing levee embankment an average of 1.5 feet, and as much as 3.3 feet, above its current height, primarily on the Big Blue River; adding under seepage control measures including 29 relief wells with over 4,900 linear feet of collector system and 2,500 linear feet of under seepage control berms to accommodate the levee raising; replacing five existing drainage structures; one sand bag closure structure at Hayes Drive; and relocating various utility crossings. The recommended project, the National Economic Development (NED) Plan will reduce flood risks and hazards in the community; minimize impacts to human safety, health, and welfare; and have minimal impact to the natural environment. The increased reliability is achieved by constructing a new top of levee elevation set at the flood profile to reduce flood damages from a 1 in 100 annual exceedance probability flood event (1% annual chance of occurring in any given year). In the 1% chance flood event, there is currently only a 52.6 % chance of the project preventing damage from overtopping or breach failure. This probability would be improved to 96.3% in

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the with-project condition. The long-term risk of a damaging flood over 50-year period would be less than 1 in 6, compared to a current 50-year risk of approximately 1 in 2. The proposed project would have no significant long-term effects on environmental resources. No compensatory mitigation would be required.

3. The recommended plan is the NED Plan. The estimated project first cost of the recommended plan, based on October 2014 price levels, is \$23,754,000. The federal share of the first costs of the flood risk management features is estimated to be 65 % or \$15,440,100, and the non-federal share is estimated to be 35 % or \$8,313,900, including the provision of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas (LERRDs). The City of Manhattan is responsible for the operation, maintenance, repair, rehabilitation, and replacement (OMRR&R) of the project after construction, a cost currently estimated to be about \$54,000 annually. Based on a discount rate of 3.375 %, October 2014 price levels and a 50-year period of analysis, the total equivalent average annual costs of the project is estimated to be \$1,177,660, including the OMRR&R. The proposed plan would reduce expected annual damages by 59 %, with a residual expected annual damage of approximately \$2.85 million. The expected annual benefits are estimated to be \$4,074,440 with net annual benefits of \$2,896,780. The benefit-cost ratio is approximately 3.5 to 1.

4. The goals and objectives included in the Campaign Plan of the U.S. Army Corps of Engineers have been fully integrated into the Feasibility Study process. The recommended plan has been designed to avoid or minimize environmental impacts, to reduce risk of loss of life, and to reasonably maximize economic benefits to the community in coordination with the existing flood risk management system. The feasibility study team organized and participated in stakeholder and public meeting throughout the process and worked to achieve a balance of project goals and public concerns. The study report fully describes local flood risks associated with the Kansas and Big Blue Rivers and risks that will not be reduced. The residual risks have been communicated to the non-federal sponsors and they understand and agree with the analysis. The feasibility study team has reviewed current available information on the estimated future impact of climate change in the region. While a trend towards wetter conditions in the future has been identified, the impacts are expected to be within the range of uncertainty addressed by the current hydrologic model.

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), and Type 1 Independent External Peer Review (IEPR), and a Corps Headquarters policy and legal review. All concerns of the ATR have been addressed and incorporated into the final report. An IEPR was completed by Battelle Memorial Institute in August 2014. A total of eight comments were documented. In summary, the IEPR comments related to report completeness in areas of project performance compared to the original project design, alternative plan evaluation, hydrologic and hydraulic uncertainty, climate change, and residual risks. This resulted in expanded narratives throughout the report to support the decision-making process and justify

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the recommended plan. All comments from the above referenced reviews have been addressed and incorporated into the final document. A safety assurance review (Type II IEPR) will be conducted during the design phase of the project.

6. Washington level review indicated that the plan recommended by the reporting officers is technically sound, economically justified, and environmentally and socially acceptable. The plan complies with the 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 administrative and legislative policies and guidelines.

7. The views of interested parties, including federal, state and local agencies have been considered. The USEPA requested additional information on the interagency efforts of the Corps local Silver Jackets program in the Big Blue River and Wildcat River watersheds and adjacent areas of the Kansas River. In response to this request, the U.S. Environmental Protection Agency was provided additional information including a web link for additional program information.

8. I concur with the findings, conclusions and recommendation of the reporting officers. Accordingly, I recommend that improvements for flood risk management for the City of Manhattan Flood Risk Management Project be authorized generally in accordance with the reporting officer's recommended plan at an estimated project first cost of \$23,754,000. My recommendation is subject to cost sharing, financing, and other applicable requirements of federal and state laws and policies, including Section 103 of the Water Resources Development Act (WRDA) of 1986, as amended (33 U.S.C. 2213). The non-federal sponsor would provide the non-federal share and all LERRDs. Further, the non-federal sponsor would be responsible for all OMRR&R. This recommendation is subject to the non-federal sponsor agreeing to comply with all applicable federal law and policies, including but not limited to:

a. Provide the non-federal share of total project costs, including a minimum of 35 % but not to exceed 50 % of total project costs as further specified below:

(1) Provide 35 % 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, during construction, a contribution of funds equal to 5 % of total project 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

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all as determined by the government to be required or to be necessary for the construction, operation, and maintenance of the project;

(4) Provide, during construction, any additional funds necessary to make its total contribution equal to at least 35 % of total project costs;

b. Shall not use funds from other federal programs, including any non-federal contribution required as a matching share therefore, 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 expenditure of such funds for such purpose is authorized;

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

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

e. 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;

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 project;

g. 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;

h. Comply with all applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 U.S.C. 4601-4655), and the Uniform Regulations contained in 49 Code of Federal Regulations (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 of the project, or functional portions of the project, including any mitigation features, at no cost to the federal government,

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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 construction, 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 three 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 (42 U.S.C. 2000d) and Department of Defense Directive 5500.11 issued pursuant thereto; the Age Discrimination Act of 1975 (42 U.S.C. 6102); the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Army Regulation 600-7 issued pursuant thereto; and 40 U.S.C. 3141-3148 and 40 U.S.C. 3701-3708 (labor standards originally enacted as the Davis-Bacon Act, the Contract Work Hours and Safety Standards Act, and the Copeland Anti-Kickback Act).

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), 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;

o. 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

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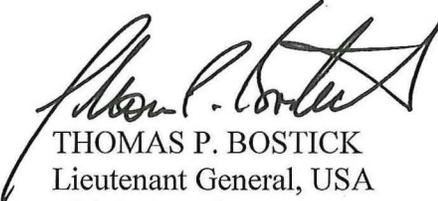
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rights-of-way that the federal government determines to be required for construction, operation, and maintenance of the project;

p. Agree, as between the federal government and the non-federal 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, rehabilitate, and replace the project in a manner that will not cause liability to arise under CERCLA; and

q. Comply with Section 221 of the Flood Control Act of 1970, as amended (42 U.S.C. 1962d-5b), and Section 103(j) of the WRDA of 1986, 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.

9. 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 perspective of higher review levels within the executive branch. Consequently, the recommendation may be modified before they are transmitted to Congress as a proposal for authorization and implementation funding. However, prior to transmittal to Congress, the sponsors, the state, interested federal agencies, and other parties will be advised of any modifications and will be afforded the opportunity to comment further.



THOMAS P. BOSTICK
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Chief of Engineers