



DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
WASHINGTON, D.C. 20314-1000

REPLY TO
ATTENTION OF:

CECW-PE (10-1-7a)

21 APR 1999

SUBJECT: Turkey Creek Basin, Kansas and Missouri

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on the study of flood damage reduction improvements in the Turkey Creek Basin in the states of Kansas and Missouri. It is accompanied by the report of the district and division engineers. These reports have been prepared in partial response to a resolution passed by the Committee on Public Works of the United States Senate dated 9 May 1963 to evaluate flooding and related problems on the Missouri River and tributaries. Preconstruction engineering and design activities for the Turkey Creek project will be continued under the authority provided by this resolution.
2. The reporting officers recommend authorization of a plan for flood damage reduction in the Turkey Creek Basin that combines channel modification, a levee, and interceptor diversion structures. The recommended plan is the locally preferred plan. The project features include about 5,730 feet of channel modification and an 8-foot-high earth-filled levee about 2,900 feet long along the right bank of Turkey Creek and in the lower Turkey Creek basin in Kansas City, Kansas, just upstream of the point where Turkey Creek flows into the Kansas River through a large existing tunnel. This component is designed to accommodate the 1-percent (100 year) chance flood flow. The channel modification includes the replacement of an existing cast in place concrete highway bridge with a 102-foot box beam bridge, and a 45-foot steel girder railroad bridge with a 94-foot wide steel girder bridge. The project also includes four large interceptor diversion pipes in Kansas and Missouri to divert basin flood flows into Turkey Creek and the existing tunnel. The interceptors include a 2,000-foot-long Mission Road interceptor with a 78-inch maximum diameter pipe for flood flows with a 4-percent (25 year) chance occurrence, an 1,800-foot-long Cherokee Street interceptor with a 72-inch maximum diameter pipe for flood flows with a 4-percent chance occurrence, a 2,100-foot-long Rainbow Boulevard interceptor with a 96-inch maximum diameter pipe for flood flows with a 4-percent (25 year) chance occurrence, and a 4,800-foot-long Missouri interceptor (at Roanoke Road) with a 168-inch maximum diameter pipe for flood flows with a 6.67-percent (15 year) chance occurrence. The recommended plan would reduce average annual flood damages by about 67 percent. Environmental design features include selected riparian and woodland tree plantings, riffle and pool complexes in the channel modification, and soil bioengineering bank stabilization where practicable. The environmental assessment concludes that mitigation is not required for this project.

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3. Project costs for the recommended plan are entirely allocated to flood control purposes. Based on October 1998 price levels, the cost of the channel modification is \$19,302,000, the Cherokee interceptor is \$2,575,000, the Rainbow interceptor is \$3,430,000, the Missouri interceptor is \$15,759,000, and the Mission Road interceptor is \$1,809,000. The total first cost of the recommended plan is estimated to be \$42,875,000. Total average annual costs, based on a Federal interest rate of 6.875 percent and a 50-year analysis, are estimated to be \$3,526,000. This amount includes non-Federal annual operation, maintenance, repair, rehabilitation and replacement costs of \$70,000. Total average annual flood damage reduction benefits are estimated as \$5,274,000, yielding net benefits of \$1,748,000 and a benefit-to-cost ratio of 1.5 to 1.

4. The national economic development (NED) plan identified by the reporting officers would reduce flood damages by 65 percent. The components of the NED plan combine channel modification, levee, and interceptor diversion structures. The project features include about 5,730 feet of channel modification and an 8-foot-high earth filled levee about 2,900 feet long along the right bank of Turkey Creek and in the lower Turkey Creek basin in Kansas City, Kansas, just upstream of the point where Turkey Creek flows into the Kansas River through a large existing tunnel. This component is designed to accommodate the 1-percent (100 year) chance flood flow. The channel modification includes the replacement of an existing cast-in-place concrete highway bridge with a 102-foot box beam bridge, and a 45-foot steel girder railroad bridge with a 94-foot-wide steel girder bridge. The plan also includes three large interceptor diversion pipes in Kansas and Missouri to divert basin flood flows into Turkey Creek and the existing tunnel. The interceptors include a 1,800-foot long Cherokee Street interceptor with a 72-inch maximum diameter pipe for flood flows with a 4-percent (25 year) chance occurrence, a 2,100-foot Rainbow Boulevard interceptor with a 96-inch maximum diameter pipe for flood flows with a 4-percent (25 year) chance occurrence, and a 4,800-foot long Missouri interceptor (at Roanoke Road) with a 168-inch maximum diameter pipe for 10-percent (10 year) chance flood flows.

5. Based on October 1998 prices, the cost of the NED plan for channel modification is \$19,302,000, the Cherokee interceptor is \$2,575,000, the Rainbow interceptor \$3,430,000 and the Missouri interceptor is \$14,071,000. The total first cost of the NED plan is estimated at \$39,378,000. Total average annual costs, based on a Federal interest rate of 6.875 percent and a 50-year analysis, are estimated to be \$3,223,000. This amount includes non-Federal annual operation, maintenance, repair, rehabilitation and replacement costs of \$63,000. Total average annual flood damage reduction benefits are estimated as \$5,158,000, yielding net benefits of \$1,935,000 and a benefit-to-cost ratio of 1.6 to 1.

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6. The locally preferred plan consists of essentially the same features as the NED plan except that an additional interceptor pipe at Mission Road is included that is sized to accept the 4-percent (25 year) flood flows and the size of the Missouri interceptor pipe is increased to accept the 6.67-percent (15 year) flood flows instead of the 10-percent (10 year). In letters dated 12 November 1998 from the Unified Government and 4 November 1998 from the City of Kansas City, Missouri, the non-Federal sponsors have expressed a commitment to cost share in the construction of the locally preferred plan which is the recommended plan. The non-Federal sponsors have also stated their willingness to cost share on the basis of the NED plan. Under existing policy, the Federal share of the cost of the recommended plan is limited to the Federal share of the cost of the NED plan. Based on limiting the Federal share of the recommended plan to the Federal share of the cost of the NED plan, the non-Federal sponsors would be responsible for all incremental cost in excess of the NED plan. Therefore, the Federal share of the recommended plan is \$25,596,000 and the non-Federal share is \$17,279,000. The incremental cost increase of the recommended plan for the non-Federal sponsor is \$3,497,000.

7. Washington level review indicates that the proposed locally preferred plan is technically sound, economically justified, and environmentally and socially acceptable. The proposed project complies with applicable U.S. Army Corps of Engineers planning procedures and regulations. Also, the views of interested parties, including Federal, State, and local agencies have been considered.

8. I concur in the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the proposed locally preferred plan for flood damage reduction for Turkey Creek be authorized subject to cost sharing as required by Public Law 99-662, as amended by Section 202 of Public Law 104-303. My recommendations are subject to the non-Federal sponsors agreeing to comply with applicable Federal laws and policies, including the following requirements:

a. Provide a minimum of 35 percent, but not to exceed 50 percent, of total project costs allocated to the NED plan for flood control and 100 percent of flood control costs of the locally preferred plan which exceed those necessary to complete the Federal share of the costs of the NED plan as further specified below:

(1) Enter into an agreement which provides, prior to execution of the project cooperation agreement, 25 percent of design costs;

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(2) Provide, during construction, any additional funds needed to cover the non-Federal share of design costs;

(3) Provide, during construction, a cash contribution equal to 5 percent of total project costs allocated to the NED plan for structural flood control;

(4) Provide all lands, easements, and rights-of-way, with suitable borrow and dredged or excavated material disposal areas, and perform or ensure the performance of all relocations determined by the Federal Government to be necessary for the construction, operation, and maintenance of the project;

(5) Provide or pay to the Federal Government the cost of providing all retaining dikes, wasteweirs, bulkheads, and embankments, including all monitoring features and stilling basins, that may be required at any dredged or excavated material disposal areas required for the construction, operation, and maintenance of the project; and

(6) Provide, during construction, any additional costs as necessary to make its total contribution equal to 35 percent of total project costs allocated to the NED plan and 100 percent of flood control costs which exceed those necessary to construct the NED plan;

b. Give the Federal Government a right to enter, at reasonable times and in a reasonable manner, upon land that the non-Federal sponsors own or control for access to the project for the purpose of inspection, and, if necessary, after failure to perform by the non-Federal sponsor, for the purpose of completing, operating, maintaining, repairing, replacing, or rehabilitating the project;

c. For so long as the project remains authorized, assume responsibility for operating, maintaining, replacing, repairing, and rehabilitating (OMRR&R) the project or completed functional portions of the project, including mitigation features without cost to the Government, in a manner compatible with the project's authorized purpose and in accordance with applicable Federal and State laws and specific directions prescribed by the Government in the OMRR&R manual and any subsequent amendments thereto;

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d. Support the Government's obligation to comply with Section 221 of Public Law 91-611, Flood Control Act of 1970, as amended, and Section 103 of the Water Resources Development Act of 1986, Public Law 99-662, as amended, which provides that the Secretary of the Army shall not commence the construction of any water resources project or separable element thereof, until the non-Federal sponsor has entered into a written agreement to furnish its required cooperation for the project or separable element;

e. Hold and save the United States free from all damages arising from the construction, operation, maintenance, repair, replacement, and rehabilitation of the project and any project-related betterments, except for damages due to the fault or negligence of the Government or the Government's contractors;

f. Keep, and maintain books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to the project 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;

g. Perform, or cause to be performed, any investigations for hazardous substances as are determined necessary to identify the existence and extent of any hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 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 the operation, maintenance, repair, replacement, and rehabilitation 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;

h. Assume complete financial responsibility, as between the Federal Government and the non-Federal sponsor, for all necessary cleanup and response costs of any CERCLA regulated materials located in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be required for the operation, maintenance, repair, replacement, or rehabilitation of the project;

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i. Agree that as between the Federal Government and the non-Federal sponsor, 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, replace, and rehabilitate the project in a manner that will not cause liability to arise under CERCLA;

j. Comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended by Title IV of the Surface Transportation and Uniform Relocation Assistance Act of 1987 (Public Law 100-17), and the Uniform Regulations contained in 49 CFR Part 24, in acquiring lands, easements, and rights-of-way required for the construction, operation, and maintenance of the project, including those necessary for relocations, borrow materials, and dredged or excavated material disposal; and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act;

k. Comply with all applicable Federal and State laws and regulations, including Section 601 of the Civil Rights Act of 1964, Public Law 88-352, and Department of Defense Directive 5500.11 issued pursuant thereto, as well as 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 Section 402 of the Water Resources Development Act of 1986, as amended (33 U.S.C. 701b-12), requiring non-Federal preparation and implementation of floodplain management plans;

l. Provide 35 percent of that portion of total cultural resource preservation, mitigation and data recovery costs of the NED plan attributable to flood control that are in excess of 1 percent of the total amount authorized to be appropriated for structural flood control and 100 percent of any incremental cultural resource costs associated with the locally preferred plan;

m. Do not use Federal funds to meet the non-Federal sponsor's share of total project costs unless the Federal granting agency verifies in writing that the expenditure of such funds is authorized;

n. Inform affected interests, at least annually, regarding the limitations of the protection afforded by the project;

o. Publicize floodplain information in the area concerned and provide this information to zoning and other regulatory agencies for their use in preventing unwise future development in the floodplain and in adopting such regulations as may be necessary to prevent unwise future development and to ensure compatibility with protection levels provided by the project;

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p. Prescribe and enforce regulations to prevent future obstruction of or encroachment on project lands, easements, and rights-of-way which might interfere with the proper functioning of the project; and

q. Participate in and comply with applicable Federal floodplain management and flood insurance programs.

9. 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 nor 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 the Congress, the sponsors, the States of Kansas and Missouri; 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, U.S. Army

Chief of Engineers