



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

DAEN

30 JUN 2014

SUBJECT: Leon Creek Watershed, San Antonio, Texas

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on flood risk management for the Leon Creek Watershed, San Antonio, Texas. It is accompanied by the report of the district and division engineers. This report is an interim response to a study authority contained in a House Committee on Transportation and Infrastructure Resolution dated 11 March 1998, which directed the Secretary of the Army to review the report of the Chief of Engineers on the Guadalupe and San Antonio Rivers, Texas, published as House Document 344, 83rd Congress, 2nd Session, with a view to determining whether any modifications to the recommendations contained therein are advisable at the present time, with particular reference to providing improvements in the interest of flood control, environmental restoration and protection, water quality, water supply, and allied purposes on the Guadalupe and San Antonio Rivers in Texas. The non-federal sponsor for the project is the San Antonio River Authority. Pre-construction engineering and design activities for the project will continue under the authority cited above.
2. The reporting officers recommend authorizing a plan to reduce flood risk along Leon Creek in San Antonio, Texas. The recommended plan is the National Economic Development plan and includes structural measures in Area of Interest 2 (AOI-2) and permanent evacuation of structures as nonstructural measures in AOI-4. AOIs are defined as reaches along Leon Creek with concentrations of damageable properties. For AOI-2, the recommended plan includes the construction of a levee with a 1 in 132 annual chance of overtopping (0.76 percent probability of overtopping in any given year) along with a channel modification for hydraulic conveyance at Port San Antonio. The proposed earthen levee would extend approximately 3,700 linear feet from high ground on the southeast side of Port San Antonio to S.W. Military Drive. Its maximum height is approximately 21 feet high near the existing low point. A twelve-foot top width will provide a maintenance/patrol access route along the top with 3.5:1 (H:V) side slopes. The channelization at Leon Creek will extend approximately 2,850 linear feet with a 60-foot bottom width with variable side slopes. The recommended plan includes utilizing natural channel design concepts to "self-mitigate" for aquatic impacts associated with the channelization work at Port San Antonio and the installation of 15.75 acres of riparian vegetation. For AOI-4, located in the Cedar Point subdivision just south of State Highway 1604 and west of Babcock Road, the recommended nonstructural plan is the permanent floodplain evacuation of four single-family residential structures and 32 townhouses being damaged by the four percent annual exceedance probability (AEP) flood event north of Port San Antonio.

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3. The recommended plan would reduce flood risk within the Leon Creek watershed. The proposed project would reduce Equivalent Annual Damages (EAD) within the Leon Creek watershed by 15 percent, with a residual EAD of approximately \$11.69 million. This residual EAD is primarily due to existing flooding throughout the study area where analyzed alternatives were not economically justified. The nature of flooding in the region is flashy, meaning that it can be extremely rapid and have a relatively short duration. The non-federal sponsor currently participates in a number of initiatives to manage the residual flood risk and the recommended plan would reduce flood risk, including risks to public and life safety along Leon Creek in San Antonio, Texas. Other nonstructural measures implemented by the non-federal sponsor in conjunction with the recommended plan include a regional flood warning system, updates to the floodplain management plan, and flood risk awareness communication.

4. All coordination and consultations with various federal and state agencies including the U.S. Fish and Wildlife Service (USFWS), the Texas Commission on Environmental Quality (TCEQ), the Federal Aviation Administration (FAA), the U.S. Air Force, and the State Historic Preservation Office (SHPO) necessary for construction of the project have been completed in order to mitigate for the detrimental effects of the flood risk management features of the recommended plan on fish and wildlife habitat. Environmental effects resulting from the construction of the recommended plan would cause some direct effects on riparian habitat and special status species habitats that cannot be avoided. The mitigation recommendations of the USFWS contained in the Final Fish and Wildlife Coordination Act Report are concurred with and are included in the recommended plan. The recommended plan includes a Monitoring and Adaptive Management plan to ensure the success of mitigation features. Endangered Species Act consultation with the USFWS has been completed concerning the operation and maintenance of the project after construction, which is the responsibility of the non-federal sponsor under federal law. Water quality certification under Section 401 of the Clean Water Act was coordinated with TCEQ and the water quality certification was obtained on February 20, 2014. Coordination with the FAA was done in response to the Memorandum of Agreement (MOA) with the FAA to address aircraft-wildlife strikes. The Air Force was also consulted due to the recommended plan's proximity to Lackland Air Force Base. Potential effects to cultural resources have been coordinated with the SHPO.

5. Based on October 2013 price levels, the estimated project first cost for the recommended plan is \$28,175,000. In accordance with the cost sharing provision of Section 103 of the Water Resources Development Act (WRDA) of 1986, as amended (33 U.S.C. 2213), the federal share of the total first cost for the plan would be \$18,314,000 (65 percent) and the non-federal share would be about \$9,861,000 (35 percent) which includes a five percent cash contribution of \$1,115,000. Total project cost includes \$5,872,000 for the nonstructural component and \$22,303,000 for the structural component. The non-federal sponsor is required to provide all lands, easements, relocations, rights-of-way, and dredged or excavated material disposal areas (LERRDs), the costs of which are estimated at \$8,086,000. Furthermore, the non-federal sponsor would be responsible for operation, maintenance, repair, replacement, and rehabilitation

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(OMRR&R) of the project after construction, estimated at about \$50,000 annually for the structural component and \$9,000 for the nonstructural component.

6. Based on a 3.5 percent discount rate, October 2013 price levels, and a 50-year period of analysis, the total annual costs of the project are estimated to be \$1,284,000, including OMRR&R. The total equivalent average annual flood damage reduction is estimated to be \$2,143,000. The proposed levee has a 32 percent chance of being exceeded over the next 50 years and reduces equivalent annual flood damages by \$1,763,000, or approximately 90 percent for that reach. The nonstructural permanent evacuation component of the project reduces equivalent annual flood damages by \$380,000, or approximately 9 percent for that reach. Annual net benefits for the proposed levee are \$729,000 and \$129,000 for the nonstructural component. The benefit-to-cost ratio is 1.7 to 1.0.

7. In accordance with the Engineering Circular on review of decision documents, all technical, engineering and scientific work underwent an open and thorough review process to ensure technical quality. This included an Agency Technical Review (ATR), an Independent External Peer Review (IEPR) (Type I), and USACE Headquarters policy and legal review. All concerns of the ATR have been addressed and incorporated into the final report. The IEPR was completed by Battelle Memorial Institute with all comments documented. The panel had 14 comments, one of which they considered significant, 11 were medium significance and 2 were low significance. The comments pertained to hydrology and hydraulic engineering, geotechnical engineering, civil engineering, economics and environmental concerns. In summary, the panel felt that the engineering, economics and environmental analysis were adequate and clarifications needed to be properly documented in the final report. The IEPR review comments resulted in no significant changes to the plan formulation, engineering assumptions, and environmental analyses that supported the decision-making process and plan selection. A safety assurance review (Type II IEPR) will be conducted during the design phase of the project.

8. Washington level review indicates that the project 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 and complies with other administrative and legislative policies and guidelines. The views of interested parties, including federal, state and local agencies were considered. There were no comments from public review of the draft integrated report. During state and agency review, comments were received from the TCEQ, the Federal Emergency Management Agency (FEMA), and the USFWS. TCEQ expressed support for the project, and FEMA and the USFWS had no concerns about the project.

9. I concur in the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend project implementation, in accordance with the reporting officer's recommendations with such modifications as in the discretion of the Chief of Engineers may be

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advisable. My recommendations are 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 sponsor would provide the non-federal cost 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 laws and policies, including but not limited to:

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

(1) Pay, during design, 35 percent of design costs;

(2) Pay, during construction, 5 percent of total flood risk management costs attributable to the structural alternative;

(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, and perform or ensure the performance of all relocations, as determined by the federal government to be required for the construction, operation, and maintenance of the project;

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

b. Inform affected interests, at least yearly, of the extent of protection afforded by the flood risk management features; participate in and comply with applicable federal floodplain management and flood insurance programs; comply with Section 402 of P.L. 99-662, the WRDA of 1986, as amended (33 U.S.C. 701b-12); 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 protection levels provided by the flood risk management features.

c. 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 flood risk management features afford, hinder operation and maintenance of the project, or interfere with the project's proper function.

d. Operate, maintain, repair, rehabilitate, and replace the project, 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.

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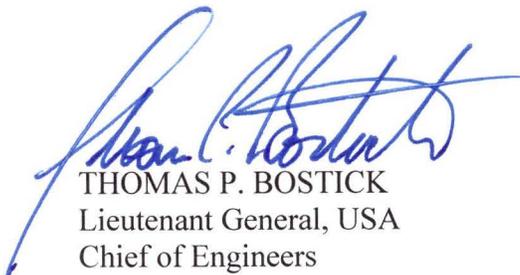
e. Hold and save the United States free from all damages arising from the construction, operation, maintenance, repair, rehabilitation, and replacement of the project, except for damages due to the fault or negligence of the United States or its contractors.

f. 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), P.L. 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.

g. 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 required for construction, operation, and maintenance of the project.

h. 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.

10. 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
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Chief of Engineers