



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

REPLY TO
ATTENTION OF:

MAR 28 2006

CECW-PC/CEMP-SPD (1105-2-10a)

SUBJECT: Santa Cruz River, Paseo de las Iglesias, Pima County, Arizona

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on the study of flood damage reduction and ecosystem restoration opportunities on the Santa Cruz River, Paseo de las Iglesias, Pima County, Arizona. My report is accompanied by the report of the district and division engineers. These reports are in partial response to a resolution adopted by the Committee on Public Works and Transportation of the U.S. House of Representatives on May 17, 1994. The resolution requested a review of reports for the State of Arizona to determine whether modifications of the recommendations contained therein are advisable in the interest of flood damage reduction, environmental protection and restoration, and related purposes. Pre-construction engineering and design activities will continue under the cited study authority.

2. The reporting officers recommend a plan for ecosystem restoration and recreation. The plan would restore ecosystem functions and values to about a 7.5-mile reach of the Santa Cruz River in Pima County and in the City of Tucson, between Los Reales Road and Congress Street. No flood damage reduction project could be justified within the 5,000-acre study area. The recommended plan includes the following features to support ecosystem restoration:

- Five water harvesting basins at existing grade control structures,
- Eight water harvesting basins at tributary confluences,
- Flattening approximately 56,000 linear feet of existing steeply eroded channel banks to about a 5-to-one side slope,
- Reestablishment of vegetation,
- An irrigation system to establish vegetation and provide reclaimed water during drought conditions, and
- Maintenance roads and ramps for safety and river access.

3. The water harvesting basins - shallow, gravel-lined depressions overlain with topsoil and plantings - would range in size from 1.3 to 4.2 acres, and are designed to hold surface water runoff and slowly release it to the project area. Public recreation use of the restored area would be confined to locations where compatible uses would not degrade restored ecosystem features. Public use areas would be defined by about 5 miles of multi-use, non-motorized, decomposed granite trails, pedestrian bridges, parking lots, comfort stations, and interpretive signs.

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4. The reporting officers recommend Federal participation in cost-shared monitoring and minor modifications, as may be required to ensure success of the project, as identified and described within the Monitoring and Adaptive Management Plan of the report for up to 5 years. The reporting officers further recommend that the plans, recommended herein, be exempt from regulations of the Clean Water Act, pursuant to Section 404(r) of the Clean Water Act. The 404(r) exemption will cover the construction phase and the operation and maintenance phase of the project, as described in the feasibility report and environmental impact statement.

5. Restoration of this resource in this urban setting is significant because riparian areas in the Southwest represent only 1 percent of the landscape yet the survival of 75 to 90 percent of life in the Southwest is dependant on riparian areas. In Arizona, over 90 percent of riparian areas have been lost due to impacts from historic settlement and urbanization. The US Fish & Wildlife Service refers to the habitat types being restored as "exceedingly rare and high-value habitat types." To insure recommendation of an efficient plan, alternative ecosystem restoration plans were evaluated using functional assessment, cost effectiveness, and incremental analysis techniques. An additional constraint that weighed heavily in the analysis was project sustainability: the local sponsor was able to commit only 2,000 acre-feet of water per year to the project. Currently the 5,000 acre study area includes 840 acres of various natural vegetative cover and the remainder is either developed or highly disturbed. It is projected that within a few years without a restoration project there will be no natural vegetative cover remaining. The cost of the recommended ecosystem restoration features are justified by the production of about 454 average annual functional capacity units and provides for achieving ecosystem function increases in the most cost effective manner. The recommended plan would restore a significant, highly productive habitat for resident mammals, insects, reptiles, and birds, and for neo-tropical birds using the Pacific Flyway all of which make use of the shade and food resources of this oasis-like riparian ecosystem resource. The restored area would help reconnect wildlife corridors, restore wildlife habitat for species significant to Pima County, and restore threatened plant communities of cottonwood/willow riparian forest and mesquite bosque. Although no species or habitats protected by the Endangered Species Act are known to use the study area today, both the endangered Southwestern willow flycatcher and the endangered Gila topminnow are found nearby within the Santa Cruz basin. Potential habitat for these endangered species will evolve incidental to the proposed restoration as willows and other woody riparian plant communities re-establish, mature and partially shade the stream in the restored riparian zone. Given time, the flycatcher and topminnow may repopulate the project area. Restoration of these regionally rare and declining habitats will also benefit at least ten additional species of concern to state and local agencies. The ecosystem function would increase 14 times over the expected future without project condition. The recommended plan is the national ecosystem restoration (NER) plan considering the constraints and limitations on available water supply. The recommended plan would restore and improve approximately 1,098 acres of habitat, including 718 acres of mesquite bosque, 356 acres of riparian shrub, 18 acres of cottonwood/willow, and 6 acres of emergent marsh. Recreation features of the recommended plan would provide average annual benefits of about \$135,000, and have a benefit-to-cost ratio of 1.3.

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6. Based on October 2004 price levels, the estimated first cost of the recommended plan is \$92,100,000. In accordance with the cost sharing provisions of the Water Resources Development Act (WRDA) of 1986, as amended, the estimated Federal share of the total project cost would be approximately \$59,700,000 and the estimated non-Federal share would be approximately \$32,400,000. The estimated total first cost of the ecosystem restoration portion of the recommended plan is \$90,900,000, which would be cost shared 65 percent Federal and 35 percent non-Federal. The estimated Federal cost is \$59,100,000, and an estimated non-Federal cost is \$31,800,000. The estimated total first cost of the recommended plan includes approximately \$2,500,000 for 5 years of monitoring and adaptive management necessary to ensure success of the project. Additionally, the estimated total first cost of the recommended plan includes recreation features compatible with the ecosystem restoration project. These features have an estimated first cost of \$1,200,000, which would be shared 50 percent Federal and 50 percent non-Federal, and have an estimated Federal cost of \$600,000 and an estimated non-Federal cost of \$600,000. The total estimated equivalent annual operation, maintenance, repair, rehabilitation and replacement (OMRR&R) costs for the recommended project are estimated to be \$800,000. Additionally, supplemental irrigation water costs are estimated as \$1,100,000 annually. OMRR&R and supplemental water costs are the responsibility of the non-Federal sponsor. The Pima County, Arizona, Flood Control District has agreed to be the non-Federal sponsor for the project.

7. I generally concur in the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the Santa Cruz River, Paseo de las Iglesias, Pima County, Arizona, project be constructed in accordance with the reporting officers' recommended plan with such modifications as in the discretion of the Chief of Engineers may be necessary and advisable.

8. Federal implementation of the authorized project would be subject to the non-Federal sponsor agreeing to comply with applicable Federal laws and policies, including but not limited to:

a. Provide 35 percent of the total project costs allocated to environmental restoration and 50 percent of the total project costs allocated to recreation, as further specified below:

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

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

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

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(4) Provide or pay to the Government the cost of providing all retaining dikes, waste weirs, 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

(5) Provide, during construction, any additional costs as necessary to make its total contribution equal to 35 percent of the total project costs allocated to environmental restoration and 50 percent of the total project costs allocated to recreation.

b. Assume responsibility for operating, maintaining, replacing, repairing, and rehabilitating (OMRR&R) the project or completed functional portions of the project, including mitigation features and the provision of water, at no cost to the Government, in a manner compatible with the project's authorized purposes 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.

c. Give the Government a right to enter, at reasonable times and in a reasonable manner, upon land which the local sponsor owns or controls for access to the project for the purpose of inspection, and, if necessary, for the purpose of completing, operating, maintaining, repairing, replacing, or rehabilitating the project.

d. 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 provide 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 Government free from all damages arising for 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 to the extent and in such detail as will properly reflect total project costs.

g. Perform, or cause to be performed, 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), 42 U.S.C. 9601-9675, that may exist in, on, or under lands, easements or rights-of-way necessary for the construction, operation, and maintenance of the project; except

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that the non-Federal sponsor shall not perform such investigations on lands, easements, or rights-of-way that the Government determines to be subject to the navigation servitude without prior specific written direction by the Government.

h. Assume complete financial responsibility 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 Government determines necessary for the construction, operation, or maintenance of the project.

i. To the maximum extent practicable, operate, maintain, repair, replace, and rehabilitate the project and otherwise perform its obligations in a manner that will not cause liability to arise under CERCLA.

j. Prevent future encroachments on project lands, easements, and rights-of-way, which might interfere with the proper functioning of the project.

k. 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, and performing relocations for construction, operation, and maintenance of the project, and inform all affected persons of applicable benefits, policies, and procedures in connection with said act.

l. 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 substantive 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)).

m. Provide the non-Federal share of that portion of the costs of archeological data recovery activities associated with historic preservation, that are in excess of 1 percent of the total amount authorized to be appropriated for the project, in accordance with cost sharing provisions of the agreement.

n. 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

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authorized.

o. Provide and maintain necessary access roads, parking areas, and other public use facilities, open and available to all on equal terms.

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 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 the Congress, the 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.



CARL A. STROCK
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Chief of Engineers