

# AMERICAN RIVER WATERSHED PROJECT, CALIFORNIA

## REPORT OF THE CHIEF OF ENGINEERS, DEPARTMENT OF THE ARMY



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

REPLY TO  
ATTENTION OF:

CECW-PE (10-1-7a)

27 JUN 1996

SUBJECT: American River Watershed, California

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on flood damage reduction for the American River Watershed, California. It is accompanied by the reports of the district and division engineers. These reports supplement the 29 June 1992 Report of the Chief of Engineers for the American River Watershed Investigation, California, for flood damage reduction in the greater Sacramento area. These reports were prepared in response to Section 9159 of the Department of Defense Appropriations Act of Fiscal Year 1993 (Public Law 102-396). Section 9159 directed a reevaluation of the flood control project for the Sacramento and American Rivers as described in my report of 29 June 1992. Section 9159 also authorized construction of levee modifications recommended for the Natomas area and provided for the non-Federal sponsor to receive credit for work commenced prior to the U.S. Army Corps of Engineers receiving appropriations to initiate such construction.

2. The structural plan previously recommended would have reduced the annual probability of flooding to the lower American River floodplain and the Natomas basin to less than 1 chance in 200. The plan consisted of a 425-foot-high single-purpose flood control detention dam on the North Fork of the American River near the town of Auburn; levee and channel modifications in the Natomas area of Sacramento; relocation of State Highway 49 and Ponderosa Way bridge crossings; and recreation trails on project features in the Natomas area. Mitigation features included acquisition and management of 280 acres in the Natomas area;

acquisition and management of 2,685 acres along the South Fork of the American River; and acquisition of an additional 2,700 acres of land along the South Fork as compensation for impacts to threatened and endangered species habitat.

3. The reporting officers have concluded their supplemental studies and reevaluation of the project for the Sacramento and American Rivers recommended in the 29 June 1992 report and recommend a plan that would reduce the annual probability of flooding in the greater Sacramento area to less than 1 chance in 500. The plan consists of a single-purpose flood control detention dam, 508-feet-high with a capacity of about 894,000 acre-feet, on the North Fork of the American River near Auburn, California; implementation of a telemetered inflow gage system and emergency flood warning system; relocation of State Highway 49; stabilizing approximately 24 miles of existing levees along the lower American River; and strengthening and raising about 12 miles of levees on the east side of the Sacramento River between the Natomas Cross Canal and the mouth of the American River. To minimize impacts to the upstream canyon, the detention dam would be operated in a way that in most years no water would pool behind the dam, and pooling during major storms would be for short durations. Fish and wildlife mitigation features include acquisition and restoration of approximately 2,960 acres of replacement habitat in the Yuba River basin; implementation of an adaptive management plan for about 1,480 acres in the inundation area of the detention dam; and planting of approximately 7,000 elderberry shrubs to mitigate possible impacts to the threatened valley elderberry longhorn beetle. Impacts to cultural resources from temporary inundation would be partially mitigated through data recovery, documentation and structural protection, as appropriate. The plan recommended by the reporting officers is the plan that maximizes net national economic development benefits consistent with protecting the environment. The plan is supported by the Reclamation Board of the State of California and the Sacramento Area Flood Control Agency (SAFCA). The State and SAFCA are prepared to provide the non-Federal share of funds necessary to implement the plan and to provide other items of

local cooperation necessary for construction.

4. The first cost of the plan developed by the reporting officers, based on October 1995 price levels, is estimated at \$948,700,000. Total average annual costs, based on a discount rate of 7-5/8 percent and a 100-year period of economic analysis, are estimated at \$95,000,000. Average annual benefits are estimated at \$186,000,000, yielding a benefit-to-cost ratio of 1.9 to 1.

5. The Administration has proposed a new cost sharing policy for flood damage reduction projects. Under that policy, the cost of implementing a flood control project would be shared equally between the Federal Government and the non-Federal sponsor. In addition, the non-Federal sponsor would be required to operate, maintain, repair, replace and rehabilitate the project as necessary and to put into place a comprehensive floodplain management plan which would complement the project. Furthermore, under the budgetary constraints expected to prevail in the foreseeable future, Federal resources for implementation of costly new water resources investments will be highly constrained.

6. In light of these uncertainties, I do not concur fully in the recommendations of the reporting officers. I am deferring a recommendation regarding the detention dam feature of the plan developed by the reporting officers. In recognition of the significant flood hazard potential facing the greater Sacramento area and in order to provide some immediate measure of flood hazard reduction to the area, I recommend implementation of several incrementally justified elements common to the final candidate plans developed by the reporting officers. Specifically, I recommend proceeding with stabilizing approximately 24 miles of existing levees along the lower American River; strengthening and raising about 12 miles of levees on the east side of the Sacramento River; and implementation of the telemetered inflow gage system and emergency flood warning system. The first cost of implementing

the common elements, based on October 1995 price level, is estimated at \$56,900,000. Total average annual costs, based on a discount rate of 7-5/8 percent and a 100-year period of economic analysis, are estimated at \$7,400,000. The Administration has proposed legislation that would authorize the Secretary of the Interior to continue to operate Folsom Dam and Reservoir with variable flood storage capacity as an interim flood control measure and extend the agreement between the Bureau of Reclamation and SAFCA until such time as a comprehensive flood damage reduction plan for the American River Watershed is implemented. With continued variable operation of Folsom Dam by the Bureau of Reclamation, implementation of the common elements would produce average annual benefits estimated at \$32,600,000, yielding a benefit-to-cost ratio of 4.4 to 1.

7. Washington level review indicates that my recommended plan is technically sound, economically justified, and environmentally acceptable. The recommended 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. The State supports immediate implementation of the common elements as initial features of a plan providing long-term protection to Sacramento, but urges a prompt decision by the Corps on a more comprehensive plan for flood damage reduction. All Federal agencies providing views on the project indicated either support for the common elements or had no comments.

8. I must emphasize, however, that implementation of the common elements should not be viewed as a permanent solution addressing all flood damage reduction issues in the Sacramento area. Construction of the common elements leaves relatively short flood warning times, significant depths and durations of flooding in the area, in the event the levees are overtopped, problems with safe egress during a flood event and significant residual risk, both in terms of monetary damages and hazards to human life. Therefore, I also recommend that implementation of the common elements be complemented by continued regulation of development

in the flood hazard area and continued purchase of flood insurance by occupants of the protected area.

9. Since the non-Federal sponsor has expressed interest in undertaking the design and construction of these common elements, I concur with the reporting officers that the non-Federal sponsor be eligible to receive credit for such work. This recommendation is also subject to the non-Federal sponsor agreeing to comply with applicable Federal laws and policies.

10. With resolution of the cost sharing policy for flood damage reduction and upon a better understanding of the availability of Federal resources, I will make further recommendations concerning implementation of a more comprehensive plan for the American River.

11. I recommend the improvements for flood damage reduction in the American River Watershed, identified in paragraph 6, be authorized subject to cost sharing that is consistent with Administration policy. This recommendation is also subject to the non-Federal sponsor agreeing to comply with applicable Federal laws and policies, including the following requirements:

- a. 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;
- b. Provide or pay to the 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;
- c. For so long as the project remains authorized, operate,

maintain, repair, replace, and rehabilitate the completed project, or functional portion of the project, at no cost to the Government, in accordance with applicable Federal and State laws and any specific directions prescribed by the Government;

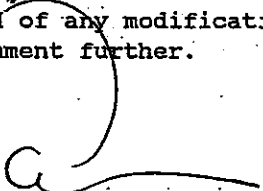
- d. Grant the Government a right to enter, at reasonable times and in a reasonable manner, upon land which the local sponsor owns or controls for access to the project for the purpose of inspection, and, if necessary, for the purpose of completing, operating, maintaining, repairing, replacing, or rehabilitating the project;
- e. Hold and save the Government 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 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 USC 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 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 in a manner that will not cause liability to arise under CERCLA;
- j. Participate in and comply with applicable Federal floodplain management and flood insurance programs in accordance with section 402 of Public Law 99-662;
- k. Prevent future encroachments on project lands, easements, and rights-of-way which might interfere with the proper functioning of the project;
- l. Not less than once each year, inform affected interests of the limitations of the protection afforded by the project;
- m. 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;
- n. 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;

- o. 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";

12. The recommendations contained herein reflect the information available at this time and current departmental policies governing formulation of individual projects. The recommendations 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 of California, 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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