

CHAPTER 7

DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

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This chapter summarizes the results of the investigations of the General Reevaluation of the water and related land resource problems and needs with the Dallas Floodway Extension study area.

DISCUSSIONS

The Dallas Floodway Extension project is one of five local flood protection projects authorized for construction in 1965. Further studies were conducted which assessed the plan in greater detail, but were never implemented. The current study was initiated in 1991 following significant flood events in 1989 and 1990.

The NED Plan identified in this reevaluation consisted of a 1,200-foot wide swale providing greater conveyance of flood waters through the area. The flood control portion of this plan had an estimated cost of \$50.0 million. The vast majority of benefits for this plan were realized in the existing Dallas Floodway, upstream of the immediate study area. This plan, which was extremely controversial from an environmental resource perspective, would have directly impacted approximately 725 acres of environmental resources, including removal of approximately 504 acres of bottomland hardwoods, and would have required 3,200 acres of mitigation at an estimated cost of \$13.5 million.

Because of the public input regarding the environmental impacts of the NED Plan, and due to the city's desire to provide greater protection to the immediate study area and to incorporate environmental restoration features into the project, the chain of wetlands concept was developed. The Chain of Wetlands Plan consisted of upper and lower flood control swales, divided by IH-45. These swales were reduced in width and relocated as far west as possible to avoid the higher quality forested areas. The Chain of Wetlands would require approximately 649 acres of mitigation at an estimated cost of \$3.1 million. The Chain of Wetlands Plan was formally adopted as the initial Locally Preferred Plan (LPP) on August 28, 1996. In addition, due to the anticipated public acceptability issues associated with implementation of the NED Plan, the chain of wetlands was designated as the first increment of the Federally Supportable Plan, in lieu of the NED Plan. However, public and social pressure remained to provide flood protection to the study area comparable to the protection provided to the Central Business District by the existing Dallas Floodway.

The addition of SPF levees to the chain of wetlands concept was investigated. The Lamar Levee was deemed economically feasible and was, therefore, added to the chain of wetlands as part of the Federally Supportable Plan. Although the analysis of a SPF levee at Cadillac Heights showed that this levee was not incrementally justified, a 100-year levee (1.0 percent chance of exceedance in any one year) at this location proved to be feasible. However, sensitive social equity issues prompted the city to adopt a plan including SPF levees on both sides of the river. The Chain of Wetlands Plus SPF Levees Plan was formally adopted by the city as the final LPP on March 26, 1997.

In the April 1998 draft of this report, the Federally Supportable Plan (FSP) was identified as a plan that, except for the levee protecting the Cadillac Heights neighborhood, would provide a Standard Project Flood (SPF) level of protection at a high degree of reliability. In this plan, the Cadillac Heights Levee would only provide protection from the flood that would have a 1.0 percent chance of exceedance in any one year, with a 34.0 percent reliability. Upon further analysis and subsequent concurrence by the Assistant Secretary of the Army (Civil Works), it was determined that the FSP is that plan that provides SPF protection for the entire Dallas Floodway Extension project for the following reasons. First, the alternative levee for the Cadillac Heights neighborhood would not meet the Federal Emergency Management Agency standards for protecting the area from a flood that would have a 1.0 percent chance of exceedance in any one year, nor would it provide an acceptable level of reliability, particularly when compared with other project elements. Second, the

alternative levee for Cadillac Heights would allow continued damages in this area from major, although infrequent floods (greater than the flood that would have a 1.0 percent chance of exceedance in any one year), due to the construction of other project levees. Finally, Congress has already authorized the project, including the Cadillac Heights Levee, at a SPF level of protection. For the reasons noted above, the project providing a consistent SPF level of protection is the Federally Supportable Plan, and is therefore the Recommended Plan.

The original Dallas Floodway Extension project, authorized in 1965, contained levee, channel, and lake features designed to provide SPF protection to both the northern and southern portions of the city of Dallas. The current Recommended Plan provides for similar outputs at a lower total project cost. The estimated cost of the authorized improvements to the Dallas Floodway Extension area, at October 1998 price levels, would be approximately \$202.7 million. Total annual benefits for the authorized project were estimated at \$13.2 million. Under current economic conditions, the authorized project would have negative net benefits of \$3.0 million, with a BCR of 0.82. The Recommended Plan, as presented herein is estimated to cost approximately \$127.2 million, including \$23.1 million for compatible portions of previously constructed non-Federal levees. This plan would yield total annual benefits of approximately \$19.1 million, net annual benefits of \$9.8 million, and a BCR of 2.06.

CONCLUSIONS

The following conclusions are based on the results of the investigations conducted for this study.

- a. A significant need exists for a project within the Dallas Floodway Extension study area providing flood damage reduction benefits, environmental restoration features and recreation amenities.
- b. The Recommended Plan is a multi-objective project consisting of a flood control swale, with an incorporated chain of wetlands for environmental restoration purposes, SPF levees protecting the Lamar and Cadillac Heights neighborhoods, environmental mitigation, and recreation facilities compatible with a larger, regional recreation master plan. Also included in this plan would be a proposed realignment of the existing river channel at the IH-45 bridge to prevent catastrophic failure of this designated national defense route, and to reduce significant annual maintenance costs due to debris accumulations at the bridge.
- c. The City of Dallas has been identified as the local sponsor for the construction of the project. The Federal and non-Federal cost apportionments for the Recommended Plan are estimated at \$83.6 million (65.7%) and \$43.6 million (34.3%), respectively. A credit in the amount of approximately \$22.2 million was applied toward the non-Federal share of the flood control project costs, in accordance with Section 351 of WRDA 1996.
- d. It is noted that certain costs have been estimated which are not included as project costs, and which are not allowed to be cost shared. These costs include removal and/or preservation of cultural resources which may be discovered during implementation of this project, and which would be borne as a 100 percent Federal cost, up to a maximum of one percent of the total Federal project costs. Should the cost of cultural resource preservation exceed this one percent limit, cost sharing provisions would be implemented. An estimate of \$800,000 has been developed to cover the possibility of cultural resource preservation. These costs have been included in the cost apportionments noted above.
- e. Environmental restoration is not included as a project purpose in the original language of the 1965 authorization for this project. An amendment to the authorization, adding environmental restoration as a purpose for all Upper Trinity River studies, is required

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- f. Cultural investigations undertaken to provide basic information on the project have identified fourteen archaeological and architectural sites eligible for inclusion on the National Register of Historic Places. Although additional investigations will be necessary for a definitive determination of eligibility, the archaeological sites appear to retain intact deposits valuable in scientific research and are, therefore, being treated as eligible for the purposes of this project. The potential for additional intact historic sites and in situ buried prehistoric cultural deposits in the project footprint impact zone is very high. All efforts will be needed to locate and identify all significant heritage resources to be impacted by the proposed project and to develop contingencies to minimize or mitigate their loss. A Programmatic Agreement with the Advisory Council on Historic Preservation, Texas Historic Preservation Officer, and other interested parties has been developed to address cultural resources with due diligence. This agreement has been included in Appendix L of this report.
- g. The Recommended Plan, as proposed, would provide completion of a significant portion of the Authorized Plan for the Dallas Floodway Extension. The plan is located within the originally chosen site, and includes smaller scale features of the authorized flood damage reduction plan. Future work efforts to more fully fulfill the scope of the authorized plan would not be adversely affected by the Recommended Plan.

RECOMMENDATIONS

I recommend that the original authorization for the Trinity River and Tributaries Basinwide Study be amended to include Environmental Restoration as a project purpose, and that the Recommended Plan, as described in this report, for flood damage reduction, environmental restoration and recreation development along the Trinity River within the city of Dallas, Texas, be constructed as a Federal project with such modifications thereof as in the discretion of the Commander, HQUSACE, may be advisable.

I also recommend that the non-Federal sponsor be authorized credit for the advanced non-Federal construction of the Central Wastewater Treatment Plant Levee upgrade and the portion of the Rochester Park Levee compatible with the Recommended Plan. The preliminary estimate for this compatible construction, subject to an audit for reasonableness, allocability, and allowability, is approximately \$22,174,000.

The above recommendations are made with the provision that prior to project implementation, the non-Federal sponsor shall enter into a binding agreement with the Secretary of the Army to perform the following items of local cooperation:


- a. Provide between 25 percent and 50 percent of the separable project costs allocated to flood control, 35 percent of the separable project costs allocated to environmental restoration, and 50 percent of the costs separable project costs allocated to recreation, as further specified below:
 - (1) Provide, during construction, funds needed to cover the non-Federal share of preconstruction engineering and design costs;
 - (2) Provide, during construction, a cash contribution equal to 5 percent of total project costs allocable to flood control;
 - (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;
 - (4) 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; and

- (5) Provide, during construction, any additional costs as necessary to make its total contribution equal to 25 percent of total project costs allocated to structural flood control, 35 percent of the separable project costs allocated to environmental restoration, and 50 percent of the separable project costs allocated to recreation.
- b. 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.
- c. 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 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.
- 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 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 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 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. 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 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.
- m. Provide the non-Federal share of that portion of total cultural resource preservation mitigation and data recovery costs attributable to flood control, environmental restoration, and recreation that are in excess of one percent of the total Federal amount authorized to be appropriated for flood control, environmental restoration, and recreation.
- n. Participate in applicable flood insurance programs, and in accordance with Section 202(c) of the Water Resources Development Act of 1996, within 1 year after the date of signing a project cooperation agreement for construction of the project, prepare a floodplain management plan designed to reduce the impacts of future flood events in the project area, and implement such plan no later than 1 year after completion of construction of the project.
- o. Provide and maintain necessary access roads, parking areas and other public use facilities, open and available to all on equal terms.
- p. Prescribe and enforce regulations to prevent obstruction of or encroachment on the Project that would reduce the level of protection it affords or that would hinder operation or maintenance of the Project.
- q. 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 expressly authorized by statute.

The recommendations contained herein reflect the information available at this time and current Departmental policies governing formulation of individual projects. They do not reflect program and budgeting priorities inherent to the formulation of a national Civil Works construction program nor the perspective of higher review levels within the Executive Branch. Consequently, the recommendations may be modified before they are transmitted to the Congress as proposals 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 modifications and will be afforded an opportunity to comment further.


James S. Weller
Colonel, Corps of Engineers
District Engineer

Revised: 13 August 1999



REPLY TO
ATTENTION BY

DEPARTMENT OF THE ARMY
SOUTHWESTERN DIVISION, CORPS OF ENGINEERS

1114 COMMERCE STREET
DALLAS, TEXAS 75242-0218

February 12, 1999

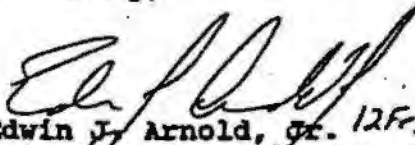
Engineering and Technical
Services Directorate

Lieutenant General Joe N. Ballard
Commander
U.S. Army Corps of Engineers
20 Massachusetts Avenue, NW
Washington, DC 20314-1000

Dear General Ballard:

I concur in the conclusions and recommendations of the
District Engineer.

Sincerely,


Edwin J. Arnold, Jr. 12F699
Brigadier General, U.S. Army
Commanding General

LIST OF PREPARERS

The people who were primarily responsible for contributing to preparing this General Reevaluation Report and Integrated Environmental Impact Statement are listed in table 7-1.

**Table 7-1
Dallas Floodway Extension
List of Preparers**

NAME	DISCIPLINE/ EXPERTISE	EXPERIENCE	ROLE IN DOCUMENT
Gene T. Rice, Jr.	Civil Engineer	16 years, Corps of Engineers	Project Management
Kevin Craig	Civil Engineer	5 years, private sector; 2 years, TxDOT; 4 years, Corps of Engineers	Technical Management; Report Preparation
Paul M. Hathorn	Supervisory Environmental Resources Planner (Biology)	23 years, water resource planning, Corps of Engineers	Review and Supervision - EIS Preparation
Billy K. Colbert	Environmental Resource Planner	9 years, Corps of Engineers; 15 years, U.S. Fish and Wildlife Service	Report - EIS Preparation
Hank Jarboe	Environmental Biology	19 years, natural resource management	EIS - Data review, evaluation and Document preparation
Marcia Hackett	Biology	6 years, wetland and landscape ecology	EIS preparation
Linda Lopez	Environmental Specialist	2 years, Corps of Engineers	Section 404 (b) (1) for DFE
Mark Simmons	Chief, Environmental Design	19 years, Corps of Engineers	Supervised preparation of the HTRW Appendix
Jim Drysdale	Environmental Design	11 years, Corps of Engineers	HTRW analysis
A. Frank Servello	Cultural Resources	2 years, Corps of Engineers; 9 years, University; 16 years, private sector	Report - EIS Preparation; SHPO Concurrence; ACHP, COE and SHPO coordination
Jeffrey Comer	Civil Engineer	18 years, Corps of Engineers	Preparation of preliminary design of relocations

NAME	DISCIPLINE EXPERTISE	EXPERIENCE	ROLE IN DOCUMENT
Lisa Eskew	Civil Engineer	3 years, Corps of Engineers	Utility Relocations
Elston Eckhardt	Chief; Hydrology & Hydraulics	17 years, Corps of Engineers	Review - H&H; Risk-Based Analysis
David Wilson	Hydraulic Engineer	16 years, Corps of Engineers	Hydraulic analysis
Craig Loftin	Hydraulic Engineer	18 years, Corps of Engineers	Hydrologic and hydraulic analysis
Efren Martinez	Civil Engineer	15 years, Corps of Engineers	Civil Design
Gayla Gurley	Civil Engineer	16 years, Corps of Engineers	Civil Design
Charles Peter Matar	Civil Engineer	3 years, TxDOT; 6 years, Corps of Engineers	Civil Design
Lanora Wright	Economist	13 years, Corps of Engineers	Economics
Randy Roberts	Realty Specialist	15 years, real estate management and planning, Corps of Engineers	Real Estate
Warren Shaver	Structural Engineer	30 years, Corps of Engineers	Structural Design
Mark Sissoms	Structural Engineer	19 years, Corps of Engineers	Structural Design
Janet Hall	Geotechnical Engineer	7 years, Corps of Engineers	Geotechnical Design
Bill Cotten	Landscape Architect	11 years, Corps of Engineers	Recreation Planner
Jim Sears	Cost Estimating	43 years, Corps of Engineers	Cost estimating
Richard Keene	Cost Estimating	24 years, Corps of Engineers	Preparation - MCACES cost estimate

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