CHAPTER 1

INTRODUCTION

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This General Reevaluation Report and integrated Environmental Impact Statement documents the results of a comprehensive reevaluation of the authorized Dallas Floodway Extension Project located in the Trinity River Basin, Texas. These analyses update all pertinent information and reevaluate the water resource needs of the study area based on current hydrologic, economic and environmental conditions and criteria.

PROJECT AUTHORITY

Authority for construction of water resource development features described in the Comprehensive Survey Report on Trinity River and Tributaries, Texas (reprinted as House Document 276/89/1) is contained in Section 301 of the Rivers and Harbors Act approved 27 October 1965 (Public Law 89-298).

The authority granted by the resolution is commonly known as the Trinity River and Tributaries Basinwide Study Authority. All studies conducted under this authority serve as an interim response to the basinwide authority, and do not close out the granting authority.

THE AUTHORIZED PLAN

The Dallas Floodway Extension is one of five local flood protection projects authorized for construction in 1965 as part of a basinwide plan of improvement for the Trinity River and Tributaries, Texas. The authorized plan of improvement consisted of a combination flood control channel and floodway levees which would provide a Standard Project Flood (SPF) level of protection. The plan consisted of a 22-mile levee and floodway system with a 9.1 mile residual channel along the Trinity River, 4.1 miles of channel improvements along White Rock Creek, and 5.4 miles of channel improvements to divert Five Mile Creek. Figure 1-1 depicts the features of this plan.

A General Design Memorandum (GDM), which assessed the plan in greater detail, was completed in 1981. In 1985, however, work on the Dallas Floodway Extension Project was suspended following a failed city of Dallas bond election aimed at providing support for the project. Final approval of the 1981 GDM was discontinued, resulting in the retention of the 1965 plan as the authorized plan.

PARTICIPANTS AND COORDINATION

This reevaluation was conducted by the Fort Worth District, U.S. Army Corps of Engineers, and utilized a multi-disciplined team analysis concept. Coordination was maintained during the study with state and local government officials and agencies, the news media, local interest groups and citizens in the Dallas area. The regional office of the Natural Resources Conservation Service (NRCS), formerly known as the Soil Conservation Service, furnished applicable soil information and elevation data. Landfill information was obtained from the Texas Natural Resource Conservation Commission (TNRCC). The Federal Emergency Management Agency was also consulted for pertinent floodplain information. Direct coordination was maintained with the Texas State Historic Preservation Officer and the U.S. Fish and Wildlife Service in accordance with the National Historic Preservation Act and the Fish and Wildlife Coordination Act.

The Texas Department of Transportation provided bridge profiles and future transportation project information which could impact the study area. The Environmental Protection Agency and the Texas Parks and Wildlife Department were also consulted. Local coordination efforts involved the Dallas County Tax Appraisal District, Dallas County Open Space, and the City of Dallas Public Works, Parks and Recreation, Sanitation, and Water Utilities Departments.

STUDY PURPOSE AND NEED

The primary purpose of this study was to respond to a request by the city of Dallas to re-activate the authorized Dallas Floodway Extension Project. Following the severe flood event of 1989, the city of Dallas requested reactivation of the authorized Dallas Floodway Extension project. The project was reactivated in 1990 under the provision that a general reevaluation be conducted prior to construction. This reevaluation was required due to new environmental and economic criteria, as well as significant land use changes within the study area. Specifically, the new criteria and changes include:

New Criteria:

- No net loss of wetlands
- Chief of Engineers Strategic Directive for Environmental Engineering
- Corps primary mission includes Environmental Protection
- Undeveloped lands cannot be used to justify a Federal project
- Project evaluation based on a risk and uncertainty analysis

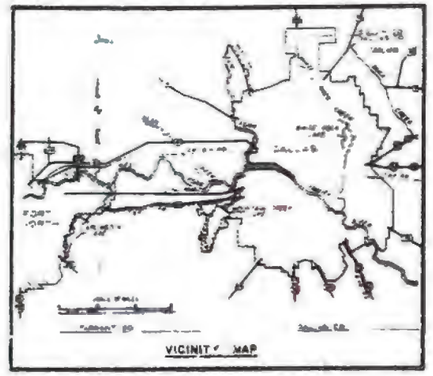
Land Use Changes:

- Acquisition and removal of residential structures in the Roosevelt Heights and Floral Farms subdivisions
- Construction of the Rochester Park Levee
- Raising of Central Wastewater Treatment Plant Levee

The modified project resulting from most recent reevaluations was designed according to current economic, environmental and design criteria.

PRIOR STUDIES AND REPORTS

Numerous studies have been conducted regarding flooding and emergency streambank erosion, water quality and water resource development within the Trinity River watershed. The following paragraphs provide pertinent information on previous studies and reports prepared by the Corps of Engineers and other Federal and State agencies which address water resource development within the Trinity River Watershed.



LEGEND

- SPF RESIDUAL CHANNEL
- LEVEE ALIGNMENT
- EXISTING RIVER CHANNEL
- SUMP AREA
- 320 CHANNEL MILE
- 490 RIVER MILE
- HIGH WATER LINE (MAX. OF RECORD)
- GREENBELTS AND PARKS
- PROJECT ASSOCIATED
- OTHERS - EXISTING AND PROPOSED

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

GENERAL REEVALUATION REPORT
TRINITY RIVER, TEXAS
DALLAS FLOODWAY EXTENSION

1965 AUTHORIZED PLAN

FIGURE 1-1

CORPS OF ENGINEERS STUDIES AND REPORTS

Water Resources Development in Texas, 1971, 1981, 1988, 1989, 1991, and 1995. These reports were prepared by the Fort Worth District, Corps of Engineers. They provide current information about water resources activities conducted under the direction of the Secretary of the Army and the United States Congress. The information in these booklets have been consolidated to illustrate the role of the Corps in navigation, planning, construction, and operation of projects for flood control, hurricane flood protection, municipal and industrial waster supply, recreation, and other beneficial uses. Each booklet describes projects completed, under construction, or in the planning stage, and cites the specific authorization of Congress.

Report on Flooding, April - May 1990. This report provides a summary of the flood damages experienced and effectiveness of Fort Worth District projects between April and May of 1990. This report contains general information regarding storms and their impacts, a description of the rainfall and river basins that experienced heavy losses, flood losses sustained in the respective counties and cities significantly affected by the storm, and estimates of damages prevented by existing Corps of Engineers projects.

The Trinity River and all of its tributaries were above flood stage or bankfull stage for most of this time period. Flooding was experienced by private and public properties in the Dallas Fort Worth Metroplex. On May 2, 1990, the President declared the State of Texas a major disaster area because of the severe thunderstorms, flooding, and tornadoes that began in April and continued through early June 1990. Sixty-eight counties, with a total population exceeding five million and covering an area of almost 48,000 square miles, were declared as Disaster Areas.

Report on Flooding, May - June 1989. This report contains general information on the storms (and their resultant impacts) that occurred 3-5 May, 16-18 May, and 1-15 June 1989 in the Upper Trinity River Basin. Field investigations by Corps personnel were conducted primarily for making preliminary damage appraisals, determining high water marks, and obtaining stream flow data for selected rivers and streams. Urban reconnaissance surveys were conducted in the cities of Arlington, Burleson, Cleburne, Corsicana, Dallas, DeSoto, Duncanville, Euless, Everman, Fort Worth, Gainesville, Grand Prairie, Kennedale, Irving, Mansfield, Mesquite, Rendon, Watauga, and White Settlement, Texas. Field investigations were not conducted for approximately 75 additional counties that reported flooding. Information solicited included details on evacuation and flood fighting activities, damage estimates for private and public properties, agricultural damages, etc. A review of various local documents showed that flood related deaths numbered approximately 25.

Dallas Floodway Reconnaissance Report, February 1989. This study presents the results of a reconnaissance level investigation conducted on the Dallas Floodway under authority of Section 216, Public Law 91-611, in response to local concerns. Since completion of the floodway in 1959, substantial development has occurred in the upstream reaches of the Elm Fork and the West Fork of the Trinity River, causing a significant increase in the flood flows downstream. A structural plan was found to be economically feasible. The plan would entail enlarging the bottom width of approximately 49,000 feet of channel from 50 feet to 200 feet. Total first cost for this project was estimated at $45.5 million, with an average annual cost (including operation and maintenance) of $4.7 million. Total annual benefits were $5.1 million, yielding a benefit-to-cost ratio (BCR) of 1.1. Information from this report was used in the Upper Trinity River Basin reconnaissance study.

Upper Trinity River Basin, Reconnaissance Report, March 1989. This study presents the results of a reconnaissance level study conducted on the Upper Trinity River Basin under authority of United States Senate Committee on Environment and Public Works

Resolution, dated April 22, 1988, in response to local concerns. Based on the thirteen structural alternatives investigated, and the social and environmental impacts of each of these alternatives, eleven viable flood control projects were identified. These structural alternatives consisted of two detention structures, one channel modification plan, six levee enhancements, and two channel modification and levee combination plans.

Trinity River Project, Texas, Phase I General Design Memorandum, October 1981. This study investigated the following: (1) a multi-purpose channel from Fort Worth to Liberty, Texas; (2) the Tennessee Colony Lake; and (3) the Dallas Floodway Extension. The recommendations of this report included:

- The bottom width of the multi-purpose channel should be reduced from 320 to 200 feet. The narrower bottom width plan would produce a BCR of 1.8, and reduce adverse effects on the nearby marsh and commercial fisheries. This plan was recommended for approval.
- The Tennessee Colony Lake should be deferred until substantial amounts of lignite discovered at the site are removed.
- The Dallas Floodway Extension would provide Standard Project flood protection to about 98 percent of the residential and commercial units over a distance of 9.1 miles. About 5,000 acres would be preserved as greenbelt-open space-recreational area, with almost 2,000 acres of land in the protected area that would be of potential industrial development. Some additional flood control features are as follows:
    - Realignment and enlargement of the channel
    - Realignment and enlargement of tributary channels through levee areas
    - Construction of a parallel levees through low lying areas
    - Provision of interior drainage facilities
    - Provision of recreation facilities and greenbelt
    - Filling of areas outside levee areas with spoil material
    - Modification of bridges and construction of new roads
    - Acquisition of rights-of-way

Due to a lack of local sponsorship, action on approval of the Dallas Floodway Extension project, as proposed in this GDM, was not pursued.

Trinity River Project, Texas, Habitat Mitigation Report, December 1981. This report includes habitat and associated economic evaluations, and addresses habitat losses and mitigation requirements associated with the Multiple Purpose Channel to River Mile 45. The evaluations presented in this report indicate that the acquisition of approximately 11,700 acres of lands adjacent to Wallisville Lake lands is reasonable and justified to mitigate for terrestrial habitat losses caused by the Multiple Purpose Channel. Further, it is recommended that the project authorization be modified to include fee simple acquisition of the identified 11,700-acre mitigation area. This mitigation was subsequently authorized by the Water Resources Development Act of 1986.

Trinity River Project, Texas, Project Design Memorandum No. 4, Phase 1 General Design Memorandum, August 1974. The subject memorandum and accompanying Environmental Impact Statement presented a current update and re-analysis of the water resource plan. The memorandum covers that portion of the main stem of the Trinity River from the existing Fort Worth Floodway (River Mile 551.45) to Trinity Bay. Elements of the Trinity River Project recommended in this report included: a multiple-purpose lake at Tennessee Colony; an urban floodway on the West Fork between Dallas and Fort Worth; an extension of the existing Dallas Floodway downstream to Five Mile Creek; and a multiple-purpose channel from Fort Worth to Trinity Bay. This memorandum recommended that the economically justified plan be approved as a basis for further advanced planning

and possible construction of the project. The estimated initial Federal construction cost of this recommended Trinity River Project (including navigation features) amounted to over $1.6 billion. Because of the failure of a March 1973 bond election for the Trinity Basin project funding by the TRA, Congress directed that no further study or planning of navigation features for the Trinity River Project be undertaken. The initial Federal construction cost of the Trinity River Project with deferral of navigation was estimated at $517.7 million.

Comprehensive Survey Report on Trinity River and Tributaries, Texas, June 1962. The report recommended a comprehensive plan for the development and control of the water and related land resources in the basin. The plan included five flood control projects, a multi-purpose channel, and four multi-purpose lakes. Flood control measures for the Dallas Floodway Extension included a total of 22 miles of levees and a 9-mile, 200-foot bottom width relief channel. The total estimated cost of the proposed plan was $101,000,000 (1962 price levels) with a BCR of 1.6. The estimated Federal share was $52,900,000. This plan of improvement consisted of 11 segments:

- Five local flood protection projects: West Fork Floodway, Elm Fork Floodway, Dallas Floodway Extension, Duck Creek Channel Improvements, and Liberty Levee.
- Four multiple-purpose lakes (Lakeview, Roanoke, Aubrey, and Tennessee Colony).
- A multiple-purpose channel along the Trinity River from the Houston Ship Channel to Fort Worth, Texas.
- A water conveyance system from Tennessee Colony Lake to Benbrook Lake for the improvement of water quality.

OTHER STUDIES AND REPORTS

Flood Insurance Study, Dallas County, Texas. Conducted for FEMA. This study investigated and revised data on the existence and severity of county-wide flood hazards, including the city of Dallas. The updated technical flood risk data was used to develop flood insurance rate maps, establish actuarial rates and promote sound floodplain management in conjunction with the guidelines of the National Flood Insurance Program.

Texas Water Commission, Trinity River Basin Study, September 1992. This study was mandated by the state of Texas Legislature (Senate Bill 1543), and was sponsored by State Senator Carl Parker. The Texas Water Commission was directed to investigate the flooding problems in the Trinity River Basin. Alternatives which were to be investigated by this study were: Pre-release of water in reservoirs, county regulations, reservoir operations, flood insurance programs, flood emergency operations, land treatment and watershed improvement.

The report concluded that the existing flood control programs can be responsive to a state policy when one exists. Alternative approaches to the traditional flood control programs are yet to be fully utilized by the State. Many of these alternatives take advantage of the natural flood plain characteristics that can moderate flood effects. Therefore, rather than creating vast new programs, the report concluded the opportunity exists to bring these existing efforts together to develop more effective approaches to flooding in Texas and the Trinity River Basin.

Water for Texas, Today and Tomorrow, December 1990. This report was prepared by the Texas Water Development Board, Austin, Texas. The report updates and presents the 50-year plan for the state of Texas. This summary document presents the current and

prospective water uses, identifies water supplies, and estimates facility needs and costs. The plan also describes water problems and opportunities, outlines significant environmental concerns and water issues, and offers program and policy recommendations.

The Texas Statewide Inventory of Flood Protection Needs, May 1990. This report was compiled to provide an up-to-date, community-specific inventory of flooding problems and solutions for 756 cities and towns in Texas that could be incorporated into the revised state water plan. This inventory contains data from Corps of Engineers planning studies and National Flood Insurance Program (NFIP).

Water for Texas, November 1984. This two-volume report was prepared by the Department of Water Resources, Austin, Texas. Volume one, A Comprehensive Plan for the Future, of the amended 1969 Texas Water Plan is an executive summary that sets forth planned actions and policy recommendations. Volume II, Technical Appendix, is a technical document that provides details of current water development and use, projected future water supply and treatment needs, and potentially developable water supplies to meet future water needs in each river and coastal basin of the state.

The Texas Water Plan, November 1968. Prepared by the Texas Water Development Board. The report outlines a flexible guide for the orderly development, conservation, and wise management of the State's water resources to meet the needs of the state to the year 2020. The plan includes the possibilities of importing large quantities of surplus water from the Mississippi River's lower reaches to areas of greatest need in Texas.

Table 1-1 provides a chronological list of additional studies and reports by non-Federal agencies, i.e., State and local agencies, for the Trinity River watershed and the relevant aspects of the Dallas Floodway Extension.

Table 1-1
Studies and Reports by Non-Federal Agencies

STUDY	AGENCY	DATE
Upper Trinity River Basin Comprehensive Sewerage Plan	North Central Texas Council of Governments (NCTCOG)	1970
North Central Texas Regional Water Supply Study	NCTCOG	1974
Water Quality Management Plan for the Trinity River Basin	Trinity River Authority (TRA)	1974
Long Range Water Supply	City of Dallas	1975
Gauging Our Water Supply	NCTCOG	1976
Trinity River Basin Master Plan	TRA	1977
Priorities for Clean Water	NCTCOG	1978
1978 Annual Water Quality Management Plan for North Central Texas	NCTCOG	1978
Non-Point Sources	NCTCOG	1978

NATIONAL ENVIRONMENTAL POLICY ACT REQUIREMENTS

The National Environmental Policy Act of 1969 (NEPA), as amended, is the nation's charter for environmental protection. NEPA establishes policy, sets goals, and provides means for carrying out the policy. Section 102 (2) of the Act includes a provision to prepare a detailed statement - Environmental Impact Statement (EIS) - on the effects of the proposed Federal action. The Federal regulations for implementing the procedural provisions of NEPA were published by the Council on Environmental Quality (CEQ) in the Code of Federal Regulations (CFR) as 40 CFR Parts 1500-1508 (43 Federal Register 55978-56007, November 29, 1978).

Corps regulations permit an EIS to be a self-standing document or an integration of NEPA required discussions in the text of the report. Regarding the environmental nature of the Dallas Floodway Extension study area and in the interest of reducing paperwork, costs, and redundancies the Corps elected to integrate these documents. Sections in this integrated report that include NEPA required discussions are marked with an asterisk in the Table of Contents to assist readers in identifying such material. The document addresses alternatives evaluated to address flood damage reduction and environmental restoration in the Dallas Floodway Extension study area and discloses the direct, indirect and cumulative impacts of the proposed project, and those of interrelated projects, to the extent that they can be reasonably foreseen.