CHAPTER 1
INTRODUCTION

STUDY AUTHORITY

The authority for the study of Onion Creek is contained in a resolution by the Committee on Transportation and Infrastructure, United States House of Representatives, adopted May 6, 1998, as quoted below:

> "*Resolved by the Committee on Transportation and Infrastructure of the United States House of Representatives, That the Secretary of the Army is requested to review the report of the Chief of Engineers on the Colorado River, Texas, published as House Document 361, 71st Congress, 2nd Session, and other pertinent reports, with a view to determine if improvements to the Onion Creek watershed in the interest of flood damage reduction, environmental restoration and protection, and other related purposes are advisable at the present time."*

Additionally, there are also several older, but relevant authorities that are applicable. These are shown below.

Flood Control Act, approved June 22, 1936:

> *"Section 6. The Secretary of War is hereby authorized and directed to cause preliminary examinations and, surveys for flood control at the following named localities,..Colorado River, Texas, above the county line between Coke and Runnels Counties…..Lower Colorado River, Texas."*

Resolution by the Committee on Commerce, United States Senate, adopted August 4, 1936:

> *"Resolved by the Committee on Commerce of the United States Senate, That the board of Engineers for Rivers and Harbors created under Section 3 of the River and Harbor Act, approved June 13, 1902, be and is hereby, requested to review the reports on Colorado River, Texas, submitted in House Document Number 361, Seventy-first Congress, second session, and previous reports, with a view to determining if improvement in the interest of commerce and flood control is advisable at the present time."*

River and Harbor Act, approved August 26, 1937:

> *"Section 4. The Secretary of War is hereby authorized and directed to cause preliminary examinations and surveys to be made at the following named localities…..Colorado River, and its tributaries, Texas, with a view to its improvement in the interest of navigation and flood control."*

River and Harbor Act, approved March 2, 1945:

> *"Section 6. The Secretary of War is hereby authorized and directed to cause preliminary examinations and surveys to be made at the following named localities…..Colorado River, Texas."*

STUDY PURPOSE, NEED AND SCOPE

STUDY PURPOSE

The primary purpose of the Onion Creek Interim Feasibility Study (OCIFS) is to investigate the water resource problems, needs, and opportunities within the Onion Creek watershed. Study efforts during the first phase of the OCIFS focused on evaluating the existing conditions, identification of problems and needs within six selected areas of interest, and identifying preliminary alternative measures to minimize existing and future flood losses. The selected areas were analyzed for possible protection and restoration of habitat integrity as well.

NEED

Based on the findings of the first phase, there was a need to further investigate a second Phase known as Phase IIA to identify the plans that met the National Economic Development objectives. Also, ecosystem restoration plans are needed to restore degraded ecosystems in areas within the watershed. These alternatives were presented to the local sponsors and Corps' higher authority as potential recommended plans.

SCOPE

The scope of the existing study is to complete a feasibility level design of the recommended plan, and a feasibility report and integrated environmental document that will serve as a decision document for Congressional Authorization.

STUDY PARTICIPANTS AND COOPERATION

The OCIFS is being conducted by the U.S. Army Corps of Engineers (Corps), in cooperation with the Lower Colorado River Authority (LCRA), and three additional local cost sharing sponsors. They are the City of Austin, Travis County, and the City of Sunset Valley. A major project supporter is the Texas Water Development Board (TWDB). The TWDB has provided financial support to the non-Federal sponsor in the amount of 50% of the local sponsor's required contribution for the feasibility study effort. This allowed the LCRA and the City to participate in the study without it being such a financial burden. This partnership with the TWDB and the local sponsor has extremely valuable.

Additionally, coordination was undertaken with the U.S. Fish and Wildlife Service, the Texas State Historic Preservation Officer, Texas Parks and Wildlife Department, the Barton Springs/Edwards Aquifer Conservation District, and numerous other State and local agencies.

The OCIFS is one of several interim studies being conducted as part of an overall Lower Colorado River Basinwide Studies as described in Volume I of the overall report. LCRA, the official non-Federal sponsor for Lower Colorado Basinwide Studies, has entered into a 50/50 cost sharing agreement with the U.S. Army Corps of Engineers in May 2000. LCRA, in turn, has entered into numerous interlocal agreements. For purposes of Phase I of the OCIFS, the City of Austin, Travis County, and the City of Sunset Valley each provided cash and/or in-kind services cumulatively totaling 50 percent of the total study cost, with LCRA acting as the focal point for all study activities. In addition, the Texas Water Development Board provided funding to the local sponsors that accounts for approximately half of their portion of the study cost.

PRIOR STUDIES AND REPORTS

Numerous water resources related studies have been completed by various interests which addressed all or portions of the Onion Creek watershed. Most studies were conducted following the introduction of high level urban land use within the basin. A list of the most significant reports is shown below:

A PARSIMONIOUS MODEL FOR SIMULATION OF FLOW AND TRANSPORT IN A KARST AQUIFER

Barrett, M. E., and R. J. Charbeneau. Center for Research in Water Resources Technical Report 269**.** University of Texas. Austin, Texas. 1996. This report evaluates flows in Karst Aquifers in the Austin area.

BARTON SPRINGS WATERSHED RETROFIT MASTERPLAN

Loomis and Santos, October 1995. This report investigates potential projects in watersheds contributing to Barton Springs to improve water quality.

ENGINEERING ASSESSMENT AND ENVIRONMENTAL INVENTORY AND ISSUES REPORT ARTIFICIAL RECHARGE ENHANCEMENT ONION CREEK, HAYS COUNTY, TEXAS

Donald G. Rauschuber & Associates, Inc. April 1992. This study evaluates possible recharge facilities in Hays County.

ONION CREEK FLOOD CONTROL STUDY

This study, dated September 1997 and conducted by Loomis & Moore, Inc., for the City of Austin, provided detailed analyses of several alternatives for flood damage reduction along Onion Creek.

ONION CREEK/LOWER COLORADO RIVER BASIN, TEXAS, RECONNAISSANCE STUDY

Completed in September 1999, this study served as a precursor to the Lower Colorado River Basin Feasibility Studies. Its focus was to conduct a brief investigation of the problems, needs, and opportunities within the basin. Some preliminary screening of flood damage reduction measures was undertaken to ascertain whether it was in the Federal interest to undertake more detailed feasibility studies. Results from the Loomis & Moore Report discussed above, were integrated into this report.

PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT FOR FLOOD DAMAGE REDUCTION AND ECOSYSTEM RESTORATION, LOWER COLORADO RIVER BASIN , COLORADO RIVER, TEXAS, AUGUST 2005

This Environmental Impact Statement was prepared by the U.S. Army Corps of Engineers to establish existing conditions, identify direct and indirect impacts, and cumulative impacts to the environment as a result of implementing water resource projects on the lower Colorado River basin. It serves as a National Environmental Policy Act framework for existing and future studies being conducted by The Corps.

REGIONAL DETENTION AND CULVERT REPLACEMENT FOR WILLIAMSON CREEK WATERSHED

This study, completed in March 2000, by Alan Plummer and Associates, Inc., served to eliminate one structural alternative from consideration in the current study. Studies previous to this study revealed that a regional detention pond could be constructed to alleviate some of the flooding near the confluence of Williamson Main Branch, Cherry Creek Tributary and the Sunset Valley Tributary. This study further concluded that a regional detention pond would yield little or no flood reduction benefits in the downstream of the proposed pond, which was just upstream of Westgate Boulevard.

STATUS REPORT, COLORADO BASIN, TEXAS 1987

This interim study performed by the Corps, dated September 1987, identified water resource problems within the Colorado River Basin, Texas, and conducted preliminary reconnaissance-level investigations for flood prone communities within the Colorado River Basin. This study recommended further reconnaissance-level studies for 11 other communities within the basin and three other separate projects for further study.

THE TEXAS STATEWIDE INVENTORY OF FLOOD PROTECTION NEEDS, MAY 1990

This study was developed 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 planning studies and National Flood Insurance Program (NFIP).

WALNUT AND WILLIAMSON CREEKS, EXPANDED FLOOD PLAIN INFORMATION STUDY

Published in May 1980 by the Corps, this study developed basic information on flood hazards such as flood flows, flood depths, and flood delineations, general information on flood damage potential, and impacts of land use change.

WATER FOR TEXAS

The Texas Water Development Board, Austin, Texas, prepared this report, dated January 2002. This report updates and presents the 50-year plan for the state of Texas. The document presents current and prospective water uses, identifies water supplies, and matches supplies to water uses. The report also identifies water related management measures, facility needs and costs, addresses environmental concerns, and offers program and policy recommendations to better manage the State's water resources.

WATER RESOURCES DEVELOPMENT IN TEXAS 1971, 1981, 1988, 1989, 1991, 1995

These reports, prepared by the Corps, provide current information about water resource activities performed in Texas by the Corps. These reports describe the role of the Corps in navigation, planning, construction, and operation of projects for flood control, hurricane flood protection, municipal and industrial water supply, recreation, and other beneficial uses. The reports also describe projects that are complete, under construction, or in the planning stage, each of which has been initiated under specific authorization of Congress.

WATERSHED PROTECTION MASTER PLAN

Completed in June 2001 by the city of Austin, this study served as a basis for identifying potential structural solutions for the Williamson Creek area.

WILLIAMSON AND ONION CREEKS, AUSTIN, TEXAS

This reconnaissance report performed by the Corps, dated July 1987, recommended separate feasible plans for each of these creeks.

WILLIAMSON CREEK EROSION ASSESSMENT

Completed in May 1997 for the City of Austin by Raymond Chan and Associates, Inc.; This study identified the stream condition, made predictions regarding the stream response to urbanization, and suggested recommendations to manage the erosion processes.

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 an Environmental Assessment (EA) 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 allow an EA to be a self-sustaining document or an integration of NEPA required discussions in the text of a project planning report. Regarding the environmental nature of the Onion Creek study area and in the interest of reducing paperwork, costs, and redundancies, the Corps elected to integrate these documents. Sections in this 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 the alternatives investigated and the respective environmental effects for Onion Creek.

In an additional effort to reduce paperwork, this Interim Feasibility Report and Integrated Environmental Assessment is tiered from the *Final Programmatic Environmental Impact Statement, Flood Damage Reduction and Ecosystem Restoration, Lower Colorado River Basin, Colorado River, Texas August 2005* (PEIS) and is hereby incorporated by reference. The PEIS established existing baseline conditions, future without project conditions and cumulative impacts for the lower Colorado River basin and was prepared so that future projects within the basin could be tiered from it in order to more efficiently incorporate the NEPA process. In addition, the PEIS served as a mechanism to begin early coordination with the resource agencies.