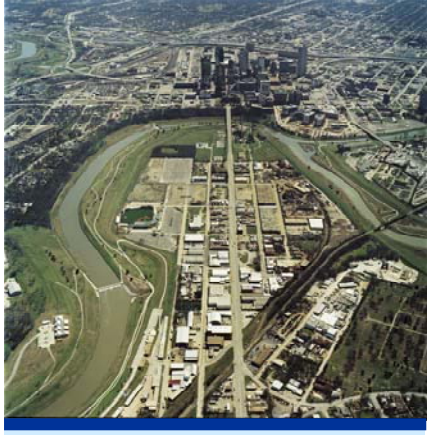
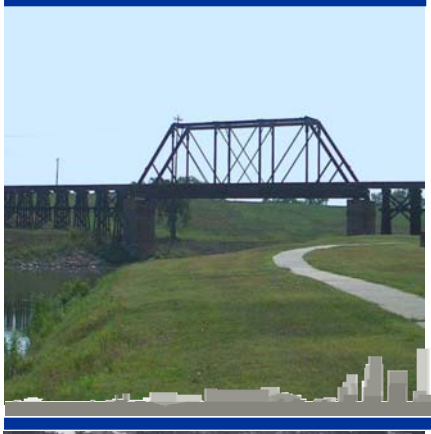
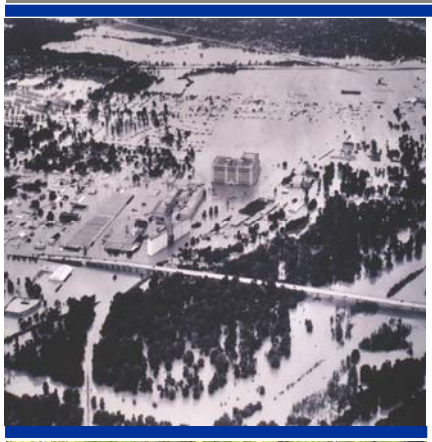
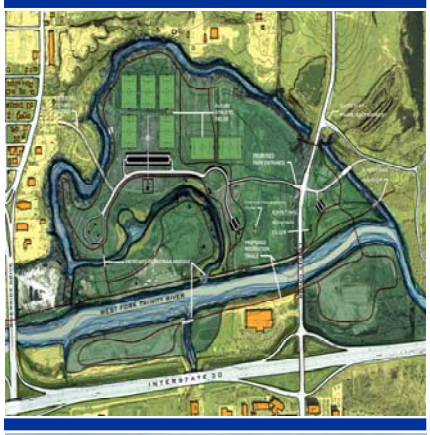








Rendering Image courtesy of CDM

Fort Worth Central City Preliminary Design

Fish and Wildlife Coordination Act Report

Final Supplement No. 1
to the Final Environmental
Impact Statement

Appendix G

March 2008

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
WinSystems Center Building
711 Stadium Drive, Suite 252
Arlington, Texas 76011

March 6, 2008

Colonel Christopher W. Martin
District Engineer
U.S. Army Corps of Engineers
(Attn: Billy Colbert, CESWF-EV-EE)
P.O. Box 17300
Fort Worth, Texas 76102-0300

Re: Fish and Wildlife Coordination Act Report for the Upper Trinity River Modified Central City Project Fort Worth, Texas

Dear Colonel Martin:

This letter constitutes the U.S. Fish and Wildlife Service's (Service) final report on the Fort Worth District, U.S. Army Corps of Engineers' (Corps) Modified Central City Project in accordance with Section 2(b) of the Fish and Wildlife Coordination Act (FWCA) (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.). The purpose of this report is to identify and evaluate anticipated impacts of merging and implementing the proposed changes to the authorized Central City and Riverside Oxbow Projects on fish and wildlife resources within the Trinity River floodplain in Tarrant County, Texas and to recommend conservation and mitigation measures for fish and wildlife resources. Our report has been coordinated with the Texas Parks and Wildlife Department (TPWD) as noted in the enclosed February 26, 2008 letter from Wildlife Habitat Assessment Program Biologist Karen Hardin.

Background

Authority for the Corps' investigations on the Upper Trinity River Basin was provided by the U.S. Senate Committee on Environmental Public Works Resolution dated April 22, 1988. The Corps initiated this study at the request of Tarrant Regional Water District (TRWD) to examine opportunities to reduce flood damage, restore ecosystems, and provide additional and improved recreational opportunities along the West and Clear Forks of the Trinity River and its tributaries within the City of Fort Worth (City). The June 13, 2000 *Programmatic Environmental Impact Statement (PEIS), Upper Trinity River Basin, Trinity River, Texas* identified 90 preliminary potential projects addressing flood damage reduction, ecosystem restoration, and recreation. That year, the Corps initiated the *Upper Trinity River Basin Interim Feasibility Study for the Clear and West Forks of the Trinity River and Tributaries* which included a group of flood control,

ecosystem restoration, and recreation projects that are proposed along the West and Clear Forks of the Trinity River and several tributaries between Benbrook Lake and Highway East Loop 820. Investigations of the project area were conducted by Service personnel in October 2000 and January, February, April, and May 2001. A FWCA planning aid report was completed November 3, 2001 (Hale 2001).

The Riverside Oxbow Ecosystem Restoration and the Central City Multi-Purpose projects are the first two studies being conducted as part of the comprehensive *Upper Trinity River Basin Interim Feasibility Study for the Clear and West Forks of the Trinity River and Tributaries*. The Corps' *Riverside Oxbow Interim Feasibility Report and Integrated Environmental Assessment* was completed in April 2003 and some aspects of the plan have already been implemented.

In December 2004, the U.S. Congress authorized the Corps to undertake the Upper Trinity River Central City project as generally described in the April 2003 *Trinity River Vision Master Plan*, a cooperative initiative between TRWD, Streams and Valleys (a local non-profit parks organization), and the City. The Corps completed the *Upper Trinity River Central City Plan and Environmental Impact Statement* (EIS) in January 2006.

The Service assisted the Corps in assessing both projects which involved attending team meetings, conducting site visits, completing baseline habitat assessments, and evaluating alternative plans. The Service previously submitted the following documents to the Corps identifying the fish and wildlife resources within the project areas, possible project impacts, and recommended ecosystem mitigation and restoration measures.

- **Planning Aid Letter for the Clear and West Forks of the Trinity River Interim Feasibility Study**. November 3, 2001.
- **Final FWCA Report for the Riverside Oxbow Restoration Project**. May 16, 2003.
- **Residual Organochlorine Pesticide Contamination in Fish Collected from the Trinity River within the Proposed Central City Multi-purpose Projects Area**, Tarrant County, Texas. April 2004.
- **Existing Habitat Conditions Planning Aid Report for the Central City Interim Feasibility Study**, Fort Worth, Texas. June 18, 2004.
- **HSIs and Analysis for the Central City Project Extended Area Upstream**. December 2, 2004 memorandum.
- **Baseline Fisheries Survey of Marine Creek within the Proposed Central City Multi-Purpose Project Area**. Tarrant County, Texas, January 2005.
- **Corrections for the HSI Averages contained in the December 2, 2004 memo regarding the Central City Project Extended Area Upstream**. February 1, 2005 Memorandum.
- **Baseline Fisheries Survey of Lebow Creek within the Proposed Central City Multi-Purpose Project Area**. Tarrant County, Texas, April 2005.
- **Baseline Fisheries Survey of Ham Branch.** Tarrant County, Texas, July 20, 2005.
- **Final FWCA Report for the Central City Multi-Purpose Project Study**. October 5, 2005.
- **Gateway Park Old Wastewater Treatment Plant Lagoons Existing Habitat**

Conditions. January 10, 2007.

- **Numerous Emails providing information and comments throughout the planning process.**

In a letter dated June 22, 2006, the City requested that the Corps conduct an evaluation and analysis to consider the potential benefits of merging the Central City and the Riverside Oxbow project areas. The City stated that by merging these projects, there would be greater opportunities for valley storage alternatives and wildlife habitat restoration.

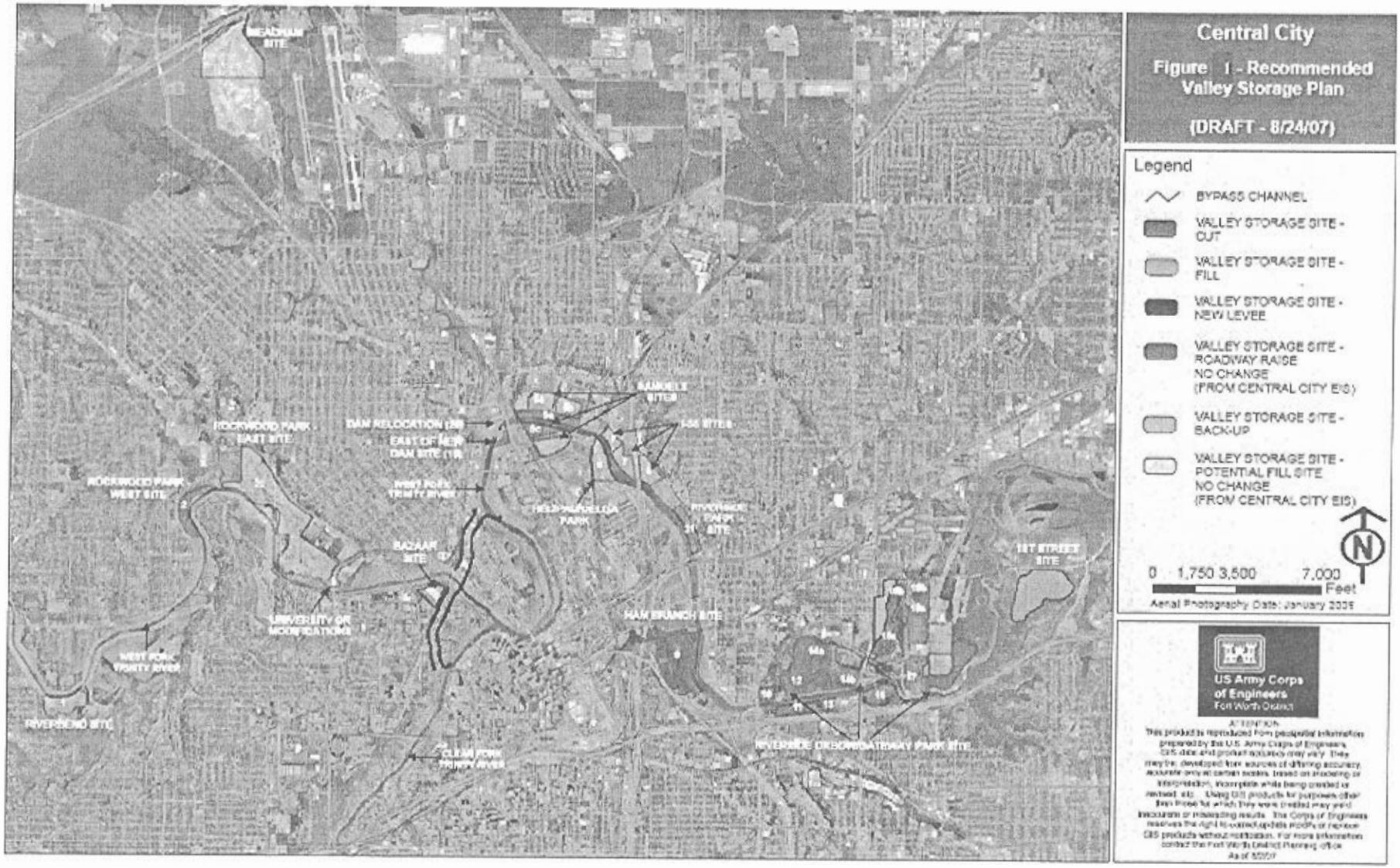
Significant changes in land use and development activities within portions of the Riverside Oxbow and the Central City project areas have occurred since the interim feasibility reports and original National Environmental Policy Act (NEPA) documents were completed, such as the recent gas well drilling near the Riverside Oxbow. These changes required further baseline assessment. The Corps requested that the Service provide additional existing conditions, impact assessments, mitigation requirements, and ecosystem restoration recommendations associated with the proposal to combine the Central City and the Riverside Oxbow projects.

Evaluation Methodology

The Service's *Habitat Evaluation Procedures* (HEP) (USFWS 1980), described in the Service's June 18, 2004 planning aid report (Hale and Giggleman 2004), was used to evaluate the existing terrestrial habitats in the proposed valley storage sites in the same manner as it was in the Central City and Riverside Oxbow projects (Figure 1). The Service conducted additional assessments at the old Waste Water Treatment Plant (WWTP) in Gateway Park (Valley Storage Site 17) because it was determined that the Riverside Oxbow assessment no longer correctly represented the habitat within the drying beds.

No additional aquatics studies were necessary for the proposed modified plan. Fish communities within the proposed project area were assessed by the Service in 2003 and 2005. The results of these assessments can be found in the previous FWCA reports (Hale and Giggleman 2004; Giggleman and Lewis 2005a; Giggleman and Lewis 2005b; Giggleman and Lewis 2005c).

The Service has evaluated this project in accordance with the guidelines and directives contained in its Fish and Wildlife Mitigation Policy (Federal Register 46(15):7644-7663; January 23, 1981). The Mitigation Policy is the basis by which the Service makes recommendations, in order of priority, to avoid, minimize, rectify, reduce or eliminate the loss over time, or compensate for project-related impacts to fish and wildlife resources. Our recommendations are based on the value and relative abundance of the affected habitats to the evaluation species. The Policy includes four Resource Categories (1-4) to provide a consistent value rating for wildlife habitats. Based on the Habitat Suitability Index (HSI) values and Index of Biological Integrity (IBI) evaluations, the Service has designated a Resource Category for each terrestrial and aquatic habitat evaluated in the project area.


Central City
Figure 1 - Recommended Valley Storage Plan
(DRAFT - 8/24/07)
Legend
BYPASS CHANNEL
VALLEY STORAGE SITE - CUT
VALLEY STORAGE SITE - FILL
VALLEY STORAGE SITE - NEW LEVEE
VALLEY STORAGE SITE - ROADWAY RAISE NO CHANGE (FROM CENTRAL CITY EIS)
VALLEY STORAGE SITE - BACK-UP
VALLEY STORAGE SITE - POTENTIAL FILL SITE NO CHANGE (FROM CENTRAL CITY EIS)
0 1,750 3,500 7,000 Feet
Aerial Photography Date: January 2005
US Army Corps of Engineers
Fort Worth District
ATTENTION
MEADHAM SITE
ROCKWOOD PARK - EAST SITE
ROCKWOOD PARK WEST SITE
DAM RELOCATION
EAST OF NEW DAM SITE
WEST FORK TRINITY RIVER
BAZAAR SITE
UNIVERSITY OR MODIFICATIONS
WEST FORK TRINITY RIVER
RIVERBEND SITE
CLEAR FORK TRINITY RIVER
HELD-REFUELGA PARK
RIVERSIDE PARK SITE
HAM BRANCH SITE
1ST STREET SITE
RIVERSIDE OXBOW/GATEWAY PARK SITE

Project Alternatives and Proposed Action

The current project proposal contains two alternatives, the "No Action" Alternative which would be the separate implementation of both the 2005 Central City project and the 2003 Riverside Oxbow Ecosystem Restoration project as they are currently approved, and the "Modified Central City Alternative" combining both projects with modifications which would provide greater opportunities for valley storage alternatives and wildlife habitat restoration.

Construction activities associated with both alternatives would result in some loss of all habitats. However, these adverse impacts would be compensated for in each alternative with in-kind and out-of-kind mitigation.

No Action Alternative

The No Action Alternative is implementation of the Central City and the Riverside Oxbow Restoration projects as they are currently approved. The Service's FWCA reports for these two projects contain the descriptions of the approved projects, existing environmental conditions, possible project impacts, and recommended ecosystem mitigation and restoration measures (Hale 2003; Hale and Giggleman 2005).

The April 2003 *Riverside Oxbow Interim Feasibility Report and Integrated Environmental Assessment* describes the ecosystem restoration project located just east of the downtown area on the West Fork of the Trinity River downstream of Riverside Drive and Gateway Park. It consists of habitat restoration on 512.2 acres of floodplain lands, approximately 2 miles of oxbow river channel, 56.5 acres of wetlands, 112 acres of riparian habitat and upland native grassland, and 25,700 feet of compatible mixed surface linear recreational trails. The approved project would restore a water source for the oxbow by removing the earthen plug between the oxbow and the river channel. An in-stream dam has been installed down stream to raise the water level in the old oxbow. The project plans include increasing the width of the riparian woodland corridor to 150 feet. These actions would provide excellent habitat for riparian wildlife species, such as nesting and brood-rearing wood ducks. The old Sycamore Creek remnant and the drying beds of the old WWTP at Gateway Park would be developed into emergent wetlands.

In response to the Secretary of the Army's review of the Riverside Oxbow project, the Corps developed an April 2005 Addendum to the Riverside Oxbow report reducing the proposed property acquisition in the Gateway Park by 79 acres that were proposed to be developed as native grassland and tree mottes and increasing the amount of restored forested wetlands by 20 acres.

The approved Central City project plan, as described in the January 2006 *Upper Trinity River Central City, Fort Worth, Texas* final EIS, includes a flood bypass channel and flood gates to divert flood flow around a segment of the existing Trinity River adjacent to downtown Fort Worth, a dam located downstream of Samuels Avenue to create a small lake extending up the river to approximately Rockwood Park, ecological restoration areas, and 5,250 acre-feet of valley storage mitigation sites. Much of the proposed valley storage would be located in the Riverbend

Park area to compensate for the loss of valley storage associated with the construction of the proposed dam and bypass channel on the Trinity River.

Habitat improvement, restoration, and enhancement included in the approved Central City project would be located in three areas to compensate for project impacts. These include the proposed valley storage mitigation area at Riverbend Park, two old oxbows near Rockwood Park, and Ham Branch in Harmon Park east of the downtown area.

The ecosystem restoration activities planned for the approved Central City Project includes restoration of 15.02 acres of wetlands and 34.5 acres of riparian woodlands; establishment of 42.2 acres of native grasslands, 92.7 acres of riparian woodlands, and 45.5 acres of upland woodlands; enhancement of 13.3 acres of existing upland woodlands; preservation of 74.36 acres of riparian woodland; and reestablishment of 5.08 acres of three historic oxbow stream channels.

A letter from the Corps, dated September 13, 2005, includes an Aquatic Mitigation Plan for restoring aquatic habitat and improving water quality in Ham Branch. The plan includes restructuring 892 linear feet of the stream to be geomorphically stable with a riffle/pool/run aquatic regime, and planting 7.4 acres of riparian woodland to add to the existing 1.4 acres of woodlands to create a 50-foot wide riparian buffer on each side of the stream. An emergent wetland (0.6 acre) and a sediment/litter trap (0.7 acre) would be developed as a means to improve water quality in Ham Branch. These restoration measures would provide a portion of the compensation required for the impacts resulting from the approved project.

The approved Aquatic Mitigation Plan also includes restoration measures along the planned Lebow Creek diversion. These restoration measures are mitigation for the impacts the project would cause to Lebow Creek and partial mitigation for the impacts to Marine Creek. The diversion would be designed to provide comparable riffle/pool/run habitat regimes to those being impacted by the project. Shrubs and overhanging grasses would be planted along the banks for shade and cover. These plants would also provide bank erosion control thereby reducing the amount of sediment in the stream.

Modified Central City Alternative

The proposed Modified Central City Alternative would combine the Central City and the Riverside Oxbow project to increase valley storage, wildlife habitat, and recreational opportunities and reduce the use of eminent domain by minimizing acquisition of private land and increasing the use of public land for valley storage and wildlife habitat restoration (Figure 2). There are three major changes proposed from the approved Central City Project: (1) the location and design of the proposed valley storage sites, (2) location of the Samuels Avenue Dam with a newly proposed lock and channel on the west side of the structure, and (3) addition of the Marine Creek Low Water Dam. All other features of the Modified Project Alternative would remain the same as those contained in the approved Central City and Riverside Oxbow plans.

Central City
Figure 2: Modified Central City Project Alternative
Legend
BYPASS CHANNEL
ROAD IMPROVEMENT
PEDESTRIAN BRIDGE
VALLEY STORAGE SITE
ECOSYSTEM RESTORATION AREA
AQUATIC HABITAT MITIGATION AREA
TRINITY UPTOWN AREA
N
0 1,645 3,290 6,580
Feet
Aerial Photography Date: January 2005
US Army Corps of Engineers
Fort Worth District

The modified plan includes 21 preferred and five contingency valley storage sites proposed along the Trinity River to provide approximately 5,250 acre-feet of flood water storage. The sites, which are located within the floodplain and on City of Fort Worth and TWRD owned property, are located predominantly in habitats of poor quality. Most of these sites would be excavated to acquire more acre-feet of storage. However, after excavation these sites are proposed to be restored into equal or higher quality habitat than their existing condition. Most of the habitat restoration and mitigation would be located in these sites.

The modified plan would minimize acquisition of private lands by relocating the valley storage sites to public lands and concentrating wildlife habitat mitigation in the Riverside Oxbow project area. The modified project proposes to exclude Riverbend Park from the project for habitat mitigation, but includes it as a contingency valley storage site if additional storage is necessary. The modified plan would require compensation for loss of about 18.3 acres of riparian woodlands, 59 acres of upland woodlands, 2.3 acres of aquatic habitat, and less than an acre of emergent wetlands. However, it includes establishing 58 acres of wetlands, restoration of 10.9 acres of stream and oxbow habitat, developing of 137.6 acres of riparian woodland, enhancement of 263.6 acres of existing riparian woodland, development of 87 acres of native grassland/savannah, and enhancement of 53.3 acres of native grasslands. The Modified Central City Alternative would increase riparian woodland habitat by 109 Average Annual Habitat Units (AAHUs) and emergent wetlands by 47.78 AAHUs. The negative impacts to upland woodland habitat would be partially compensated by out-of-kind mitigation using the additional riparian woodlands developed beyond those required to fully compensate for the existing riparian woodlands that would be impacted. The total acreage and AAHUs for existing grassland habitat would decrease because mitigation for the other higher quality habitats is proposed in poor quality grasslands on public lands.

The Modified Central City Alternative proposes to locate the proposed Samuels Avenue Dam to approximately 1,750 feet downstream of Northside Drive on the main stem of the Trinity River, immediately upstream from the confluence of Marine Creek. This new location would eliminate aquatic impacts to Lebow Creek. During normal dry weather the dam will maintain the normal water pool level elevation of 524.3 National Geodetic Vertical Datum (NGVD). The 390-foot wide dam would operate with seven 48-feet wide and 18-feet high gates. The structure would have low flow conduits 4-feet wide by 6 feet high located at the base of three piers. A stilling basin would be located on the north side of the dam to dissipate the hydraulic energy released from the gates. The channel width at the dam site would be 250 feet. On the west side of the dam, a lock and channel would be constructed to connect the river to Marine Creek in order to accommodate small boat traffic. The lock structure would be 40-feet long by 16-feet wide and have a maximum lift of 8.5 feet.

The Service has designated the aquatic habitats within the lower sections of Marine and Lebow Creeks as Resource Category 3. Category 3 habitat is of high to medium value for the evaluation species and is relatively abundant on a national basis. The mitigation planning goal for this category is no net loss of habitat value while minimizing loss of in-kind values. Impacts to these aquatic resources should be avoided, minimized, and/or compensated.

A fixed low water dam would be constructed across the mouth of Marine Creek, approximately 300 feet upstream of the confluence of the main stem of the river, to raise the water level in the creek to allow boat traffic through the lock structure and down Marine Creek. This structure would have a crest elevation of 516.5 NGVD and a crest length of 200 feet. This lower level would reduce the backwater impacts to Marine Creek, but would still inundate the shallow riffle-pool sequences that currently support an exceptional and high valued fish community within the stream, therefore mitigation would be required. Marine Creek channel would be widened by approximately 50 feet and a turnaround basin just upstream from 23rd Street would be constructed. Compacted concrete with rip-rap would be used for bank stabilization where necessary.

Aquatic habitat mitigation for impacts to Marine Creek resulting from construction of the dam, the proposed lock and channel located west of the dam, and the Marine Creek low water dam are still proposed for Ham Branch, but now includes restoration of Sycamore Creek within the Riverside Oxbow area.

Summary and Recommendations

The Service supports the proposed Modified Central City Alternative aquatics mitigation plan that proposes developing additional stream mitigation features in Sycamore Creek and Ham Branch as mitigation for the impacts associated with inundation of Marine Creek. Mitigation would include construction of a series of riffle pool sequences with a stable streambed supported by stable banks and a riparian corridor in both streams. We recommend using natural soft engineering for bank stabilization. The streams should have a sufficient longitudinal profile (slope) to maintain adequate flow regimes. Substrate composition should be similar to the habitat in Marine Creek.

We also support restoring the old remnant of Sycamore Creek between Riverside Oxbow and the river. Providing a reliable water source and restoring the aquatic function of this segment of Sycamore Creek would benefit aquatic species and contribute to the mitigation requirement for the impacts associated with inundating Marine Creek. Habitat restoration benefits would not be fully realized for several years, but the newly planted aquatic vegetation proposed in the mitigation plan would probably be well established within one year.

These mitigation measures would fully compensate for the adverse impacts to the aquatic habitat in Marine Creek caused by the construction of Samuels Avenue dam and the low water dam.

The only federally listed threatened or endangered species known to occur in Tarrant County are the endangered whooping crane (*Grus americana*), and the endangered interior least tern (*Sterna antillarum*). Detailed information on these species is contained in the October 5, 2005 Final FWCA report (Hale 2005). Due to the lack of suitable habitat and the urbanized character of the project area, it is unlikely that either of these federally listed species would utilize any of the study areas. Therefore, no adverse affects to federally listed species are expected to occur with implementation of any of the proposed alternatives.

After reviewing all the information provided by Corps staff and our analysis of the HEP data regarding the proposed changes to the two approved projects in order to combine them, we have determined that the Corps' recommended plan, including our recommendations discussed above, would provide a sufficient amount of habitat restoration and preservation to mitigate for the adverse impacts caused by the various components of implementing the Modified Central City Alternative. The mitigation plan would provide diversity, as well as habitat of sufficient quality and quantity, to benefit a variety of resident and migratory wildlife species. Reforestation and improvement of the riparian corridor would also substantially increase the amount of vital reproductive and migratory neotropical bird habitat, thus furthering the goals and objectives of the North American Waterfowl Management Plan, and the Partners in Flight program.

We appreciate the opportunity to participate in the planning of this project. Please contact Carol Hale at (817) 277-1100 if you have any questions or require additional assistance.

Sincerely,

Thomas J. Cloud, Jr.
Field Supervisor

Enclosure

cc: Jennifer Key, TPWD, Austin, Texas
Executive Director, TPWD, Austin, Texas

Literature Cited

Giggleman, C. and J. Lewis. 2005a. Baseline Fisheries Survey of Marine Creek within the Proposed Central City Multi-Purpose Project Area, Tarrant County, Texas. U.S. Fish and Wildlife Service. Arlington, Texas.

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TEXAS PARKS & WILDLIFE

February 26, 2008

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Thomas J. Cloud, Jr.
U.S. Fish and Wildlife Service
WinSystems Center Building
711 Stadium Drive, Suite 252
Arlington, TX 76011

RE: Draft Supplemental Fish and Wildlife Coordination Act Report for the Fort Worth Central City Project (Tarrant County)

Dear Mr. Cloud

The Texas Parks and Wildlife Department (TPWD) has reviewed the November 20, 2007, Draft Supplemental Fish and Wildlife Coordination Act Report (Report) for the Central City Interim Feasibility Study. The Report has identified and evaluated anticipated impacts on fish and wildlife resources within the Trinity River floodplain in Tarrant County, Texas, that are anticipated as a result of implementing the proposed changes to the authorized Central City Project and merging it with the Riverside Oxbow Project. The Report recommends conservation and mitigation strategies for natural resource protection.

TPWD concurs with the U.S Fish and Wildlife Service's (USFWS) findings presented in the Report. I appreciate the opportunity to review and comment on this project and look forward to working with the USFWS and the U.S. Army Corps of Engineers in the future. Please contact me at (903) 675-4447 if you have any questions.

Sincerely,

Karen B. Hardin
Wildlife Habitat Assessment Program
Wildlife Division

kbh/12900(12329, 11137, 11132, and 11032)

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