Overview

- Purpose
- USACE Partnership
- Approach
- Upcoming Work
- Opportunities
Purpose

• Provide overview of Dallas’ One Water approach
• Provide insight to USACE partnership
• Overview of Dallas Levee System
• Approach to delivering flood risk management work
• Provide information on how to engage in business opportunities
Background

• Dallas Water Utilities serves as the City’s “One Water” system for all water-related activities

• Holistic approach allows the City to manage watersheds, water resources and water facilities and combine resources to achieve greater efficiencies

• Planning, development, maintenance and operations of the systems are performed through staff and contract service

• Federal and state regulatory agencies provide oversight of programs and services
One Water Defined

An integrated planning and implementation approach to managing finite water resources for long-term resilience and reliability, meeting both community and ecosystem needs

(Water Research Foundation)
Benefits of a One Water Approach

- Greater resilience and reliability
- Opportunities to optimize regional infrastructure
- Sustainable community development
- New regulatory flexibility or opportunity
- Economic growth opportunity
- Increased coordination among agencies/departments
The One Water Cycle

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Source: American Research Foundation, Blueprint for One Water, Project #4660
Fundamentals of One Water

Environmental Stewardship  

Social Equality  

Economic Prosperity
City of Dallas Water and Wastewater Assets

- 7 reservoirs, (6 connected)
- 4,983 miles of water mains
- 3 water treatment plants with a combined capacity of 900 MGD
- 23 pump stations
- 9 elevated and 12 ground storage tanks
- Value of water assets $3.6B
- Treated 142 BG of water in FY18

- 2 wastewater treatment plants with a combined capacity of 280 MGD
- 15 wastewater pump stations
- 4,040 miles of wastewater main
- Value of wastewater assets $2.4B
- Treated 62 BG of wastewater in FY18
City of Dallas Storm Drainage System

- 8 storm water pump stations with a combined capacity of 5.7 BGD
- 1,963 miles of storm sewers
- 30 miles of levees
- 39,000 acres of floodplain

Able Pump Station

Mill Creek Tunnel Bore Face
Partnership with USACE

• Dallas Water Utilities is a regional water supply and flood risk management provider

• Partnership with the Corps includes contracting for water supply and regulatory oversight of the federal levee system

• Water supply and flood risk management have to be delicately balanced between the needs of the region

• Most recent Periodic Inspection for the Dallas Levee System: Minimally Acceptable
Dallas’ Regional Water Supply System
Dallas Levee System

Dallas Floodway

Dallas Floodway Extension
**Dallas Floodway**

**Dallas Floodway, City of Dallas, TX**

**Authorization:** WRDA 2007, PL 110-114, Section 5141

**Purpose:** Flood Risk Management (FRM)

**Phase:** Design and Construction

**Non-Federal Sponsor:** City of Dallas, TX

**Scope:** Construct flood risk management elements of the recommended plan – Modified Dallas Floodway Project.

**FRM Elements:**
- 277K cfs Levee Raise
- AT&SF Bridge Modification
- 4:1 Interior Side Slopes
- Four (4) Interior Drainage Pump Stations

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**Flood Risk Management**
- 277,000 cfs levee raise with AT&SF Bridge Modifications
- Emergency Action Plan improvements
- Levee side slope flattening to 4H:1V (Betterment @ 100% local cost)

- Interior Drainage Plan Phase I - Baker and Hampton Pump Stations; Nobles Branch Sump Improvements
- Interior Drainage Plan Phase II - Charlie, Delta, New Trinity Portland Pump Stations

**Ecosystem Restoration**
- River Relocation (add meanders to approx. 8 miles of the Trinity River in the Floodway)
- Approx. 50 acre wetland in Floodway

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**Image**

- Map of Dallas Floodway with various project elements and annotations

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**City of Dallas**

**Texas**

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Dallas Floodway Extension

Authorization: Section 301, River & Harbor Act of 1965 (flood control), modified by Section 351 WRDA 1996 (inclusion of non-Federal constructed work), and Section 356 of WRDA 1999 (addition of ecosystem and recreation features)

Purpose: Flood Risk Management (FRM)

Phase: Construction (Ongoing)

Non-Federal Sponsor: City of Dallas, TX

Scope: Construct remaining FRM elements

FRM Element:
- Lamar Levee
- Cadillac Heights Levee

Benefits:
- Dallas Floodway Extension protects approximately 2,550 structures and provides additional $6.7M annual benefits to Dallas Floodway
- Protects low income minority residential neighborhoods with comparable level of flood risk reduction as Dallas Floodway
- Recommended plan yields 2.06 cost-to-benefit ratio
Balanced Vision Plan

With its 2,300 acres, the Trinity Lakes area of the Balanced Vision Plan will augment, by more than 10 percent, the city’s overall green space assets, more than doubling the miles of trails and outdoor venues. No other city green space will match the variety of activities or the richness in landscape—both urban and natural—of the Trinity Lakes area.

Although the existing Trinity River floodplain is already an altered landscape and will be further altered through the construction of the project, the design intent is to create or re-create, self-sustaining, viable and high ecologically functioning landscapes that reflect the native landscapes of the region.
Approach to Project Delivery

• Historically, the USACE and City would work from appropriation, work plan funding and City funding to address water supply and flood risk management projects

• Flood risk management projects were advanced to address immediate needs based on risk

• Late Summer/Fall 2018, the Bipartisan Budget Bill passed and flood risk management in the North Texas Region received long awaited funding for Lake Lewisville and the Dallas Levee System
Approach to Project Delivery

• Federal guidance mandates the local sponsors and federal agency move expeditiously to execute flood risk management

• Roles and responsibilities have been defined, contracts were required for the Dallas Floodway and Dallas Floodway Extension

• USACE leads the design and construction efforts
  • Design-Bid-Build and Design-Build Contracts

• City leads the acquisition efforts and support role for delivery
Design Approach

• 4 AE task orders to create DB & DBB RFPs:
  • 277Levee Raise and Delta pump station renovation
  • Hampton pump station and Nobles Sump
  • Trinity Portland and Charlie pump stations
  • Lamar and Cadillac Heights Levees
Purpose & Scope

- 277 Levee Raise and 4:1 Slope Flattening

- The 277K Levee Raise project consists of the East and West Levees located within the Upper Trinity River Watershed, along the Trinity River in Dallas, Texas. Approximately 23 miles of levee.

- Raise the top of the levees to meet a 277,000 cfs water surface elevation, new levee crest access roads, and 4:1 slope flattening.

- The levee raises will occur at any location where the effective levee crest height is less than the 277,000 cfs water surface elevation.
Purpose & Scope

• Charlie Pump Station

  • Three 75,000 gpm pumps and one 6,000 gpm low flow sump pump.
  • Discharge pipes to go up and over the levee.
  • Raise levee in the site area to 277k.
  • Demolish existing Charlie station after new is online.
Purpose & Scope

- Trinity Portland Pump Station
  - Two 125,000 gpm concrete volute pumps and one 6,000 gpm low flow sump pump.
  - Raise levee in the site area to 277k.
Purpose & Scope

- Delta Pump Station Renovation
  - Two replacement pumps with a motor size of 700 HP.
  - Heating and ventilation equipment to be replaced.
  - A new 14' x 18' x 14' Electrical building.
  - Regrade site to accommodate the southern extension of the trash rack.
  - Provide a 15' wide concrete apron for trash pickup by a Bobcat bucket-loader.
Purpose & Scope

• Nobles Branch Sump Improvements

• Addition of three (3) 60-inch pipe culverts with sluice gates
• Extension of an existing single 60-inch gated pipe culvert located under Empire Central Drive.
• Replace existing upstream sluice gate and headwall.
• Re-aligned existing 48” RCP to parallel the new 60-inch pipes.
Purpose & Scope

• Hampton Pump Stations (3)
  • New pump station (Hampton 3) 5 - 140,000 gpm concrete volute pumps
  • Renovate New Hampton (NHX) existing station electrical upgrades
  • Demolish Old Hampton (OHX) existing station
Purpose & Scope

• Lamar Levee

  • Lamar Levee consists of 16,037 feet of earthen levees with floodwalls and flood gates.
  • Bound by the Trinity River on the south and west and the Union Pacific Railroad (UPRR) on the north and east. The levee alignment will cross three main thoroughfares (State Highway 310, Interstate 45, and Martin Luther King, Jr. Boulevard) and three rail systems (UPRR, the Burlington Northern Santa Fe Railroad (BNSF), and the DART Rail System).
  • Five drainage sumps and four levee crossings are proposed.
  • Possible HTRW issues.
Purpose & Scope

- Cadillac Heights Levee
  - 11,891 feet of earthen levees with floodwalls and flood gates
  - The levee alignment will cross the BNSF three times, with 5 street crossings including Martin Luther King.
  - Possible HTRW issues
Construction Approach

• 4 DB Construction Contracts using a MATOC:
  • 277 levee raise
  • Trinity Portland pump station
  • Charlie pump station
  • Hampton pump station

• 2 DBB Construction Contracts using a MATOC:
  • Lamar Levee
  • Cadillac Heights Levee

• DB Small Business
  • Delta pump station renovation

• DBB Small Business
  • Nobles sump
Construction Contract Schedule

- AT&SF Bridge Demolition  FY20
- 277 levee raise  FY21
- Trinity Portland pump station  FY21
- Charlie pump station  FY21
- Nobles Branch sump  FY21
- Lamar levee  FY21
- Cadillac Heights levee  FY21
- Delta pump station Renovation  FY23
- Hampton  FY23
Engaging in Business Opportunities

• City, State and Federal agencies participate in public procurement process
  • Registering to receive and compete for planning, design, construction and operational projects is critical
  • Developing partnerships amongst the community of design and construction companies is a growing practice

• Private agencies are required to assess personal property and development to ensure no harm to the “federal” project
  • Assistance in understanding the requirements, environmental permitting and delivery
  • Executing the designs to completion of construction is a major component
QUESTIONS?

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Appendices

• Trinity River Corridor Geographic Areas
• Trinity River Flooding History
• Floodplain Regulations
• Trinity Local Government Corporation
Trinity River Corridor Geographic Areas
Trinity River Flooding History

The existing Dallas Floodway can convey a flood event without overtopping that has a 1-in-1,500 chance of happening in any given year (a 1,500-year event) with a flow of 254,000 cubic feet per second.

East Levee
Elevation 429.92
feet at Commerce Street Bridge

100-year event
Elevation 416.3, 115,000 cfs

50-year event
Elevation 414.04, 94,000 cfs

10-year event
Elevation 408.6, 51,000 cfs

5-year event
Elevation 406.4, 38,000 cfs

Ground Elevation about 400 feet

The 1990 flood reached 82,300 cfs at elevation 415.12. Changed conditions since, with the inclusion of the Dallas Floodway Extension project, mean the same flow today would be at a lower elevation.

Low flow within the river channel
Elevation about 383.30, 400 cfs
Floodplain Regulations

- Oversee and manage FEMA floodplain regulations and National Flood Insurance Risk Program for Dallas, Community Rating System for reduced floodplain insurance costs to private property
- Regulate and permit actions under City of Dallas Development Code 51A 5.100-5.101.5, USACE 408 process for Dallas Floodway Levee System,
- Inspect, rate and maintain stormwater drainage Needs Inventory (currently estimated at approximately $2B)
- Inspect, rate and recommend modifications for dams regulated under TCEQ requirements
- Responds prior, during and after flood risk management events
Floodplain Regulations

September 24, 2018

Dear Property Owners,

This letter is being sent to provide information to you regarding your property that is in an area protected by a levee. The risk for flooding changes over time due to erosion, land use, weather events and other factors. The height of the levees, their distance and overall flooding changes along with these factors. The risk for flooding can vary within the same neighborhood and even property to property but it exists throughout the area. Although levees reduce the risk of flooding, they do not eliminate it. Knowing your flood risk is the first step to flood protection.

The City of Dallas leverages federal regulations to improve property value. After Hurricane Katrina, the US Army Corps of Engineers (USACE) developed more rigorous and nationally uniform criteria for inspecting levee systems and in 2009, under these new criteria, USACE rated the Dallas levee system "unsatisfactory." Dallas' levees historically received good ratings and the levees are the same levees that have always provided protection - although they still meet the standards to which they were built, the new rules remain unmet. The old levees have been re-certified.

Since that time, USACE, with participation from the City and their consultants, conducted Risk Assessment along the levee system and found that the protection is greater than previously reported. Furthermore, they investigated the levee stability with the belief that levees can be improved to provide added value. The City is working towards notification and effort updating several pump stations to provide more flood protection.

The City of Dallas has an Emergency Action Plan for the areas surrounding the levee. Warning claims will be activated in the case of a flooding emergency. Should flood warnings occur, follow instructions from emergency responders.

The areas near the levees continue to be impacted by FEMA as "Flooded by a Dam," which is considered a moderate risk area, not requiring flood insurance nor having any building codes, but also requiring that homeowners be insured for a flood. FEMA recommends that property owners located behind a levee carry flood insurance. Homeowners insurance does not cover the flood association.

For more information about owning property behind a levee, please visit the following resources: www.floodsmart.gov and www.cityofdallas.org. If you have any questions or concerns you may contact Tan Vu at 214-948-8463 or tan.vu@dallaswaterutilities.com.

Sincerely,

Steve Parker, P.E., CFM
Program Manager, Floodplain Management

Trinity Water Utilities

September 28, 2018

To: Property Owners in Repetitive Flood Loss Areas

Upper McKinnon Branch Area – RA Area 1

As part of the requirements of the National Flood Insurance Program and the Community Rating System, this is an annual notice to property owners in areas that have flooded several times.

Repetitive Loss Area 1 identifies properties downstream of MapleShade, within the floodplain of McKinnon Branch. Flooding has occurred as a result of the natural stream capacity being exceeded. Construction of the channel improvements is complete and FEMA has approved the map revision. This may result in this area being removed from the repetitive loss list.

Some measures you can employ to reduce potential losses include: floodproofing the exterior of your home and garage, storing valuables, important papers, and electronic equipment such as televisions and computers off the floor or lower shelves and placing them on higher shelves and tables, and keeping plastic sheeting, sandbags, and towels ready to help reduce seepage of water through door sills.

The City of Dallas pays for flood control projects, floodplain management studies, and voluntary purchases through bond programs offered every five years. We also work with state agencies such as the Texas Water Development Board in seeking funding for flood mitigation projects.

Homesteaders insurance policies generally do not cover damage from floods. However, because Dallas participates in the National Flood Insurance Program, you can purchase a separate flood insurance policy. In addition, because we also participate in the Community Rating System, you will receive a reduction in the insurance premium. During this kind of flooding that occurs in Dallas, there can be so much damage to contents as to the structure, so be sure to have contents coverage if you choose, or are required, to purchase flood insurance.

Additional information is available on request. If you have any questions about flood protection, flood insurance, or flood insurance, please feel free to call our office at 214-948-4680.

Sincerely,

Steve Parker, P.E., CFM
Program Manager, Floodplain Management

Trinity Water Utilities
Location of Trinity Local Government Corporation Phase 1 Project - Harold Simmons Park