# Dallas Water Utilities – Partnership with USACE

## SAME

**Sarah Standifer,**
**Assistant Director**
**Dallas Water Utilities**

# Overview

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

# Purpose

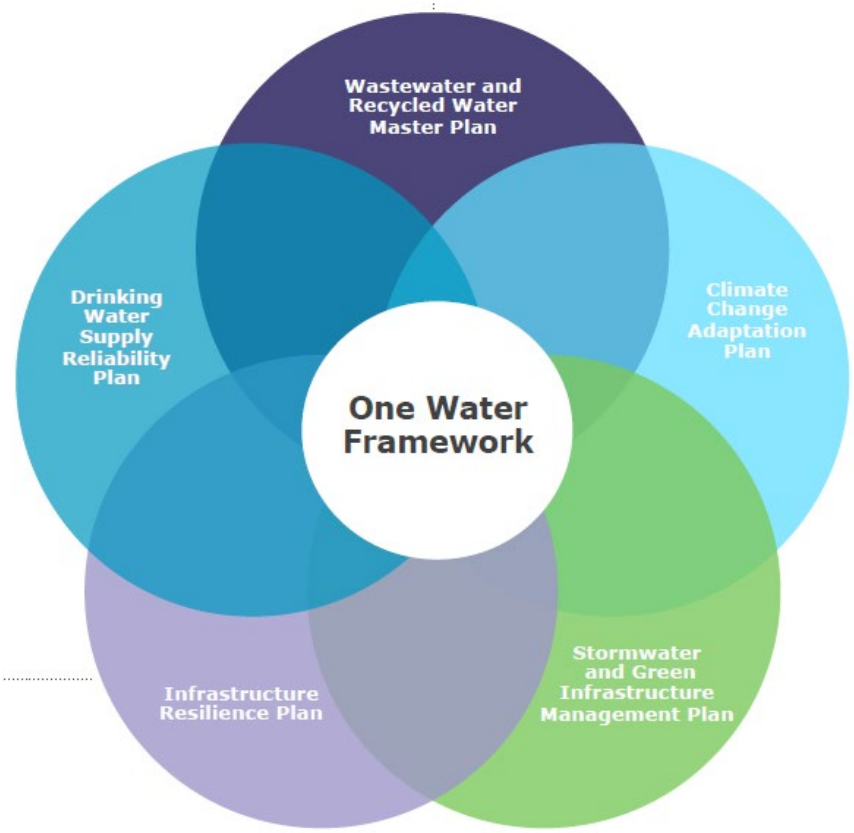
- Provide overview of Dallas' One Water approach
- Provide insight to USACE partnership
- Overview of Dallas Levee System
- Approach to delivering flood risk management work
- Provide information on how to engage in business opportunities

# 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

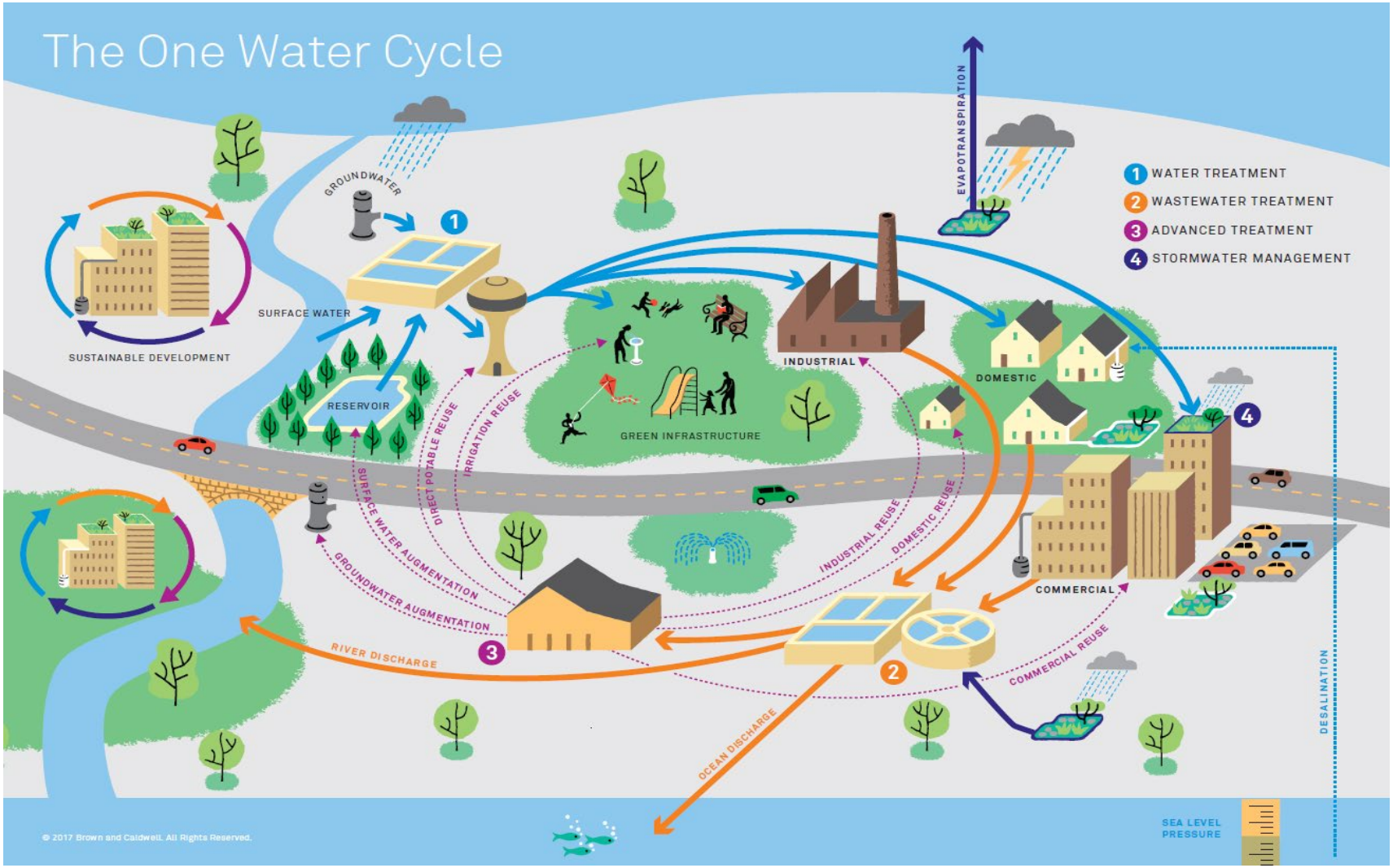
# One Water Defined

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
1 WATER TREATMENT
2 WASTEWATER TREATMENT
3 ADVANCED TREATMENT
4 STORMWATER MANAGEMENT
EVAPOTRANSPIRATION
GROUNDWATER
SURFACE WATER
SUSTAINABLE DEVELOPMENT
RESERVOIR
GREEN INFRASTRUCTURE
INDUSTRIAL
DOMESTIC
COMMERCIAL
SURFACE WATER AUGMENTATION
GROUNDWATER AUGMENTATION
DIRECT POTABLE REUSE
IRRIGATION REUSE
INDUSTRIAL REUSE
DOMESTIC REUSE
COMMERCIAL REUSE
RIVER DISCHARGE
OCEAN DISCHARGE
DESALINATION
SEA LEVEL PRESSURE
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# Fundamentals of One Water

**Environmental Stewardship**

**Social Equality**

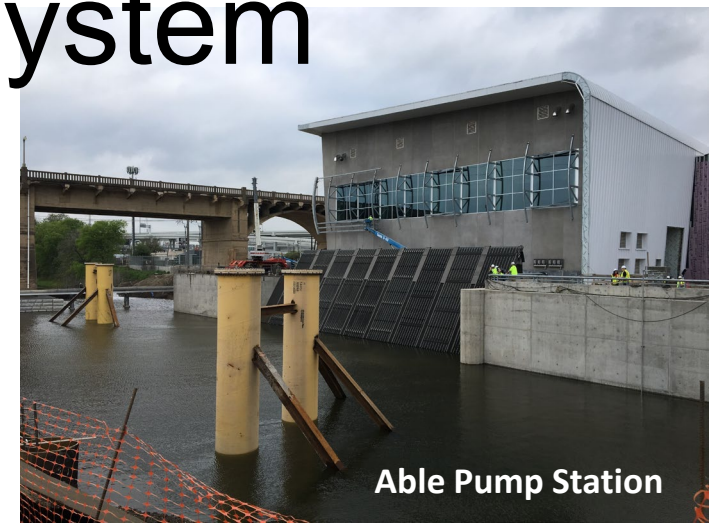
**Economic Prosperity**

# City of Dallas Water and Wastewater Assets

- 7 reservoirs, (6 connected)
- 4,983 miles of water mains
- 3 water treatment plants with a combined c
- 23 pump stations
- 9 elevated and 12 ground storage tanks
- Value of water assets $3.6B
- [illegible]18

- 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


Able Pump Station

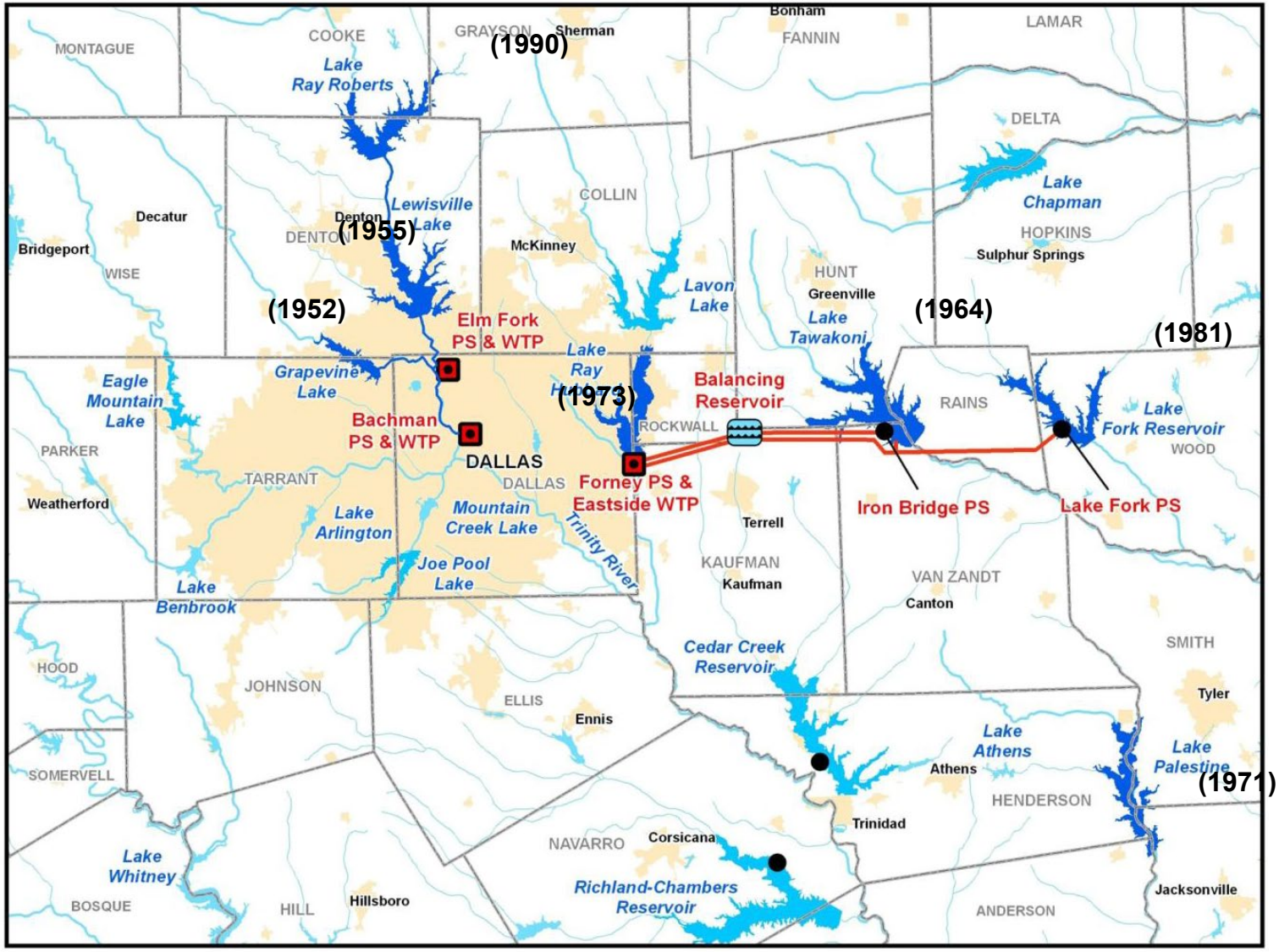

Mill Creek Tunnel Bore Face

- 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

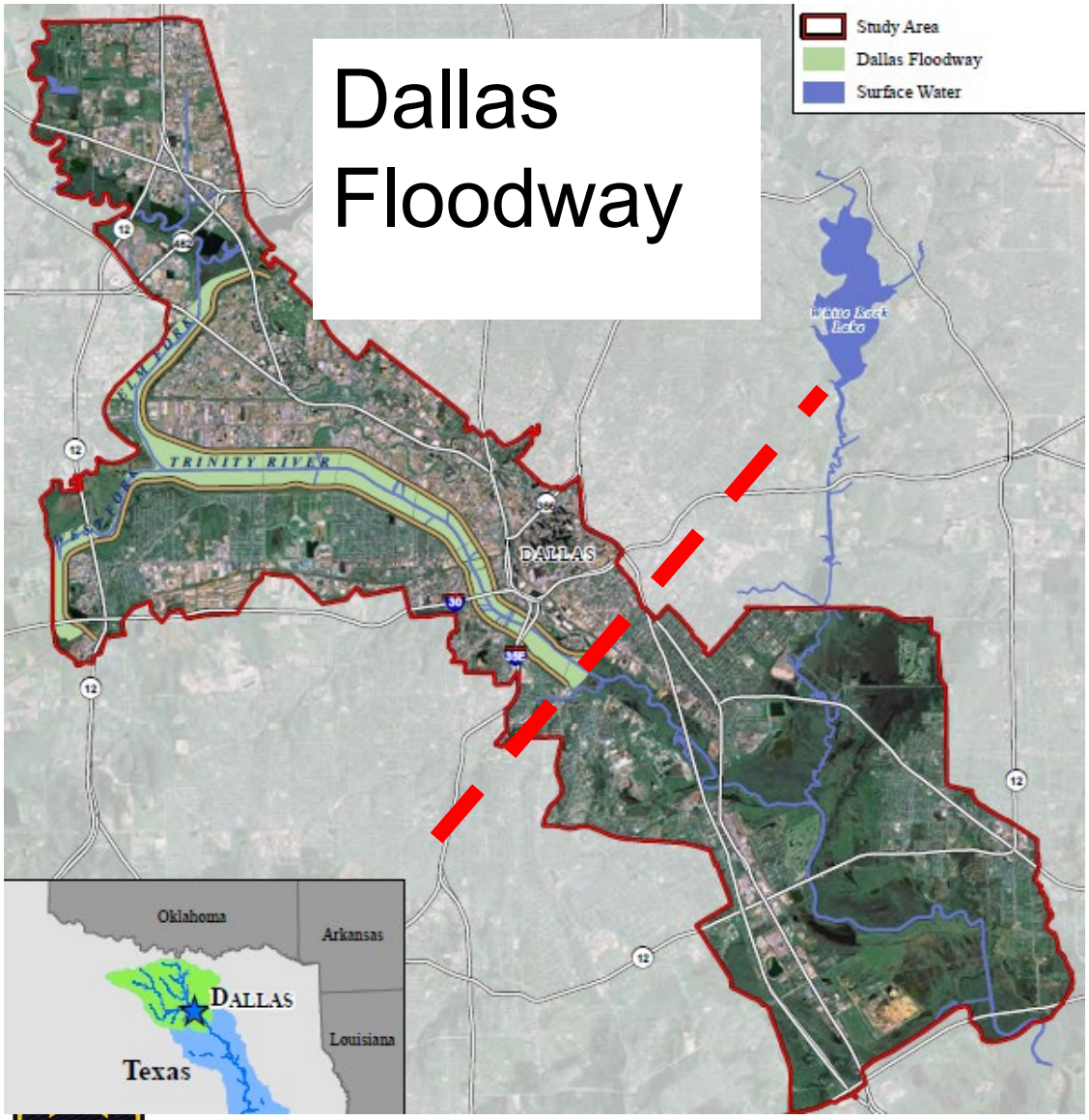
# Partnership with USACE

- 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 Extension

U.S.ARMY

# Dallas Floodway

## Dallas Floodway, City of Dallas, TX

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

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

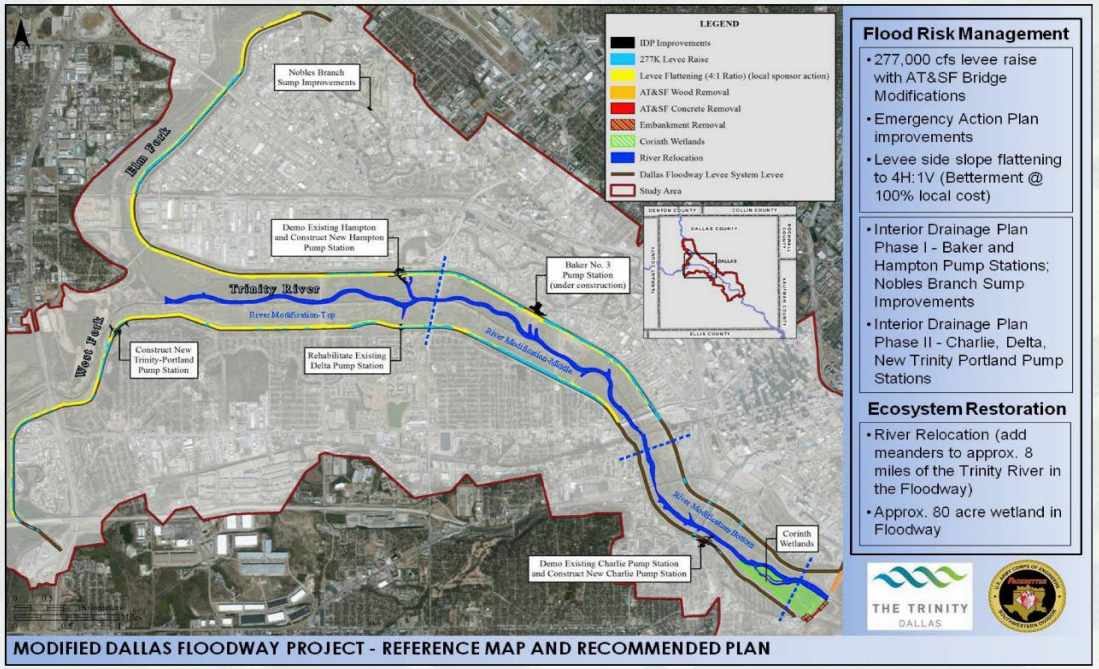
**Phase:** Design and Construction

**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




MODIFIED DALLAS FLOODWAY PROJECT - REFERENCE MAP AND RECOMMENDED PLAN

US Army Corps of Engineers

U.S.ARMY

CITY OF DALLAS TEXAS

# Dallas Floodway Extension

## Dallas Floodway Extension, City of Dallas, TX

**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

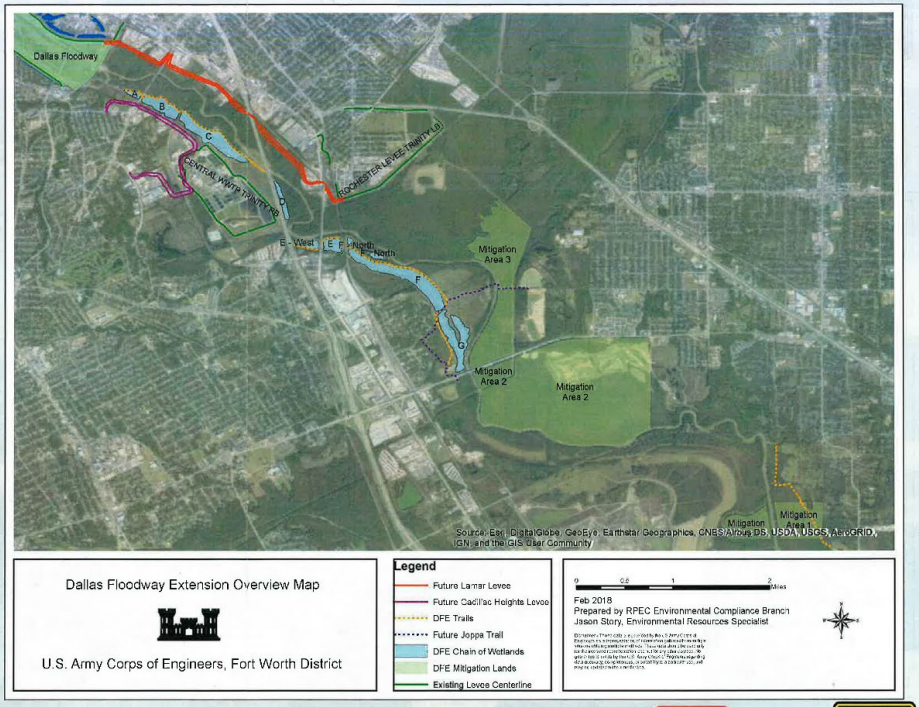
**Scope:** Construct remaining FRM elements

**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




US Army Corps of Engineers.

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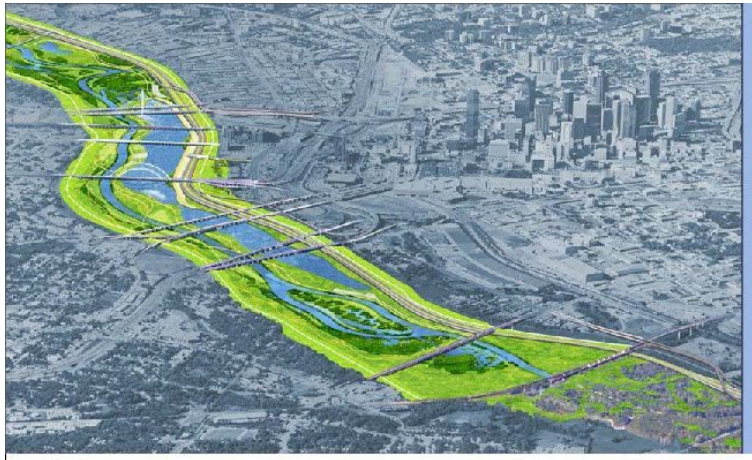
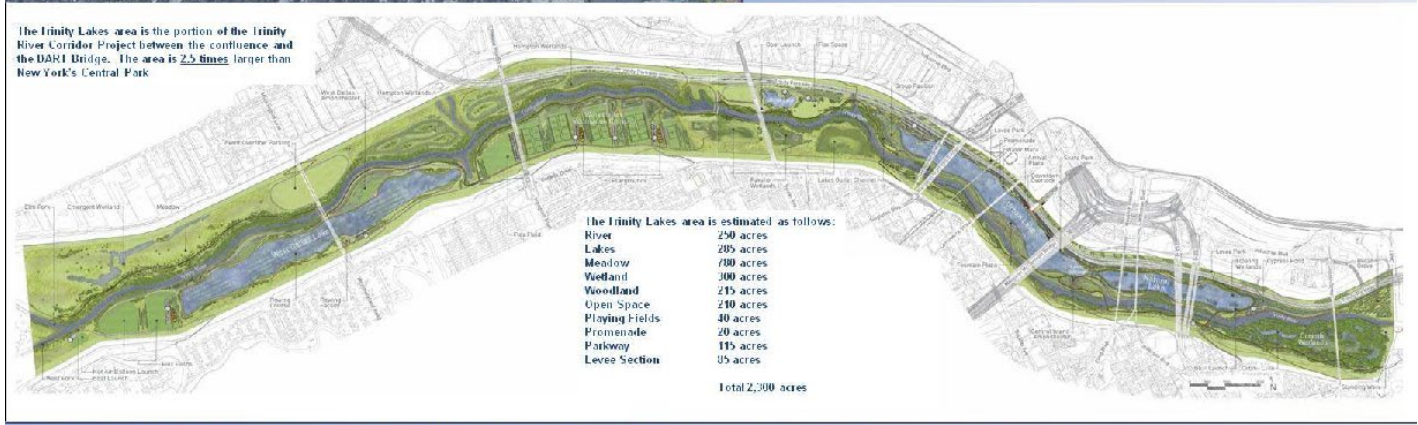
# Balanced Vision Plan



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.

THE TRINITY DALLAS




CITY OF DALLAS BALANCED VISION PLAN RENDERINGS – THE TRINITY RIVER CORRIDOR DESIGN GUIDELINES (2009)

CITY OF DALLAS TEXAS

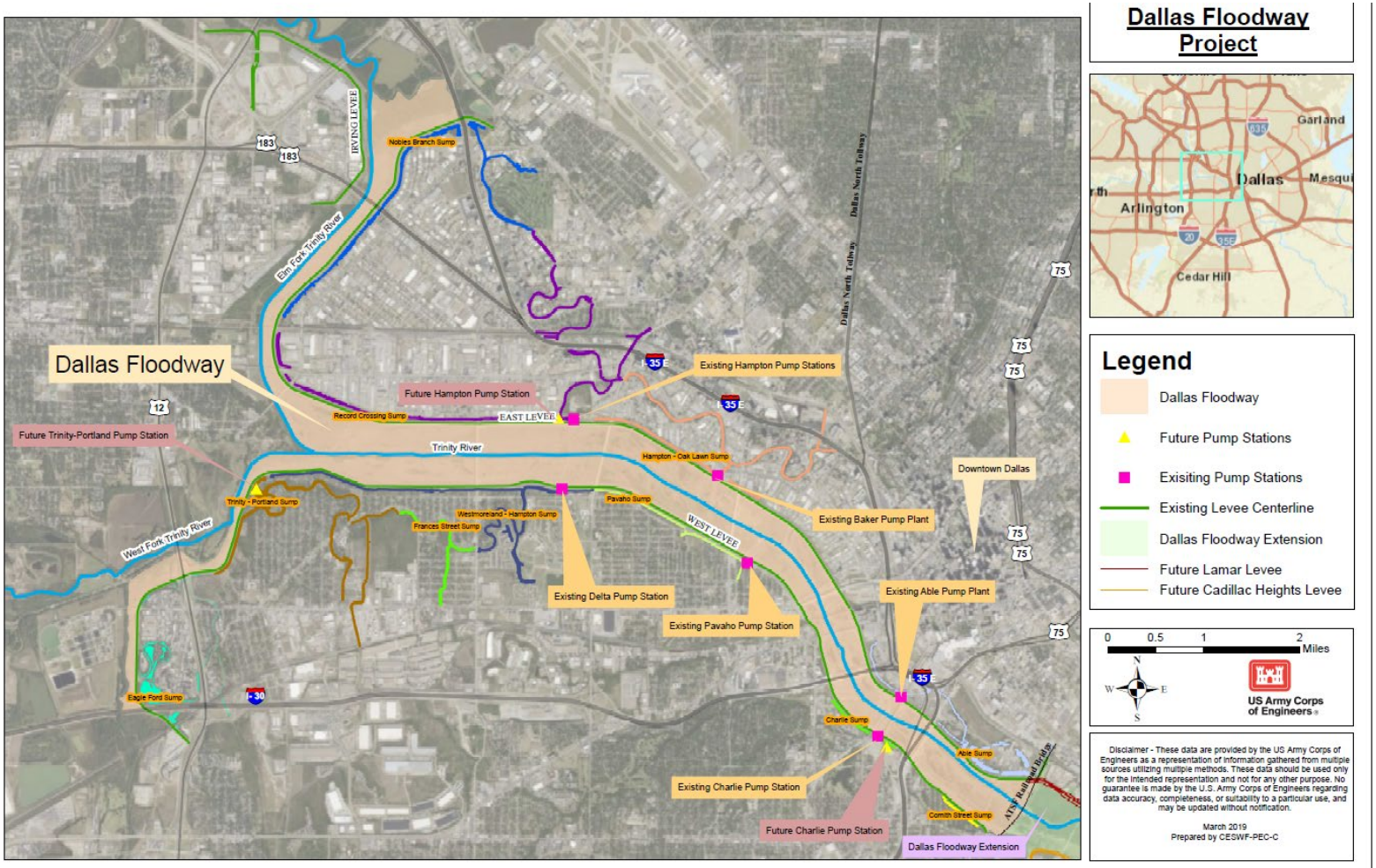
# Approach to Project Delivery

- 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

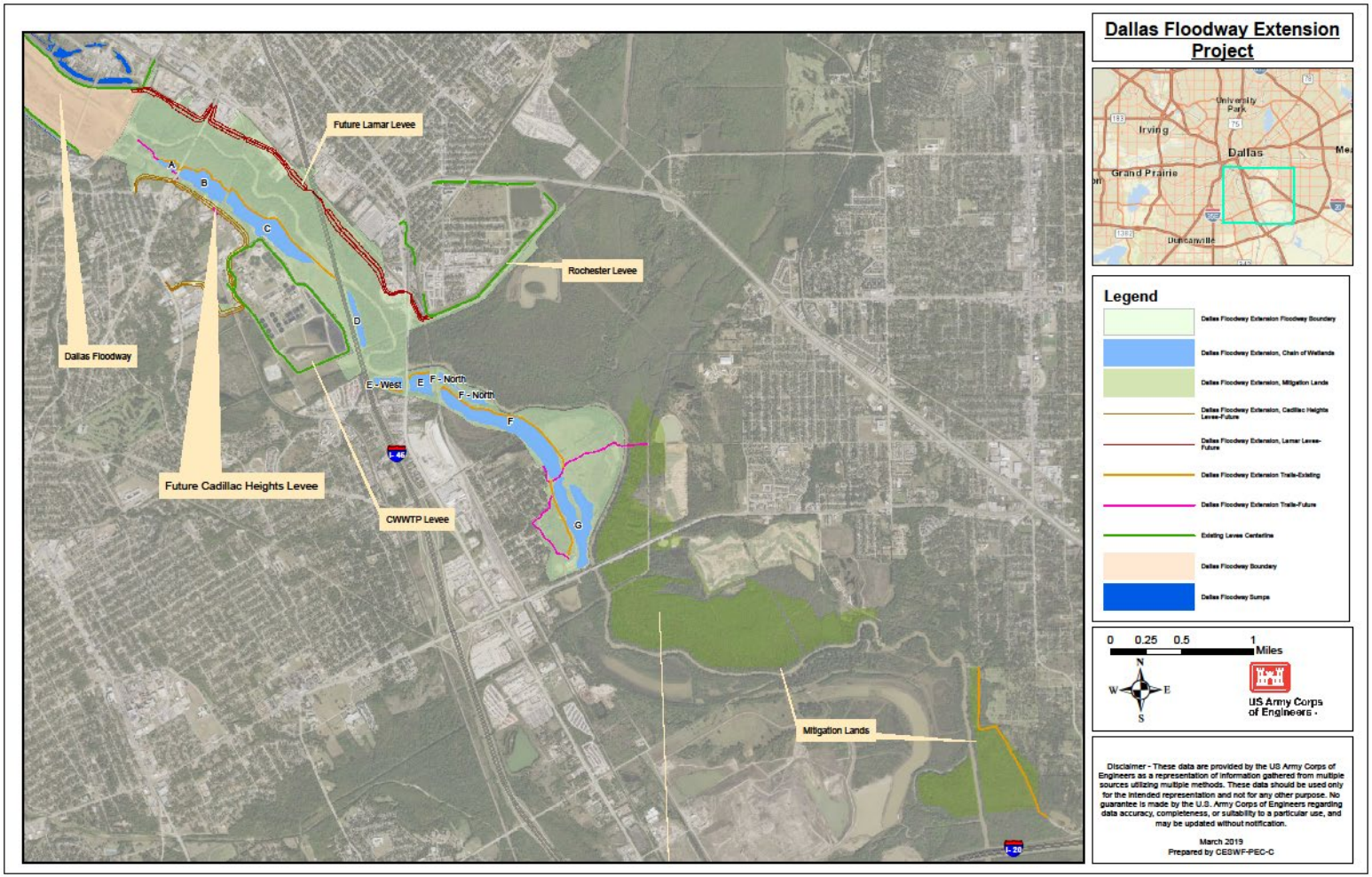
- Federal guidance mandates the local sponsors and federal agency move expeditiously to execute flood risk management
- Roles and responsibilities have been defined, contracts were required for the Dallas Floodway and Dallas Floodway Extension
- USACE leads the design and construction efforts
  - Design-Bid-Build and Design-Build Contracts
- City leads the acquisition efforts and support role for delivery

# Dallas Floodway Project




CITY OF DALLAS TEXAS

# Dallas Floodway Extension




CITY OF DALLAS
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# 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?

**Sarah Standifer**

**Assistant Director**

**Dallas Water Utilities**

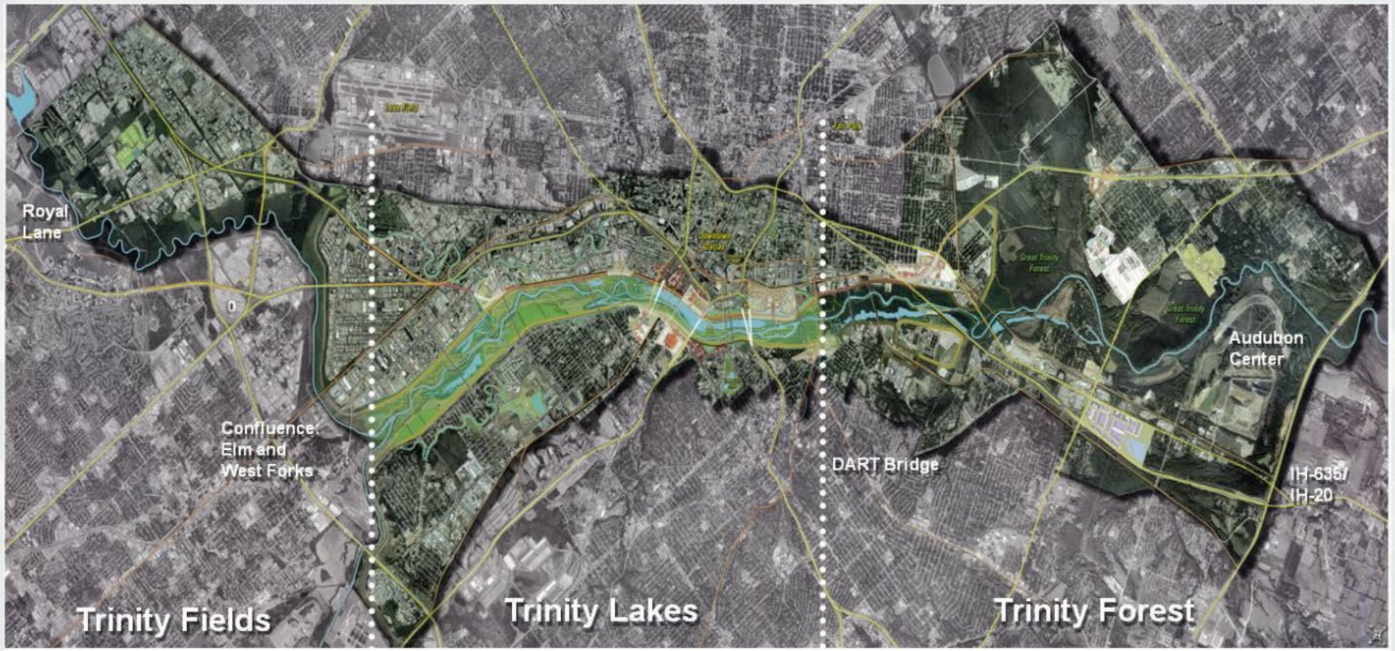
**Sarah.standifer@dallascityhall.com**

@DallasWaterUtilities

# Appendices

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

# Trinity River Corridor Geographic Areas

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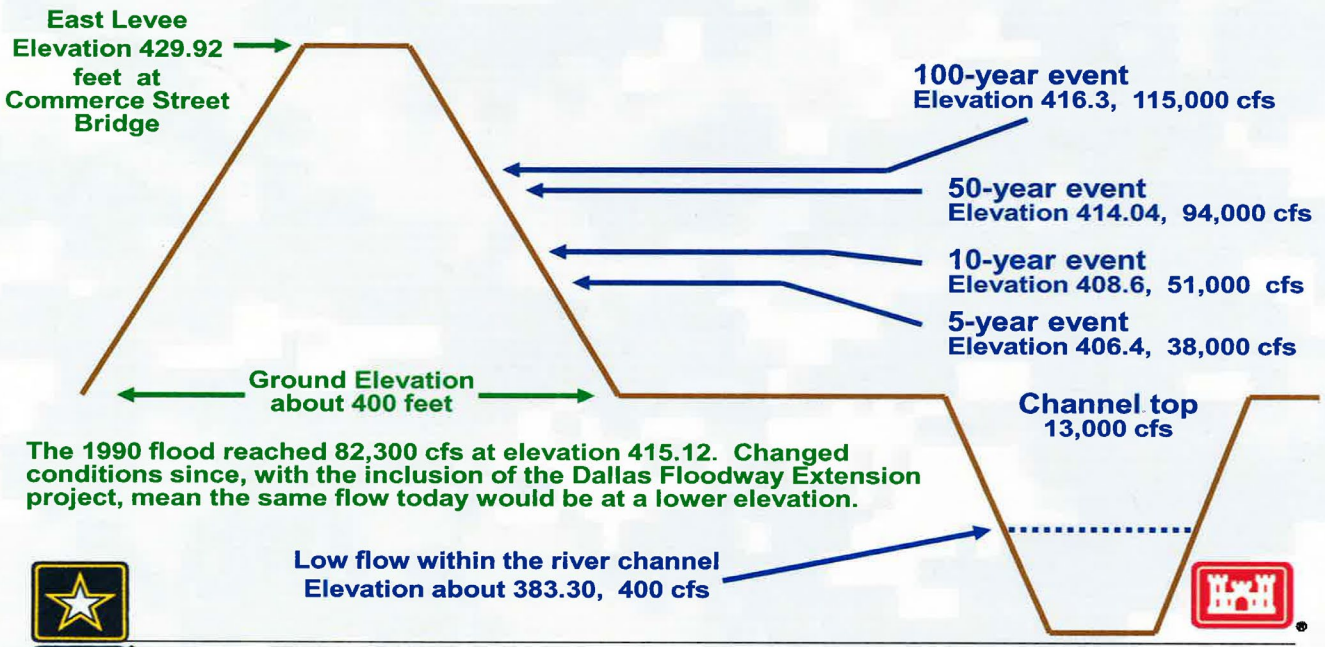
# Trinity River Flooding History

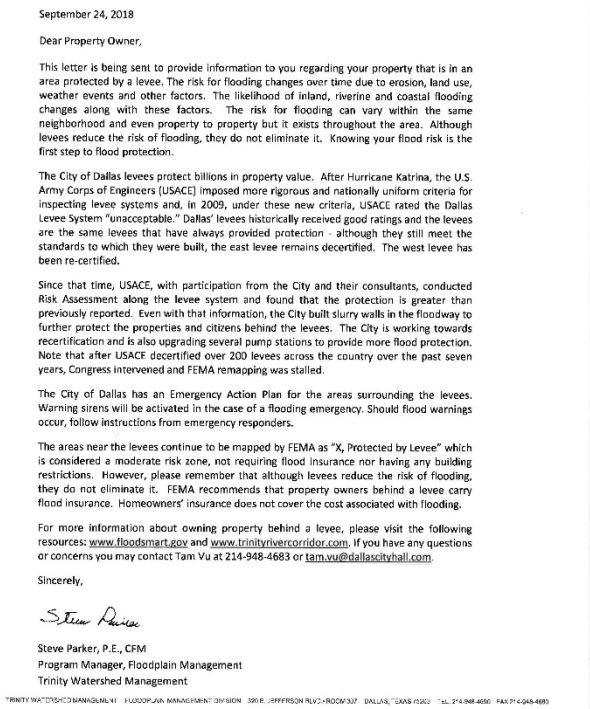
**The existing Dallas Floodway can convey a flood event without overtopping that has a 1-in-1,500 chance of happening in any given year (a 1,500-year event) with a flow of 254,000 cubic feet per second**



# 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 Owner,

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 likelihood of inland, riverine and coastal 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 levees protect billions in property value. After Hurricane Katrina, the U.S. Army Corps of Engineers (USACE) imposed more rigorous and nationally uniform criteria for inspecting levee systems and, in 2009, under these new criteria, USACE rated the Dallas Levee System "unacceptable." 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 east levee remains decertified. The west levee has 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. Even with that information, the City built slurry walls in the floodway to further protect the properties and citizens behind the levees. The City is working towards recertification and is also upgrading several pump stations to provide more flood protection. Note that after USACE decertified over 200 levees across the country over the past seven years, Congress intervened and FEMA remapping was stalled.

The City of Dallas has an Emergency Action Plan for the areas surrounding the levees. Warning sirens 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 mapped by FEMA as "X, Protected by Levee" which is considered a moderate risk zone, not requiring flood insurance nor having any building restrictions. However, please remember that although levees reduce the risk of flooding, they do not eliminate it. FEMA recommends that property owners behind a levee carry flood insurance. Homeowners' insurance does not cover the cost associated with flooding.

For more information about owning property behind a levee, please visit the following resources: www.floodsmart.gov and www.trinityrivercorridor.com. If you have any questions or concerns you may contact Tam Vu at 214-948-4683 or tam.vu@dallascityhall.com.

Sincerely,

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

TRINITY WATERSHED MANAGEMENT FLOODPLAIN MANAGEMENT DIVISION 320 E. JEFFERSON BLVD., ROOM 307 DALLAS, TEXAS 75203 TEL. 214-948-4690 FAX 214-948-4683

City of Dallas

ber 24, 2018

roperty Owners in or Near Areas with Flooding Potential

of the requirements of the National Flood Insurance Program (NFIP) and the Commur ystem (CRS), this is an annual notice to owners of properties in or close to floodplain are n recurring flood potential. This letter provides some information, guidance, and suggestic g flooding.

hinder, some property owners choose to purchase flood insurance to protect property, wh ust do so in compliance with federally-backed mortgages. Standard homeowner's insurar do not provide flood coverage.

/ of Dallas pays for flood control projects, floodplain management studies, and volunt es, through capital bond programs. The City also works with state agencies such as t ater Development Board in seeking funding for flood mitigation projects.

rticipant in the NFIP and in compliance with other regulatory guidelines, property own s have a separate flood insurance policy available for purchase. In addition, Dal ation in the CRS program translates into a reduction in insurance premiums.

tents of your home are important to you. During the kind of flooding that occurs in Dal an be as much damage to contents as to the structure. Therefore, content coverage ended as part of your flood insurance policy.

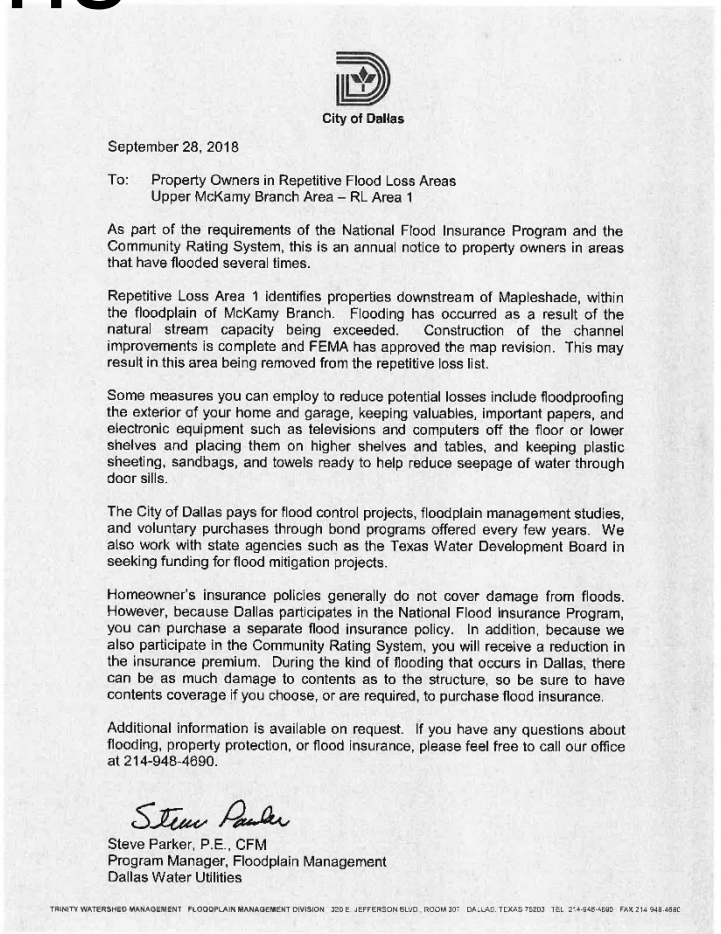
e some measures you can practice in your home or business to reduce potential losses due : flood-proof the exterior of the structure, and keep valuables, important papers and ic equipment off the floor or lower shelves, placing them on higher shelves and tab checklist of important items and their locations within easy access to organize your act itock a supply of plastic sheeting, sandbags and towels to help reduce seepage of wa door sills and other exterior openings.

re additional floodplain information available upon request. If you have any gen ns about flooding, property protection, flood insurance, or bond program projects, ple e to call our office at 214-948-4690. Flood maps are available to view or copy at our offi E. Jefferson Blvd., Room 307. Much more information can be found allascityhall.com/departments/trinitywatershedmanagement/Pages/Flood-Insurance-and- spx.

gards

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

TRINITY WATERSHED MANAGEMENT FLOODPLAIN MANAGEMENT DIVISION 320 E. JEFFERSON BLVD., ROOM 307 DALLAS, TEXAS 75203 TEL. 214-948-4690 FA



City of Dallas

September 28, 2018

To: Property Owners in Repetitive Flood Loss Areas
Upper McKamy Branch Area – RL 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 McKamy 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, keeping 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 few years. We also work with state agencies such as the Texas Water Development Board in seeking funding for flood mitigation projects.

Homeowner's 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 the kind of flooding that occurs in Dallas, there can be as 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 flooding, property protection, or flood insurance, please feel free to call our office at 214-948-4690.

Steve Parker, P.E., CFM
Program Manager, Floodplain Management
Dallas Water Utilities

TRINITY WATERSHED MANAGEMENT FLOODPLAIN MANAGEMENT DIVISION 320 E. JEFFERSON BLVD., ROOM 307 DALLAS, TEXAS 75203 TEL. 214-948-4690 FAX 214-948-468

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