

# Memorandum



CITY OF DALLAS

DATE April 20, 2018

TO The Honorable Members of the Mobility Solutions, Infrastructure and Sustainability Committee

SUBJECT **City of Dallas Corps Projects Updates**

On Monday, April 23, 2018, you will be briefed on the City's ongoing responsibilities and partnership with the United States Army Corps of Engineers (USACE) with respect to the Lewisville Dam and the Dallas Floodway System. Nathan J. Snorteland, Director of the USACE Risk Management Center, will be presenting information and available to address any questions you may have regarding this important infrastructure for Dallas.

A handwritten signature in black ink, appearing to read 'Jo M. Puckett'.

Jo M. (Jody) Puckett  
Assistant City Manager (Interim)

c: Honorable Mayor and Members of the City Council  
T.C. Broadnax, City Manager  
Larry Casto, City Attorney  
Craig D. Kinton, City Auditor  
Biliera Johnson, City Secretary  
Daniel F. Solis, Administrative Judge  
Kimberly Bizer Tolbert, Chief of Staff to the City Manager  
Majed A. Al-Ghafry, Assistant City Manager

Jon Fortune, Assistant City Manager  
Joey Zapata, Assistant City Manager  
M. Elizabeth Reich, Chief Financial Officer  
Nadia Chandler Hardy, Chief of Community Services  
Raquel Favela, Chief of Economic Development & Neighborhood Services  
Theresa O'Donnell, Chief of Resilience  
Directors and Assistant Directors

# CITY OF DALLAS CORPS PROJECTS UPDATES

**DAM SAFETY - LEWISVILLE DAM SAFETY MODIFICATION**

**LEEVE SAFETY - MODIFIED DALLAS FLOODWAY PROJECT**

Prepared by Fort Worth District

For Dallas Council Committee – Mobility Solutions, Infrastructure & Sustainability (MSIS)

23 April 2018

*“The views, opinions and findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other official documentation.”*



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of Engineers®**



# PURPOSE

- Provide an overview City and Corps Partnership
  - Lewisville Dam and Dallas Floodway Levees
- Trinity River Basin System Overview
- Lewisville Dam Safety Modification Work Plan
- Dallas Floodway Levee Work Plan
- Next Steps

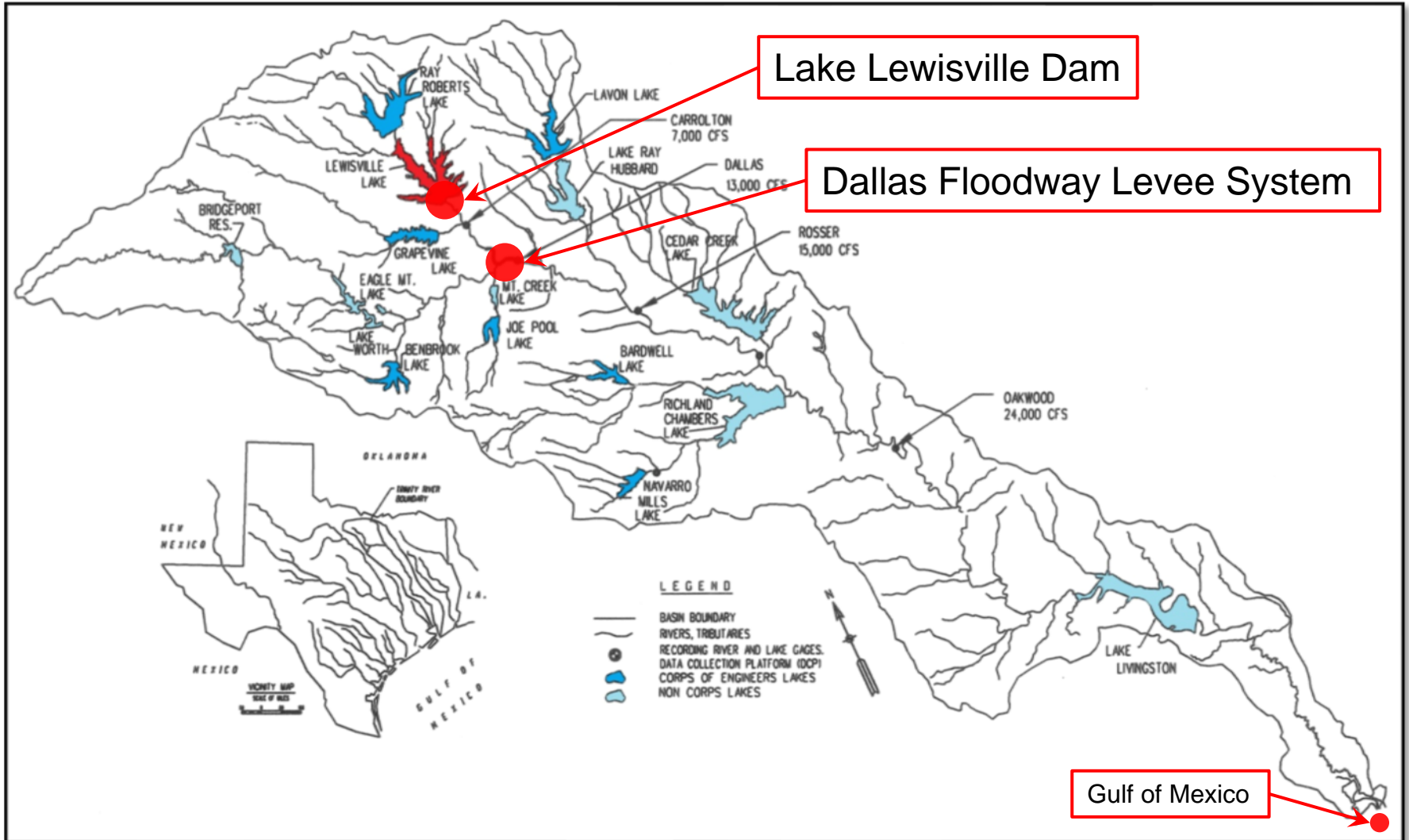


# CITY AND CORPS PARTNERSHIPS

- Lake Lewisville Dam –
  - USACE owned and operated
  - City of Dallas contracts w/ Corps for water storage
    - City cost shares in O&M
  - Subject to Corps Dam Safety Program oversight
- Dallas Floodway Levee System -
  - City of Dallas owned and operated
    - Corps cost shares new construction
  - Subject to Levee Safety Program oversight

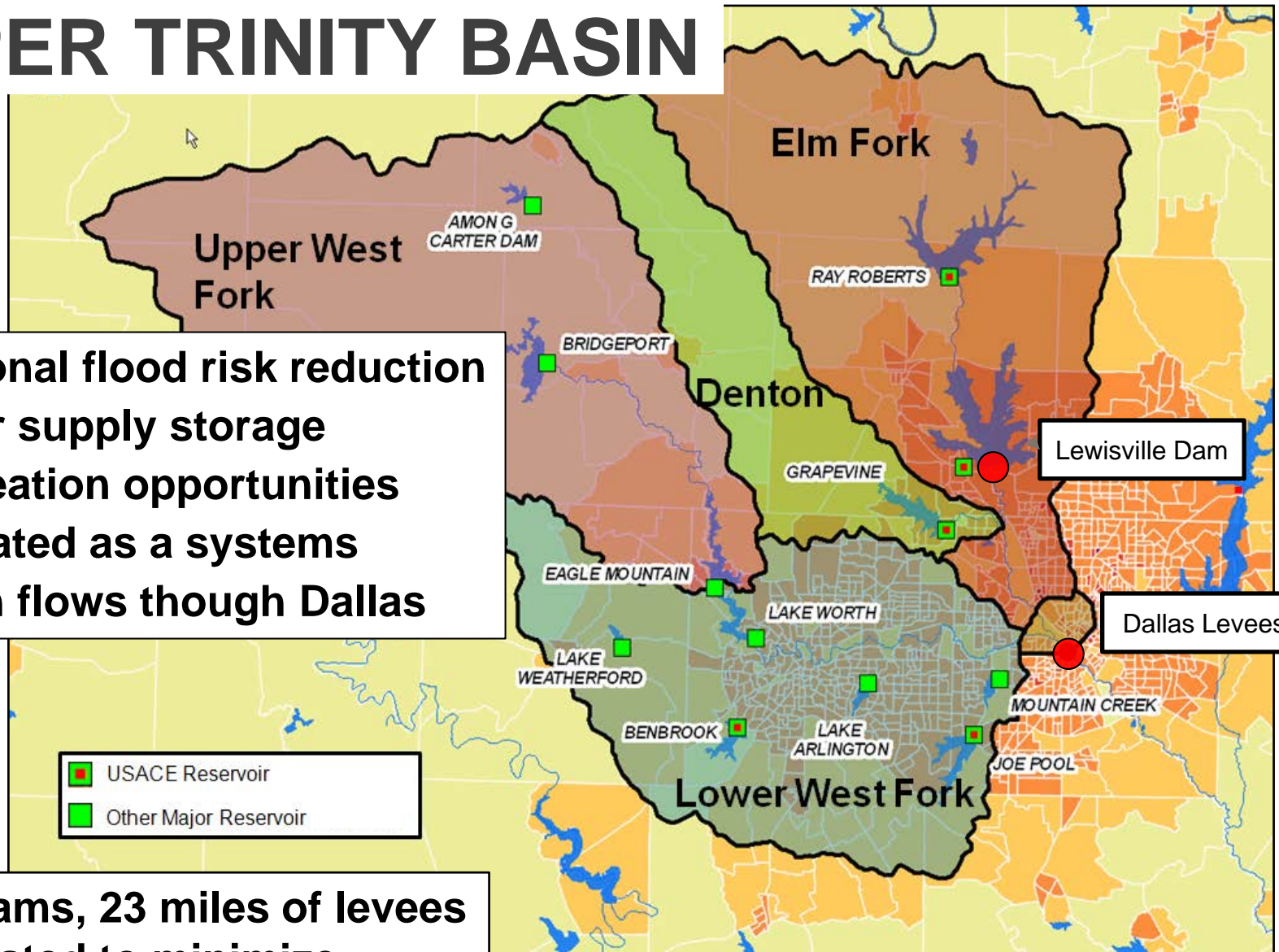


# TRINITY RIVER BASIN DRAINAGE



# UPPER TRINITY BASIN

- Regional flood risk reduction
- Water supply storage
- Recreation opportunities
- Operated as a systems
- Basin flows though Dallas



■ USACE Reservoir  
■ Other Major Reservoir

- 12 Dams, 23 miles of levees
- Operated to minimize flood damages in Dallas



# CORPS DAM & LEVEE SAFETY OVERVIEW

## Dam and Levee Safety Program Components



- Inspection
- Risk Assessment
- Risk Communication
- Risk Reduction
- Risk Management

# WHY THIS IS IMPORTANT TO USACE...

## The Dam and Levee Safety Programs -

- Informs the prioritization of the USACE dam and levee safety portfolios.
- Results affect the urgency of activities related to flood risk management of the system.
- Builds a foundation for shared responsibility for continued development and implementation of flood risk management solutions for the system.





# WHY THIS IS IMPORTANT TO THE CITY...

## The Dam and Levee Safety Programs -

- Helps inform future investment decisions.
- Highlights critical operation and maintenance, monitoring, emergency management, and training activities needed.
- Can use the information to support subsequent permit applications.
- Helps communicate flood risk to the community.



# LEWISVILLE DAM – DAM SAFETY

Lewisville Dam Safety Modification



# LEWISVILLE DAM OVERVIEW



# DAM SAFETY WORK PLAN

- Approved Plan June 2017 - est. cost \$150M
- Addresses all Potential Failure Modes (PFM)
- 3 construction contracts executed 2019-2026
  - 2019 contract:
    - Primarily earthwork
    - Addresses seepage and embankment stability
  - 2021 contract:
    - Primarily concrete work
    - Addresses spillway stability
  - 2025 contract:
    - Restores prior uses
    - Focus is borrow areas
- Estimated Construction Completion (Fall/Winter 2026)



# DAM SAFETY WORK PLAN CONT.

- Coordinating with Dallas Water Utilities and City of Denton on annual budget requests and annual expenditures
  - Part of annual water supply bill or can exercise the major rehabilitation option that allows for amortization over 25 years
  - Total expected reimbursement by City of Dallas is estimated to be \$40M with peaks in the 2021 to 2023 period of approximately \$9.0M



# DALLAS FLOODWAY – LEVEE SAFETY

Modified Dallas Floodway Project (MDFP)



# DALLAS FLOODWAY OVERVIEW



# CHARACTERISTICS OF THE DALLAS FLOODWAY

- Among the best maintained levee systems in the nation.
- The levee sponsor has been very diligent addressing deficiencies as they are identified.
- The levee system protects an area with high population and a lot of infrastructure.
- The Dallas Floodway levee system has a high likelihood of conveying large flood events.
- It will always have a high degree of attention within USACE.





# DALLAS RISK ASSESSMENT BACKGROUND

Dallas Floodway Initial Risk Assessment completed by Corps and the City of Dallas in 2012.

In 2016 Corps briefed City Council Committee on updating risk assessment based on changed conditions

- East Bank – West Bank Interceptor
- Cutoff walls
- Lower east levee floodwall scour protection
- 3 New pump stations and control gates



# DALLAS RISK ASSESSMENT FINDINGS

## Updated Findings:

- East Levee: Risks have decreased since the 2012 Risk Assessment.
  - City actions led to this reduction
    - Interceptor Tunnel and Cut-Off Walls
- West Levee: Risks are the same as 2012.

## Primary Risk Drivers:

- East Levee: Embankment Overtopping & Floodwall Overtopping
- West Levee: Embankment Overtopping & Foundation Backward Erosion & Piping



# DALLAS RISK ASSESSMENT RECOMMENDATIONS

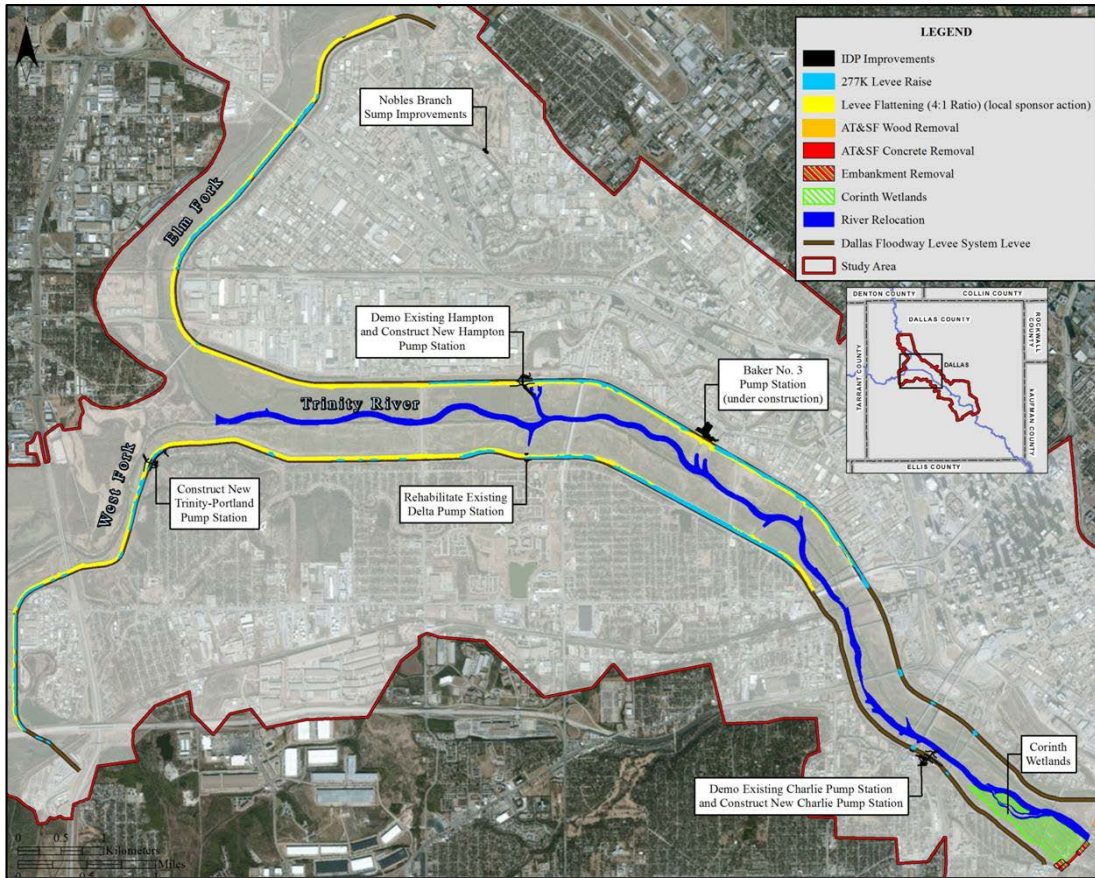
- Implement levee raises and slope flattening
- Continue to update Emergency Action Plan yearly
- Develop and implement a plan for instrumentation monitoring
- Continue to update any O&M Manuals and Databases
- Re-evaluate risk characterization as conditions change.

**USACE and City of Dallas will collaborate on all risk assessment actions.**

# DALLAS FLOODWAY WORK PLAN

## Path Forward:

### Modified Dallas Floodway Project – FRM Elements (Phase 1)



- 277K cfs levee raise and Bridge modifications - \$12M
- 4:1 Interior side slopes – \$38M

# DALLAS FLOODWAY WORK PLAN CONT.

## Path Forward:

- Advanced Funds Agreement – Non-Federal Funding
  - City funds in advance of Federal appropriations
  - Allows for potential of credit and/or reimbursement of non-Federal share
  - Requires Assistant Secretary of the Army approval and Congressional notification



# DAM AND LEVEE SAFETY NEXT STEPS

- Continue Corps Partnerships – Dam and Levees
- Execute Dam Safety and Levee Safety Work Plans
- Engage in risk communication and education





**QUESTIONS?**

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