

Memorandum



CITY OF DALLAS

DATE February 3, 2011

TO Trinity River Corridor Project Committee Members:

David A. Neumann (Chairman)

Vonciel Jones Hill

Steve Salazar (Vice-Chair)

Delia Jasso

Mayor Pro Tem Dwaine Caraway

Linda Koop

Deputy Mayor Pro Tem Pauline Medrano

Ann Margolin

Carolyn R. Davis

SUBJECT **Dallas Floodway System Update 100-Year Levee Remediation**

The attached briefing will be presented at the Trinity River Corridor Project Committee meeting on February 8, 2011 at 9:30 A.M. This briefing provides an update on the progress of the 100-year levee remediation and outlines the next steps, including the estimated timeline for making the 100-year levee fixes

If you have additional questions, please let me know.

Jill A. Jordan, P.E.
Assistant City Manager



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Cc: Honorable Mayor and Members of the City Council
Mary K. Suhm, City Manager
Ryan S. Evans, First Assistant City Manager
A. C. Gonzalez, Assistant City Manager
Forest E. Turner, Assistant City Manager
Jeanne Chipperfield, Chief Financial Officer
Deborah A. Watkins, City Secretary
Thomas P. Perkins, Jr., City Attorney
Craig D. Kinton, City Auditor
Judge C. Victor Lander
Helena Stevens-Thompson, Assistant to the City Manager
Frank Libro, Director, Public Information Office
Kelly High, Director, Trinity Watershed Management
Rebecca Rasor, P.E., Managing Director, Trinity River Corridor Project



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Dallas Floodway System Update 100-Year Levee Remediation

Presented to
Trinity River Corridor Project Committee
February 8, 2011

In Summary...

- The City and Corps are committed to protecting people and property
- The Corps has provided preliminary data related to the additional soil strength testing which is scheduled to be complete in March 2011
- Based on the preliminary data, design solutions are expected to be within the original \$100M - \$150M set aside for this project
- The Corps and City have agreed on the design approach and path forward
- The City and Corps are committed to completing these fixes by December 2011 in order to stop the issuance of revised flood maps



Outline

- Purpose
- Project Overview
- Additional Soil Strength Testing Results
- Path Forward -100-year Levee Remediation Plan
- Next Steps

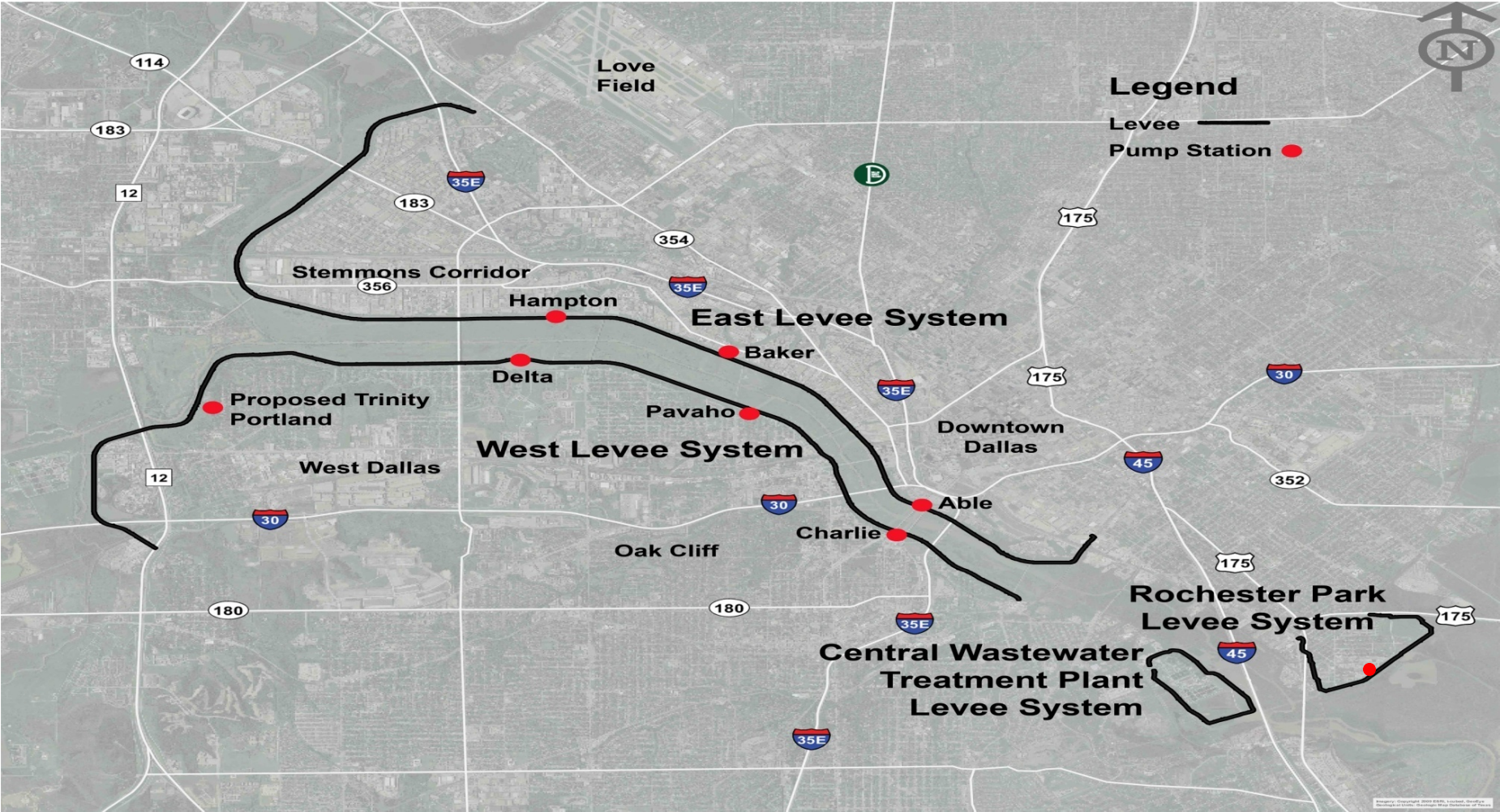


Purpose of Briefing

- Provide an update of the progress to date for retaining FEMA certification that the Dallas Floodway System Levees can withstand the 100-year flood (flood that has a 1% chance of being equaled or exceeded in a given year)
- Outline the steps, including solutions, timeline and funding, for making the 100-year levee fixes before FEMA remaps



Dallas Floodway System Map



- **Flood Protection is of critical importance to the City and the Corps**
- Dallas Floodway System protects billions of dollars of property value
- Dallas Floodway System historically received **good, very good or excellent ratings** on annual and periodic (every 5 years) inspections
- Our levees still meet the standards to which they were built by the Corps in the 1950's



Overview (cont'd)

- After Hurricane Katrina, a National Levee Safety Program was instituted resulting in more rigorous and nationally uniform criteria for inspecting levee systems
- Dallas Floodway Levee System was one of first levee systems in a major American City to be inspected based on new rating criteria
 - As of 2008, over 200 US levees failed inspection by the Corps
 - Those cities/local flood control districts will have to bear entire cost of correction unless they are in a cost sharing partnership with the Corps – most are not
 - City is currently in a cost sharing partnership with the Corps for the Dallas Floodway Environmental Impact Statement (EIS)



Overview (cont'd)

- Under this new criteria, the Corps issued Periodic Inspection Report 9 (PI #9) in March 2009 and rated the Dallas Levee System “unacceptable”
 - Deficiencies of two types were identified:
 - Operations & Maintenance (O&M) such as vegetation, siltation and erosion
 - To date approximately, **191** of the 198 items have been addressed as of January 2011
 - The City will request an extension of PL 84-99, to be approved by the Corps on March 31, 2011
 - System wide issues such as levee height, seepage and stability
 - Levee height and stability issues were the fundamental drivers for the Trinity River Corridor Project and the partnership with the Corps since 1993



Overview (cont'd)

- As a part of our partnership with the Corps, the City and the Corps expanded the scope of the current EIS to include study of levee deficiencies. This is called the System Study (800-Year Levee project)
 - System Study is underway to identify and address system-wide deficiencies
- Concurrent with this System Study, the City through its contractor (HNTB) has been working to identify “fixes” to the levee system to safely pass the 100-year flood



City's Project Scope for the 100-year Fixes

- In April 2010, Council was briefed on preliminary problem areas and the likely fixes
- The City must fix 3 levee systems
 1. Central Wastewater Treatment Plant (CWWTP)
 2. Rochester
 3. Dallas Floodway (East and West levees)
- 100 year fixes include installation of seepage cut-off walls, mitigation of utility crossings of the levee and strengthening of the MSE wall at the Rochester Levee



Schedule: 100-Year Levee Remediation Plan

- Original Schedule:

- ✓ Feb 2010: Submitted Draft Levee Remediation Plan
- ✓ Apr 2010: Completed geotechnical field investigations
- ✓ May 2010: Began design of proposed fixes
- ✓ Jun 2010: Submitted lab test results
- ✓ Aug 2010: Submitted design analyses and Draft Master Plan for the 100-year levee fixes
- ✓ Aug 2010: Submitted Draft Environmental Assessment document
- Sept 2010: Advertise Construction
- Nov 2010: Corps Approval and Construction Begins

✓ Indicates completed task



Preliminary Fully Softened Shear Strength Results

- As part of the technical review process, it was determined that additional site specific testing for fully softened shear strengths (FSSS) needed to be conducted
 - The Corps agreed to conduct these tests at their Engineering Research and Development Center
 - As of January 31, the City has received preliminary results from 52 tests, which is approximately 30% of the total



Preliminary Fully Softened Shear Strength Results

- Additionally, the Corps is beginning to conduct multi-point liquid limit tests to ensure the FSSS test data can be appropriately applied throughout the entire levee system. These results are expected in April 2011
- These additional tests will provide increased confidence in the knowledge of the system, and are being accomplished at no additional cost to the City and within the original test schedule
- The Corps has committed to providing final FSSS test results and analysis by March 31, 2011



Preliminary Fully Softened Shear Strength Results

- As briefed on October 12th, the additional FSSS testing could have resulted in minor or major modifications to the overall design fixes
- Based on the preliminary results received to date, no major modifications are expected to move forward with the 100 year fixes
 - Corps/City goal is to have solutions that are integral to the overall Dallas Floodway Project, but the final determination on this will not be known until the completion of the System Study and EIS (May of 2014)

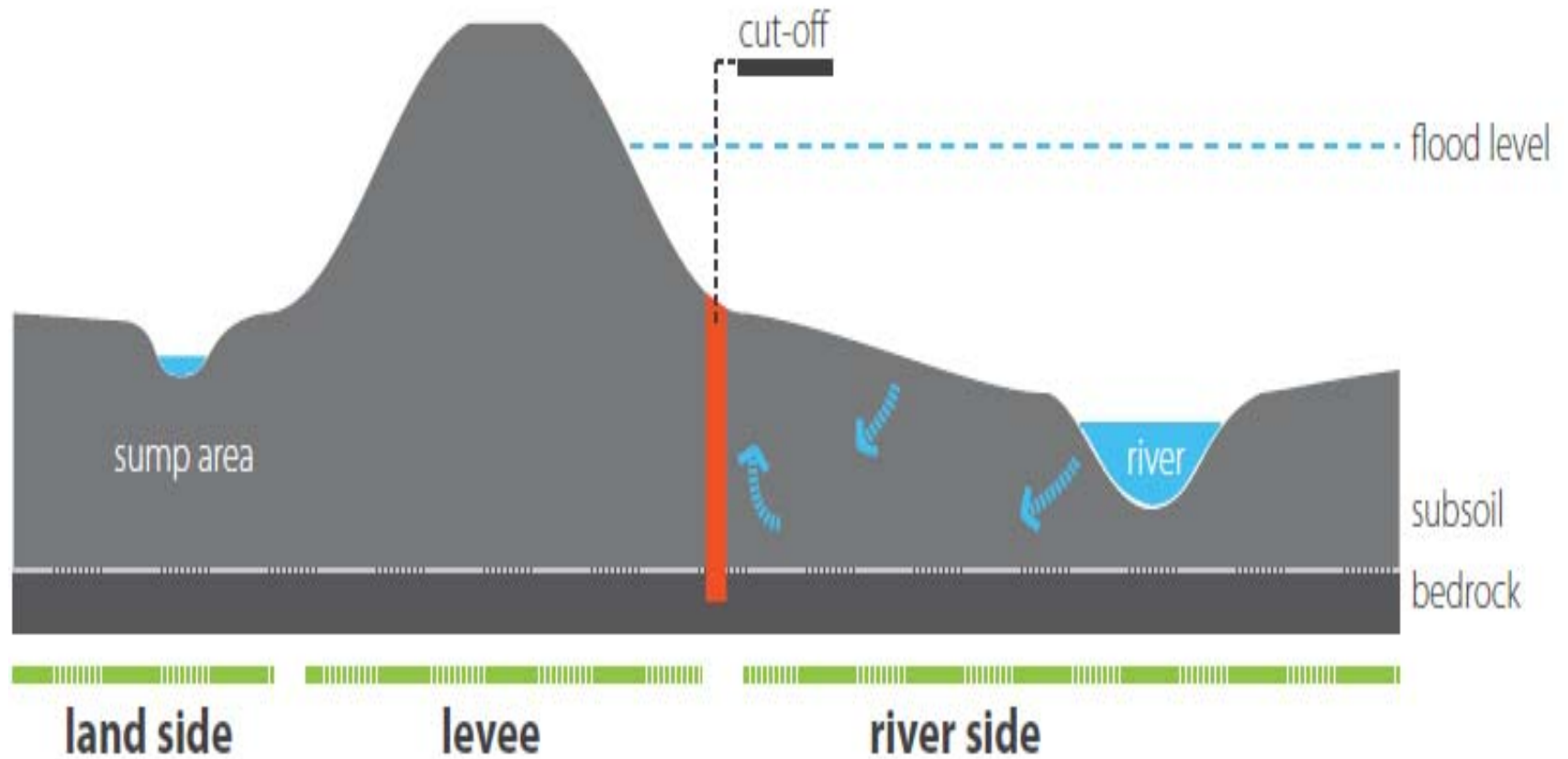


Proposed Solutions

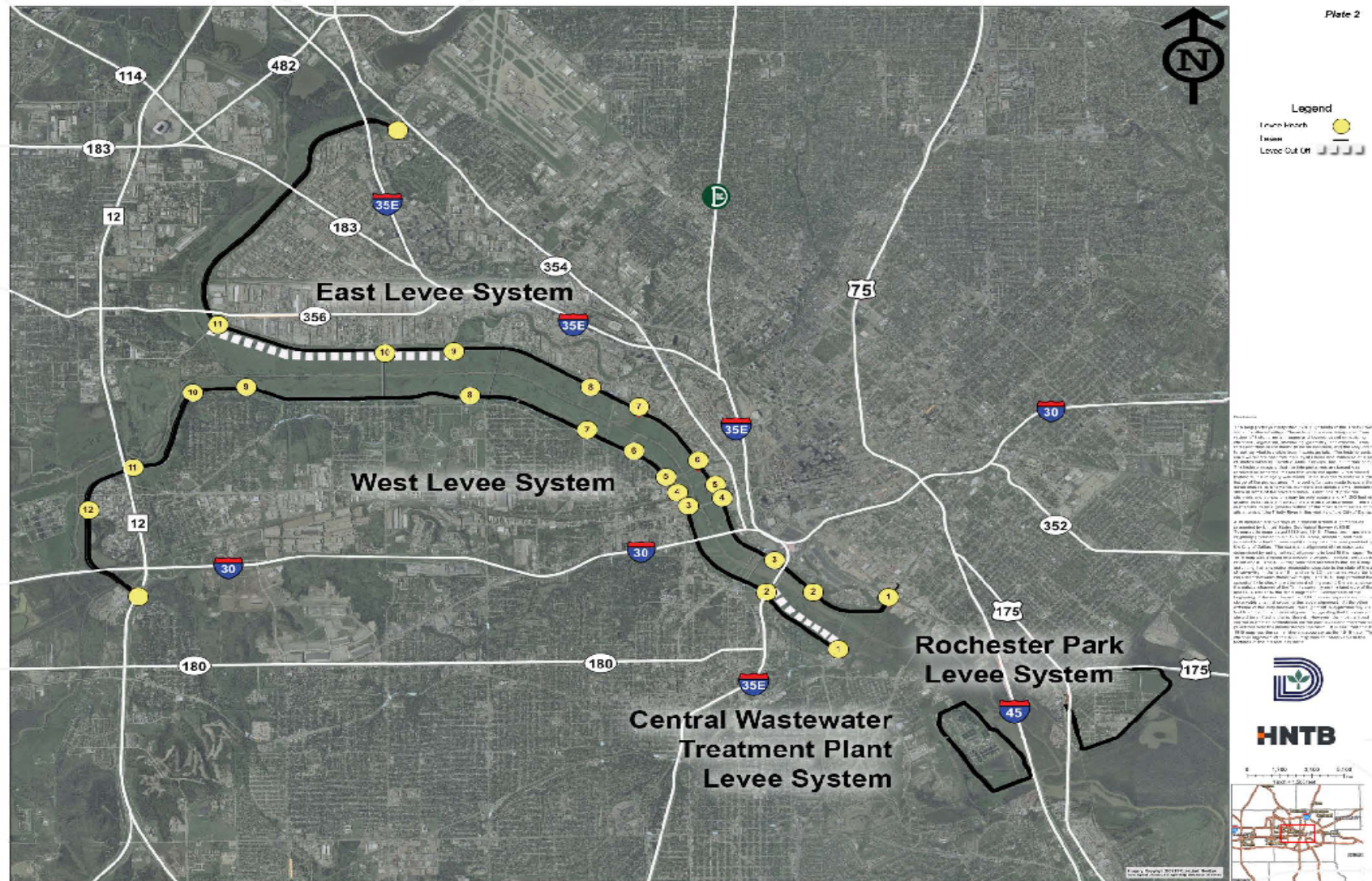
- Based on the preliminary results, 3 types of mitigation could be required to certify the levee with FEMA for the 100 year flood event:
 - Cut Off Walls
 - Utility Mitigation
 - Strengthening of the MSE wall at Rochester



Cut-off Wall Example

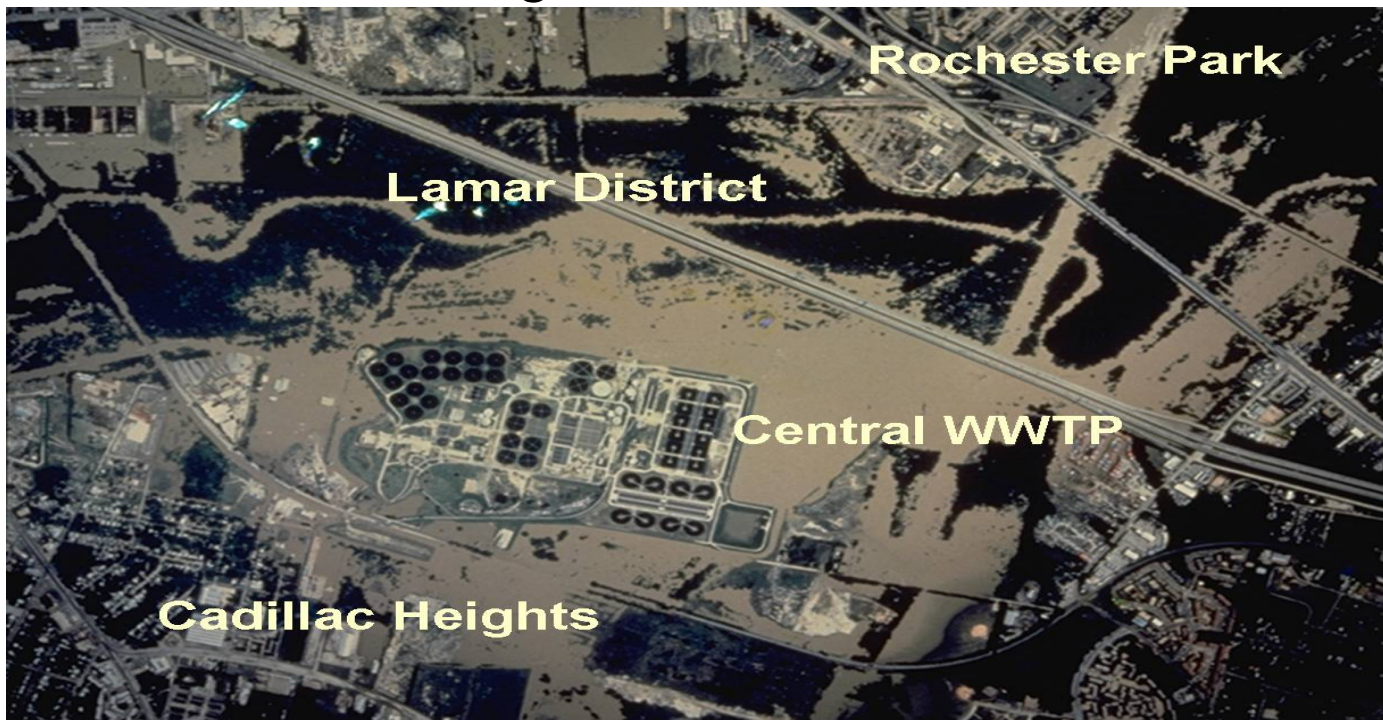


Cut-off Wall Locations - Based on preliminary results



1. Central Wastewater Treatment Plant - 100-Year Levee Remediation Plan

- No issues related to slope stability or under seepage for the 100-year flood event
- 100-year fix is to address the multiple utility crossings of the levee



2. Rochester Levee 100-Year Levee Remediation Plan

- The City will perform work at Rochester levee to ensure the December deadline will be met
- No issues related to slope stability or under seepage for the 100-year event
- 100-year levee fixes will include:
 - Addressing multiple utility crossings of the levee
 - Strengthening the existing MSE (Mechanical Stabilized Earth) wall with the installation of gabion reinforcement



3. Dallas Floodway Levees (East and West) 100-Year Levee Remediation Plan

- Measures are needed to address multiple utility crossings of the levee
- Cut-off walls are needed to address under seepage
- At this time, seepage mitigation is required for the 100 year even only at 3 reaches
 - East levee reaches 9 & 10
 - West levee reach 1
 - See map on page 17 for location of these reaches



100-Year Levee Remediation – Funding Plan

- The initial funding plan for construction of 100-year flood improvements was briefed to City Council in April 2010 consisting of:
 - Re-allocation of Flood Protection Bond Program projects (\$80M)
 - Stormwater Funds (\$45M)
 - Trinity Parkway Funds (\$15M)
 - Dallas Water Utility (DWU) Funds (\$10M)



Schedule: 100-Year Levee Remediation Plan

- Revised Schedule:
 - **March 2011:** Corps to Complete FSSS testing results and analyses
 - **April 2011:** Final testing data/analyses incorporated into design solutions (if needed)
 - **April 2011:** City submits draft 408 Master Plan, EA, and Preliminary design plans to the Corps for review
 - **May 2011:** Publish Environmental Assessment (EA) for public review
 - **May thru June:** City/HNTB and Corps review and finalize design plans, 408/EA documents



Schedule: 100-Year Levee Remediation Plan

- Revised Schedule (cont'd):
 - **June/July 2011:** City advertises and takes bids for Construction Contract(s)
 - **July 2011:** Corps approves 408 Master Plan and EA ; thereby permitting construction of the 100-year fixes
 - **August 2011:** City Awards Construction Contract(s)
 - **December 2011:** City completes construction and submits certification of levees to FEMA for the 100-Year level of protection



Next Steps/Actions

- **June 2011** – Report back to Council on detailed funding strategy
- **August 2011** – Obtain Council authorization to award 100 year levee remediation contract(s)



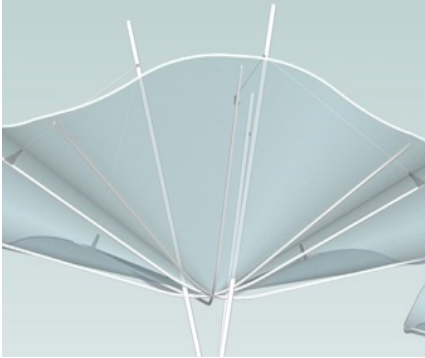
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DISCUSSION