

# Memorandum



DATE September 29, 2011

TO Trinity River Corridor Project Committee Members: Vonciel Jones Hill (Chair)  
Linda Koop (Vice Chair), Monica Alonzo, Scott Griggs, Angela Hunt, and Delia Jasso

SUBJECT **Dallas Floodway System Update**

At the next Trinity River Corridor Project Council Committee Meeting on Monday, October 3, 2011, the attached briefing will be presented by Colonel Richard J. Muraski, Jr. and Kevin L. Craig, P.E. with the United States Army Corps of Engineers along with Assistant City Manager Jill A. Jordan, P.E. This briefing will provide an update on the Dallas Floodway System.

Please contact me if you have questions.



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



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Attachment

cc: Honorable Mayor and Members of the City Council  
Mary K. Suhm, City Manager  
A. C. Gonzalez, First Assistant City Manager  
Ryan S. Evans, Assistant City Manager  
Jill A. Jordan, P.E., Assistant City Manager  
Forest E. Turner, Assistant City Manager  
Joey Zapata, Interim Assistant City Manager

Kelly High, Director, Trinity Watershed Management  
Rebecca Rasor, P.E., Managing Director, Trinity River Corridor Project  
Paul D. Dyer, Director, Park and Recreation  
Theresa O'Donnell, Director, Sustainable Development & Construction  
Rosa A. Rios, Interim City Secretary  
Helena Stevens-Thompson, Assistant to the City Manager - Council

# Dallas Floodway System Update

**COL Richard J. Muraski, Jr.**  
Commander, Fort Worth District

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

**Kevin L. Craig, P.E.**  
Director, Trinity River Corridor Project  
Fort Worth District

3 October 2011



US Army Corps of Engineers  
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# Introduction

- Public safety is our No. 1 priority
- The Corps of Engineers is a learning organization
- Since Katrina the Corps has made improvements on how it evaluates levee safety and our overall Levee Safety Program
- The nationwide Corps Levee Safety Program comprises 14,600 miles of levees in 2,000 systems
- Based on analysis, lessons learned and feedback from our stakeholders and partners, we are implementing a Risk Assessment process to address levee safety

*“Life-cycle Flood Risk Management is a shared responsibility. We remain committed and vigilant to reducing flood risk to the citizens of our Nation. We will continue to look critically and vigorously at the resilience and vulnerability of our water resource infrastructure, nationwide, and help drive down risk together with all our partners.”*

*- MG Merdith “Bo” Temple  
Acting Chief of Engineers*

# In Summary

- The Corps and the City are committed to public safety – protecting people and property
- The City submitted a revised 100-year plan in June 2011, with an anticipated construction award date in September 2011
- During the ongoing technical review of the 100-year plan, the Corps Headquarters suggested advanced implementation of a new Risk Assessment process that will be mandatory for all Federal levee projects as early as 2012
- According to the Federal Emergency Management Agency (FEMA), revised floodplain maps will likely not be effective until 2014
- City staff's recommended path forward includes:
  - ▶ City resuming actions on 100-year plan for FEMA accreditation, awarding a construction contract and completing construction in 2012
  - ▶ City and Corps proceeding with the Risk Assessment as part of the 800-year study

# Purpose of Briefing

- Discuss rationale for recommended 'pause' on 100-year project
- Discuss Risk Assessment process
- Outline the next steps

# Rationale for Pause

- Since Dallas Floodway is one of the highest priority projects in the Corps, we sought a better understanding of new Risk Assessment process
- Wanted to consider the opportunity to incorporate information from the Risk Assessment process into the City's 100-year plan
- Continued collaboration to identify ways to construct 100-year plan as cost effectively as possible
- Delay in FEMA's remapping effort provided a window of opportunity for additional collaboration

# Actions Taken During the Pause

- City and Corps have collaborated to identify safe and cost effective construction methods to complete the 100-year fixes
  - Anticipated savings of \$30M - \$50M
- Corps advancing implementation of new Risk Assessment process for 800-year study
  - Risk Assessment process will be mandatory for all Federal levee studies across the country when guidance is issued in 2012
  - Advancing Risk Assessment process will eliminate future re-work on the 800-year plan when guidance is issued
  - Specific guidance on the process is being developed for levees by the Corps' Risk Management Center (RMC) in Denver
  - Risk Assessment process for Dallas Floodway will be led by the RMC, and will engage a panel of national experts (at Federal expense)
  - City/HNTB will be key participants in the process

# Risk Assessment Process

- What is a “Risk Assessment”?
  - Method for quantifying the risk (likelihood) of various ways the Dallas Floodway levees could fail, and the consequences of each type of failure
  - Way to establish ‘most likely’ conditions that will drive critical engineering judgments
  - Process for developing information to support consistent and rational decisions
  - Approach for identifying most effective ways to reduce risk as low as reasonably practicable within cost constraints

# Design vs. Risk Assessment

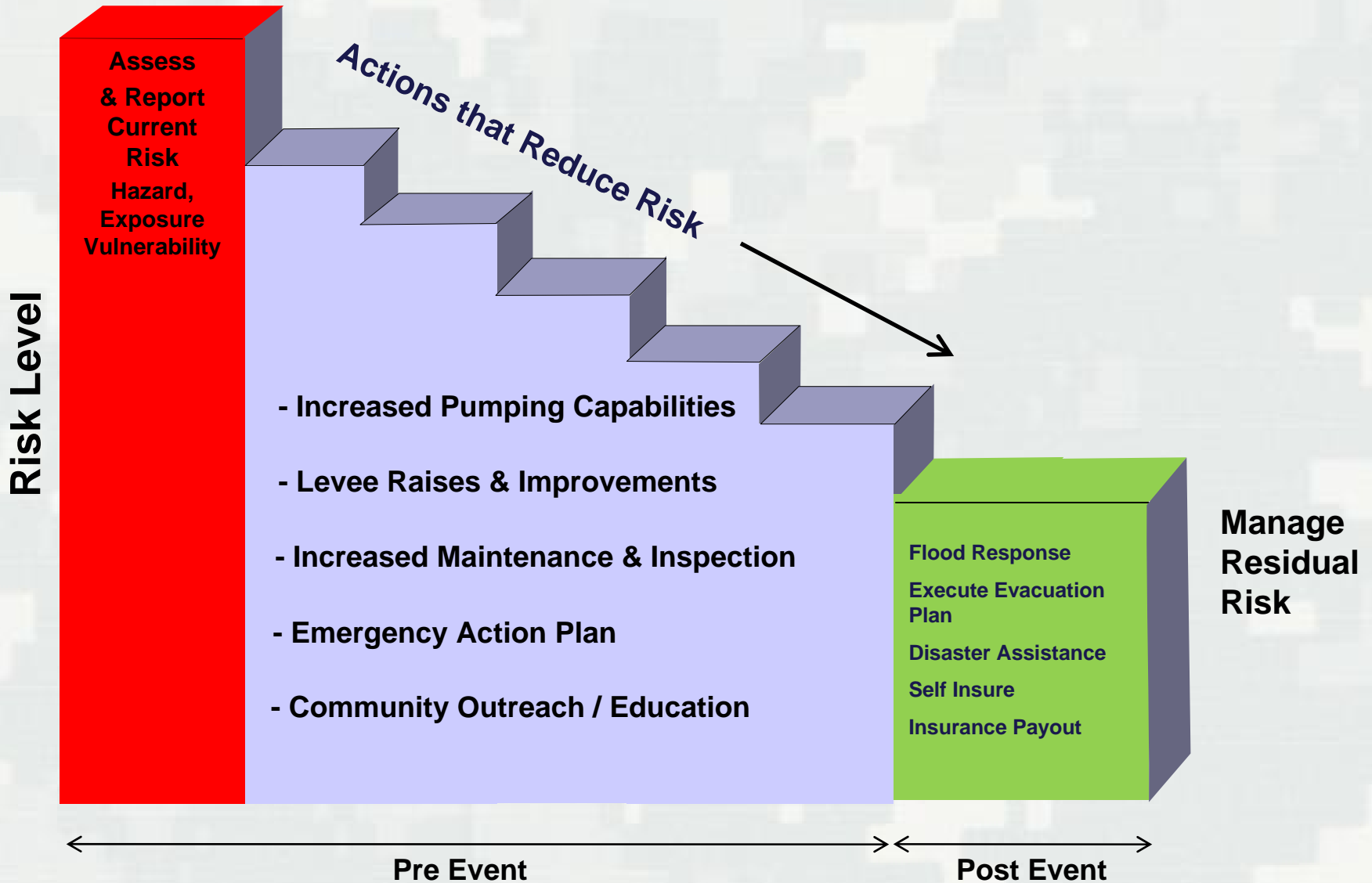
## Design Philosophy

- Current Method
- Uses recommended design assumptions
- Uses recommended “Factors of Safety” (accounts for uncertainty)
- Conservatism is encouraged due to uncertainties

## Risk Assessment Philosophy

- New Method
- Uses Engineering/Physics principles first
- Reduces emphasis on “Factors of Safety”, explicitly discusses and estimates uncertainties
- Conservatism based on ‘most likely’ scenarios

# Risk Assessment Process



# Factors to Consider in Doing a Risk Assessment

- Process is designed to identify most cost effective ways to reduce risks as low as reasonably practicable within cost constraints
- The Risk Assessment process will identify cost effective solutions for reducing risks (decreasing the likelihood of failure) for flood events up to the 800-year level and beyond.
- Incorporating Risk Assessment into the project now will save time and rework that would have occurred when the process becomes mandatory for all levee studies in 2012.
- This Risk Assessment process represents a new approach for the Corps in identifying flood risks and solutions, and will impact Corps policies and procedures in the future. The methodology is still being developed and changes may occur along the way.
  - Corps is choosing to advance the process on Dallas Floodway due to its high national priority

# Public Safety Actions Taken to Date to Reduce Risk

- Interim Risk Reduction Measures
  - Pavaho Pump Station (41% construction complete)
  - Baker Pump Station (finalizing design and approval)
  - Correction of O&M deficiencies (193 of 198 completed)
  - Increased maintenance and inspection
  - Emergency Action Plan for Trinity River
  - Community Outreach / Education

# Next Steps

- City and Corps moving forward as expeditiously as possible
- City proceeding with the 100-year plan for FEMA accreditation
  - Corps District office coordinating preliminary submittal package with Corps Headquarters to streamline final review and approval
- FEMA process continuing until levees are certified
- Risk Assessment process already underway for 800-year study
  - City and Corps partnering to implement a new methodology for finding ways to reduce risks and save lives
  - Gathering available data
  - Creating applicable models

# Path Forward for 100-year Levee Fix

- Proposed 100-year plan includes drains for utility levee crossings and approximately 3.5 miles of seepage cutoff walls
- Construction of the 100-year plan could begin as early as March 2012 at a cost between \$20M - \$30M
  - November 2011 – Final 100 year plan submitted to the Corps for approval
  - November 2011 – Environmental Assessment published for review
  - February 2012 – Corps approval anticipated
  - March 2012 – City awards Construction contract
  - December 2012 – Construction Complete
- The City may or may not receive cost-share credit for the work done on the 100-year plan
- The City anticipates that the Corps will continue to work with the City to ensure credit will be provided, if possible

# Impact on Remainder of Dallas Floodway Project

- Risk Assessment process will be utilized for the levee improvement component of the overall project
- Process will extend current schedule for completion of the 800-year feasibility study
  - Updated schedule will be refined in Feb 2012
  - Doing the Risk Assessment now, instead of waiting on the methodology to be formally required, will reduce overall schedule impact

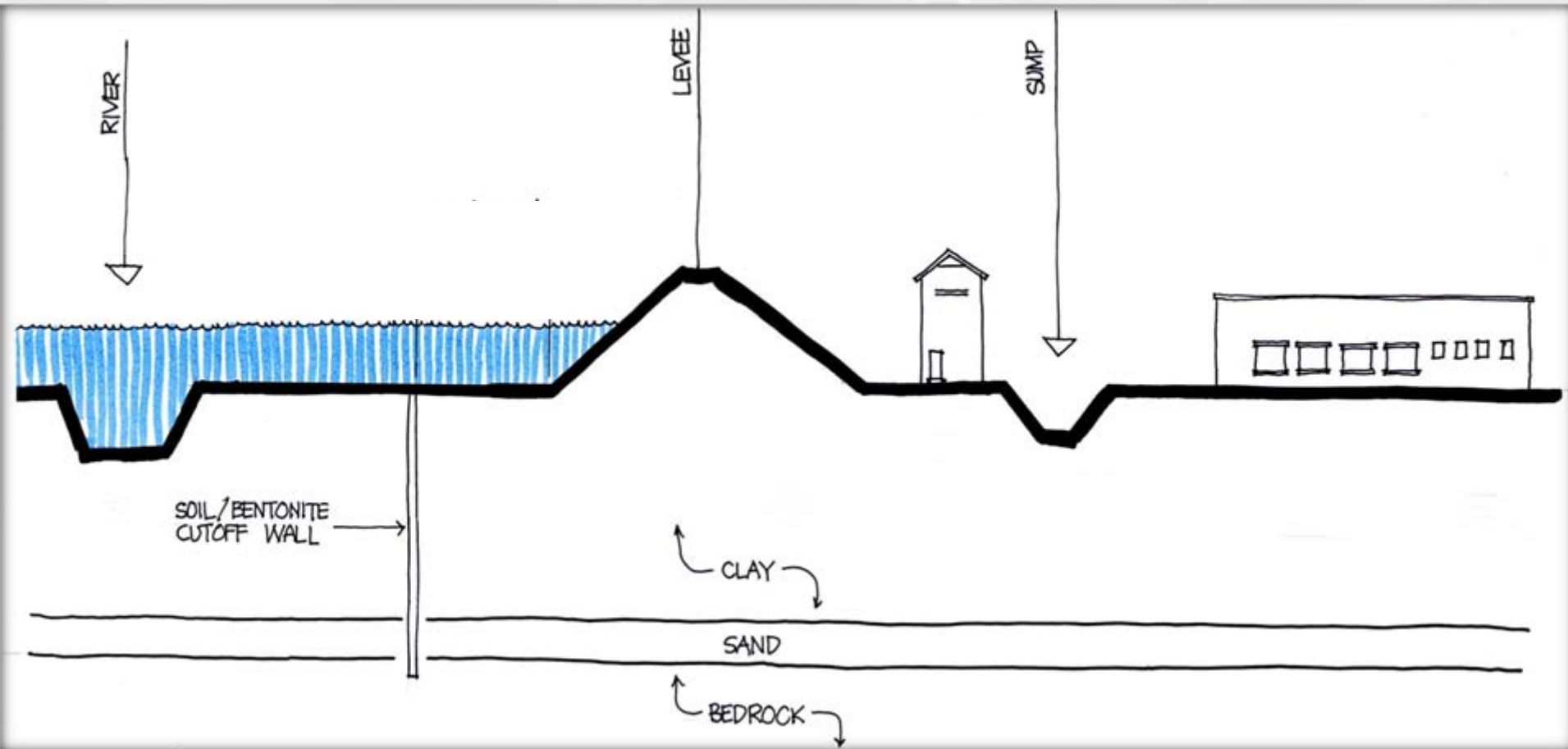
# In Summary

- City's 100-year plan being resumed at substantially reduced cost
- Due to high priority of Dallas Floodway, Risk Assessment process being conducted in advance of new requirement
- Panel of experts to be funded at 100% Federal expense
- Corps remains committed to the Trinity River Corridor Project and its partnership with the City
- The City and Corps will continue to look for ways to ensure public safety and expedite this work in a cost effective manner

# Attachments

- Seepage Cutoff Wall Graphic
- Utility Mitigation Graphic

# Seepage Cutoff Wall



# Utility Mitigation

