



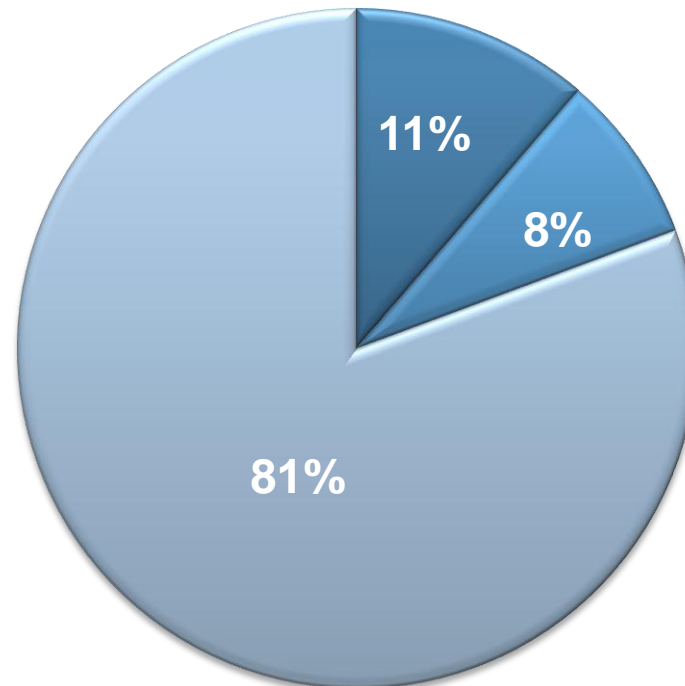
# The Dallas Experience NFIP and Levee Accreditation

Rob Vining  
National Water Resources Practice Director  
HNTB Corporation

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- Current National Condition
- Challenges
- Dallas Floodway System Overview
- Challenges Facing Dallas
- Current Response
- Timeline
- Lessons Learned



## Miles of Levees

- USACE Program Levees
- Other Federal
- Non Federal

- Levees are abundant and integral to communities:
  - Protection of people, property, and other infrastructure
  - Estimated that tens of millions of people live and work in leveed areas
- No national standards, nor approaches
  - Designed for one purpose now serving another
  - Systems based approaches were most often not used, but are needed



## Risk: A dynamic that we can keep up with?

- Average age of 50 years, climate change, infrastructure degradation, increasing population growth
- Some of the challenges we face
  - Responsibility with local communities, legal responsibilities, liability for A/Es, funding (including PPP), stimulus \$\$ not sufficient, D- grade from ASCE



Is it a matter of time?

California's State Engineer, William Hammond Hall, reportedly stated:

***“...There are two kinds of levees, those that have failed and those that will fail.”***



**Dallas – making positive strides**



## Levees pushed to the max

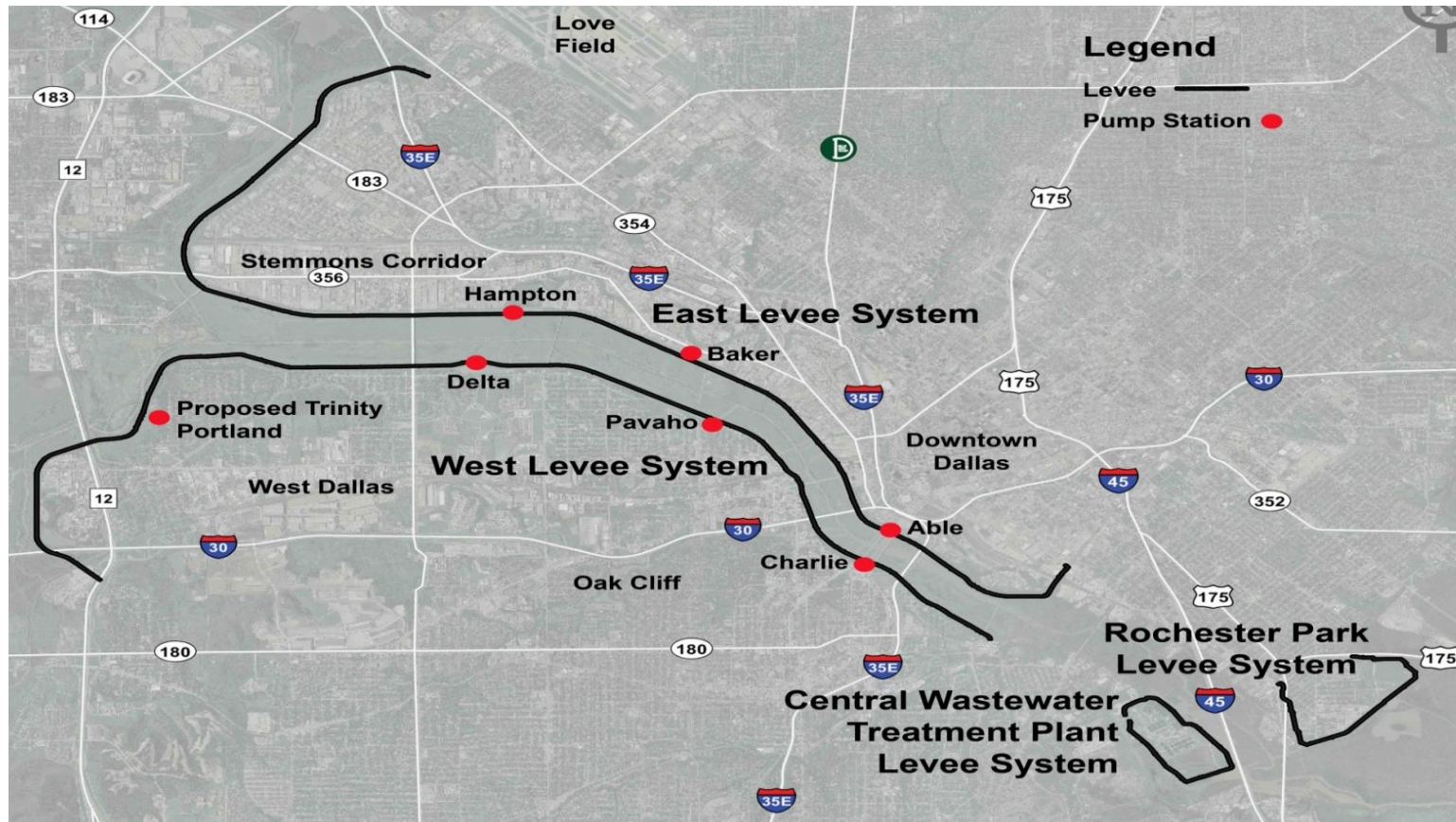
- USACE identified levees in Dallas (and other cities) as deficient
- FEMA could withdraw its federal funding support for maintenance and repairs that support the city in case of a levee failure



## Dallas takes proactive approach

- HNTB brought in to provide professional services for support of Dallas Floodway
- Assuring Trinity River levees conform with Federal standards and meet 100-year flood protection levels
- Includes assessment of 26+ miles of levees and working with authorities to address deficiencies and design upgrades





- 28 miles of levees
- 710-mile long Trinity River
- Protects \$7 billion in property
- Balanced Vision Plan
- Civic centers and parks
- Major transportation routes
- Business district

- 2009—USACE releases Periodic Inspection Report
  - New post-Hurricane Katrina criteria
  - Visual inspection
  - Historically received good, very good or excellent ratings on annual and periodic inspections
- Two deficiency categories:
  - Operations and Maintenance (Dallas)
  - System Deficiencies (USACE/Dallas)



## **PI #9**

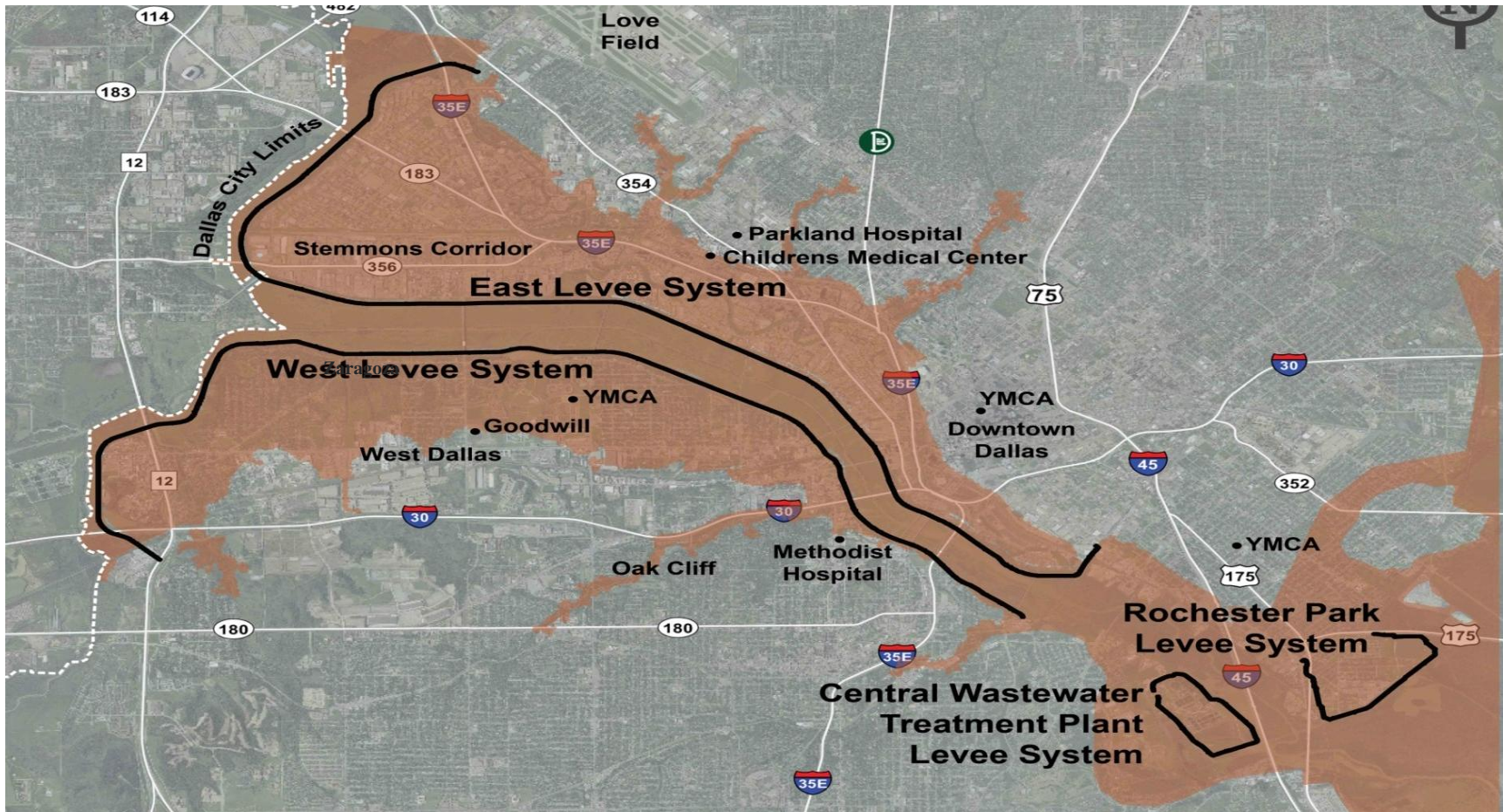
USACE withdraws  
letter of support for  
FEMA levee  
accreditation



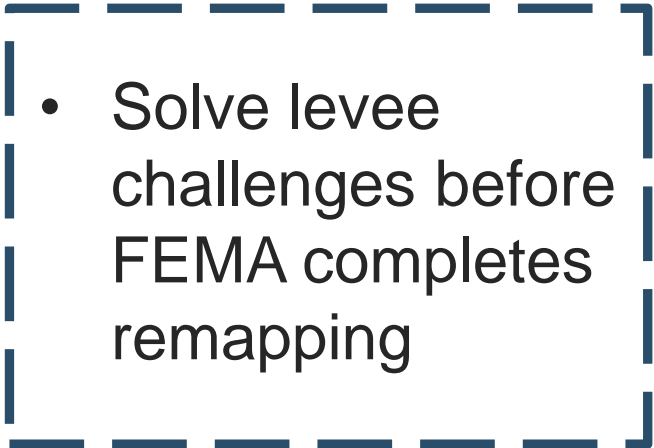
## **FEMA Remapping**

De-accreditation begins;  
timeline starts on flood  
zone remapping

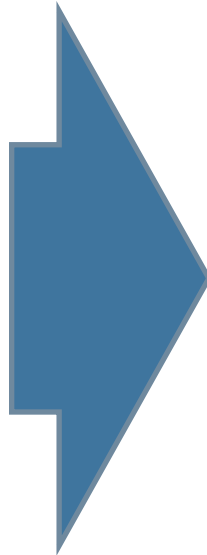
- Flood insurance required on federally backed mortgages, loans
- Constrained development in the remapped areas



- Protect its citizens' lives and properties

- 
- Solve levee challenges before FEMA completes remapping

- Resolve these challenges to reduce further delays on the Balanced Vision Plan



## August 2011 FEMA Deadline

- Complete levee repairs
- Submit 100-year flood certification information for floodway/levees
- Submit information on two potential sources of flooding

1. Respond to PI Report
2. Inspect Dallas Floodway
3. Engineering support services and design
4. Develop gINT/GIS Database and system wide soil boring plan
5. Preliminary Analysis and Design Check for the levee systems
6. Levee accreditation
7. Project design assistance
8. Policy and project integration
9. Levee Remediation Plan
10. Support Dallas working with USACE at all levels of the process, providing input into the Feasibility Study

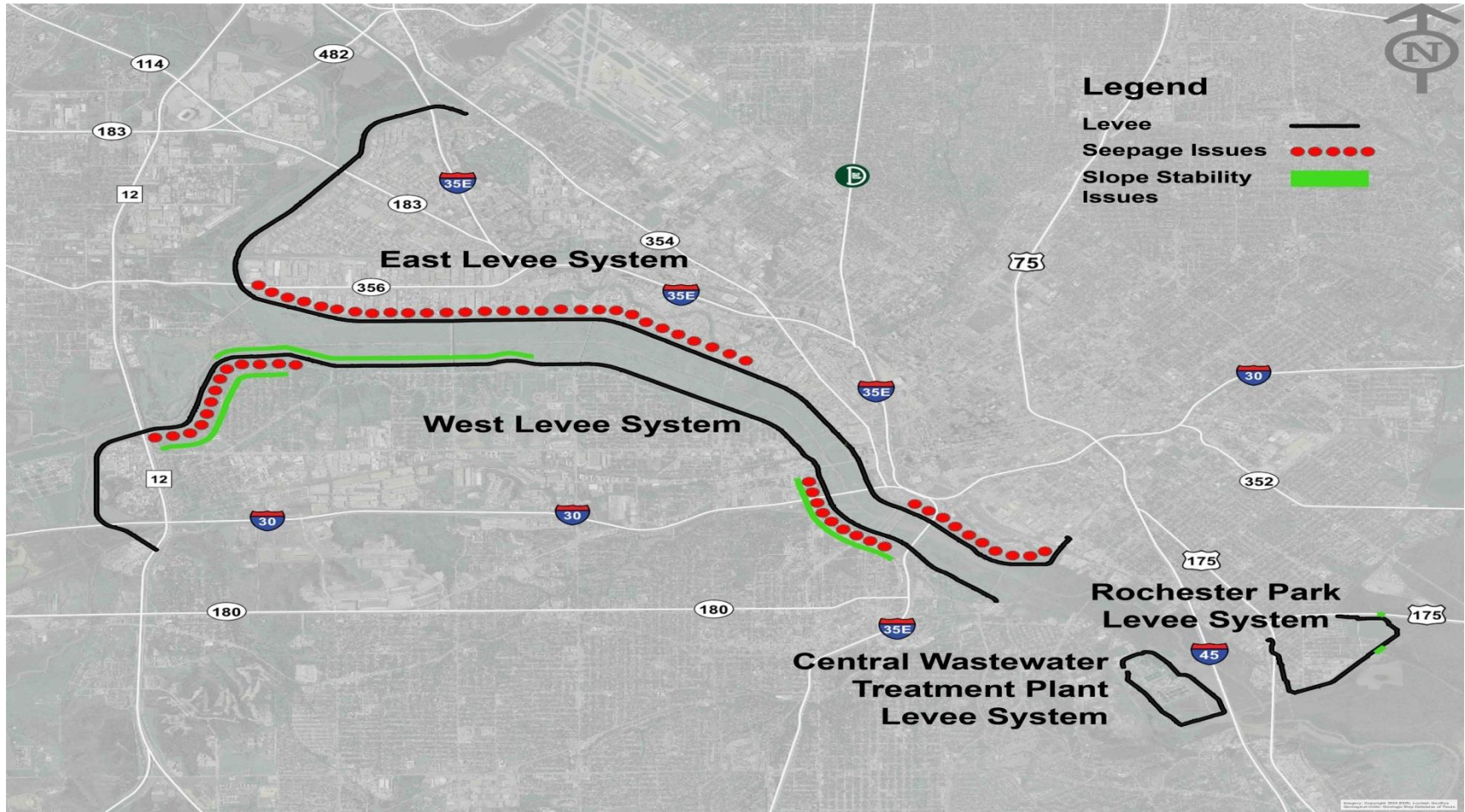
## Operations & Maintenance

Maintenance Deficiency Correction Period plan to correct items such as erosion and vegetation

Dallas has successfully completed all MDCP items not design related

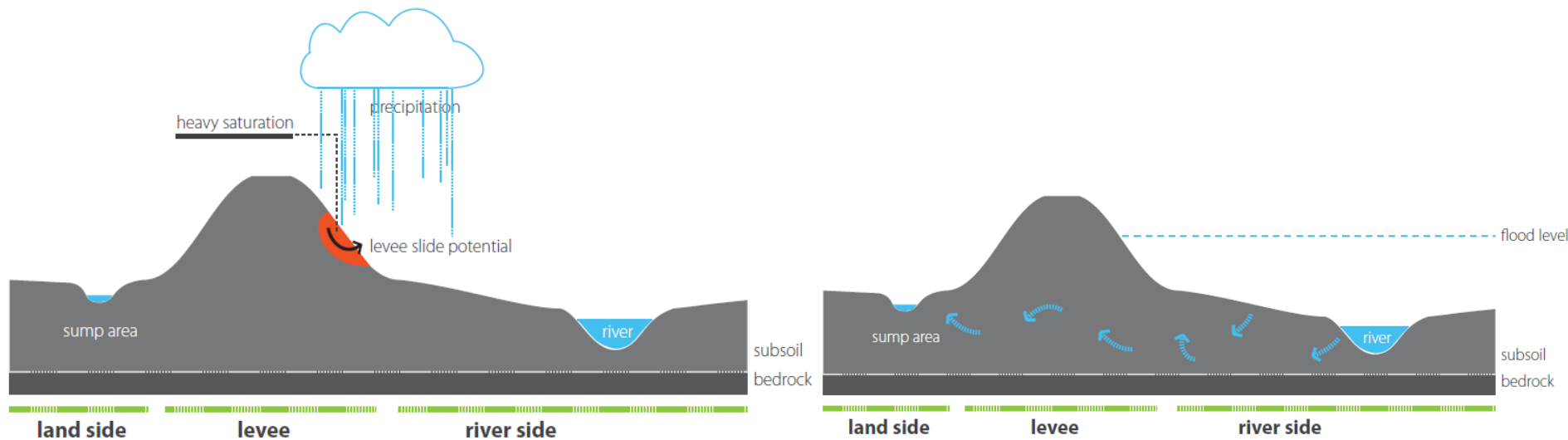
## System Study

- 800-year level for Balanced Vision (USACE and Dallas)
- 100-year level for FEMA requirements (Dallas)
- Geotechnical sampling and initial problem identification is complete
- Draft Levee Remediation Plan complete; final in fall 2010
- Design started May 2010





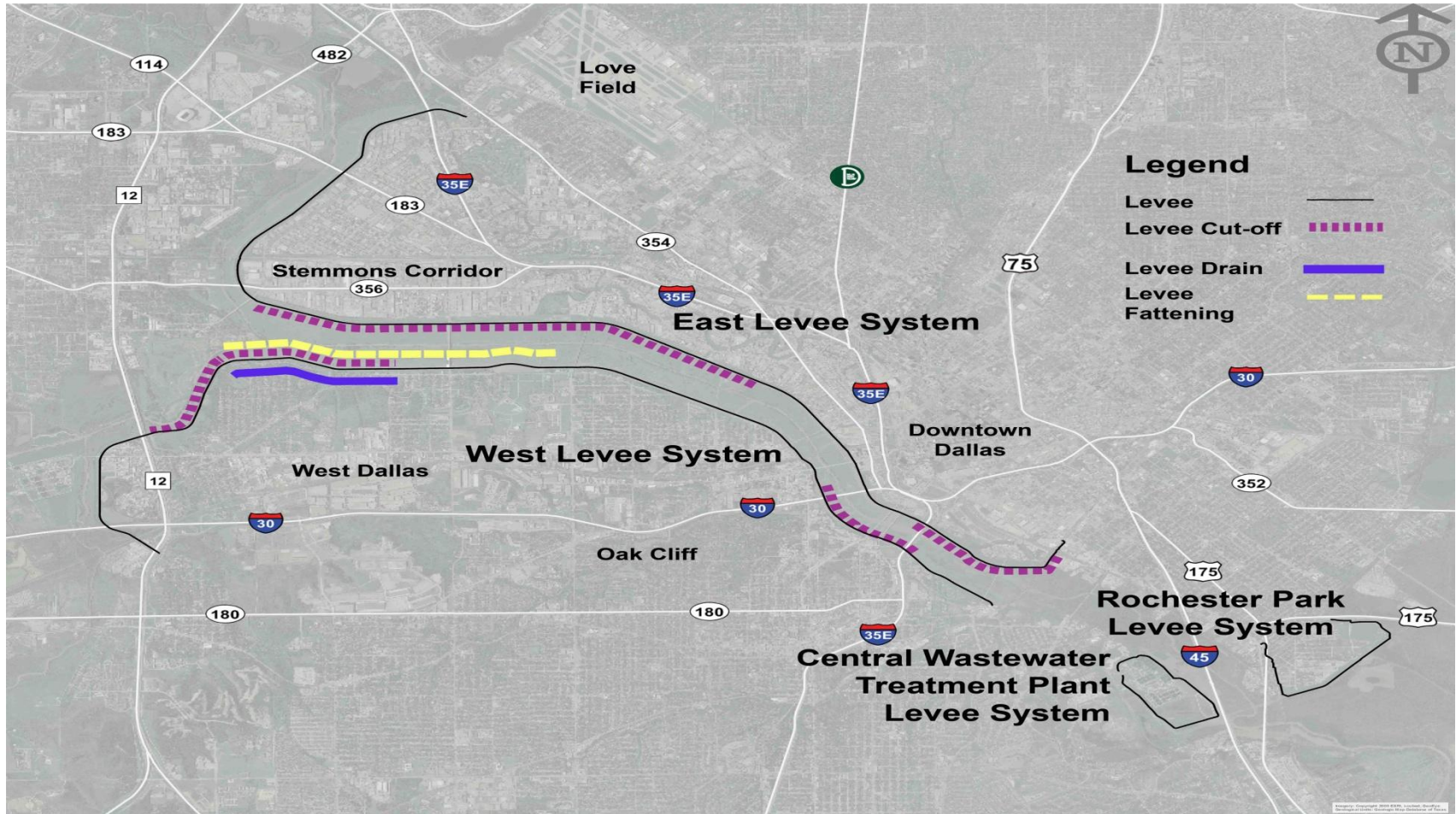
- Under seepage issues related to East and West Levees
- Seepage around utilities through the levees
- Riverside slope stability in a limited section of West Levee



Levee Slope Failure

Levee Under Seepage

100-Year Levee Improvements = \$100-\$150 million



## Seepage

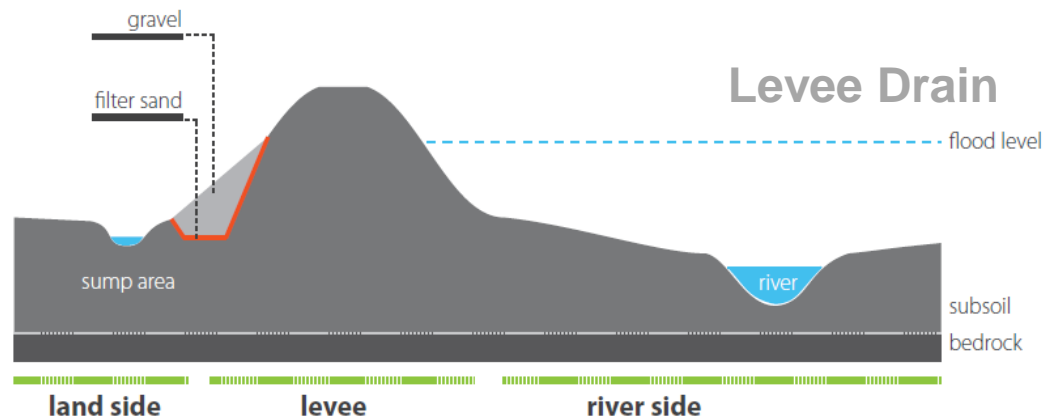
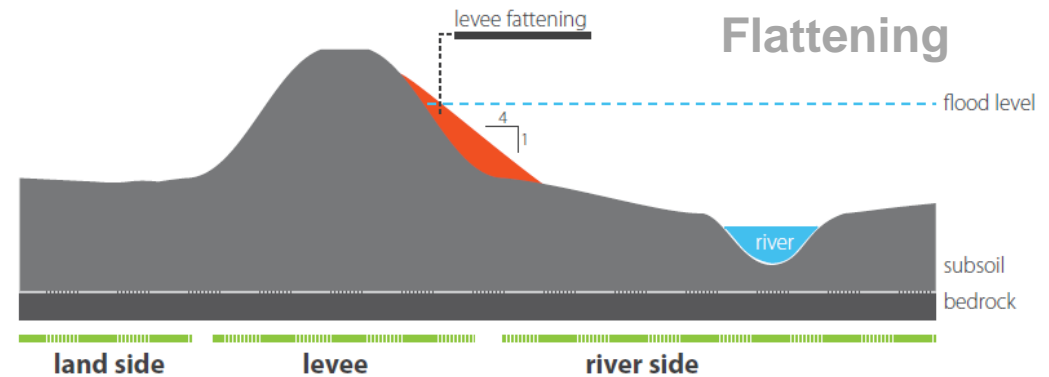
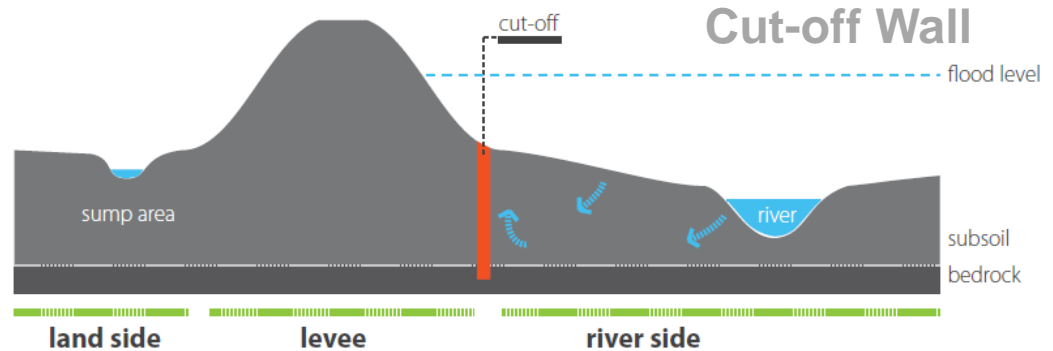
- Levee cut-off walls

## Stability

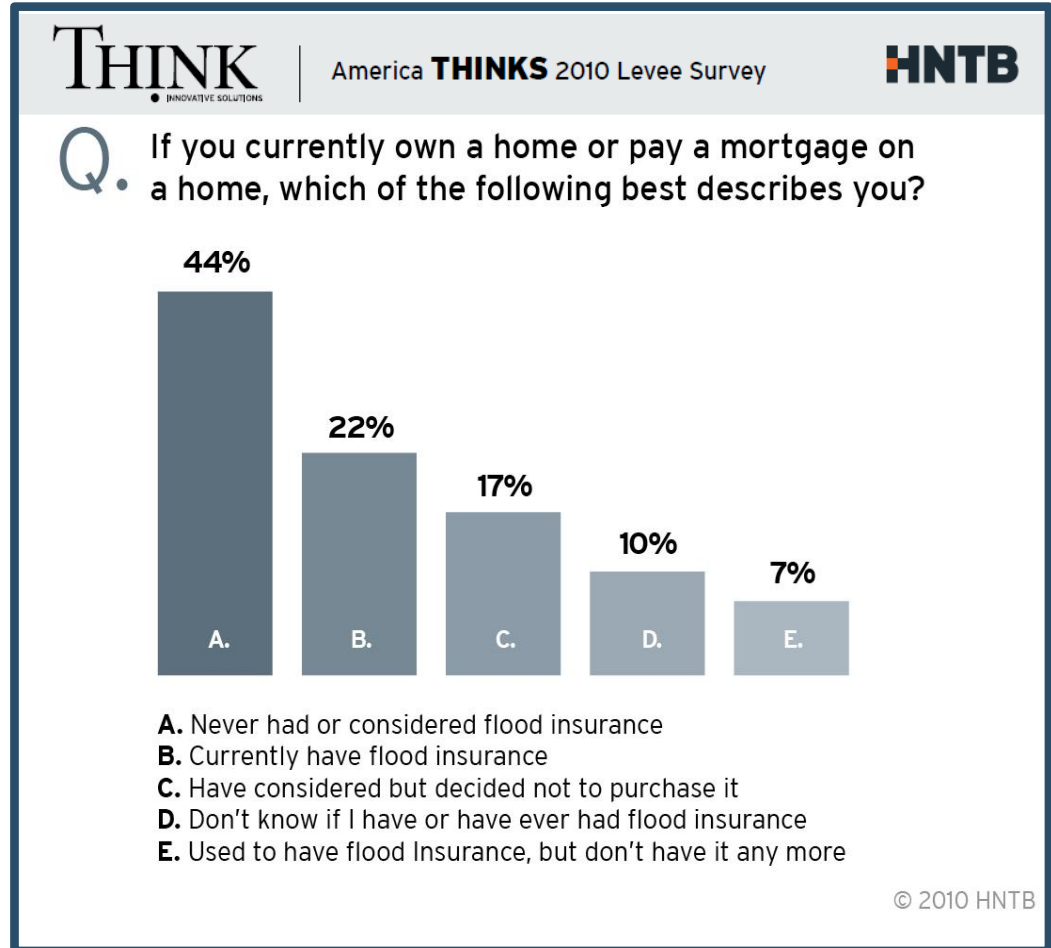
- Levee fattening
- Levee drains

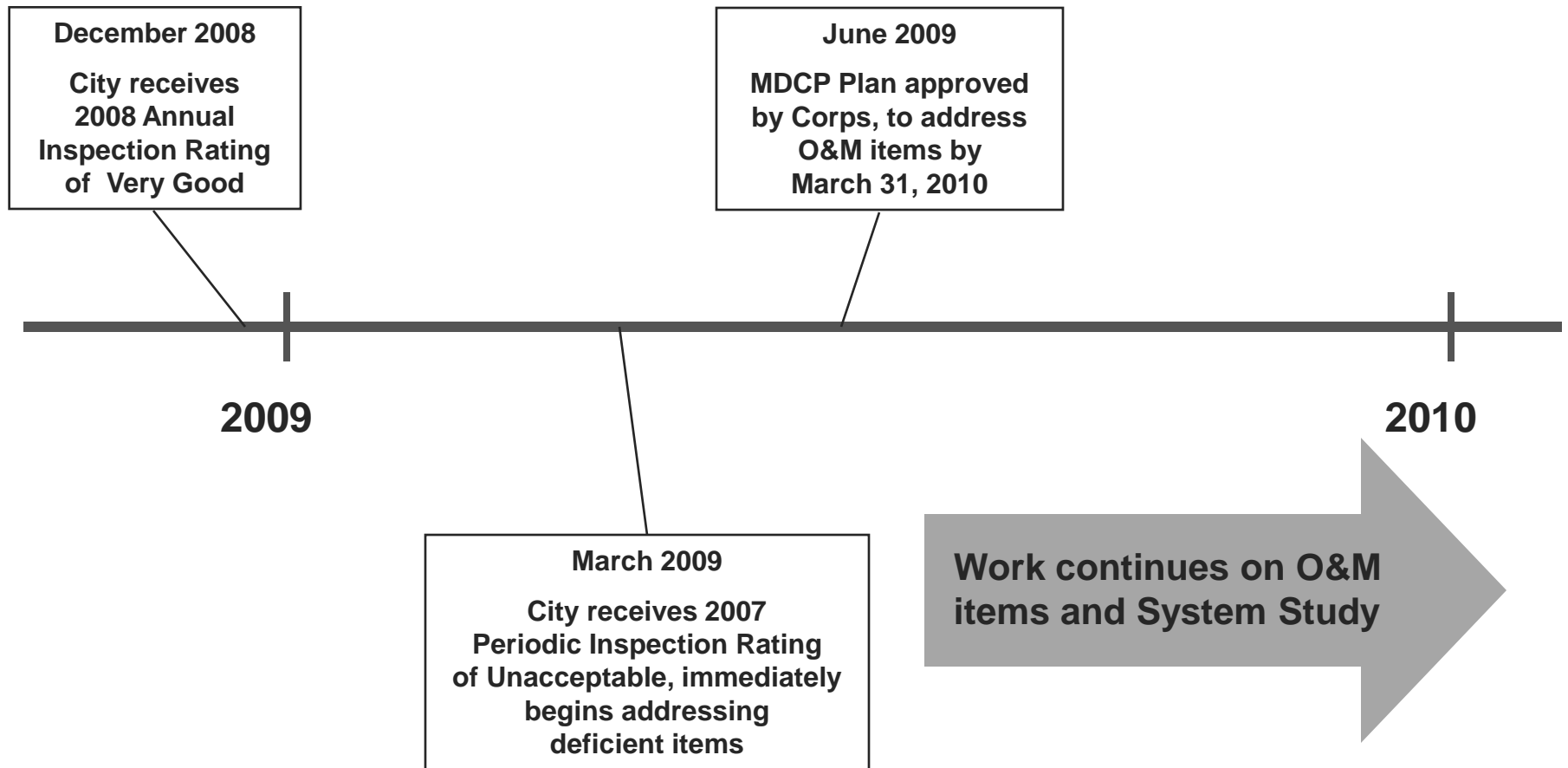
## Seepage along Utility Crossings/Structures

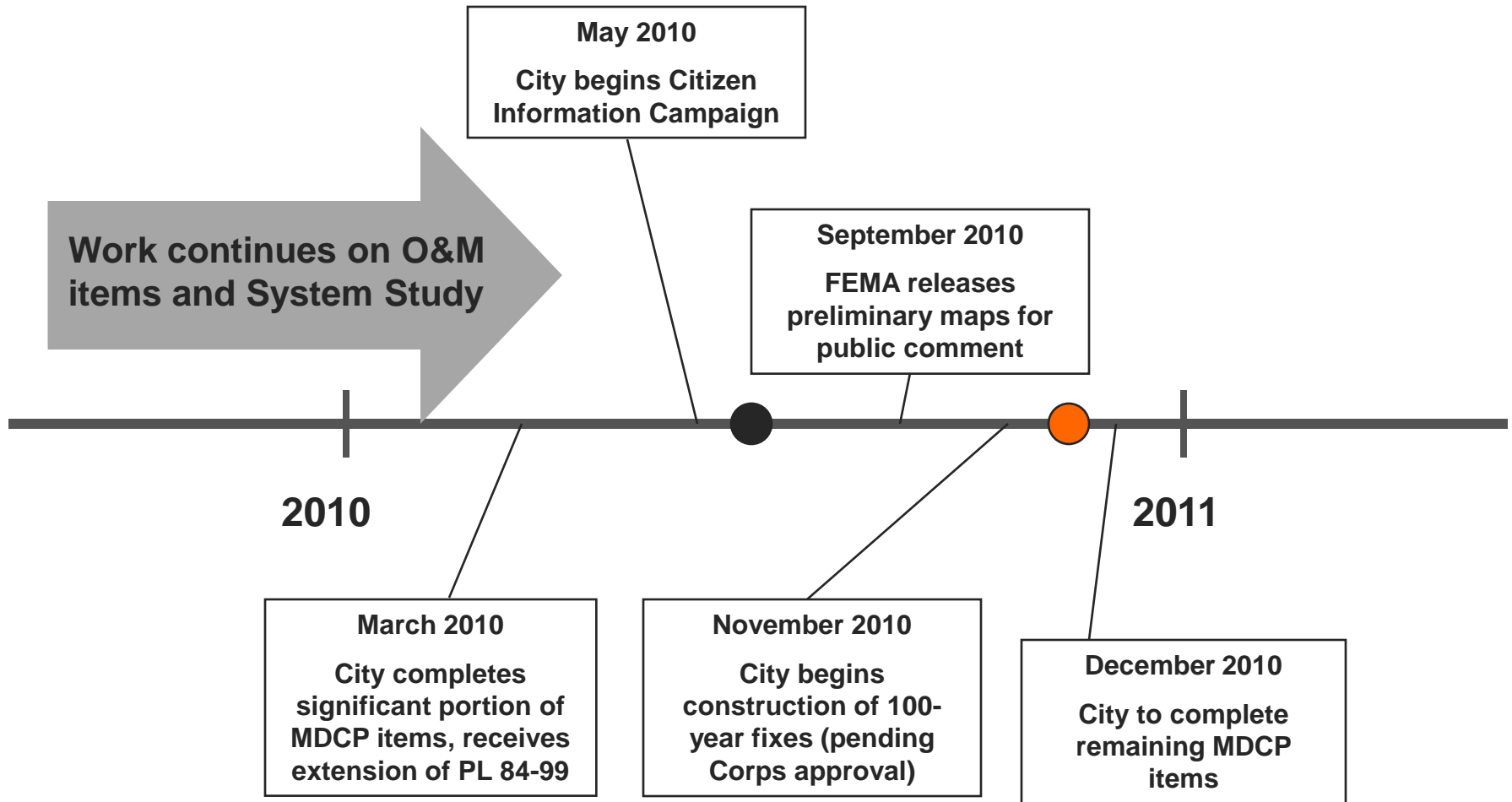
- Levee cut-off walls
- Landside relief drains



- Ordinance changes are proposed to assist property owners facing remapping
- Two-phased information campaign reaching out to citizens
- National policy issues alliance







- Pavaho Pump Station construction start Summer 2010
- Baker Pump Station construction start Winter 2010

- New Federal Standards are changing levee condition assessments
- Inadequate maintenance not the cause of levee deficiency ratings
- No Quick Fixes
- Levee owners need to work closely with the Corps and FEMA to understand how to comply with the new design standards
- Very heavy geo-technical requirements
- No Quick Fix

