LEVEE SAFETY IN TEXAS: 2013

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Levee Safety in Texas

• What’s Happening At FEMA
• What’s Happening At USACE
• What’s Happening in North Texas
• What’s Happening along the Texas Coast
• Observations and Recommendations
What’s Happening at FEMA?

• Risk MAP
• Levee Accreditation Rules and Regs – 44CFR65.10
• Levee Analysis and Mapping Procedure
• BW - 12
• National Academy Levee Study (2013)
What's Happening at the USACE?

- Levee Safety EC
- Flood Protection Structure Accreditation Task Force
- EAPs
- Periodic Inspections
- Levee Screening
- Levee Safety Action Classification
- Risk Assessments
- System Wide Improvement Framework
North Central Texas Levees

- Dallas/Tarrant/Denton
- Higher Design Standards
- Dallas County
  - Non-Federal (accredited)
  - Federal (non-accredited)
Dallas
Floodplain Management

• City of Dallas
  – First FP Ordinance in 1965
  – FPM Studies by watershed since early ’70s
  – Higher Standards from the beginning
  – CRS 5
  – First US City to adopt the International Green Construction Code
• Dallas Floodway Levees – 23 miles

• Balanced Vision Plan
  – Flood Control
  – Recreation
  – Transportation
  – Environmental
  – Economic Development
• Dallas Floodway accredited by FEMA in 2007
• USACE Periodic Inspection #9 – 2007 to 2009
• Rated “U” for system wide deficiencies
  – Height
  – Seepage
  – Desiccation cracking
  – Bridge Pier Penetration
• Surprise
• Levee Accreditation rescinded by FEMA
Dallas
The Fix

- Focused on USACE and FEMA
- Multiple contracts - $35M
- Increased O&M – from $7M to 10M+ per year
- Seepage
- Initial Estimate for Fix - $100-150M
- Canceled and delayed other flood and drainage projects
Dallas Challenges

• Geotechnical
  – Moisture assumptions
  – FSSS
  – Boundary condition assumptions
  – Expense
• USACE 408 Approvals
• Community Outreach
• USACE Risk Management Center – 2012
• “Levees are more resilient”
• Levee height sufficient to withstand 1/1000 to 1/5000 year flood frequency
• Some Details:
  – Trinity River floods are short duration
  – City of Dallas active in managing risks (EAP etc.)
• Game Changer
• Remediation price tag reduced from $100M to $10M
Port Arthur
Hurricane Flood Protection Levee

- Federal – 24 miles Earthen Levee, 5 Miles of Floodwall
- Owned operated and maintained by Jefferson County Drainage District #7
- Population – 80,000
- Five major refineries supplying almost 50% of Jet A fuel used in US
Port Arthur
What’s Happening

- FEMA DFIRM Update initiated in 2006
- Hurricane Ike in 2008 (150 year event)
- Texas Coastal Storm Surge/Wave Analysis completed in 2012
- Executed PAL Agreement on May 23, 2012
- Moving Forward with Submittal for FEMA Levee Accreditation
- Preliminary DFIRMs – Aug 2012
- Levee Periodic Inspection Report in Oct 2012 - MA
- LSAC to LSOG in June 2013
Port Arthur
Alligator Bayou Pump Station

• Proposed SW Pump Station – 1.5 million gpm
• FEMA Grant (75%) Approved in 2006 (Rita)
• Corps (Galveston) – Major 408 Req’d
• Initial 408 Submittal in April 2011
• 408 approved in Jan 2013
• 2013 Project Bid - $60M
Observations

• Many Levees in Texas
• Programs continue to Evolve
  – FEMA
    • Plan to deal with Non-accredited Levees
    • NFIP (BW-12)
    • New WRDA???
  – USACE Levee Safety Program
    • Final Levee Safety EC
    • WRDA???
Observations

• Coastal Levee Procedures lag Riverine Levee Procedures

• 408 Approval Process
  – It is a challenge to satisfy USACE on Geotechnical and EA issues
  – Lengthy review at District Level
  – Once past the District level, Reviews proceed much more timely

• Evaluations of Federal Levees take time and $
Recommendations
from the Locals

• Pause the evolution of the Levee Safety/Accreditation Program regulations and policies
• Recognize each levee system is unique and this must be factored into the evaluation process.
• Translate FEMA/USACE coordination to the local level
• Effective Public Outreach
• Develop the concept of Tolerable Risk on system by system basis
• Incentives for good levee safety practices are needed
  – Resiliency design
  – Interim Risk Reduction Measures
  – Need to become factors in FEMA’s accreditation process
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