June 28, 2017

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

• National Levee Inventory and Review
• National Levee Database Upgrade
• Levee Safety Program Guidance Document
• Revised Levee Inspection Checklist
STATUS ON NATIONAL LEVEE SAFETY INITIATIVE

- Focus on traditional authorities related to USACE Levee Safety Program but include those activities that complement a National Levee Safety Program.
INVENTORY AND REVIEW OF THE NATION’S LEVEES
**LEVEE INVENTORY & REVIEW - KEY ACTIVITIES**

- **Locate:** Upload basic information for all known levees in the National Levee Database

- **Inspect:** Assess the condition of the nation’s levees by conducting field inspections

- **Characterize:** Conduct levee risk assessments to evaluate and communicate the nature of flood risk posed

- **Share information:** Develop a levee system summary
PARTICIPATION IS VOLUNTARY

- Partner with states, tribes, regions/local to work with owner/operators
- Partners can tailor participation to their resources and financial constraints
- Maximize opportunities for formal and on-the-job training = increased national capacity
LEVEE INVENTORY & REVIEW MILESTONES

- Finalize Implementation Guidance
- Distribute Letters
  - State Governors and Tribal Nations
  - District Commanders
- Complete Outreach Materials

U.S. Army Corps of Engineers

Levee within U.S. Army Corps of Engineers (USACE) authority in Texas

Number of USACE levee systems: 278
Number of USACE levees: 278
Population: 290,000
(estimated number of people who live behind USACE levees)

Estimated Population and Property Value for three USACE levee systems near key cities in Texas:

<table>
<thead>
<tr>
<th>Levee System</th>
<th>City</th>
<th>Population</th>
<th>Property Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port Arthur Hurricane Flood Protection</td>
<td>Port Arthur</td>
<td>78,000</td>
<td>$6.5</td>
</tr>
<tr>
<td>East Dallas Levee Trinity LB</td>
<td>Dallas</td>
<td>61,000</td>
<td>$10.2</td>
</tr>
<tr>
<td>Freeport Hurricane Flood Protection</td>
<td>Freeport</td>
<td>40,000</td>
<td>$5.3</td>
</tr>
</tbody>
</table>

Known levees not within USACE authority:
- Number of non-USACE known levee systems:
- Total miles of non-USACE known levees:

An Opportunity to Learn More About Our Nation's Levees:

There are tens of thousands of miles of levees across the United States. Information is available for nearly 30,000 of those levee miles (with and without a federal government connection), but the benefits and flood risks associated with many of these levees are unknown. In cities and small towns, along cropland and on tribal lands, levees have been built to communities and individuals over the course of many decades. Because of this, it is unknown how many miles of levees exist in the United States, where they are located, their conditions or the possible consequences of their potential poor performance.

There is an opportunity to learn more about these levees through an levee inventory and review (IR) effort that will collect critical information, similar to the collection of information about the nation's dams that helped to build the National Inventory of Dams. The IR effort will be most successful when coordinated federal, tribal, state, and local effort.

The National Levee Inventory (NLI) serves as the nation’s repository for levee-related data and contains information about most of the nation's levees, but not all. While populating the NLI is an important outcome of the IR effort, the real benefit is identifying the location, condition, benefits and flood risks associated with our nation's levees for those that both operate and maintain them and work and/or live behind them.

The U.S. Army Corps of Engineers (USACE), with your help and support, will lead this IR effort in collaboration with state, tribal, levee owner/operators, and other federal agencies. Participation in this effort by states and levee owner/operators with USACE is voluntary and does not create a federal responsibility to operate, maintain, repair, or replace levees assessed by USACE.

How can you become involved? Teams from USACE are available to work with states and levee owner/operators to identify the location, condition, benefits and flood risks associated with their respective levees. The level of involvement can range from receiving levee location, condition, and benefits and flood risk information to participation in levee inventory, inspections, and risk assessments.

Why Do Levees Matter?
- Levees within USACE authorities reduce the risk of flooding to about 10 million people in communities behind them, including:
  - More than 300 colleges and universities;
  - More than 10 major sports arenas;
  - Refineries that contribute more than 20% of the National Daily Refining Capacity.

What Is Missing?
- There are tens of thousands of miles of levees that are presently unknown:
  - The condition of these levees is unknown.
  - The benefits and flood risk posed by each of these levees is unknown.

- We need your help to identify and assess the condition, benefits and flood risk with each of these levees!
NATIONAL LEVEE DATABASE AND DATA MANAGEMENT
NATIONAL LEVEE DATABASE – NEW BUILD

National Levee Database

Levees of The Nation

The Nation
Click on a state below or on the map to zoom in.

States and Counties

- Alabama
- Alaska
- American Samoa
- Arizona
- Arkansas
- California
- Colorado
- Connecticut
- Delaware
- District of Columbia
- Florida
- Georgia
- Hawaii
- Idaho
- Illinois
- Indiana
- Iowa
- Kansas
- Kentucky
- Louisiana
- Maine
- Maryland
- Massachusetts
- Michigan
- Minnesota
- Mississippi
- Missouri
- Montana
- Nebraska
- Nevada
- New Hampshire
- New Jersey
- New Mexico
- New York
- North Carolina
- North Dakota
- Ohio
- Oklahoma
- Oregon
- Pennsylvania
- Rhode Island
- South Carolina
- South Dakota
- Tennessee
- Texas
- Utah
- Vermont
- Virginia
- Washington
- West Virginia
- Wisconsin
- Wyoming

Find levees by name, location, and more...

- 11,622 Levee Systems
  - 9,909 Non-Federal
- 29,748 Miles of Levees
  - 17,563 Non-Federal
- 50,370 Levee Structures
- 53 years Average Levee Age

Basemap: Basic
Legend
NATIONAL LEVEE DATABASE – NEW BUILD

VISION: ONE CENTRAL DATABASE

SHARED TOOLS

NLD

CRITICAL DATA

LST
Levee Screening Tool

LIS
Levee Inspection and other field collection data

DASHBOARD
Program goals, metric displays, and critical information reporting

RISK SCREENING

INSPECTION /FIELD COLLECTION

FEDERAL/STATE/ TRIBAL
Data provided by Federal, State and Tribal Partners

ENGINEERING
Location; inundation maps; cross section; attributes

CONDITION AND RISK INFORMATION
Inspection; Screening; Consequence; Performance Data

FEDERAL/STATE/ TRIBAL

CONDITION AND RISK

ENGINEERING

RISK SCREENING

INSPECTION /FIELD COLLECTION

FEDERAL/STATE/ TRIBAL

ENGINEERING

CONDITION AND RISK INFORMATION
Inspection; Screening; Consequence; Performance Data

FEDERAL/STATE/ TRIBAL
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LEVEE SAFETY GUIDANCE
Comprehensive Programmatic Guidance

- Design Manual
- Best Practices for Risk Analysis
- Vegetation
- Levee Owner’s Manual
- Pipes and Conduits
- Monitoring
- Emergency Plans
- Data Management
- Rehab Program
- Alterations (Section 408)
## Program Governance
- Clarified mission, principles, and objectives
- Risk Framework, Program Organization, and Program Monitoring

## Risk Assessment
- When risk assessments are required
- Types of risk assessments
- Who performs, reviews, approves and participates in risk assessments
- Risk characterization

## Risk Management
- Tolerable Risk Guidelines
- Portfolio Risk Management Process
- Risk Management Measures
- National Levee Database
- Performance Monitoring
- Inspections and Assessments
- Planning, Design, and Construction

## Risk Communication
- Planning
- Products
- Resources
MENTAL RESET

- **Levee Risk** – Incremental Risk, risk posed by the levee system.
- **Flood Risk** – Residual Risk, risk of flooding in the leveed area that remains
- **Levee Safety Action Classification** – describes the risk (not tolerability)
- **Tolerable Risk Guidelines** – Four criteria, not just the life safety plot; used to determine if risk is tolerable (from a USACE perspective)
- **Levee Sponsors and FEMA** – Part of the levee safety team
- **Risk Communication** – Focus on broader public awareness.
PATH FORWARD

- **Jul-17**
  - **Internal Review**
  - **Agency-wide Review**

- **Aug-17**

- **Sep-17**

- **Oct-17**

- **Nov-17**
  - **External Review**
  - **Sponsors**
  - **Stakeholders**
  - **International Levee Partnership**

- **Dec-17**

- **Jan-18**

- **Feb-18**

- **Mar-18**

- **Apr-18**

- **May-18**
  - **Publication**

- **Comment Analysis and Summary**
- **Revisions**
- **External webinars**

- **Comment Analysis and Summary**
- **Revisions**
- **Final Leadership Review**
- **Internal & external webinars**
- **Communication products**
FOCUS

1. Are roles and responsibilities clearly described?
2. Is how and when USACE engages with sponsors and stakeholders clear and appropriate?
3. Are there any outreach materials, best practices or other actions or publications that would be helpful for sponsors or communities?
4. Are there any opportunities to improve the Levee Safety Program to further support public awareness?
5. What’s useful?
6. Changes?
INSPECTION BIG PICTURE CHANGES

- Policy related verbiage -> documents other than the checklist
- Clarification of Definitions
- Ratings: Observation > Item > Segment > System
- Explicit guidance on use of judgment on Item and Segment ratings
- Links to NFIP Accreditation (44 CFR 65.10)
RATING HIERARCHY

Observation
- Specific Point/Line along the Levee Segment
- Consistent progression / no overlap between ratings

Item
- Primary vs. Secondary
- Allows LSO/LSPM to use Judgment (Significance)

Segment
- Evaluated Primary and Secondary Item Ratings
- Simplified

SYSTEM RATING = LOWEST SEGMENT RATING
VARIOUS WAYS TO PROVIDE FEEDBACK

- Federal Register
- List-serve
- Website
- Mail
- Email

- Meet our Rollout Team!