ASFPM FEMA/USACE Levee Discussion

The USACE & FEMA Meet the Nation’s Levee Challenges

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Presenters:
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   Steve Fink
   Jim Murphy
Today’s Agenda

1. The levee challenge & our objectives for this discussion

2. Session Format – How will this interactive session work?

3. Major Areas to be covered
   - Joint USACE/FEMA efforts
   - FEMA activities
   - USACE activities

4. Your other levee issues
This Levee Session’s Objective

- **KNOWLEDGE** - Provide you with insight into:
  - USACE’s and FEMA’s joint efforts

- **PARTICIPATION** - Provide a forum that encourages you to ask questions and provide feedback.
The Continuing Levee Challenge

- The nation has thousands of miles of levees.
- Over 1/4 of the counties in the US have levees.
- ASCE gave a report card grade of “D-” to levees.
- Levees are aging and more stuff is being put behind them.
- Citizens living behind levees assume they are safe from flooding.
Format for Today’s Discussion

- **Step #1** – Facilitator provides a “question/comment”
- **Step #2** – FEMA & USACE panelists provide a response
- **Step #3** – Audience comments/ expands on question/response
- **Step #4** – Panelists may provide additional responses
- **Intermittent Step #5** – Facilitator requests feedback from the audience
Question #1 – High level Overview

What is FEMA’s levee role & responsibilities?

What is the USACE’s levee role & responsibilities?
Risk MAP (Mapping, Assessment, Planning)

Through collaboration with State, Local, and Tribal entities, Risk MAP will deliver quality data that increases public awareness and leads to action that reduces risk to life and property.
FEMA’s Role in Levees

- Present flood hazard and risk information
- Establish appropriate flood hazard zone determinations
- Establish mapping standards
- Accredit levee systems on FIRMs
- Produce outreach and communication materials
- Explain risk of living with levees
USACE Levee Safety Program Mission

...ensure levee systems provide benefit to the Nation by working with stakeholders to assess, communicate, and manage the risks to people, the economy, and the environment...
Goals for the Levee Safety Program

- Develop increased understanding of benefits and risks of levee systems
- Promote actions to manage risks
- Make transparent and credible decisions
- Make wise federal investment decisions
Maintain the National Levee Database (NLD)
Question #2

How have you been cooperating and coordinating?
USACE-FEMA MOU (11/13/2014)

- **Purpose** – Formalize the commitment for alignment of levee activities, information, and messaging

- **Content** – Coordination of policies, direct exchange of information for accreditation, consistent information sharing with sponsors and communities, and coordination for data management

USACE-FEMA MOU

- Continue coordination as policies and activities evolve
- Both agree to use the National Levee Database as the central repository of levee information
- USACE will ensure that each time it conducts a risk assessment for a levee system, it will also provide a determination on levee performance to FEMA for NFIP mapping purposes
- FEMA will accept a risk assessment from USACE as fulfilling the design criteria requirements in 44 CFR 65.10
- USACE will identify when a levee system meets or does not meet a specified subset of requirements in 44 CFR 65.10 for inspections and screenings
- FEMA will accept a USACE screening or inspection showing that a subset of requirements in 44 CFR 65.10 are met
USACE – FEMA Coordination

- Anticipate the question: “How will this information impact my levee accreditation (my NFIP map)?”
- There will be direct links between USACE inspections, screenings, and risk assessments; this information can influence how a levee system is mapped by FEMA on a Flood Insurance Rate Map.
- FEMA and USACE are federal partners.
- We are coordinating at the federal level to engage stakeholders, build relationships and deliver consistent messages.
Inventory of Levee Status
National Levee Database

- 2,500 levee systems
- 14,700 miles
- Other agency levees
  - BOR = 172 miles
  - Miami Conservancy District = 2.6 miles

FEMA data is merged and under review
FEMA MLI/NLD Integration

- Differences between MLI and NLD required changes to the NLD to capture all MLI information.
- Is being done as part of an overall NLD improvement process.
- FEMA and USACE have established a data management working group.
- Ongoing discussions about data storage needs. Data includes those developed from USACE activities as well as from FEMA accreditation submittals.
- FEMA is committed to using the NLD.
USACE - NLD Enhancement Goals

- Manage/communicate information effectively
- Data Management tools/reaches
- Enhance ability to use data
- Enhance map viewer (google-ish)
- Enhance reporting capability
- Enhance high end reporting capability
- Allow Stakeholders ability to create workspace to manage their data in NLD
USACE - NLD Enhancements

- Major aspects to Enhancements
  - User Interface
  - Landing Page
  - Map interface
  - Search capability/Report function
  - Data Management
  - Export Functionality/Data Accessibility

- Beta test of new NLD fall of 2016
- Completion scheduled December 2016
Question #3

So what are your agencies working on in addition to the NLD?

And how are you letting us know?
FEMA – USACE Coordination

Why should FEMA and USACE work together to communicate risk?

- Complementary Goals for both agencies
- Provide timely and best available information to inform public and reduce risks to life and property
Risk = f(Hazard, Performance, Consequences)

- What are the hazards and how likely are they to occur?
- How will the infrastructure perform in the face of these hazards?
- Who and what are in harms way? How susceptible to harm are they? How much harm is caused?

USACE Levee Safety Program: Focused on People, Risks, and Actions Recognizes Uncertainties
Beyond Building Bigger, Safer Levees

**FLOOD RISK MANAGEMENT: BUYING DOWN RISK**

- Initial Flood Risk
- Buy outs and relocations
- Zoning & Building Codes
- Outreach & Education
- Response & Evacuation Plans
- Flood Insurance
- Levees, Reservoirs, etc
- Residual Flood Risk

Risk Reduction Tools (Cumulative)

All stakeholders contribute to reducing risk!
Implementation: New USACE Risk Communication Guidance

- USACE Guidance for engaging sponsors and FEMA in Levee Safety Program activities (includes communicating risks associated with levees):
  - Placing information in a risk context
  - Focusing on risk factors and risk reduction actions

- Objectives:
  - Improve public sponsor engagement in and knowledge of USACE levee safety activities
  - Develop increased understanding of benefits and risks of levee systems
  - Promote actions to manage risks
  - Build foundation for shared responsibilities of solutions
FEMA – USACE Coordination

- Opportunity for increased visibility on what each agency is doing with respect to levees
- Improve coordinated messages between the agencies
- Improve relationships
- Link specific inspection and screening items and risk assessments to NFIP
- More joint participation with levee sponsors and communities
- Leverage ongoing activities – Silver Jackets and RiskMAP
- Share best practices and lessons learned
FEMA – USACE Coordination

- **Opportunities:**
  - Numerous levee systems across the USA
  - Ensuring information is current
  - Focus on risk communication and risk reduction:
    - USACE’s primary relationship is with levee sponsor
    - FEMA’s primary relationship is with community
- Coordination of activities between the two agencies:
  - 10 FEMA Regions
  - 8 USACE Divisions
  - 41 USACE Districts
  - Thousands of communities and sponsors
FEMA Regions vs. USACE Districts
FEMA – USACE Coordination

- Coordination is crucial, especially areas where:
  - Ongoing FEMA mapping study where there is a levee
  - Ongoing levee evaluation to accredit a levee
  - Scheduled / planned FEMA outreach meetings
  - Risk assessment has revealed issues that may potentially affect the accreditation of a levee
  - Politically sensitive or contentious issues

- Identify situations where awareness of other ongoing FEMA activities may be beneficial:
  - Recent Presidentially Declared Disasters
  - Hazard Mitigation Planning program
  - Hazard Mitigation Assistance Program projects
Question #4

Any other outreach & communication efforts?
Why a USACE Levee Inspection Alone ≠ Accreditation for the NFIP

- Visual Inspection
- No engineering analyses, including hydraulic modeling performed
- Focus on condition to top of levee regardless of design level (100 year or 1% is used for the NFIP)
- Inspection information informs the NFIP
Why a USACE Levee Risk Screening Alone ≠ Accreditation for the NFIP

- Screenings look at performance from a levee safety perspective – not just the 1%
- Screenings are a screening level assessment based on best available information
- Level of rigor of analysis will not allow for an accreditation decision for all NFIP criteria
Question #4

Your Cooperation and communication is appreciated, what is its impact on:

- our certification/accreditation efforts?
- Will risk informed analysis have an impact?
What USACE levee activity can meet the NFIP levee accreditation requirements in 44 CFR 65.10?

High Level Risk Assessments
Questions to be answered by a USACE High Level Risk Assessment

- What are the most likely failure modes?
- What are the primary risk drivers?
- What is the current estimated risk?
- What Risk Reduction Measures are appropriate?
- Is further investigation needed?
- New question added: How might this information inform a FEMA accreditation?
Benefits to the Risk Assessment Approach

- Analysis based on a range of flood events
- Being able to prioritize actions and determine sense of urgency of implementing actions
- Identification of potential consequences for different scenarios
- Understanding of areas of uncertainties and confidence in decisions
- Supports risk management decisions – levee sponsor, community, and individual residents
# USACE Activities versus FEMA

## 44 CFR 65.10 Requirements

### NFIP Requirements and Relation to USACE Activities

<table>
<thead>
<tr>
<th>NFIP Requirements (44 CFR 65.10)</th>
<th>Can Compliance Be Determined Through:</th>
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<tbody>
<tr>
<td><strong>CFR Criteria Category</strong></td>
<td><strong>CFR Criteria Subcategory</strong></td>
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<tr>
<td><strong>Design Criteria</strong></td>
<td>Freeboard (levee height)</td>
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<td></td>
<td>Closure devices for all openings</td>
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<td></td>
<td>Embankment protection</td>
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<td>Embankment and foundation stability</td>
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<td>Settlement</td>
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<td>Interior drainage</td>
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<td><strong>Operation Plans</strong></td>
<td>Closures</td>
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<td></td>
<td>Interior Drainage Systems</td>
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<td><strong>Maintenance Plan</strong></td>
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Audience Feedback #1

- Any questions concerning the coordination that the two agencies are taking?
  - Any recommendations for improving coordination and outreach?
  - What will help you meet your challenges?

- Does this interagency cooperation meet your expectations; any concerns?
Question #5
FEMA’s Levee Analysis and Mapping Approach

- For Non-Accredited Levee Systems
  - Approach Document
    - Finalized July 2013
  - Operating Guidance
    - Finalized September 2013
Non-Accredited Levees

- New process allows a non-accredited levee system to be analyzed as multiple “Reaches”
- A “Reach” is a discrete section of a levee for which one of the five levee analysis procedures can be applied
  - Sound Reach
  - Freeboard Deficient
  - Overtopping
- Primarily data dependent:
  - O&M Plan available?
  - As-Builts/Levee Survey?
  - Evaluation of overtopping erosion?
    - Structurally sound?
    - Closures/Tie-Ins?
    - Structural Based Inundation
    - Natural Valley
Future: Mapping Flood Risk

- Biggert-Waters Flood Insurance Reform Act of 2012 (BW-12)
- Homeowners Flood Insurance Affordability Act (HFIAA) of 2014
- Water Resources Reform and Development Act (WRRDA) of 2014
- National Research Council (NRC) – National Academy of Sciences (NAS)
- American Society of Civil Engineers (ASCE) 2014 Report on National Flood Risk Management
- Association of State Floodplain Managers (ASFPM), National Association of Flood & Stormwater Management (NAFSMA), etc.
- Technical Mapping Advisory Council (TMAC)
National Flood Mapping Program
42 U.S.C. §4101b (Section 216 of BW12)

(b) Mapping
(1) In general
In carrying out the program established under subsection (a), the Administrator shall—
(A) identify, review, update, maintain, and publish National Flood Insurance Program rate maps with respect to—
(i) all populated areas and areas of possible population growth located within the 100-year floodplain;
(ii) all populated areas and areas of possible population growth located within the 500-year floodplain;
(iii) areas of residual risk, including areas that are protected by levees, dams, and other flood control structures;
(iv) areas that could be inundated as a result of the failure of a levee, dam, or other flood control structure;
(v) areas that are protected by non-structural flood mitigation features; and
(vi) the level of protection provided by flood control structures and by non-structural flood mitigation features;
(B) establish or update flood-risk zone data in all such areas, and make estimates with respect to the rates of probable flood caused loss for the various flood risk zones for each such area.
Audience Feedback #2

- How many of you involved in:
  - Levee data certification – FEMA accreditation?
  - LAMP efforts?
- Any reaction to - Mapping of residual risk areas?
  Emergency Preparedness Plan requirements?
- Any recommendations?
Question #6 – for USACE

Levee areas of interest

Any updates on other levee activities?
Levee Safety Program Guidance

- Organizational and programmatic policy
  - Roles and responsibilities

- Applying the risk framework
  - Risk Assessments
    - Inspections
    - Risk characterization
    - Uncertainty
  - Risk Management
    - Risk management actions
    - Portfolio risk management
  - Risk Communication

Risk Informed Decisions
Design and Construction of Levees

► Consider regional design approaches
► Consider performance expectations including operations, maintenance, flood-fighting efforts and associated documentation
► Use risk-informed potential failure modes to establish design objectives and approaches
Example Case Histories
Good Coverage for Entire Country

WHERE WE ARE – U.S. ARMY CORPS OF ENGINEERS

Other Organizations
Engineer Research and Development Center (7 Labs)
Engineering and Support Center, Nashville
Army Geospatial Center
USACE Finance Center
USACE Expeditionary
Marine Design Center
Institute for Water Resources
219th Engineer Battalion

LEGEND
• Division HQ Location
• District HQ Location
• District and Division
• Co-located
• Division Boundary
• District Boundary
• State Boundary

48
Alterations to Federal Facilities

- 33 USC 408

- Provides the Secretary of the Army authority to grant permission to alter a USACE civil works project if:

  1. *Does not impair usefulness of the project*

  2. *Not injurious to the public interest*
Section 408 - Policy Purpose

- Improve consistency in the way USACE considers, processes, and documents decisions for requests for alterations to Civil Works projects.

- Create a process that is applicable to all types of Civil Works projects.

- Be transparent on what information is required.

- Create a process that can be tailored by districts to the appropriate scope, scale, and complexity of a proposed alteration.
Section 408 - Key Points

- Process is intended to be scalable, based on the scope and scale of the proposed alteration
- Process is district led
- Created some ways to streamline the process
- Coordination throughout the process is encouraged
Last Opportunity – Final Audience Feedback

- What is the best way for us to help you stay engaged?
- Are you interested in eventually participating in the national levee safety program?
- Any other issues/concerns or questions you would raise?
Not the End
WE ALL STILL HAVE WORK TO DO!