

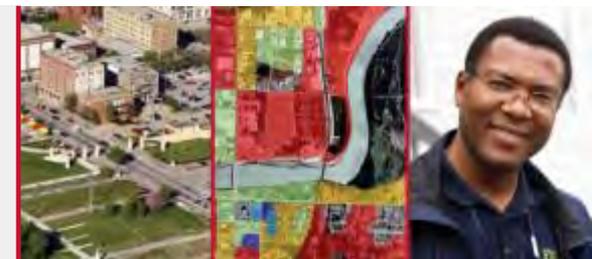


# Levee Analysis and Mapping Kickoff

**Pocatello Levee  
FEMA Region X**

April 4, 2014

**RiskMAP**  
Increasing Resilience Together



# Objective of this Meeting

- Introduce the Project Team
- Provide overview of New Levee Analysis and Mapping Process (LAMP) for Non-accredited Levees Approach
- Review available data, information, and documentation on the levee system
- Explain Local Levee Partnership Team (LLPT)
- Next Steps

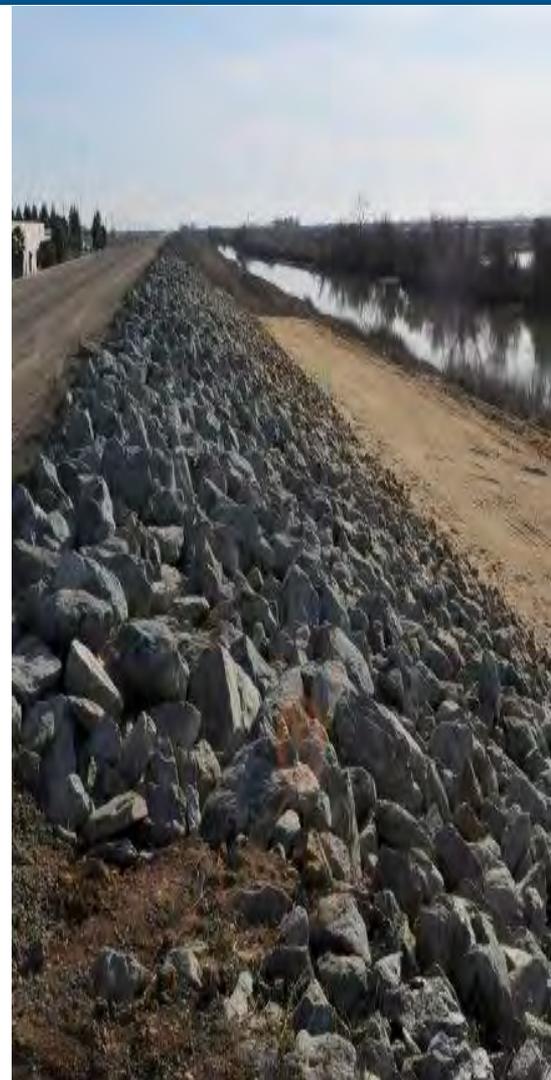


# Project Team Introductions

- Ted Perkins, FEMA Region X
- David Ratte, FEMA Region X
- Amanda Siok, FEMA Region X
- Tadd Henson, STARR PM
- Josha Crowley, STARR – RSC

# Levee Analysis and Mapping Process (LAMP) Approach

- FEMA has replaced the former levee analysis and mapping approach with a suite of alternative procedures created to:
  - Comply with all current statutory and regulatory requirements governing the NFIP
  - Be a cost-effective, repeatable, and flexible approach
  - Leverage local input, knowledge, and data through proactive stakeholder engagement
  - Align available resources for engineering analysis and mapping
  - Consider unique levee and flooding characteristics



# Levee Analysis and Mapping Process (LAMP) Approach



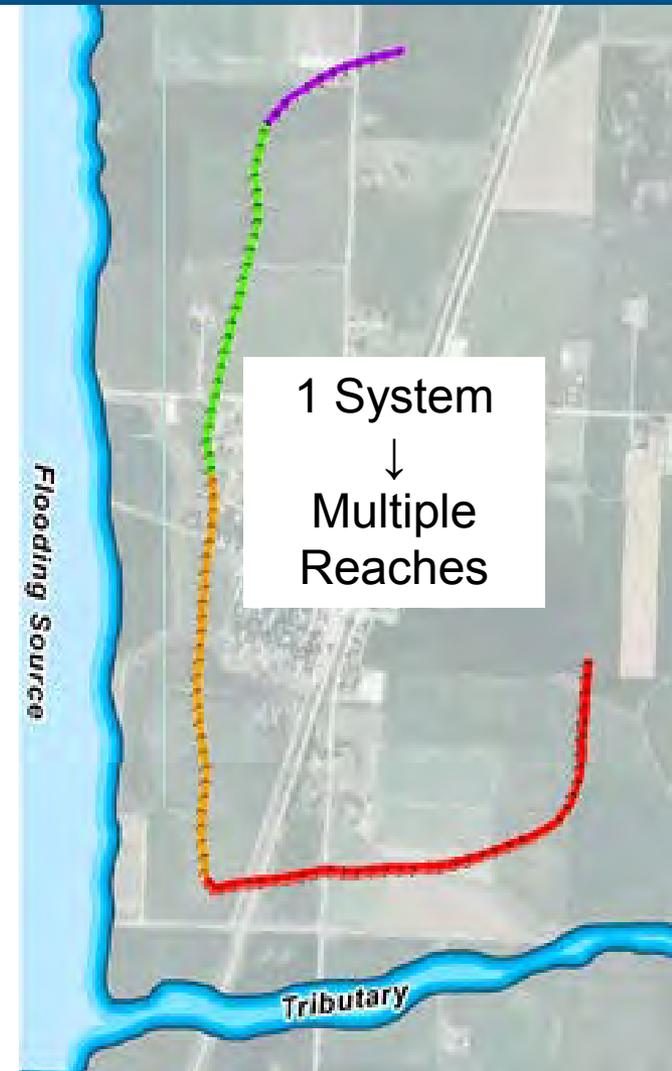
- Four Features of the New Approach:
  - Interactive Stakeholder Engagement Process (Local Levee Partnership Team)
  - Recognition of the Uncertainty Associated with Levee Systems
  - Analysis of Levee Reaches
  - More Robust Levee Analysis and Mapping Procedures

This New Approach is Not:

- A revision to the process or data required to accredit a levee system
- A solution addressing recommendations of other entities, such as Levee Task Force or National Committee on Levee Safety

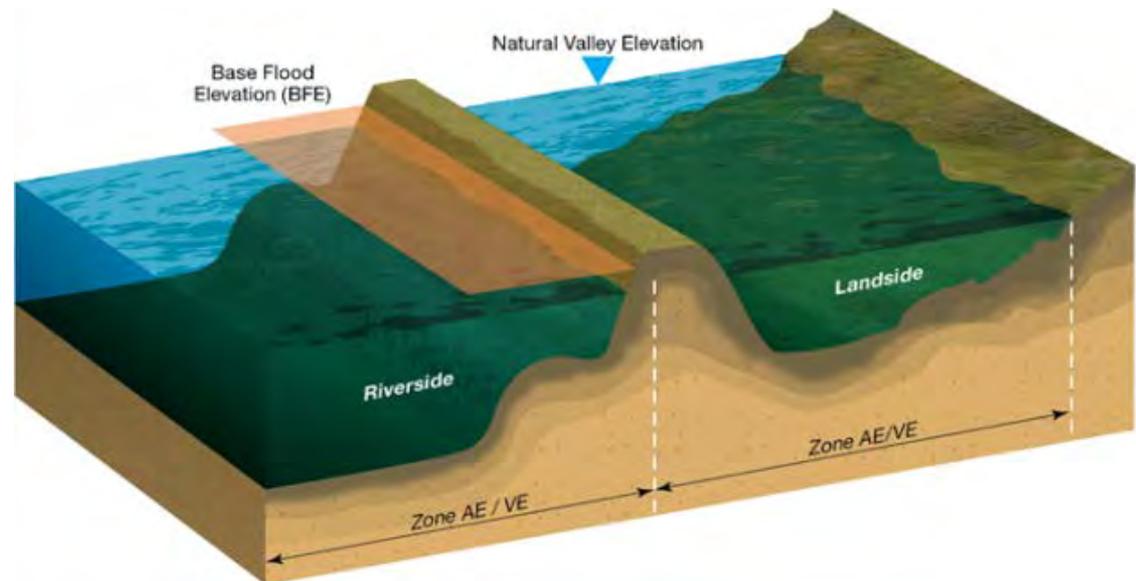
# Overview of LAMP Approach

- There are five procedures that can be applied to a non-accredited levee:
  - Natural Valley
  - Sound Reach
  - Freeboard Deficient
  - Overtopping
  - Structural-Based Inundation
- A system can be broken up into multiple reaches in order to analyze the flood risk in its vicinity



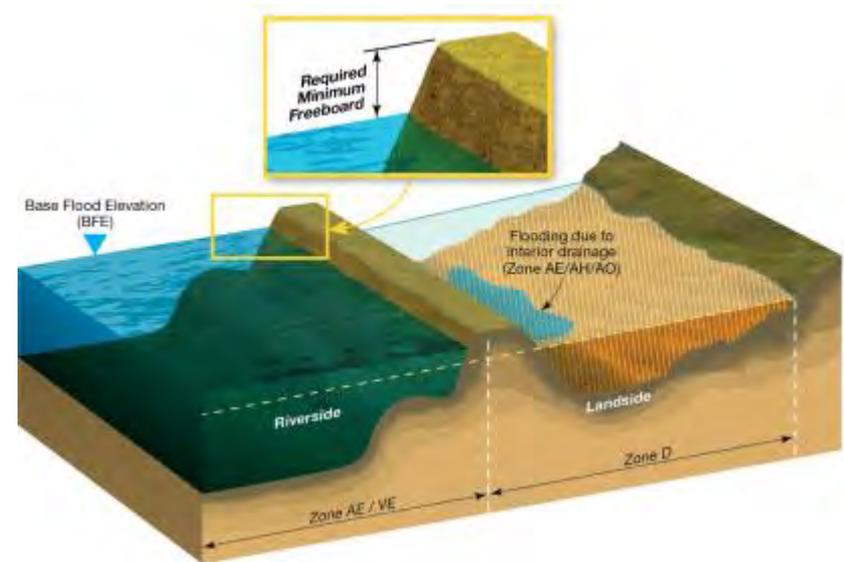
# Natural Valley Procedure

- Basic analysis to be applied to all levee systems, and/or individual reaches (procedure possible with minimal data)
- This procedure refers to the river channel and floodplain of a river system, or coastal area, prior to the addition of flood-control structures (e.g., levees)
- No additional data needs or requirements for preparation of analysis



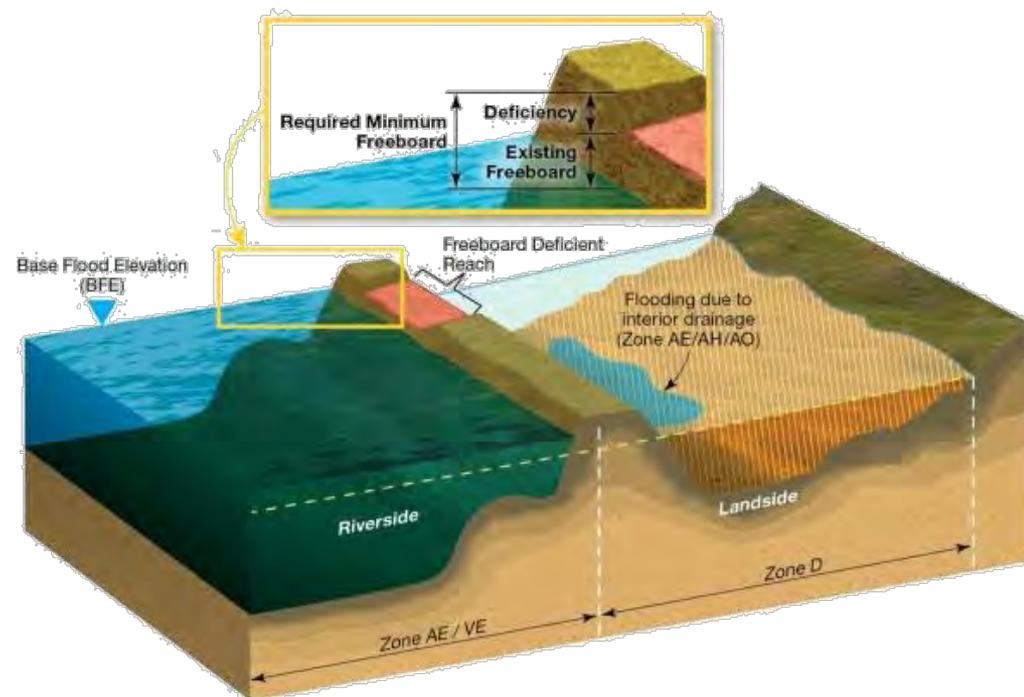
# Sound Reach Procedure

- For a levee reach designed, constructed, and maintained to withstand and reduce the flood hazard posed by the base (one-percent-annual-chance) flood
  - No levee reach-specific modeling necessary
  - Zone D landward of the reach
  - Interior drainage may map some flood hazard on the landward side
  - Specified reach meets all 44 CFR 65.10 requirements and each is documented



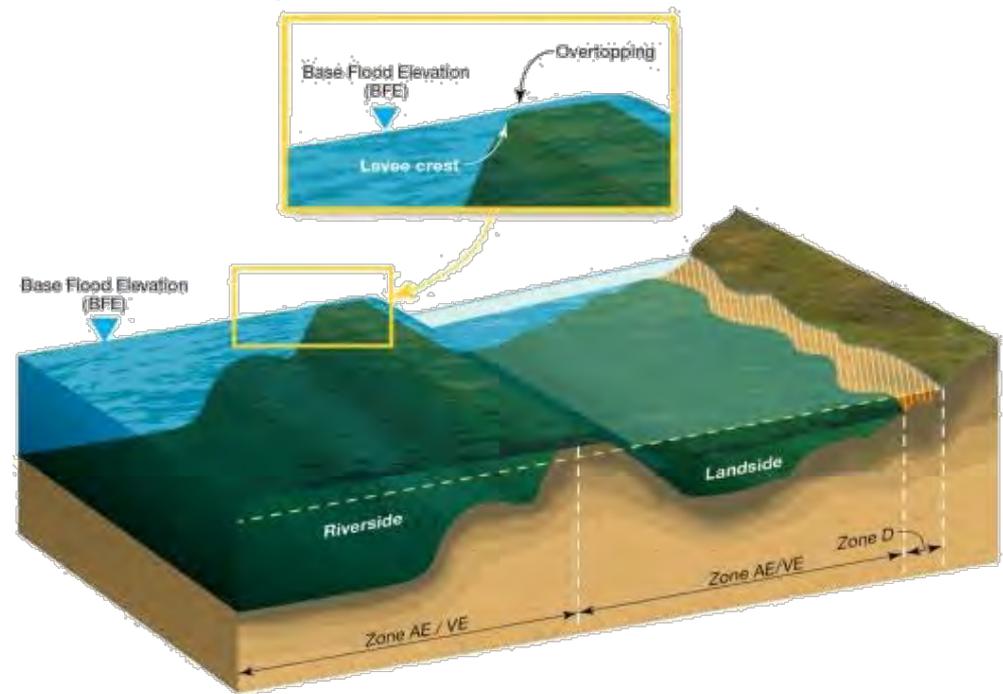
# Freeboard Deficient Procedure

- For levee **reaches** that cannot meet the freeboard regulatory requirements in 44 CFR 65.10 (freeboard helps to account for uncertainty in design and the base flood)
  - Natural Valley Approach is used to map landward risk
  - Zone D landward of the reach
  - Levee crest must be higher than the calculated BFE for this method to be suitable



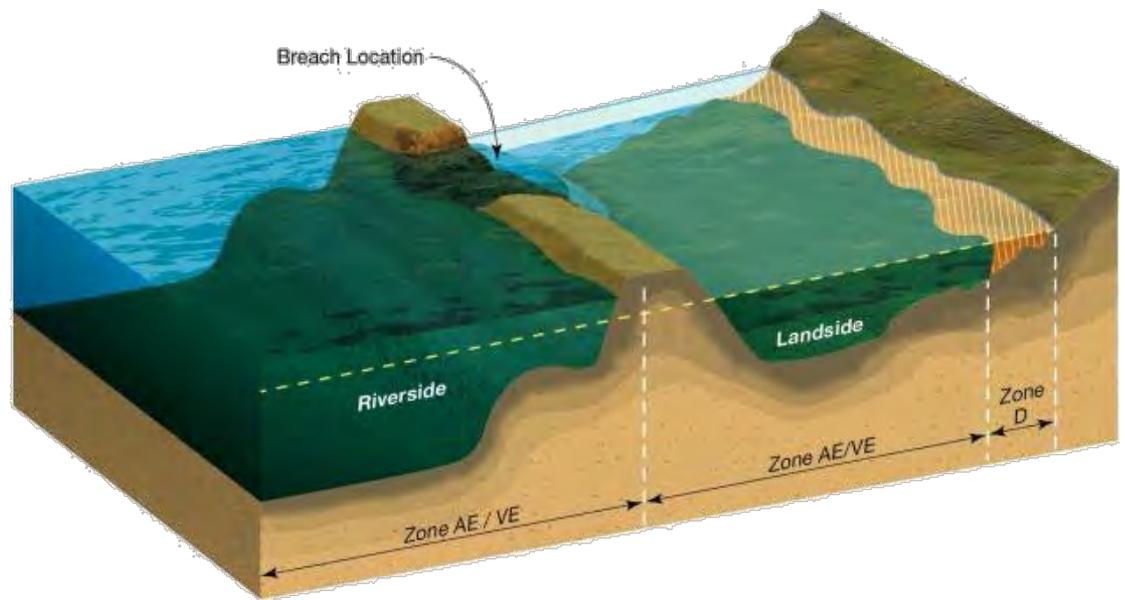
# Overtopping Procedure

- Appropriate for levee reaches that are known to overtop during the one-percent-annual chance flood.
- The BFE is calculated to exceed the height of the levee crest at a minimum of one location along the levee's reach (length)
- Structure should be designed for overtopping
- Structural requirements are met and documented
- Levee modeled as a lateral weir

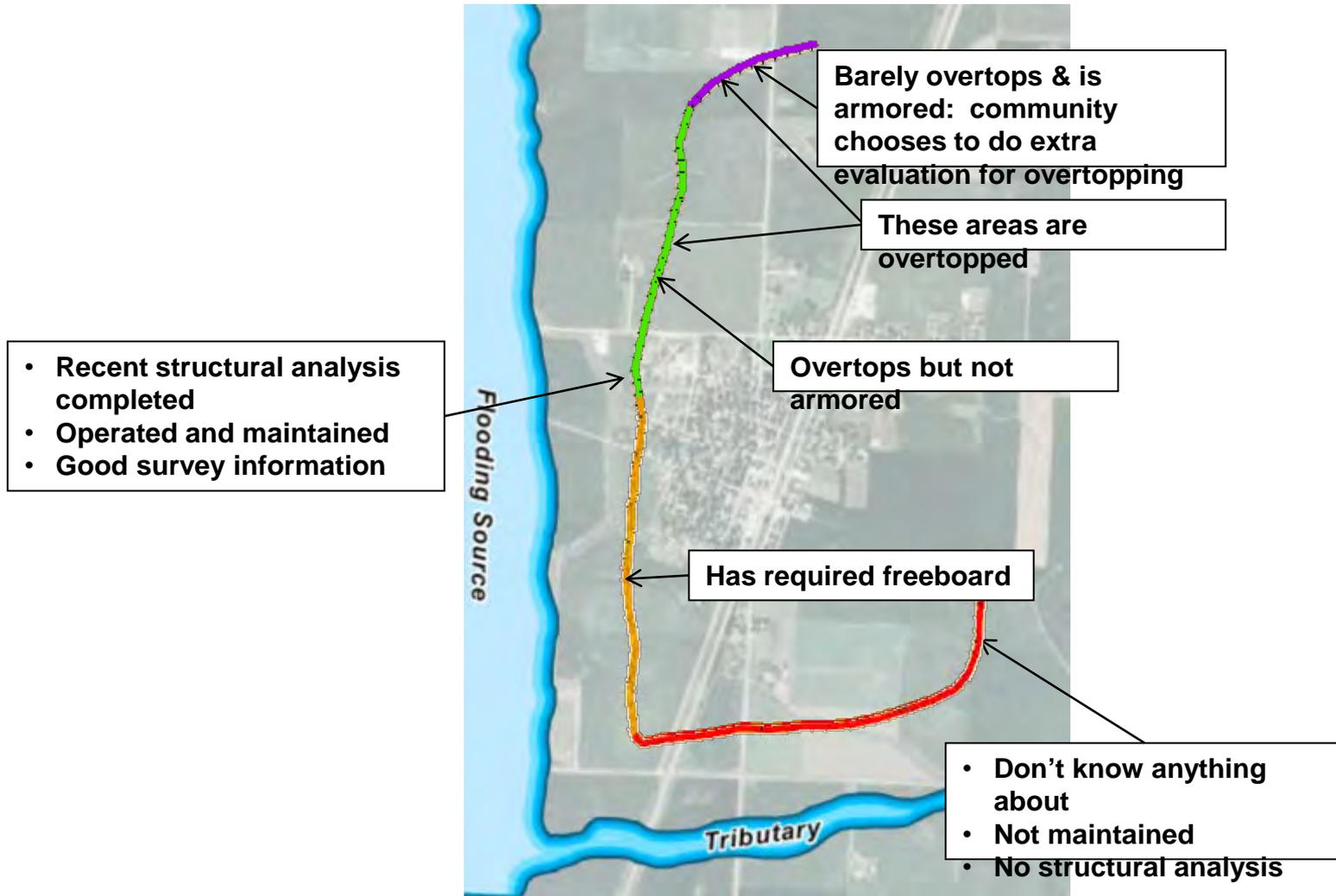


# Structural-Based Inundation Procedure

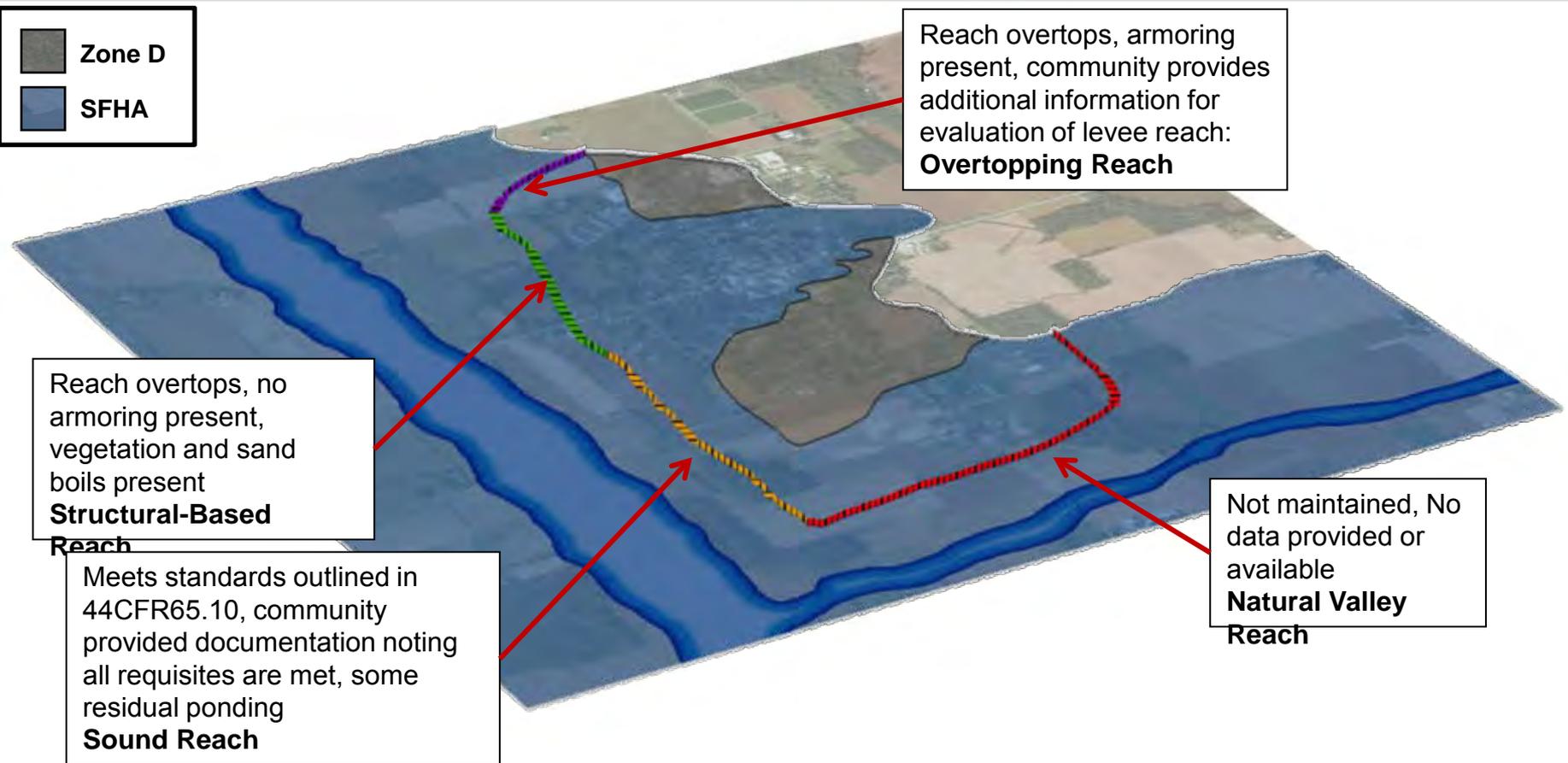
- For a levee reach where evaluation reports and/or historic performance indicate structural issues
  - Levee reports and historical information will inform the modeling effort for this scenario
  - Need to identify the locations of structural issues & determine failure scenarios



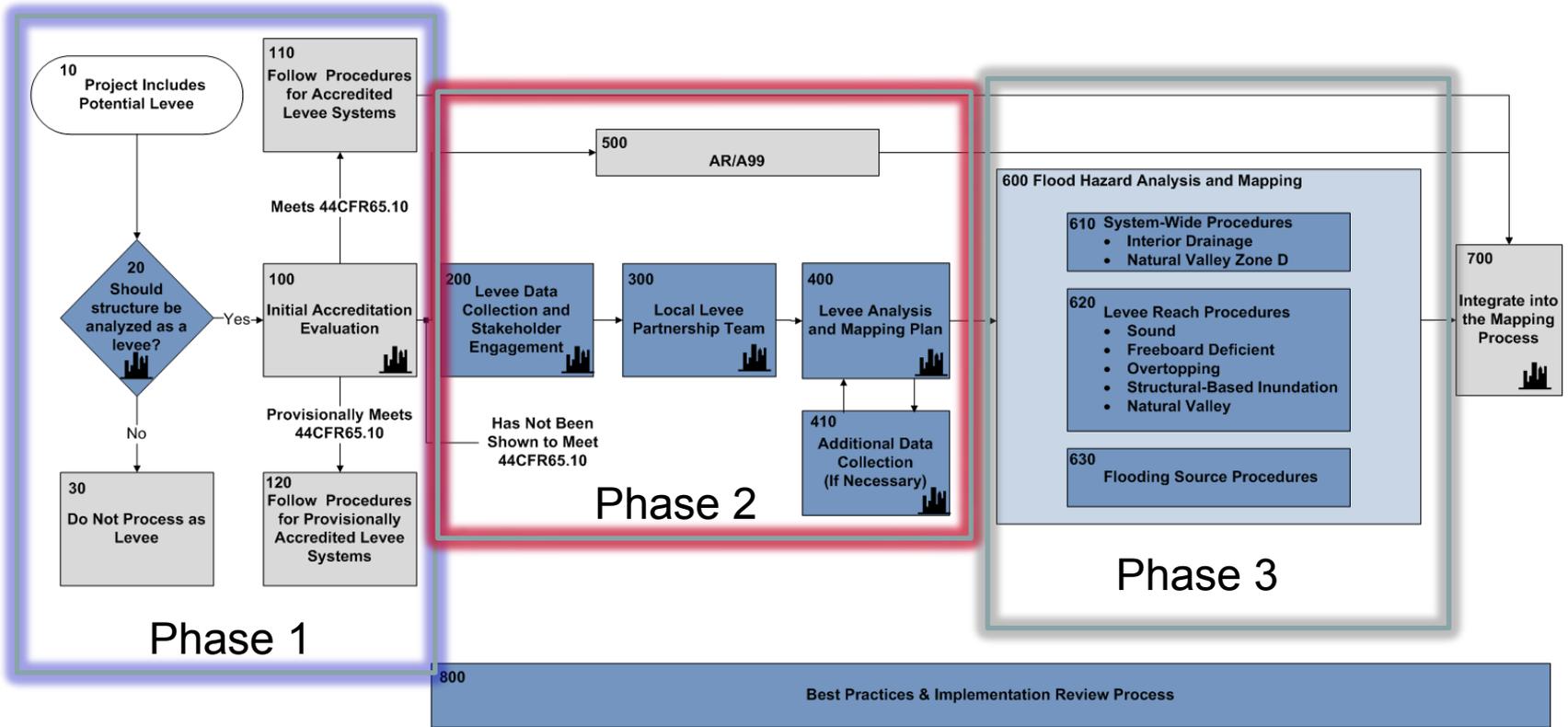
# Evaluate Data for Reaches



# Translating Data into Mapping



# The LAMP Process



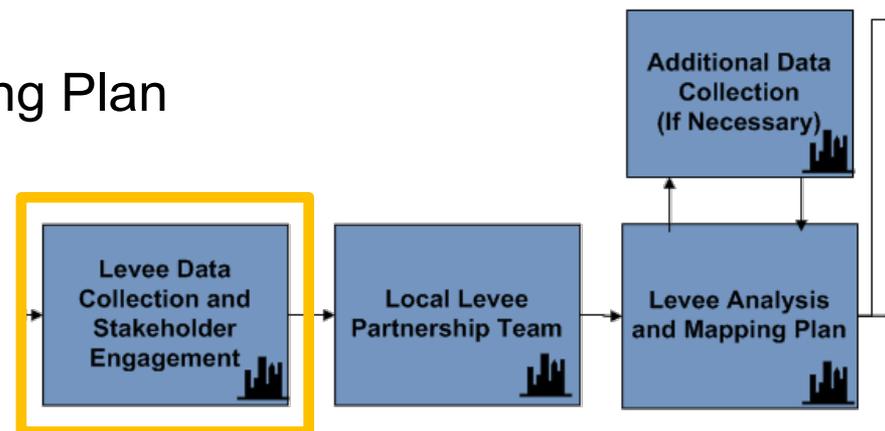
 indicates community engagement

Covered by Previous FEMA Guidance

Covered by new Guidance Document

# Stakeholder Engagement Process

- Level of effort will vary during this phase based on the complexity of the levee system in question
- Intention of this phase is to:
  - Coordination with stakeholders external to FEMA
  - Collect existing local data & system knowledge
  - Determine additional data for communities to submit
  - Perform approximate-level hydrologic and hydraulic (H&H) analyses, review of results
  - Prepare Levee Analysis and Mapping Plan



# Potential Data Needs

- Elevation Information for the Levee System (Toe & Crest)
- Design Base Flood Elevation (BFE)
- Structural Design Information
- Geotechnical Evaluation
- Interior Drainage Analysis
- Evaluation of Overtopping Erosion Potential
- Operation and Maintenance Plans
- Levee Inspection Reports

For more information refer to LAMP Final Approach document:

<http://www.fema.gov/final-levee-analysis-and-mapping-approach>



# Pocatello System Data Availability

- Elevation Information for the Levee System (Toe & Crest)

Notes:

- Design Base Flood Elevation (BFE)

New study by FEMA. BFEs don't reach the levee in many locations

- Structural Design Information

Notes:

- Geotechnical Evaluation

Notes:

- Interior Drainage Analysis

Notes:

- Evaluation of Overtopping Erosion Potential

Not Applicable

- Operation and Maintenance Plans

Notes:

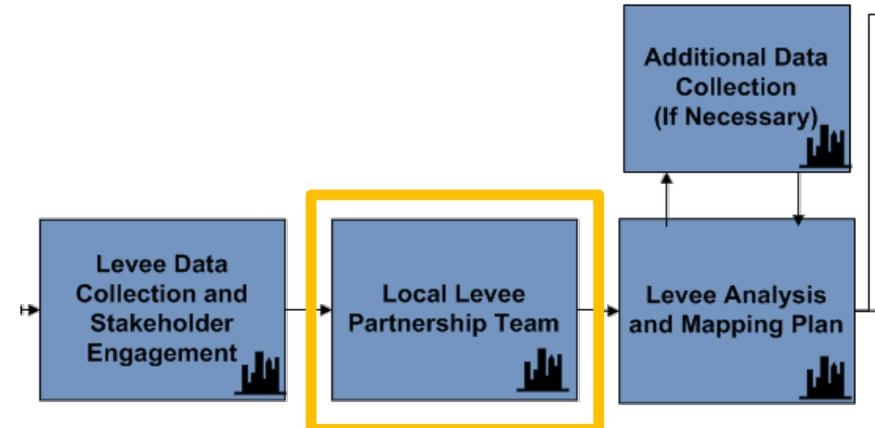
- Levee Inspection Reports

Notes:

# Local Levee Partnership Team

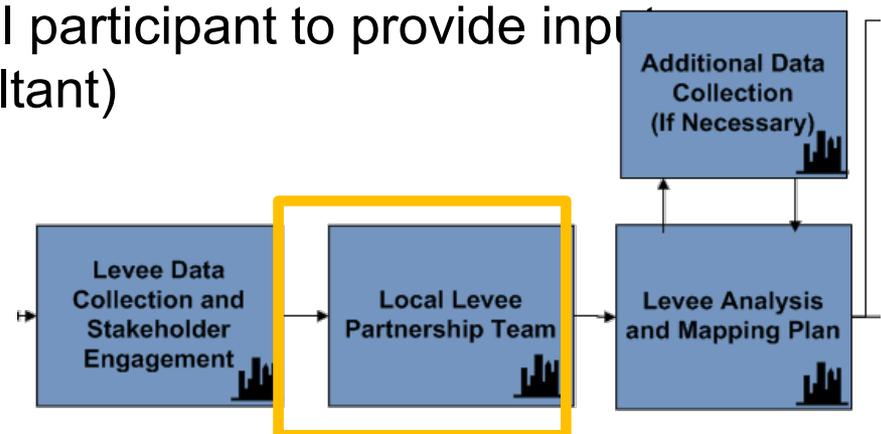
## ■ Meeting-Specific Objectives:

- LLPT members have an opportunity to explain the unique conditions related to their levee that will impact the analysis and mapping
- LLPT members comment on methods for levee reaches, analyses, and mapping within the allowable guidelines
- A reasonable schedule is developed for obtaining input or additional data



# Local Levee Partnership Team Membership

- FEMA
- U.S. Army Corps of Engineers (as appropriate)
- People to consider:
  - Member with community decision making authority (or one who advises decision) is requested
  - Representation from geographic and political jurisdictions within the system, make sure the levee owner is included
  - Community may want a technical participant to provide input (Engineering Department/Consultant)
  - Floodplain Management Staff
  - Others?





# LLPT Invitations

- **FEMA Project Team**
- **Pocatello**
  - **Deidre City Engineer**
  - **Randy**
  - **Mayor/Public Works Director**
- **Corps of Engineers**
- **State**
- **County Impacted? – south end**  
**County EMA – Leave out for now**
- **Others**

# Options Moving Forward

- Follow New Levee Procedure
  - Available for non-accredited and de-accredited levee systems
  - Local coordination to identify levee reaches
  - Levee owner must provide data pertaining to proposed reach scenarios agreed upon
- Waiver Letter
  - Community/levee owner may opt out of new process by providing FEMA a waiver letter
  - FEMA will move forward with any levee project using Natural Valley procedure for all levee system reaches.

# Next Steps

- Phase 1 Project Entry – Done
- Phase 2 Stakeholder Engagement and Data Collection
  - Levee Stakeholder Engagement Meeting – Today
  - Initial Data Analysis – TBD
  - Local Levee Partnership Team (LLPT) Meeting – TBD
  - Levee Analysis and Mapping Plan – TBD
- Phase 3 Flood Hazard Analysis and Mapping - TBD

# Questions?

- **Ted Perkins, PE**  
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# FEMA