



FEMA

Meredosia Drainage and Levee District: *A Tale of Two Levees*

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RiskMAP
Increasing Resilience Together



Outline

- Overview of FEMA History with Meredosia Levee
- Current Status of Meredosia Levee
- FEMA's Levee Analysis and Mapping Procedure
 - Engagement
 - Initial Data Analysis
- Path Forward for Meredosia Levee

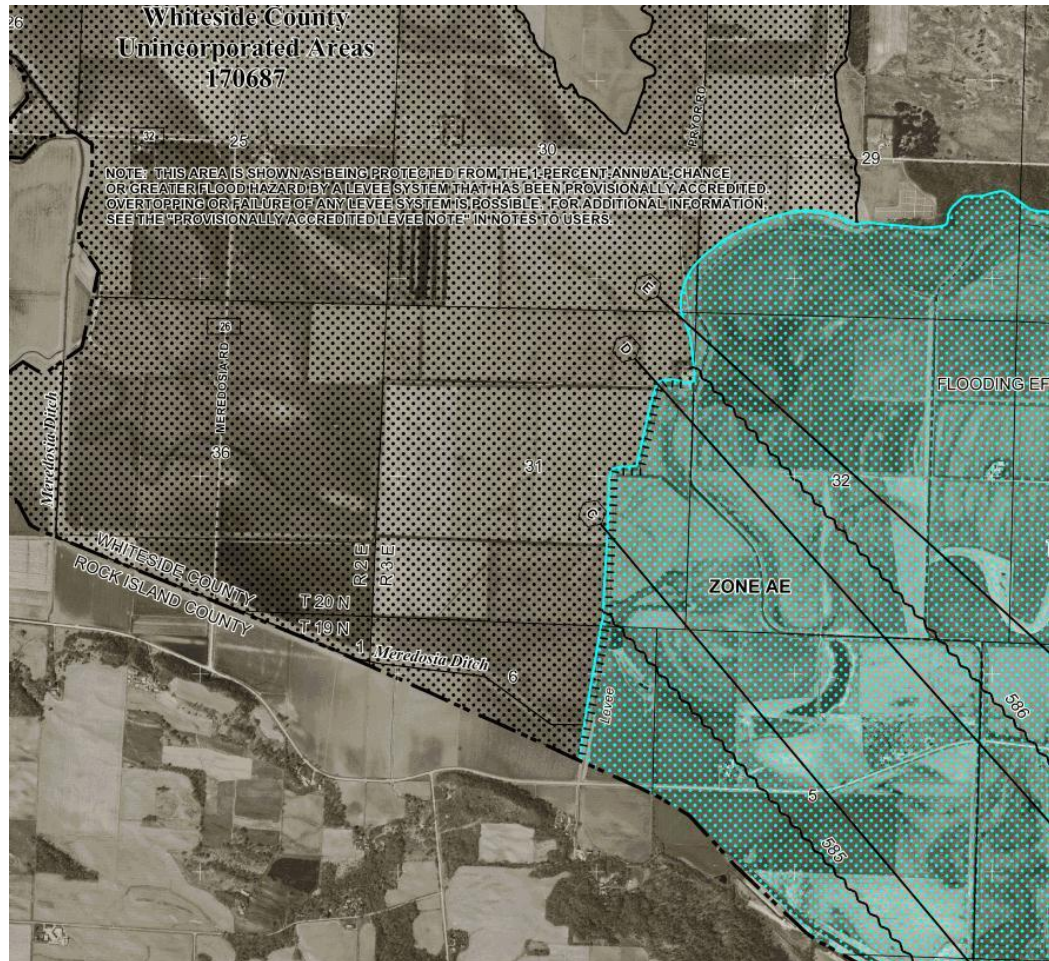
Meredosia Levee



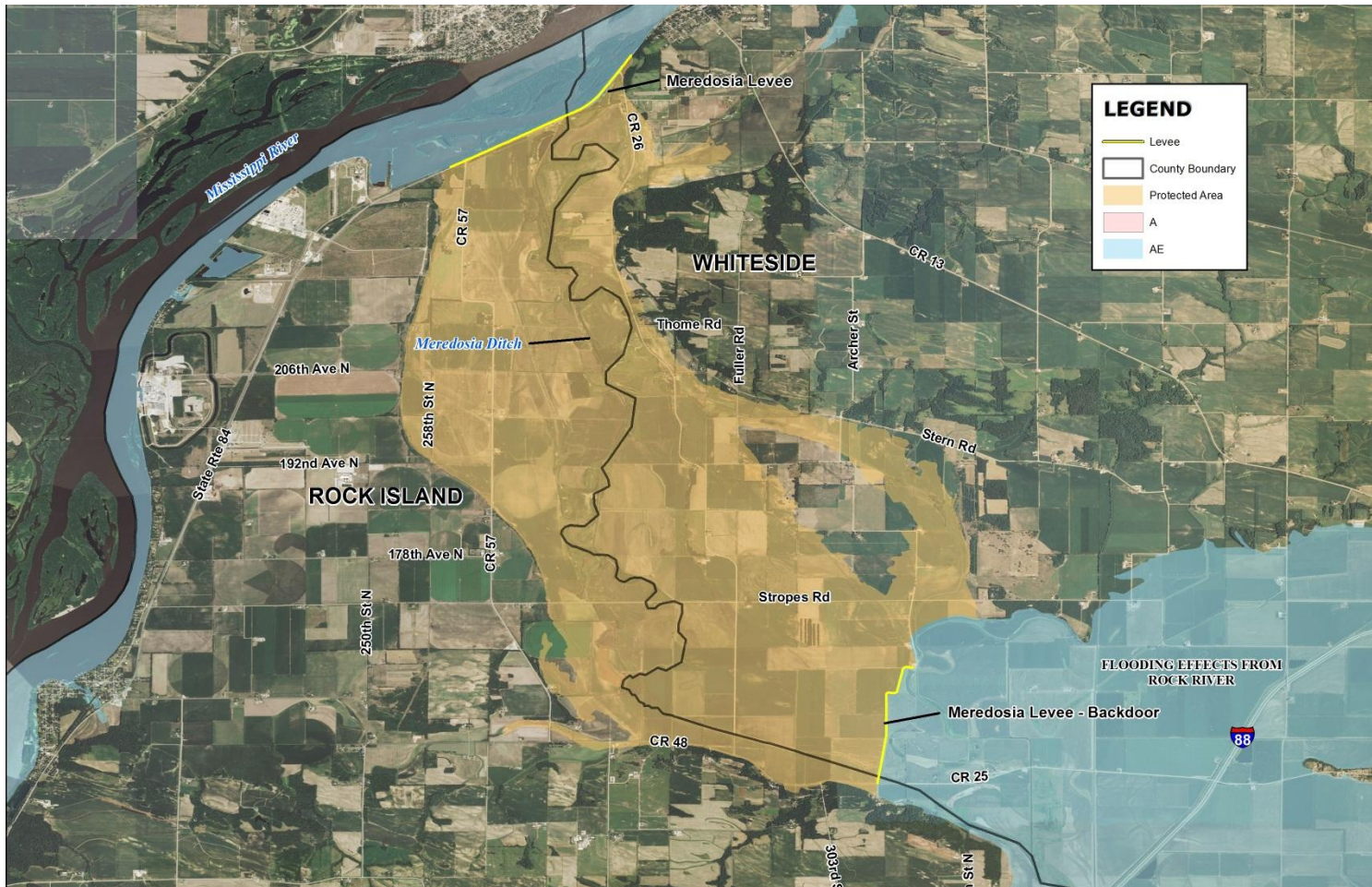
The PAL Process

- **Provisionally Accredited Levee** (PAL) designation will be given to those levees that FEMA believes can provide the level of protection but for which data verifying this is not readily available
- Community must sign an agreement to provide FEMA with levee certification by the end of a two year period
- The documentation must show that the levee meets standards set forth in FEMA's Code of Federal Regulations (Part 65.10)
- Preliminary maps will be issued with area behind levees shown as a Zone X (shaded) and PAL annotation will be added
- At the end of the two year period, if the levee can be certified, FEMA will show it on the map as providing protection

Meredosia Levee Effective Map



Meredosia Levee – Effective Mapped Area



Accreditation Requirements

Listed in CFR 65.10

- 65.10(a) – General Requirements
- 65.10(b) – Design Requirements
- 65.10(c) – Operations Plans
- 65.10(d) – Maintenance Plans
- 65.10(e) – Certification Requirements

CFR 65.10(b) Design Requirements

- 65.10(b)(1) – Freeboard
- 65.10(b)(2) – Closures
- 65.10(b)(3) – Embankment Protection
- 65.10(b)(4) – Embankment and foundation stability
- 65.10(b)(5) – Settlement Analysis
- 65.10(b)(6) – Interior Drainage
- 65.10(b)(7) – Other Design Criteria

FEMA History with Meredosia Levee

PAL Identification – 8/13/2007

PAL Agreement Signed – 11/5/2007

USACE/ISWS Field Tour – 10/21/2009

Submission Due Date – 11/12/2009

Levee De-accreditation Meeting – 4/22/2010

Rock River Flood Risk Review – 12/5/2011

Levee Informational Meeting – 8/21/2013

Previous Method - *Mapping Flood Hazards*

- **Complete certification of system** submitted to FEMA
- Mapped as contained within levee system boundaries
- **Certification** submittal *not received* or *incomplete*
- Traditionally mapped as if the levee did not provide a reduction in flood risk



Levee Analysis and Mapping Approach

- **Approach Document**
 - Finalized July 2013
- **Operation Guidance**
 - Finalized Sept. 2013



Analysis and Mapping Procedures for Non-Ac Levee Systems

New Approach
July 2013

www.fema.gov/plan/prevent/flood

Operating Guidance 12-13

Non-Accredited Levee Analysis and
Mapping Guidance

September 2013



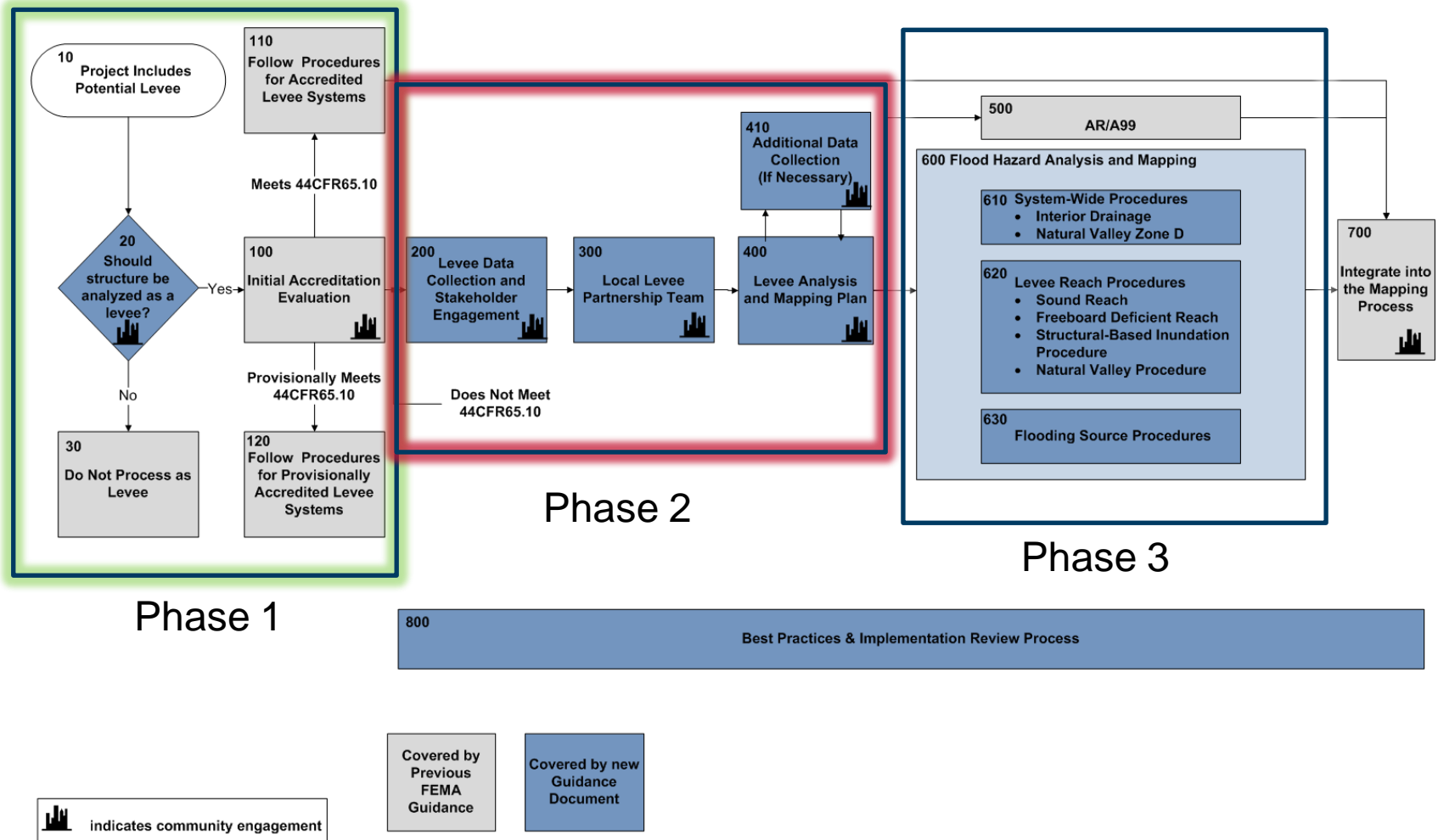
What's New about this New Process?

- **Interactive stakeholder engagement** throughout the analysis and mapping process:
 - FEMA will engage community officials and decision makers in a collaborative discussion
- A **suite of analysis and mapping procedures** of the hazard associated with levees will be reviewed with the interested parties
 - Intention is to recognize of the uncertainty associated with hazard identification behind levees.
 - New Development – Allows communities to **split a levee system into distinct reaches** that are analyzed based on the attributes of the specific reach.

Non-Accredited Levees

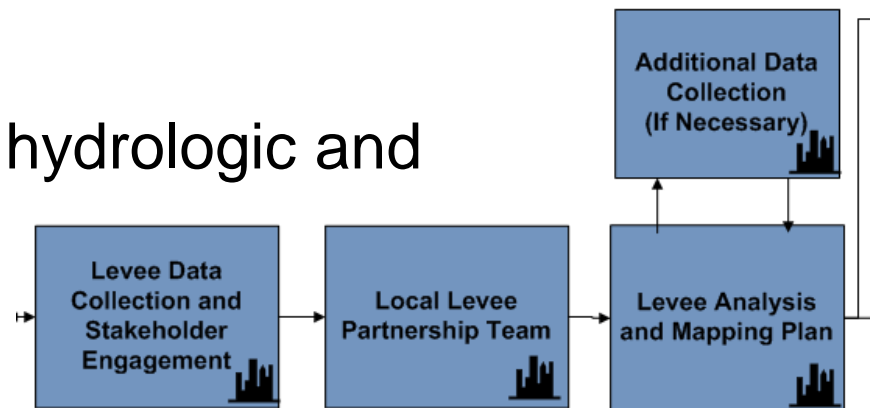
- **New process allows a non-accredited levee to be broken into multiple “Reaches”**
- **A “Reach” is a discrete section of a levee for which one of the five levee analysis procedures can be applied**
 - Sound Reach
 - Freeboard Deficient
 - Overtopping
 - Structural Based Inundation
 - Natural Valley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

The Process



Phase 2 – Coordination

- The level of effort during this phase will vary depending on the levee system, but will ***typically*** consist of:
 - Conduct initial coordination with stakeholders
 - Collect existing data
 - Determine additional data communities plan to submit
 - Hold face-to-face meetings
 - Perform approximate-level hydrologic and hydraulic (H&H) analyses
 - Prepare Levee Analysis and Mapping Plan



Local Levee Working Group

■ Purpose

- Provide feedback and data so FEMA can make a final decision on how the levee system should be modeled and how the levee-impacted area should be mapped.

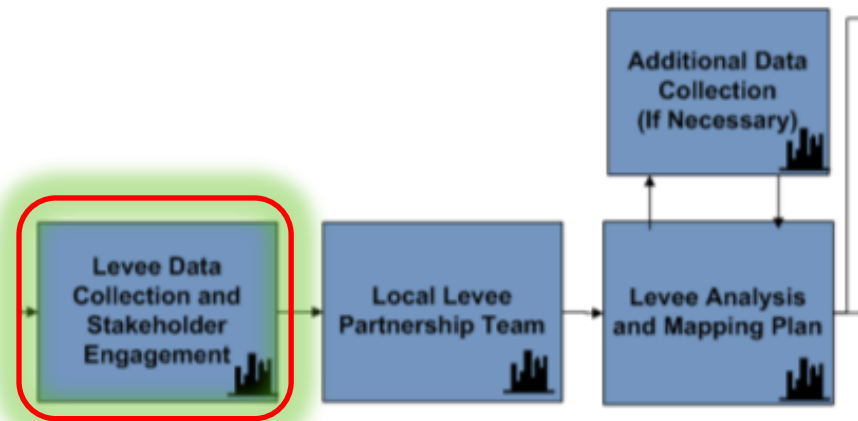
■ Participants

- CEO or designee (decision making authority)
- Levee owner
- Floodplain manager
- Local engineer
- FEMA regional representative
- USACE representative (if appropriate)
- CTP or FEMA contractor for project
- Others as determined by the community or region



Initial Data Analysis

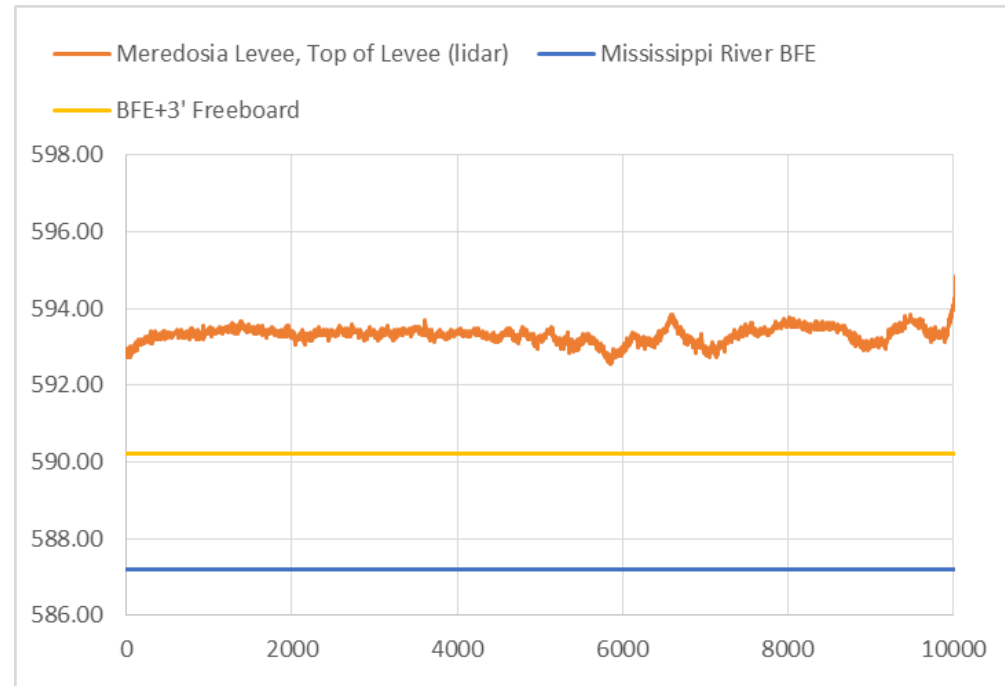
- Performing Limited Data Analysis Helps With Informed Discussions During LLPT Meetings
- Approximate Analysis of Structural-Based Inundation, Overtopping or Natural Valley Based on Available Data
- Expect Multiple Breach Locations and Widths (Simple 2-D Modeling Likely)



Meredosia Levee Data Collection

Data Collected

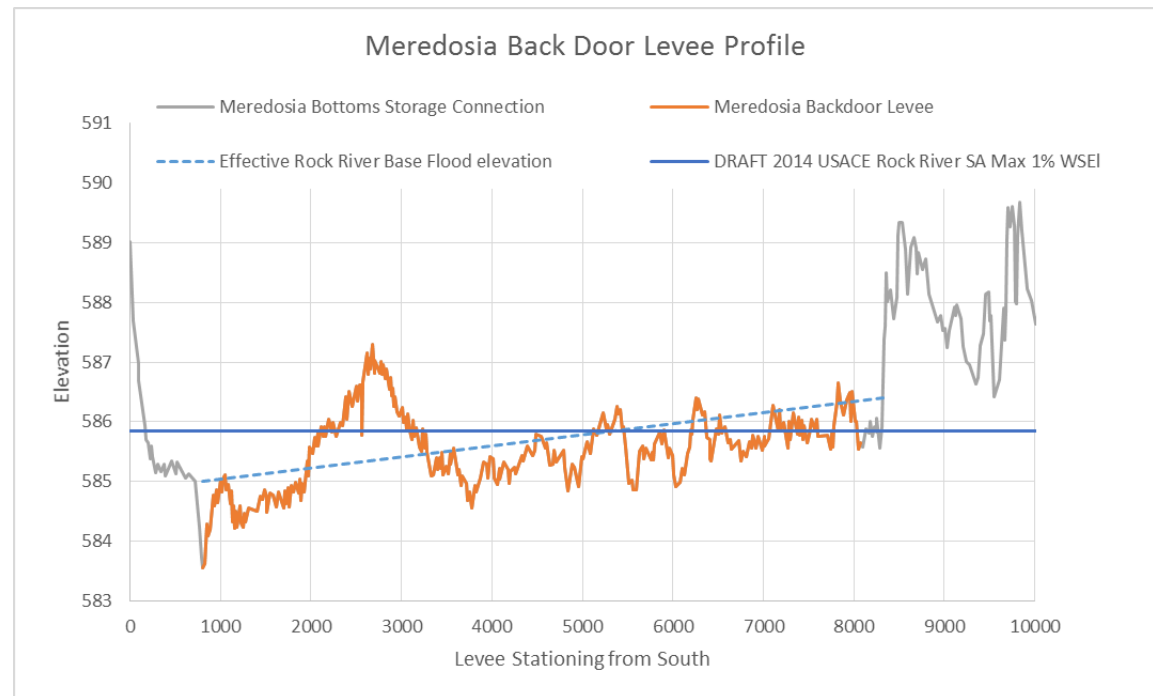
- ✓ Operation and Maintenance Plan
- ✓ Structural Design Information
- ✓ USACE Inspection Reports
- ✓ LiDAR



Back-door Levee Data Collection

Date Collected

- LiDAR – Top of Levee Survey



Initial Levee Analysis

Reach Description	Potential Methods				
	Natural Valley	Structural Based Inundation	Overtopping	Freeboard Deficient	Sound Reach
Meredosia Levee – Mississippi River	Y	Y	N	N	Y
Backdoor - Rock River Levee	Y	Y	Y	N	N

Initial Levee Analysis

Mississippi River Levee

- Accreditation
- Natural Valley Analysis
 - Mississippi River BFE
 - Impact area east to I-88

Backdoor – Rock River Levee

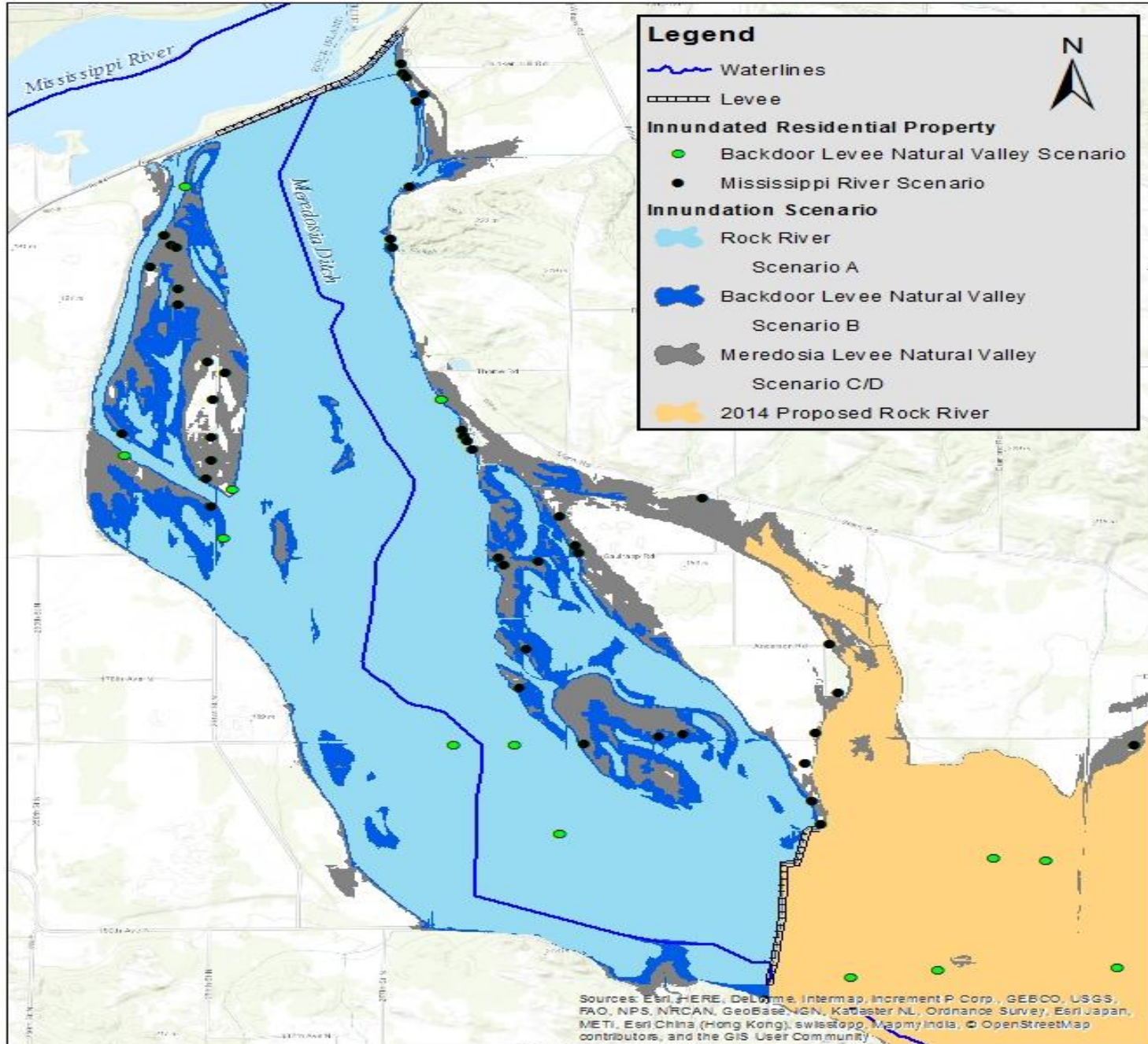
- Overtopped Analysis
- Natural Valley Analysis



Mapping Scenarios- short list

Scenario	Mapping Analysis		Potential Base Flood Elevation	
	Meredosia Levee	Backdoor Levee	Between the Meredosia Levees	East of the Backdoor Levee to I88
A	Accredited	Overtopping	581.3	585.8**
B	Accredited	Natural Valley	583.5	585.8**
C	Natural Valley	Overtopping	587.2	587.2
D	Natural Valley	Natural Valley	587.2	587.2

**Proposed Rock River base flood elevation

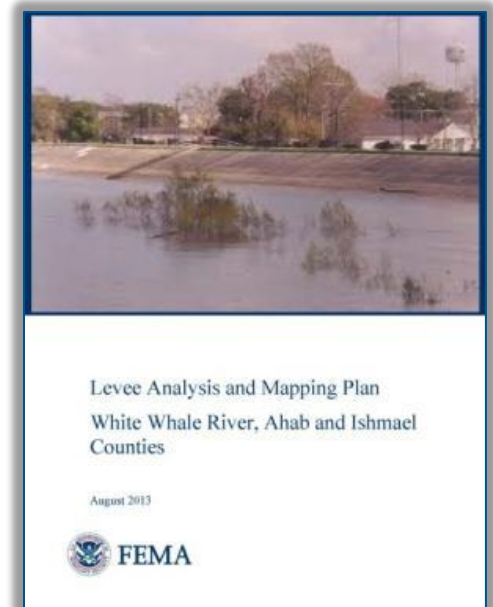


Data Requirements

	Sound	Freeboard Deficient	Overtopping Approach	Structural-Based Inundation	Natural Valley
Elevation Information for the Levee Crest and Toe	Required	Required	Required	Required	
BFE + Freeboard Less than Levee Crest	Required				
BFE Less than Levee Crest	Required	Required			
Operations and Maintenance Plan	Required	Required	Required	Recommended	
Structural Design Requirements	Required	Required	Required	Recommended	
Inspection Reports	Required	Required	Required	Recommended	
Evaluation of Overtopping Erosion Potential			Required		

Levee Analysis and Mapping Plan

- After deliberations by Local Levee Partnership Team, a Levee Analysis and Mapping Plan will be delivered. It will include the following:
 - Copies of meeting data developed, including agendas, meeting minutes, etc.
 - Summary of data and information collected
 - Summary of information and data FEMA expects to receive from Levee Stakeholders
 - Summary of flood hazard analysis and mapping options and timeframe for delivery



Planned Path Forward

Scenario B:

Meredosia Levee:
Accreditation

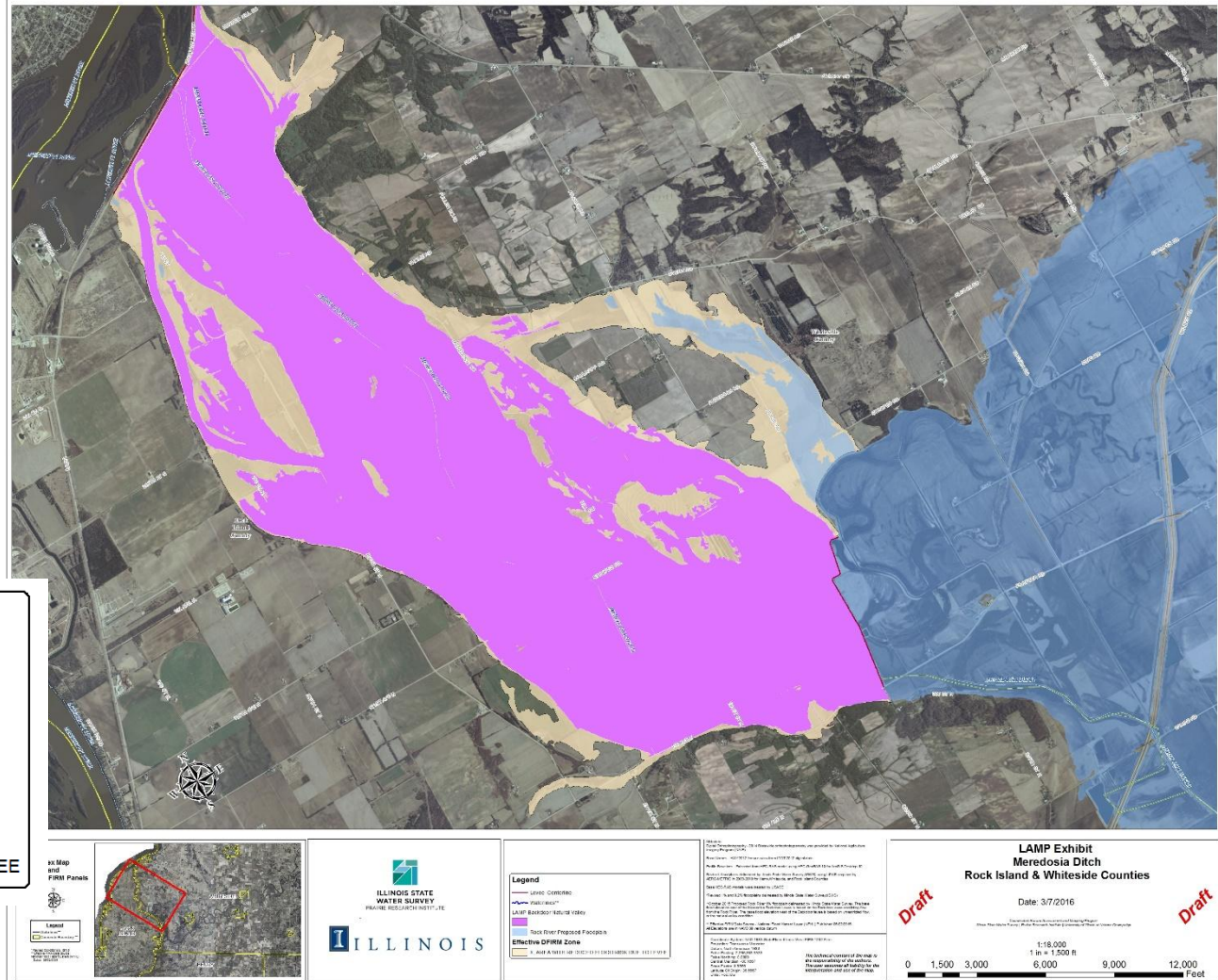
Meredosia Backdoor
levee: Natural Valley

Legend

- Levee_Centerline
- Waterlines**
- LAMP Backdoor Natural Valley
- Rock River Proposed Floodplain

Effective DFIRM Zone

- X, AREA WITH REDUCED FLOOD RISK DUE TO LEVEE



Path Forward

- August 2013 - Levee Informational Meeting
- September 2015 - Levee Stakeholder Engagement Meeting -
- January 26, 2016 - Draft LLPT Report
- February 22, 2016 - LLPT Coordination Call
- March 2016 - Final LLPT Report to be released
- June 2017 - Additional Data Collection due to FEMA
- Late 2018 - Prelim Flood Insurance Rate Maps (FIRMs)
- ~2020 - Effective FIRMs
- All dates are approximate and based on FEMA funding

Questions?

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