Alexander County and Pulaski County

FEMA Risk MAP
Project Initiation Coordination Call

April 20, 2021

ILLINOIS
Illinois State Water Survey
PRAIRIE RESEARCH INSTITUTE

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

FEMA

Alexander County and Pulaski County
Project Initiation Coordination Call

Agenda

- Community and Agency Rollcall
- Project Objectives
  - Background of the National Flood Insurance Program and Regulatory Mapping
  - How this Project Relates to Existing and Future Regulatory Floodplain Maps
- Project Scope
  - Streams to be Studied
  - Levee Accreditation Status
  - Engineering Methodology
- Project Communication
  - Future Meetings
  - Opportunities for Community Comment
  - Requests for Community Areas of Concern
  - Providing Information to Support the Data Development
- Project Schedule
  - Data Development Timeline
  - Regulatory Map Update Timeline
- Open Project Discussion

Community and Agency Rollcall

- Village of Karnak
- City of Mound City
- City of Mounds
- Village of New Grand Chain
- Village of Olmsted
- Village of Pulaski
- Village of Ullin
- Pulaski County

- Village of Tamms
- City of Cairo
- Alexander County

- FEMA
- IDNR/OWR
- IEMA
- ISWS
- USACE

- Others

Introduction

- The Illinois State Water Survey (ISWS) is a division of the Prairie Research Institute (PRI) at the University of Illinois.
- The Coordinated Hazard Assessment and Mapping Program (CHAMP) is a section within ISWS.

The staff of the Coordinated Hazard Assessment and Mapping Program which includes 18 Certified Floodplain Managers (CFM), seven Professional Engineers (PE), and seven Geographic Information Sytems Professionals (GISP)

https://www.isws.illinois.edu/champ
https://www.illinoisfloodmaps.org/

Introduction

- ISWS & Illinois Department of Natural Resources (IDNR) are Cooperating Technical Partners (CTP) with the Federal Emergency Management Agency (FEMA). CHAMP staff perform floodplain studies, mapping, mitigation planning, and related activities for Illinois communities through this partnership.

- ISWS also partners with the Illinois Department of Natural Resources-Office of Water Resources (IDNR-OWR) to help prioritize Illinois floodplain studies and mapping projects.

- FEMA Risk Mapping, Assessment, and Planning (Risk MAP) is the process used to implement National Flood Insurance Program (NFIP) floodplain studies and mapping projects.

National Flood Insurance Program (NFIP)

The National Flood Insurance Program (NFIP)

- A voluntary program based on a mutual agreement between the Federal government and a community.
- In exchange for adopting and enforcing a floodplain management ordinance, Federally-backed flood insurance is made available to property owners throughout the community.

NFIP Participating Communities
Alexander and Pulaski County

CID	Community	NFIP Participation	CRS Rating	Initial FHBM Identified	Initial FIRM Identified	Current Effective Map Date
170562	Pulaski County	Participating	Not rated	10/31/1975	3/18/1985	3/18/1985
170565	City of Mound City	Participating	Not rated	11/23/1976	3/5/1990	3/5/1990
170564	City of Mounds	Participating	Not rated	NA	NA	No SFHA
NA	Village of New Grand Chain	Non-Participating	NA	NA	NA	No SFHA
170566	Village of Olmsted	Participating	Not rated	8/30/1974	6/15/1983	6/15/1983
170567	Village of Pulaski	Participating	Not rated	5/17/1974	11/15/1984	11/15/1984
170568	Village of Ullin	Participating	Not rated	4/12/1974	9/27/1985	9/27/1985
170563	Village of Karnak	Participating	Not rated	5/7/1976	11/6/1991	11/6/1991
170811	Alexander County	Participating	Not rated	12/27/1974	1/3/1986	5/4/2009
170004	City of Cairo	Participating	Not rated	4/18/1975	2/1/1978	5/4/2009
170005	Village of Tamms	Participating	Not rated	5/10/1974	5/25/1984	5/4/2009

https://www.fema.gov/cis

IDNR Acting NFIP State Coordinator: Marilyn Sucoe, P.E., CFM Marilyn.Sucoe@Illinois.gov

Special Flood Hazard Area

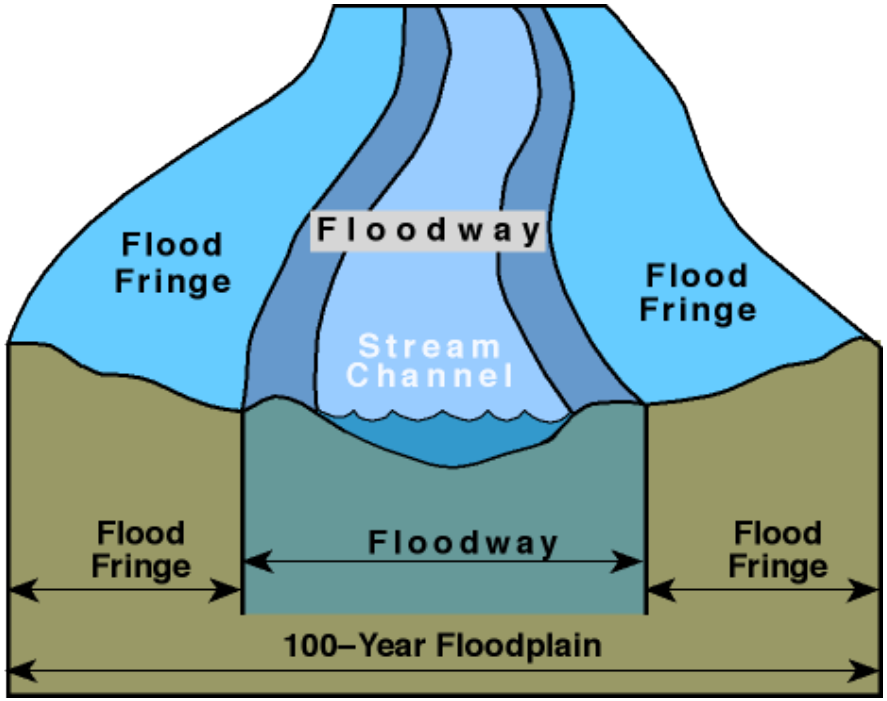
The FEMA Special Flood Hazard Area (SFHA) zone type designation is related to the method and level of hydraulic analysis performed.
Riverine hydraulic analysis typically results in SFHA designation as **Zone A** or **Zone AE,** based on the analysis level deemed appropriate for the study area.

Zone A	Areas subject to inundation by the 1-percent-annual-chance flood event. **NO** Base Flood Elevations are shown.
Zone AE	Areas subject to inundation by the 1-percent-annual-chance flood event. Base Flood Elevations **ARE** shown.

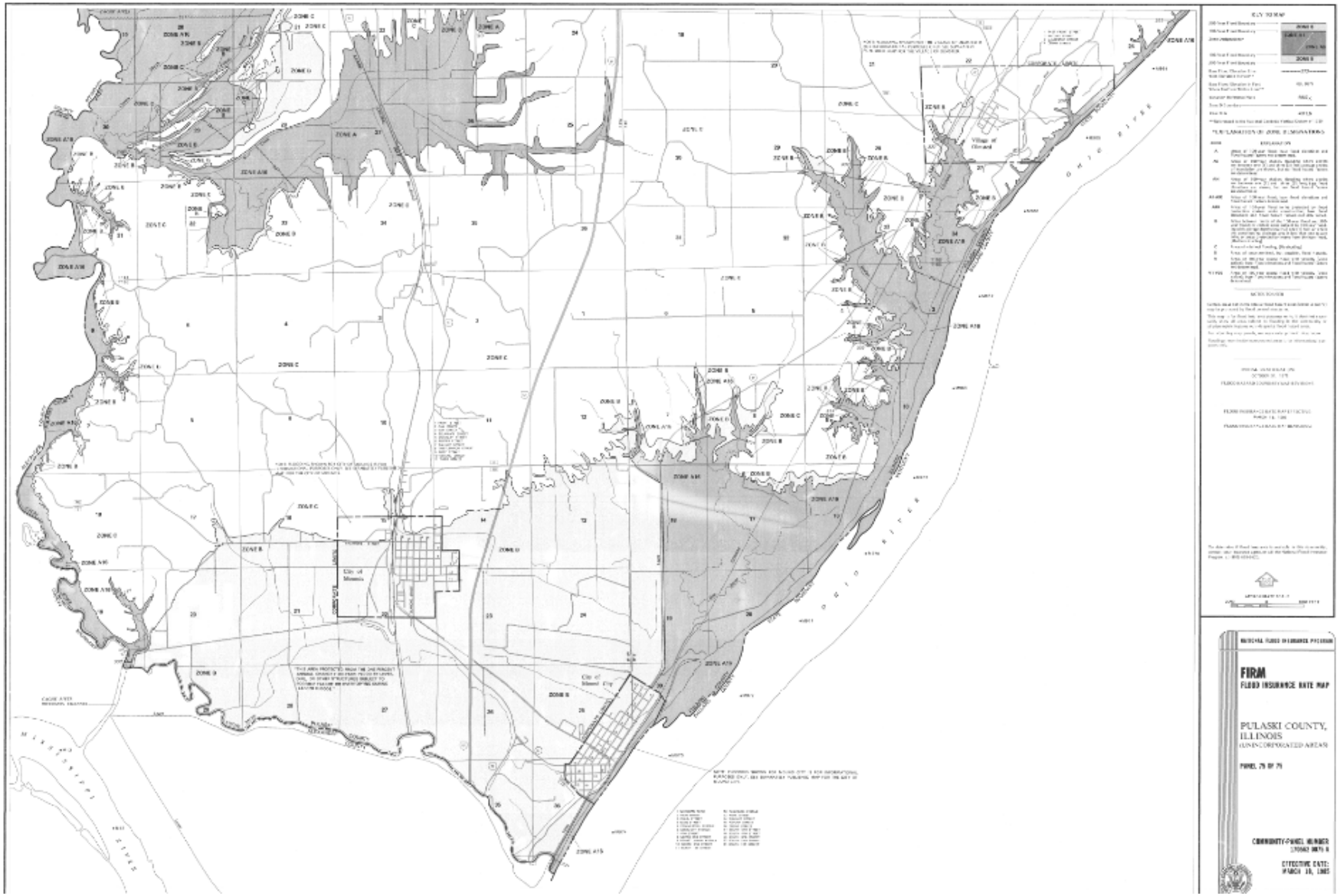
The Base Flood Elevation (BFE) is the elevation of surface water resulting from a flood that has a 1% chance of equaling or exceeding that level in any given year.

Floodway
Zone AE

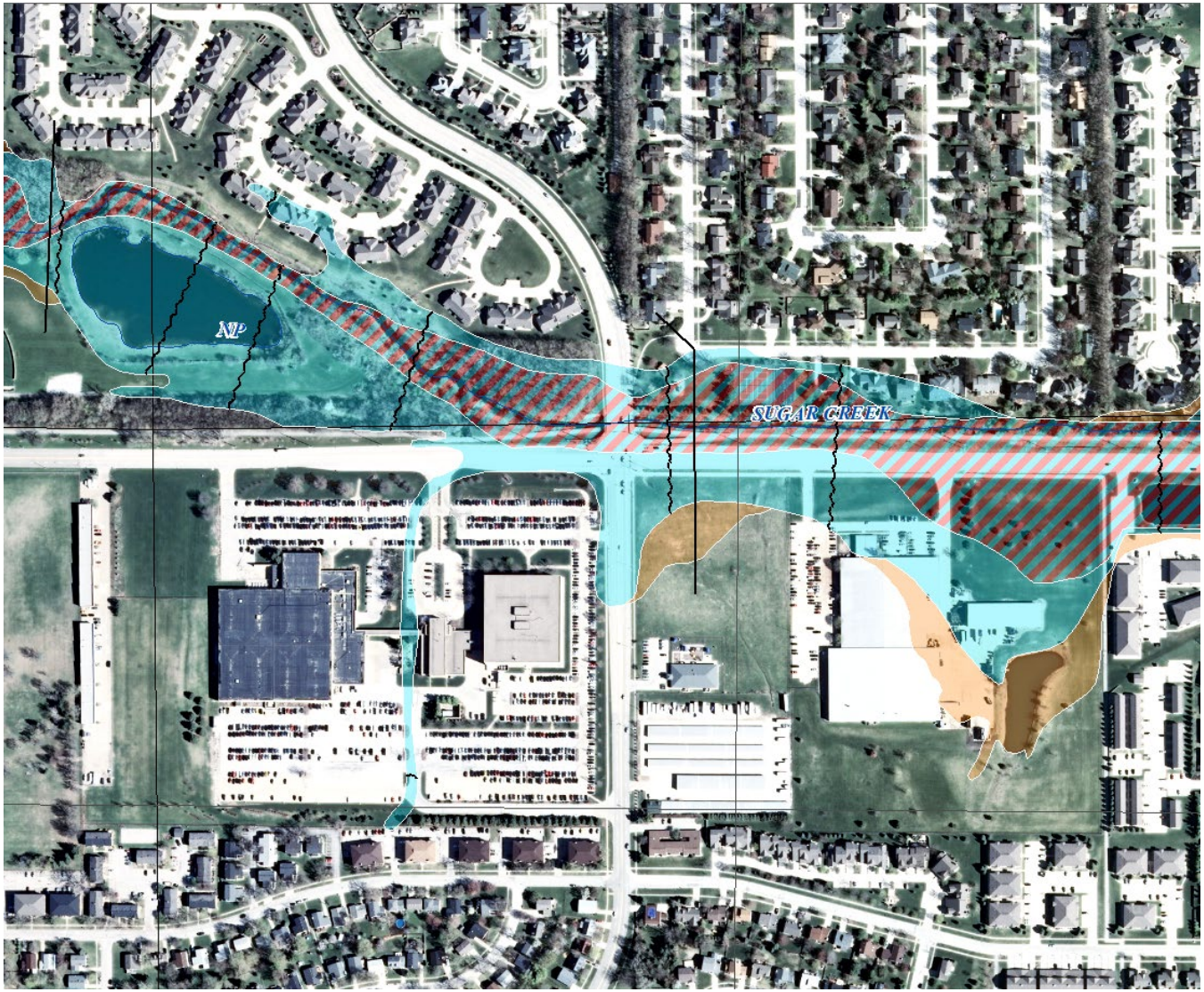
The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1%-annual-chance flood can be carried without substantial increases in flood heights.



Effective Paper FIRM (FHBM)



Paper Map to Digital Map



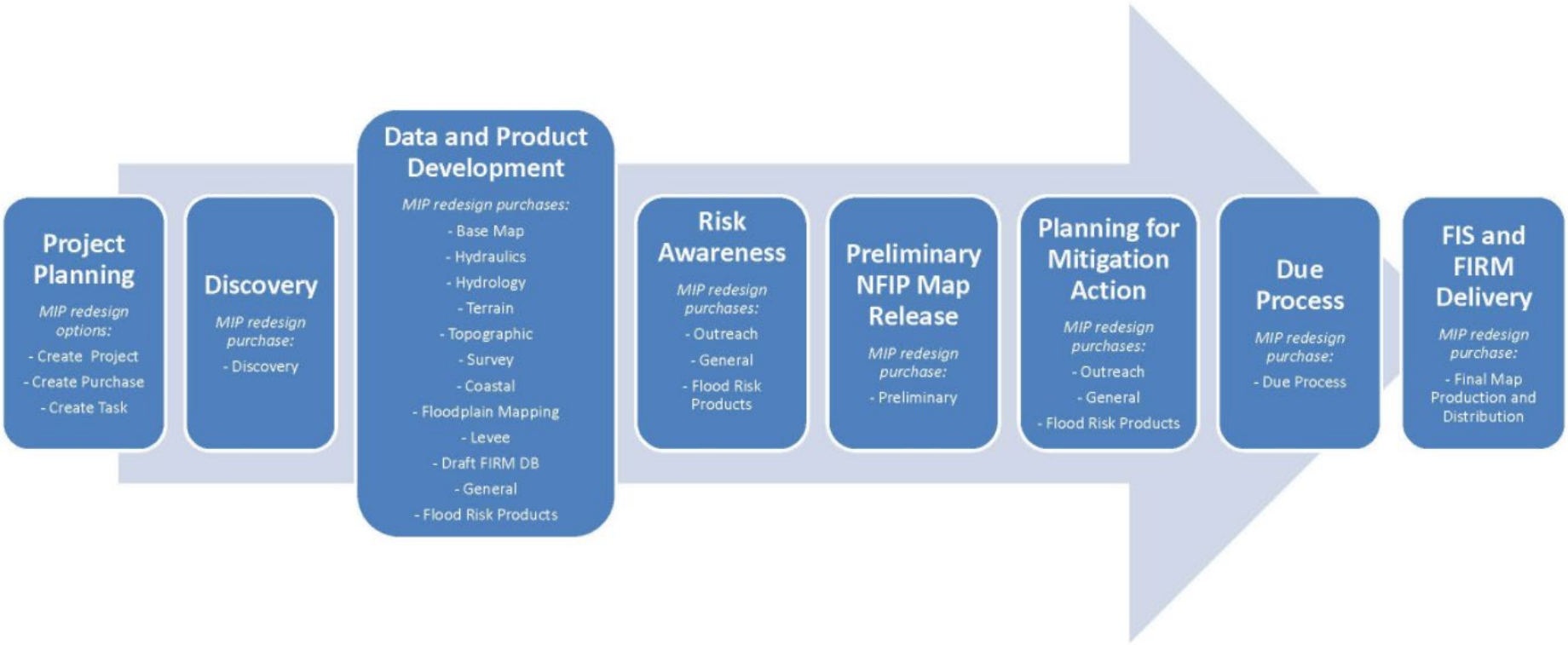
Community Impact

Ways New Floodplain Maps Can Affect a Community:

1. Can affect which residents are required to carry flood insurance
2. Depicts areas of community which are subject to floodplain management regulations
3. Can affect community planning and flood mitigation

Project Objectives

FEMA National Objectives



Project Objectives

- Update Hydrologic and Hydraulic Analyses of Flood Risk for Select Streams
- Digital Floodplain Maps for Pulaski, Johnson, Pope, and Massac Counties
  - Current paper maps were last updated in 1983-1985 for most areas in these counties
- Update select Digital Floodplain Maps for Alexander County
  - Address Provisionally Accredited Levee (PAL) Notice which Expired on January 24, 2010

Project Scope

Project Scope

- Develop New Floodplain Studies
  - Interior Gravity Drainage – Cairo Vicinity Leveed Areas
    - Cottonwood Slough
    - Remnant Cache River
    - Hess Bayou and Tributaries
  - Interior Gravity Drainage – Ketchell Creek near Karnak
  - Riverine Flooding- Hodges Creek near Olmsted
  - Riverine Flooding – Cache River Valley (5 County Study)
  - Ohio River Redelineation
- Develop Draft Floodplain Mapping Workmaps
- Community Outreach and Engagement
- Complete Digital Flood Insurance Rate Maps (Later Phase)

Proposed Engineering Methods

Hydrology – Determine 1%-Annual-Chance (100-Year) stream **flows**

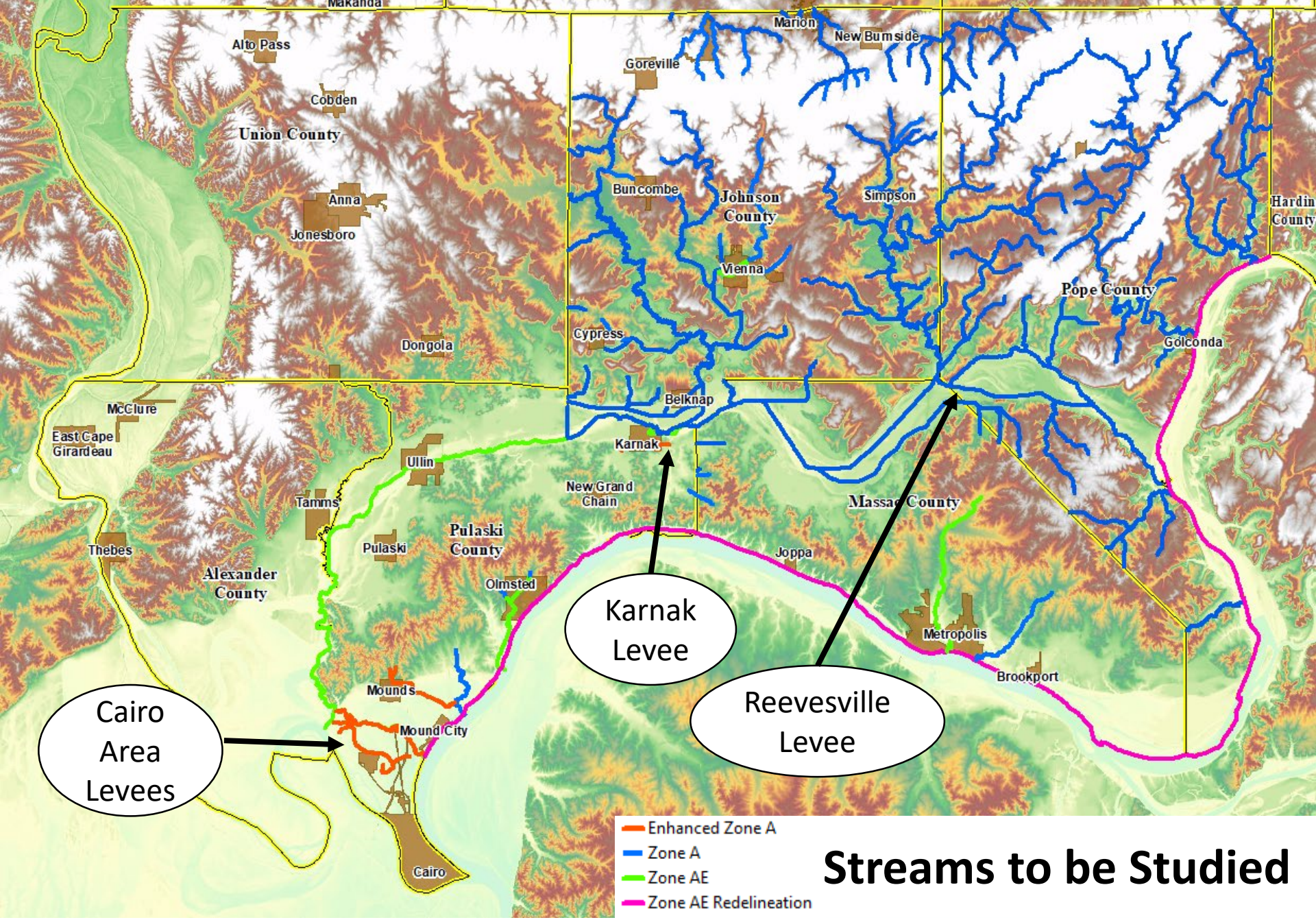
- USGS Regression Equations
- HEC-HMS Rainfall Runoff Modeling
- HEC-RAS Rain-on-Grid

Hydraulics – Determines 1%-Annual- Chance (100-Year) flood **elevations**

- Zone AE: HEC-RAS Hydraulic Models
- Zone A: HEC-RAS Hydraulic Models

Topography- Determines 1%-Annual-Chance (100-Year) floodplain **extents**

- Alexander County – 2009 Countywide LiDAR
- Pulaski County – 2012 Countywide LiDAR



Streams to be Studied

FEMA Levee Status

Cairo Area Levees

- Levee is delineated with a Provisionally Accredited Levee (PAL) Notice
  - PAL Expired January 24, 2010
- Interior Gravity Drainage Study underway by ISWS
- No pumping capacity or seepage studies are part of the Scope of Work

Reevesville Levee

- Levee is non-accredited
- Hydrologic Control for the Cache River Valley

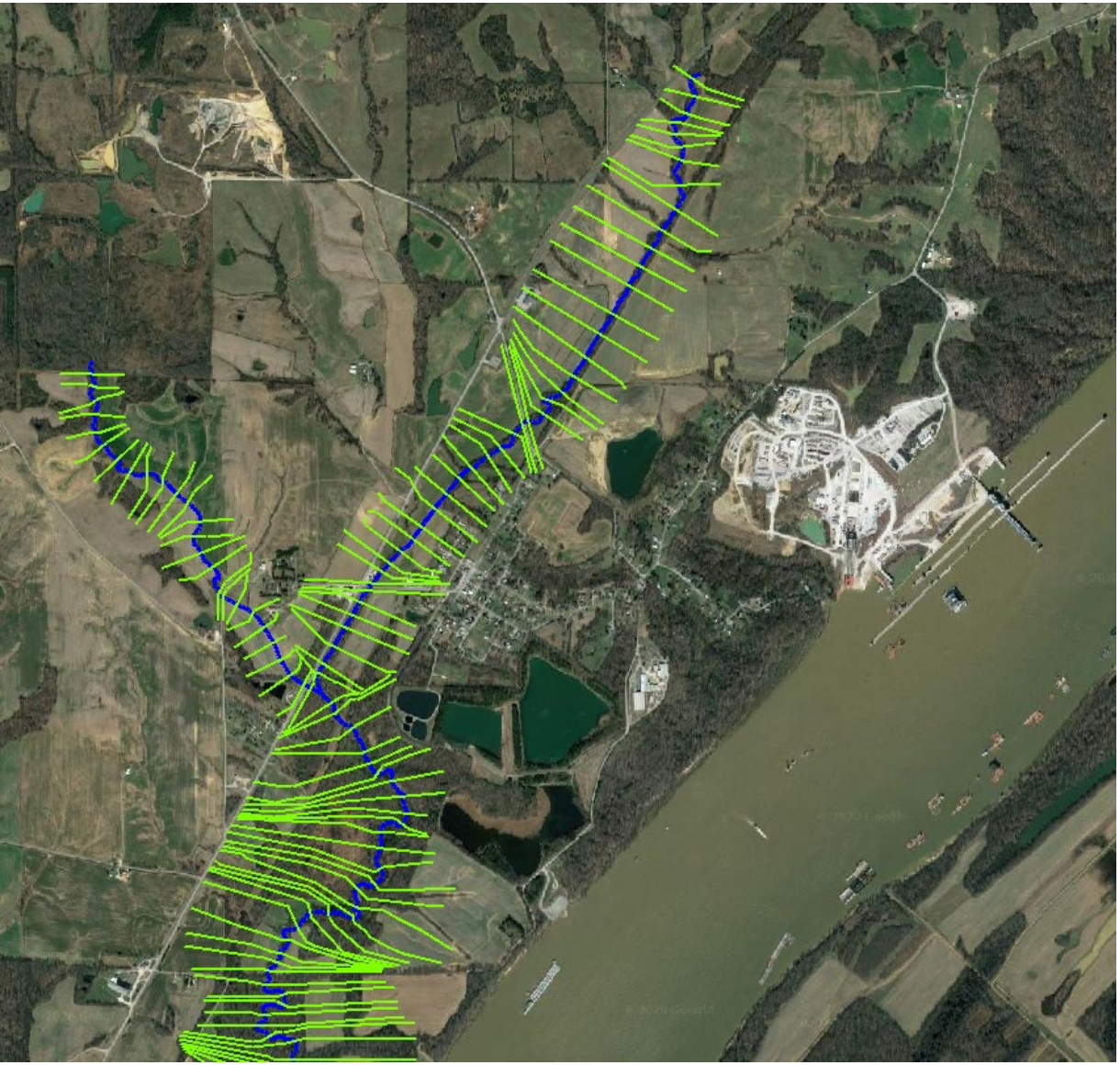
Cache River (Karnak) Levee

- Levee is non-accredited
- Currently in a breached condition
- Levee repairs are expected in late 2021
- Not anticipated that accreditation will be pursued
- Levee controls WSEL in portions of Lower Cache and Main Ditch

Len Small Levee

- Levee is non-accredited
- Not part of the current data development, but the levee will fall on a revised panel

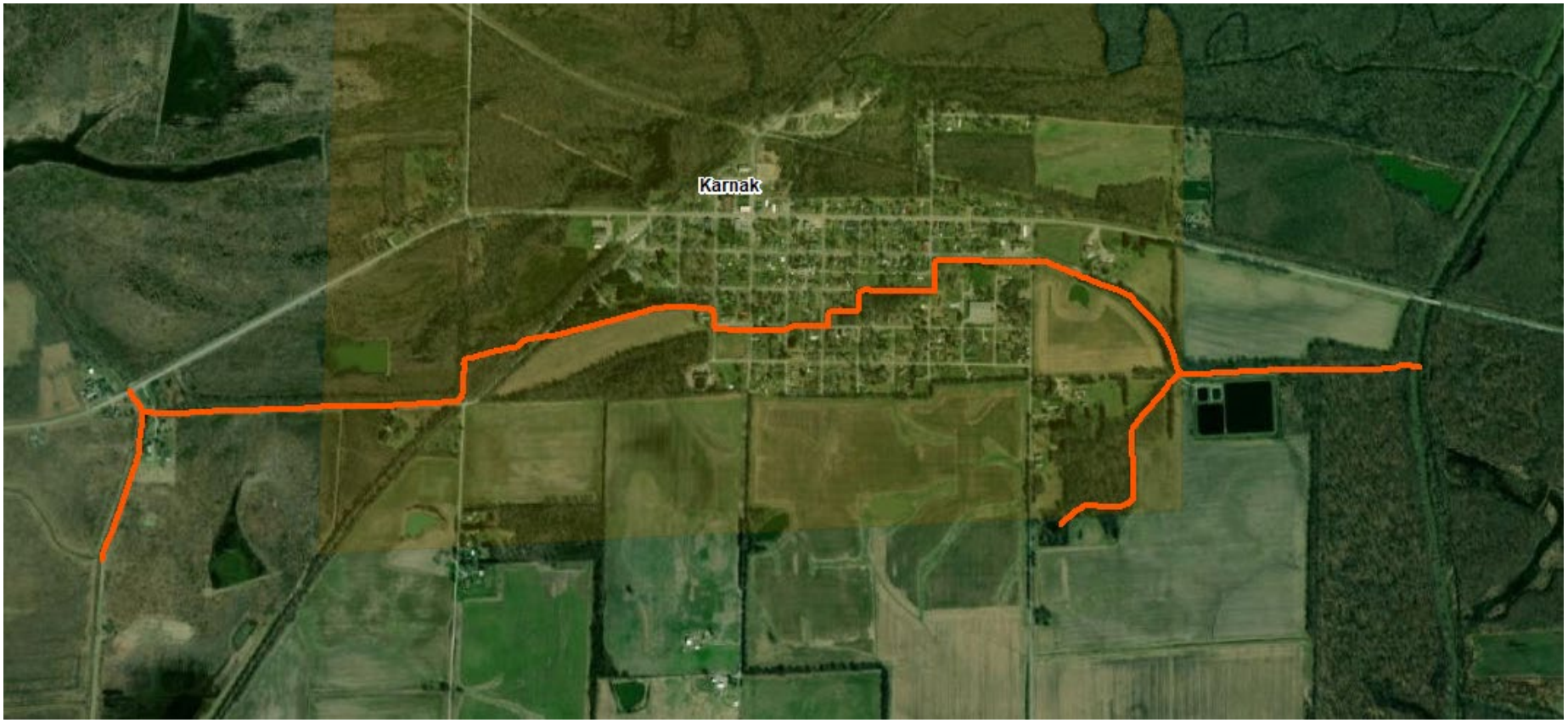
Hodges Creek and Tributary Study



Riverine Flooding Analysis near Village of Olmsted

- **Hydrology**
  - USGS Regional Regression Equations
- **Hydraulics**
  - Field Survey of Hydraulic Structures
  - 1-Dimensional Steady State HEC-RAS
  - Floodway determination near the Village of Olmsted

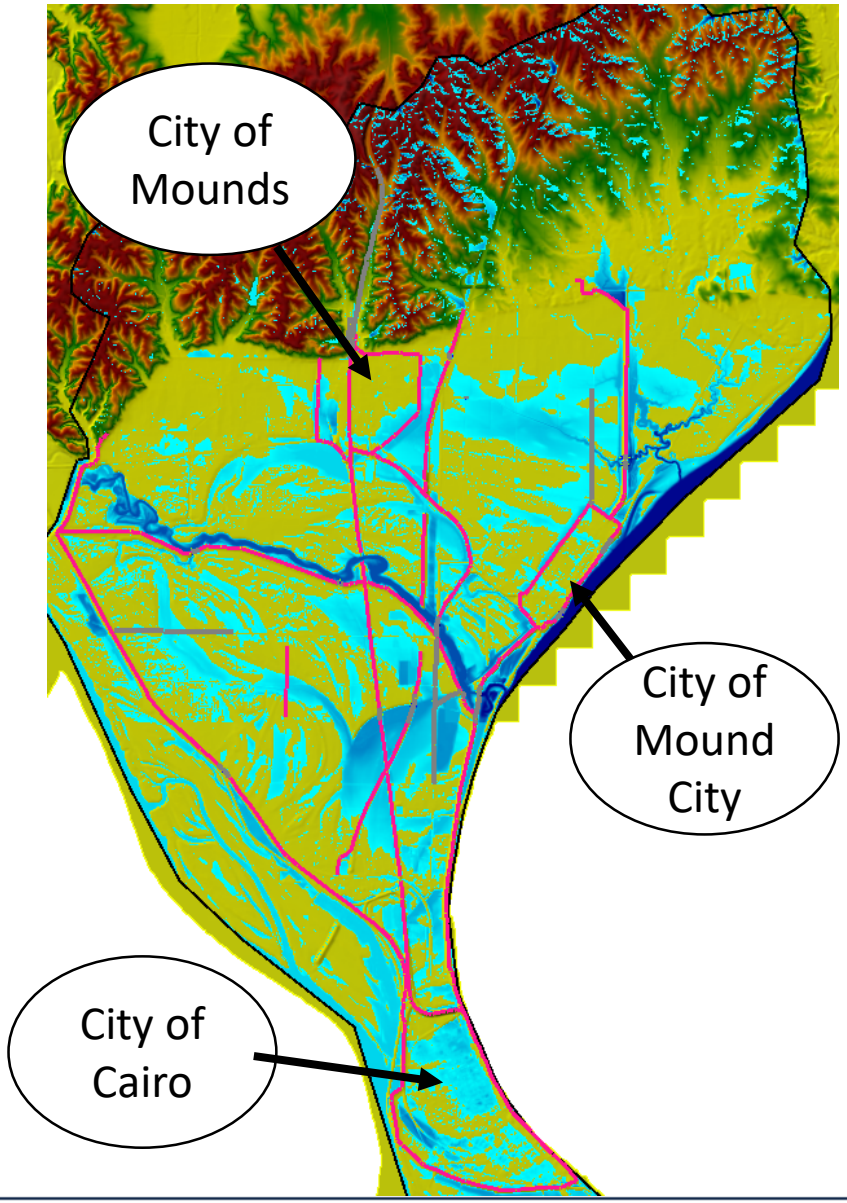
Ketchell Creek and Tributary Study



Interior Gravity Drainage Study near Village of Karnak

- **Hydrology**
  - USGS Regional Regression Equations, USACE HEC-HMS, or HEC-RAS 2D
- **Hydraulics**
  - IDNR Field Survey of Hydraulic Structures
  - USACE HEC-RAS 1D or 2D

Cairo Area Levee Interior Drainage Study



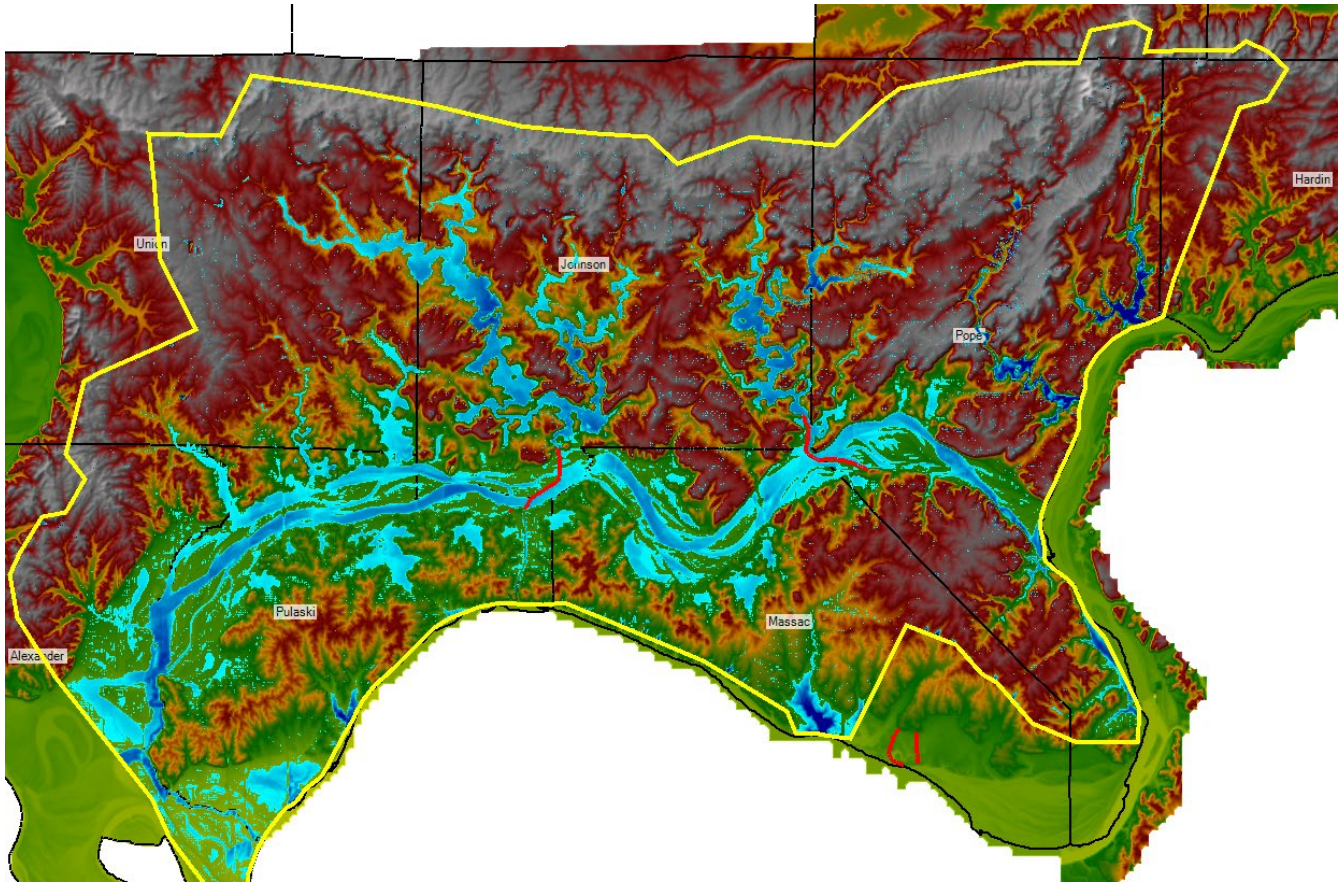
Gravity Drainage Only

- 2D rain on grid modeling
- Critical Duration Analysis
- Structural information regarding gravity drains provided by USACE
- Field survey of topographic and structural controls within the drainage area

ISWS study does not include:

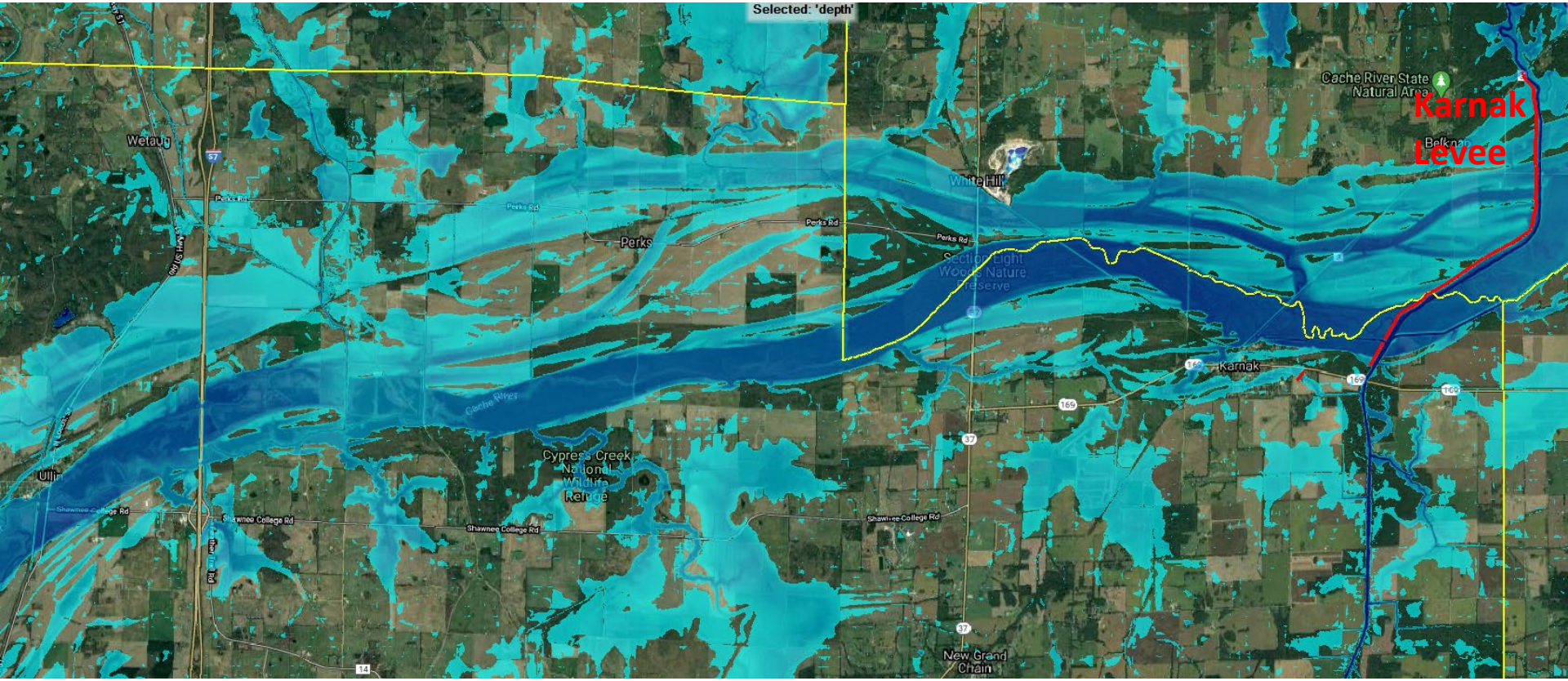
- Seepage
- Pumping Capacity

Cache River Valley Study

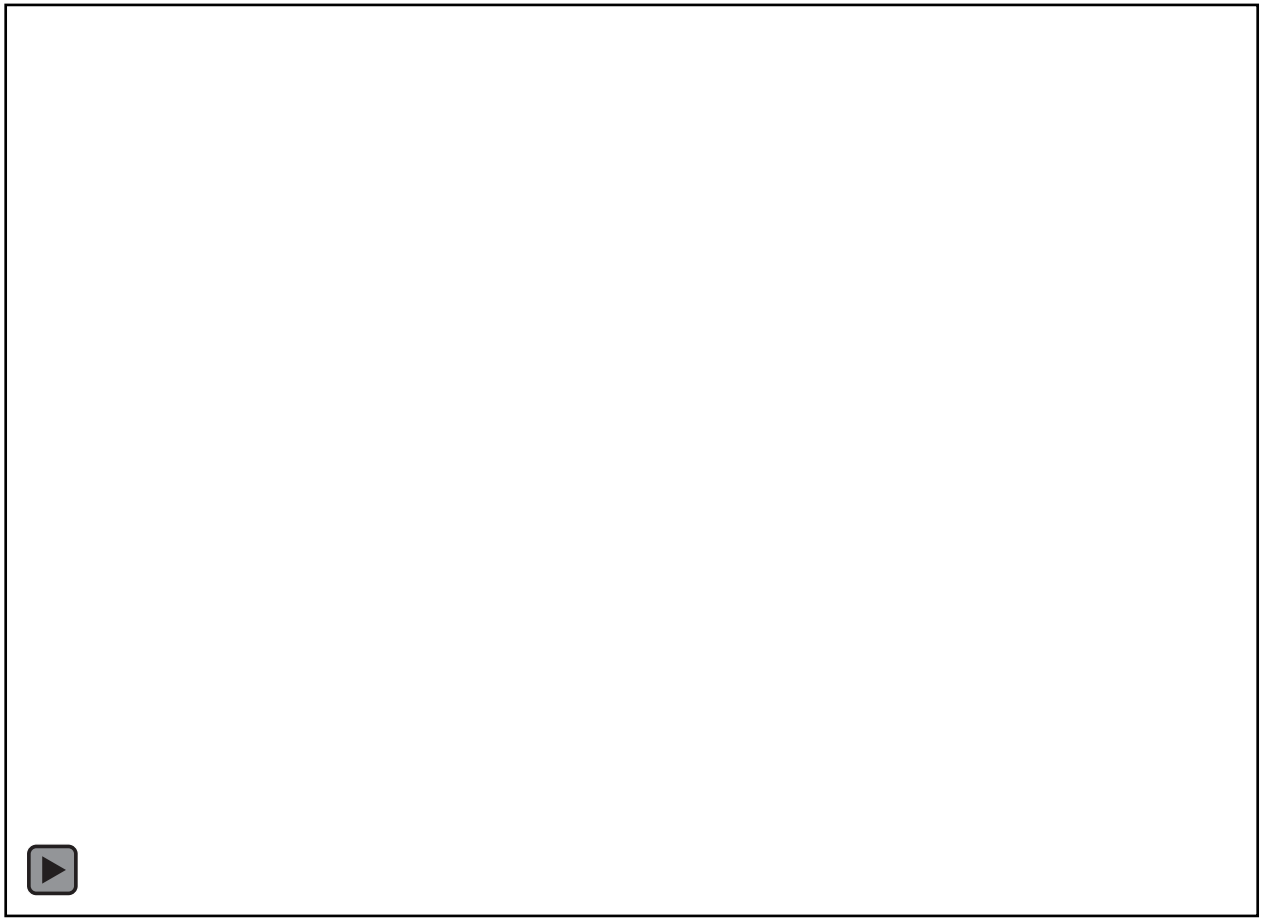


- 2-Dimensional, Unsteady State HEC-RAS
- Rain-on-Grid

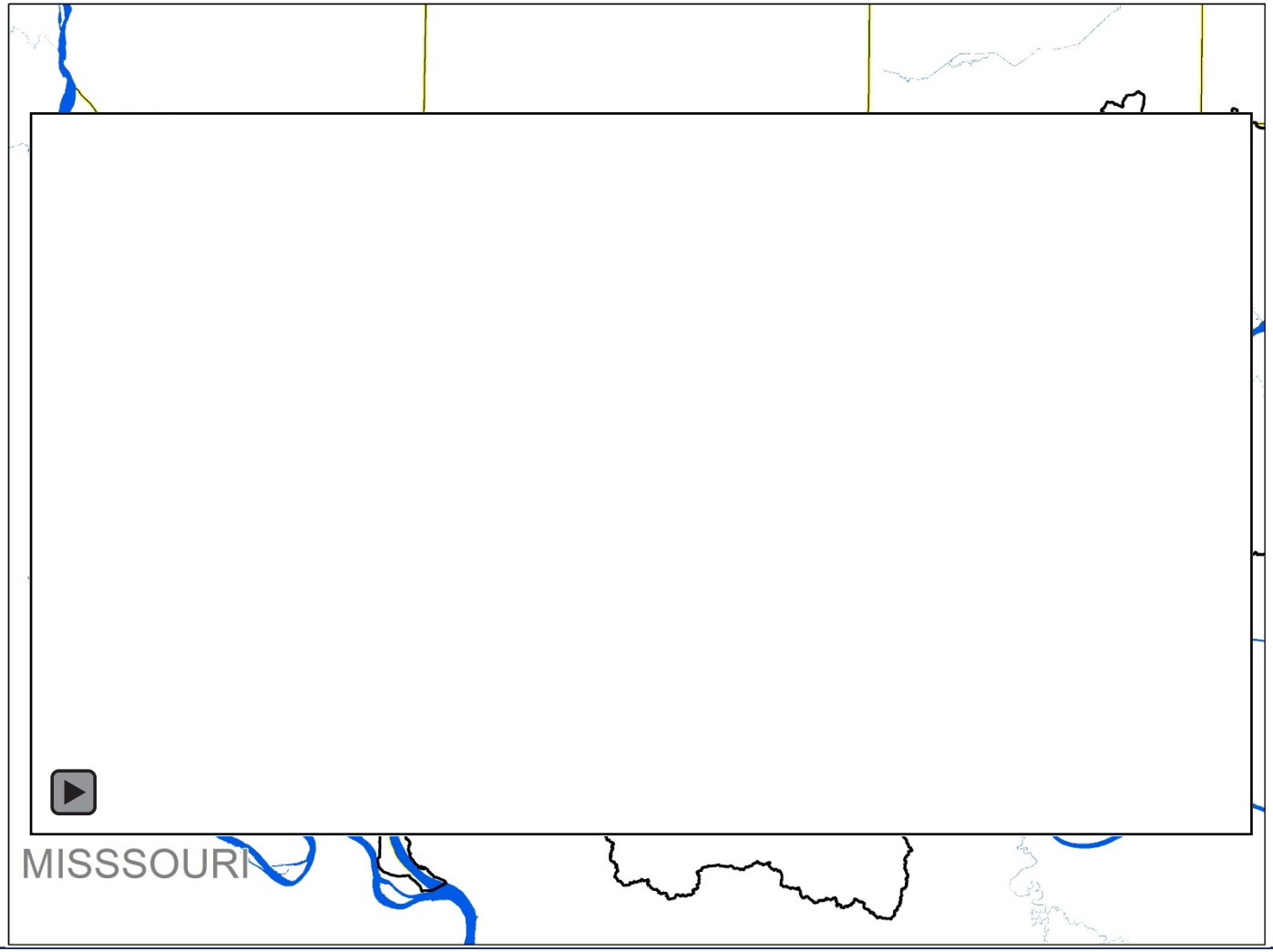
Lower Cache


Selected: 'depth'
Karnak
Levee
Wetaug
Perks
White Hill
Karnak
Cypress Creek National Wildlife Refuge
Ullin
New Grand Chain

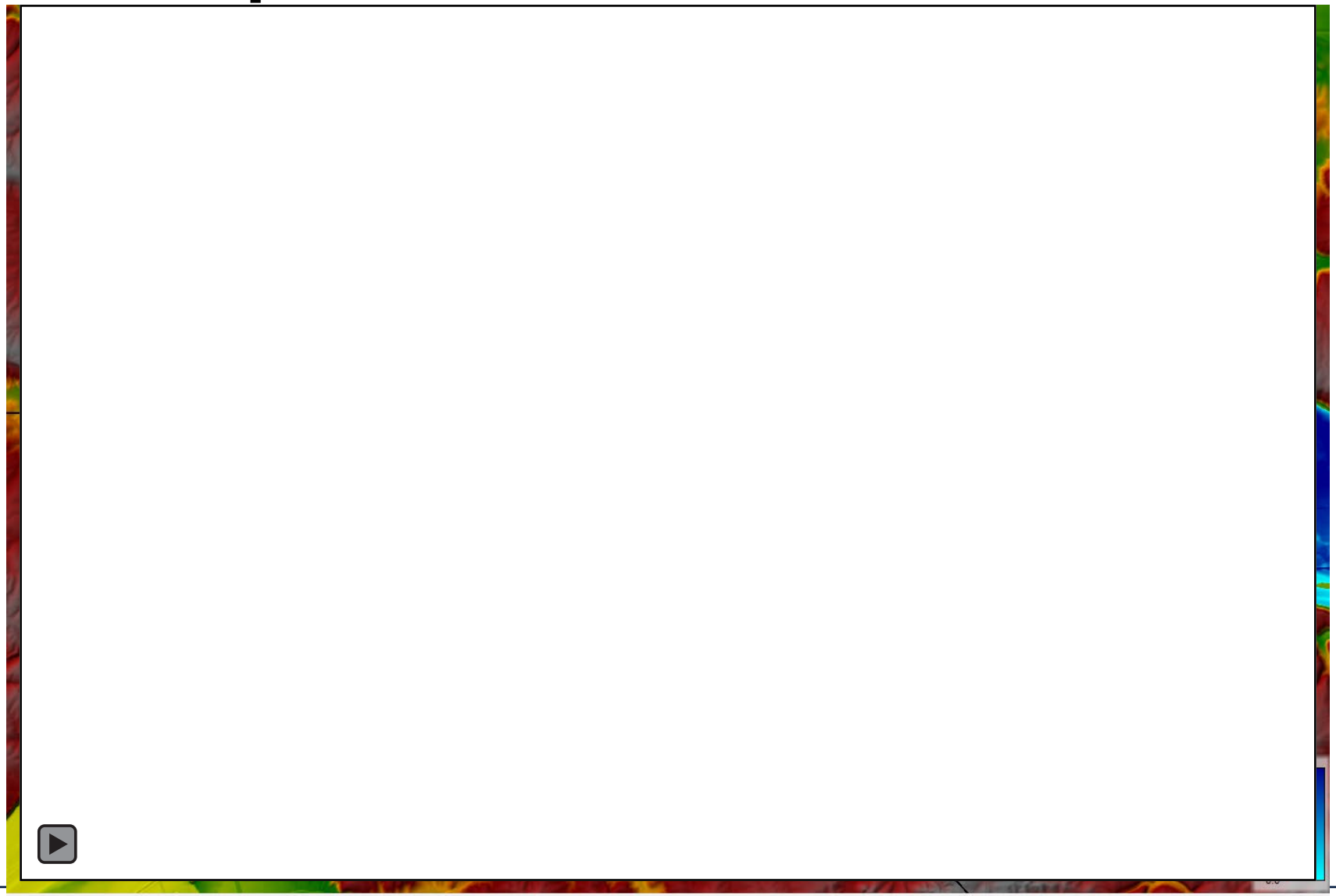
Impact of Karnak Levee



2-D Analysis Capabilities
Aerial Imagery Comparison
Karnak levee Breach and Post Creek Cutoff



Impact of Reevesville Levee



Project Communication

Communication Plan

Notification of Engineering Methods Letters (SID 620)

- Includes study area map, table of engineering methods, brief explanation of project, and contact information
  - Alexander and Pulaski Counties – Complete Spring 2020
  - Johnson, Pope, and Massac to follow Project Initiation Meeting

30 Day Comment Period on Engineering Methods

- Alexander and Pulaski Counties – Complete Spring 2020
- Johnson, Pope, and Massac to follow Project Initiation Meeting

Project Initiation Meeting/Coordination Calls

- April 2021
  - Alexander and Pulaski Counties Call
  - Johnson, Pope, and Massac Counties Call

Flood Risk Review Meetings

- Alexander and Pulaski Counties targeting 4th Quarter 2022
- Johnson, Pope, and Massac Counties – TBD following Alexander/Pulaski

Flood Risk Review Meeting

- A technical meeting to review *draft* workmaps with community officials, engineers, and floodplain managers. Public meetings will be held later in the project.

- The meeting initiates a 30-day comment period for communities to provide feedback on the *draft* floodplain mapping.

Data Submission Notification
FEMA Standard ID 621

- Mailed to community CEOs, Floodplain Administrator, Community Engineer
- Makes community aware the data collection and analysis phase of the project is concluding, and Flood Insurance Rate Map (FIRM) database is being validated by FEMA
- Gives communities 30 days to comment on the data in the FIRM database

Regulatory Mapping Updates (Future Projects)

Countywide Regulatory Map Updates
(Anticipated FY2023-2024)

- Pulaski, Johnson, Pope, and Massac Counties
  - Paper Inventory Reduction Projects
  - Dependent on formal resolution of:
    - Cache River (Karnak) Levee Accreditation Status
      Reevesville Levee Accreditation Status

Physical Map Revision (Anticipated FY2024)

- Portions of Alexander County
  - Addresses Expired Provisionally Accredited Levee Notice
    - Expired January 24, 2010
  - Dependent on formal resolution of:
    - Cairo Area Levee Systems Accreditation Status

Project Schedule

Estimated Schedule

- Engineering Notification Letters to communities
  - ***Completed Spring 2020***
- No additional field survey work required
  - **Completed Spring 2019**
- ISWS to finish Zone A & AE floodplain studies by
  - **4th Quarter 2022**
- Flood Risk Review Meeting likely
  - ***End of 2022/beginning of 2023***
- Submit Flood Studies to IDNR for State review
- Draft Flood Insurance Rate Maps
  - ***Timeline will be set as part of subsequent project pending conclusion of Data Development***

Community Participation

Data Development
Community Participation

- Do you have data or information that we can use for the floodplain studies?
  - Flood prone areas
  - Flood photos/Drone video
  - Historic highwater marks
  - Local floodplain studies and survey data
  - Any other data or information

- Stay engaged in the process…
  - Attend meetings
  - Ask questions
  - Inform others
  - Update contact Information

- Do you have any questions about the project?

Summary

- Local Partners are critical to the project
  - Best understand their community needs
  - Can provide critical information to enhance the studies with local knowledge
- Our goal is to make managing and mitigating flood risk easier for our local partners
  - Use the latest data to update the understanding of flood risk in Alexander and Pulaski County
  - Update the tools and mapping available to assist communities in administering the NFIP locally
- Please ask questions and share your concerns
  - Communicating early and often ensures the flood risk products capitalize on local knowledge and best address local needs

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