# Johnson, Pope and Massac Counties, Illinois
# FEMA Risk MAP
# Project Initiation Coordination Call

April 27, 2021

ILLINOIS
Illinois State Water Survey
PRAIRIE RESEARCH INSTITUTE

FEMA

# Johnson, Pope and Massac Counties Floodplain Mapping Project Initiation Meeting

## Agenda

- Rollcall
- National Flood Insurance Program
- Effective Maps
- Project Objectives and Goals
- Project Scope
- Project Communication
- Project Schedule
- Community Participation

# Rollcall

**Johnson County**

- Village of Belknap
- Village of Buncombe
- Village of Cypress
- Village of Goreville
- Village of New Burnside
- Village of Simpson
- City of Vienna*
- Johnson County*

**Massac County**

- City of Brookport*
- Village of Joppa*
- City of Metropolis*
- Massac County*

**Pope County**

- Village of Eddyville
- Village of Hamletsburg
- City of Golconda*
- Pope County

- IDNR/OWR
- FEMA
- IEMA
- USACE
- Anyone else

* Participate in NFIP

# 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.

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

# Effective Maps

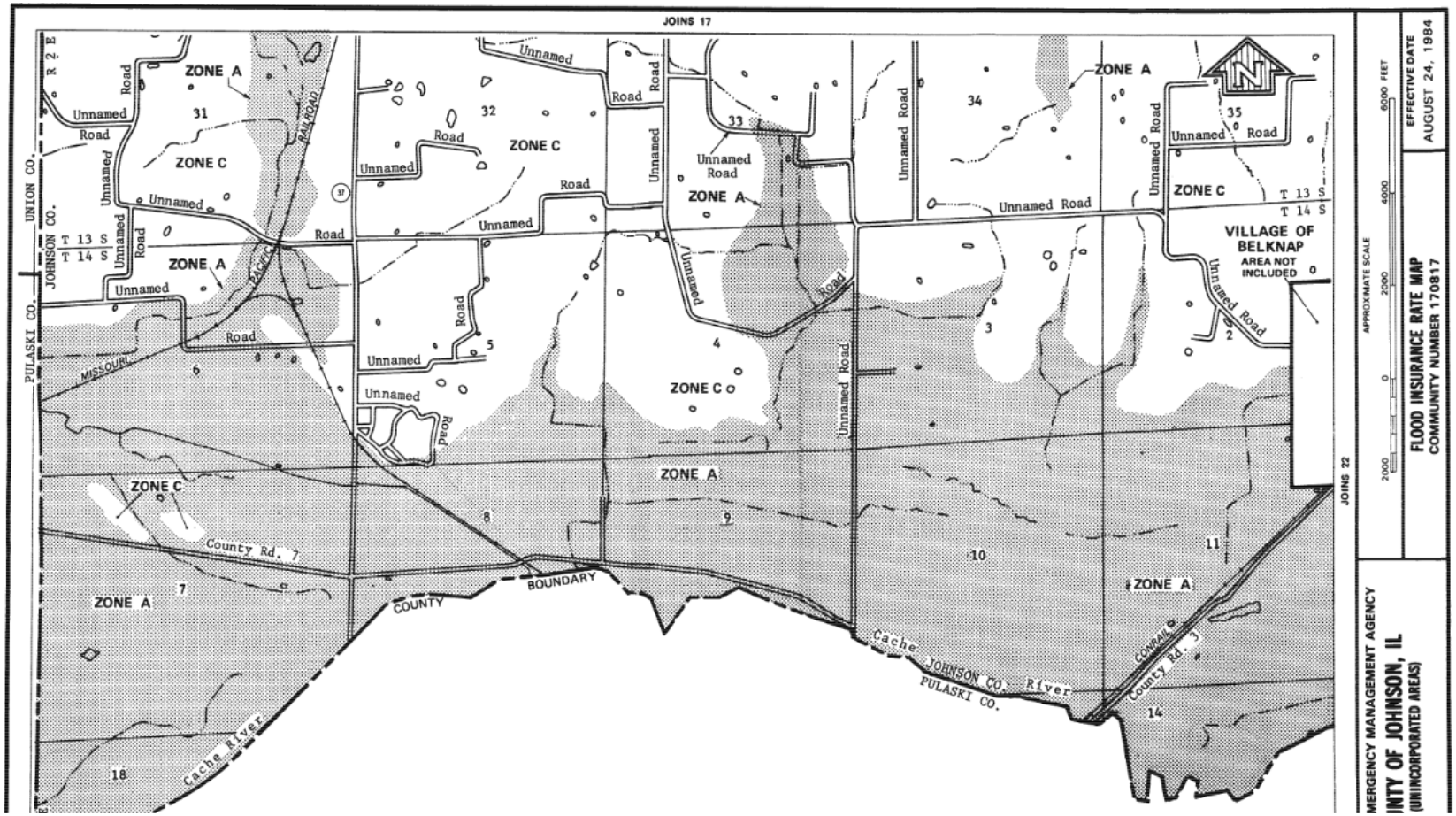
# Special Flood Hazard Area

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.

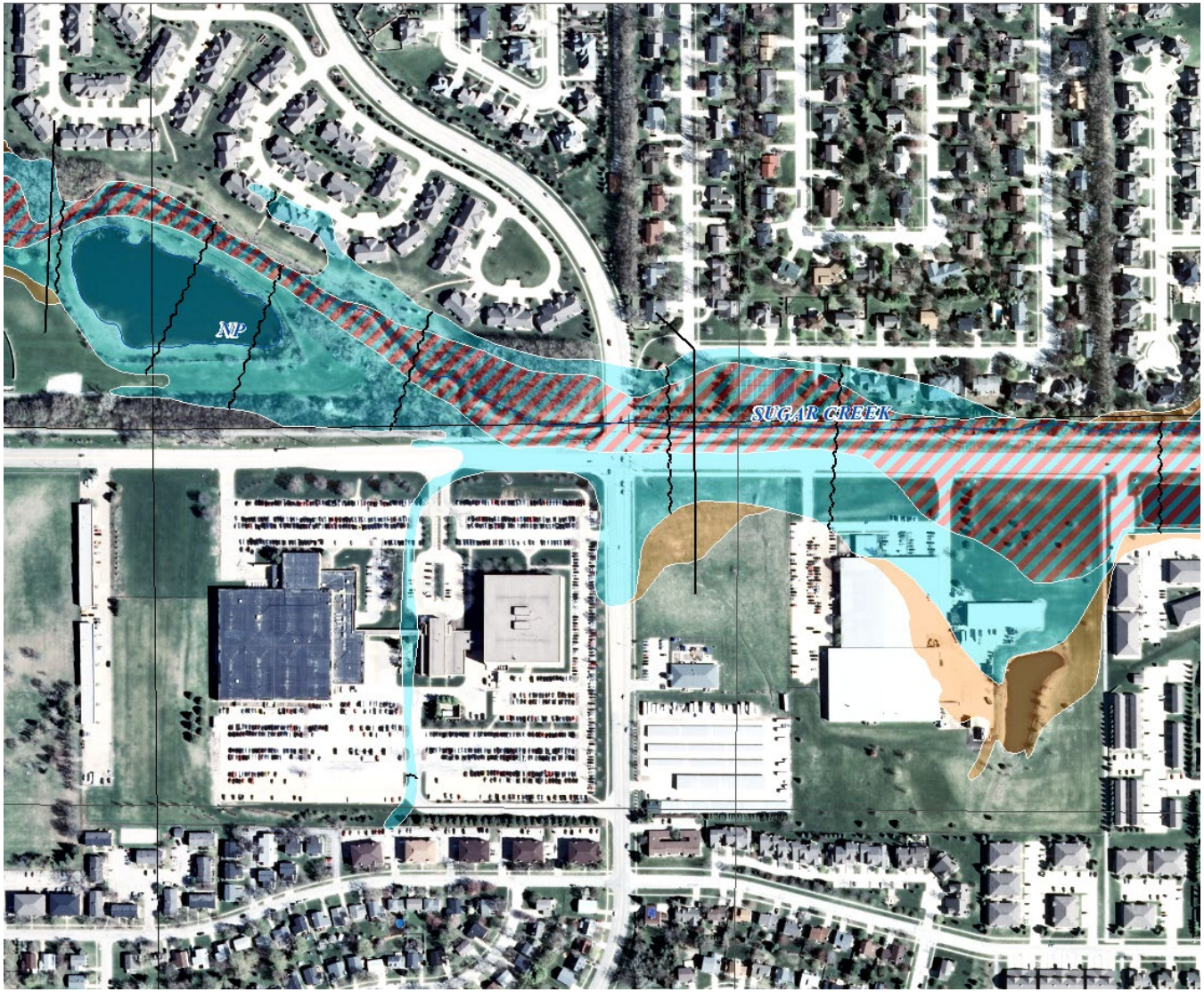
| | |
|---|---|
| **Zone A** | Areas subject to inundation by the 1-percent-annual-chance flood event.<br>**NO** Base Flood Elevations are shown. |
| **Zone AE** | Areas subject to inundation by the 1-percent-annual-chance flood event.<br>Base Flood Elevations **ARE** shown. |

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.

# Effective Paper FIRM



# Paper Map to Digital Map



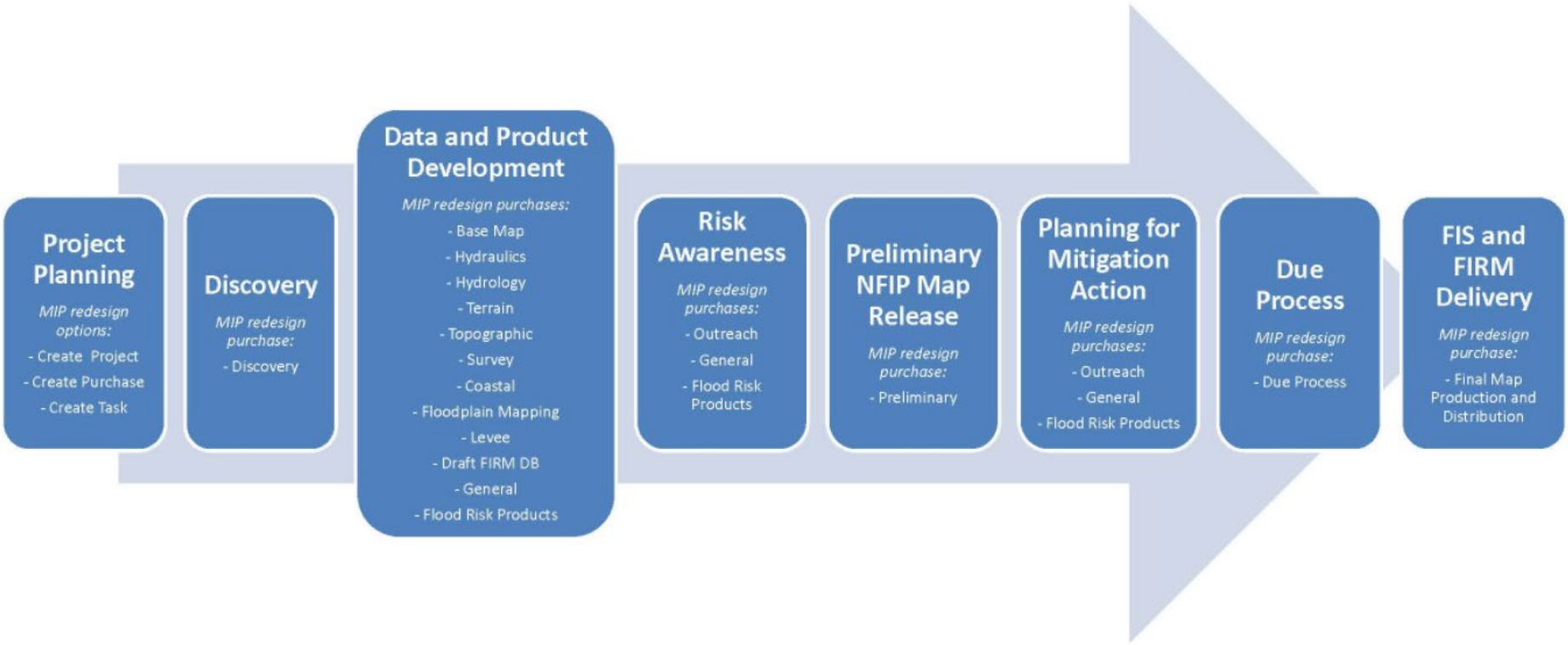
# Community Impact

**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 and Goals

# FEMA National Objectives



# Project Objective

- Digital Floodplain Maps for Johnson, Massac, and Pope Counties
  - Current paper maps dates:
    - Johnson County: 1984
    - Massac County:1983 and 2010
    - Pope County: 1983
- Develop floodplain studies to update the county floodplain maps

# Project Scope

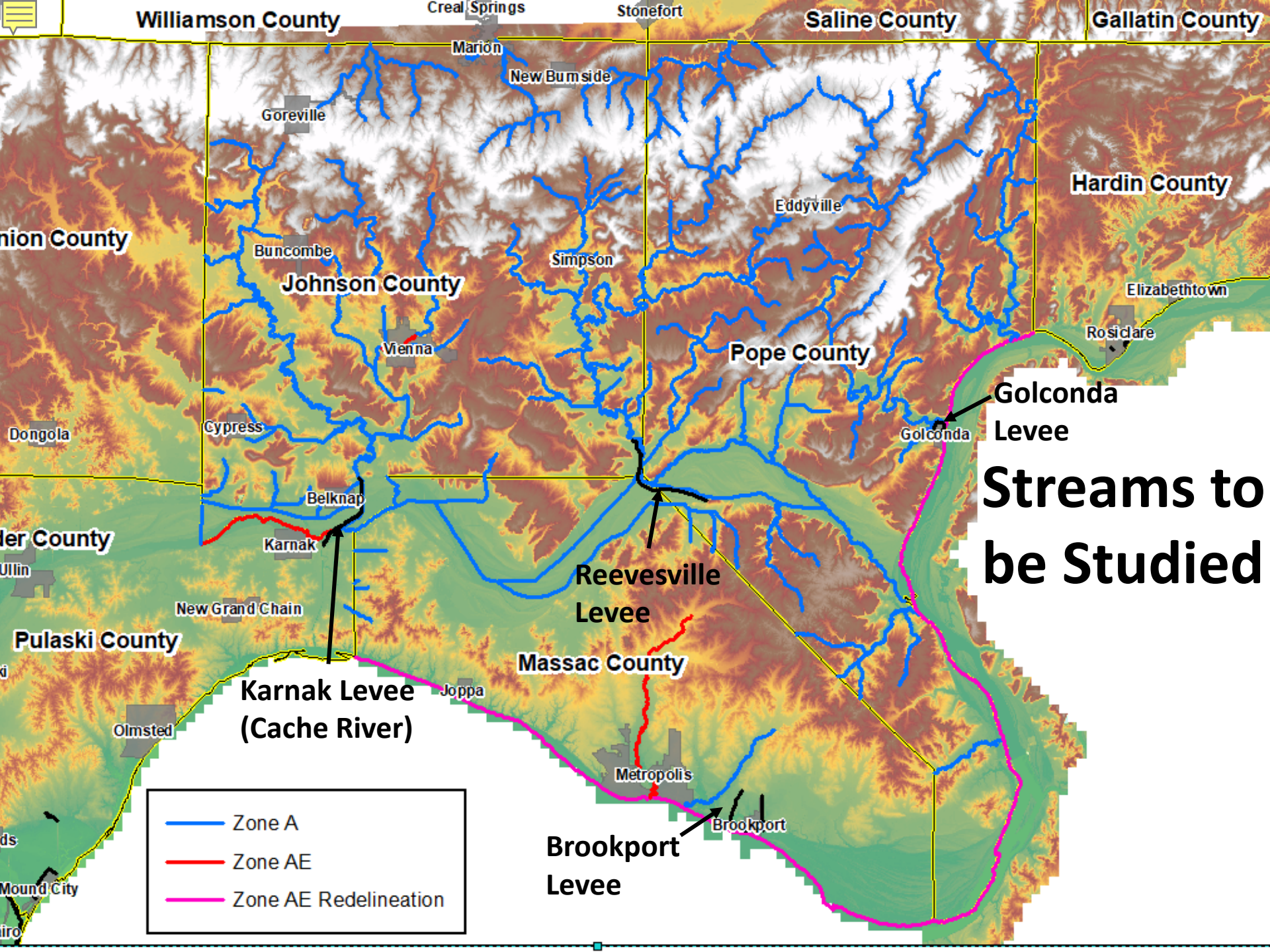
# Johnson, Massac and Pope Project Objectives

➢Develop Coordinated Floodplain Studies

- **Johnson**:
  - Zone AE: 9 miles (Cache River and Little Cache Creek)
  - Updated Zone A: 210 miles;
  - New Zone A: 34 miles
- **Pope**:
  - Redelineation Zone AE: 31 miles (Ohio River);
  - Updated Zone A: 283 miles;
  - New Zone A: 0.3 miles
- **Massac:**
  - Updated Zone AE: 11 miles (Massac Creek);
  - Redelineation Zone AE: 28 miles (Ohio River);
  - Updated Zone A: 33 miles;
  - New Zone A: 8 miles

➢Draft model and workmap

For the next phase, to incorporate resulting floodplain delineations into a countywide digital Flood Insurance Rate Map (FIRM).


Williamson County
Creal Springs
Stonefort
Saline County
Gallatin County
Marion
New Burnside
Goreville
Hardin County
Eddyville
Buncombe
Simpson
Johnson County
Elizabethtown
Rosiclare
Vienna
Pope County
Golconda Levee
Dongola
Cypress
Golconda
Streams to be Studied
Belknap
Karnak
Reevesville Levee
New Grand Chain
Pulaski County
Massac County
Karnak Levee (Cache River)
Joppa
Olmsted
Metropolis
Brookport
Brookport Levee
Zone A
Zone AE
Zone AE Redelineation

# Proposed Engineering Methods

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

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

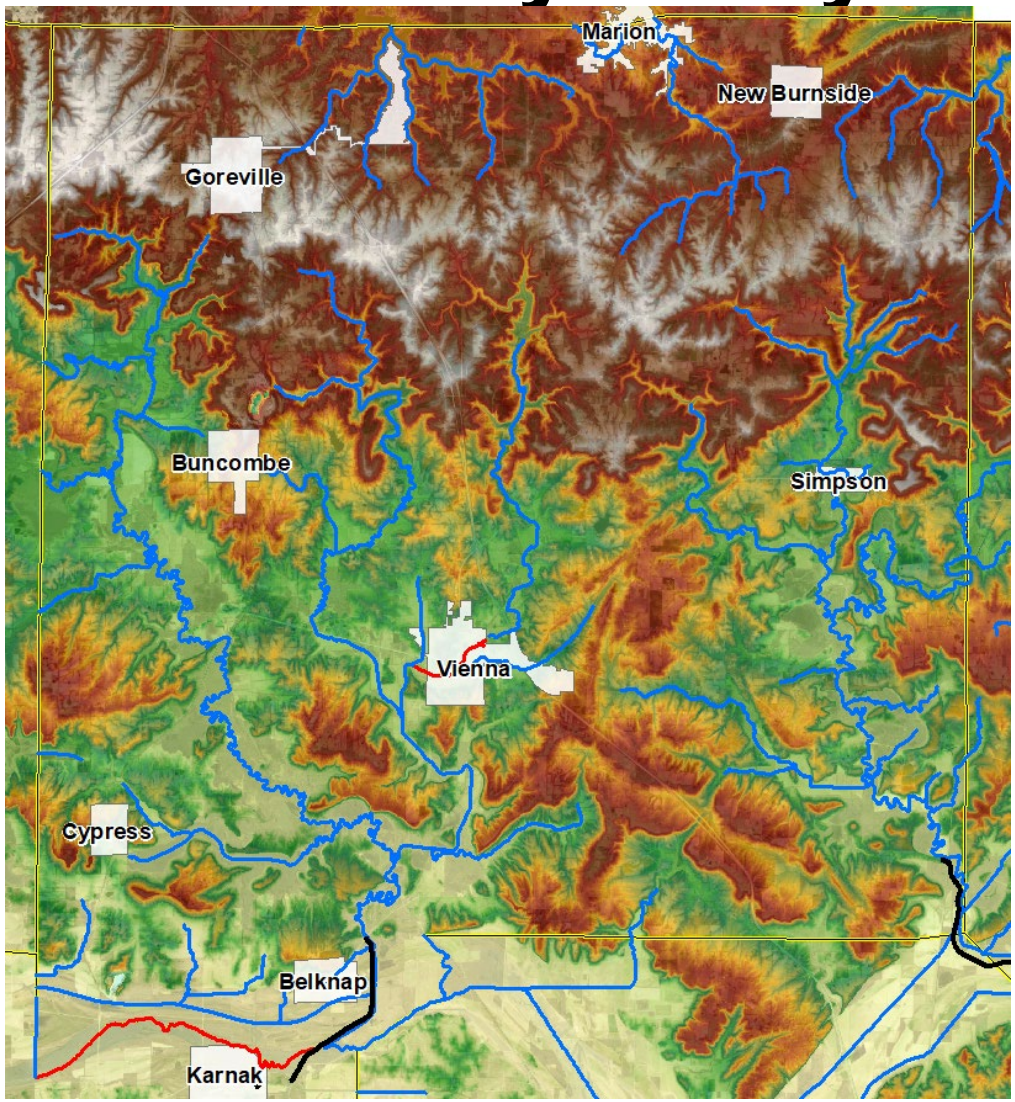
Hydraulics – Determines 1%-Annual- Chance (100-Year) flood **elevations**

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

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

- Johnson County – 2011 Countywide LiDAR
- Massac County – 2011 Countywide LiDAR
- Pope County – 2014 Countywide LiDAR

# Johnson County Study Streams



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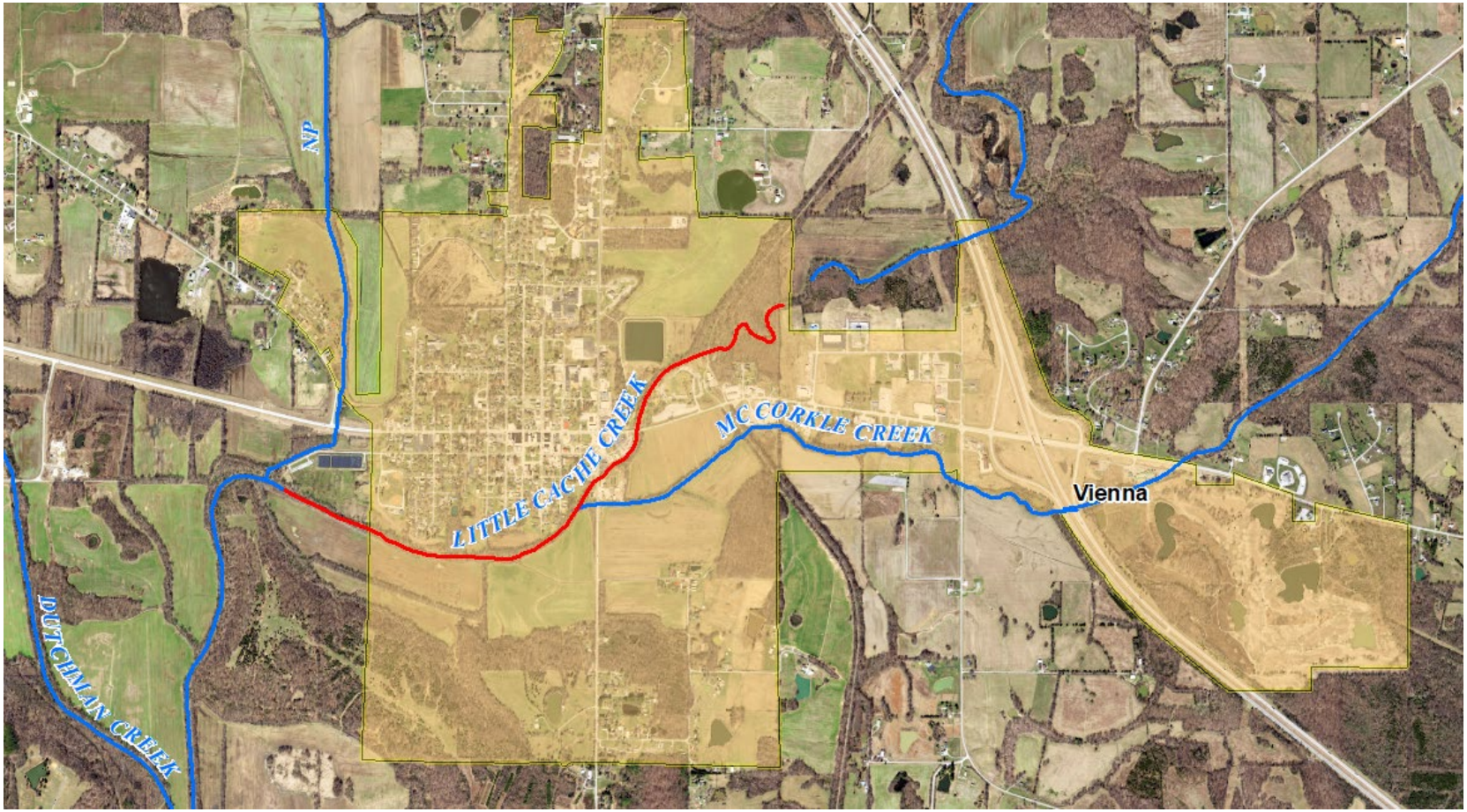
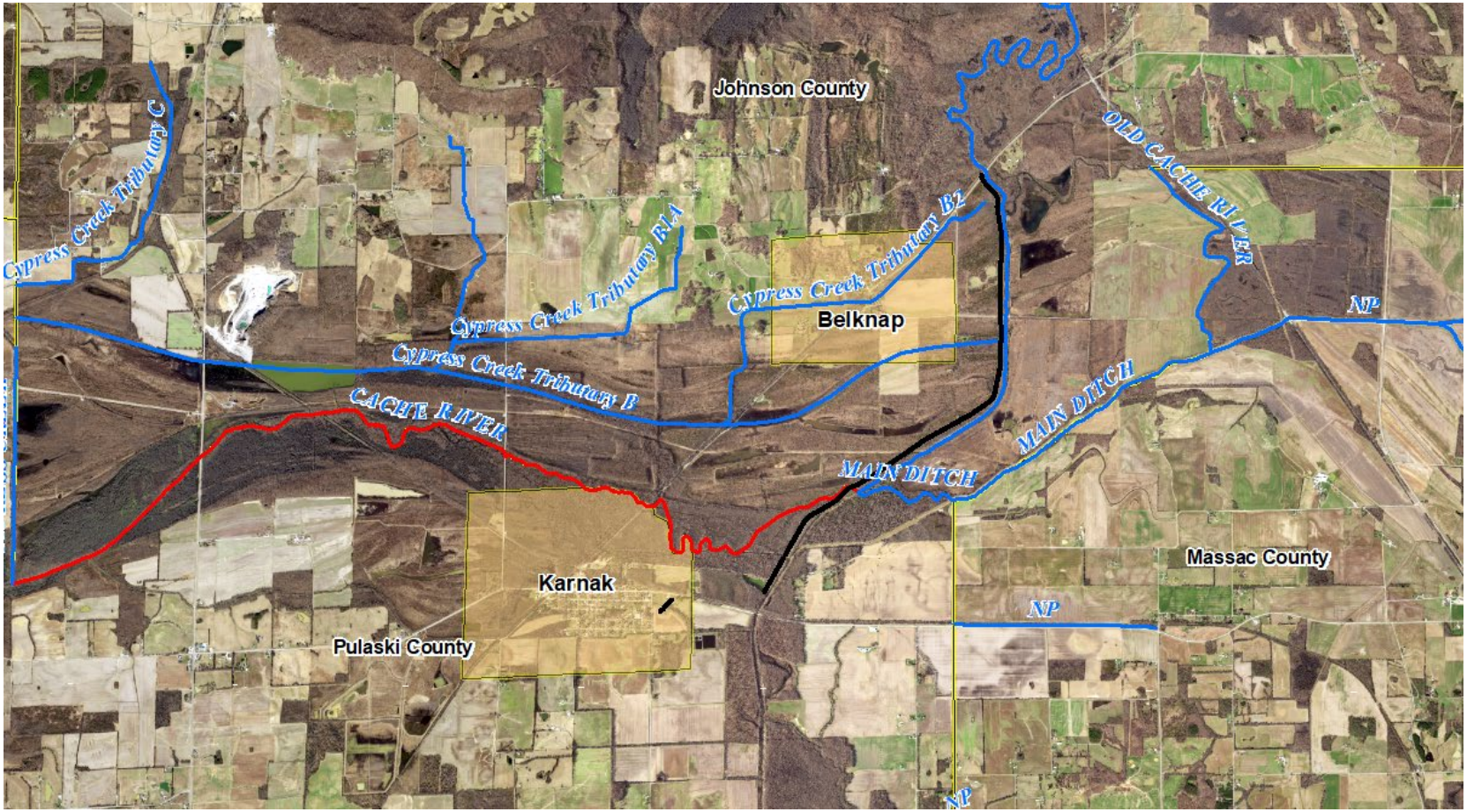
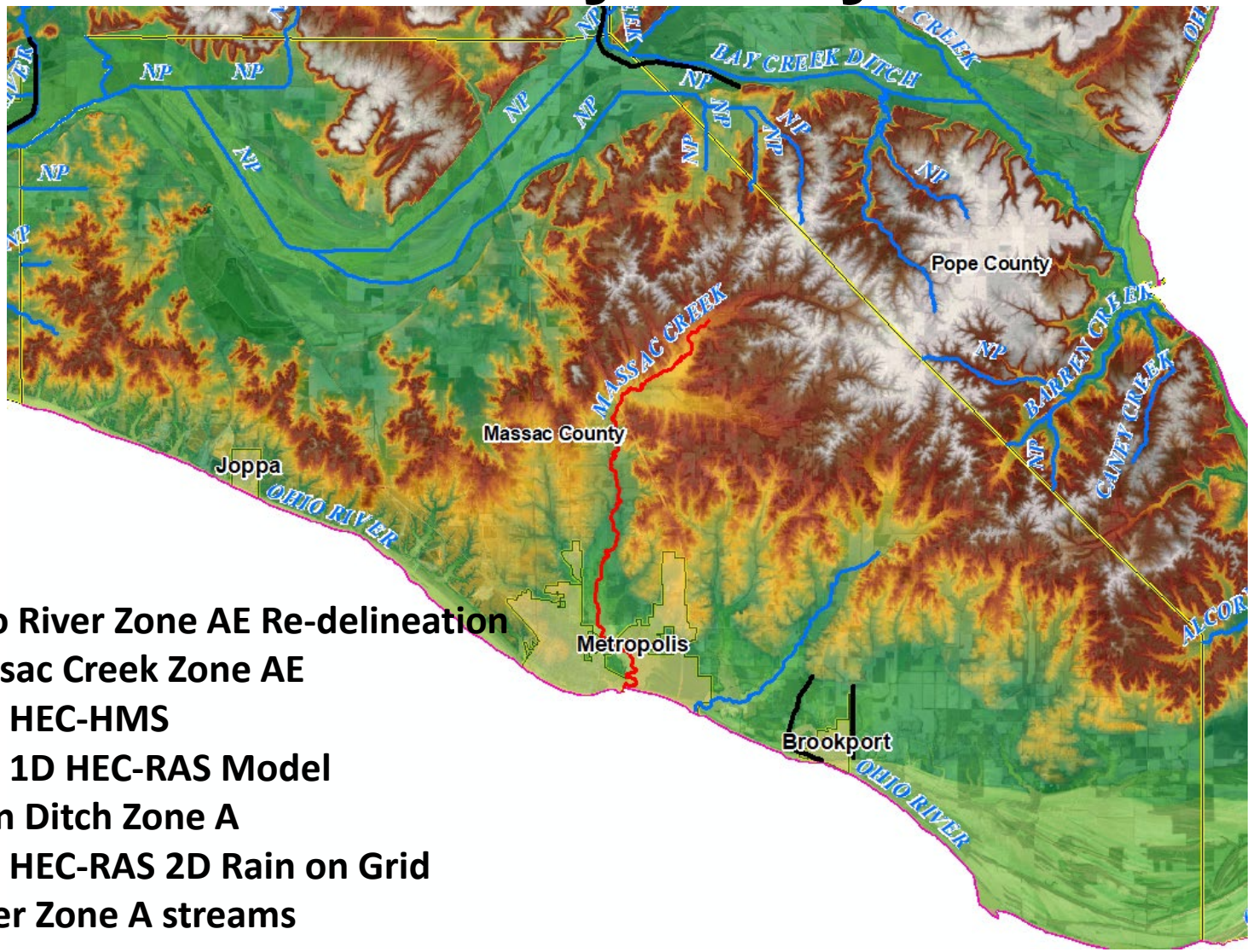


# Johnson County Study Streams



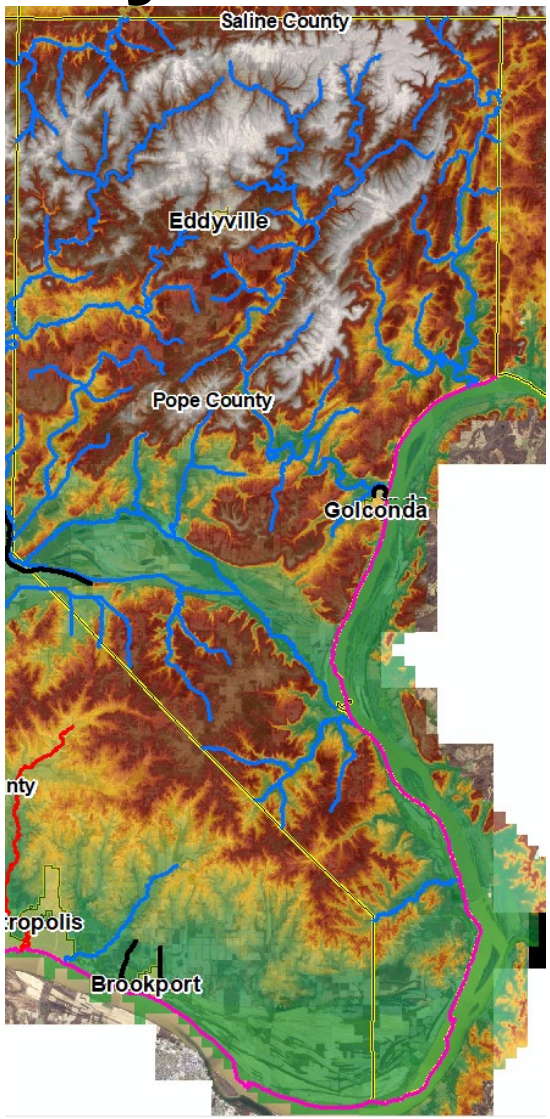
# Massac County Study Streams




- Ohio River Zone AE Re-delineation
- Massac Creek Zone AE
  - HEC-HMS
  - 1D HEC-RAS Model
- Main Ditch Zone A
  - HEC-RAS 2D Rain on Grid
- Other Zone A streams

# Pope County Study Streams

- Ohio River Zone AE Re-delineation
- Mostly Zone A Studies
  - Regression Equations
  - 1D HEC-RAS models
- Bay Creek Zone A
  - 2D HEC-RAS Rain on Grid
  - Regression Equations
  - 1D HEC-RAS model north of Reevesville



# FEMA Levee Status

## Karnak (Cache River) Levee

- Levee is non-accredited
- Currently in a breached condition
- Levee repairs are expected in Late 2021
- Not anticipated that accreditation will be pursued
- Hydraulic and Hydrologic control for Cache River and Main Ditch

## Reevesville Levee

- Hydrologic control for Main Ditch, Cache River Valley
- Levee is non-accredited

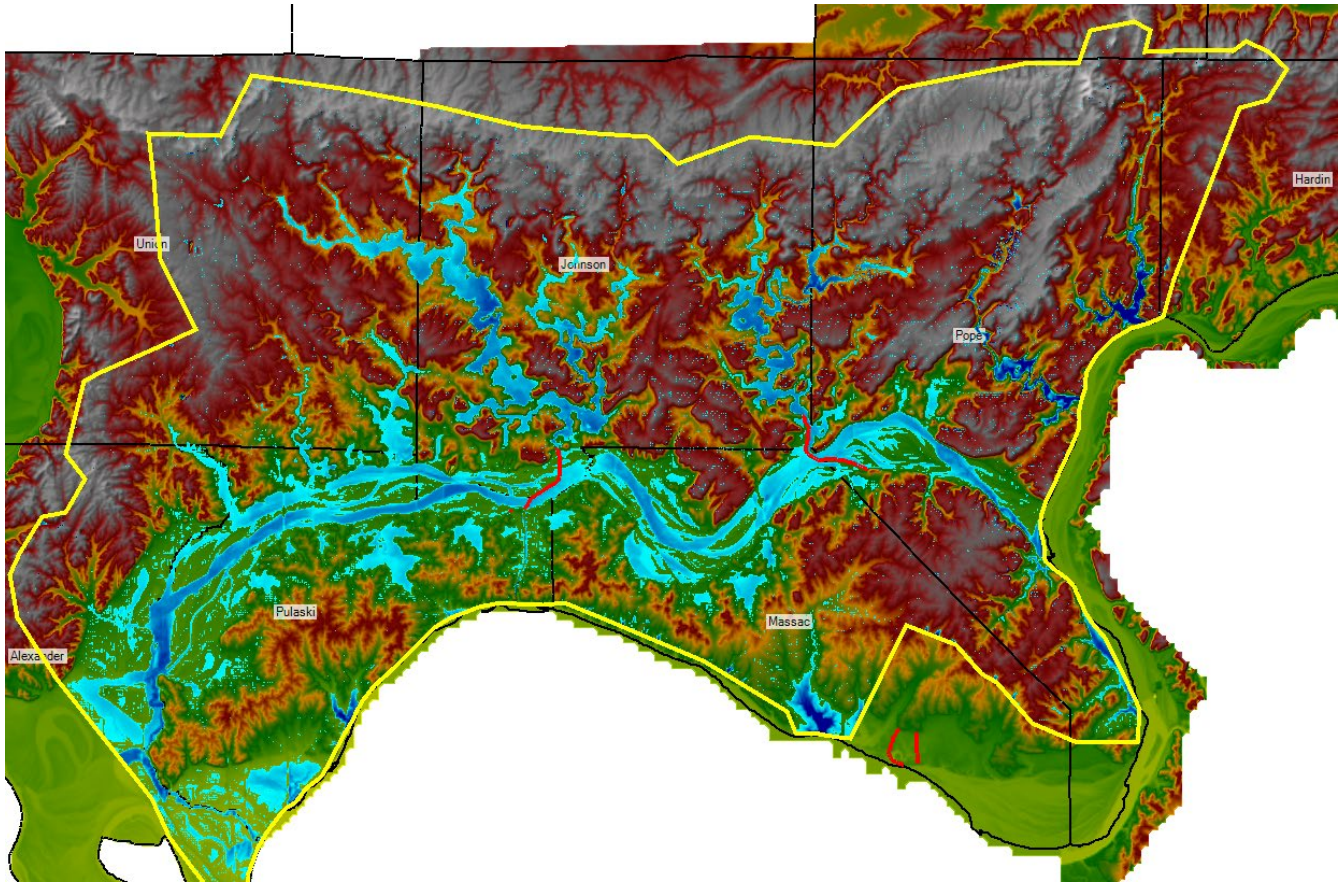
## Brookport Levee

- Levee on the Ohio River; non-accredited
- Not anticipated that accreditation will be pursued

## Golconda Levee

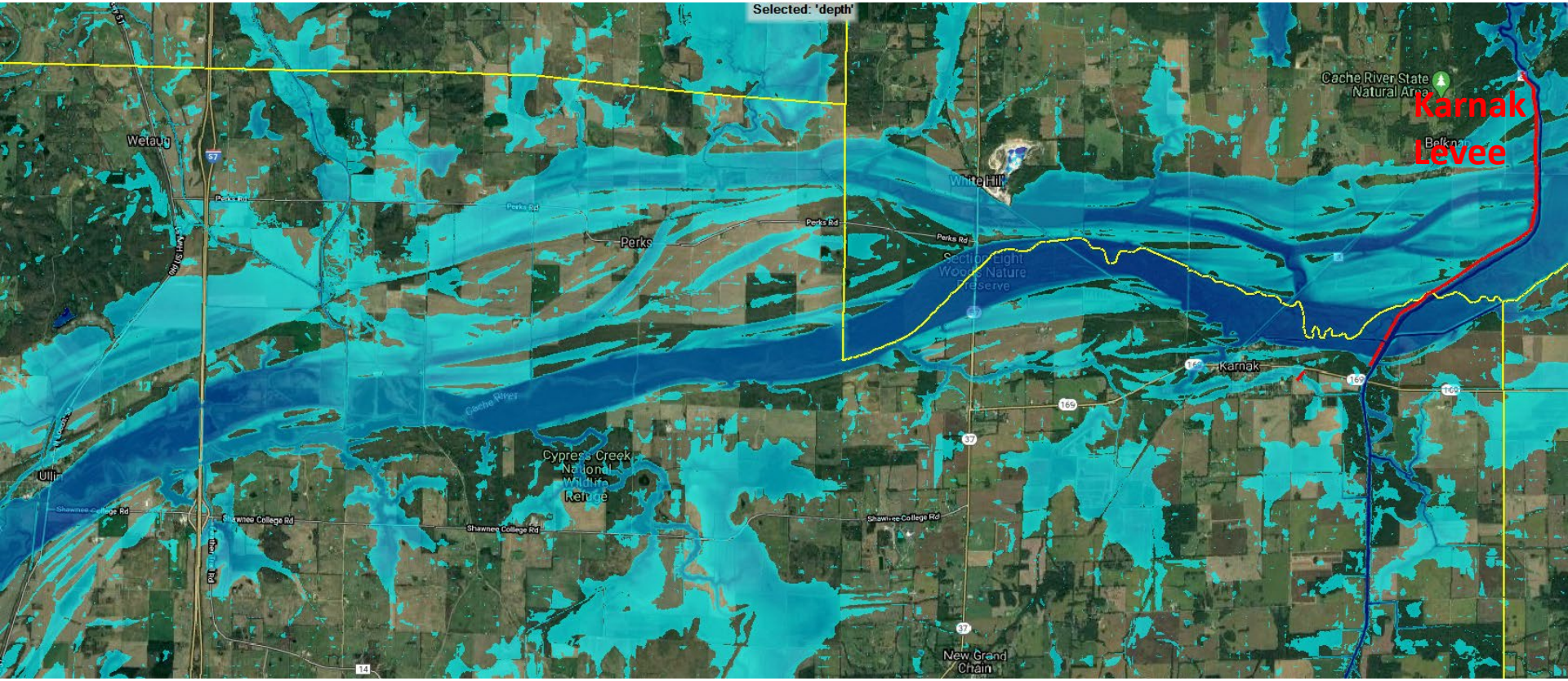
- Levee on the Ohio River; non-accredited

# Cache River Valley Study

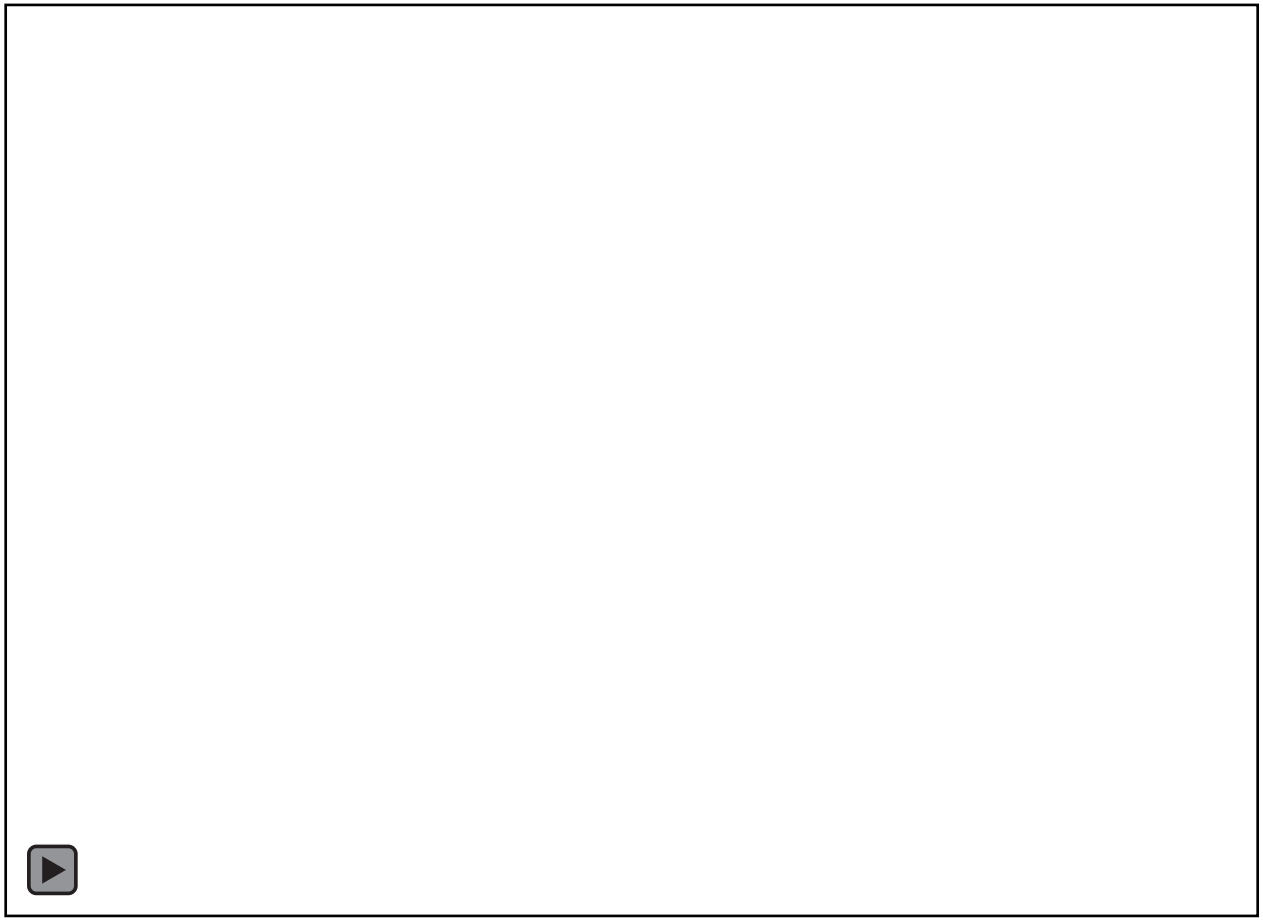



- 2-Dimensional, Unsteady State HEC-RAS
- Rain-on-Grid

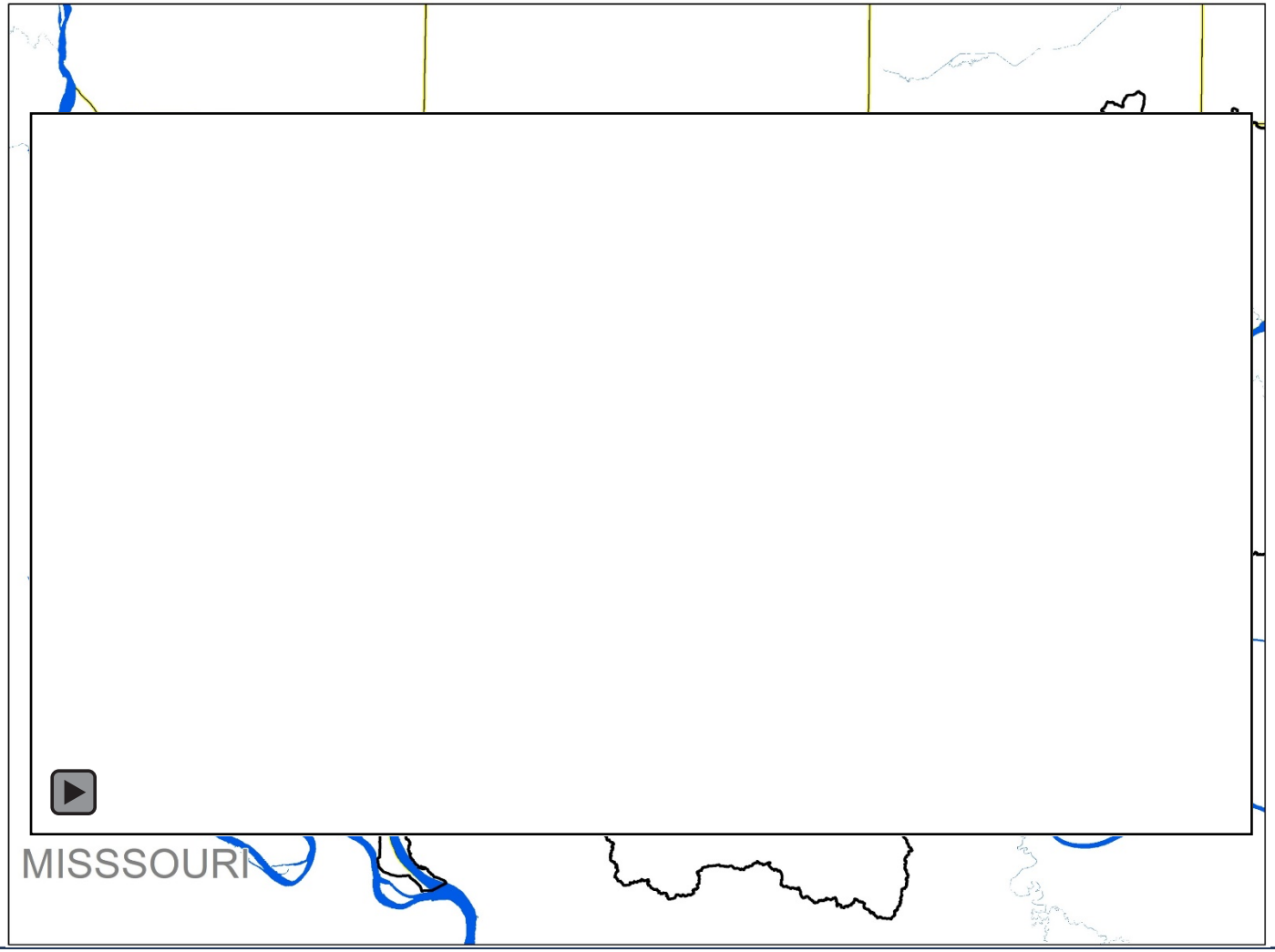
# Lower Cache


Selected: 'depth'
Karnak
Levee
Wetaug
Perks
White Hill
Karnak
Cache River
Cypress Creek National Wildlife Refuge
Shawnee College Rd
New Grand Chain

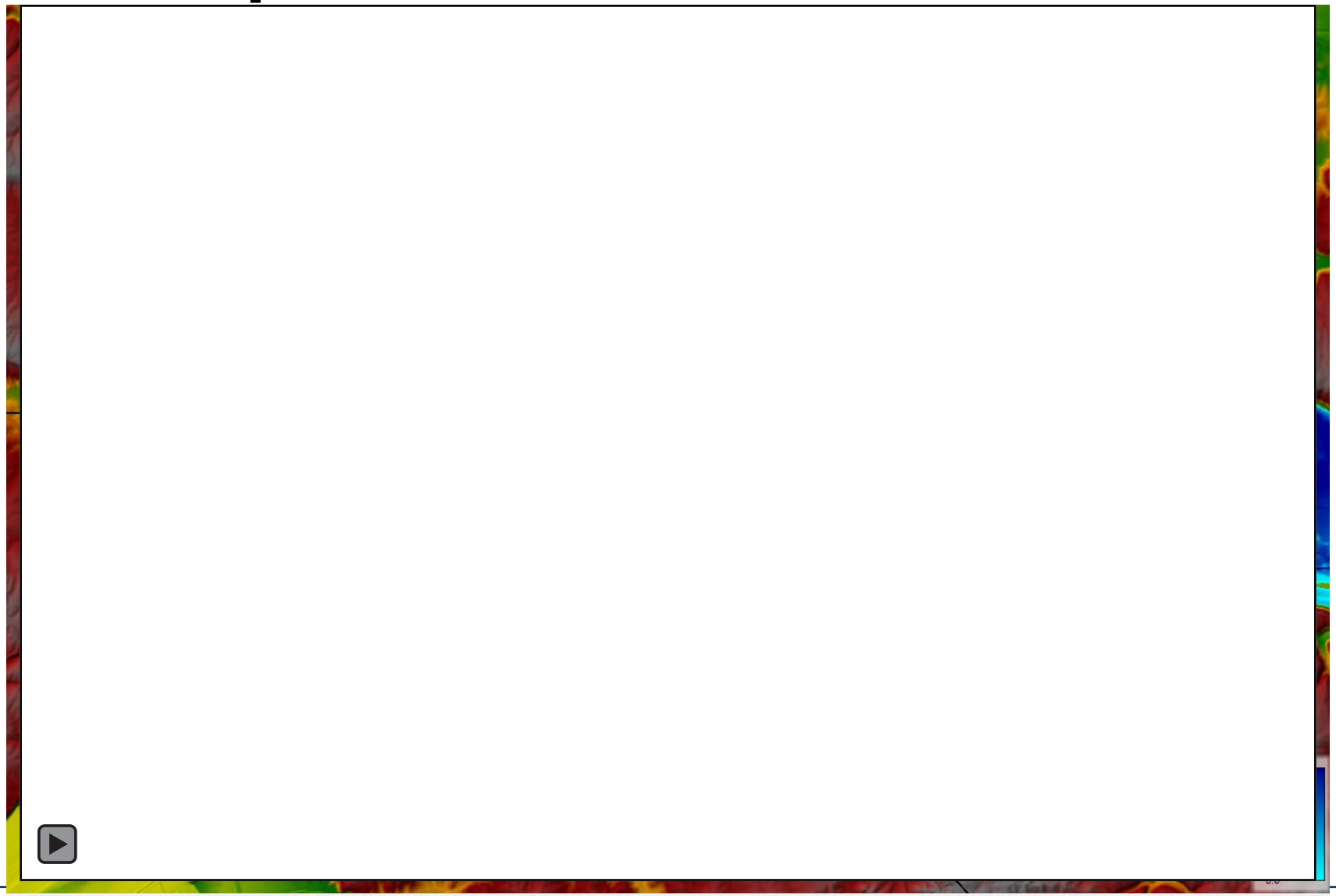
# Impact of Karnak Levee



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



# Impact of Reevesville Levee



# Project Communication

# Communication Plan

- Project Initiation Coordination Call (today)
- Proposed Engineering Methods Notification Letter (SID 620)
  - 30-Day Comment Period
- Flood Risk Review Meeting
  - 30-Day Comment Period
- Draft Data Submission Notification Letter (SID 621)
  - 30-Day Comment Period

Please reach out to Mary Richardson at mjr@Illinois.edu

# Proposed Engineering Methods Letter
## FEMA Standard ID 620

- Mailed to community CEOs, Floodplain Administrator, Community Engineer
- Details the streams to be studied in community and proposed engineering methods used to study each stream
- Informs community about 30-day period to provide comments on the proposed engineering methods for the study stream

# 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

# Project Schedule

# Estimated Schedule

- Engineering Notification Letters to communities likely by
  - ***May/June, 2021***
- Additional field survey work required?
  - **Field Survey work completed by Fall 2021**
- ISWS to finish Zone A & AE floodplain studies by
  - **Fall 2022**
- Flood Risk Review Meeting likely
  - **End of 2022/beginning of 2023**
- Submit Flood Studies to IDNR for State review
- Complete draft FIRM database to conclude data development phase of project by
  - **Summer 2024 *or sooner***

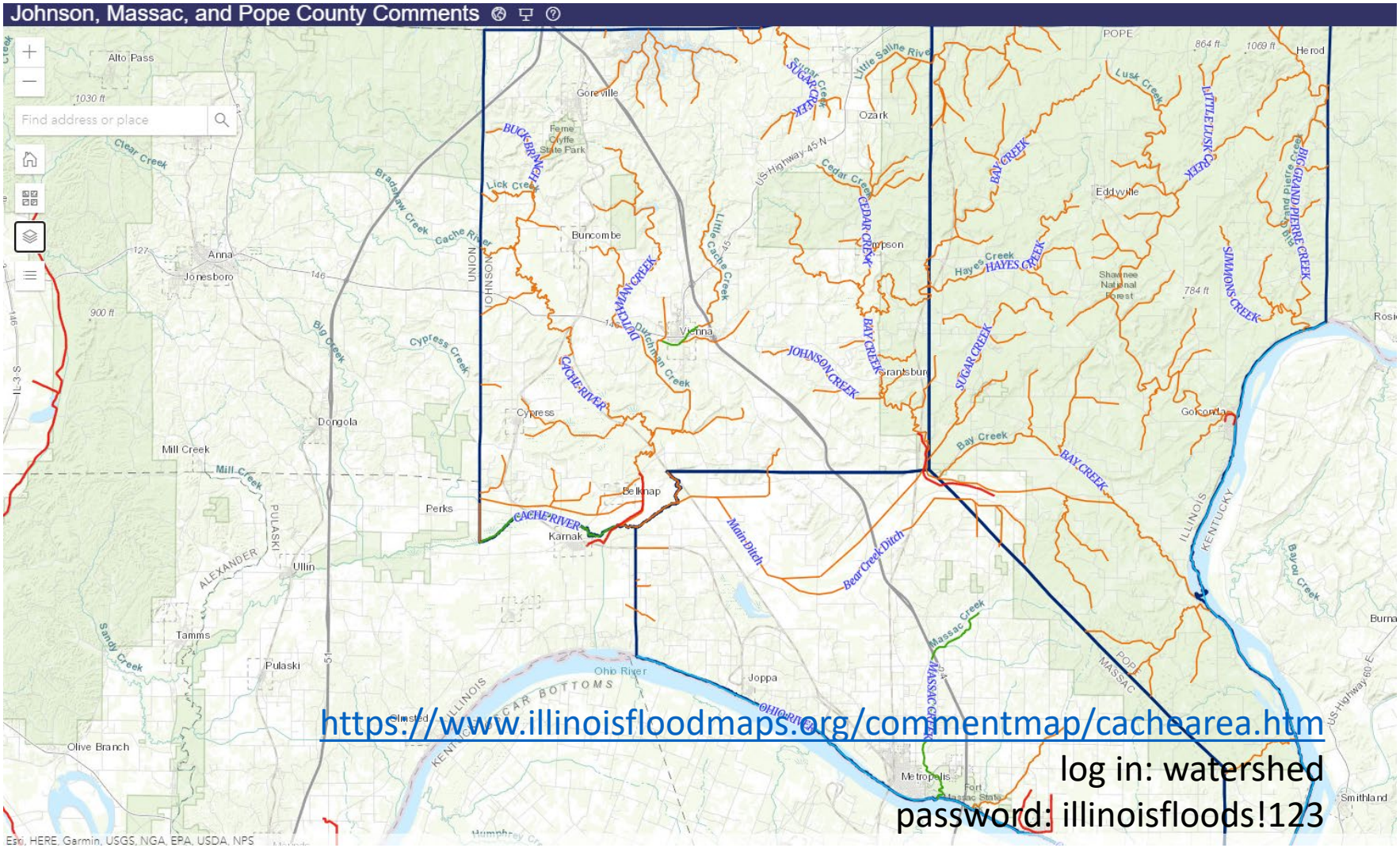
Digital Flood Insurance Rate Map Project to follow pending conclusion of data development

# Community Participation

# Community Participation

- Do you have data or information that we can use for the floodplain studies?
  - Flood prone areas
  - Flood photos
  - Historic high water marks
  - Local floodplain studies or survey data
- Stay engaged in the process…
  - Attend meetings
  - Ask questions

# Community Input



# Quick Recap

- FEMA and ISWS are developing new floodplain studies in Johnson, Massac, and Pope Counties
- These studies will ultimately be used for new Digital Flood Insurance Rate Maps
- We will be communicating and coordinating with communities at various project milestones
- Watch for the Proposed Engineering Notification Letters (coming May or June)
- Reach out with questions or comments anytime!

ILLINOIS

# Illinois State Water Survey

## PRAIRIE RESEARCH INSTITUTE


Project Managers

| | | |
|---|---|---|
| Johnson County: | Chris Hanstad, P.E., CFM | hanstad@Illinois.edu |
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| Pope County: | Addison Jobe, E.I.T., CFM | asjobe@Illinois.edu |

| | | |
|---|---|---|
| Outreach: | Mary Richardson, CFM | mjr@illinois.edu |
| Mitigation Planning: | Rebecca Leitschuh, AICP | rleits@Illinois.edu |


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