

Embarras River Tributaries and Bonpas Creek Richland County, IL

Flood Risk Review Meeting
August 31st, 2022



ILLINOIS

Illinois State Water Survey

PRAIRIE RESEARCH INSTITUTE



FEMA

Bonpas Creek CR1475N, Bone Gap
www.mystatemis.com

FLOOD RISK REVIEW MEETING - EMBARRAS RIVER TRIBUTARIES, RICHLAND
COUNTY, ILLINOIS

AUGUST 31, 2022

PRE-MEETING SURVEY

1. How much do you know about your community's flood risk?

- a lot
- some
- not much

2. How much do you know about FEMA Risk Mapping, Assessment and Planning (Risk MAP)?

- a lot
- some
- not much

3. Are you able to communicate flood risk to your community?

- yes
- no

4. Would you know where to go to get flood mitigation help?

- yes
- no

Agenda

Rollcall

Introduction

Project Scope and Goals/Timelines

Brief Overview of Engineering Methods/Models

Review of Web Map

Communication and Schedule

Risk and Mitigation

Community Participation

Rollcall

Richland County

Village of Claremont
Richland County

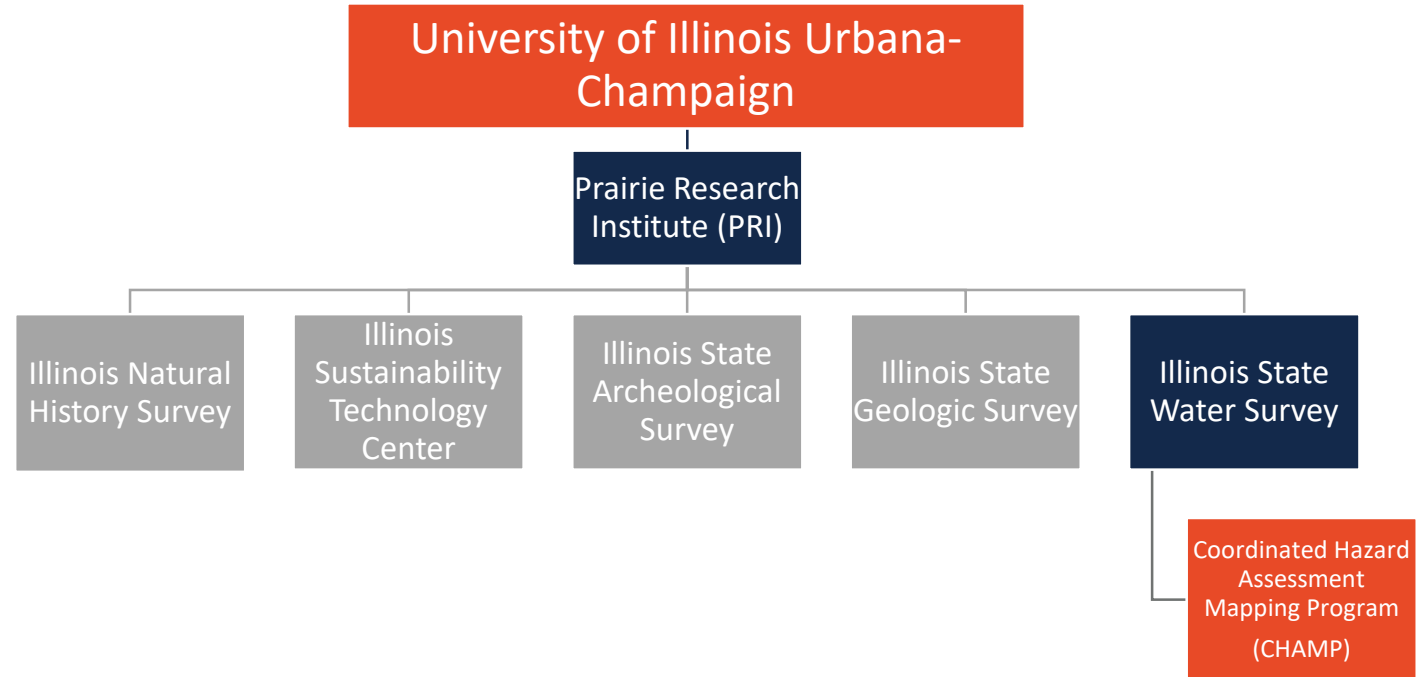
Other Agencies

FEMA
IDNR
IEMA
GWRPC
Others?

Introduction

Introduction

Who We Are



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<https://www.illinoisfloodmaps.org/>

<https://www.isws.illinois.edu/champ>

Introduction

Our Partners

FEMA

ISWS is a Cooperating Technical Partner (CTP) with the Federal Emergency Management Agency. (FEMA)



The Cooperating
Technical Partners (CTP)
Program

IDNR-OWR

ISWS partners with The Illinois Department of Natural Resources-Office of Water Resources (IDNR-OWR). Together we prioritize Illinois floodplain studies and mapping projects.



Your Community

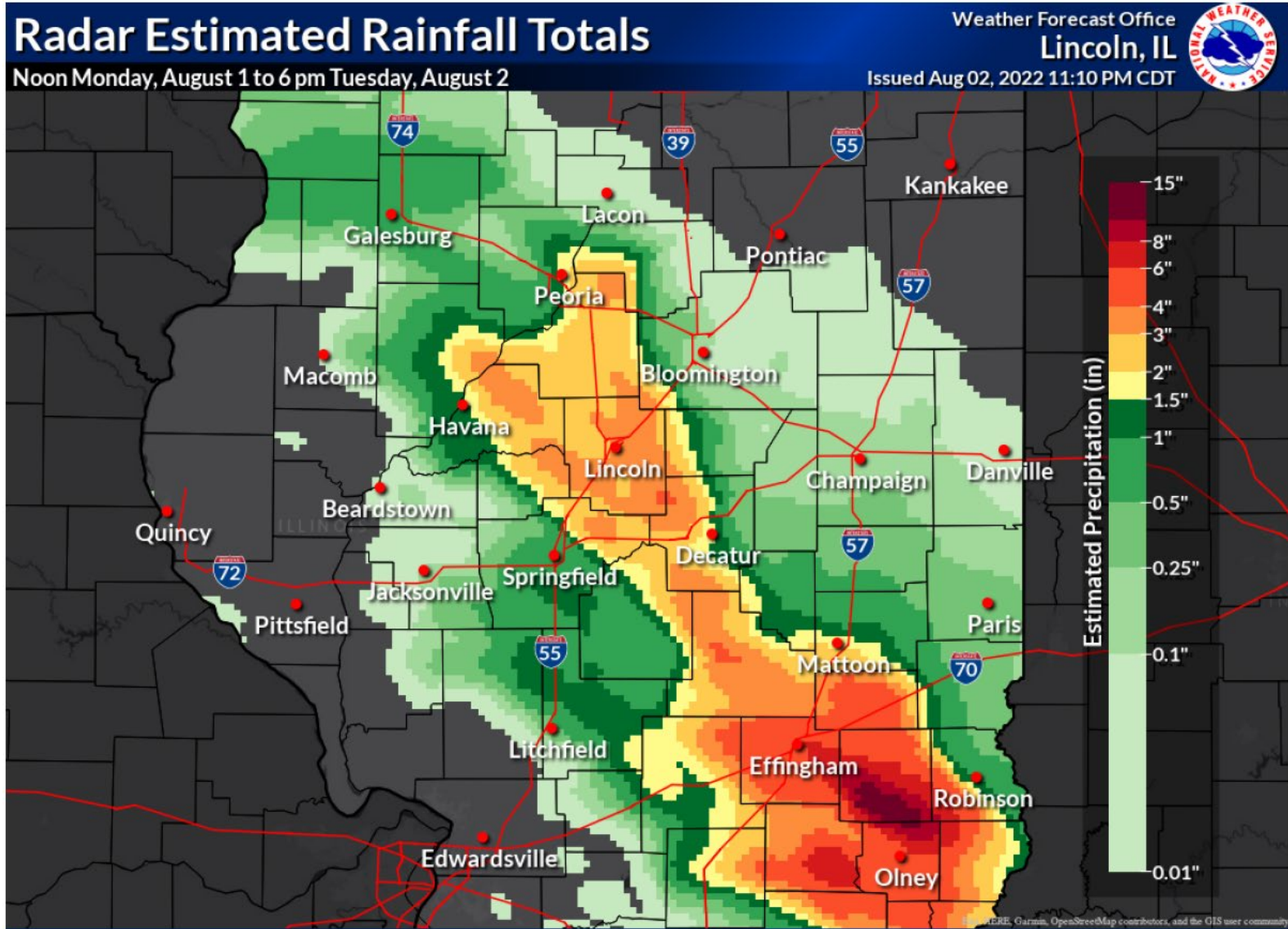
ISWS provides ongoing engagement with state and local officials and watershed stakeholders to reduce flood risk.

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August 2022 Flooding



Project Scope and Timelines

Project Scope

Develop New Floodplain Studies

Embarras Tributaries and Bonpas Creek Zone A streams
3 mile re-delineation of the Embarras River

Develop Draft Floodplain Mapping

Community Outreach and Engagement

Complete Digital Flood Insurance Rate Maps (Later Phase)

Current Richland County FIRMs dated 1984

Project Milestones

Project Initiation Meeting- December 7, 2020

Flood Risk Review Meeting (today)

Community Comment Period (30 Days)

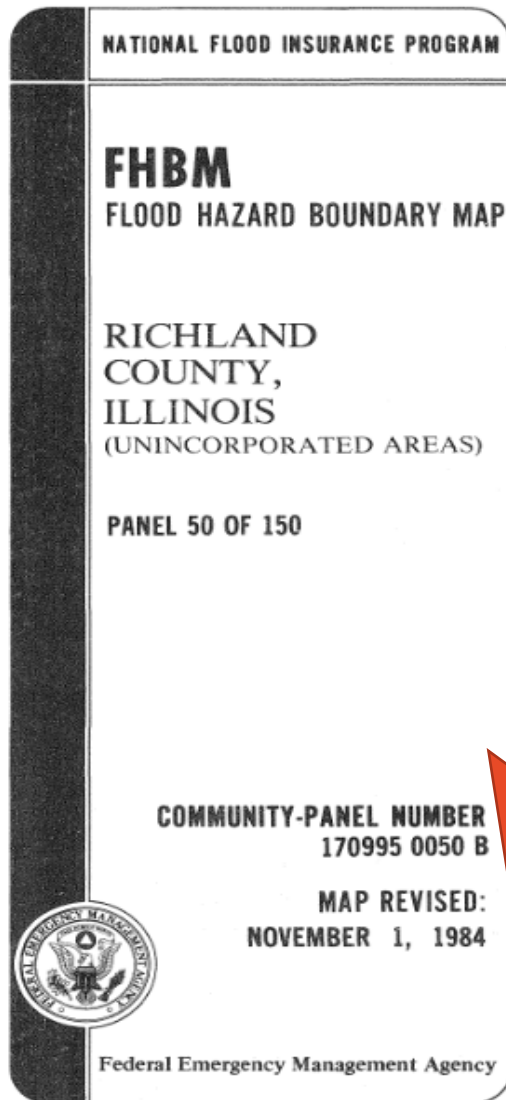
State Review and Approval

Development of Digital Flood Insurance Rate Maps (DFIRMs)

Release of Preliminary DFIRMs and Public Open House

DFIRMs become Effective

Paper Map to Digital Map



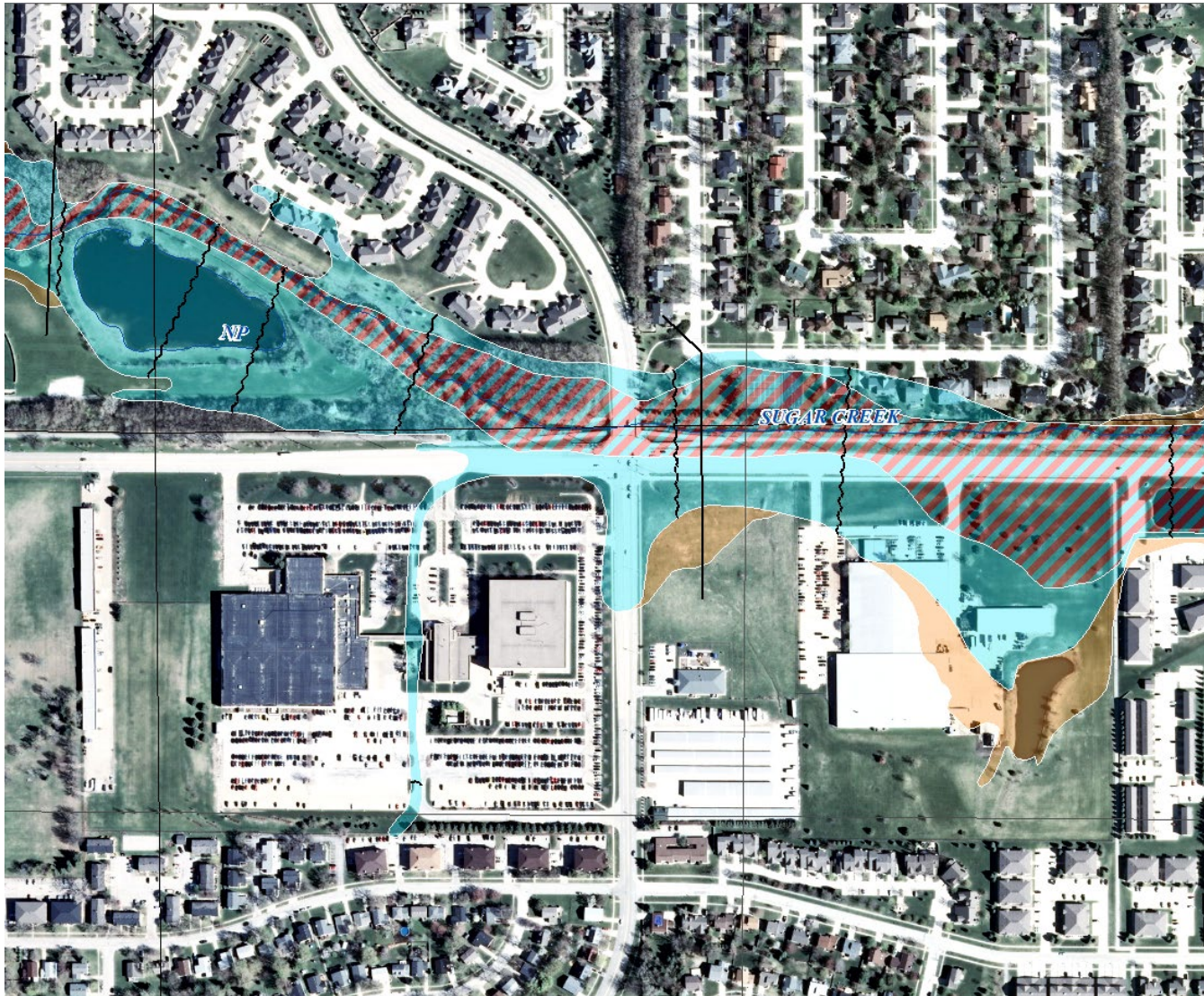
Effective Maps
1984

40 year
change

Paper Map to Digital Map

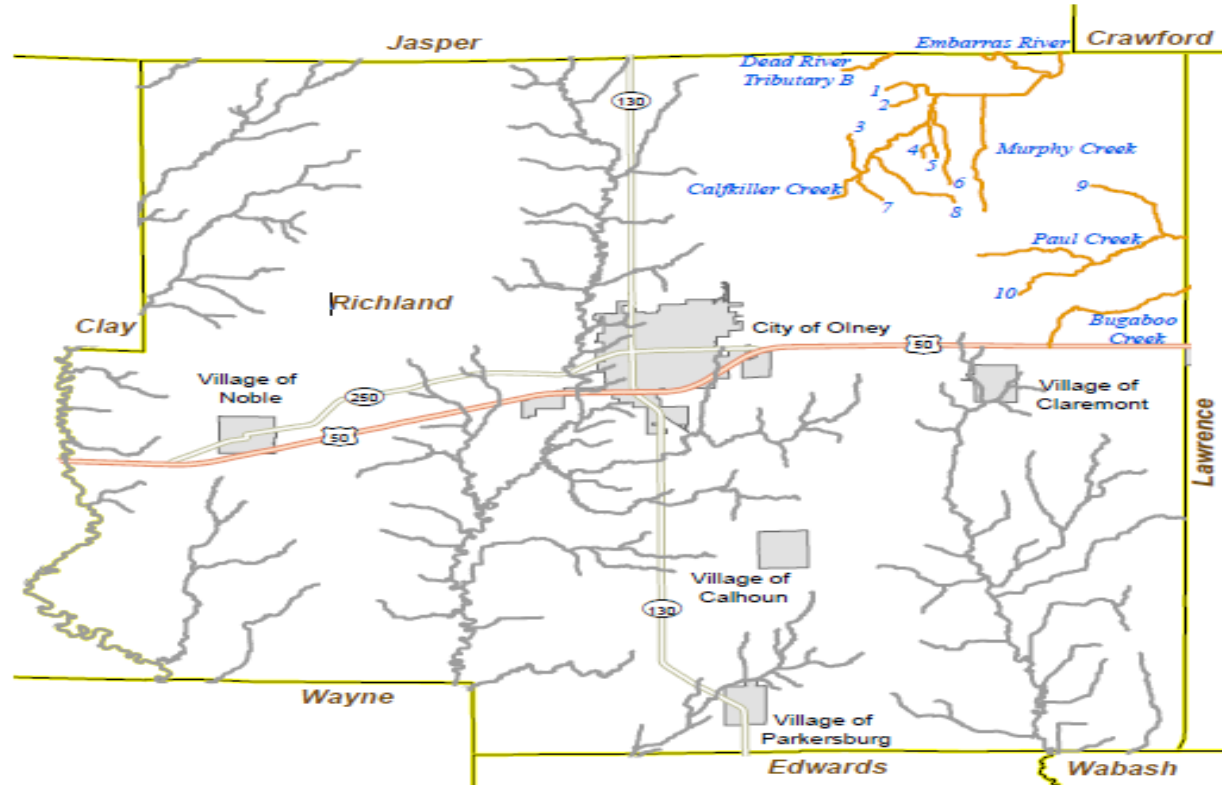


Paper Map to Digital Map



Floodplain Studies Overview

Richland County Proposed Studies



- Major Highways
- Highways
- Major Roads
- County Boundary
- ISWS studies (in progress)

Proposed Stream Study Type

- Zone A

1. Calftkiller Creek Tributary A1
2. Calftkiller Creek Tributary A
3. Calftkiller Creek Tributary E
4. Calftkiller Creek Tributary C
5. Calftkiller Creek Tributary C1
6. Calftkiller Creek Tributary B
7. Calftkiller Creek Tributary F
8. Calftkiller Creek Tributary E
9. Paul Creek Tributary A
10. Paul Creek Tributary B



Hydrology and Hydraulic Study Methods

What is a 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.

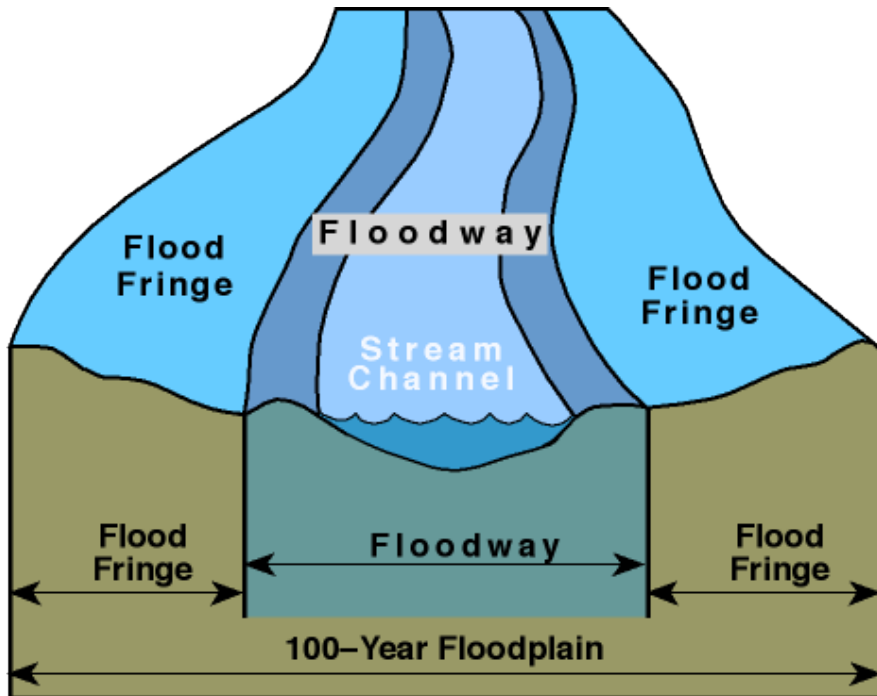
Riverine hydraulic analysis typically results in SFHA designation as Zone A or Zone AE, based on the analysis level deemed appropriate for the study area.

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.

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.

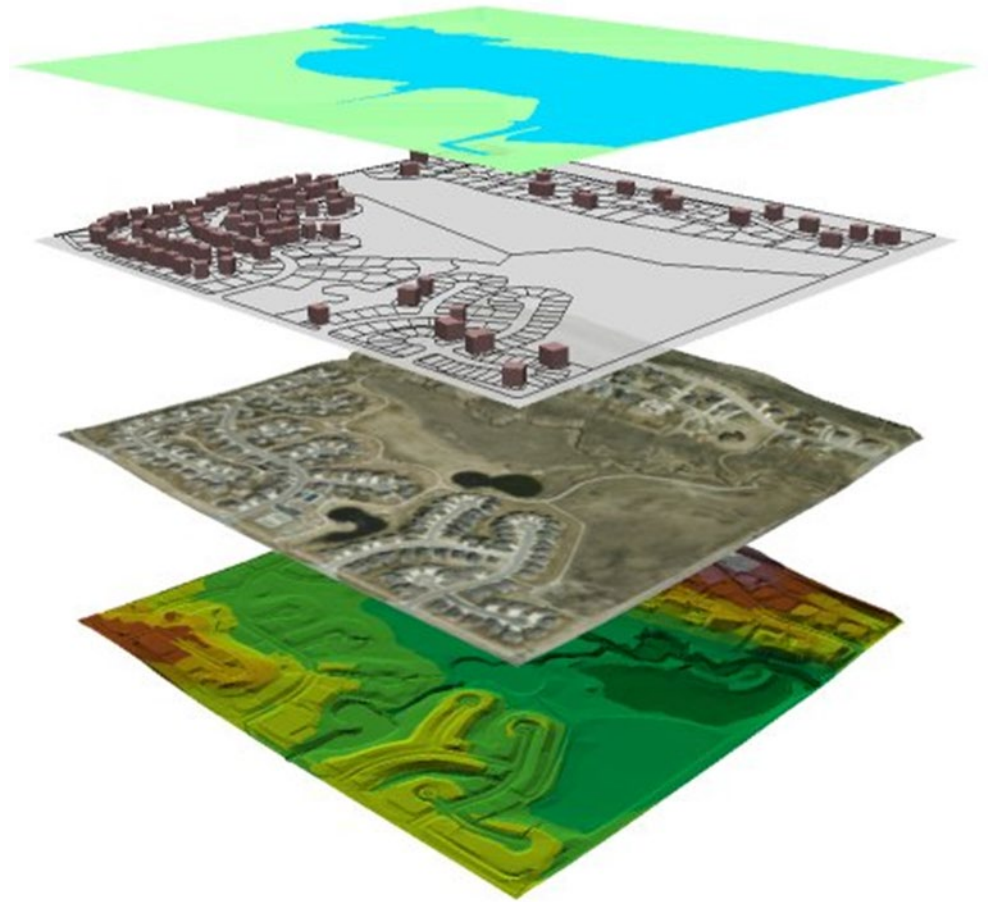
Floodway Zone AE

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.



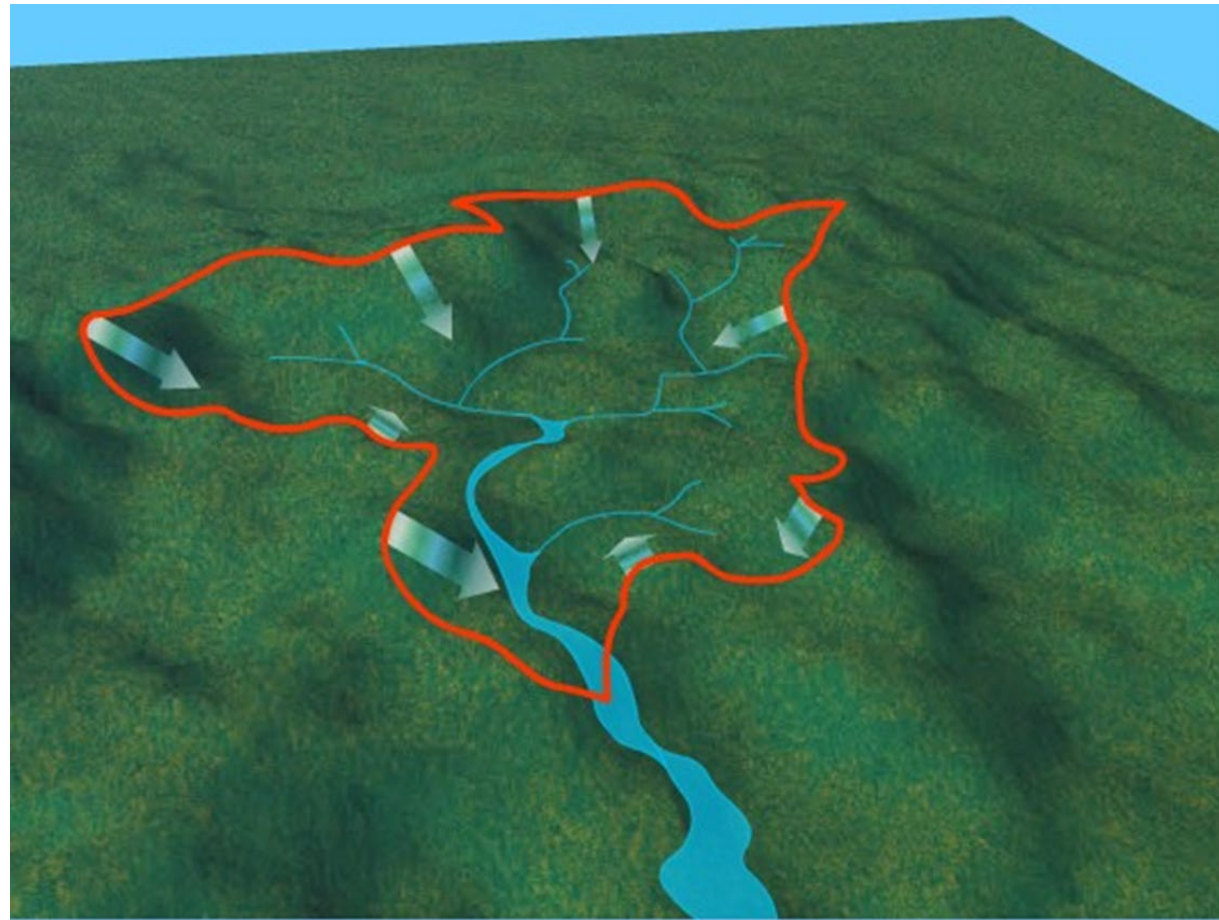
GIS Data

- LiDAR - 2011
- Ortho Photos
- Digital Elevation Model (DEM)
- USGS - National Land Cover Database
- Natural Resources Conservation Service - Soil Survey
- Field Survey



Hydrology

- Annual Chance Flood Frequency Intervals required for FEMA
- 1% Base Flood Elevation
- 10%, 4%, 2%, 0.2%, 1%+



Hydrology

USGS Regression Equations through the StreamStats Application

Soong, D.T., Ishii, A.L., Sharpe, J.B., and Avery, C.F., 2004, Estimating Flood-Peak Discharge Magnitudes and Frequencies for Rural Streams in Illinois, U.S. Geological Survey Scientific Investigations Report 2004-5103. 147 p.

USGS StreamStats

Report About Help

SELECT A STATE / REGION
Illinois

IDENTIFY A STUDY AREA
Basin Delineated

SELECT SCENARIOS

BUILD A REPORT

Step 1: You can modify computed basin characteristics here, then select the types of reports you wish to generate. Then click the "Build Report" button

Show Basin Characteristics

Select available reports to display:

- Basin Characteristics Report
- Scenario Flow Reports

Open Report

POWERED BY WIM

USGS Home Contact USGS Search USGS
Accessibility FOIA Privacy Policy &

Exploration Tools

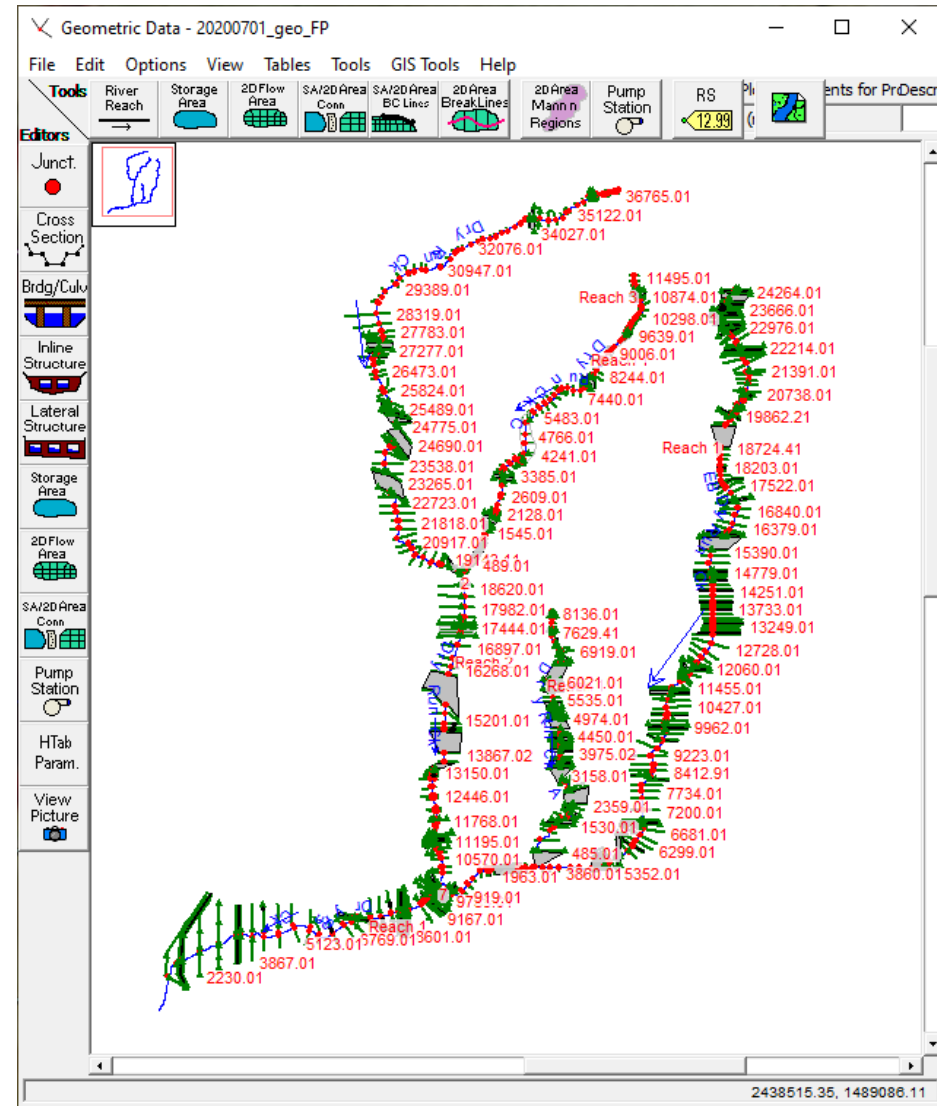
Zoom Level: 15
Map Scale: 1:18,055
Lat: 38.7717, Lon: -87.9619

Layers

- Base Maps
- Application Layers
- National Layers
- IL Map Layers

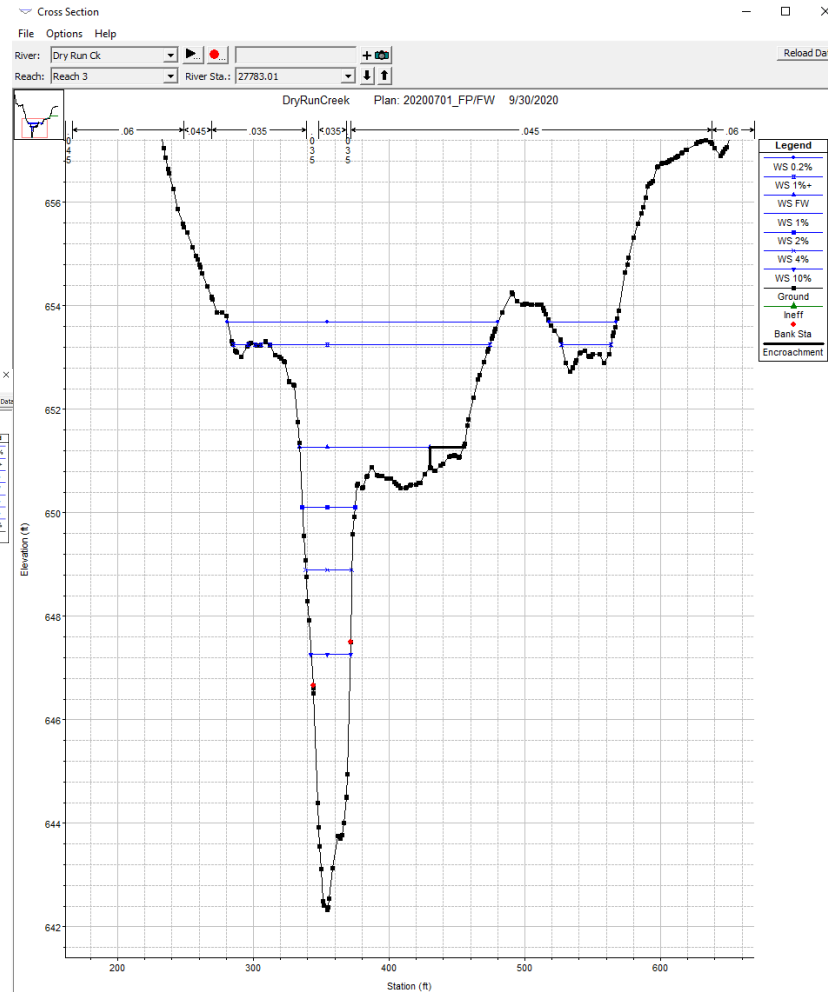
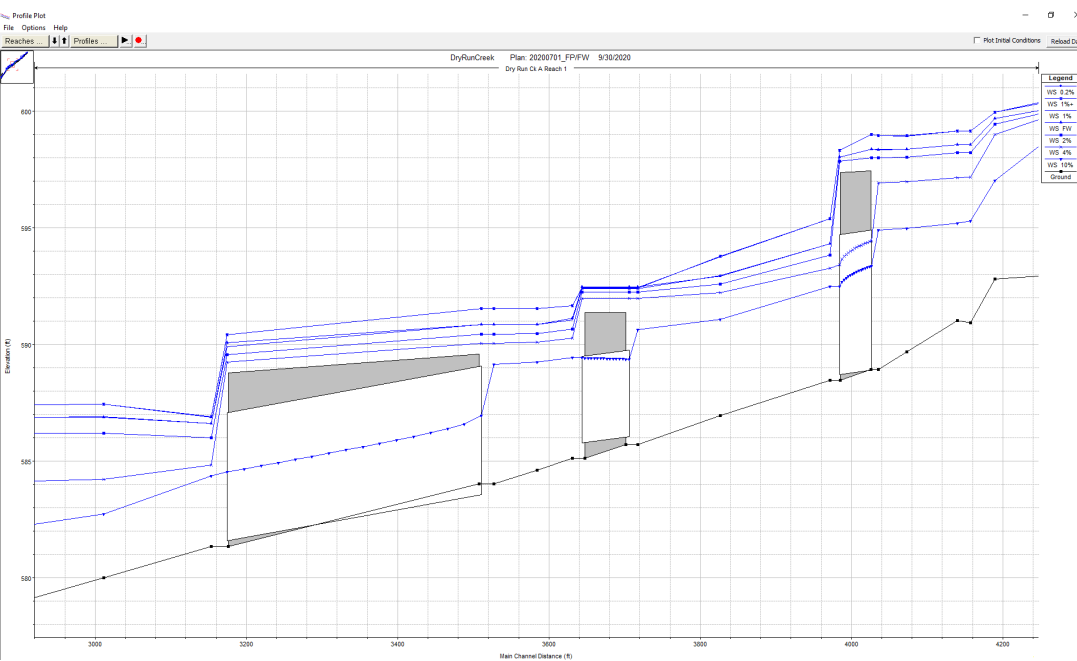
Hydraulics

- Army Corps of Engineers Hydrologic Engineering Center River Analysis System (HEC-RAS)
- 1D Steady State Analysis
- Modeling to all FEMA Standards, Technical References, and Guidelines



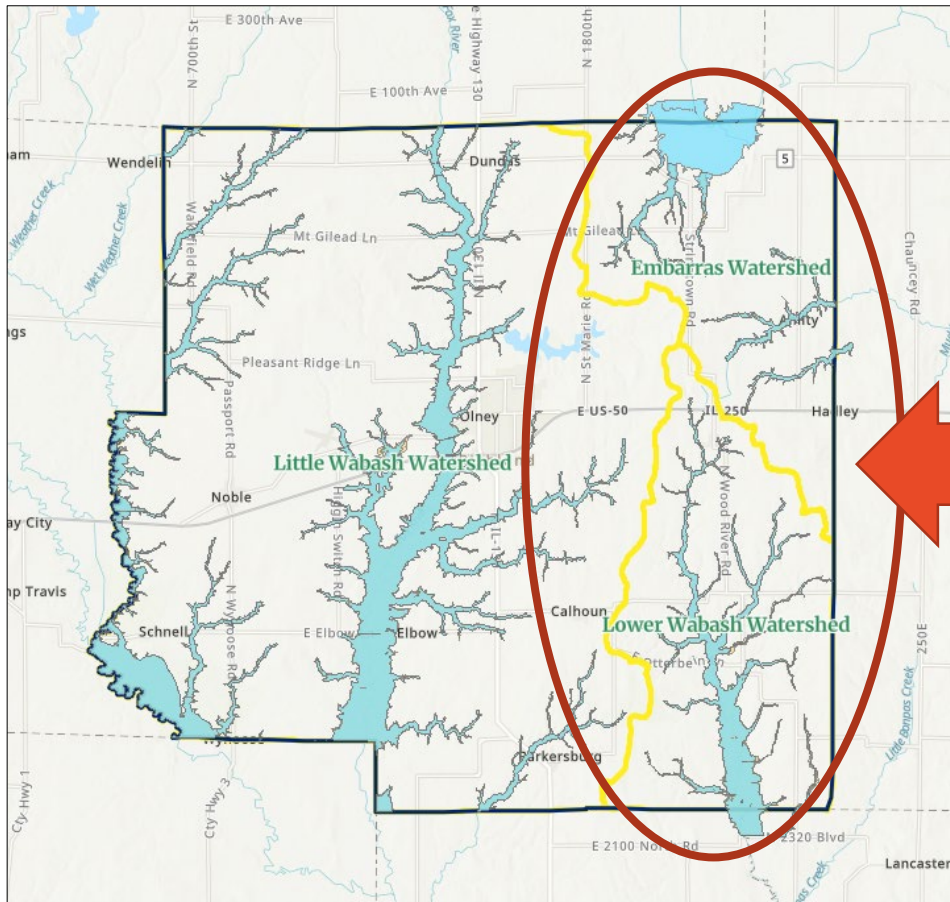
Hydraulics

- Water Surface Elevations
- Exported to GIS for mapping



Webmap Results

Webmap Demonstration



Embarras
and Lower
Wabash
River
Watersheds

<https://www.illinoisfloodmaps.org/commentmap/richland.htm>

Login: watershed

Password: illinoisfloods!123

Webmap Comment Feature

New Comment ?

- Click Add Comment button (*below*)
- Click on map to draw polygon
 - **Single-click** to start/continue
 - **Double-click** to finish

Add Comment

Or

Edit Comment

- **Single-click** a Comment to view or edit it.

Embarras Watershed

Communication and Next Steps

Communication Plan

Project Initiation Community Coordination Meeting- 12/07/2020

Proposed Engineering Methods Notification (FEMA SID 620) letter-
02/10/2021

Flood Risk Review Meeting (today)

30-Day Comment Period starts today

Data Submission Notification (FEMA SID621) Letter

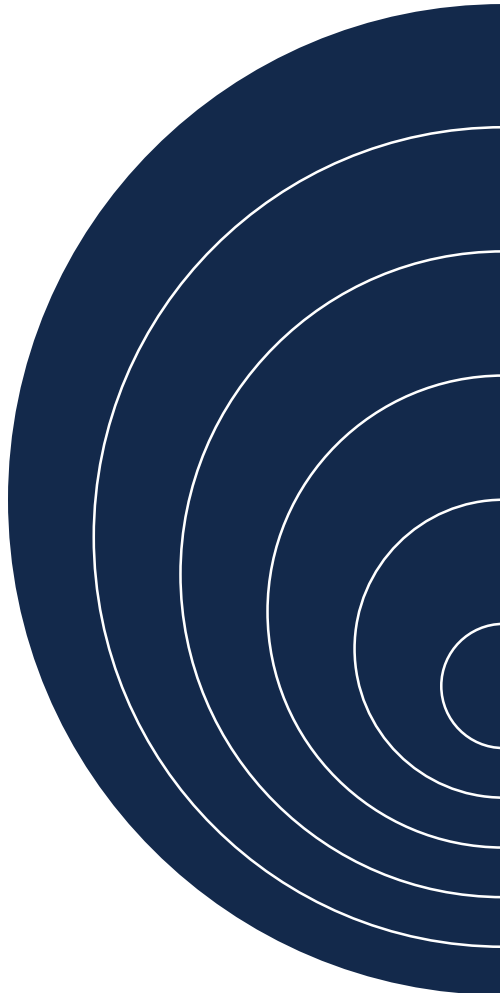
Data Submission Notification Letter FEMA SID 621

Mailed to community CEO's

Informs the communities that the data collection and analysis (Data Development) phase of the project is concluding, and the FIRM database is being validated by FEMA

Gives Communities 30 days to comment on the data in the FIRM database
30-Day Comment Period starts today

Schedule



PICC and Engineering Notification Letters to communities 2021
ISWS to finish floodplain studies by Spring 2022
Flood Risk Review Meeting (today)
Submit Flood Studies to IDNR for State review
Complete draft FIRM database to conclude data development phase of project by season and year
Digital Flood Insurance Rate Map Project to follow pending conclusion of data development

Risk Communication and Mitigation Actions



Hazard Mitigation

Richland County Hazard Mitigation Plan (2013)



HAZARD CATEGORIES	PROBABILITY	IMPACT	OVERALL RISK
	<i>Low, Medium, High</i>	<i>Minimal, Moderate, Significant</i>	<i>Low, Moderate, Severe</i>
RICHLAND COUNTY (ALL)			
Tomado	Medium	Moderate	Moderate
Flood	High	Moderate	Severe
Dam/Levee Failure	Low	Significant	Moderate
Earthquake	Medium	Significant	Moderate
Severe Thunderstorm	High	Significant	Severe
Winter Weather (snow & ice)	High	Significant	Severe
Drought/Extreme Heat	Medium	Minimal	Low
Hazardous Materials Release	High	Significant	Severe
Structural Failure & Fires	Medium	Moderate	Moderate

Hazard Mitigation

FEMA-Declared Emergencies (1961-2011)

Date of Incident	Date of Declaration	Disaster Description	Type of Assistance
May 15-July 3, 1990	June 22, 1990	Severe Storms and Tornadoes	Individual
April 28-May 17, 1996	May 6, 1996	Severe Storms and Flooding	Public
April 21-May 23, 2002	May 21, 2002	Severe Storms, Tornadoes, and Flooding	Individual and Public
Dec 21-Dec 23, 2004	Feb 1, 2005	Snow	Public
Jan 31-Feb 3, 2011	Mar 17, 2011	Severe Winter Storm and Snowstorm	Public
Jan 20, 2020 - continuing	Mar 26, 2020	Covid 19	Individual and Public

Goal: Support compliance with the NFIP

- (High) Increase public awareness of the benefits of the NFIP program
 - Create new or revise existing plans/maps for the community
- (Medium) Improve and enforce floodplain ordinances to ensure that new construction does not occur in floodplains

Risk Communication and Mitigation Actions

Floodsmart.gov

- Community Resources
 - Flood Maps
 - Cost of Flooding
 - What is Covered?
 - How to Reduce Your Costs
 - Tools

FEMA.gov

- National Insurance Program (NFIP)
- Hazard Mitigation Planning
 - Mitigation Best Practices
 - Mitigation Planning and Grants
 - Regulations and Guidance

Community Participation

Community Impact

Why New Floodplain Map Can Affect a Community:

Can affect which residents are required to carry flood insurance

Depicts areas of communities which are subject to floodplain management regulations

Can affect community planning and flood mitigation

Community Participation



Now is the time to review the draft floodplain mapping for your community

Who is affected?

Is the mapping reasonable and/or consistent with your community's experience with flooding?

Make comments if something does not look right or make sense.

Provide data or information if it could support a change in the draft mapping

Ask questions.

FLOOD RISK REVIEW MEETING -EMBARRAS RIVER TRIBUTARIES, RICHLAND
COUNTY, ILLINOIS

AUGUST 31, 2022

POST-MEETING SURVEY

1. After this meeting how much more do you know about your community's flood risk?

- a lot
- some
- not much

2. After this meeting how much do you know about FEMA Risk Mapping, Assessment and Planning (Risk MAP)?

- a lot
- some
- not much

3. Has this meeting helped you know how to better communicate flood risk to your community?

- yes
- no

4. Has this meeting helped you know where to go to get flood mitigation help?

- yes
- no



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Questions?



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www.illinoisfloodmaps.org