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Illinois State Water Survey

PRAIRIE RESEARCH INSTITUTE

Macoupin County
Flood Risk Review Meeting


Otter Lake, Girard, IL

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FEMA

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MACOUPIN COUNTY FLOOD RISK REVIEW MEETING: SEPTEMBER 8, 2023, VIA ZOOM

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 the 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 Objectives and Goals
- Project Scope
- Hydrologic Study Methods
- Hydraulic Study Methods
- Web Map Overview and Draft Floodplain Review
- Communication and Next Step
- Risk Communication and Mitigation Actions
- Community Participation
- Discussion

Rollcall

Village of Benld*
Village of Brighton + *
City of Bunker Hill + *
City of Carlinville + *
Village of Chesterfield
Village of Dorchester
Village of Eagarville
Village of East Gillespie
City of Gillespie + *
City of Girard*
Village of Hettick

Village of Lake Ka-Ho
Village of Medora
Village of Modesto
Village of Mount Clare
City of Mount Olive*
Village of Nilwood
Village of Palmyra
Village of Royal Lakes*
Village of Sawyerville
Village of Scottville

Village of Shipman
Village of Standard City
City of Staunton + *
City of Virden + *
Village of White City
City of Wilsonville*
Macoupin County + *

IDNR/OWR
FEMA
IEMA
Anyone else

+ Community participates in NFIP
* Participating Jurisdictions represented in 2019 Multi-Jurisdictional All Hazards Mitigation Plan

Introduction

Introduction

Who We Are

ILLINOIS
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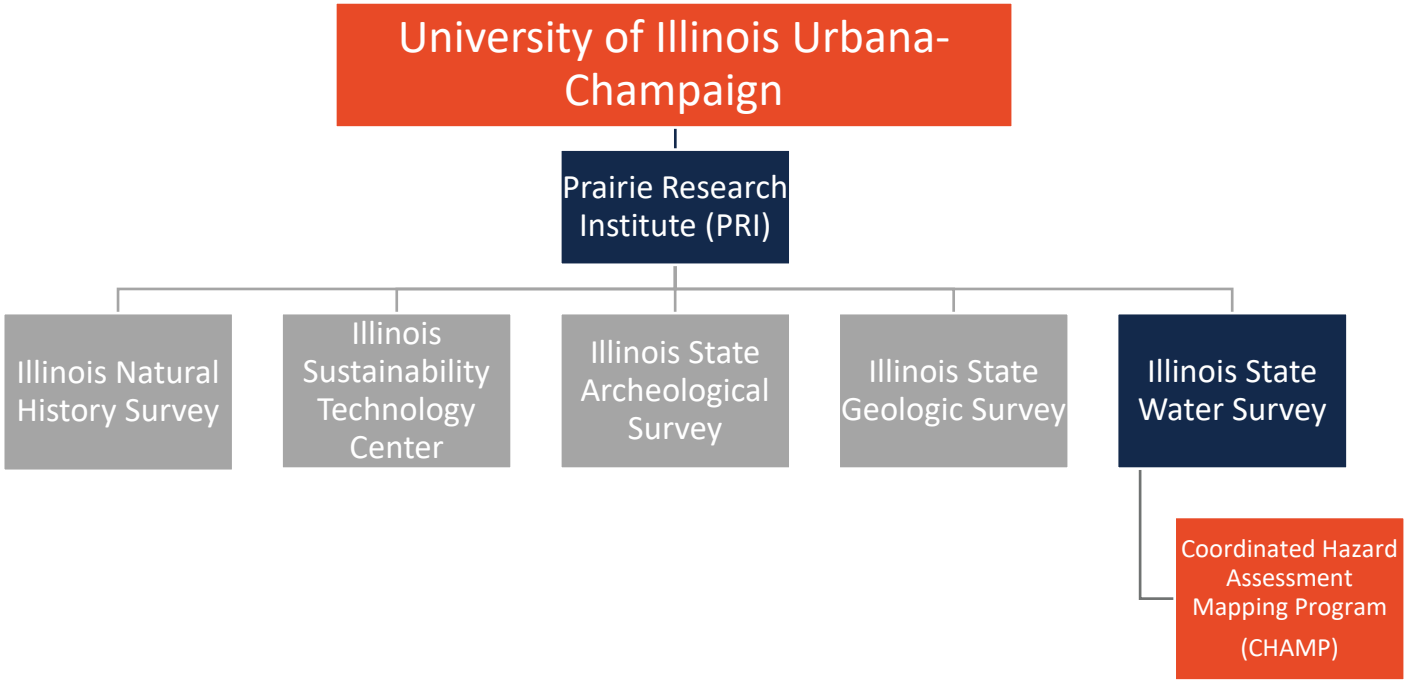

https://www.illinoisfloodmaps.org/

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

Introduction

Our Partners

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FEMA

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

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.

Project Objectives and Goals

Illinois Countywide Digital FIRM Funding Status

102 Counties

79 effective digital FIRMs ✓

09 funded for mapping

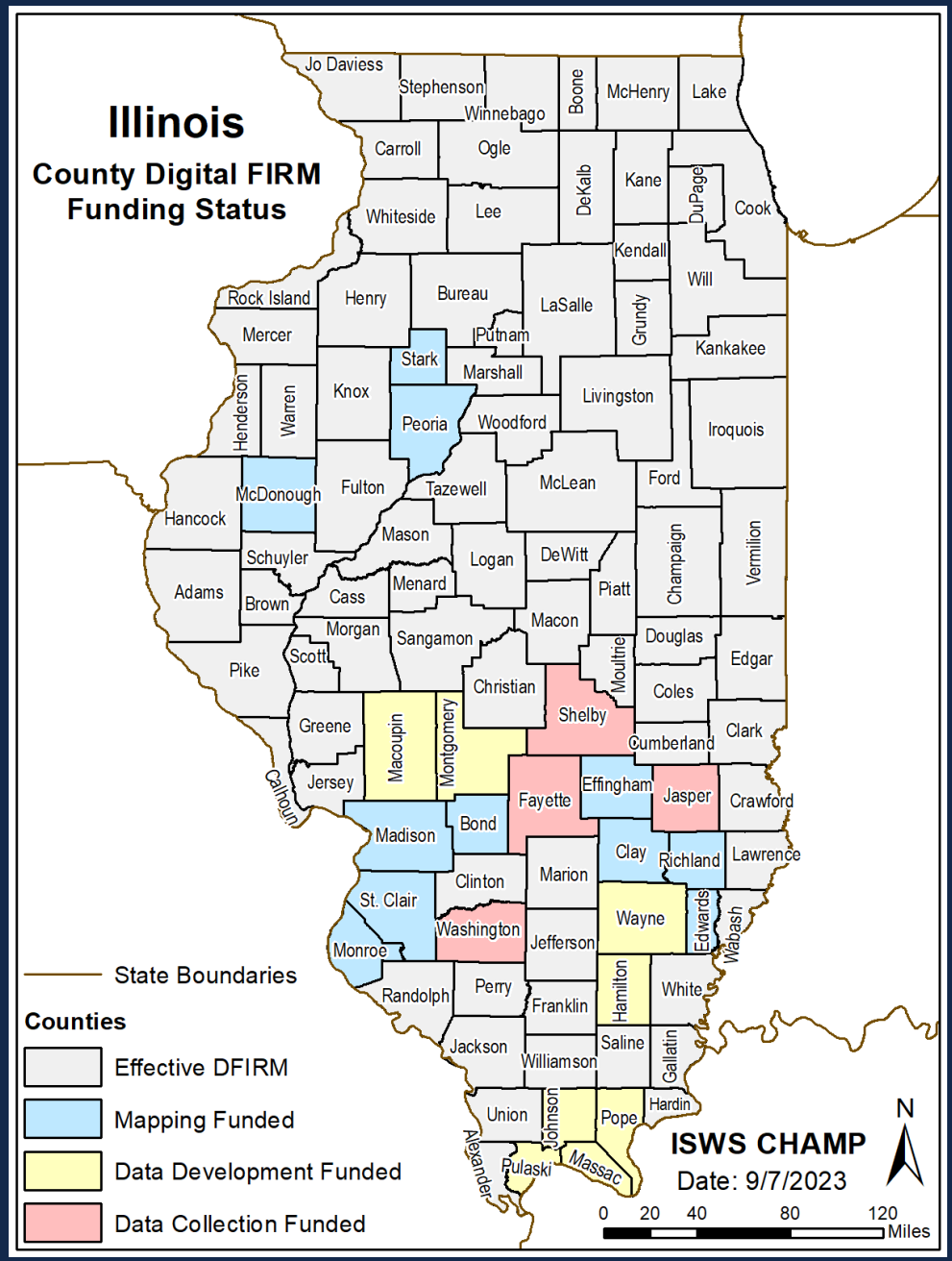
10 funded for data development

04 funded for data collection

Macoupin County

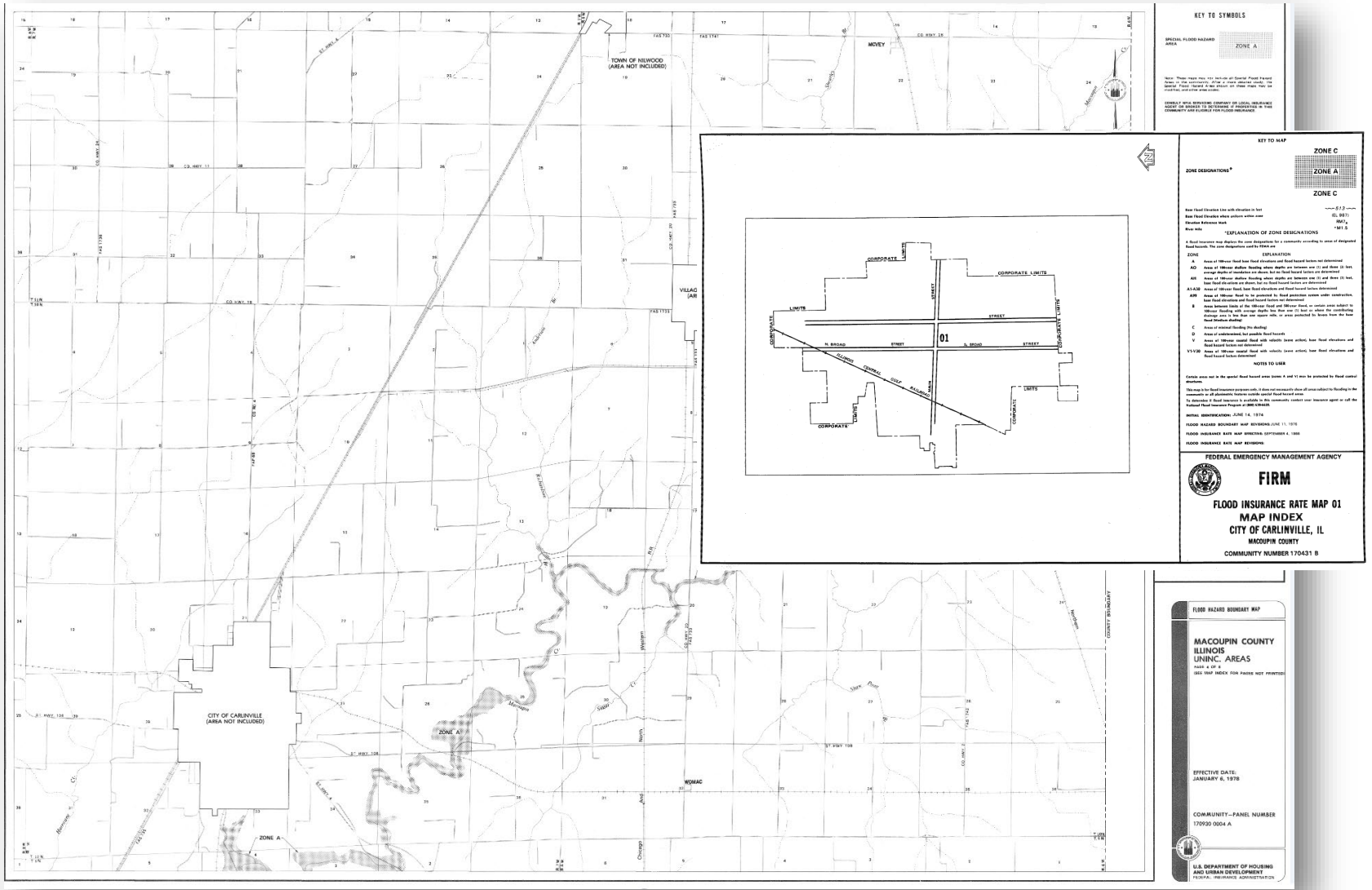
In data development phase

Anticipated funding for preliminary maps FY24



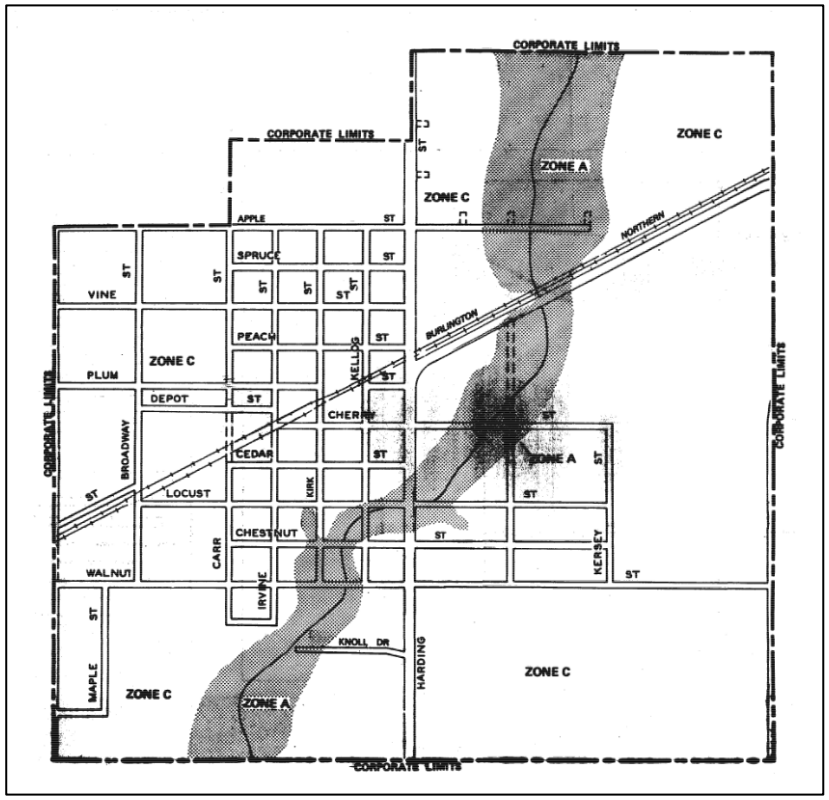
Effective Paper FIRM

A graphical representation of the real world

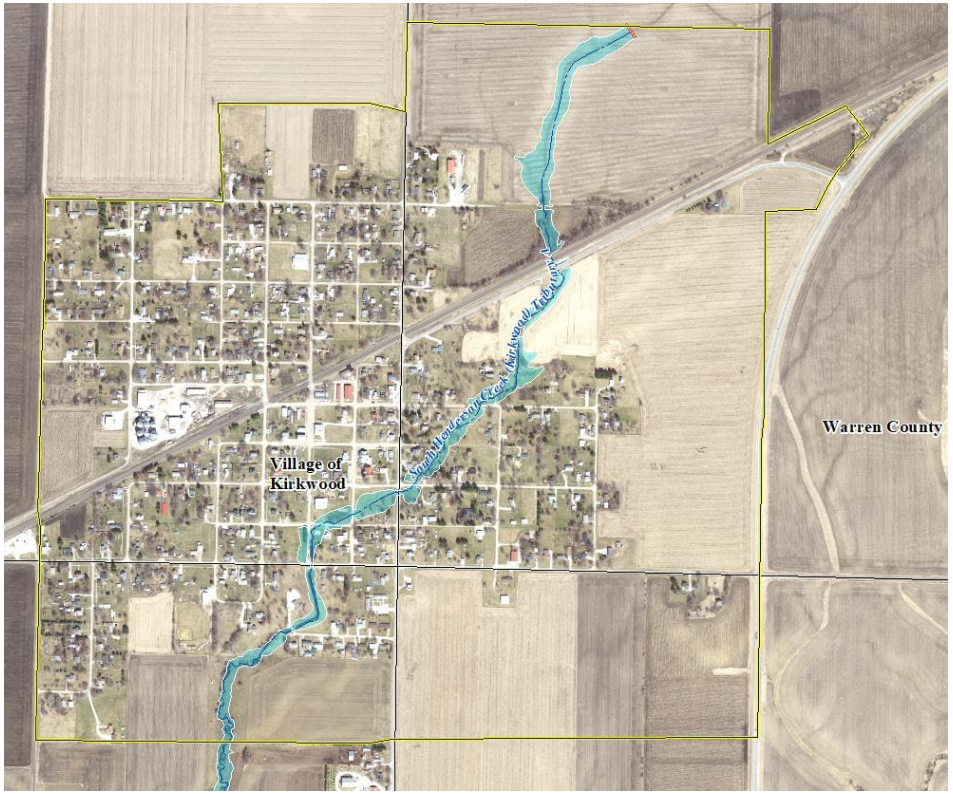


Example of Paper map vs. Digital map

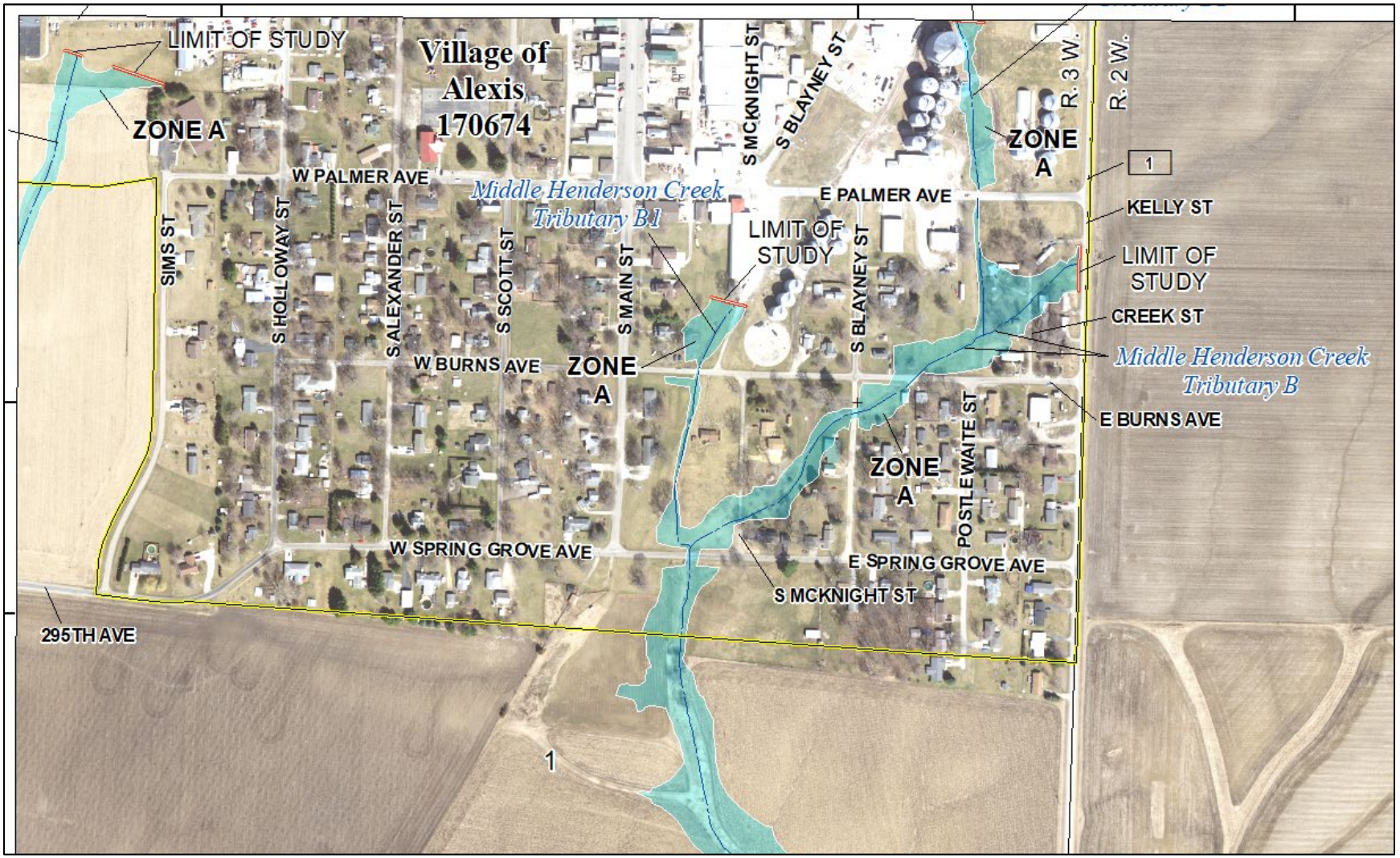
Old Paper Map



Current Effective Digital Map



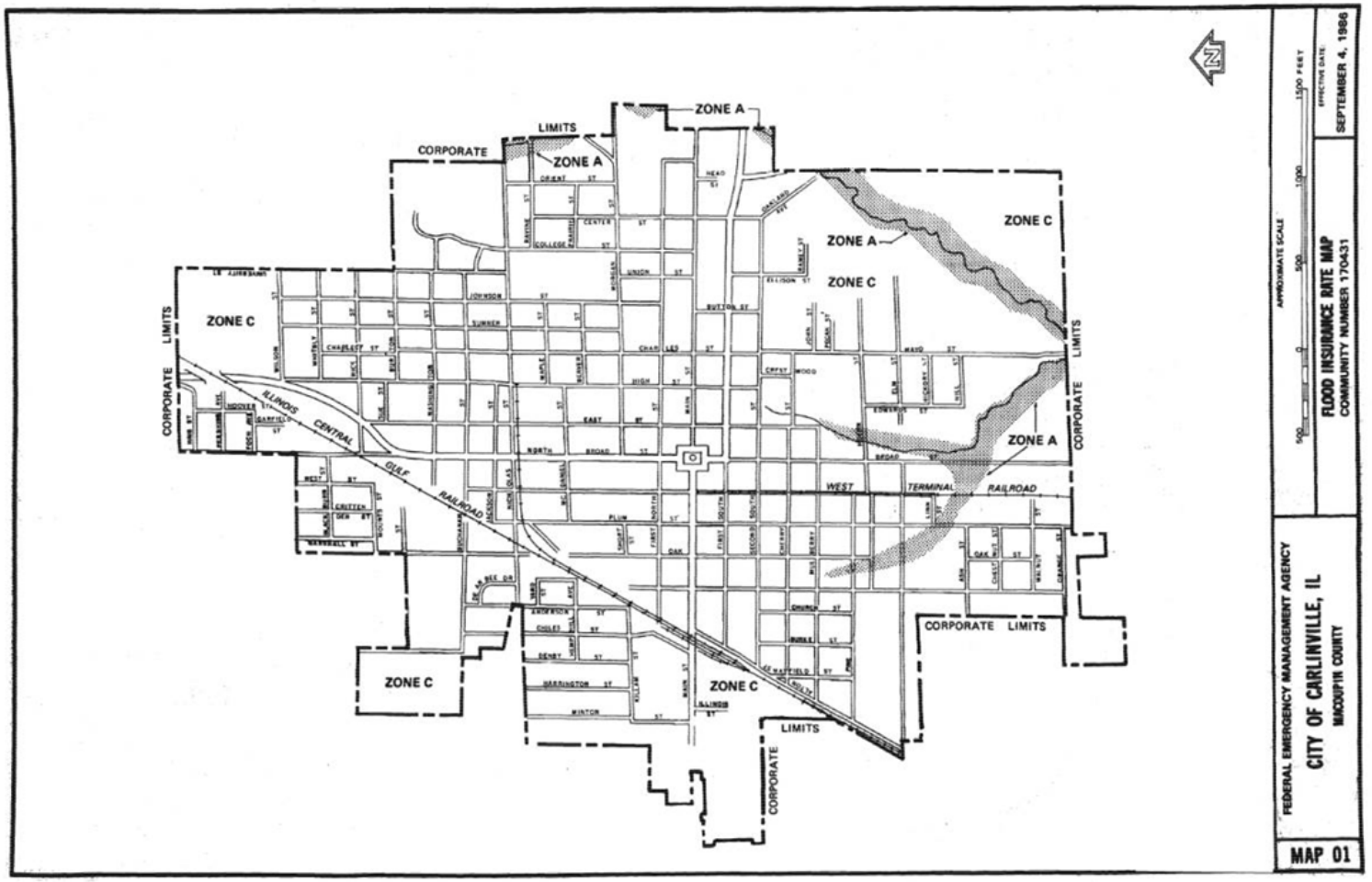
Paper Map to Digital Map



Effective Map & FIS Dates

Community Name	Effective Map Date	Effective FIS Date
City of Carlinville	09/04/1986	NA
City of Gillespie	08/04/1987	NA
City of Staunton	07/17/1981	NA
City of Virden	08/02/2007	08/02/2007
Macoupin County Unincorporated	01/06/1978	NA

City of Carlinville



Data Development <-- --> Regulatory Mapping

map phase

Draft Map
(not released)

For Flood Risk Review (FRR)

web map

review & comment

map phase

Updated Draft Map

For FEMA Data Submission Notification Letter- AKA "621"

web map & Db

review & comment

map phase

Preliminary
(released)

For Community and Public Review

Comment Period & Appeal Period

LFD

map phase

Final
(released as pending)

For Community Ordinance Review and Adoption

(Limited FP Mgt use)

map phase

Effective
(regulatory)

For Flood Insurance & Floodplain Management Use

Flood Risk Review Meeting

draft engineering model results and draft floodplain delineations

End of Data Development

Resolve FRR comments
If necessary, update the models/delineations/Db
Issue FEMA "621" letter

Preliminary Products

Released as
Preliminary Products
(FIRM Db, FIRM Panels, FIS)

Plus PSOMA

Post Preliminary Processing

Final Products

Released as
Final Products - Pending
(FIRM Db, FIRM Panels, FIS)

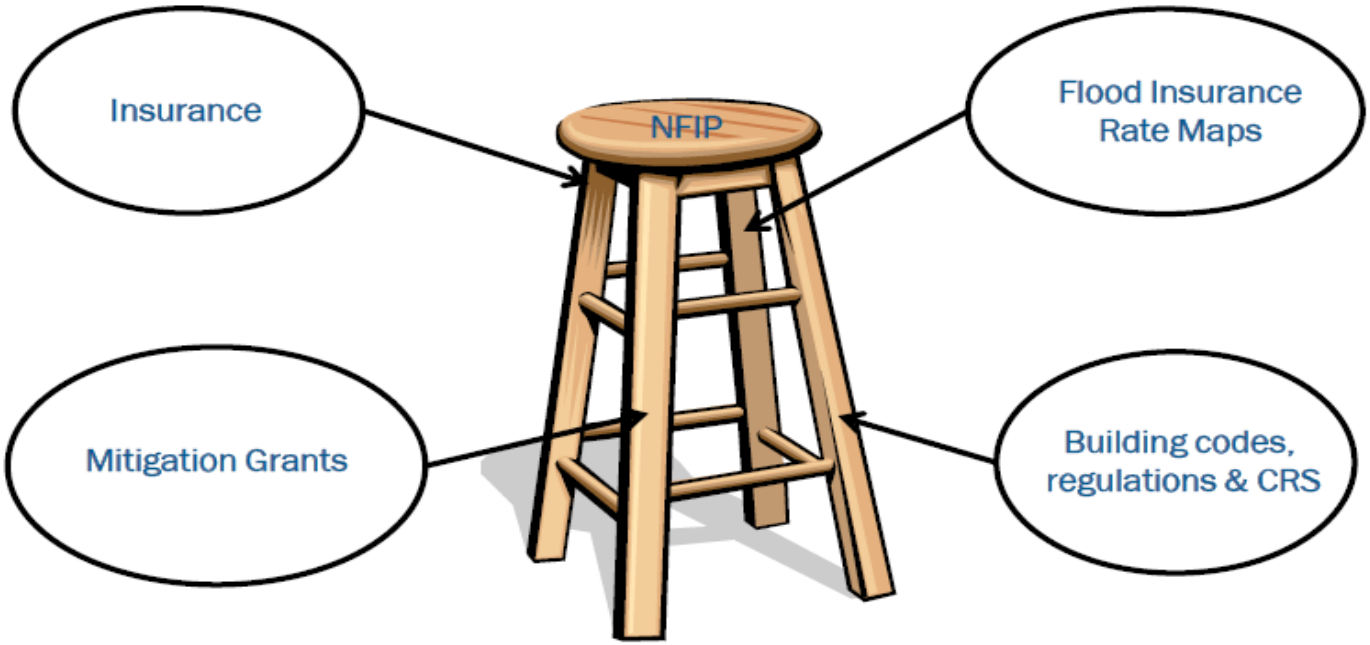
Plus FSOMA

Effective Products

Previously released
Final Products are Effective
(FIRM Db, FIRM Panels, FIS)

Plus Revalidation Letters

National Flood Insurance Program



- Insure homes and businesses against flood-related losses
- Identify and map flood hazards
- Mitigate to reduce flood impacts
- Adopt and enforce floodplain management regulations

Project Scope

What is a Special Flood Hazard Area?

The FEMA Special Flood Hazard Area (SFHA) represents areas mapped as having a 1% annual chance of being inundated by the base flood in any given year.

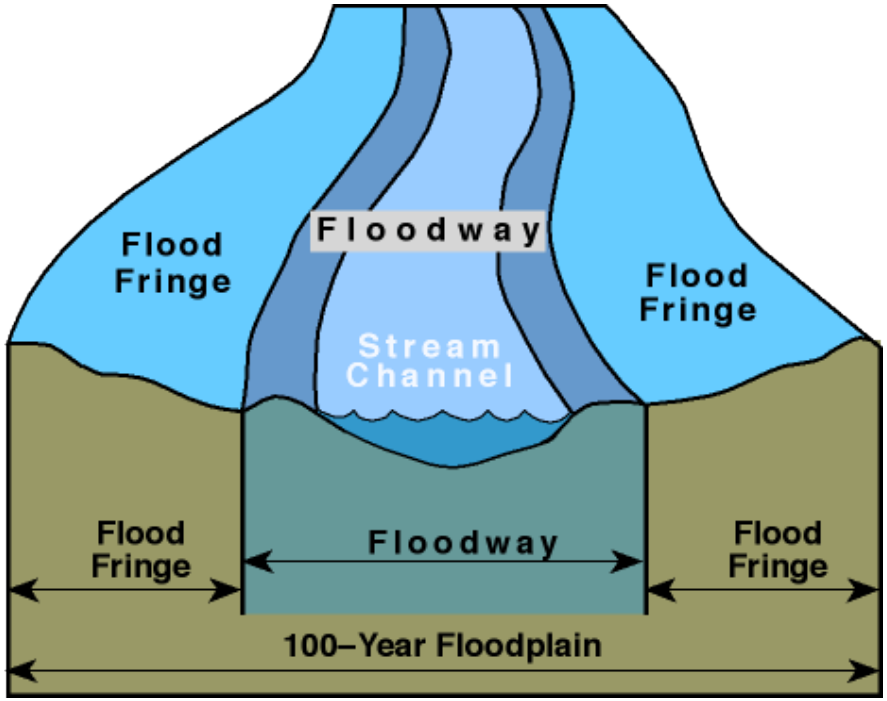
Riverine hydraulic analysis typically results in SFHA designation as **Zone A** or **Zone AE,** based on the analysis level deemed appropriate for the study area.

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

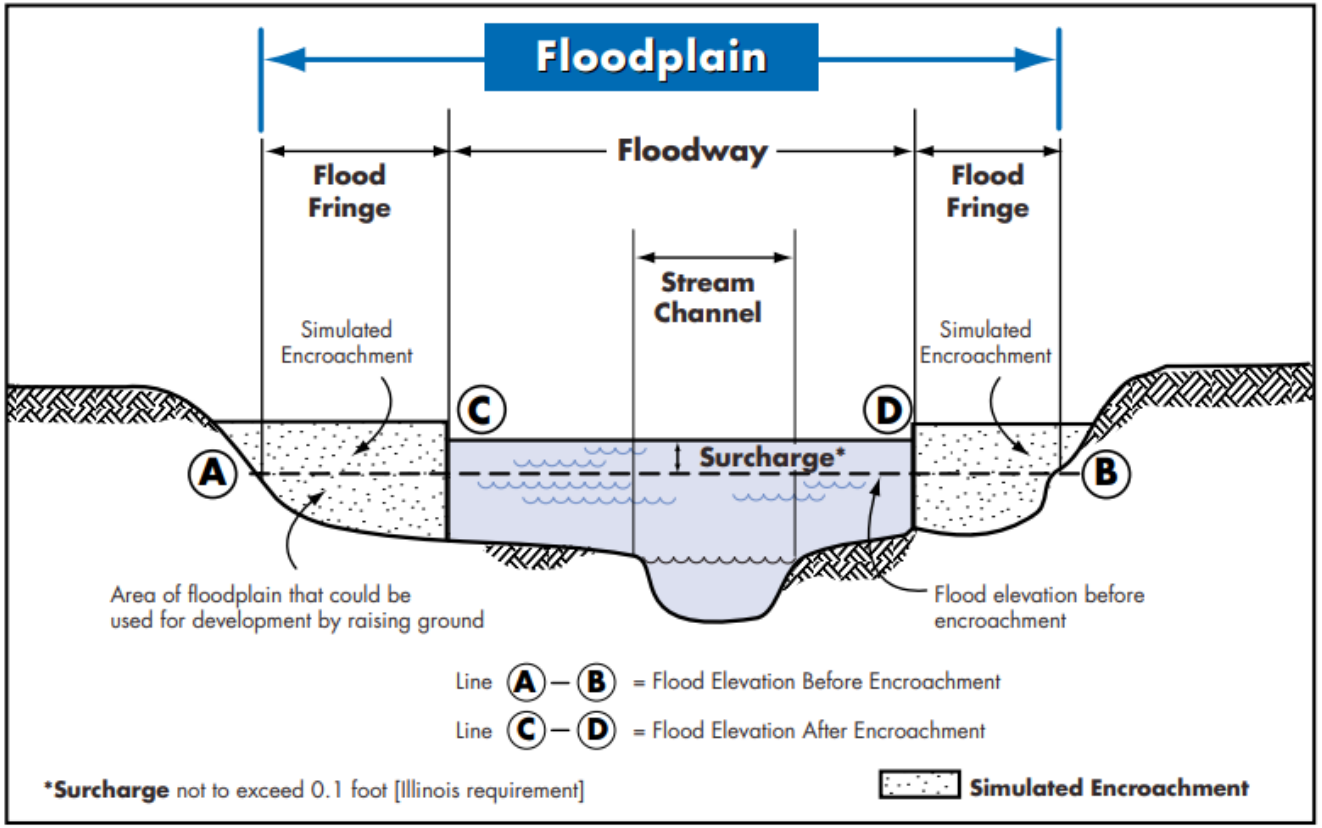
The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.



Floodway

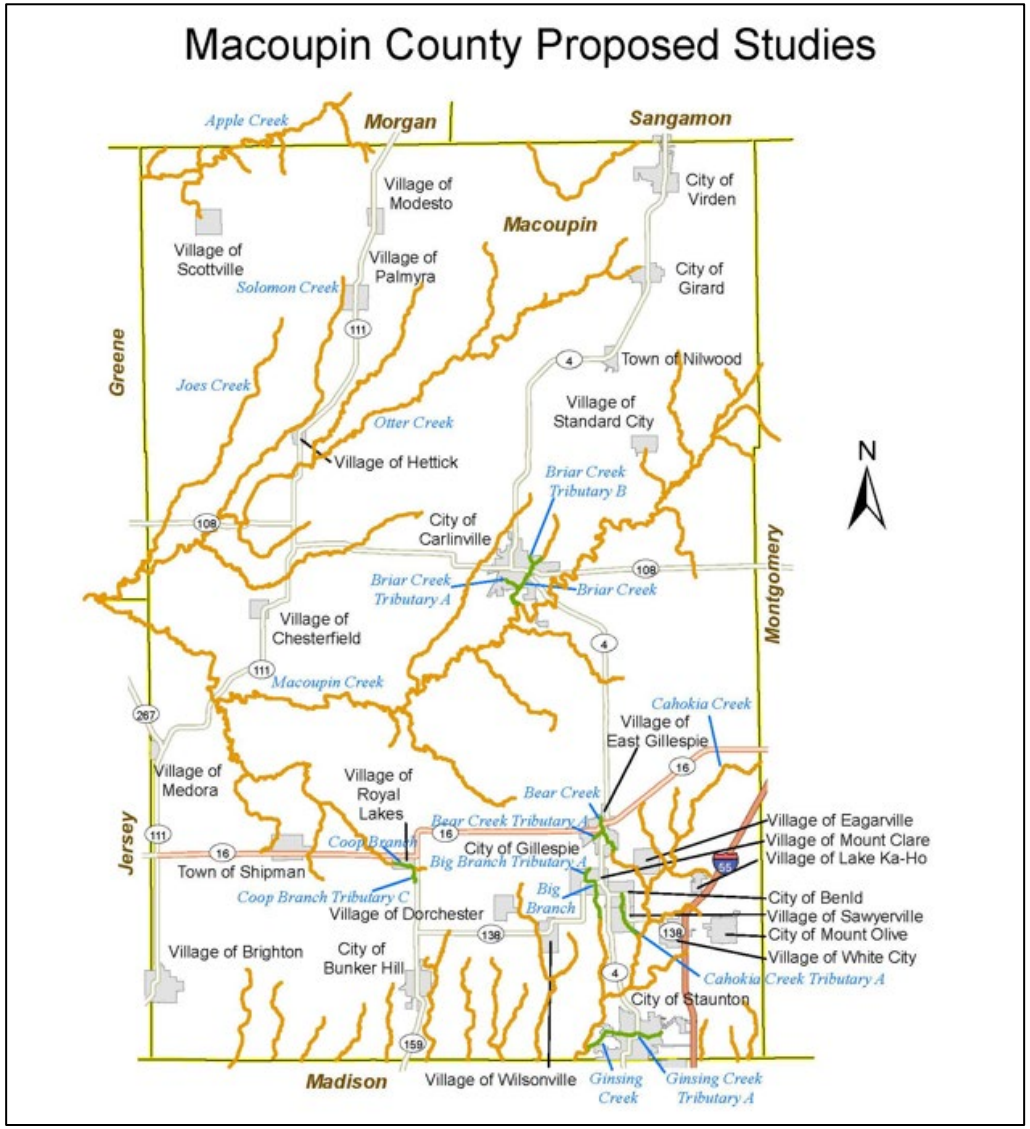
Illinois Floodways are unique:

- 0.1-foot maximum surcharge
- Max 10% reduction is storage volume
- Max 10% increase in flow velocity



Credit: https://www2.illinois.gov/dnr/WaterResources/Documents/Resman_ILFPMQuickGuide.pdf

Project Scope



Macoupin County Data Development Summary:

- 19 miles of **Zone AE** streams studied
- 392 miles of **Zone A** streams studied

Project Milestones

Project Initiation Community Coordination meeting March 2, 2021, via Zoom

FEMA Standard ID 620 letters- dated March 15, 2021; (email attachment with some communities receiving USPS mailed letters); 30-day comment period

Flood Risk Review Meeting (today)- with community 30-day comment period

State Review and Approval

Development of Digital Flood Insurance Rate Maps (DFIRMs)

Release of Preliminary DFIRMs and Public Open House

DFIRMs become Effective

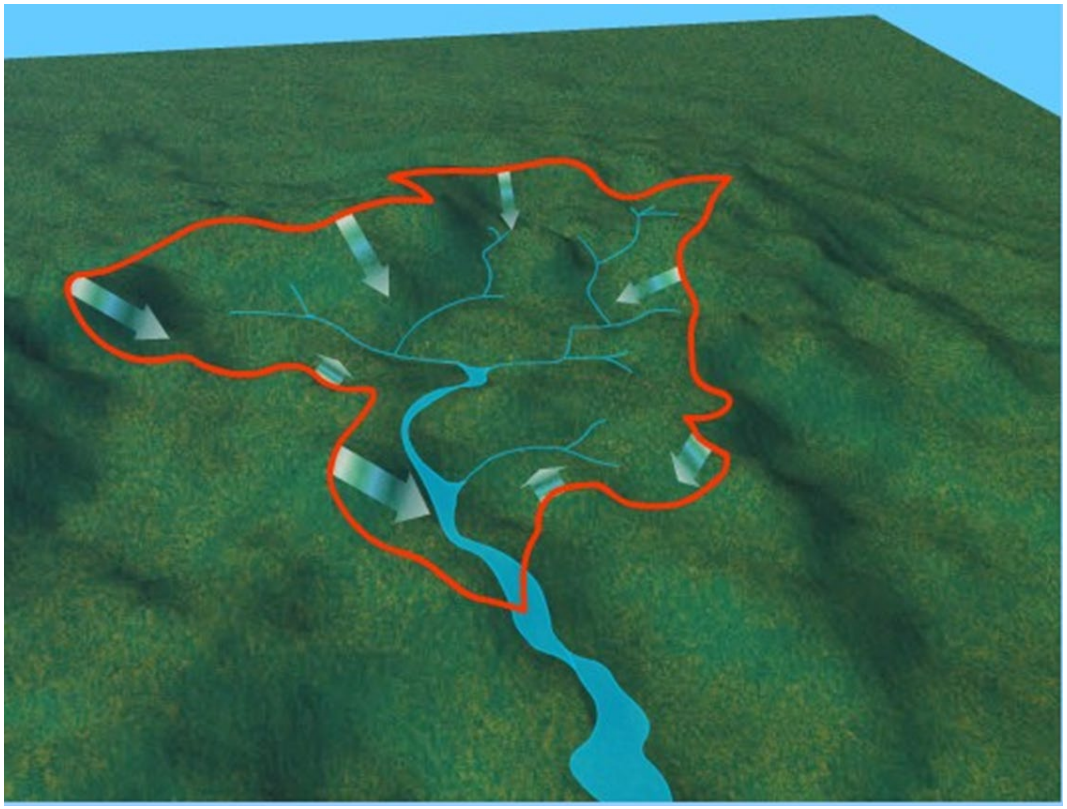
Hydrology Study Methods

Hydrology

Annual Chance Flood Frequency Intervals required for FEMA

- For the Zone AE hydrology, HEC-HMS rainfall-runoff model studied the 10%, 4%, 2%, 1% (base flood), 0.2%, and 1%+ flow frequencies.

- For the Zone A hydrology USGS StreamStats was used to calculate the 10%, 4%, 2%, 1% (base flood), 0.2%, and 1%+ flow frequencies.



Hydrology Study Methods

HEC-HMS modeling used for Zone AE studies

A number of lakes were also studied utilizing HMS (shown below):

Summary of Stillwater Areas in Macoupin Study Area (SA3-SA5)				HMS Model
Stillwater / Lake Name	Zone	ISWS SA	ISWS River / Reach	Y/N
Lake Carlinville	A	5	Honey Creek	Y
Otter Lake	A	3	West Fork Otter Creek	Y
Old Gillespie Lake	A	5	Dry Fork	Y
New Gillespie Lake	A	5	Dry Fork	Y
Shad Lake	AE	5	Coop Branch	Y

Summary of Stillwater Areas in Macoupin Study Area (SA8)				HMS Model
Stillwater / Lake Name	Zone	ISWS SA	ISWS River / Reach	Y/N
Benld Lake	AE	8	Cahokia Creek Trib	Y
Lower Columbia Quarry	A	8	Bear Creek	Y
Staunton Reservoir	A	8	East Creek	Y
Mt. Olive Lake	A	8	Panther Creek	Y

Hydraulic Study Methods

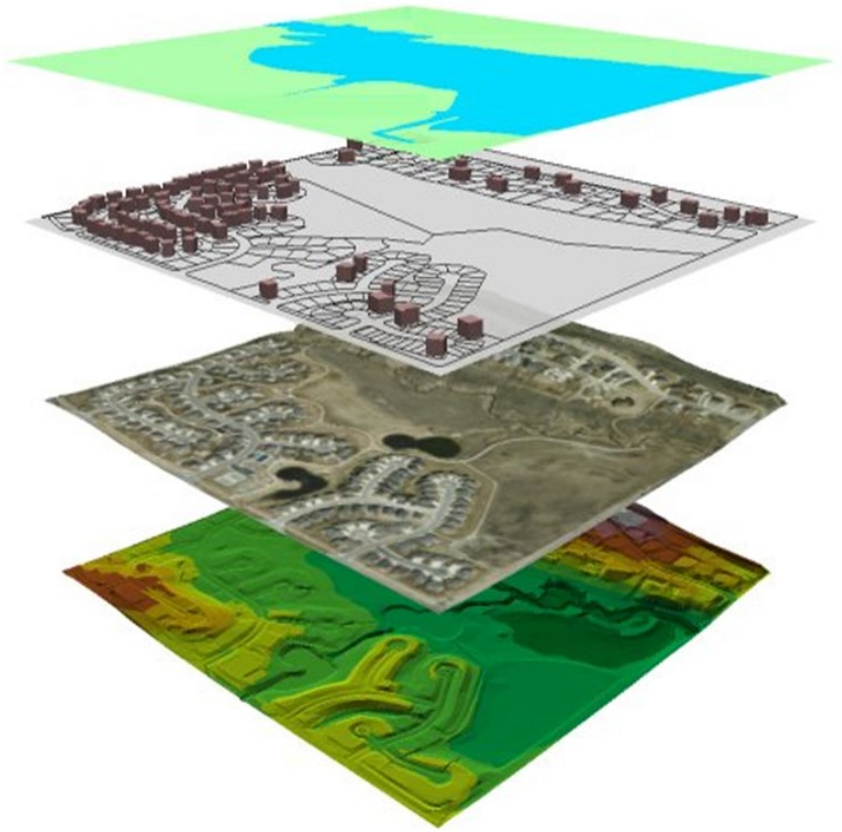
Hydraulics

- 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)

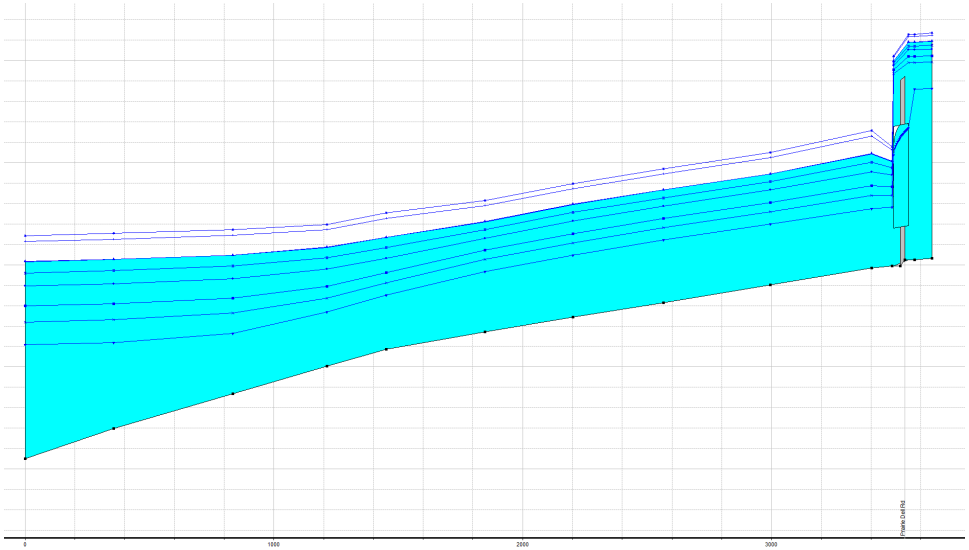
Hydraulic Data

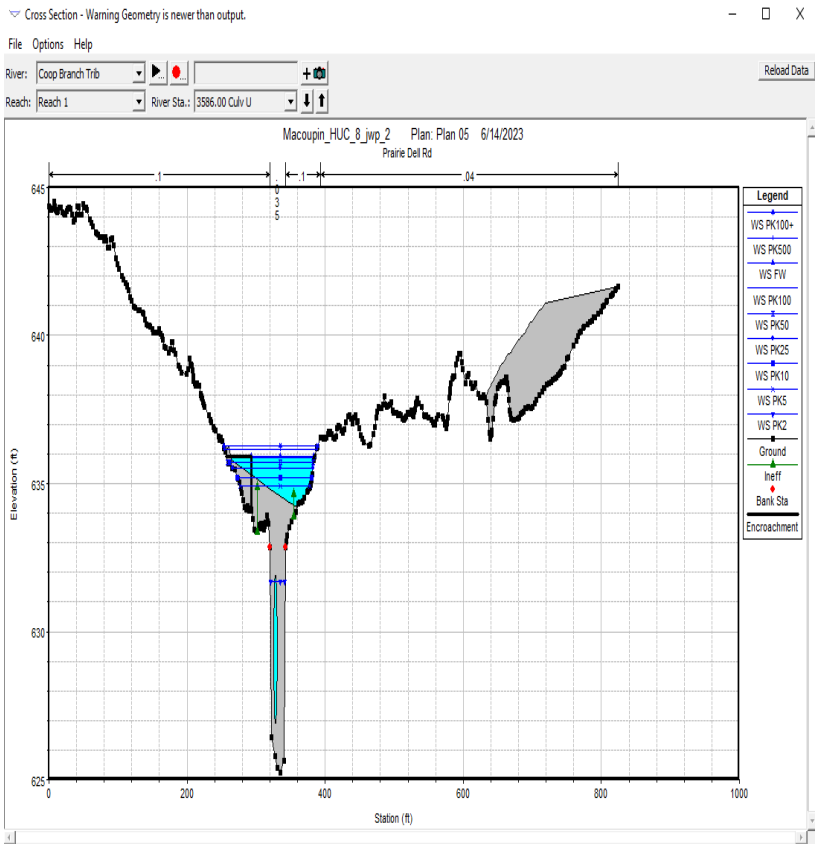
1. LiDAR – Collected in 2017 from ISGS Data Clearinghouse, “Illinois Height Modernization Progaram”
2. As-built Plans – IDOT, Local Governments
3. Field Survey – Collected by sub-consultant
4. USGS - National Land Cover Database, 2016
5. Basemap Ortho Photos - 2017



Hydraulics

- Water Surface Elevations
- Exported to GIS for mapping





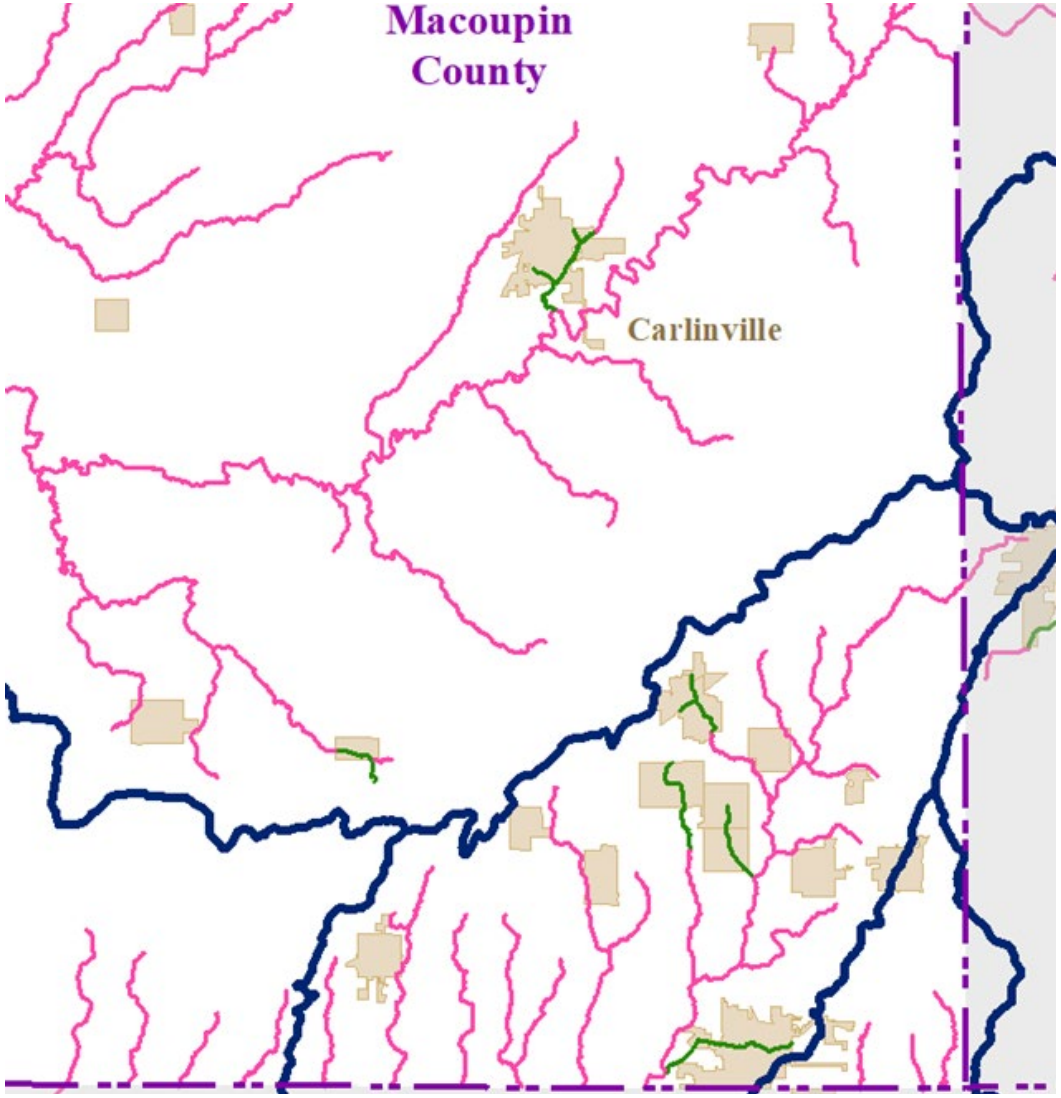
Hydraulics: Results

Base Flood Elevation (BFE) Comparison

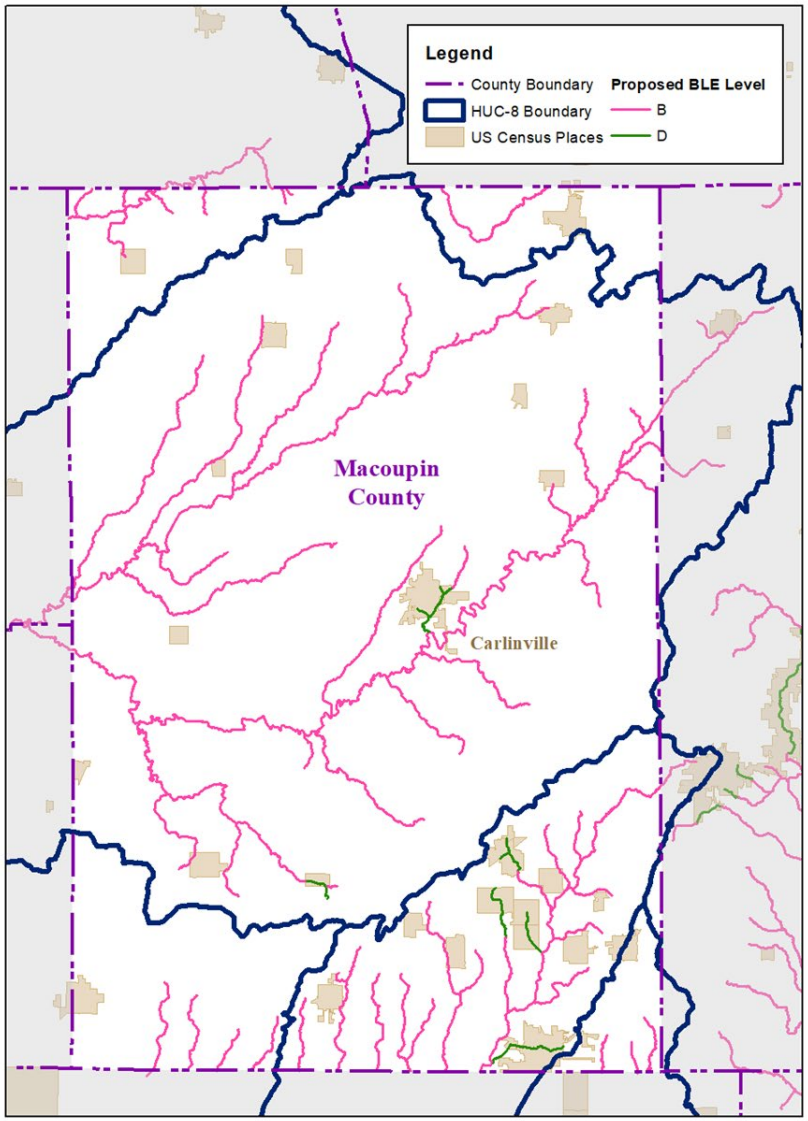
There are no effective Zone AE studies in Macoupin County to compare the new BFE's to.

Comparisons can be made between newly delineated boundaries and effective base flood boundaries and structures affected (see web map)

Proposed Zone AE Mapping

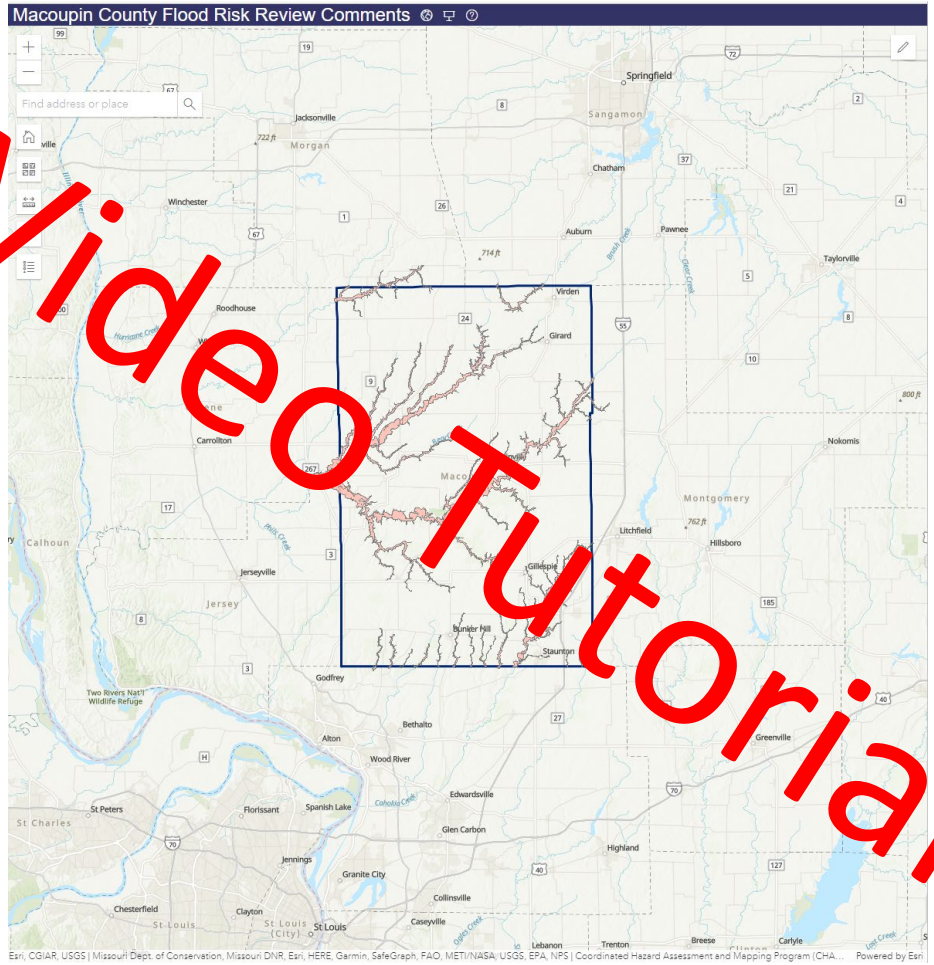


Proposed Zone AE and A Mapping



Webmap

Webmap Comment Feature



Video Tutorial

https://www.illinoisfloodmaps.org/commentmap/macoupin.htm

Password: watershed Log in: illinoisfloods!123

Communication and Next Steps

Communication Plan

- Project Initiation Community Coordination meeting – virtual 03/02/2021
- Proposed Engineering Methods Notification (FEMA SID 620) letter- 03/15/2021- email attachment; some communities received USPS letters
- 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 database30-Day Comment Period starts today

Schedule

~~Project Initiation Community Coordination meeting – 03/02/2021~~

Flood Risk Review Meeting (today); Comment period ending October 9, 2023

Submit Flood Studies to IDNR for State review

Complete draft FIRM database to conclude data development phase of project

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

Risk Communication and Mitigation Actions

Hazard Mitigation- Declarations 1999 to present

https://www.fema.gov/disaster/declarations

Declaration	Date of Declaration	Disaster Description	Type of Assistance
EM-3577	December 13, 2021	Severe Storms, Straight-line Winds, and Tornadoes	Public Assistance
DR-4489-IL	March 26, 2020	Biological - COVID-19 Pandemic	Individuals and Public
EM-3435-IL	March 13, 2020	Biological - COVID-19	Public Assistance
DR-1800-IL	October 3, 2008	Severe Storms and Flooding	Public Assistance
DR-1681-IL	February 9, 2007	Severe Winter Storm	Public Assistance
EM-3230-IL	September 7, 2005	Hurricane Katrina Evacuation	Public Assistance
DR-1416-IL	May 21, 2002	Severe Storms, Tornadoes and Flooding	Individual Assistance
DR-684-IL	June 6, 1983	Severe Storms, Tornadoes and Flooding	Public Assistance
DR-674-IL	December 13, 1982	Severe Storms, Tornadoes and Flooding	Public Assistance

Hazard Mitigation

Paragraph 3.5 FLOODS

- Riverine Flooding
- Shallow Flooding
- Flash Flooding.

Flood Fast Facts – Occurrences

Number of General Floods Reported (1982 – 2017): *6*

Number of Flash Floods Reported (1998 – 2017): *25*

Most Likely Month for Flash Floods to Occur: *May*

Most Likely Time for Flash Floods to Occur: *Evening*

Number of Federally-Declared Disasters Related to General/Flash Flooding: *4*

Flood Fast Facts – Impacts/Risk

General Flood Impacts

- Total Property Damage: *n/a*
- Infrastructure/Critical Facilities Damage*: n/a
- Total Crop Damage: *n/a*
- Injuries: *n/a*
- Fatalities: *n/a*

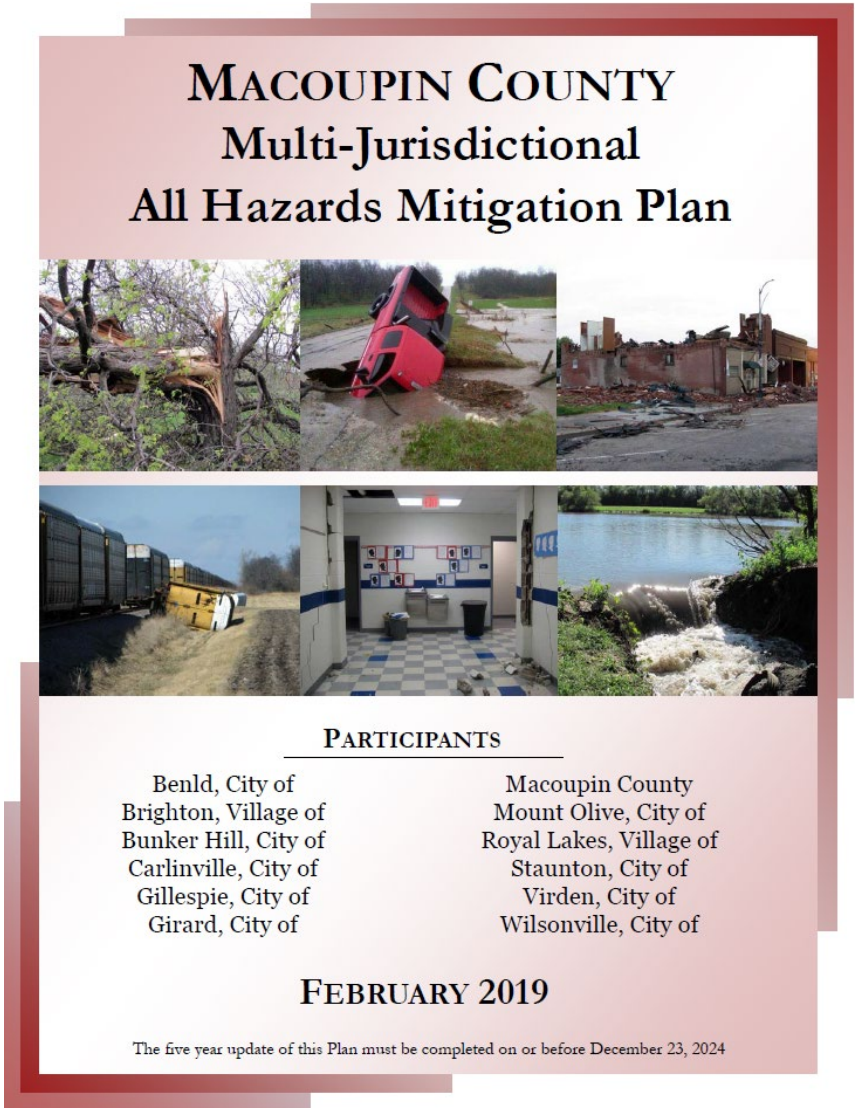
Flash Flood Impacts

- Total Property Damage: *$5,000*
- Infrastructure/Critical Facilities Damage*: *n/a*
- Total Crop Damage: *$5,000*
- Injuries: *n/a*
- Fatalities: *n/a*

Flood Risk/Vulnerability to:

- Public Health & Safety – General Flooding: *Low*
- Public Health & Safety – Flash Flooding: *Medium*
- Buildings/Infrastructure/Critical Facilities: *Medium/High*

* Infrastructure/Critical Facilities Damage totals are included in the Total Property Damage amounts.



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.

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MACOUPIN COUNTY FLOOD RISK REVIEW MEETING
SEPTEMBER 8, 2023, VIA ZOOM

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 the 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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