FEMA

Flood Risk Review Meeting

Clay County, IL

February 18, 2020 Flora, IL

RiskMAP

Increasing Resilience Together

Agenda

1. Introductions
   - Mary Richardson, CFM
2. Meeting Goals and Brief Overview of Project
   - Glenn Heistand, P.E., CFM
3. Hydrology & Hydraulic Details
   - Addison Jobe, EIT, CFM
4. Review of Draft Work Maps
   - Ryan Meekma, GISP, CFM
5. Next Steps and Desired Outcomes
   - Glenn Heistand, P.E., CFM
6. Comment Forms- Review and Discussion
   - Meeting attendees

Introductions

- **ISWS Staff**
  - Mary Richardson – Outreach Lead
  - Glenn Heistand – Senior Hydraulic Engineer
  - Addison Jobe – H&H Engineer
  - Ryan Meekma – GIS Team Lead
  - Curt Abert – GIS, Associate Geologist
  - Diana Davisson – Mapping Program Engineer

Meeting Goals

Community input throughout the FEMA map revision process is essential to flood risk management. You are getting the first possible look at the analysis and DRAFT results so that you can provide your feedback early on.

Flood Risk Review Meeting Goals:

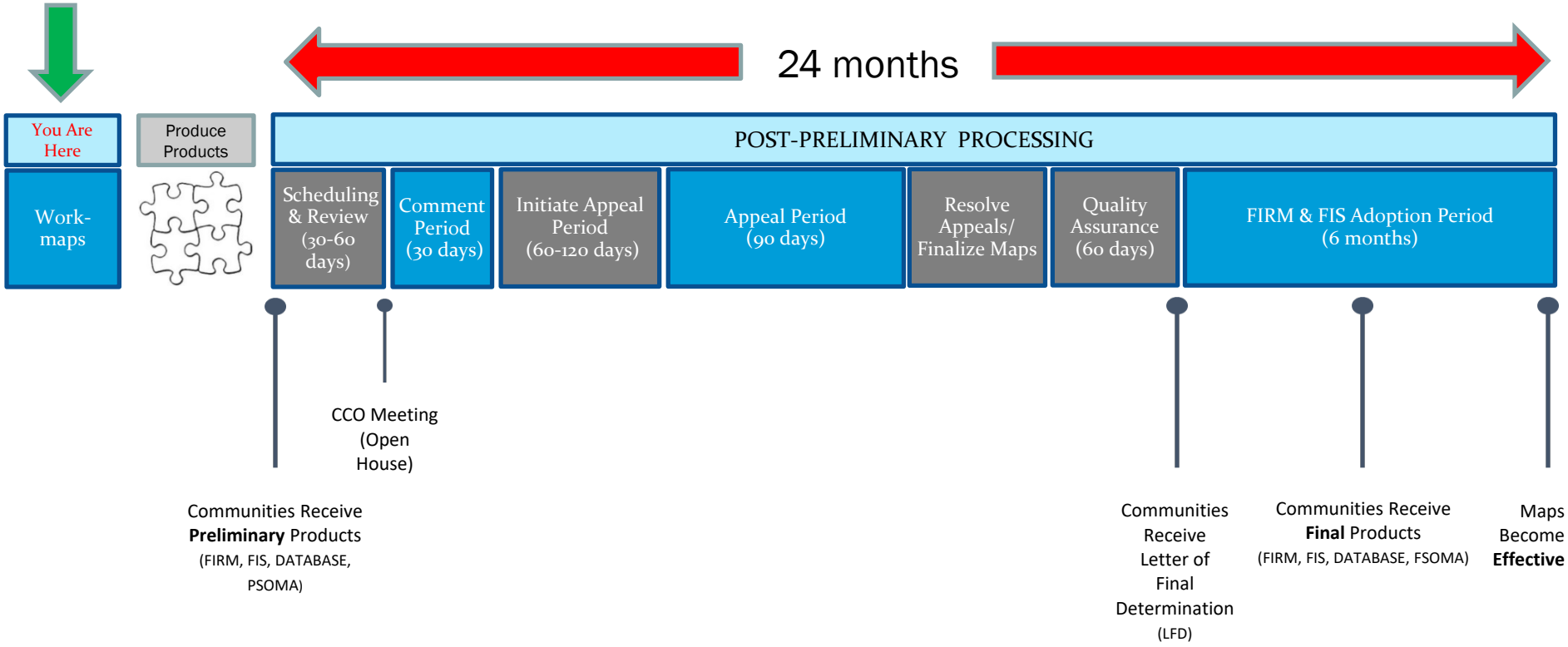
1. Provide an overview of the Hydrologic and Hydraulic Analysis
2. Present the DRAFT Results
3. Answer questions about the analysis
4. Collect your concerns/feedback/technical data
5. Understand your flood risk

Risk MAP Overview

1. Discovery Meeting
2. Data and Product Development
3. Flood Risk Review Meeting
4. Resilience Meeting
5. Distribution of Maps and Data
6. CCO (Consultation Coordination Officer) Meeting and Public Open House
7. 90-Day Appeal Period
8. Flood Risk Products
9. Effective FIRM and FIS Report Issuance
10. Planning For Mitigation Action

https://www.fema.gov/risk-map-flood-risk-project-lifecycle

Flood Insurance Rate Map (FIRM) Timeline

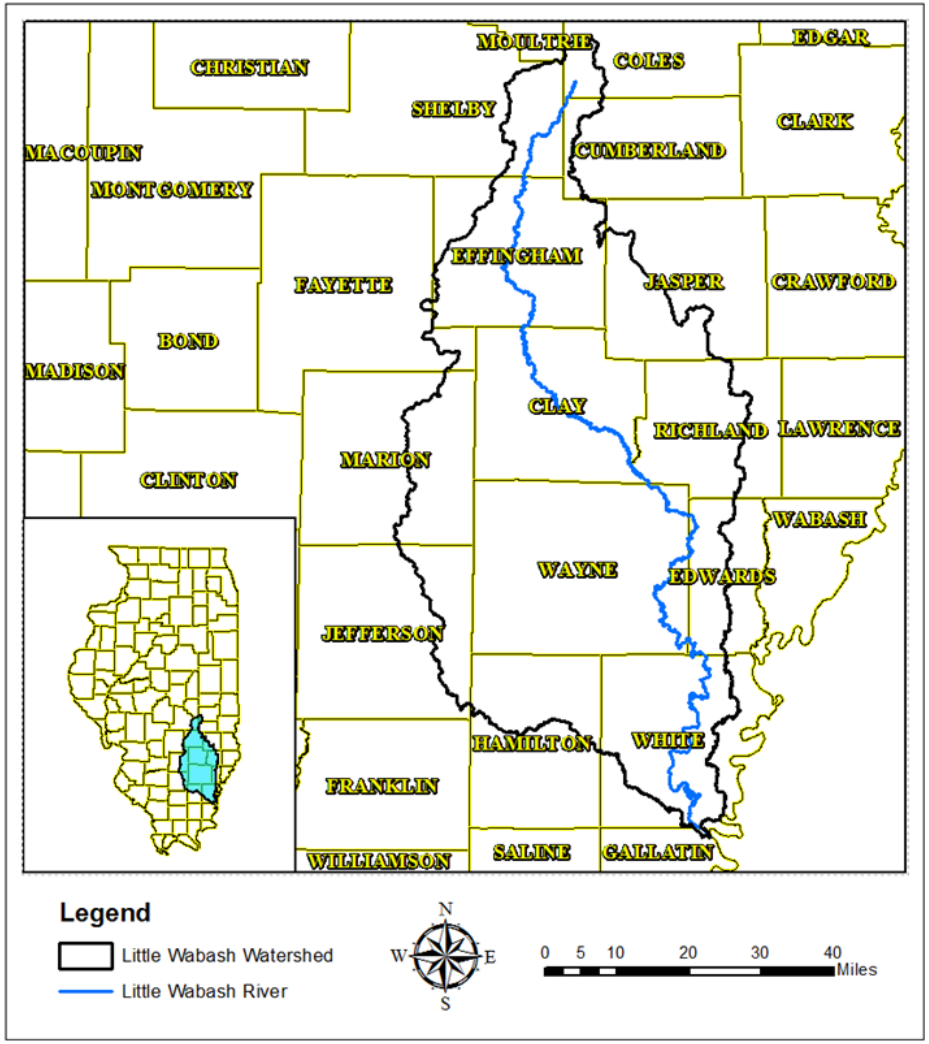


Project Overview

- **Definitions**
  - Zone A
    - 1-percent annual chance floodplains that are determined by **approximate methods** of analysis. Because detailed hydraulic analyses are not performed for such areas, no Base Flood Elevations or depths are shown within this zone. Mandatory flood insurance purchase requirements apply.
  - Zone AE
    - 1-percent annual chance floodplains that are determined by **detailed methods** of analysis. In most instances, Base Flood Elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements apply.
  - Zone X
    - Areas outside the 1-percent annual chance floodplain. No Base Flood Elevations or depths are shown within this zone. Insurance purchase is not required in these zones.

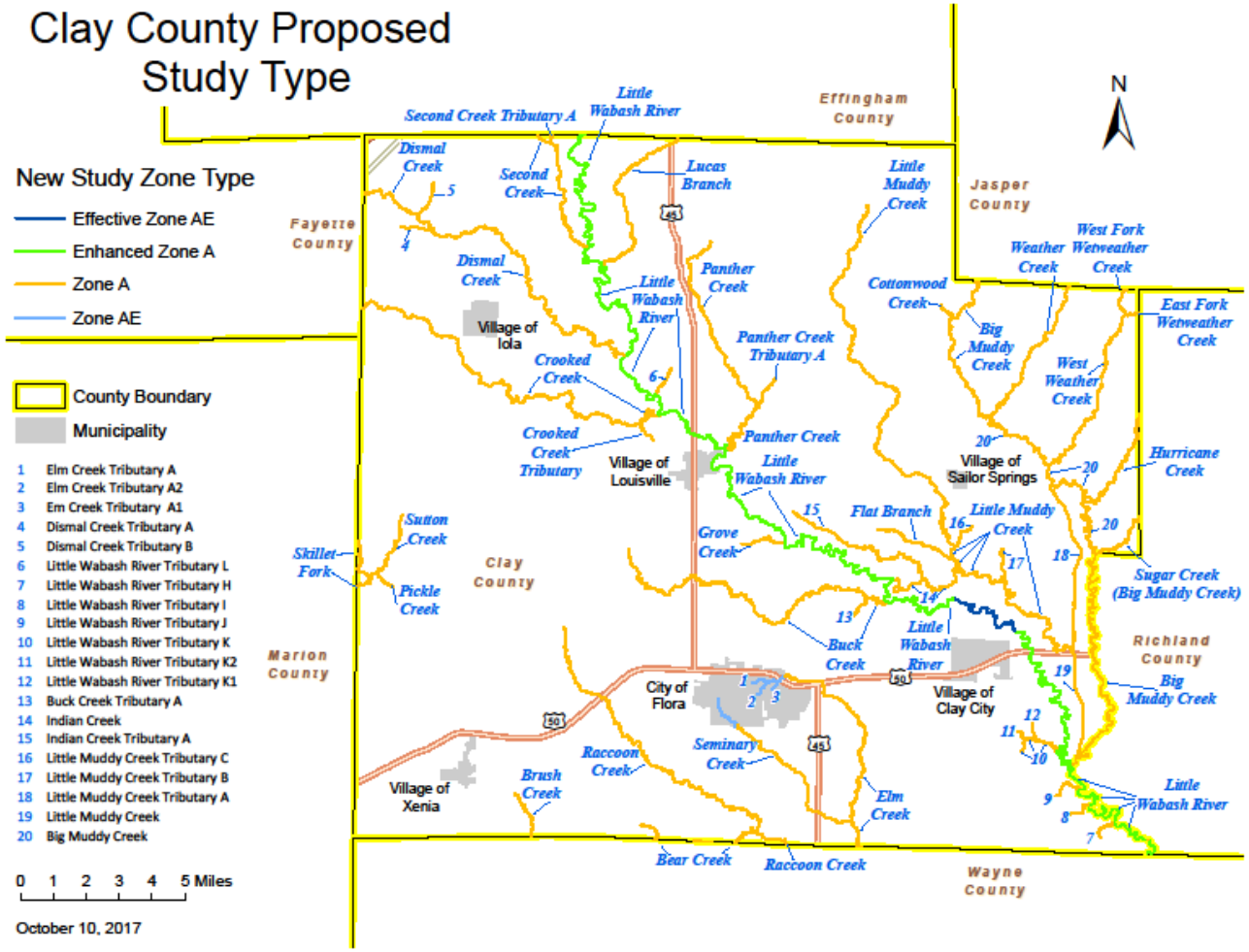
Project Overview

- 979 miles of Zone A streams
- 74 miles of Zone AE streams
- 175 miles of Enhanced Zone A on Little Wabash main-stem



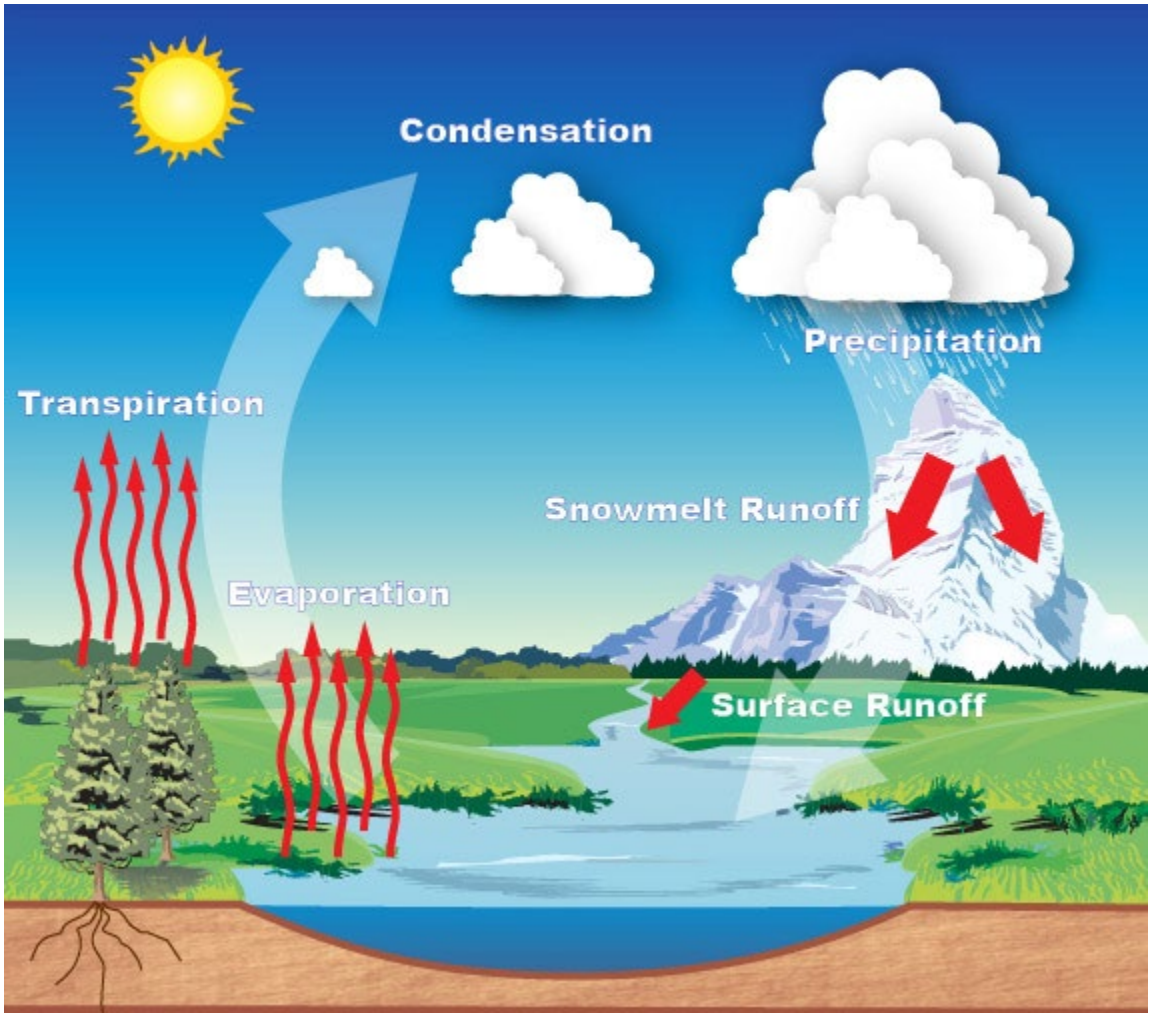
Project Overview

- 237 miles of new Zone A tributary stream studies
- 7 miles of Zone AE tributary streams
- 54 miles of Enhanced Zone A on Little Wabash main-stem
- 4 miles of Zone AE on Little Wabash main-stem



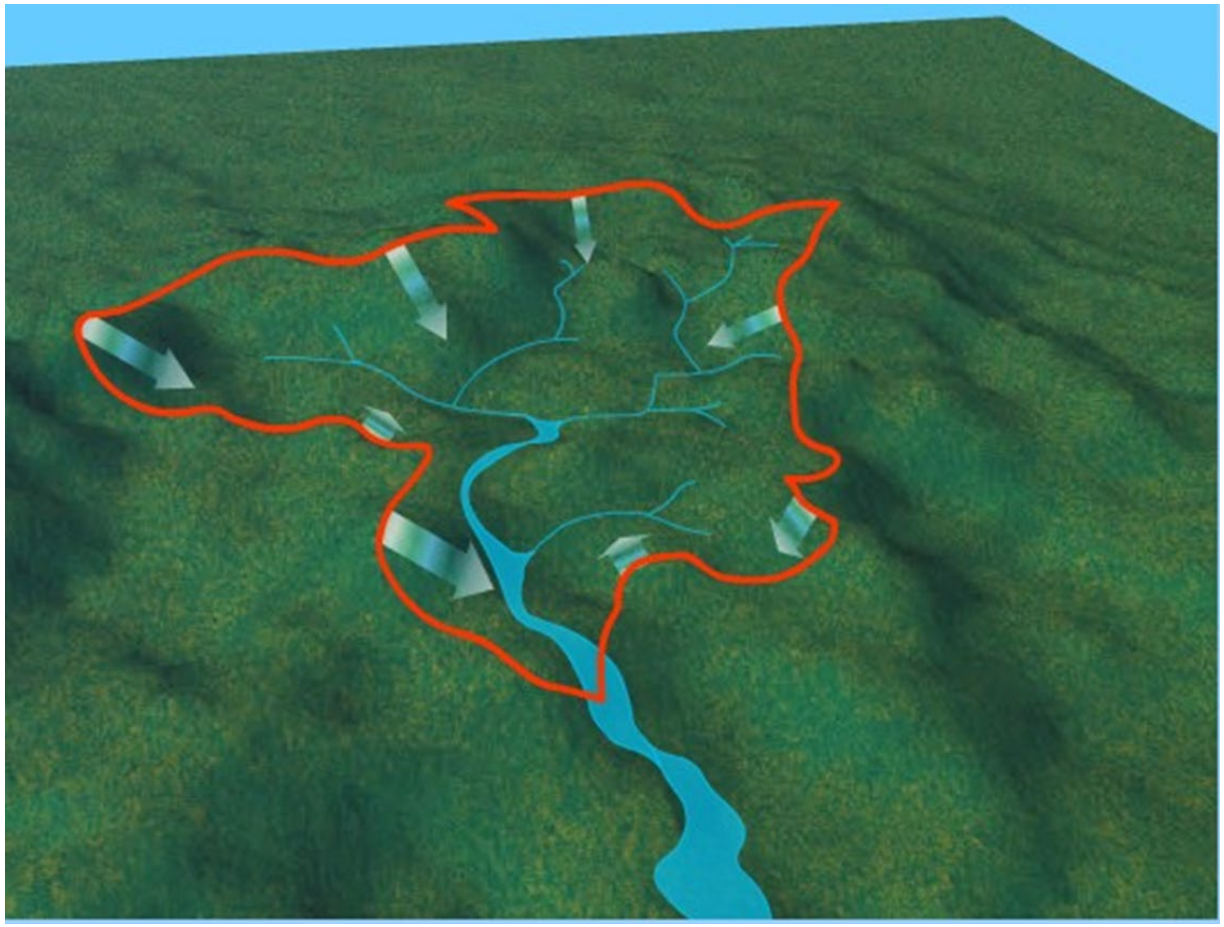
Hydrology & Hydraulics

- Hydrology and Hydraulic modeling is used to estimate flooding conditions
- Hydrology is the study of water: rainfall runoff amounts
- Hydraulics is the study of fluid motion: depth and velocity of runoff



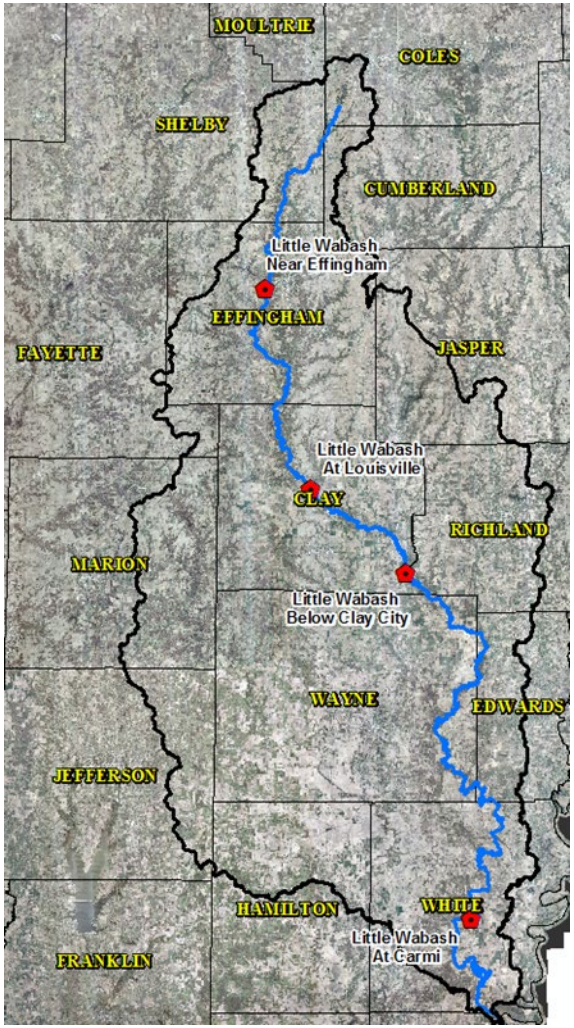
Hydrology

- It all starts with run-off
- 2, 5, 10, 25, 50, 100, 100+, 500 year return-interval rainfall events studied
- 50%, 20%, 10%, 4%, 2%, 1%, 1%+, 0.2% annual chance rainfall events



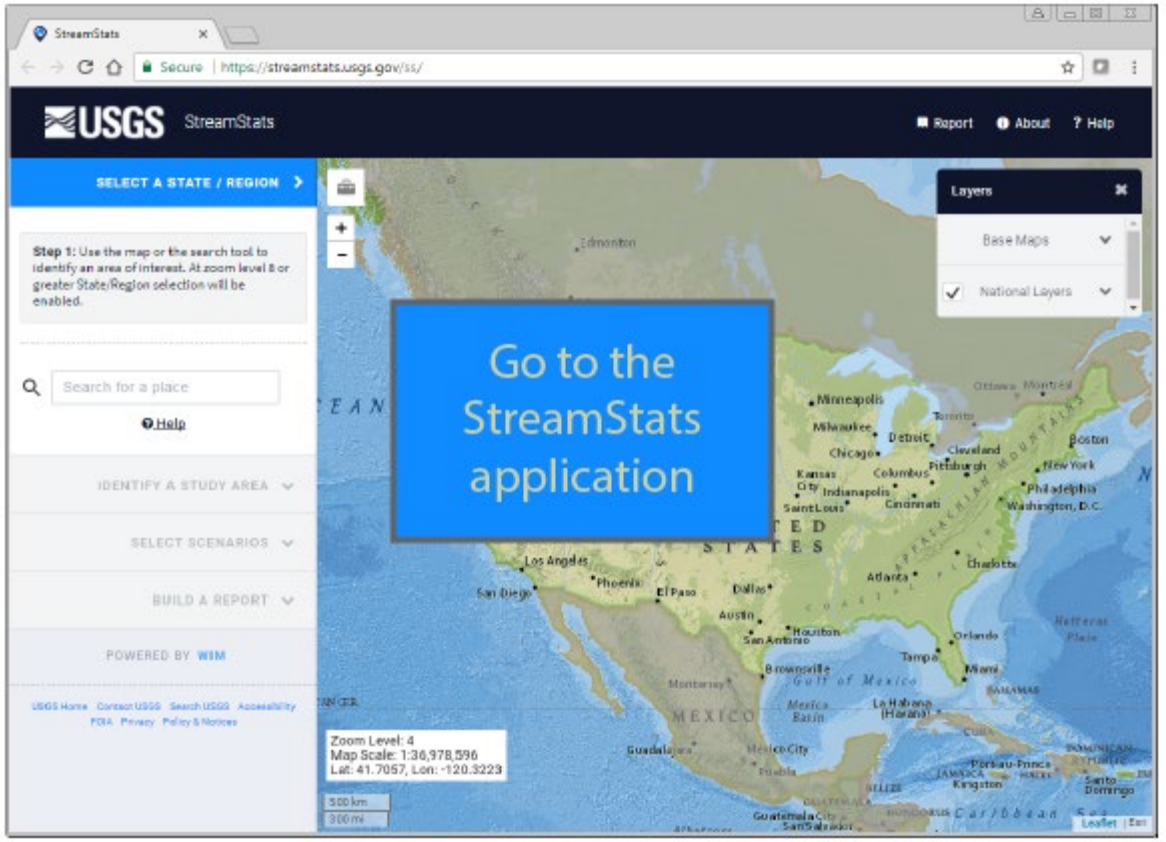
Hydrology

- USGS stream gages used at four locations along the main-stem Little Wabash River
  - Carmi
  - Clay City
  - Louisville
  - Effingham
- Regional increasing trend in annual peak flows in the Little Wabash River watershed
  - Climatological changes
  - Land-use changes



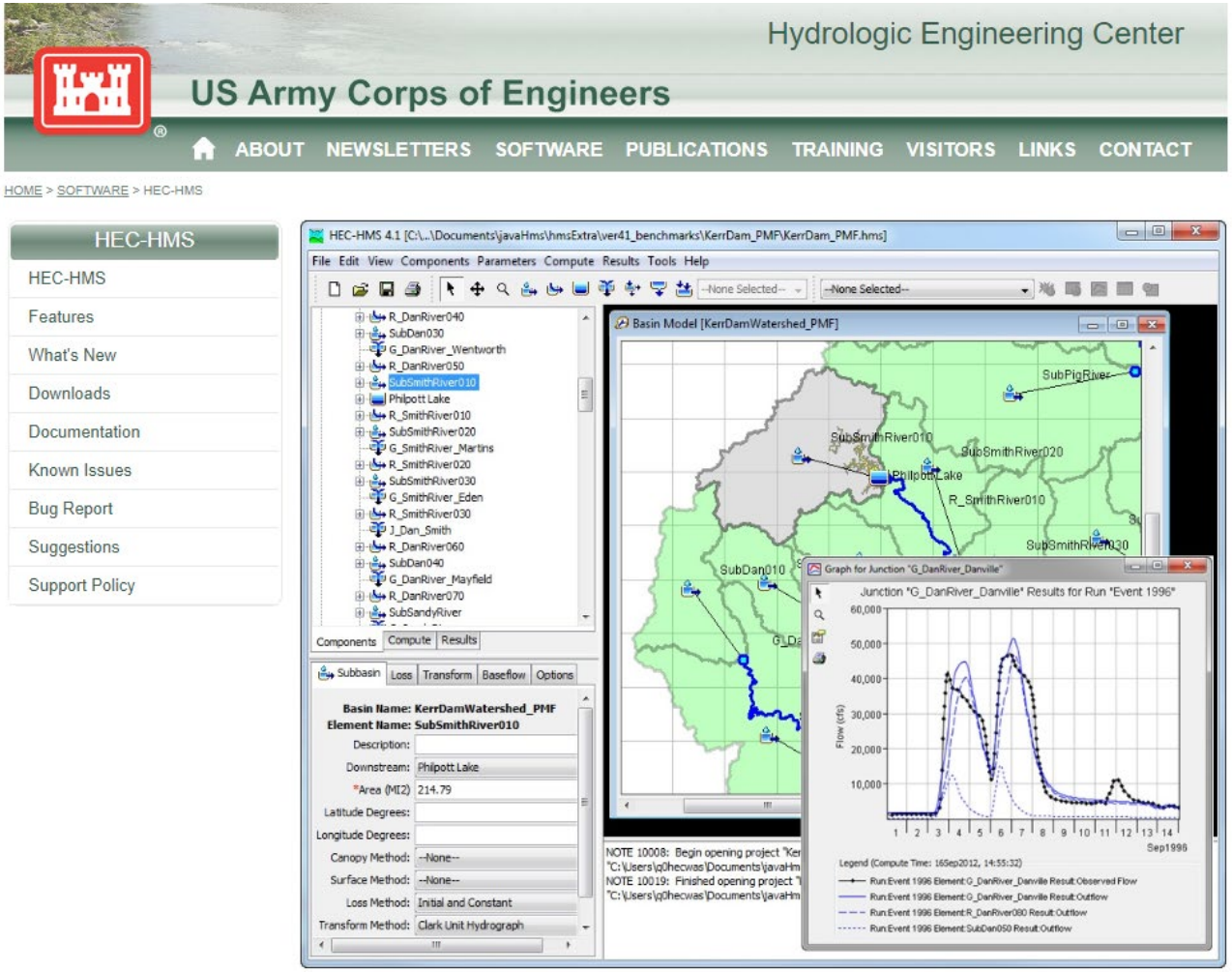
Hydrology

- **USGS StreamStats**
  - Web Application
  - Regression Analysis
  - Peak Flow output (static flow)
  - Based on gage data of Illinois streams
  - Used for Zone A studies



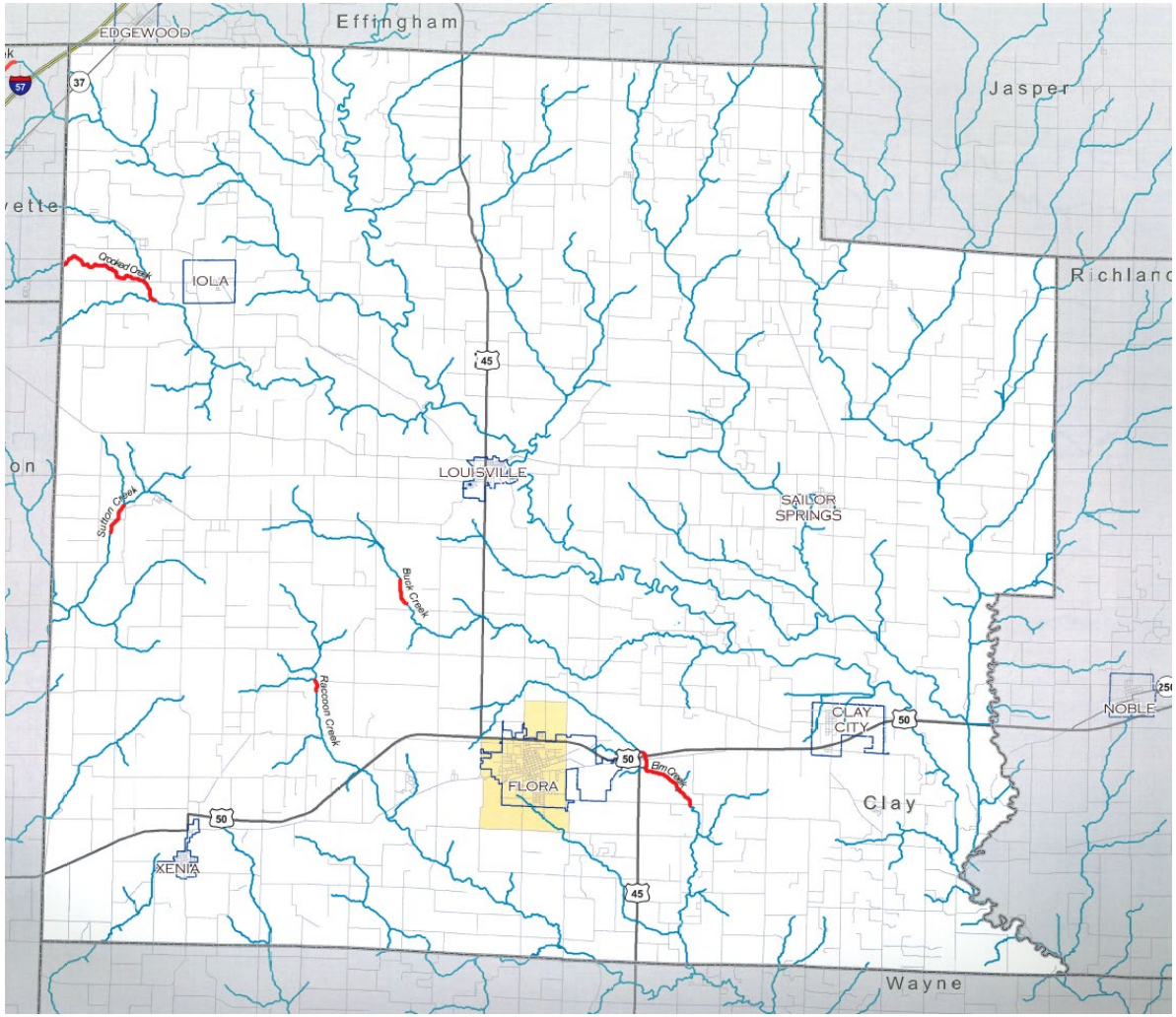
Hydrology

- **USACE HEC-HMS**
  - Rainfall-Runoff Analysis
  - Hydrograph output (flow changes with time)
  - Bulletin 70 rainfall amounts
  - Huff distribution
  - 24-hr duration
  - Used for Zone AE studies



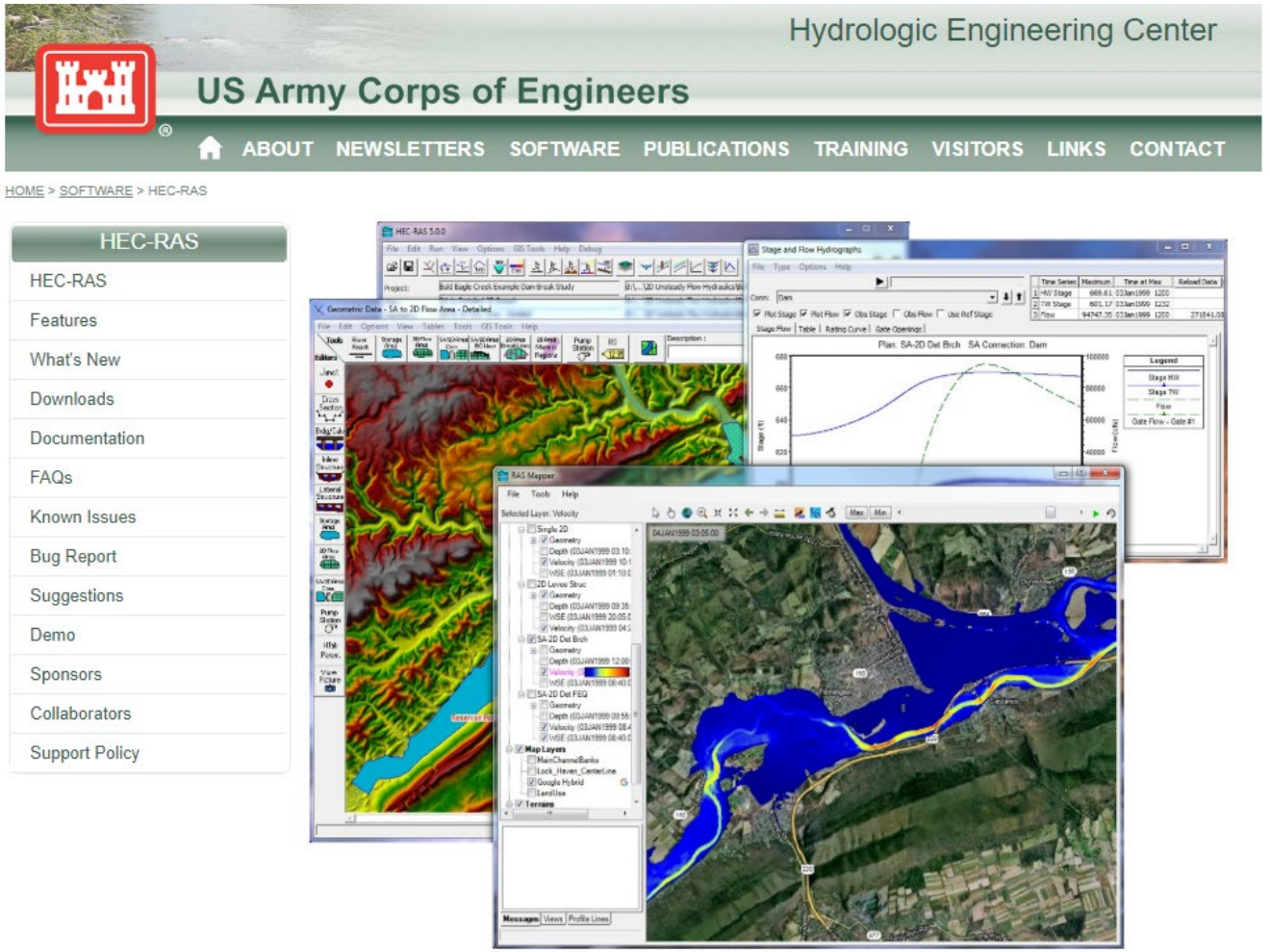
Hydrology

- **Drainage Area Considerations for Tributaries**
  - Urban = 1 square mile or larger
  - Rural = 10 square mile or larger
  - Plus any Effective miles less than 1 square mile



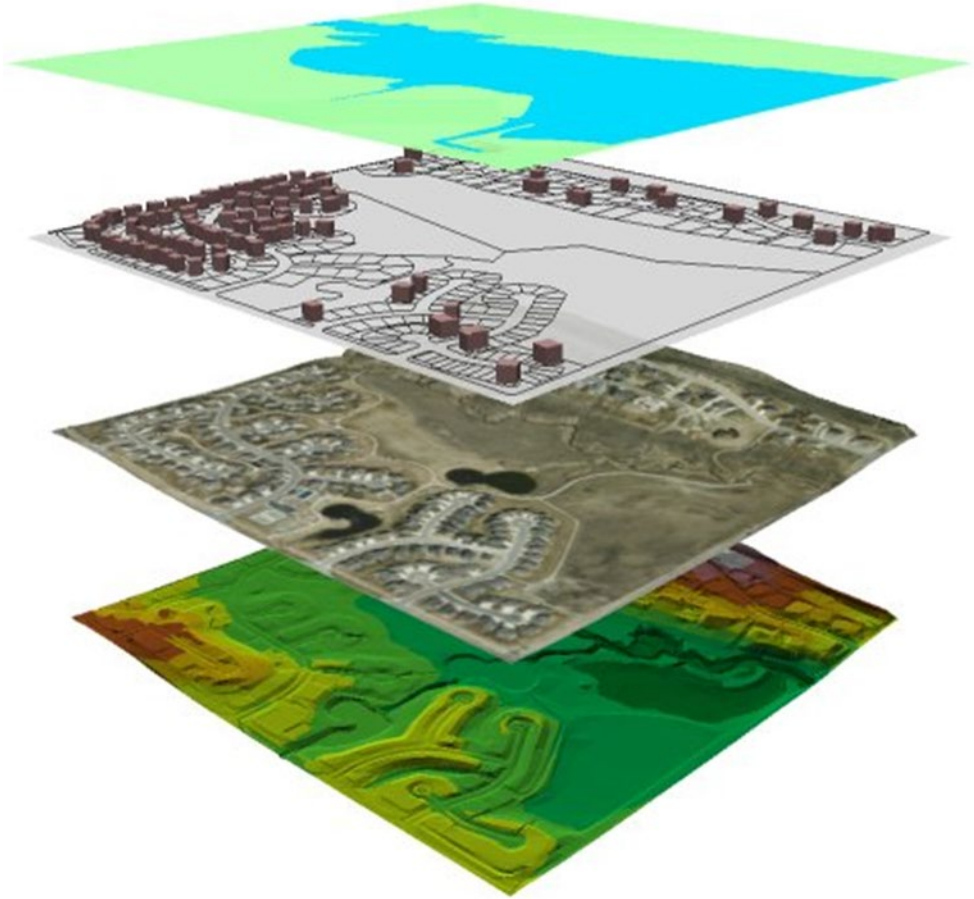
Hydraulics

- **USACE HEC-RAS**
  - Step-Backwater Model
  - 1-D Steady State
  - Used for Zone A & AE studies



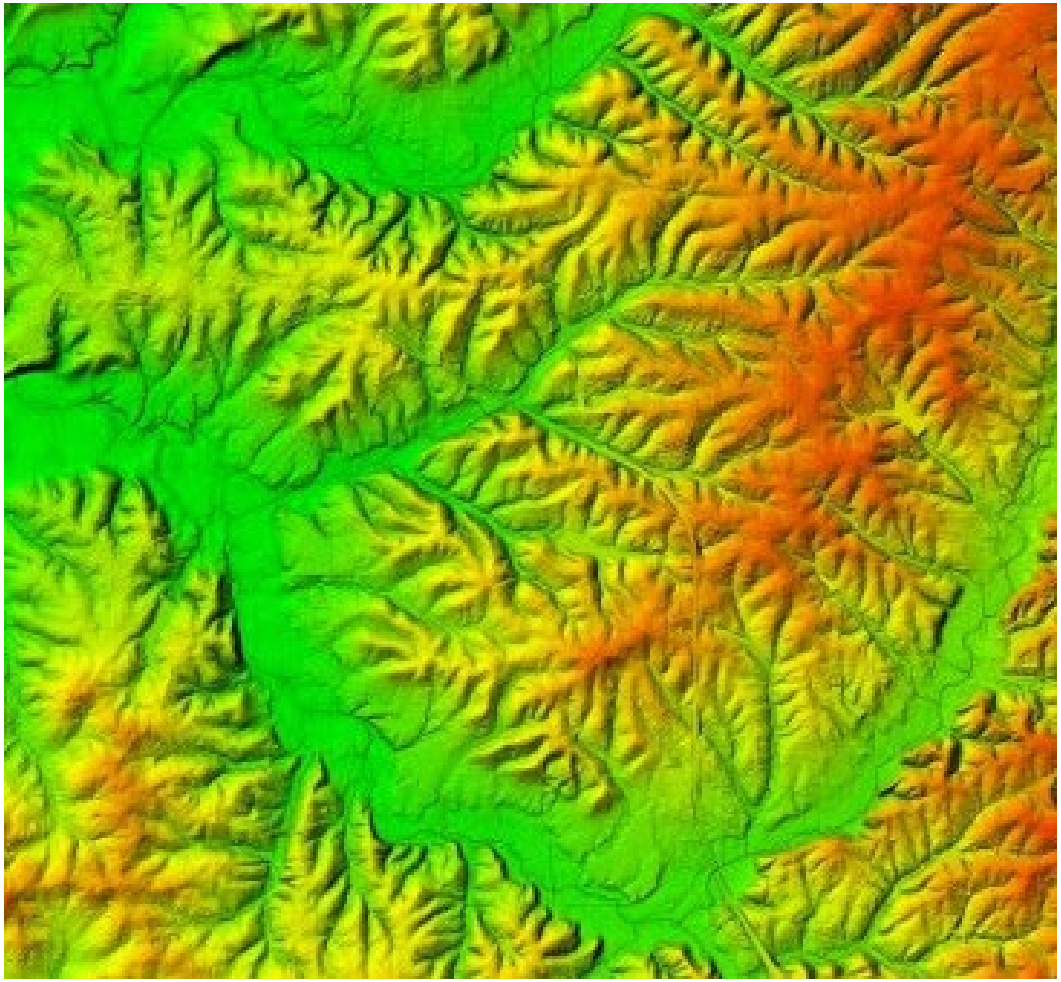
Hydraulics

- **GIS Data**
  - LiDAR
  - Ortho Photos
  - Digital Elevation Model (DEM)



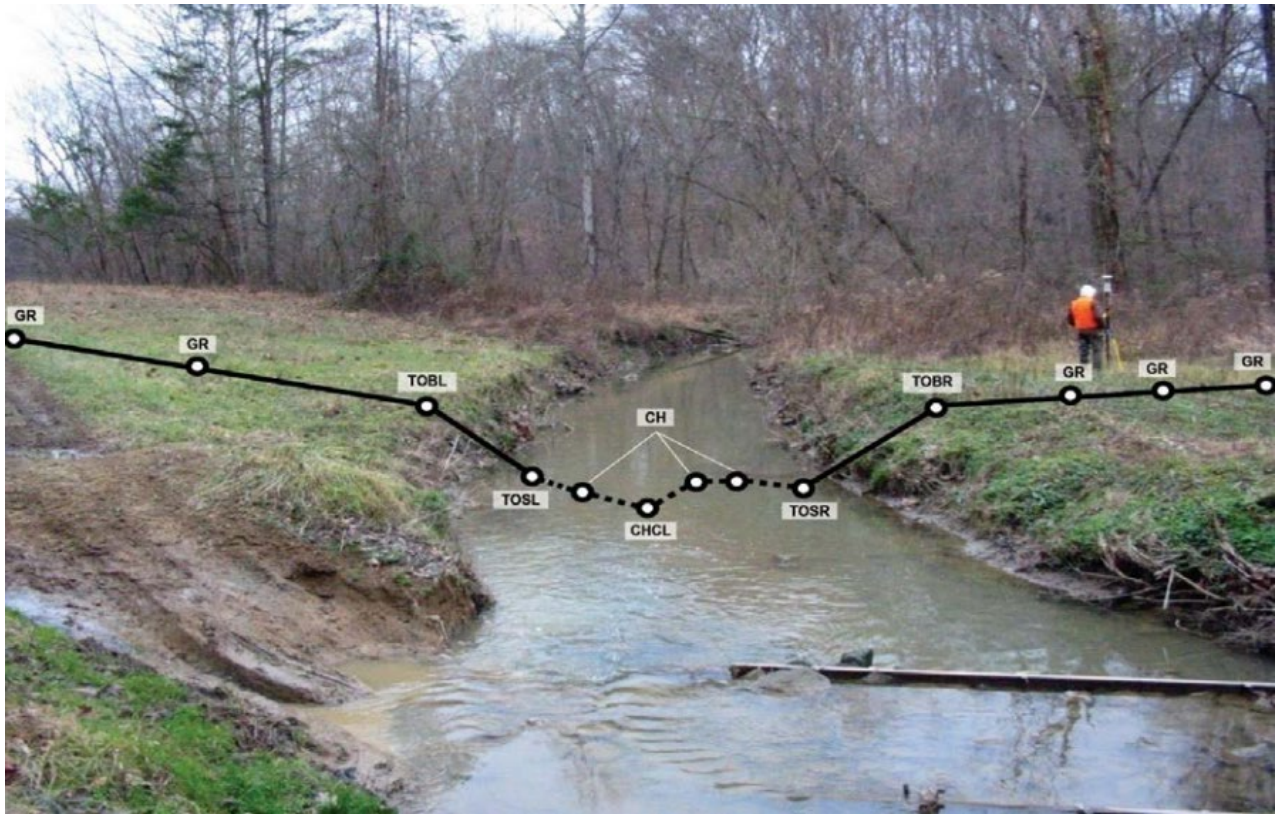
Hydraulics

- **LiDAR**
  - Zone A studies
  - Zone AE studies
  - Overbank, above streamflow depth



Hydraulics

- **Field Survey**
  - Zone AE studies
  - Channel cross-sections
  - Bridge/culvert measurements

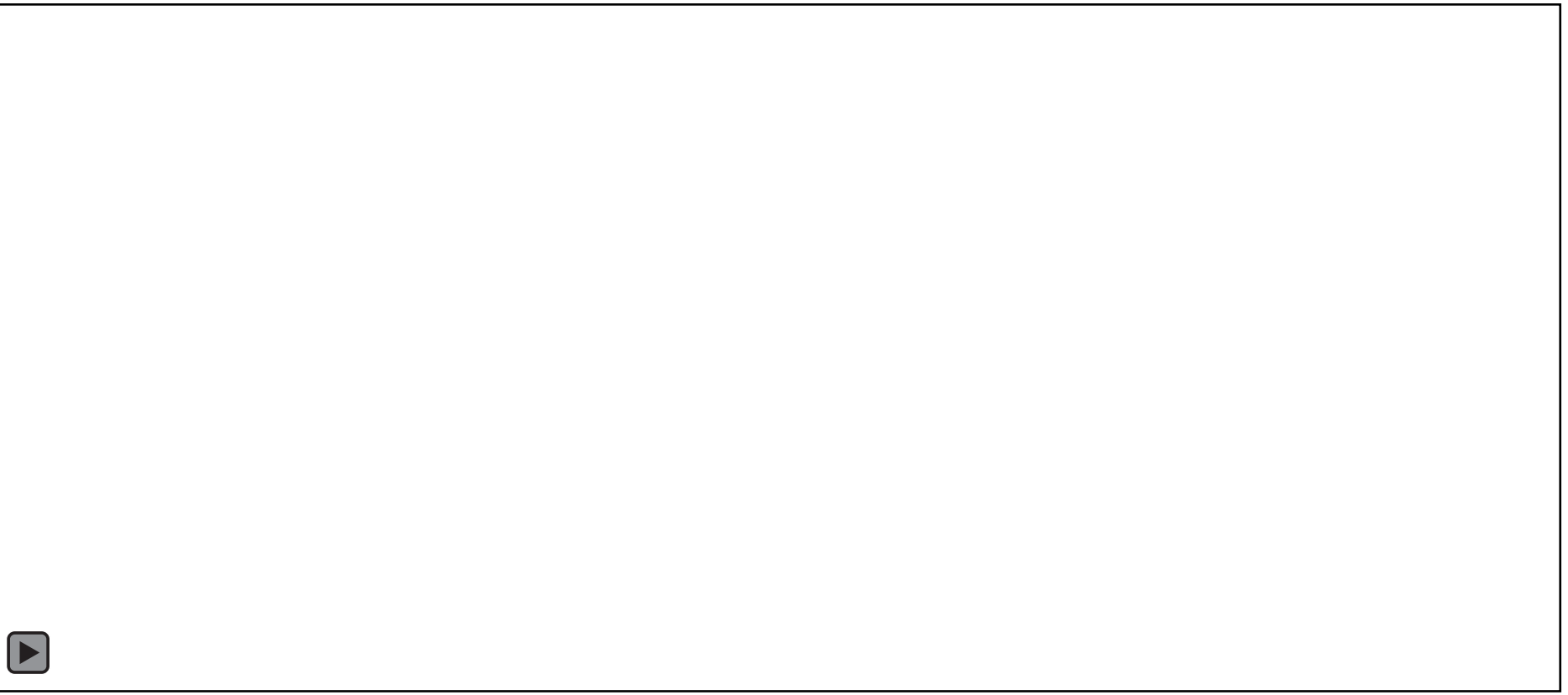


Hydraulics

- **Berms/Embankments/Levee-Like Structures (BELLS)**
  - Non-accredited levees
  - Ditch dredging spoils
  - Agricultural levees
  - Roadway embankments
  - Railroad embankments
- **Modeled in variety of ways**
- **Mapped without protection**

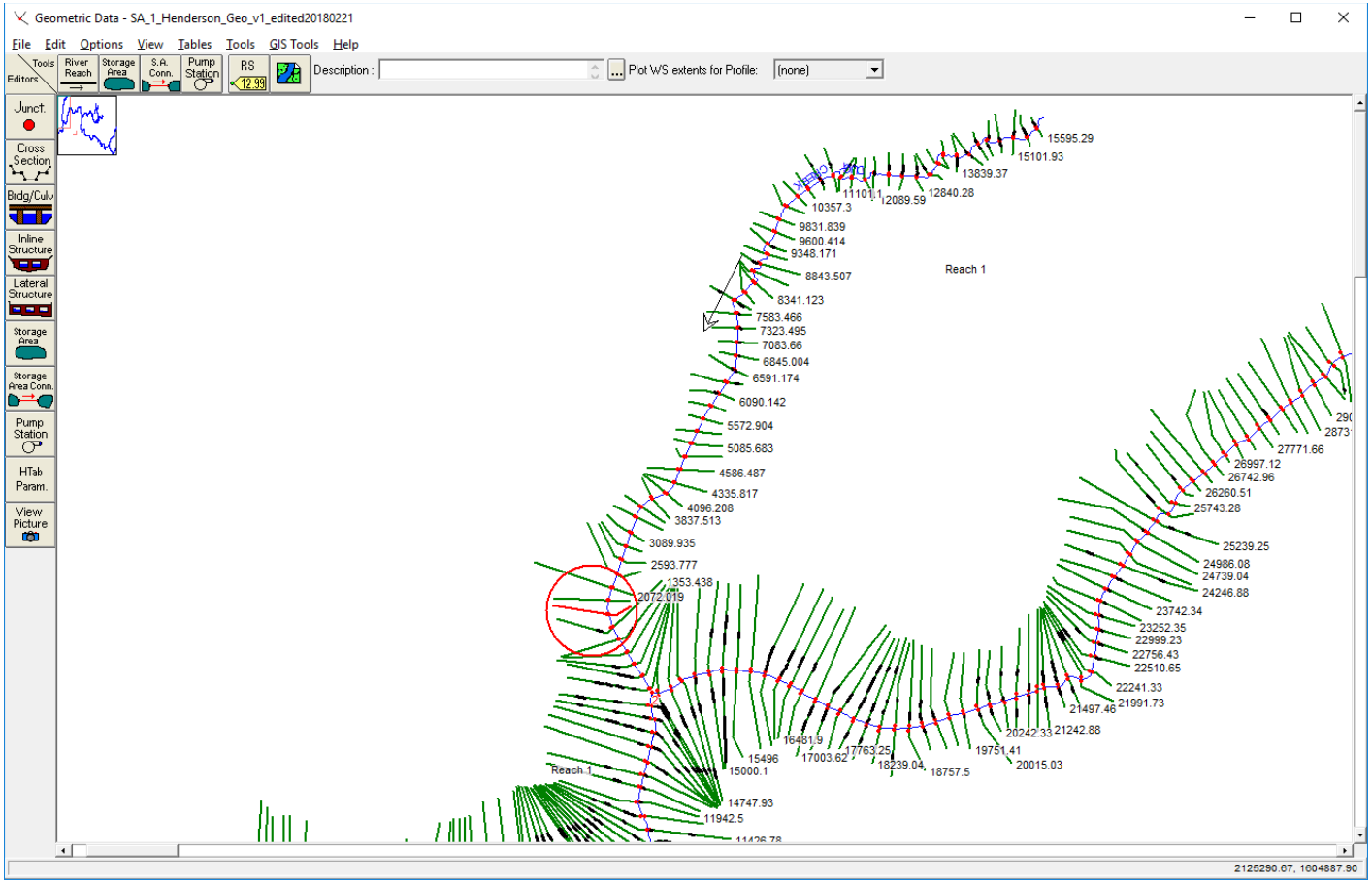
Hydraulics

- HEC-RAS cross-section



Hydraulics

- HEC-RAS plan view

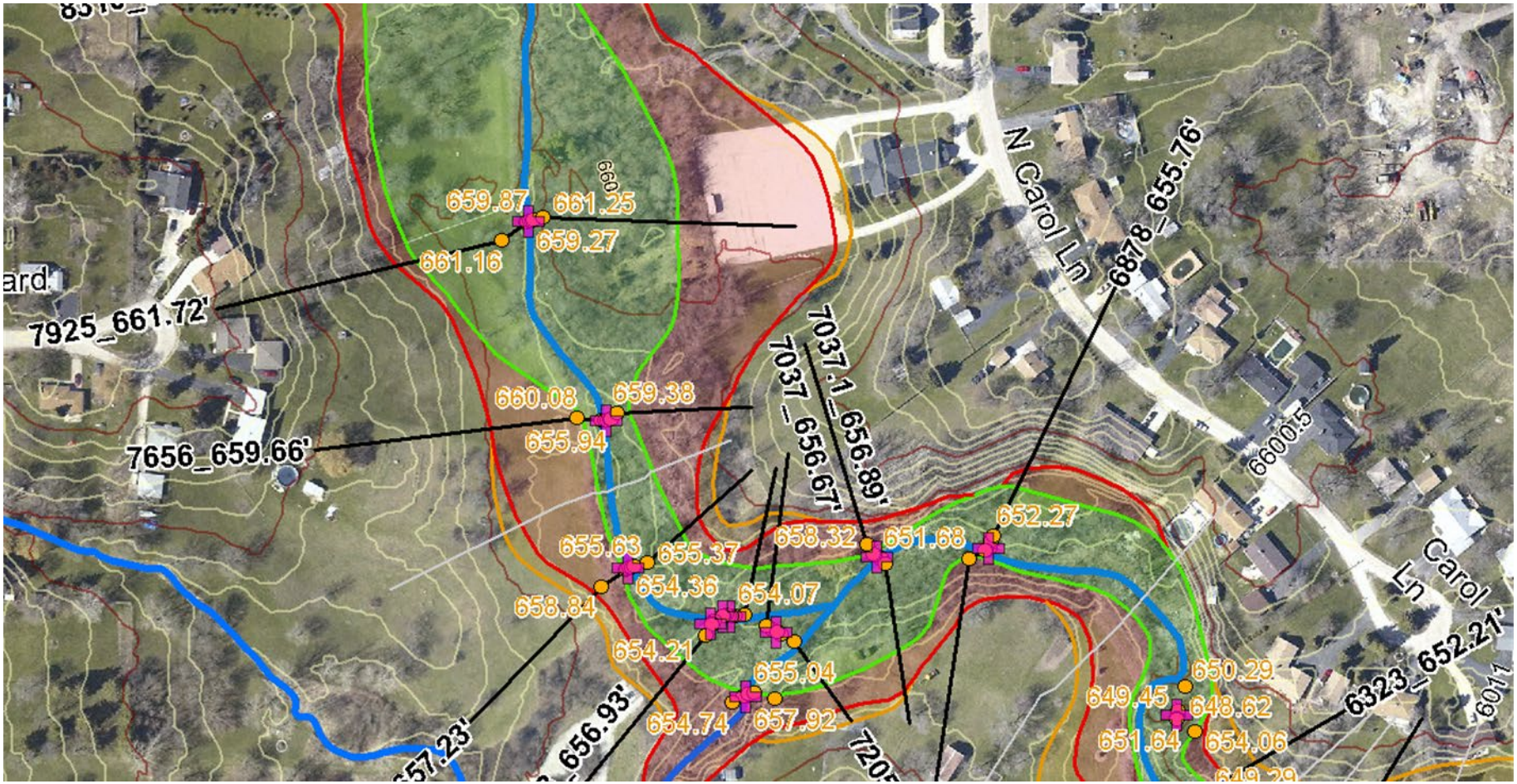


Hydraulics

- HEC-RAS profile

Hydraulics

- HEC-RAS modeling



Review of Draft Work Maps

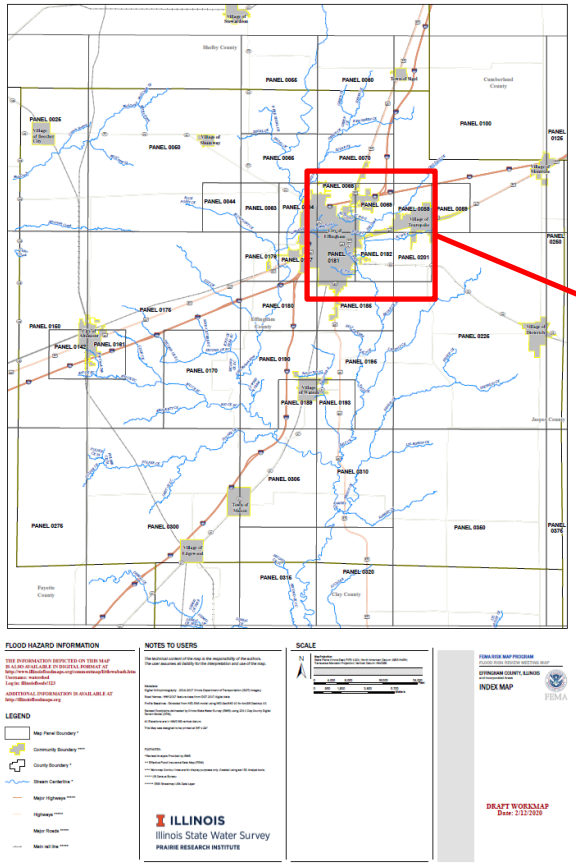
- **Versions of Maps Available**
  - Paper Maps & PDF's
    - Effingham County
      - 53 pages
    - Clay County
      - 42 pages
    - City of Crossville in White County
      - 3 pages
  - Internet-based Web-Map
    - Shows everything on the printed maps and more
    - http://www.illinoisfloodmaps.org/commentmap/littlewabash.htm
      - Username: watershed
      - Log in: illinoisfloods!123

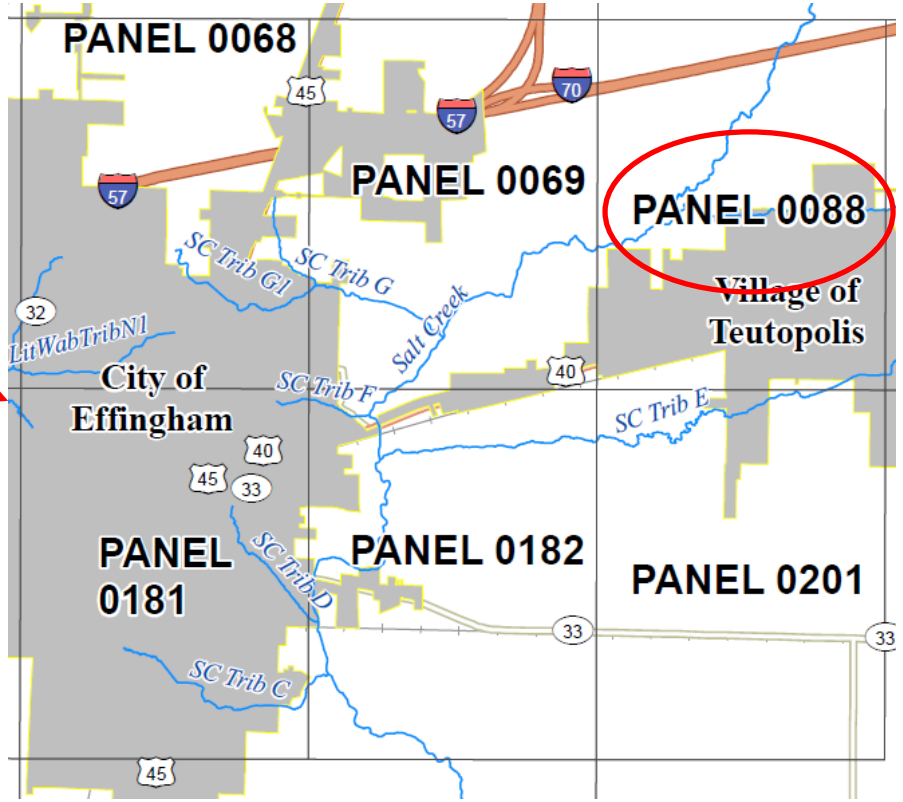
Review of Draft Work Maps

- **Clay County (Printed Work Maps)**
  - Hydrology Work Map
    - 1 Page
      - Shows the Hydrologic Modeling System (HMS) layout and watersheds
  - Hydraulic Work Maps
    - 1 Page Index Map
      - Shows Map Panel Numbers, Stream Centerlines, Communities, and Roads
    - 36 Pages for Clay County
      - Shows new floodplains for Zone A, Enhanced Zone A, and Zone AE stream studies
      - Using a Quadrangle Based panel layout.
      - Maps are at 3 scales 1:6000 (1”=500’), 1:12000 (1”=1000’), 1:24000 (1”=2000’)
    - 4 Pages for the Detailed Zone AE Stream Studies in Clay County
      - Using a custom grid for page layout
      - Limited to Zone AE stream studies
      - Maps are zoomed in closer at 1:3600 (1”=300’) & 1:6000 (1”=500’)

Review of Draft Work Maps

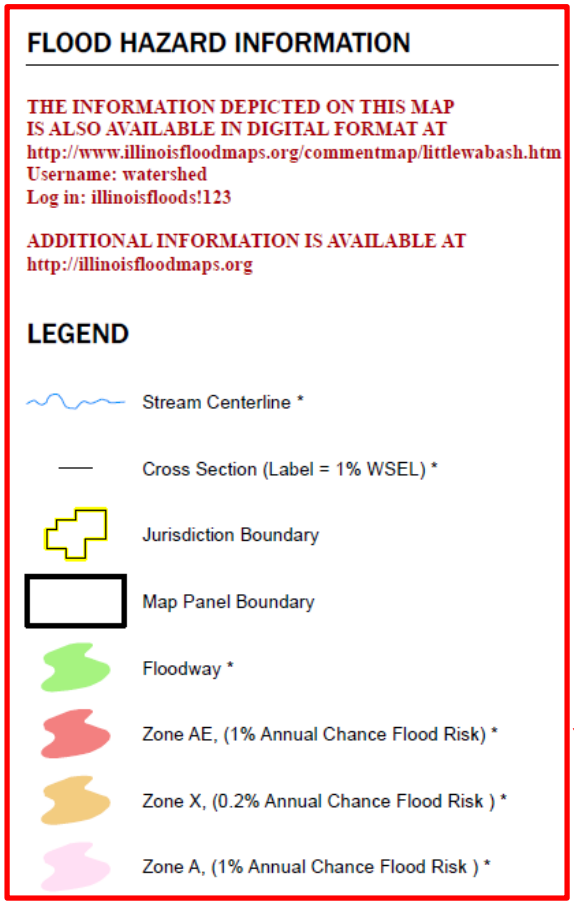
- **Using the Printed Work Maps**
  - Use the INDEX Map to locate your Panel

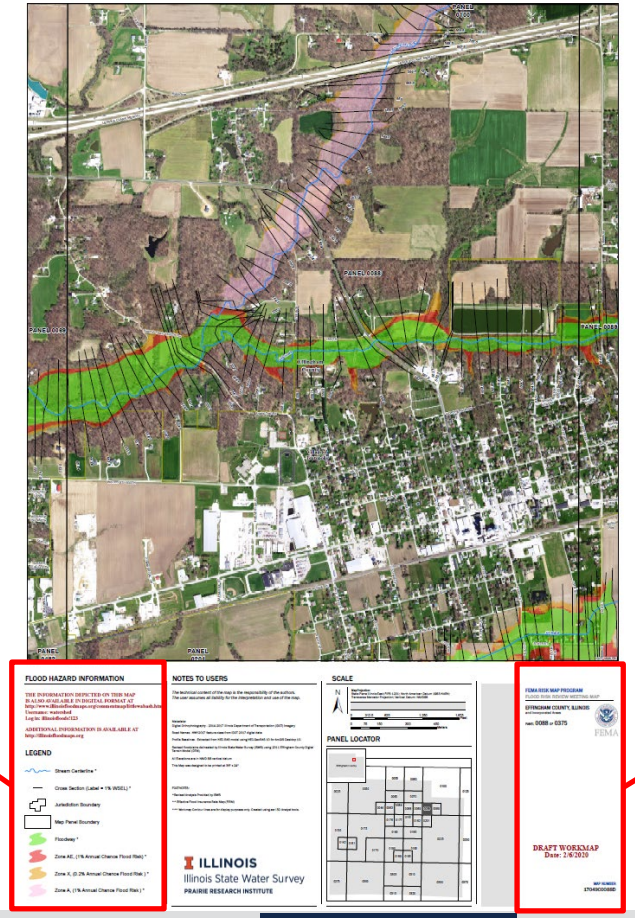


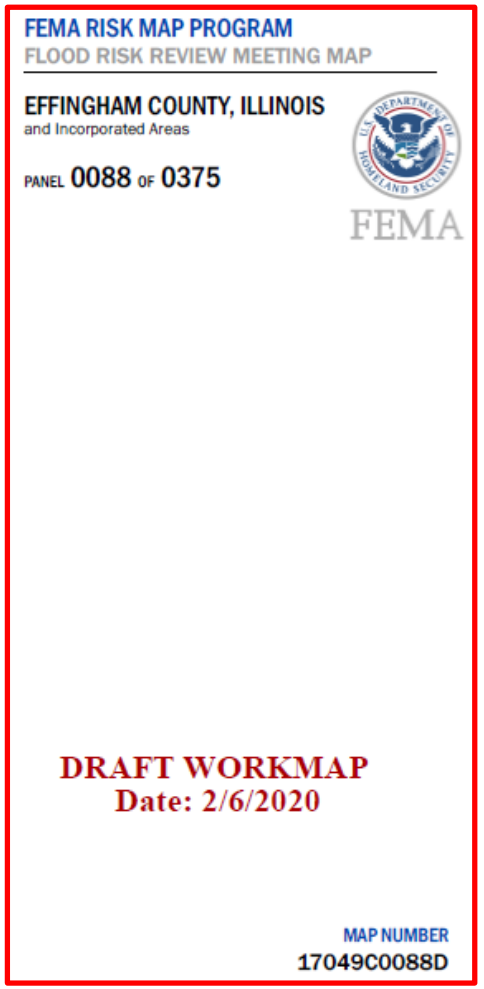


Review of Draft Work Maps

- **Using the Printed Work Maps**
  - Understanding the Map Features







Review of Draft Work Maps

- **Using the Printed Work Maps**
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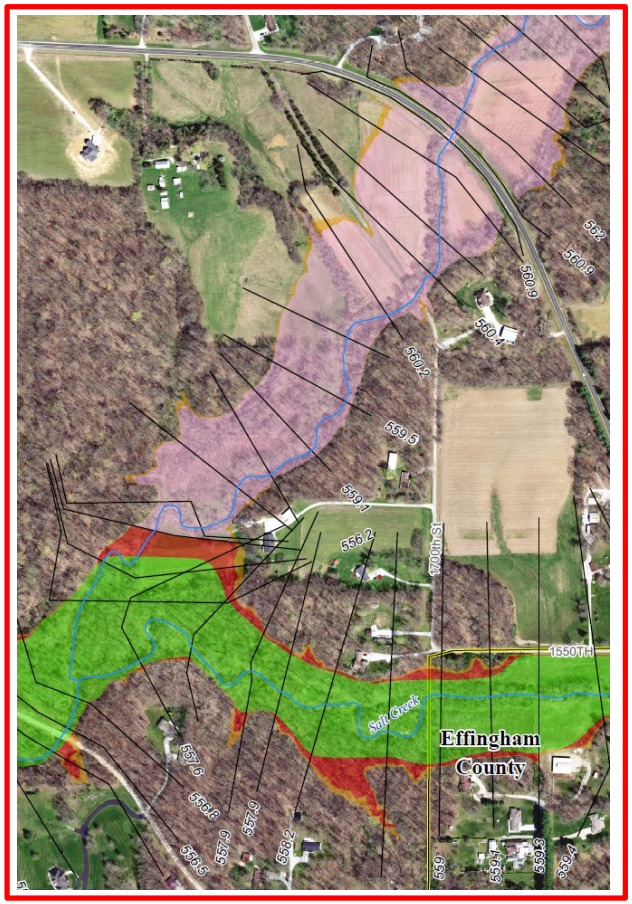
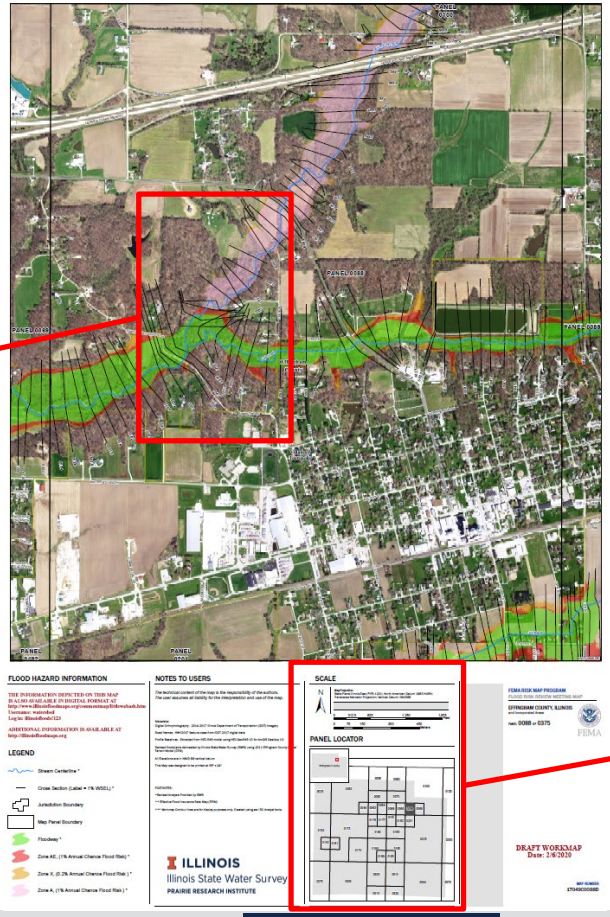
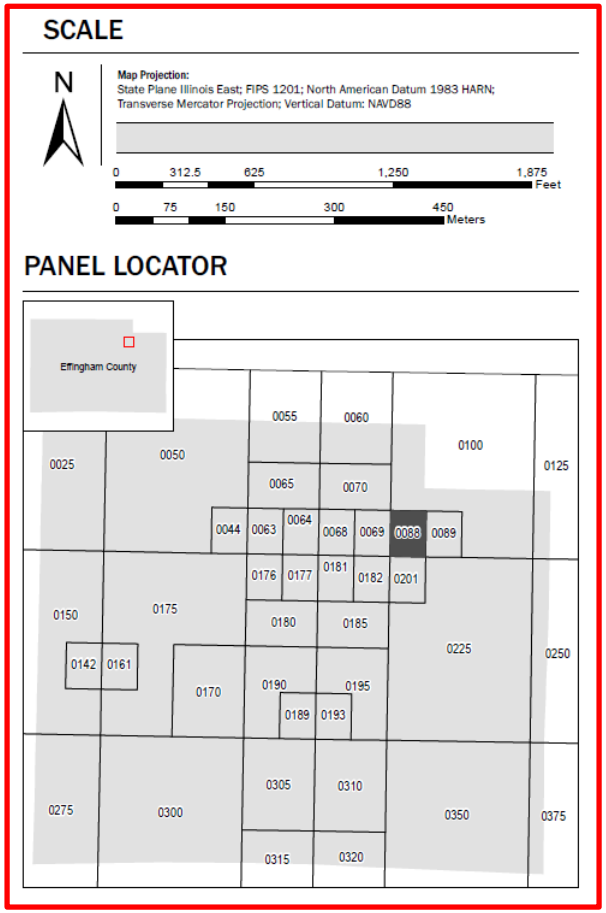
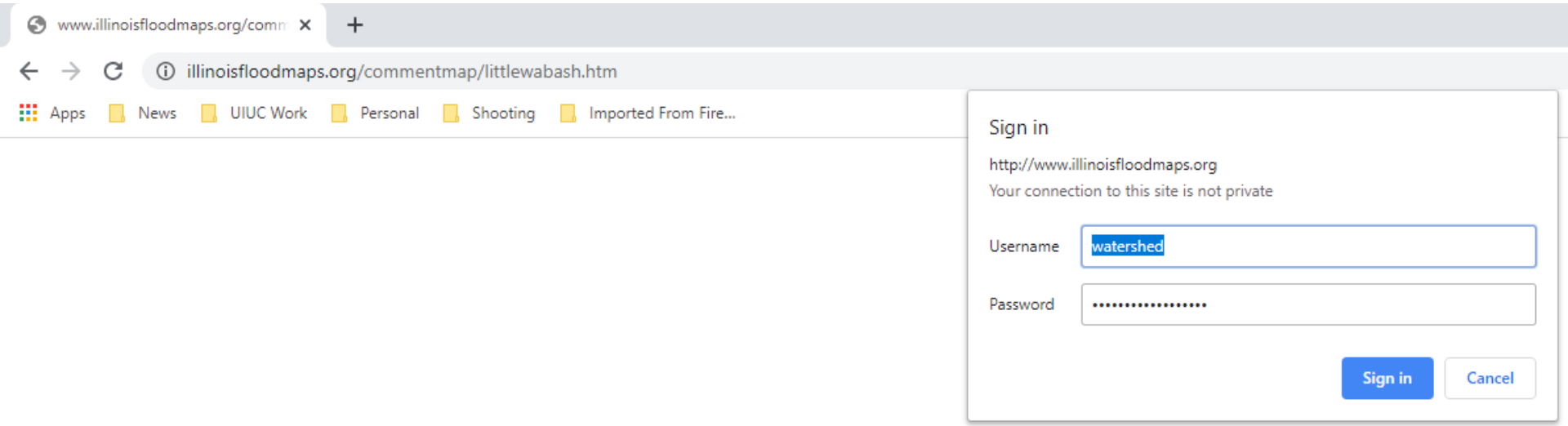






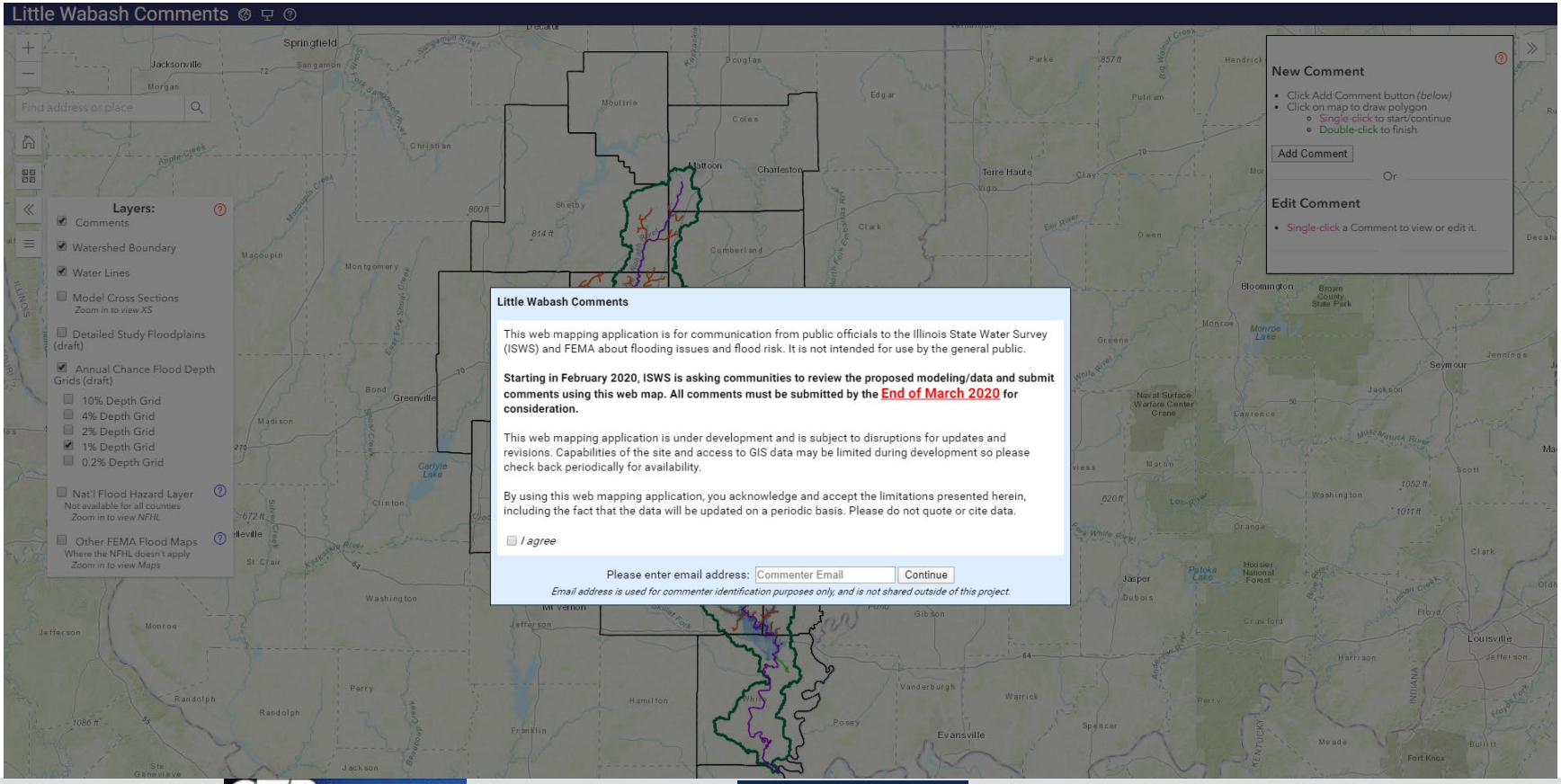
Review of Draft Work Maps

- **Using the Web-Map**
  - http://www.illinoisfloodmaps.org/commentmap/littlewabash.htm
    - Username: watershed
    - Log in: illinoisfloods!123



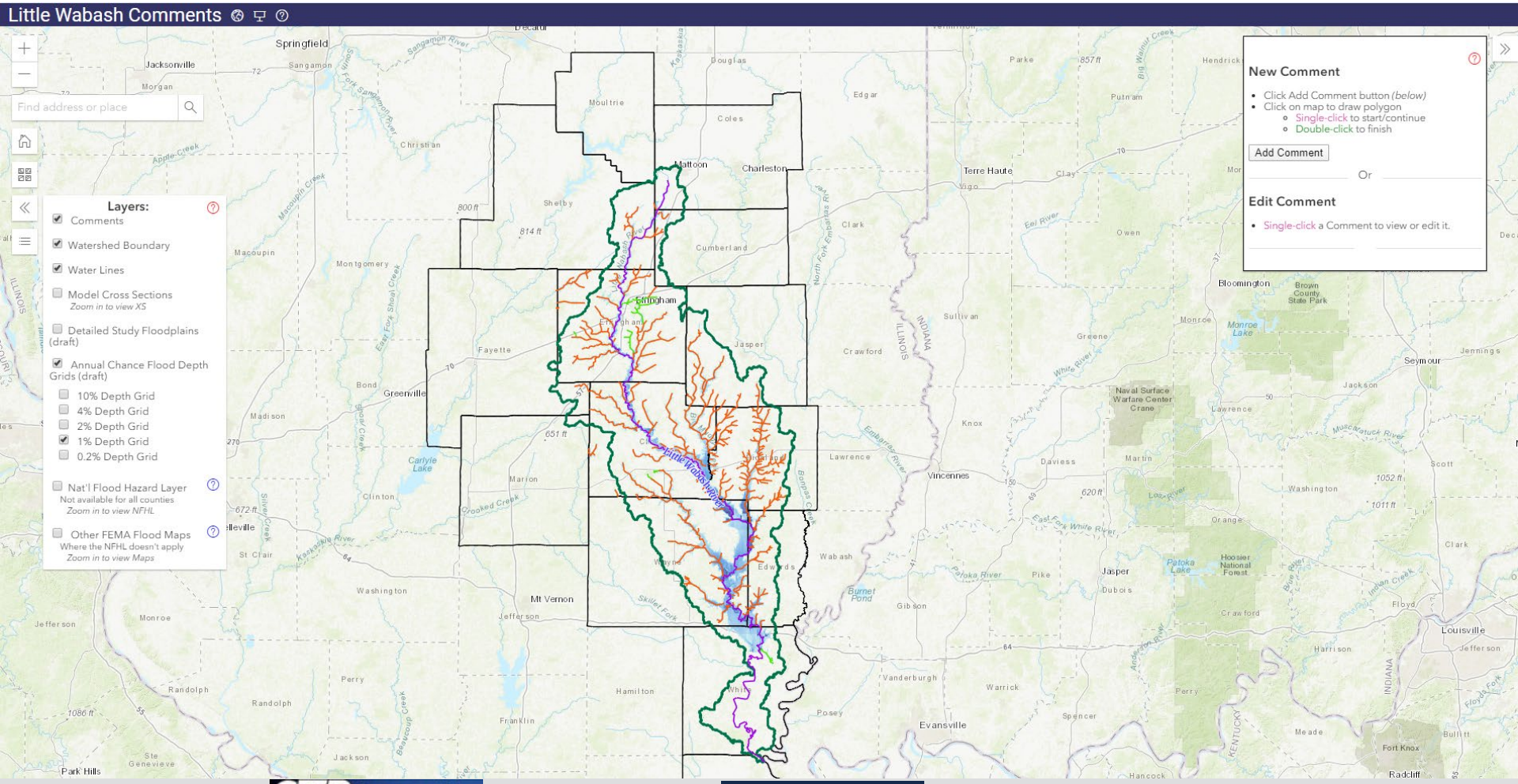
Review of Draft Work Maps

- **Using the Web-Map**
  - Click the “I Agree” box
  - Enter email address



Review of Draft Work Maps

- Using the Web-Map



Review of Draft Work Maps

- **Using the Web-Map**
  - Click on ? to access Frequently Asked Questions (FAQ)
    - From the FAQ page a tutorial video can be accessed
    - The Tutorial Video demonstrates how to add comments

≡ Frequently Asked Questions (FAQ) / Help

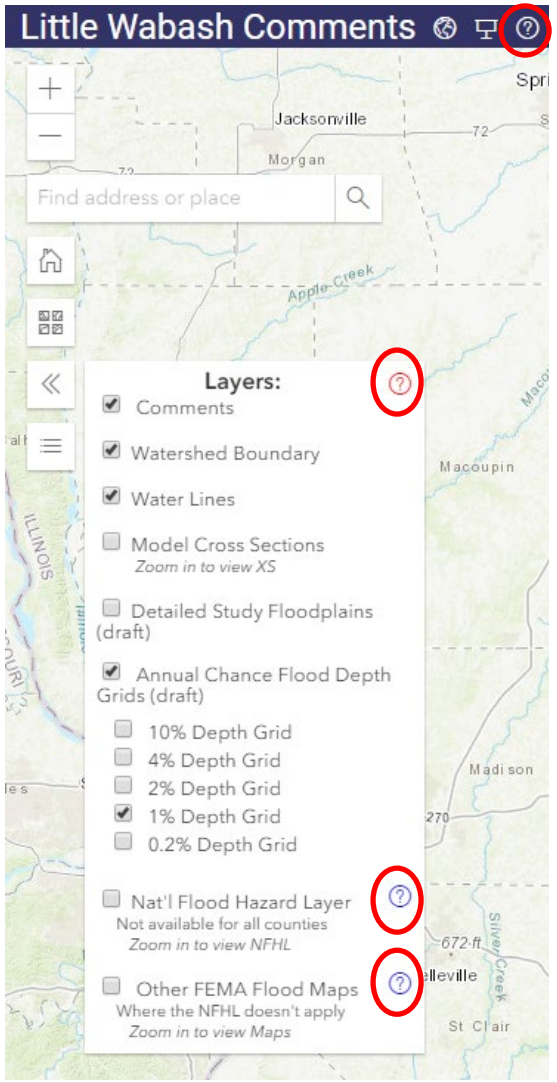
For Tutorial Video click here *(hosted on YouTube)*

▽ General FAQ and How-To:

Questions & Answers:

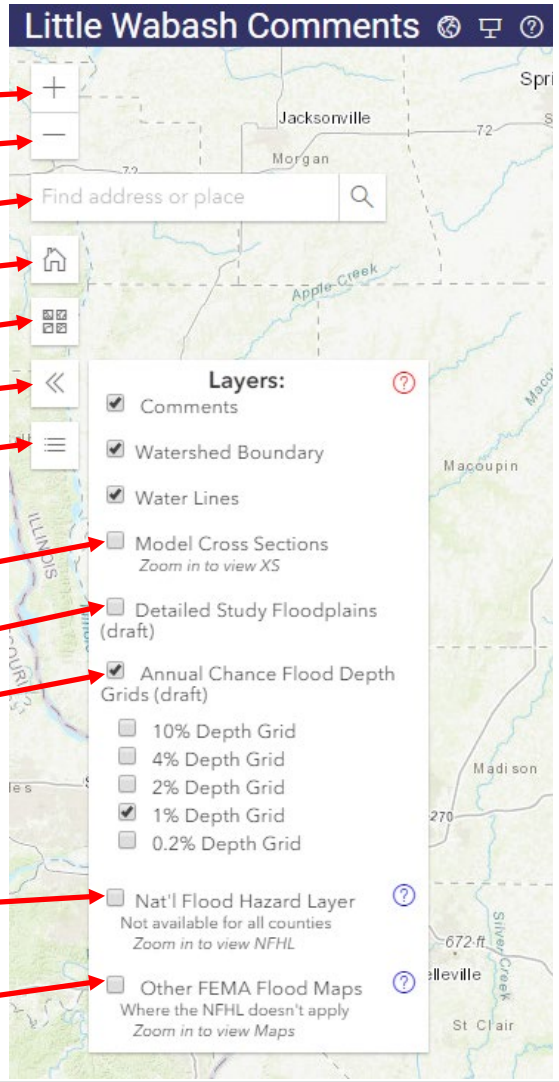
What is the National Flood Hazard Layer (NFHL)?
The NFHL is the Federal Emergency Management Agency (FEMA)'s digital database containing flood hazard mapping data from FEMA's National Flood Insurance Program (NFIP). For more information, see the FEMA NFHL webpage: https://www.fema.gov/national-flood-hazard-layer-nfhl

What are the Comments for?
A primary goal of Federal Emergency Management Agency (FEMA)'s Scoping is to learn about flooding issues and flood risk in an area from the community officials who work in that area. To learn how to add or edit comments, click on the "Adding/Editing Comments" section below.



Review of Draft Work Maps

- **Using the Web-Map**
  - Zoom In
  - Zoom Out
  - Find address or place
  - Default View
  - Basemap Gallery
  - Layers
  - Legend
  - Cross Sections
  - Zone AE Floodplains
  - Depth Grids
  - National Flood Hazard Layer (NFHL)
  - Georeferenced Flood Insurance Rate Maps (FIRM)



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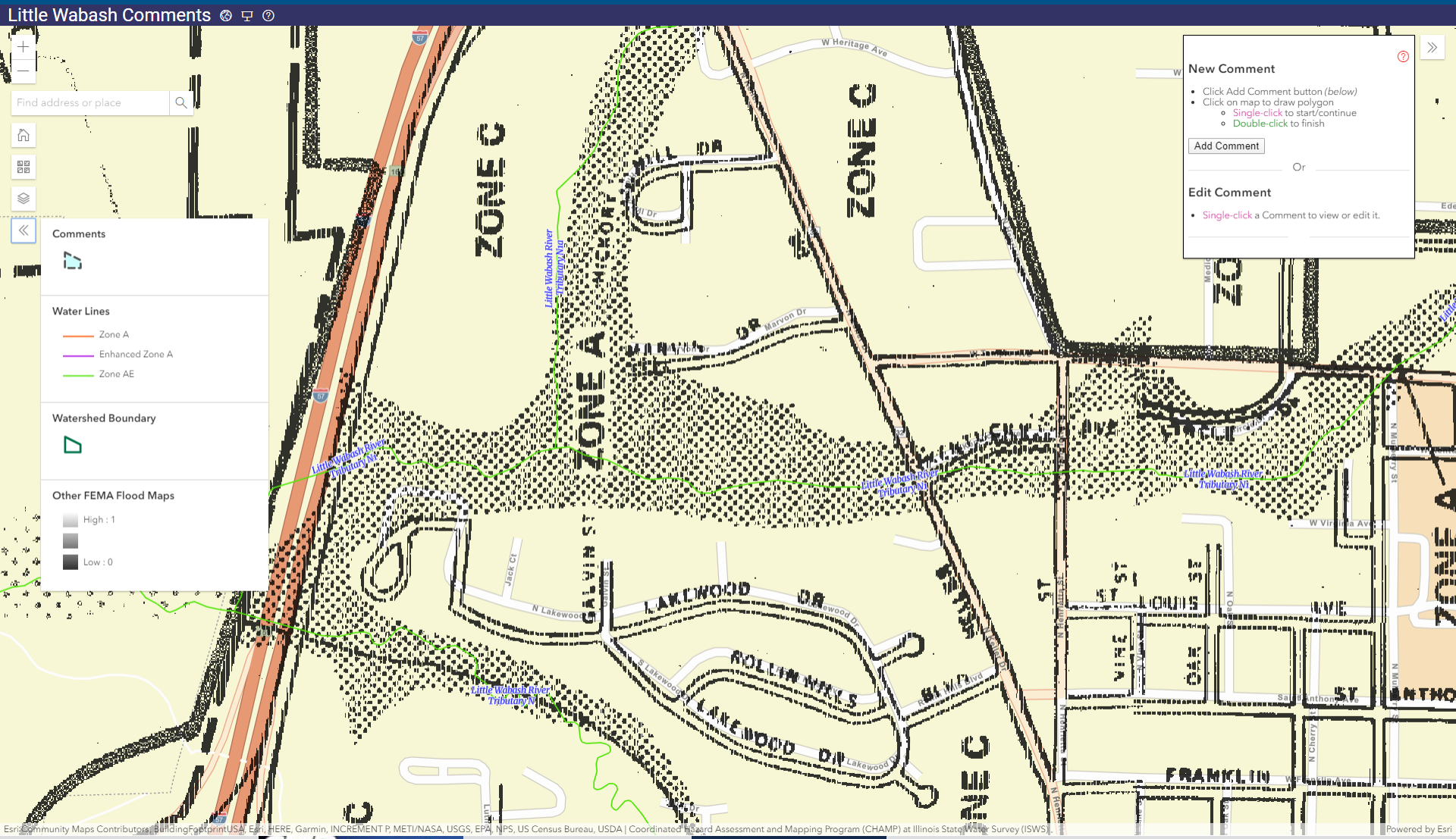

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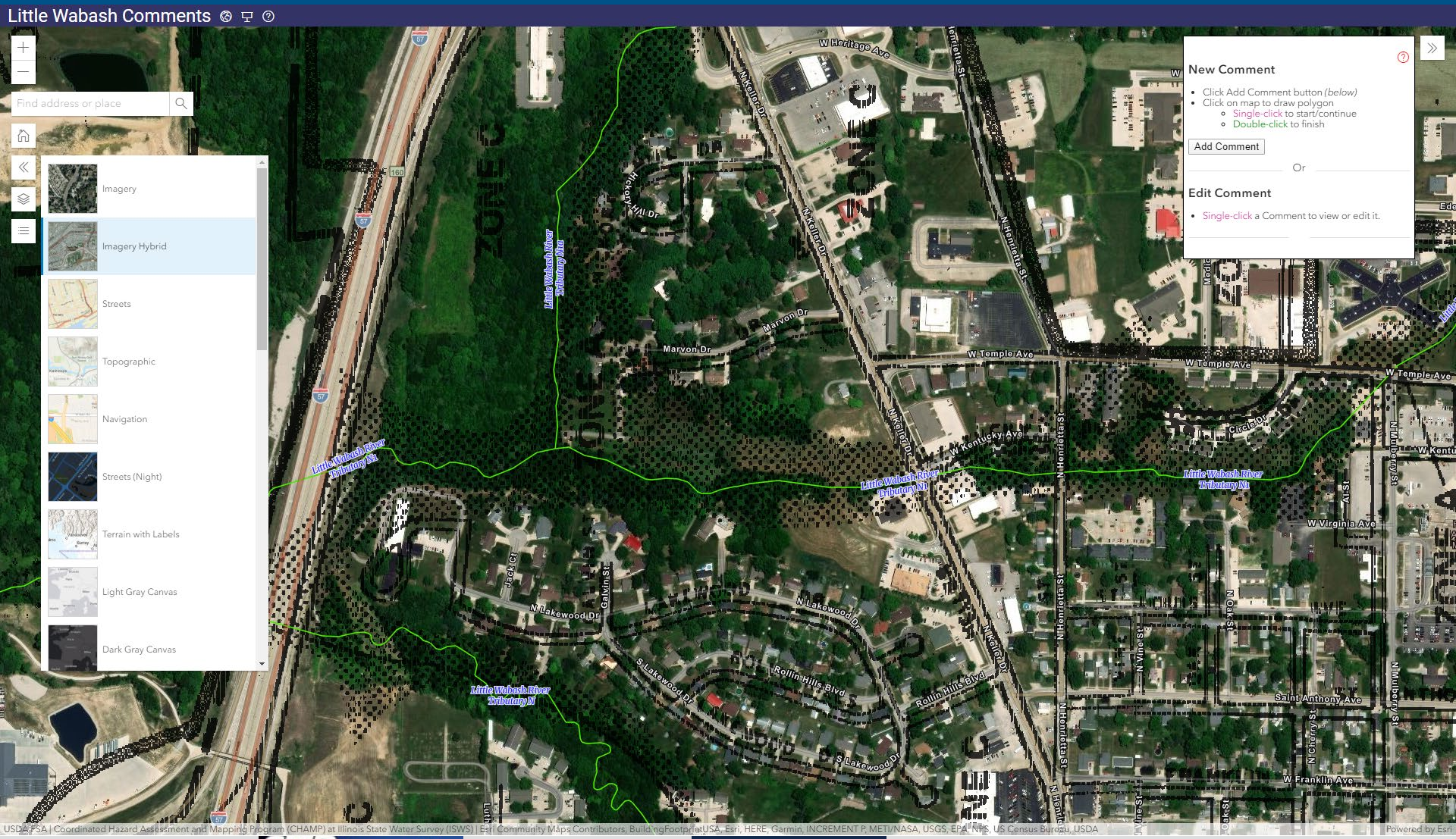

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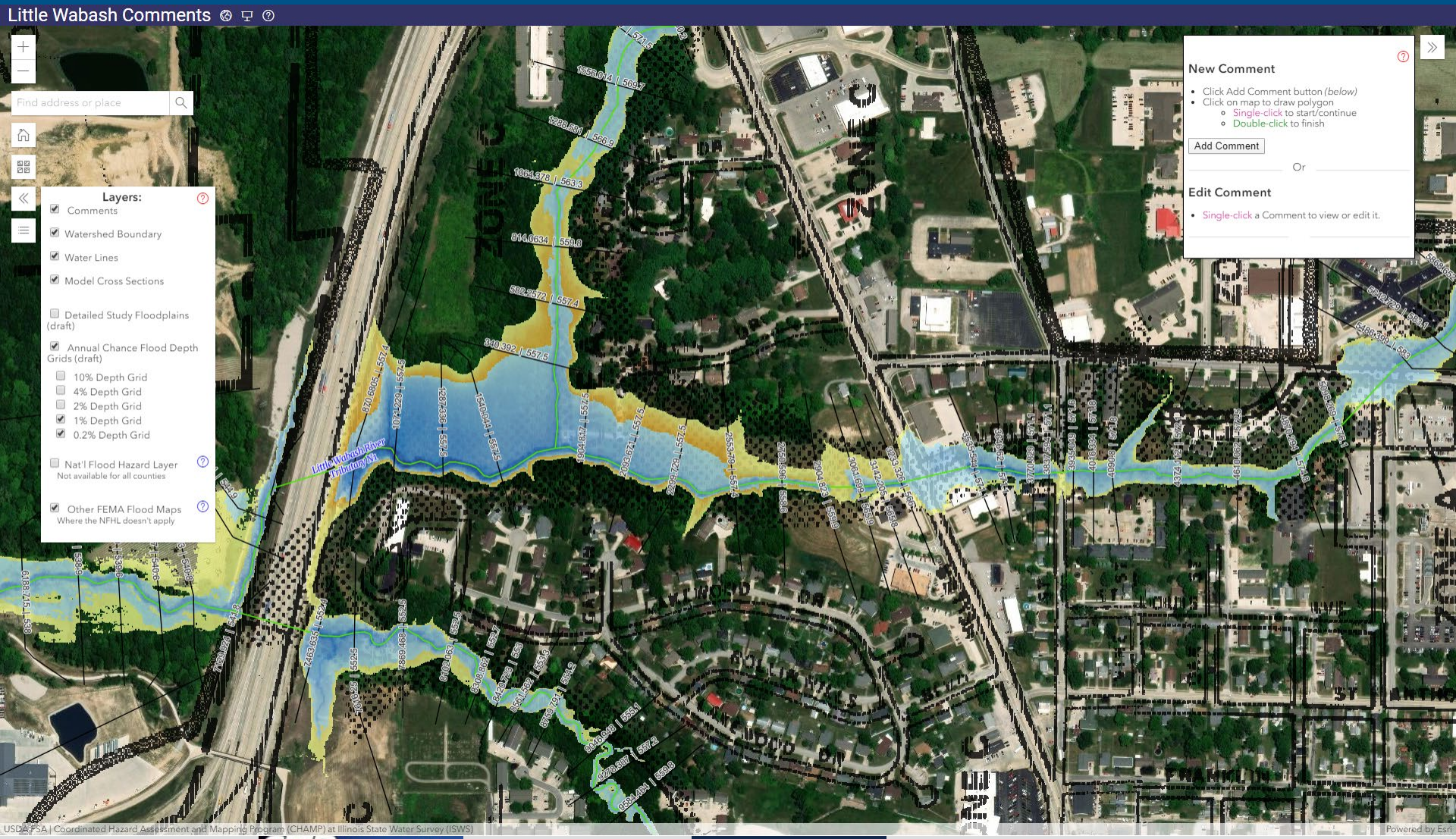

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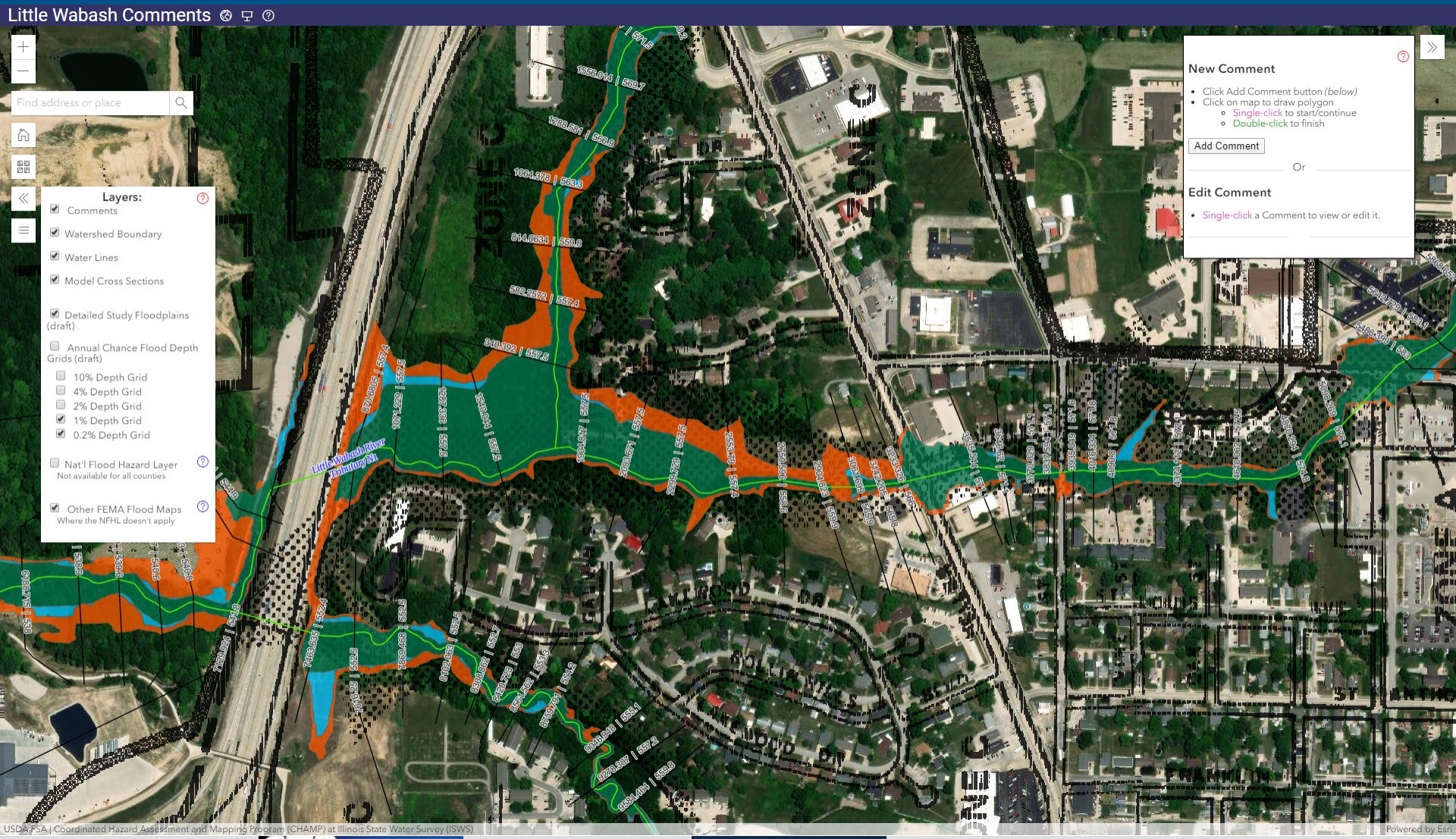

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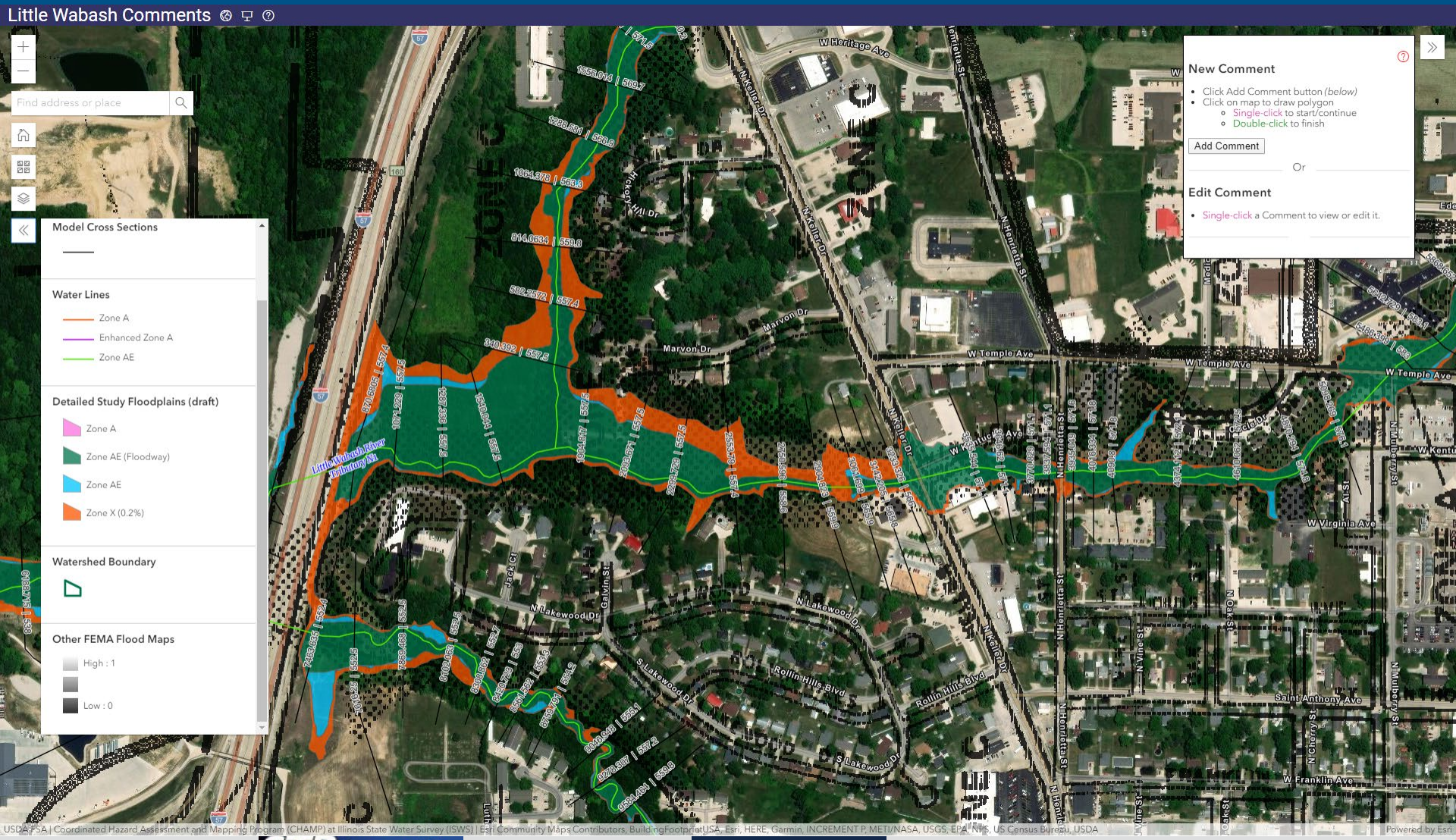
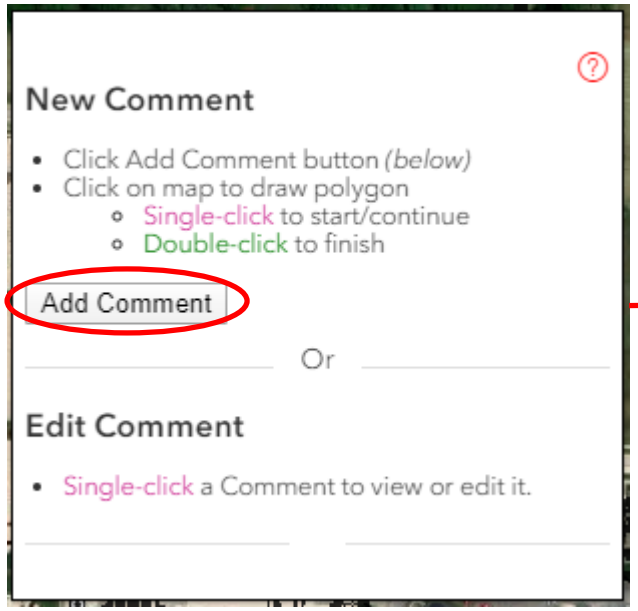
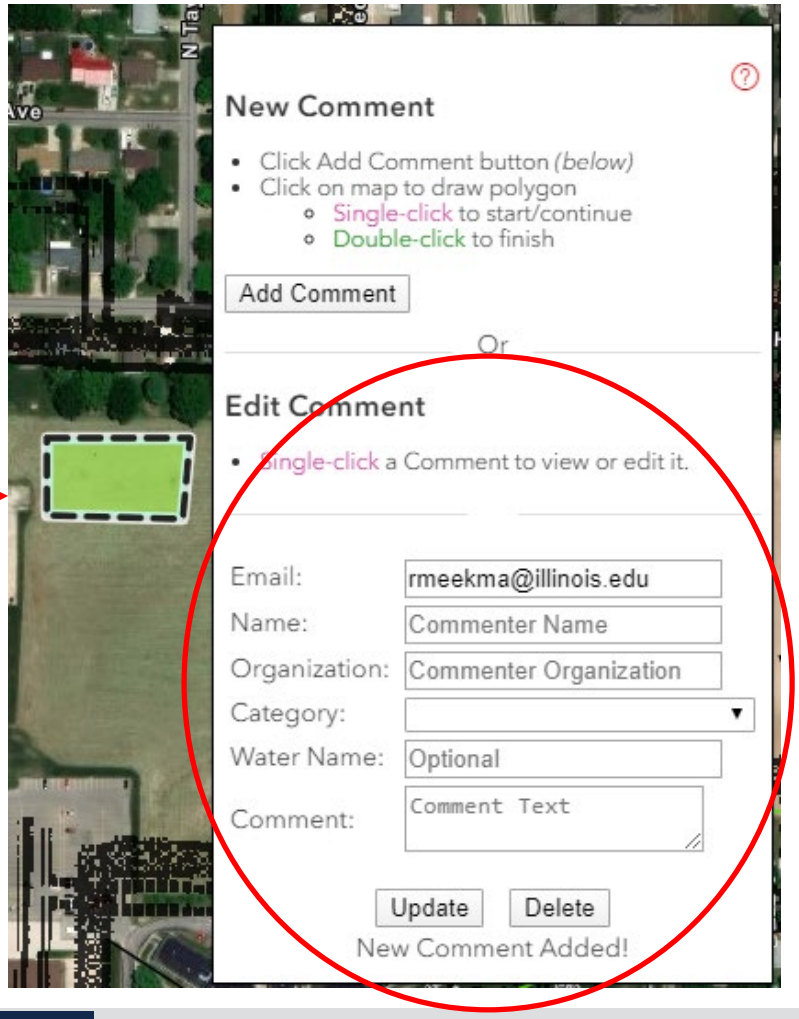


Review of Draft Work Maps

- **Adding Comments to the Web-Map**





We are asking for your input!

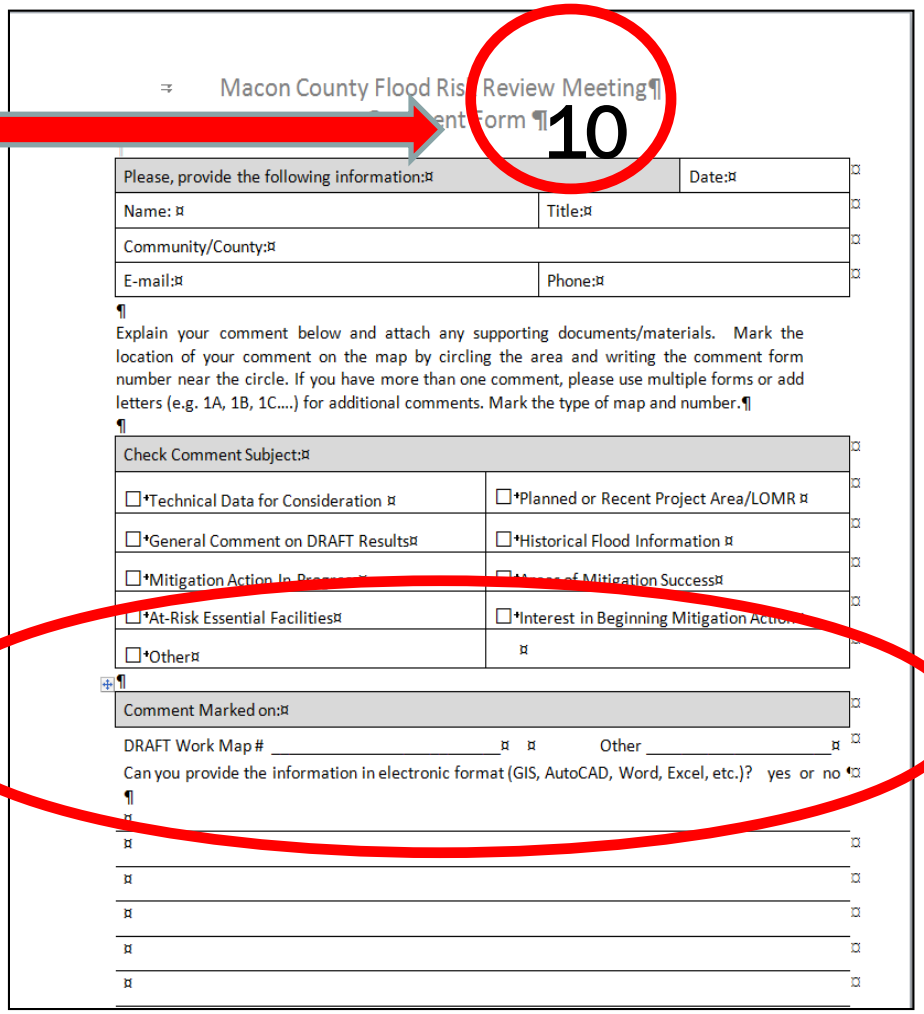
- Review the maps.
- ASK questions!
- Provide technical data and feedback.
- Fill out the comment sheets.
- Mark up the maps.
- Get our contact information.

Comment Forms

Comment Number

Provide data in electronic format when available!

Map Marked



Macon County Flood Ris[k] Review Meeting¶
[C]omment Form ¶ 10

Please, provide the following information:¤	Date:¤
Name: ¤	Title:¤
Community/County:¤	
E-mail:¤	Phone:¤

Explain your comment below and attach any supporting documents/materials. Mark the location of your comment on the map by circling the area and writing the comment form number near the circle. If you have more than one comment, please use multiple forms or add letters (e.g. 1A, 1B, 1C….) for additional comments. Mark the type of map and number.¶

Check Comment Subject:¤	
☐ Technical Data for Consideration ¤	☐ Planned or Recent Project Area/LOMR ¤
☐ General Comment on DRAFT Results¤	☐ Historical Flood Information ¤
☐ Mitigation Action In Progress¤	☐ Areas of Mitigation Success¤
☐ At-Risk Essential Facilities¤	☐ Interest in Beginning Mitigation Action
☐ Other¤	¤

Comment Marked on:¤

DRAFT Work Map # _____¤ ¤ Other _____¤

Can you provide the information in electronic format (GIS, AutoCAD, Word, Excel, etc.)? yes or no ¤

Contact information

- Mary Richardson, Illinois State Water Survey

  (217) 300-3479

  mjr@illinois.edu

- Glenn Heistand, Illinois State Water Survey

  heistand@illinois.edu