

Flood Risk Review Meeting Effingham County, IL

February 18, 2020 Effingham, IL





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 <u>DRAFT</u> 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
- 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

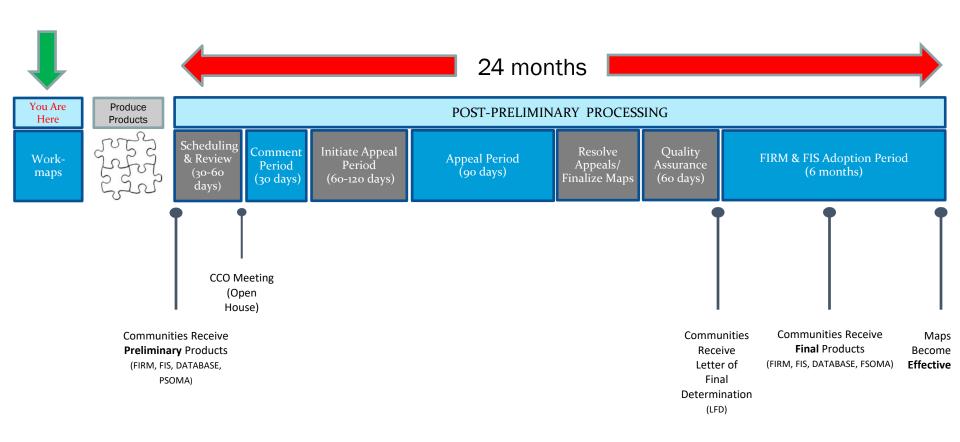








Flood Insurance Rate Map (FIRM) Timeline











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.

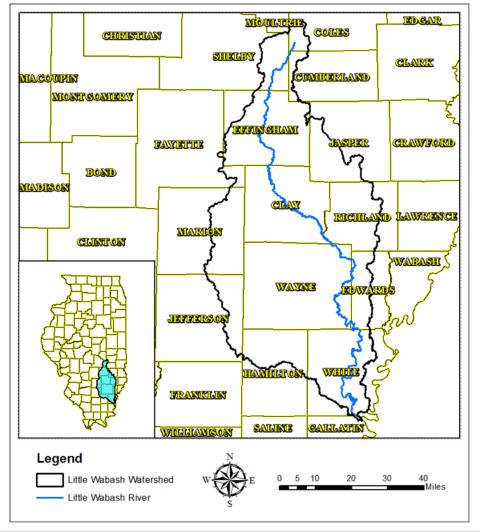






Project Overview

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





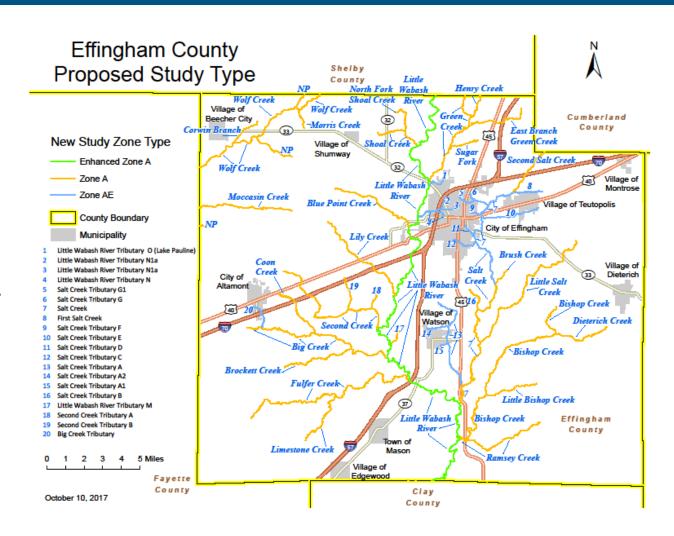






Project Overview

- 190 miles of new Zone A tributary stream studies
- 35 miles of Zone
 AE tributary
 streams
- 37 miles of Enhanced Zone A on Little Wabash main-stem





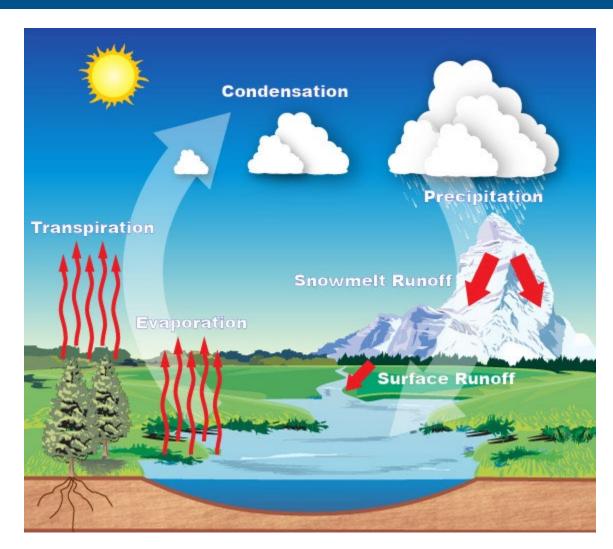






Hydrology & Hydraulics

- 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



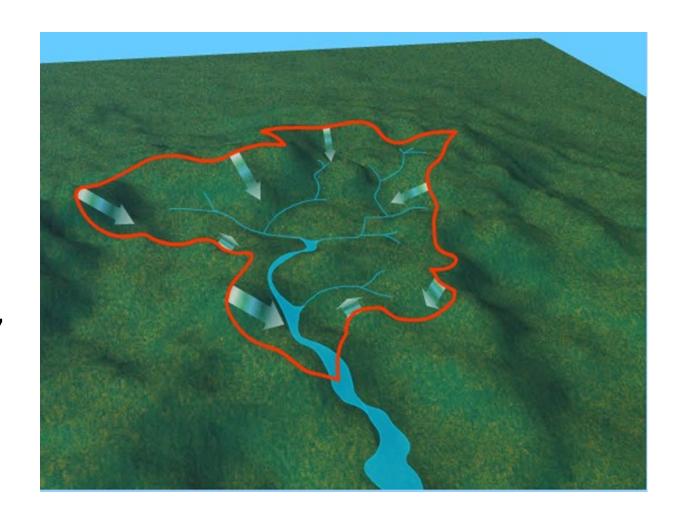








- It all starts with run-off
- 2, 5, 10, 25, 50, 100, 100+, 500
 year returninterval rainfall events studied
- 50%, 20%, 10%, 4%, 2%, 1%, 1%+, 0.2% annual chance rainfall events











- 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





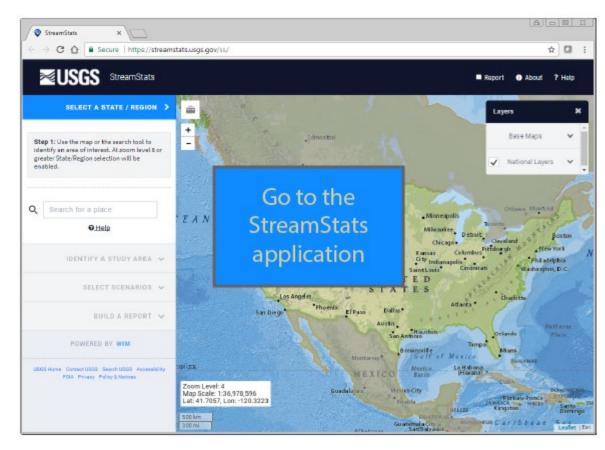






USGS StreamStats

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









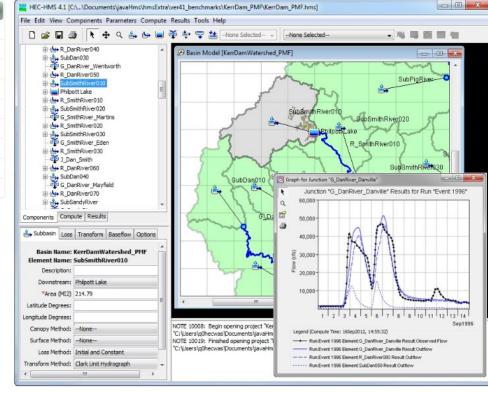


USACE HEC-HMS

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







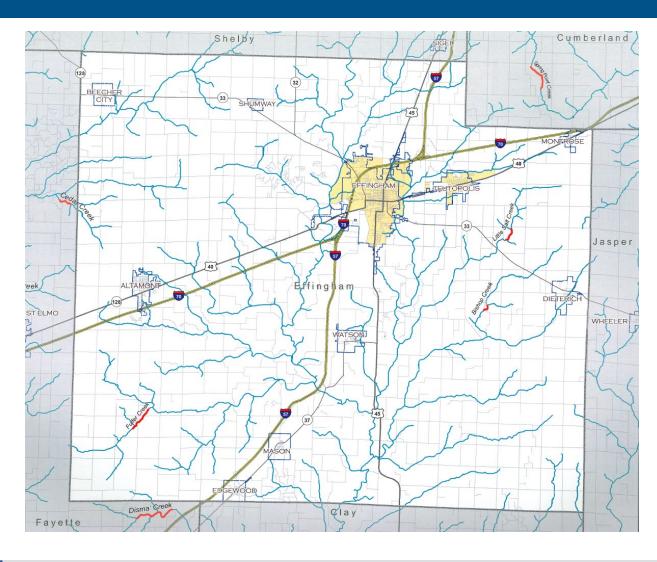








- Drainage AreaConsiderations for Tributaries
 - Urban = 1 square mile or larger
 - Rural = 10 square mile or larger
 - Plus any Effective miles less than 1 square mile





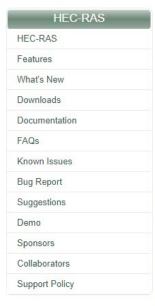


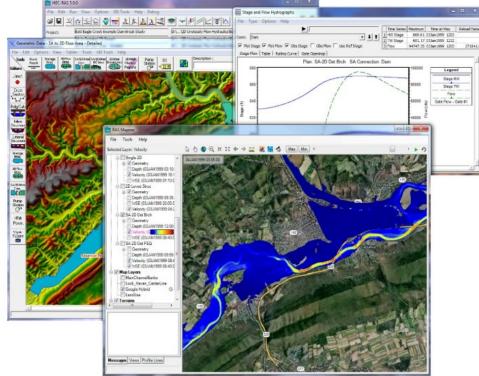


- USACE HEC-RAS
 - Step-Backwater Model
 - 1-D Steady State
 - Used for Zone A & AE studies



HOME > SOFTWARE > HEC-RAS







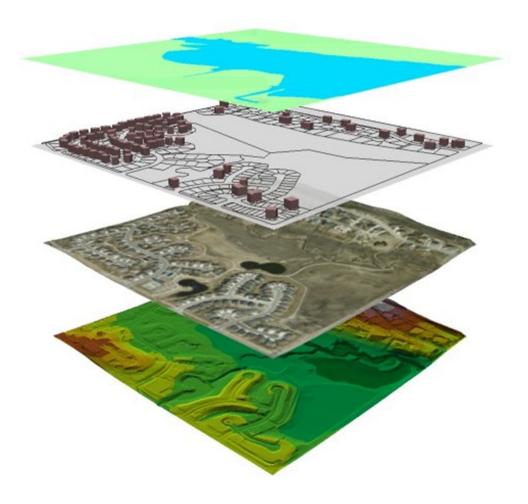






GIS Data

- LiDAR
- Ortho Photos
- Digital Elevation Model (DEM)





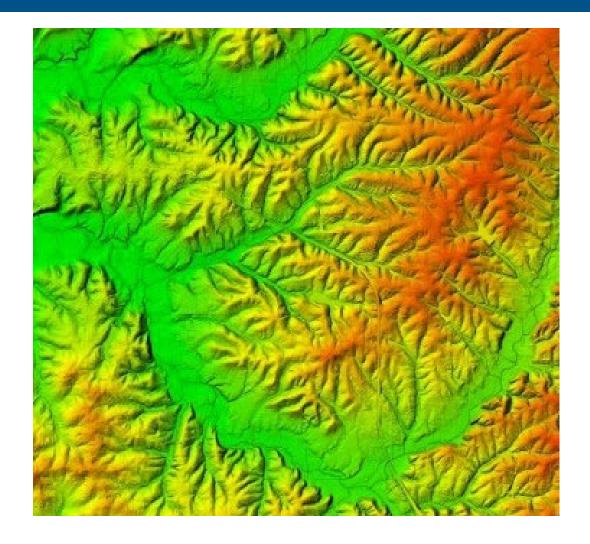






LiDAR

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





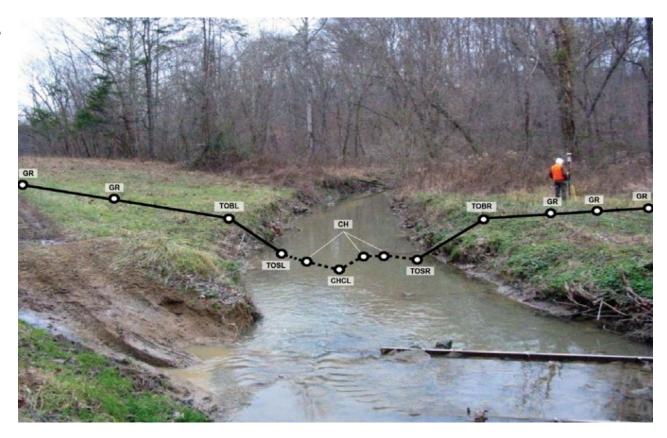






Field Survey

- Zone AE studies
- Channel crosssections
- Bridge/culvert measurements











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











HEC-RAS cross-section



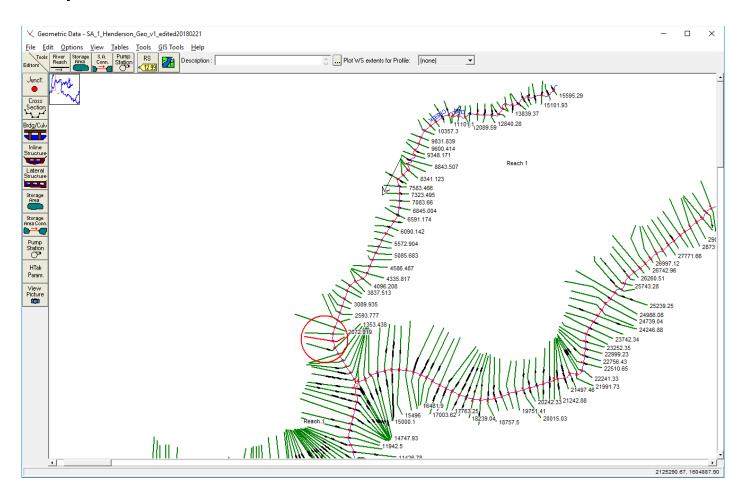








HEC-RAS plan view











HEC-RAS profile

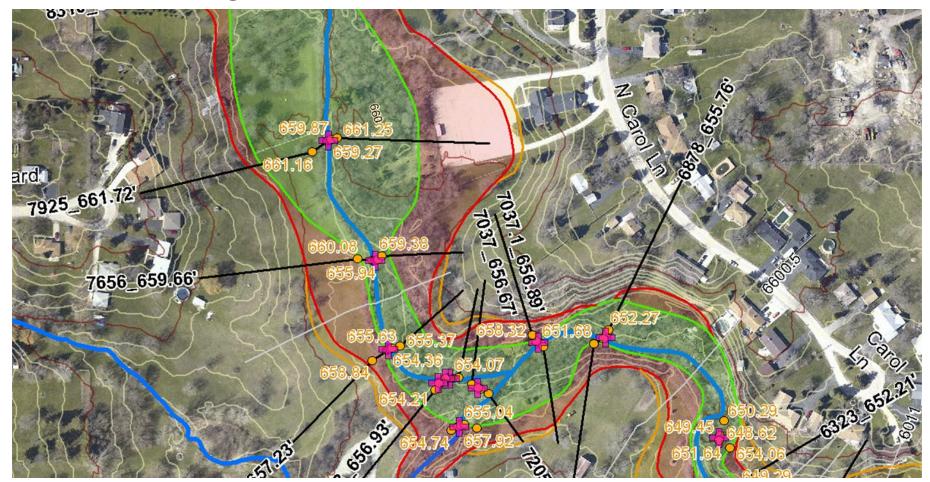








HEC-RAS modeling









- 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









- Effingham 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
 - 41 Pages for Effingham 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")
 - 10 Pages for the Detailed Zone AE Stream Studies in Effingham County
 - Using a custom grid for page layout
 - Limited to Zone AE stream studies
 - Maps are zoomed in closer 1:4800 (1"=400')

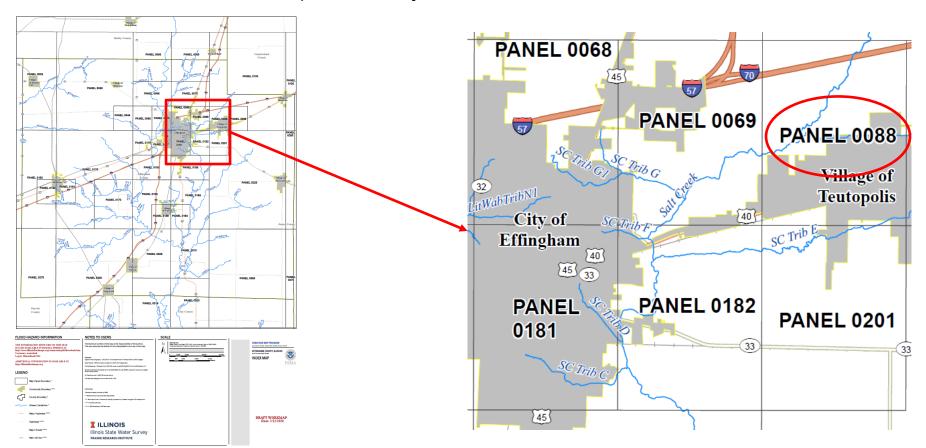








- Using the Printed Work Maps
 - Use the INDEX Map to locate your Panel



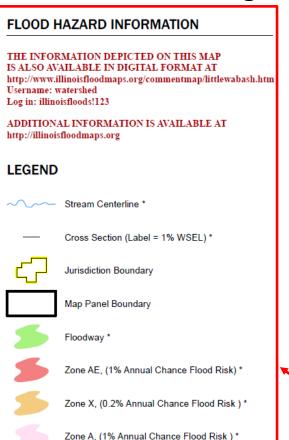


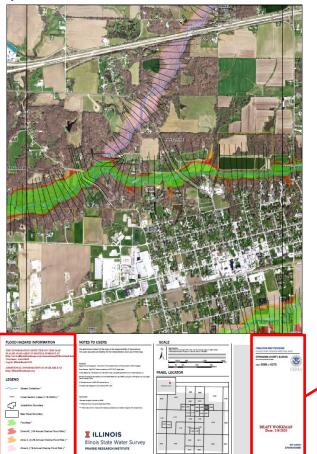






- Using the Printed Work Maps
 - Understanding the Map Features







FLOOD RISK REVIEW MEETING MAP

EFFINGHAM COUNTY, ILLINOIS

and Incorporated Areas

PANEL 0088 OF 0375



DRAFT WORKMAP Date: 2/6/2020

> MAP NUMBER 17049C0088D



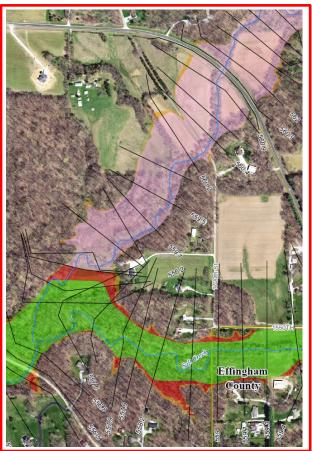


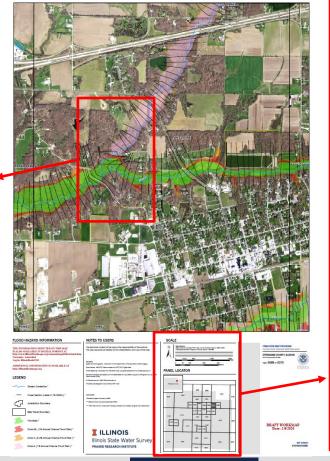


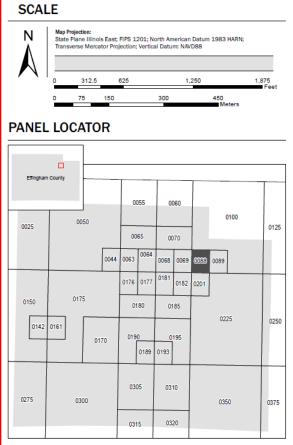


Using the Printed Work Maps

Understanding the Map Features













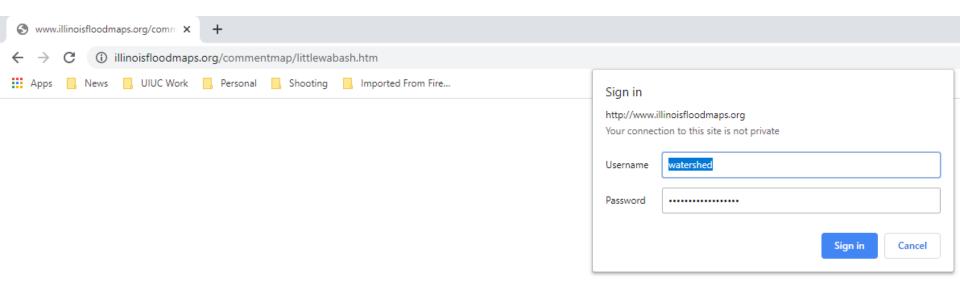


Using the Web-Map

http://www.illinoisfloodmaps.org/commentmap/littlewabash.htm

Username: watershed

Log in: illinoisfloods!123





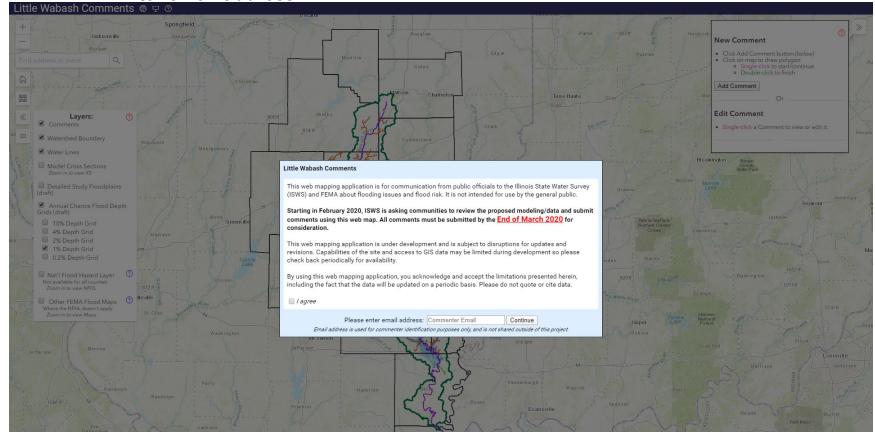






Using the Web-Map

- Click the "I Agree" box
- Enter email address





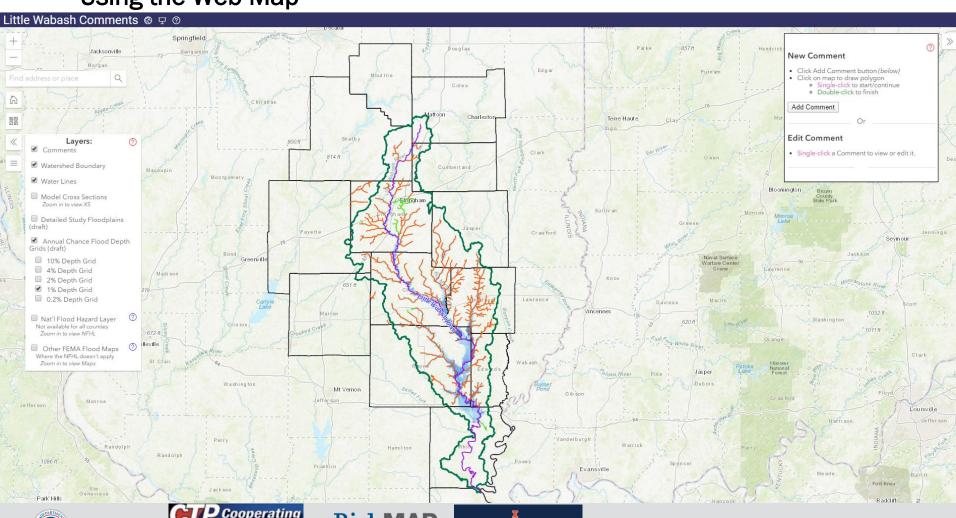




Using the Web-Map

Technical

Partners



ILLINOIS

Illinois State Water Survey

PRAIRIE RESEARCH INSTITUTE

Increasing Resilience Together

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:

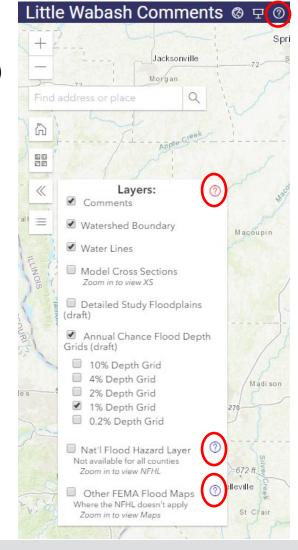
What is the National Flood Hazard Layer (NFHL)?

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.



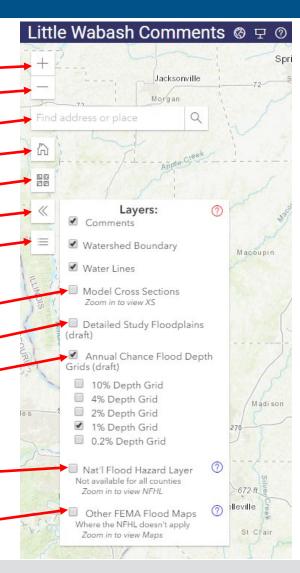








- Using the Web-Map
 - Zoom In
 - Zoom Out
 - Find address or place
 - Default View -
 - Basemap Gallery
 - Layers
 - Legend
 - Cross Sections
 - Zone AE Floodplains
 - Depth Grids
 - National Flood Hazard Layer (NFHL)
 - Georeferenced Flood Insurance Rate Maps (FIRM)-

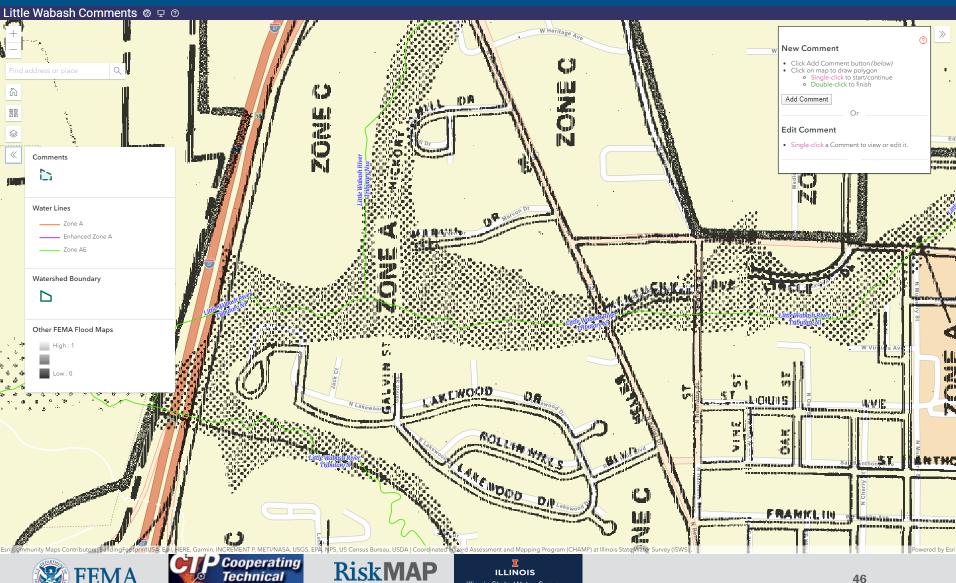


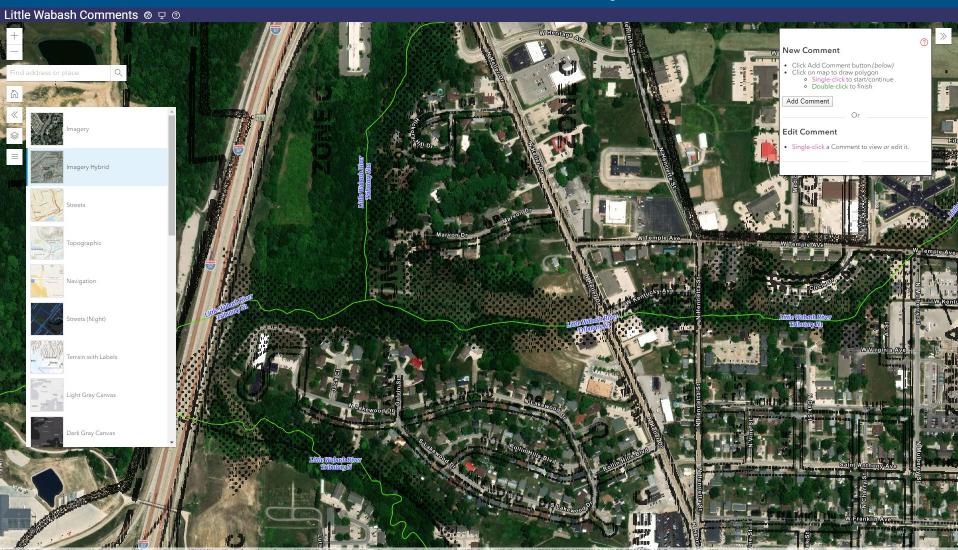






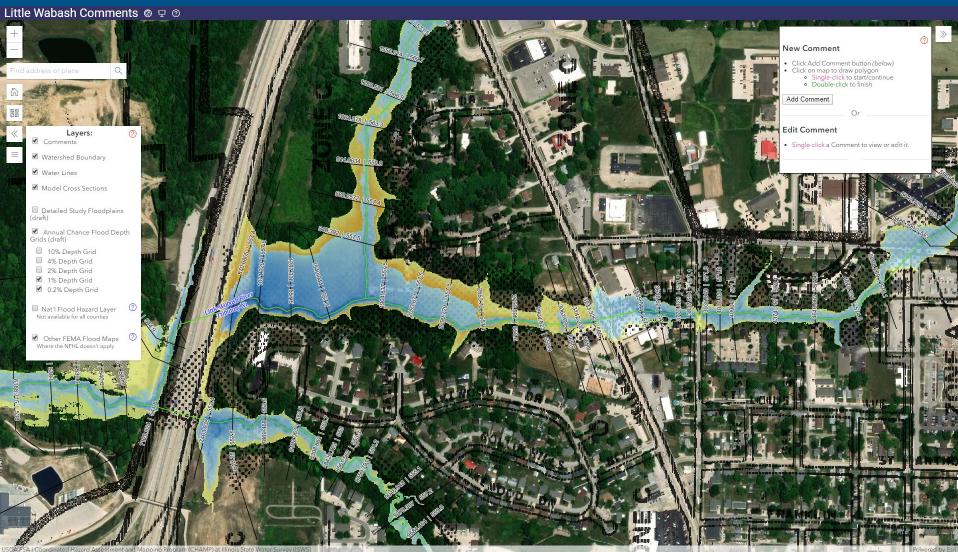






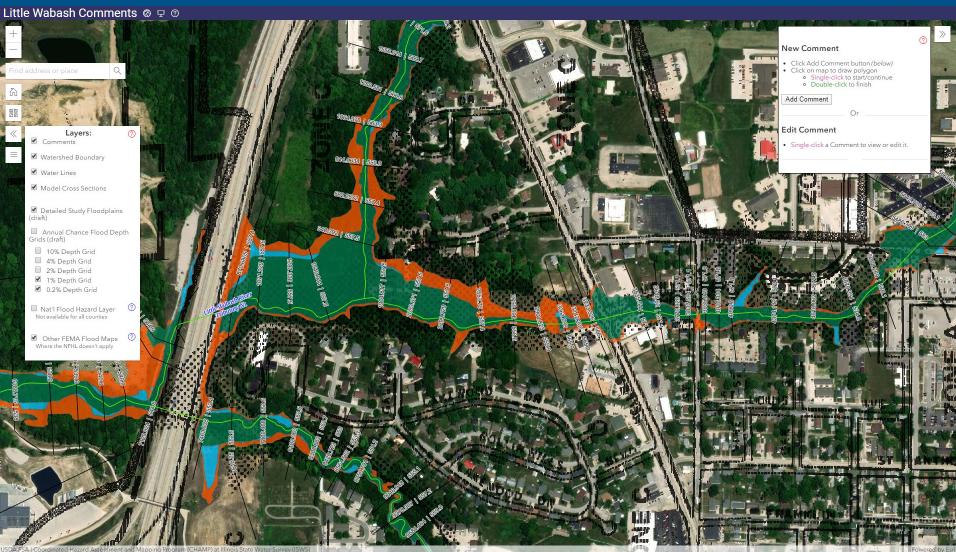






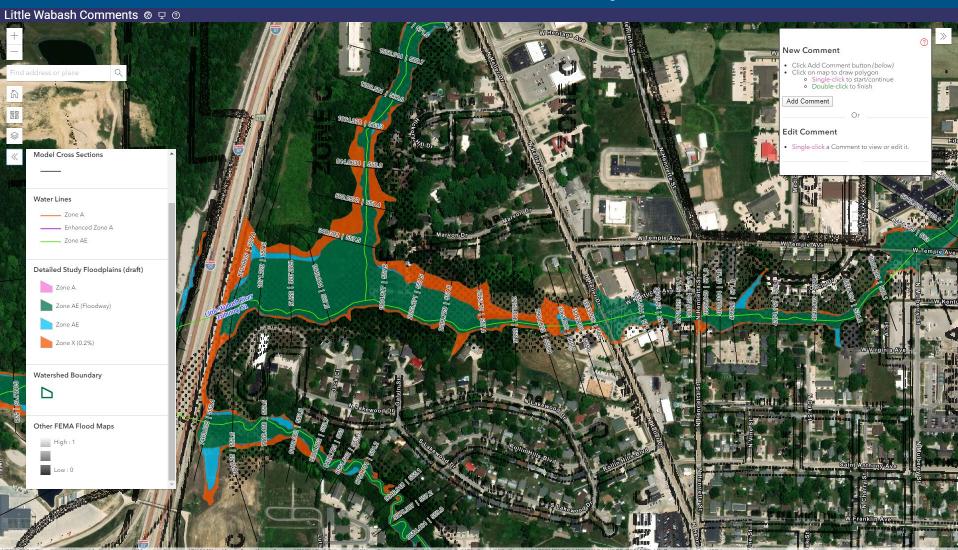








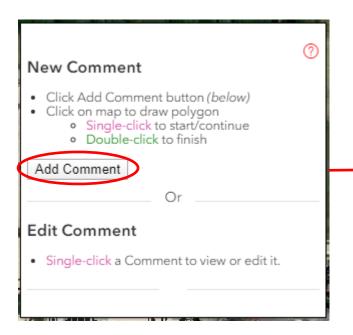


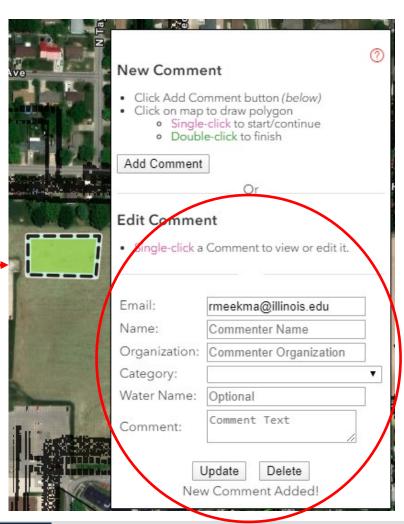






Adding Comments to the Web-Map













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.







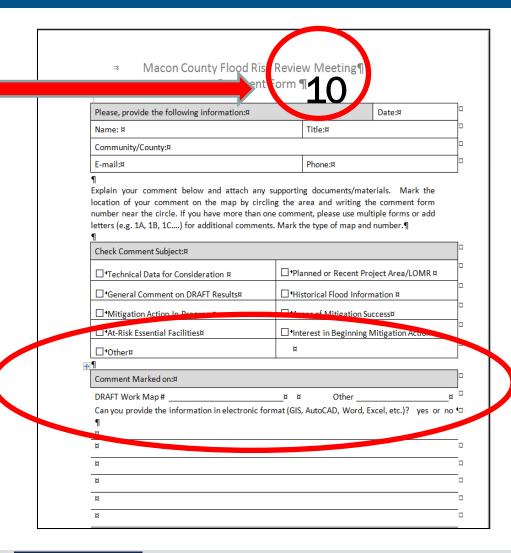


Comment Forms

Comment Number

Provide data in electronic format when available!

Map Marked











Contact information

Mary Richardson, Illinois State Water Survey
 (217) 300-3479
 mjr@illinois.edu

 Glenn Heistand, Illinois State Water Survey heistand@illinois.edu







