Stevens Creek Watershed Floodplain Analyses in Macon County, Illinois

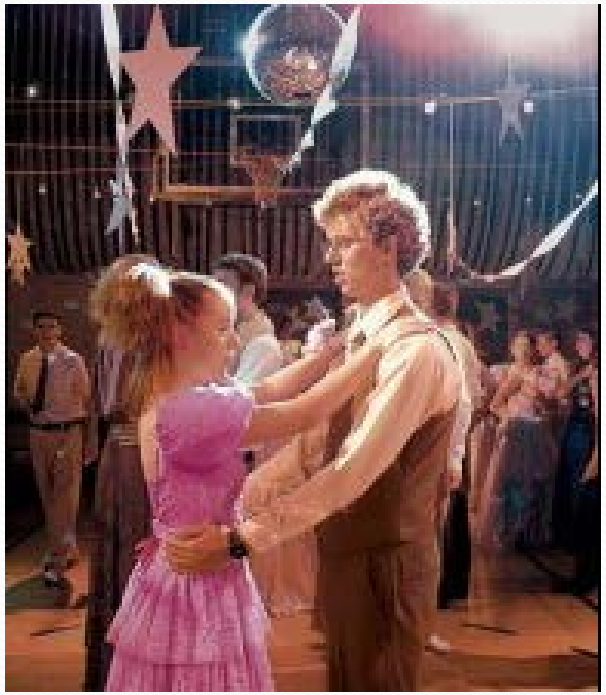
FEMA funded project by
Illinois State Water Survey
In Cooperation with Illinois
Department of Natural Resources

Meeting Goals

Community input throughout the 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.

- Provide an overview of the Hydrologic and Hydraulic Analysis
- Present the DRAFT Results
- Answer questions about the analysis
- Collect your concerns /feedback/technical data

Welcome to the First Dance!



It's not the Last Dance!

Meeting Goals

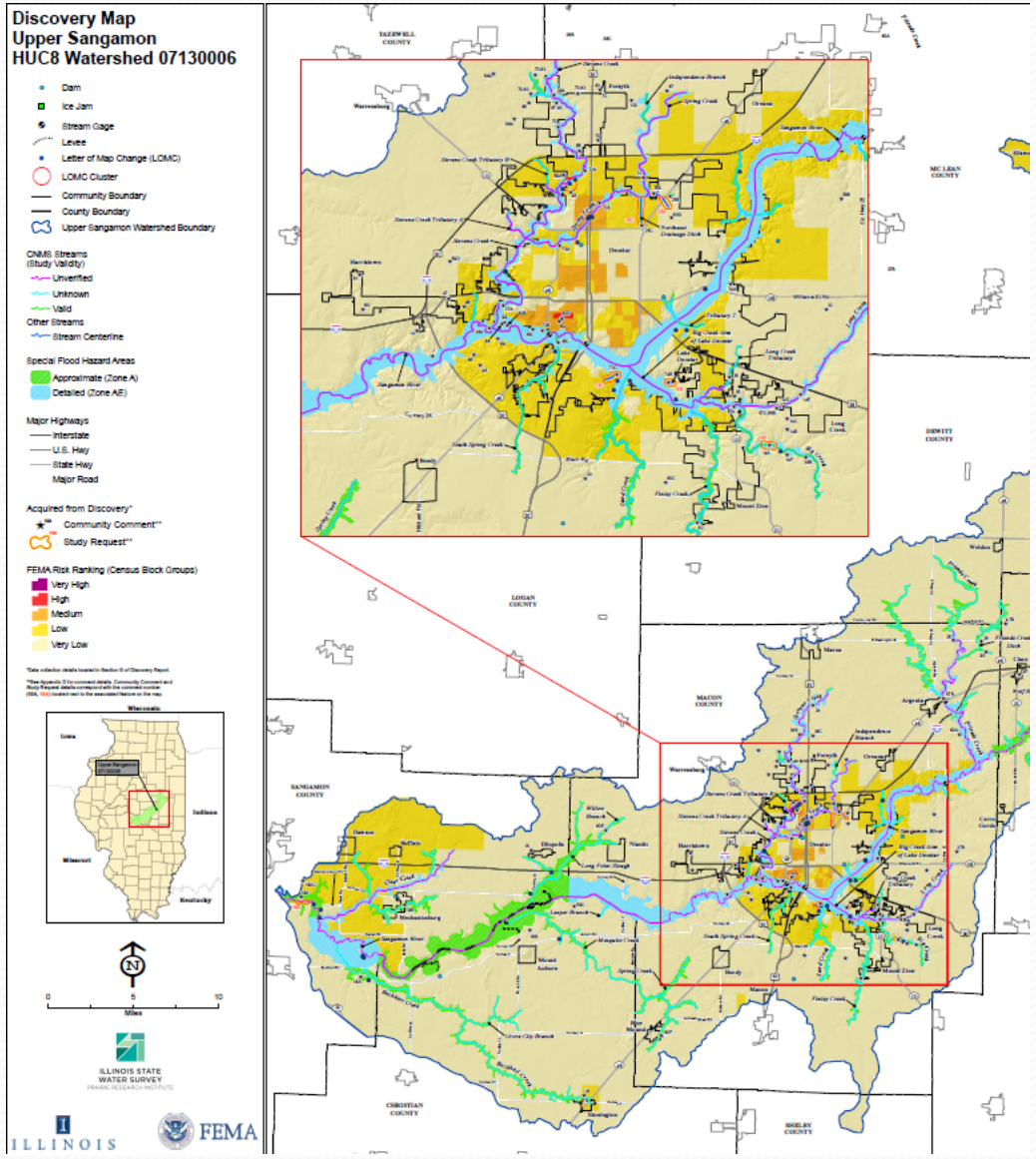
Provide information on RiskMAP products as well as additional resources that are useful during map update.

- Introduce additional non-regulatory products
- Present resources for your consideration

We will provide information that we hope will be useful to communicate flood risk and consider flood risk reduction.

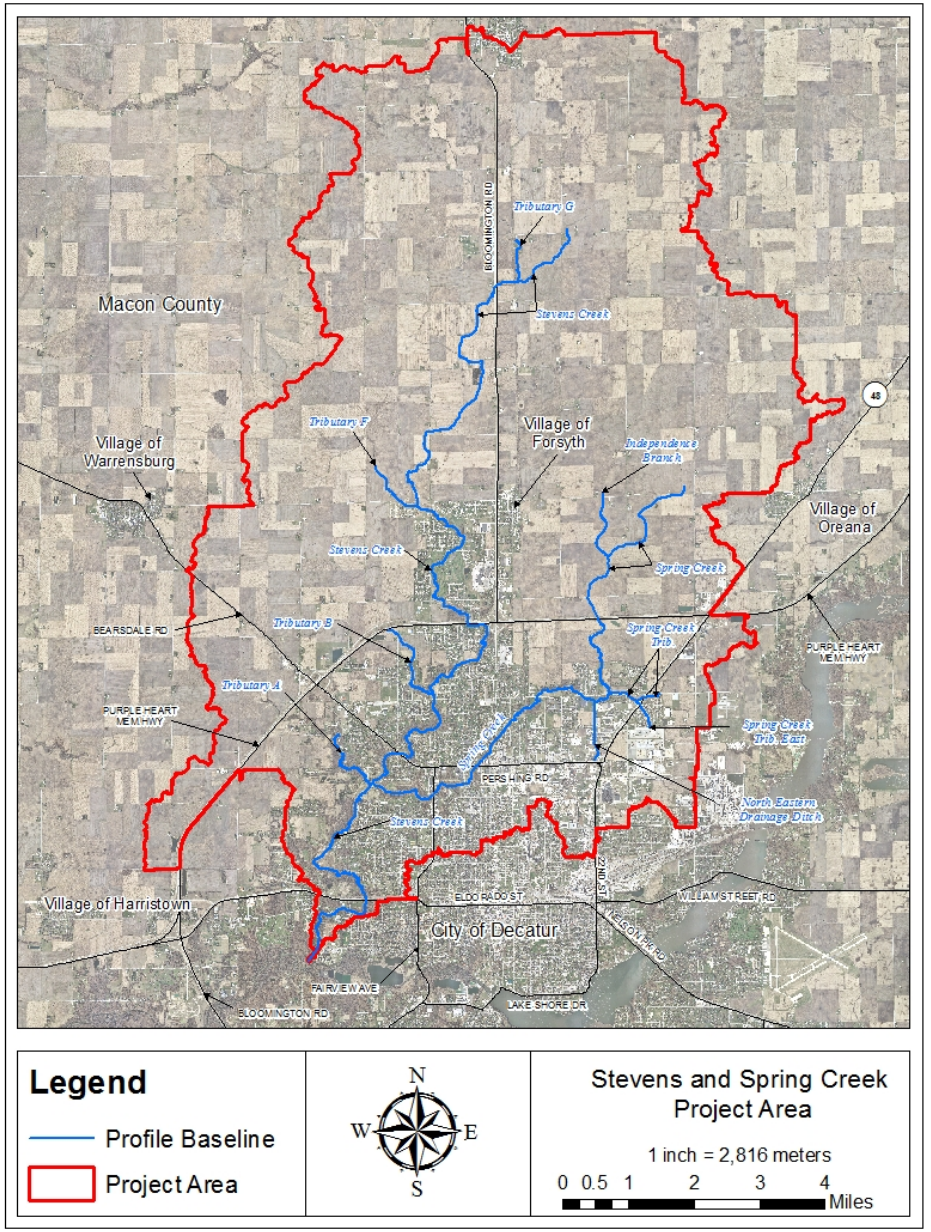
Project History

- Map Modernization
  - Unresolved Discrepancies City of Decatur and Macon Co. differ +/- 3 ft.
- Discovery Meeting: **March 28, 2011**
  - Documenting Community Knowledge
  - Mitigation
  - CRS
- Discovery Map and database
  - Risk ranking
  - Community input



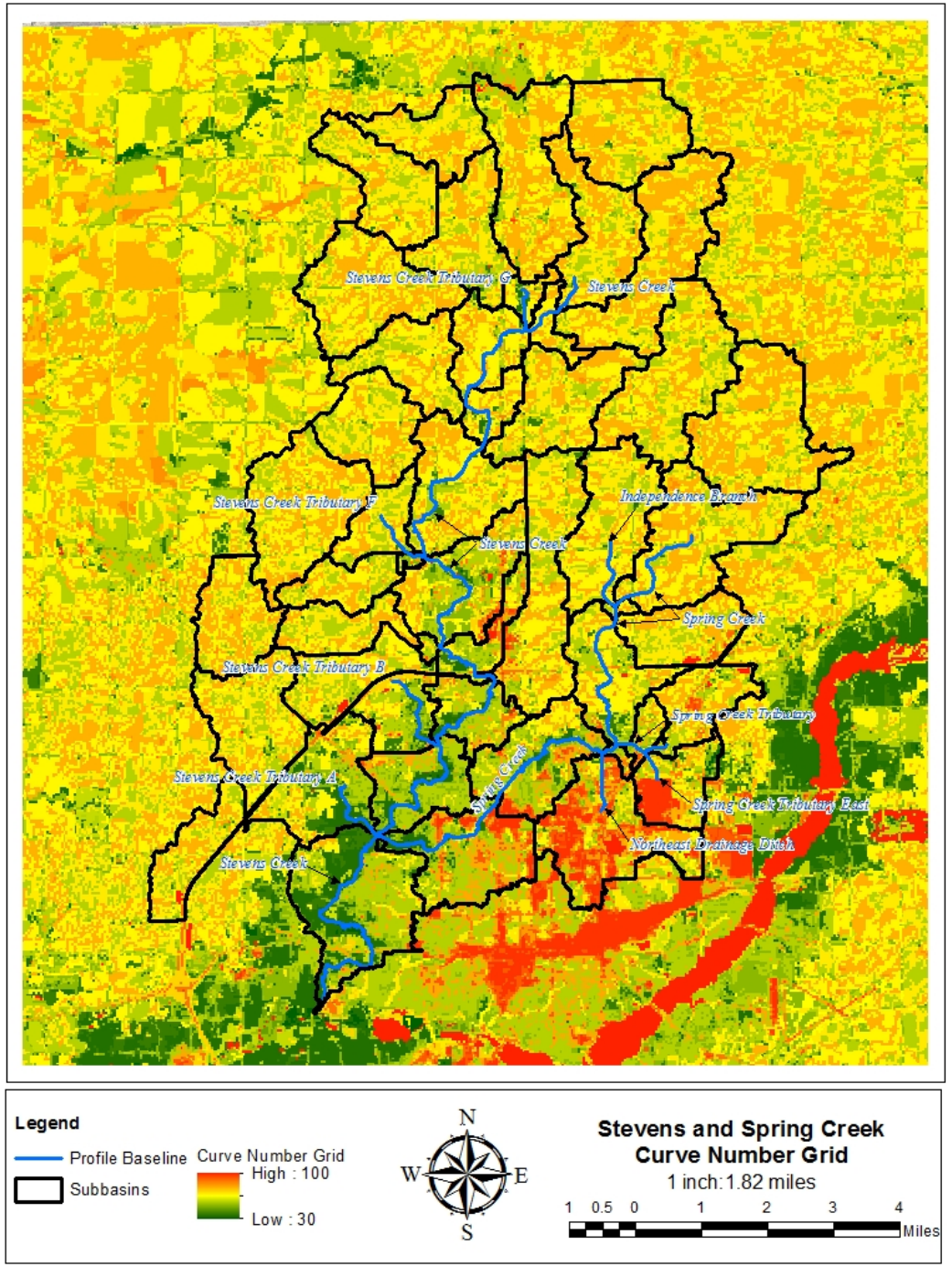
Project History

- Discussion on Scope
  - Stevens Creek Watershed is nearly 88 square miles
  - Stevens Creek (18 miles) Spring Creek (9 miles) and 8 tributaries.
  - Total Stream Length 38.2 miles
  - Survey performed by IDNR-OWR
  - Supplemented with the Macon Co. 2010 Digital Elevation Model (lidar)



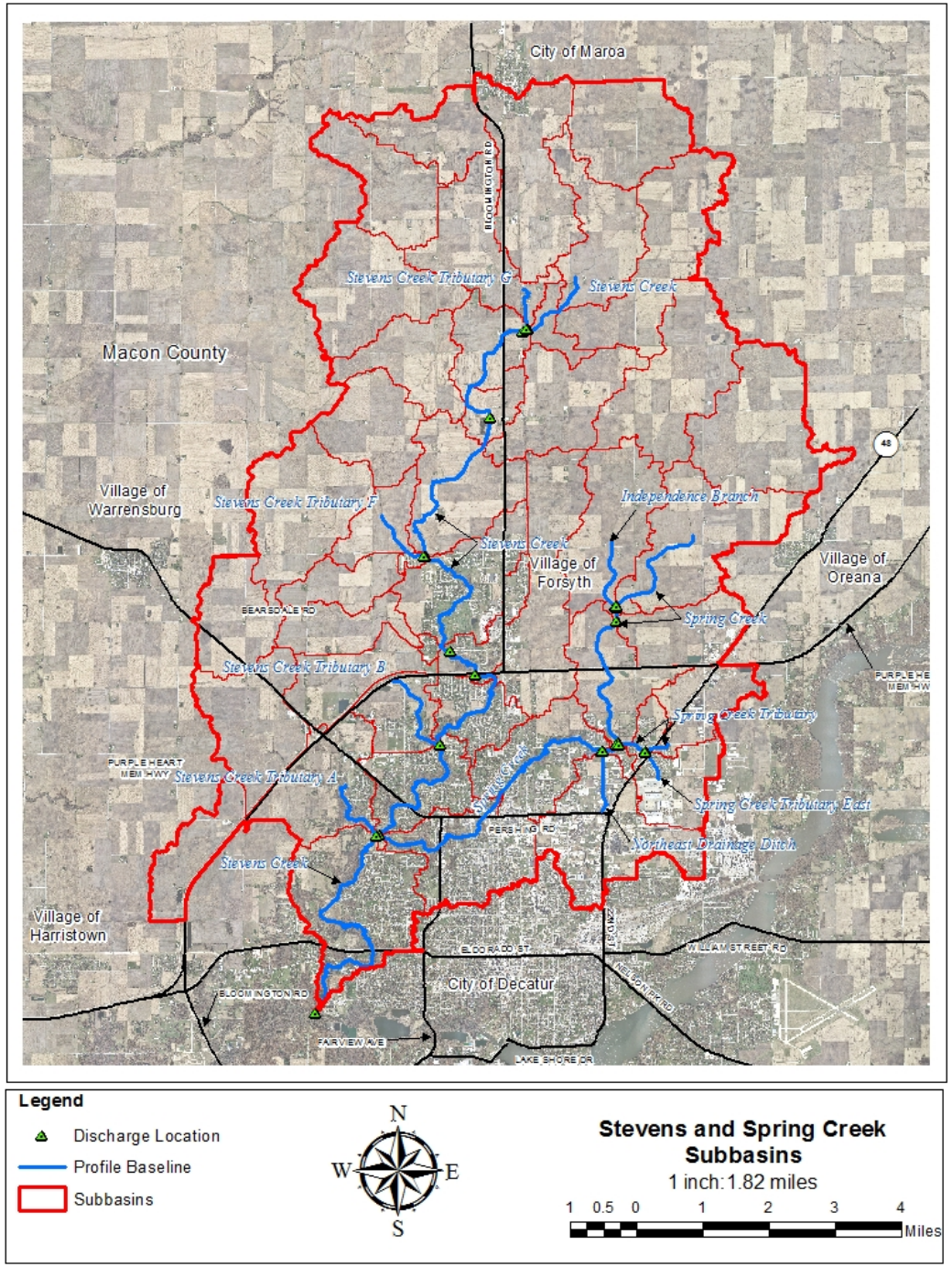
Hydrology

- HEC-HMS Version 3.5.0
- HEC-geoHMS v10 toolkit for ArcGIS 10.0
- Soil Conservation Service (SCS) curve number (CN) loss method
- Parameters produced through HEC-geoHMS from geographic information systems (GIS) data
- land use: 2007 United State Department of Agriculture, National Agricultural Statistics Service (USDA-NASS) Cropland Data Layer (CDL)
- soil data: The 2007 U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) Soil Survey Geographic (SSURGO)
- Combined to produce Curve Numbers.



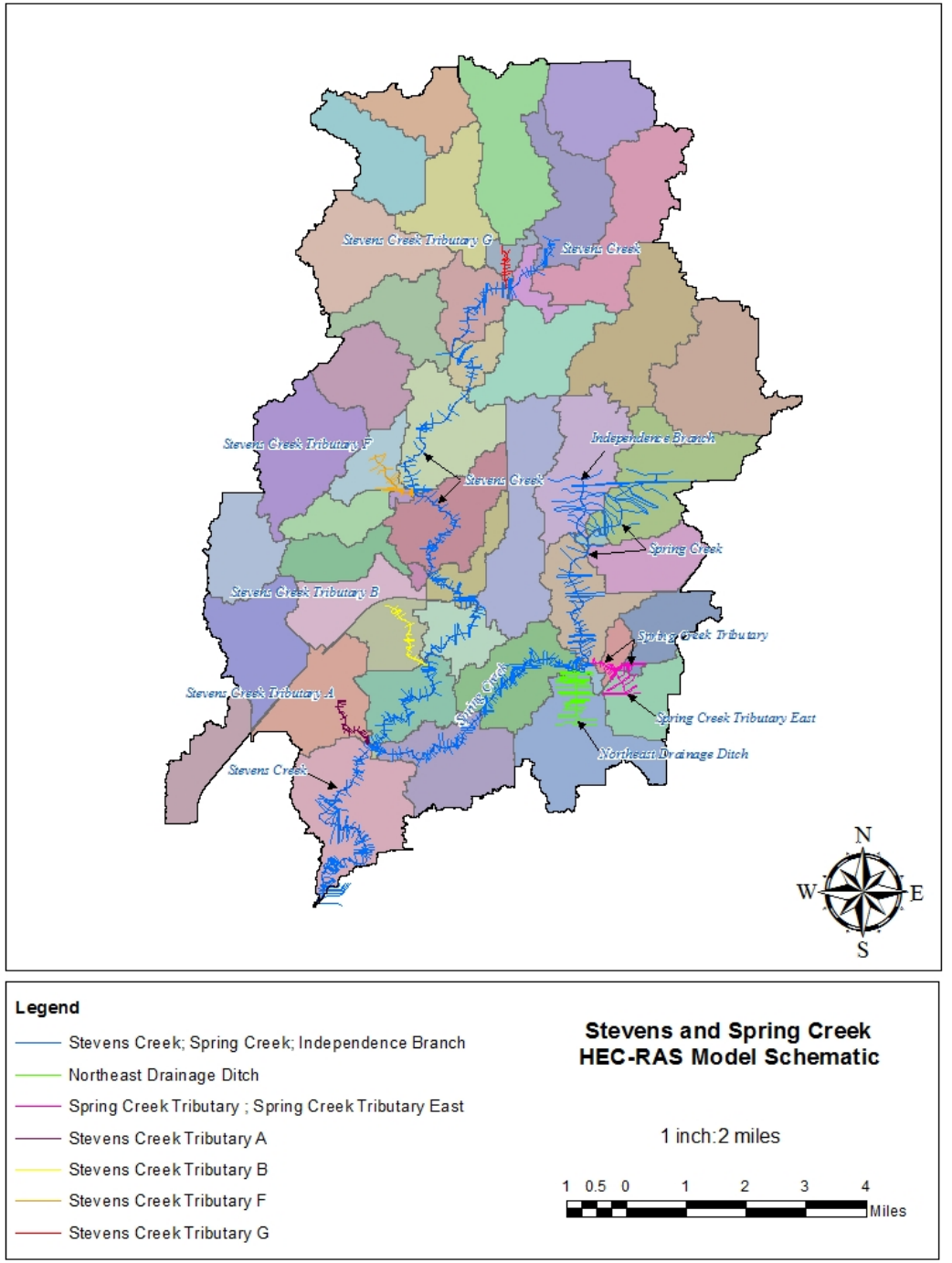
Hydrology

- Rainfall: Bulletin 70 – Huff
- Clark Unit hydrograph methodology
- Muskingum-Cunge routing with Modified Puls channel routing for Stevens downstream of Tributary F and Spring Creek downstream of Northeast Drainage Ditch
- 24 Hour Critical Duration



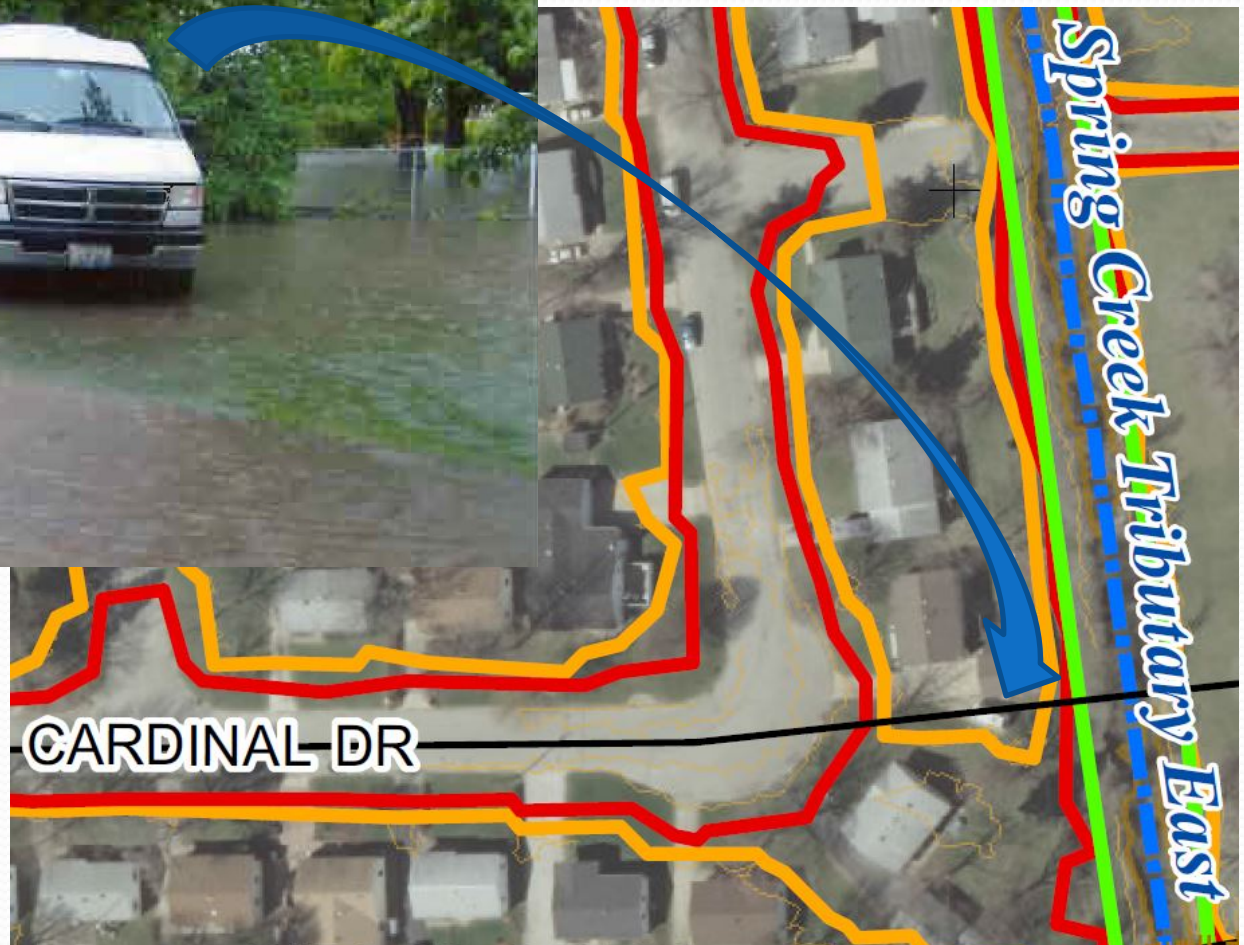
Hydraulics

- HEC-RAS Version 4.1.0
- HEC-GeoRAS Version 10.0
- A total of 7 HEC-RAS models
- Channel and Bridge data based on IDNR-OWR Survey (December 2011 through October 2012)
- Overbank data based on Macon County 2010 DEM
- NAVD 1988
- 261 Channel Cross Sections Surveyed out of 523 Total
- All Overbank Cross Sections use 2010 Macon County DEM
- Ineffective flow: contraction ratio 1:1; expansion ratio 2:1
- Mannings "n values": Channel 0.035 – 0.055; Overbanks 0.04 – 0.13
- 78 Bridges, 26 Culverts,
- 545 Cross Sections



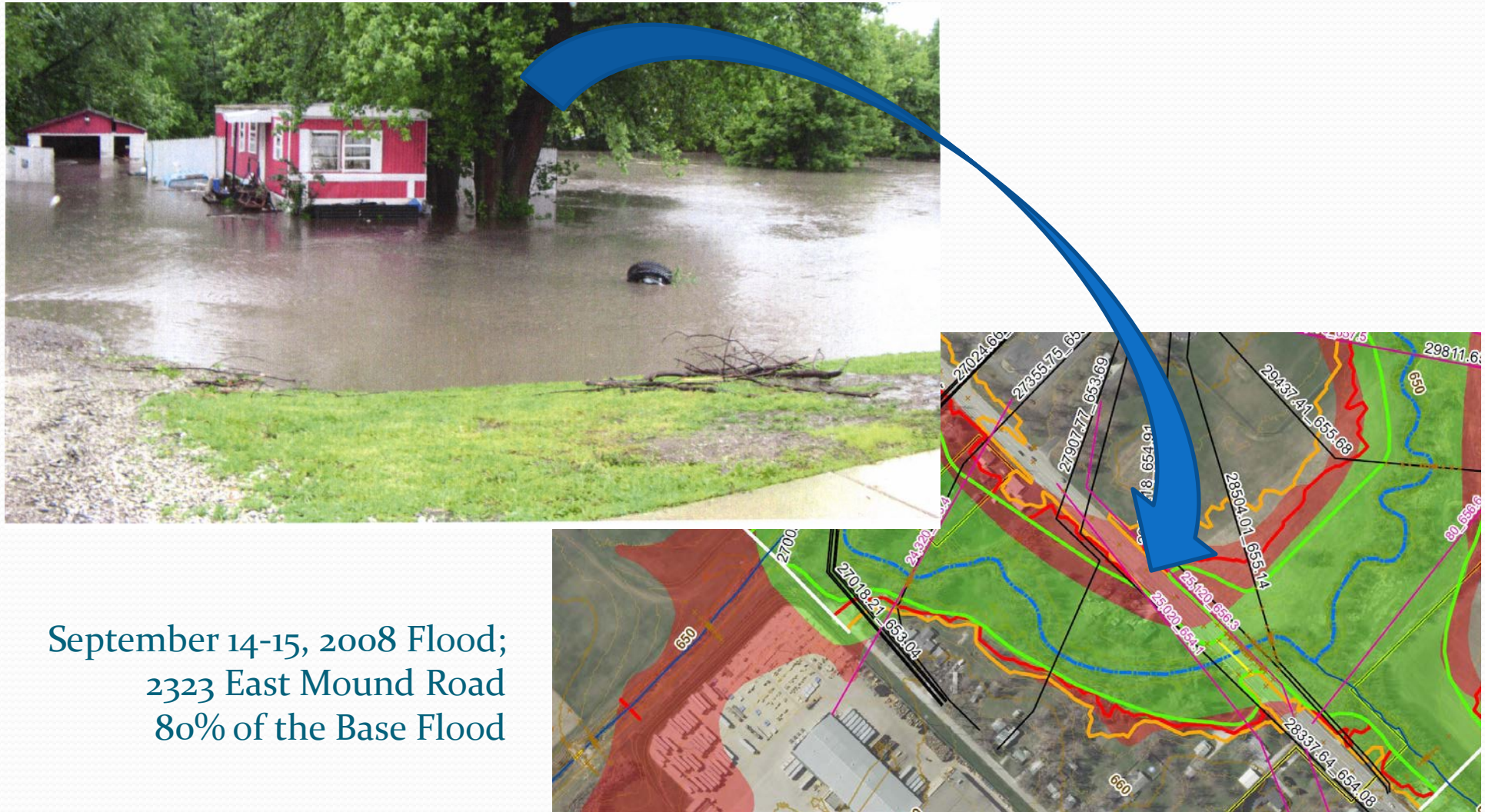
Validation

SSD gage 5.19 in; Clinton 4.8 in



September 14-15, 2008 Flood;
Meadowlark Subdivision
110% of the Base Flood

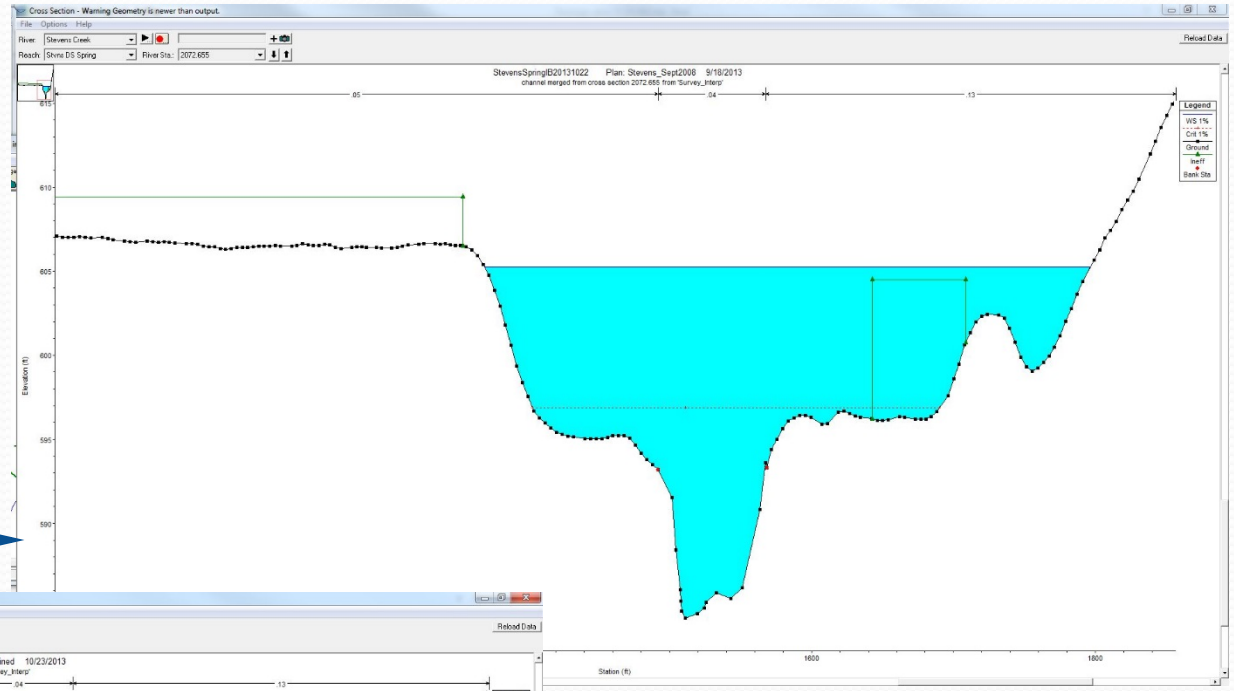
Validation

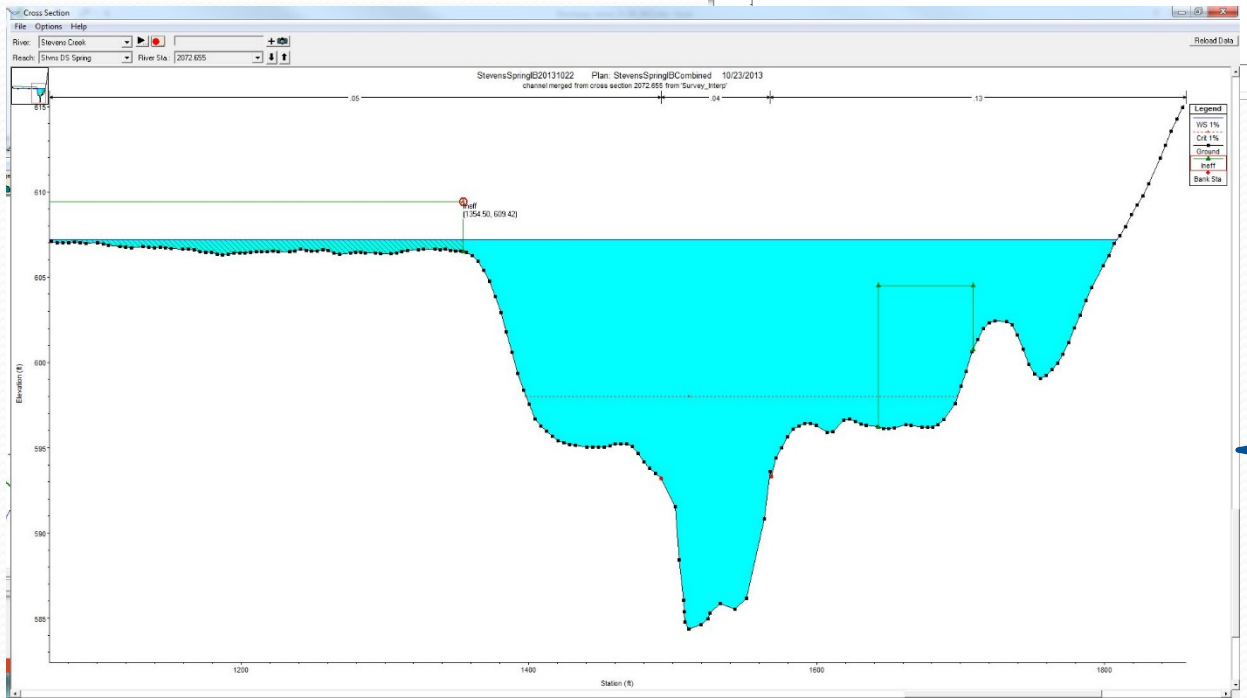


September 14-15, 2008 Flood;
2323 East Mound Road
80% of the Base Flood

Validation

September 14-15, 2008 Flood;
SDD 80% of the Base Flood
Reported +/- 2ft.
below the earth levee top
At Cross-section 2072.7
(upstream end)





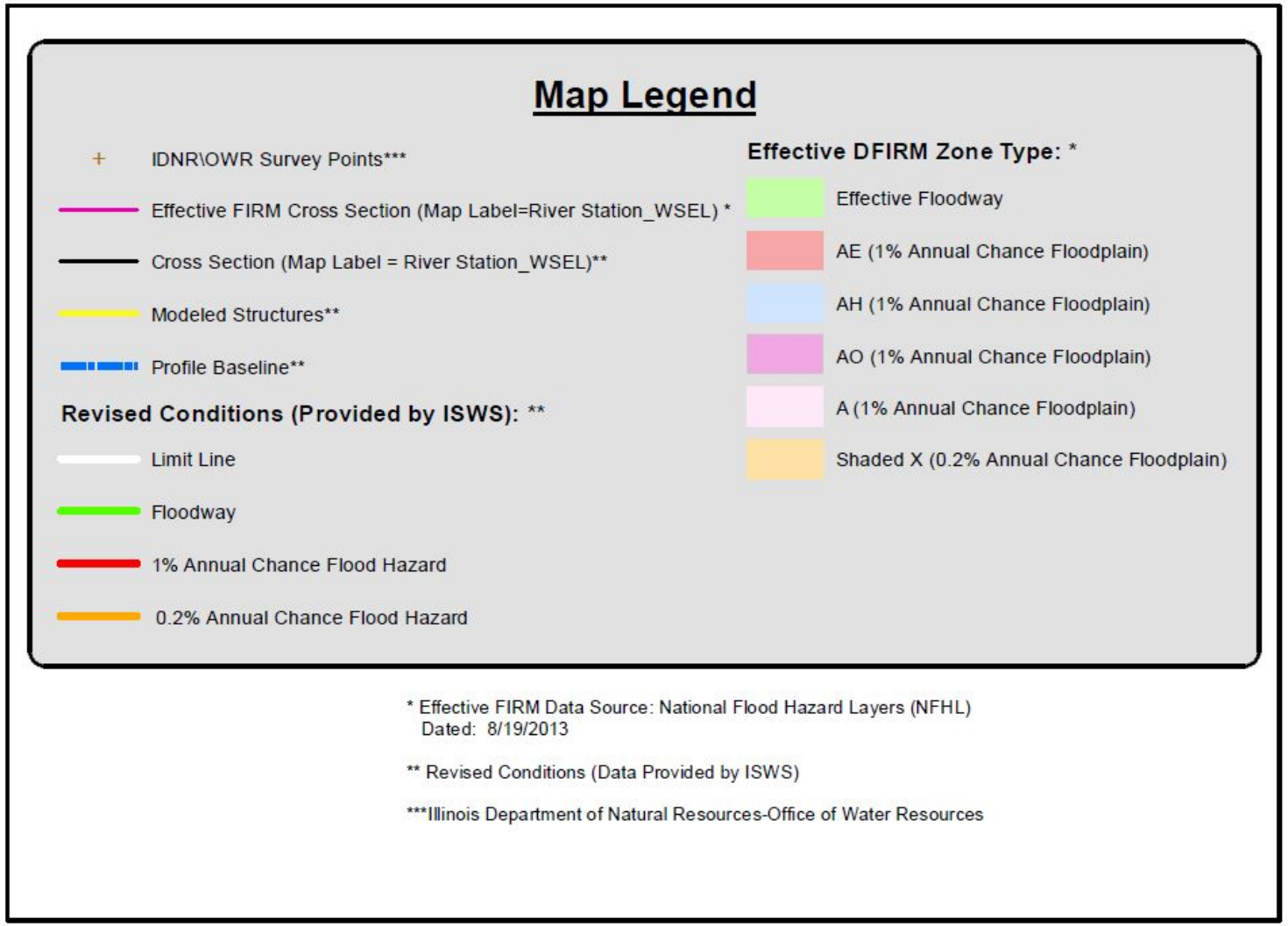
Base Flood
2 ft.-3 in. below top of levee
wall at this point.

Overview of DRAFT results

- Base Flood Elevations (BFE's)
  - Independence Branch: -1.3 to -3.6'
  - Spring Creek: -3.2 to +2.1'
  - Spring Creek Tributary: -2.7 to -3.6'
  - Tributary A: - 1.7 to -3.3'
  - Stevens Creek (Upstream of I-72): -3.4 to +2.3'
  - Stevens Creek (Downstream of I-72): +0.5 to +6.3'
  - Tributary B, F and G, Spring Creek Tributary East and Northeast Drainage Ditch all effective Zone A, so no BFE comparison.

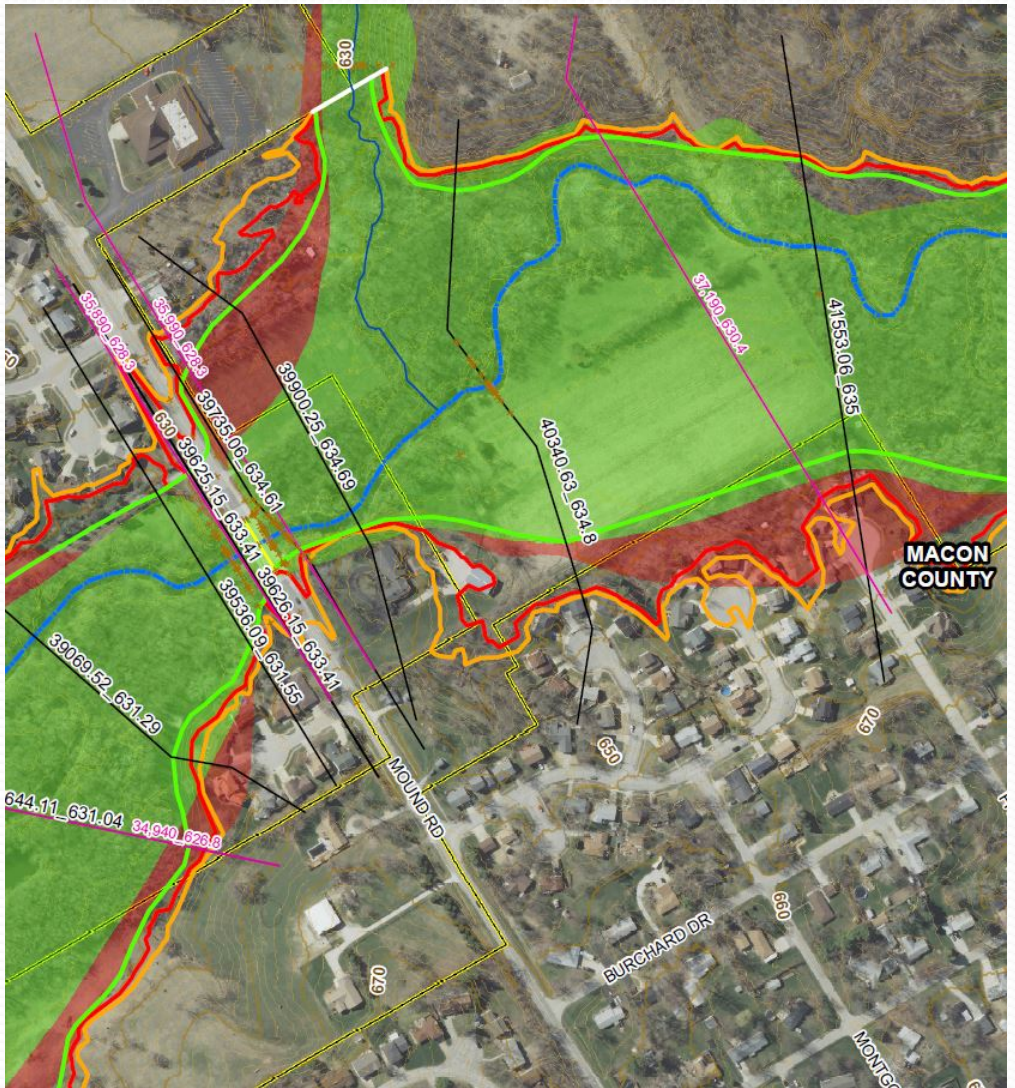
Comparison Map Legend

- Shading- effective SFHA
- Line- proposed DRAFT results



SFHA Change Examples

- Maximum BFE increase 6.3 feet upstream of Mound Road on Stevens Creek
- No significant increase in SFHA



SFHA Change Examples

- 0.5 foot BFE increase feet upstream of I-72 on Stevens Creek
- Significant increase in SFHA

Risk MAP
new look, new products

- FIRMs will have a new layout and legend
- Non- regulatory products will be provided

FLOOD HAZARD INFORMATION

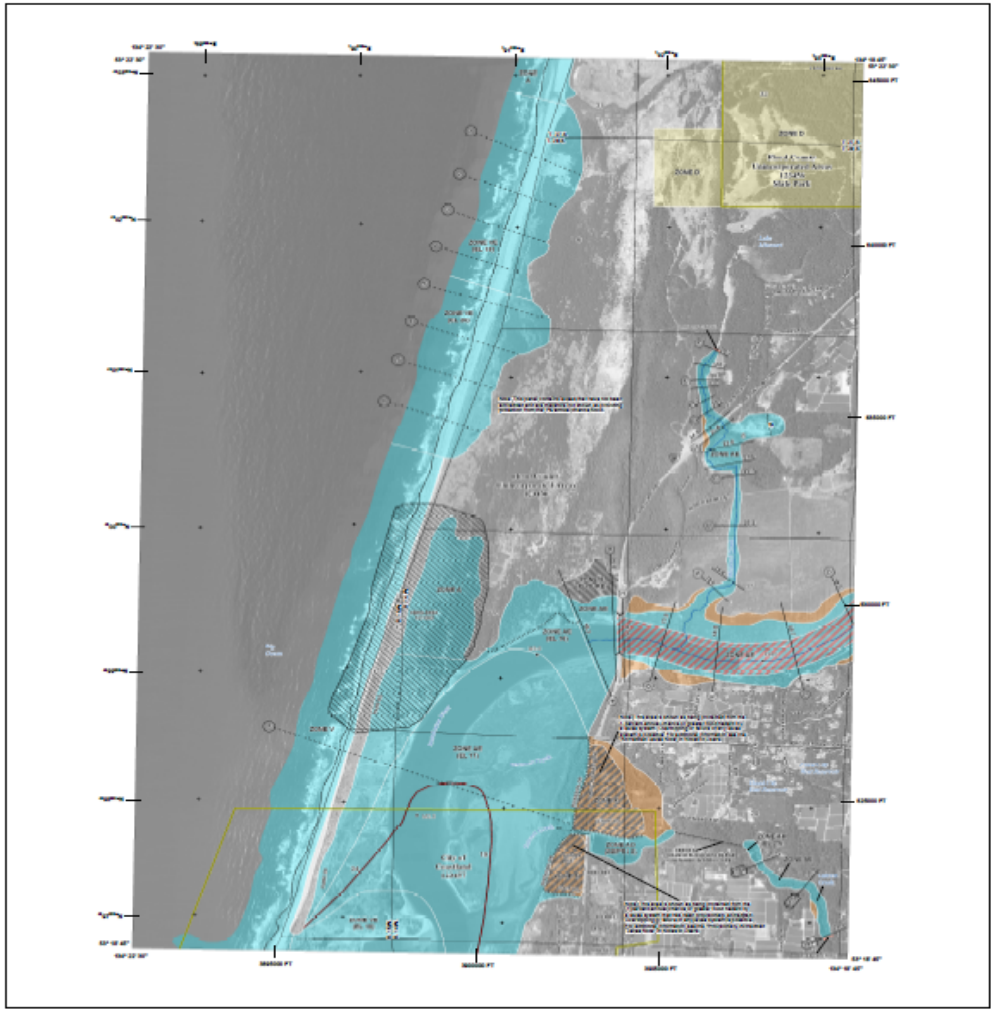
SEE FIS REPORT FOR ZONE DESCRIPTIONS AND INDEX MAP

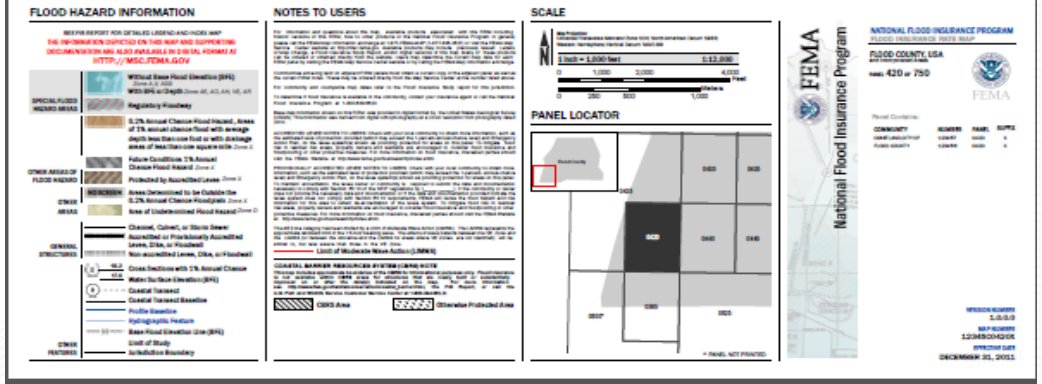
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT

HTTP://MSC.FEMA.GOV

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) *Zone A,V, A99*
	With BFE or Depth *Zone AE, AO, AH, VE, AR*
	Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
	Future Conditions 1% Annual Chance Flood Hazard *Zone X*
	Area with Reduced Flood Risk due to Levee See Notes. *Zone X*
OTHER AREAS	NO SCREEN Areas Determined to be Outside the 0.2% Annual Chance Floodplain *Zone X*
	Area of Undetermined Flood Hazard *Zone D*
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer
	Accredited or Provisionally Accredited Levee, Dike, or Floodwall
	Non-accredited Levee, Dike, or Floodwall
OTHER FEATURES	E 18.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation (BFE)
	8 Coastal Transect
	Coastal Transect Baseline
	Profile Baseline
	Hydrographic Feature
	513 Base Flood Elevation Line (BFE)
	Limit of Study
	Jurisdiction Boundary

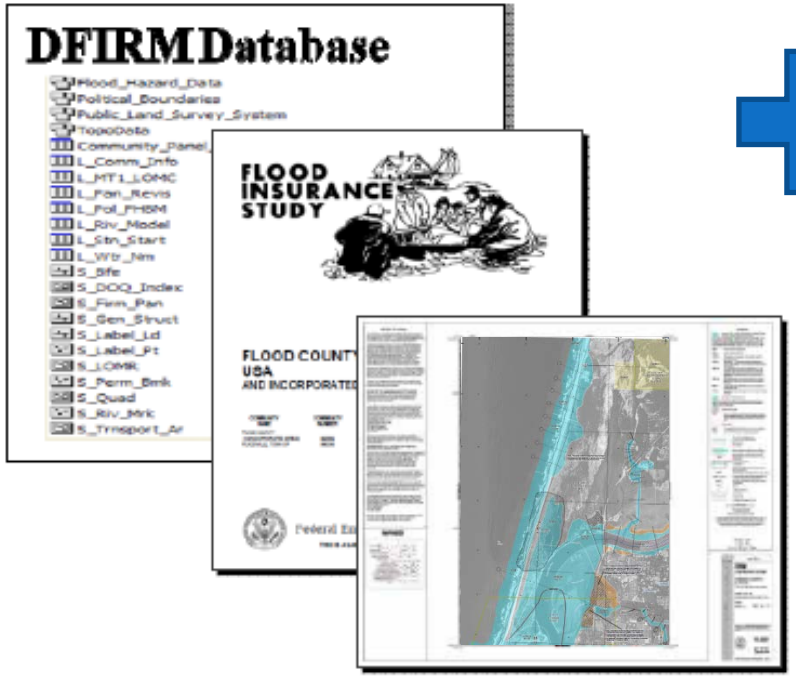
Figure K-11. FIRM Orthophoto Base Map Legend





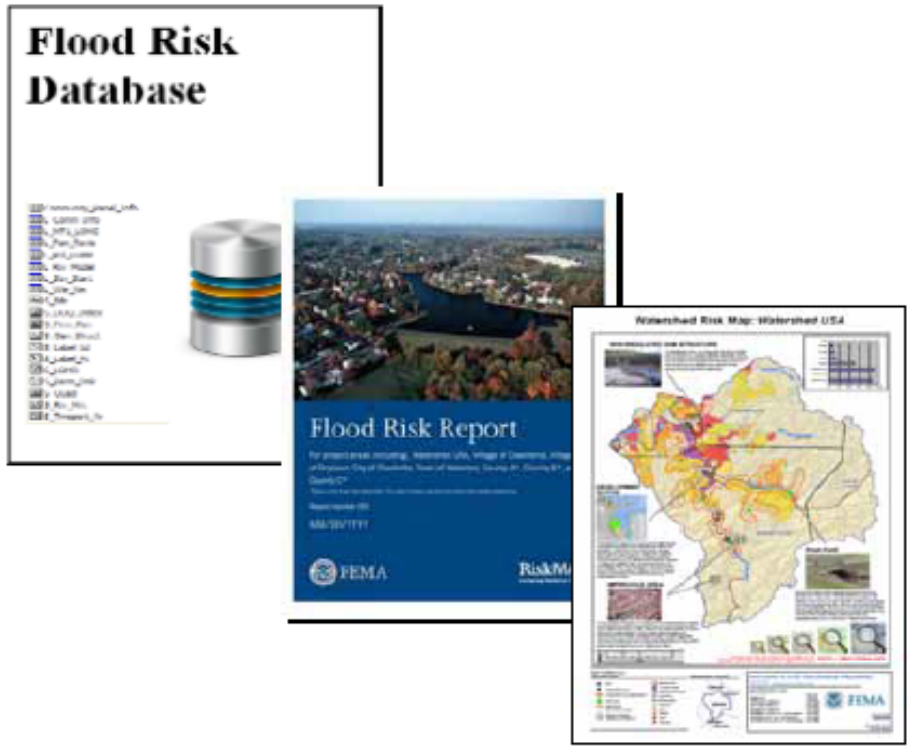
RiskMAP Datasets/Products

Traditional Regulatory Products



Traditional products are regulatory and subject to statutory due-process requirements

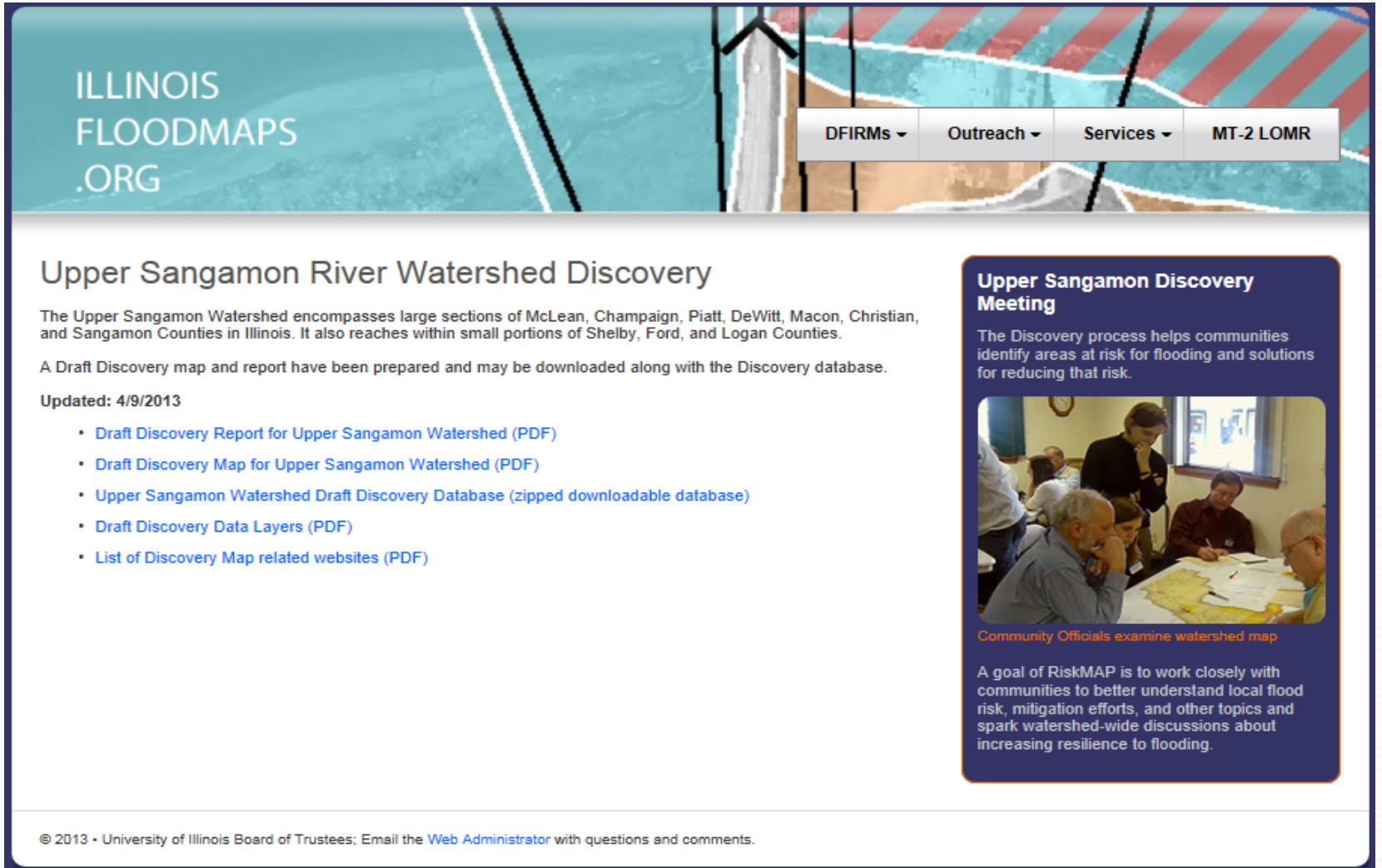
Non-Regulatory Products



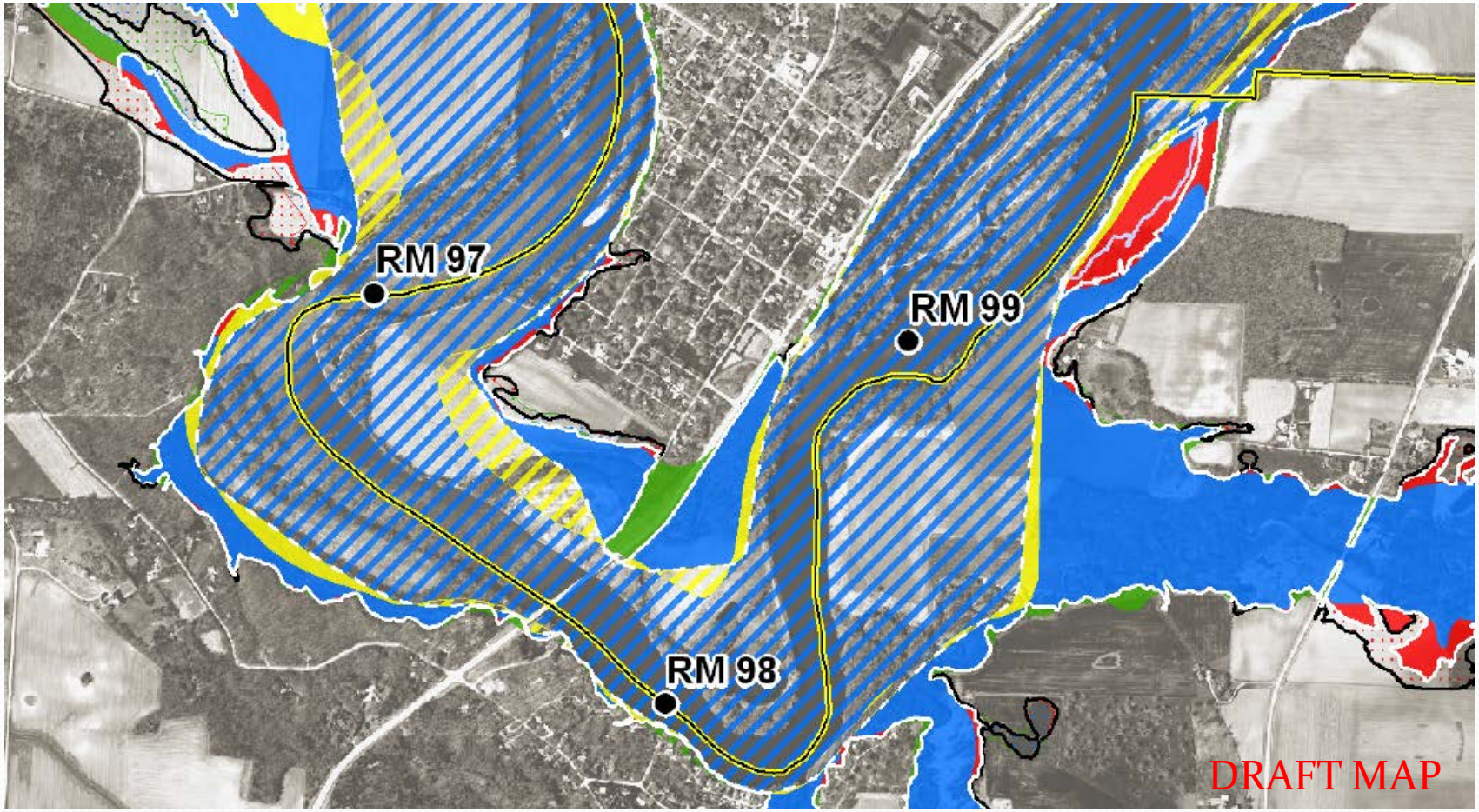
Risk MAP products are non-regulatory and are not subject to statutory due-process requirements

http://www.illinoisfloodmaps.org

click on *Outreach* tab

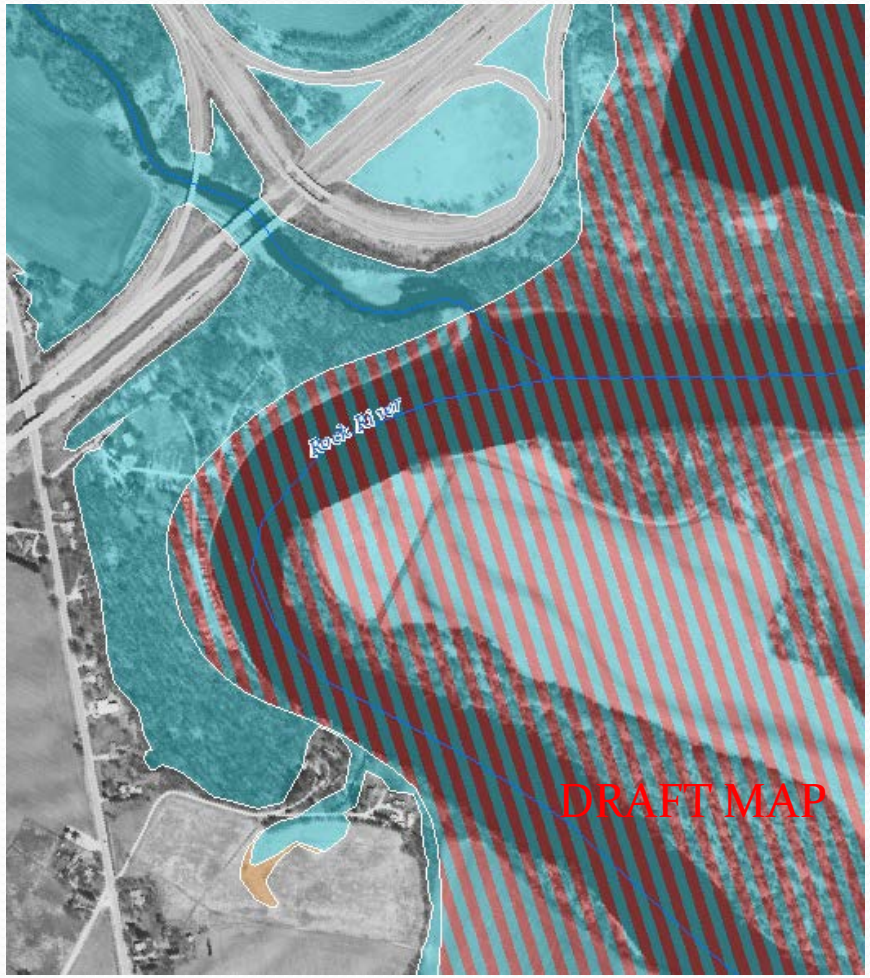


Changes Since Last FIRM

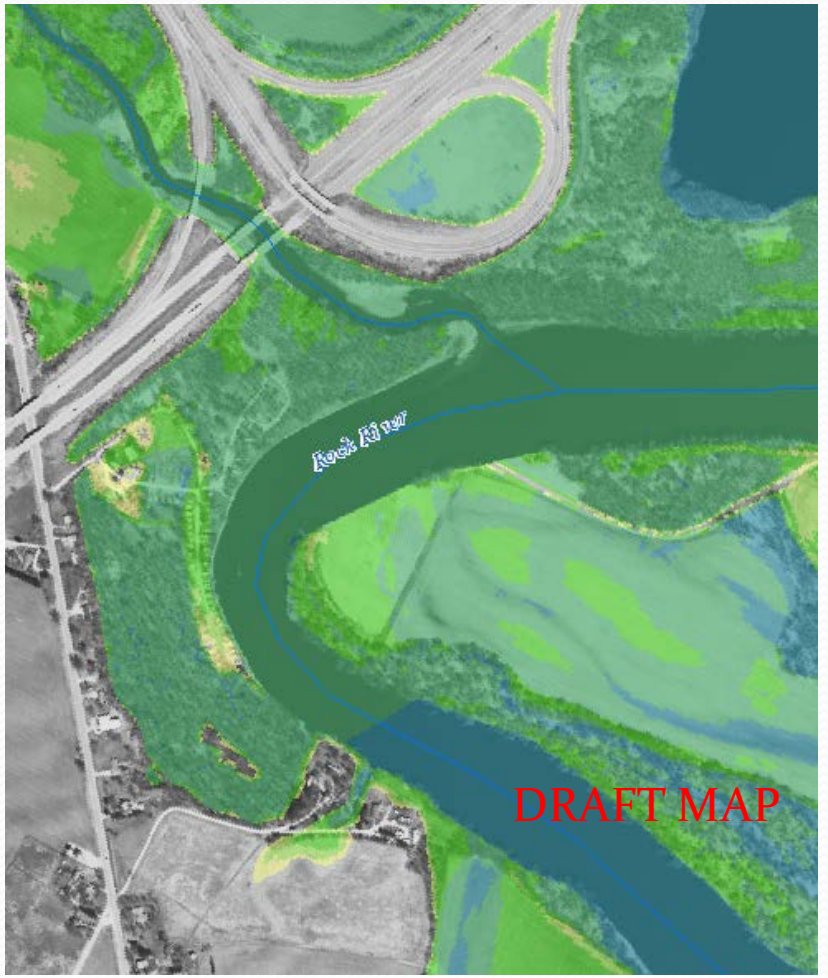


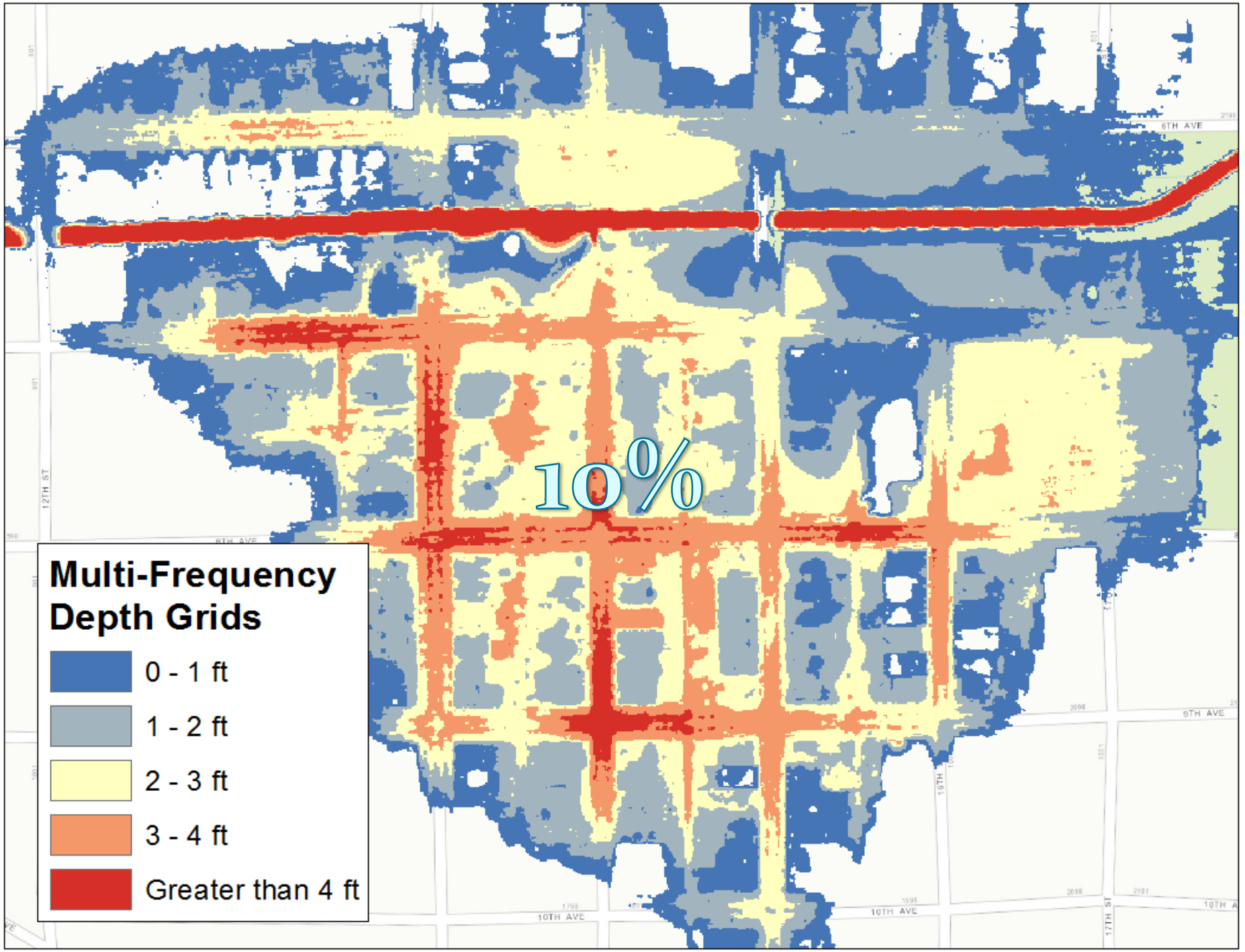
Depth Grids

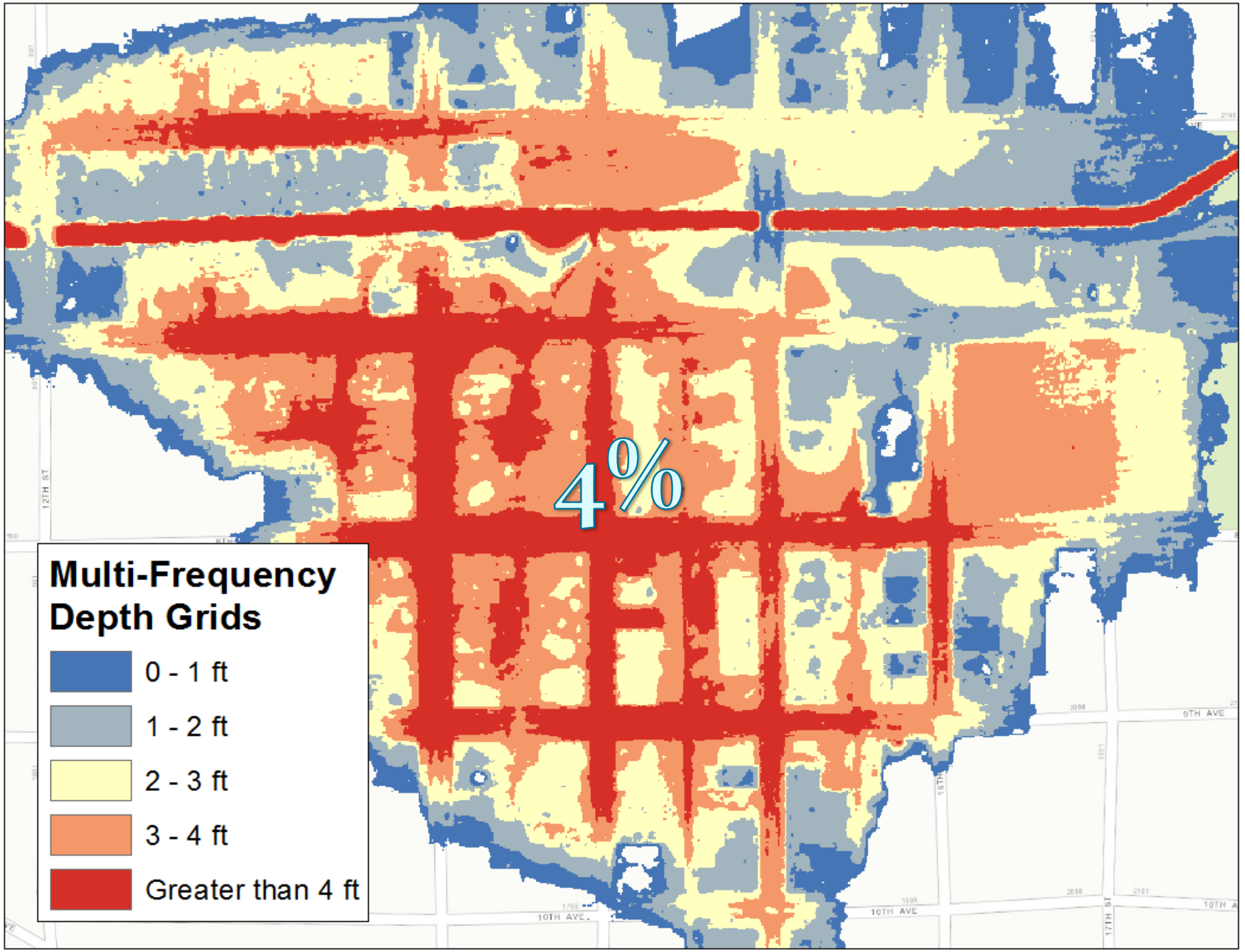
In or Out?

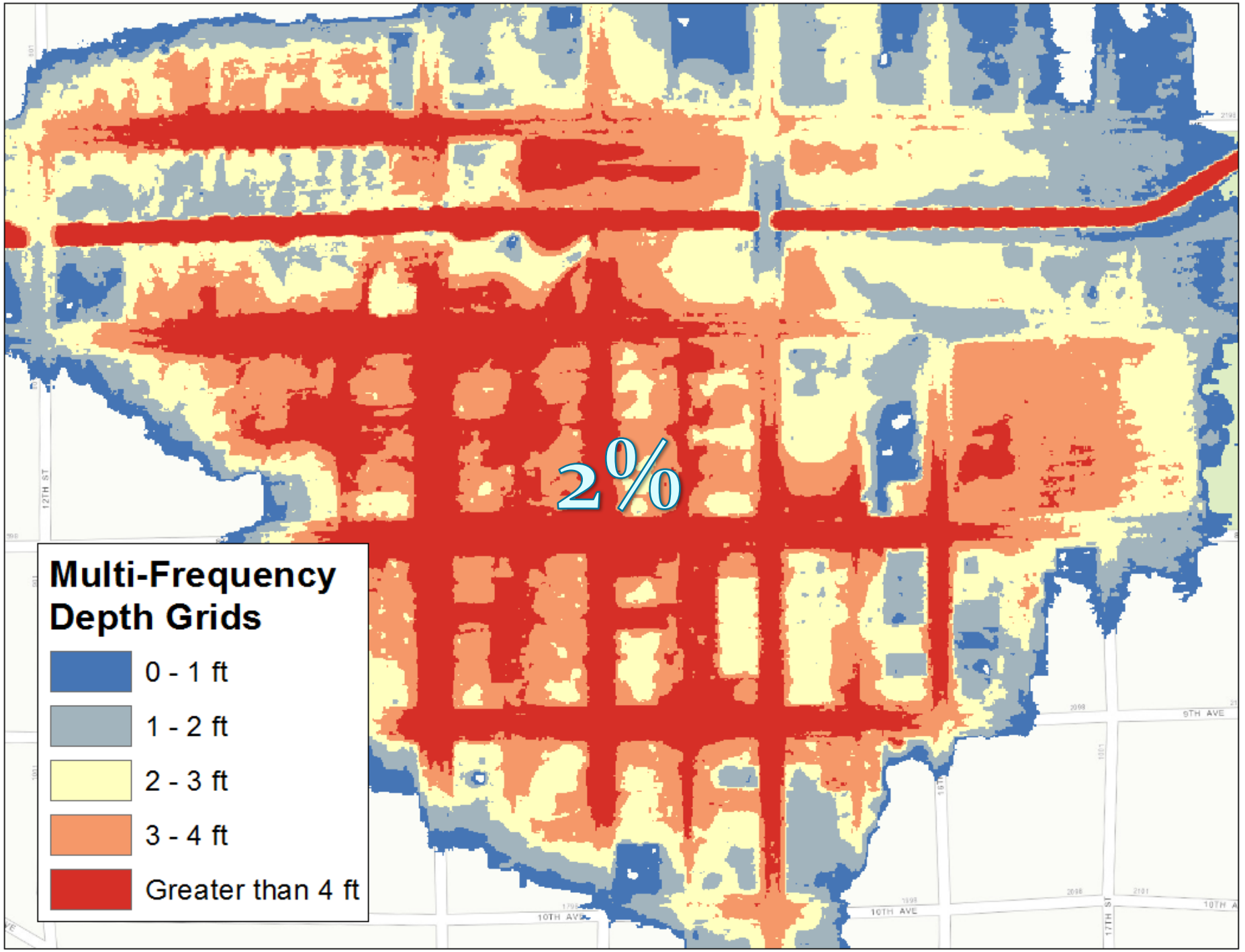


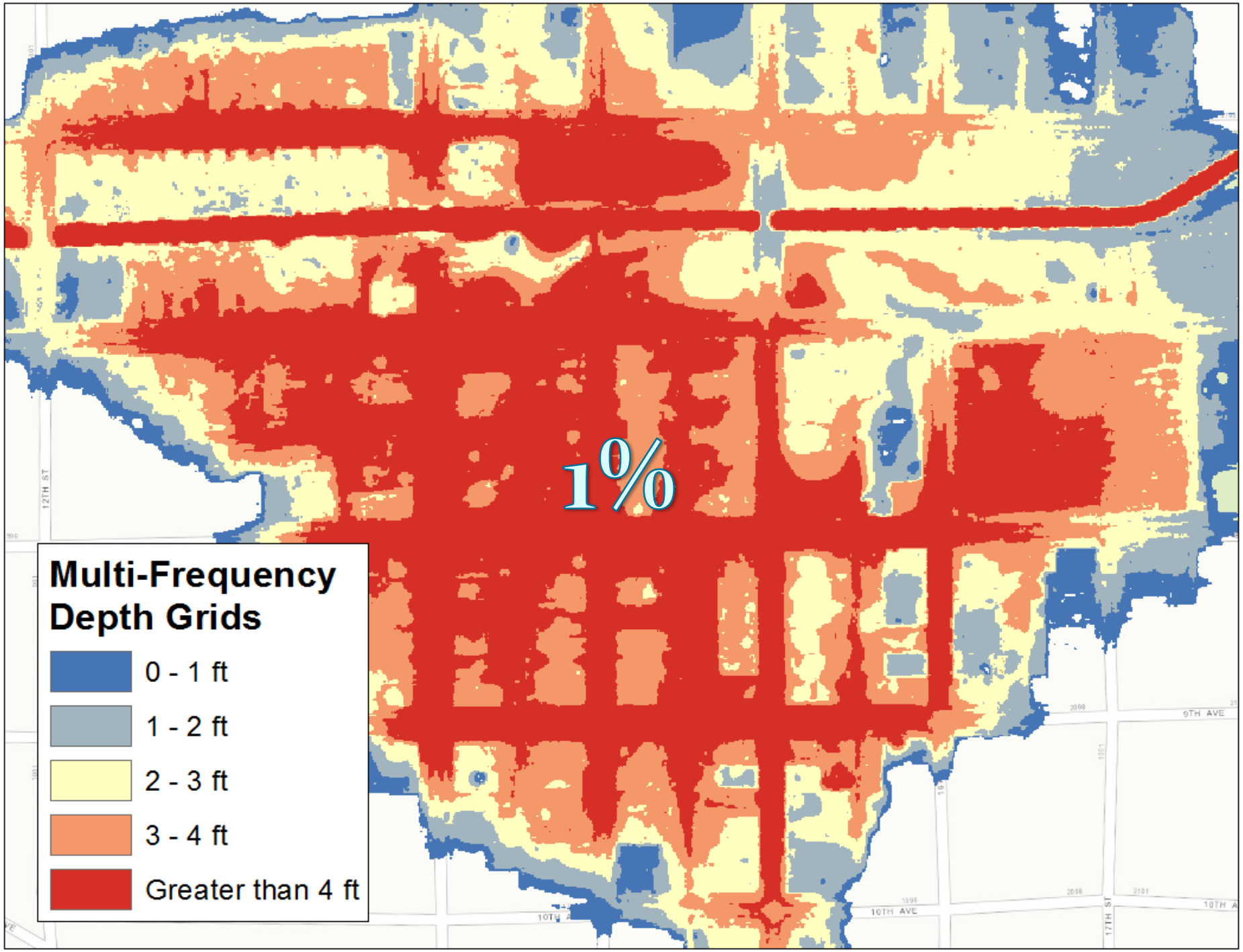
How Deep?

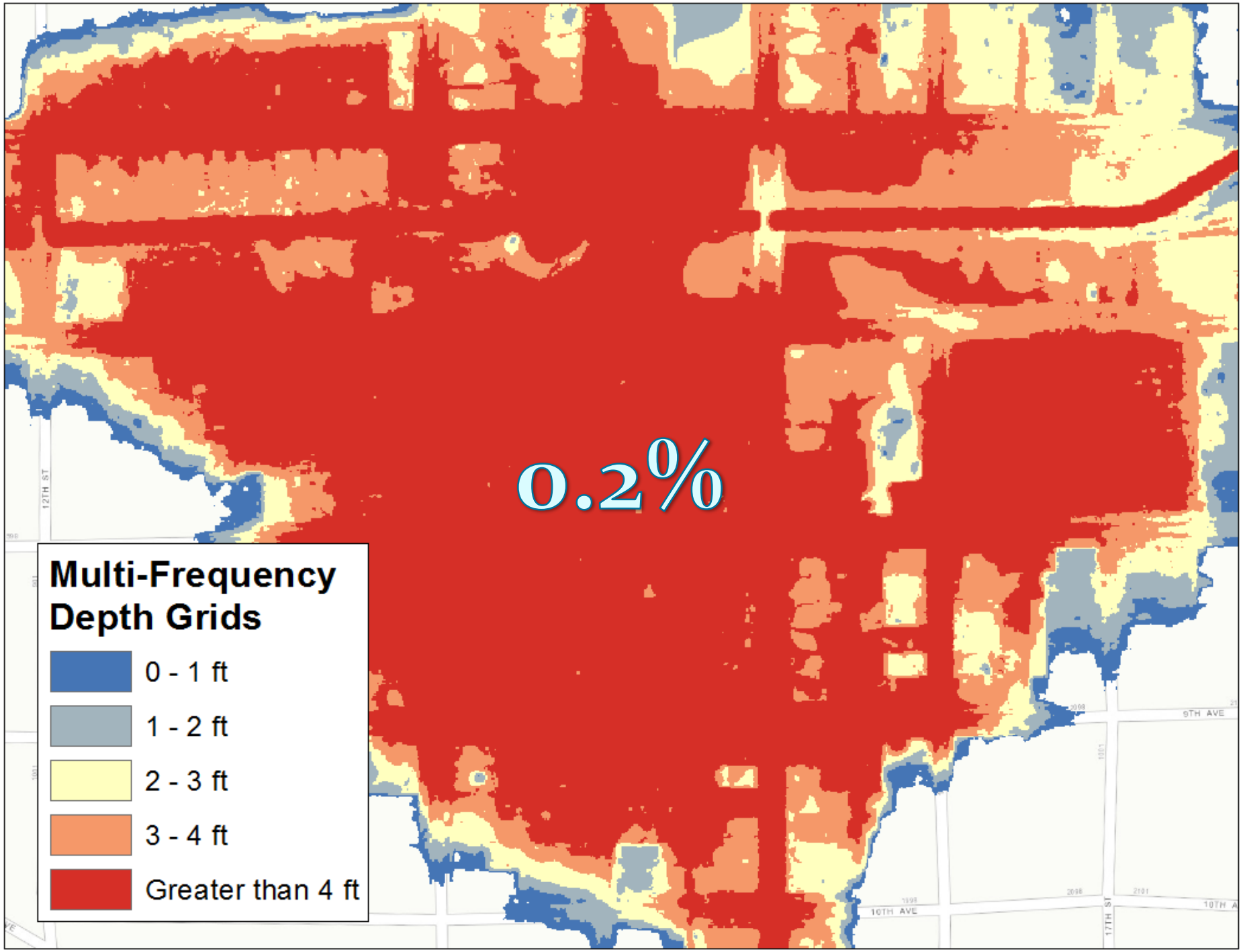



10%
Multi-Frequency Depth Grids
0 - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
Greater than 4 ft
6TH AVE
9TH AVE
10TH AVE
12TH ST
17TH ST


4%
Multi-Frequency Depth Grids
0 - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
Greater than 4 ft
12TH ST
10TH AVE
9TH AVE
17TH ST


2%
Multi-Frequency Depth Grids
0 - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
Greater than 4 ft
12TH ST
9TH AVE
10TH AVE
17TH ST


1%
Multi-Frequency Depth Grids
0 - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
Greater than 4 ft
12TH ST
9TH AVE
10TH AVE
17TH ST

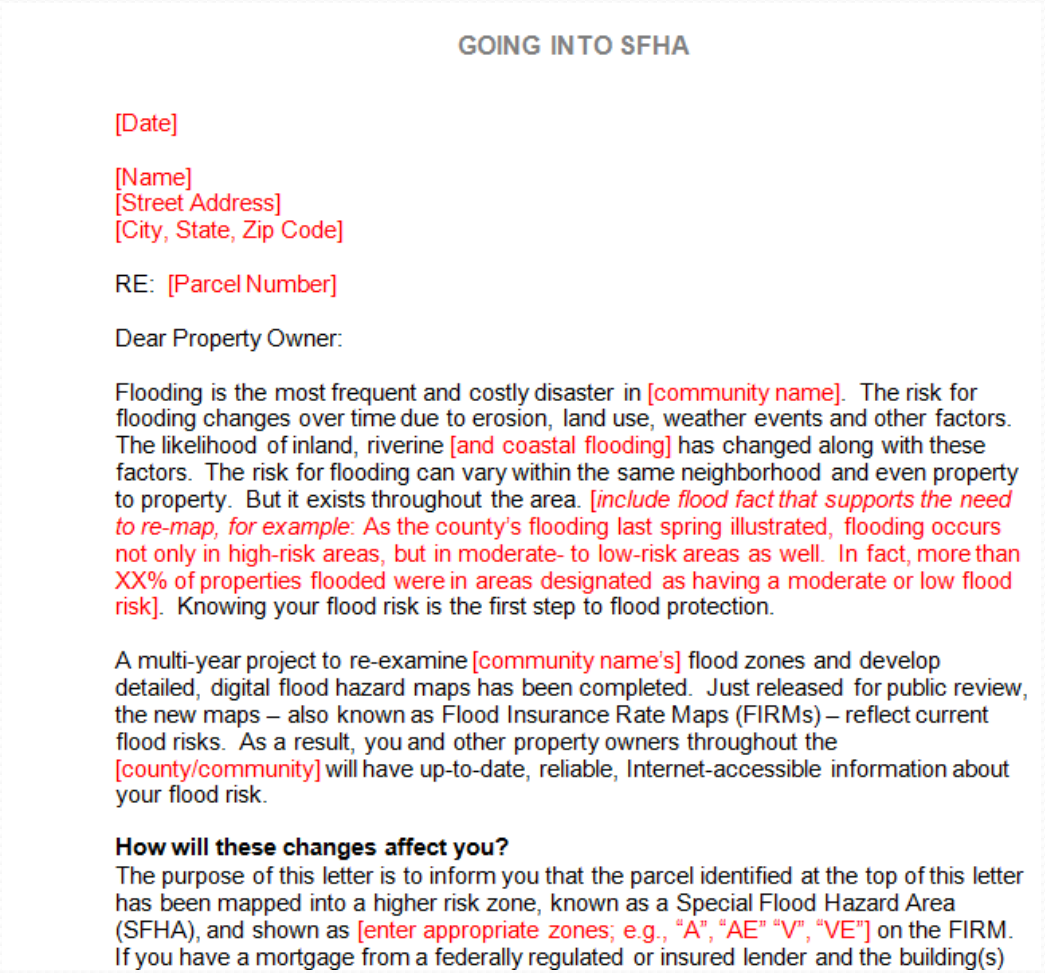

0.2%
Multi-Frequency Depth Grids
0 - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
Greater than 4 ft
12TH ST
9TH AVE
10TH AVE
17TH ST

Community Outreach, Risk Communication, Mitigation Actions

Risk Communication
floodsmart.gov

Includes information on:

- Biggert Waters Insurance Reform
- Community resources-
  - Map Change Toolkit
  - Template forms



GOING INTO SFHA

[Date]

[Name]
[Street Address]
[City, State, Zip Code]

RE: [Parcel Number]

Dear Property Owner:

Flooding is the most frequent and costly disaster in [community name]. The risk for flooding changes over time due to erosion, land use, weather events and other factors. The likelihood of inland, riverine [and coastal flooding] has changed along with these factors. The risk for flooding can vary within the same neighborhood and even property to property. But it exists throughout the area. [*include flood fact that supports the need to re-map, for example*: As the county's flooding last spring illustrated, flooding occurs not only in high-risk areas, but in moderate- to low-risk areas as well. In fact, more than XX% of properties flooded were in areas designated as having a moderate or low flood risk]. Knowing your flood risk is the first step to flood protection.

A multi-year project to re-examine [community name's] flood zones and develop detailed, digital flood hazard maps has been completed. Just released for public review, the new maps – also known as Flood Insurance Rate Maps (FIRMs) – reflect current flood risks. As a result, you and other property owners throughout the [county/community] will have up-to-date, reliable, Internet-accessible information about your flood risk.

How will these changes affect you?
The purpose of this letter is to inform you that the parcel identified at the top of this letter has been mapped into a higher risk zone, known as a Special Flood Hazard Area (SFHA), and shown as [enter appropriate zones; e.g., "A", "AE" "V", "VE"] on the FIRM. If you have a mortgage from a federally regulated or insured lender and the building(s)

Community Rating System

Reduce premiums for your community

FEMA administered, voluntary incentive program with 5% decrease in premium rates for community policies for each "class"

Resources/ Contacts:

- Scott Coffoid-CRS Representative

  815-220-1002

  - scofoid@iso.com
- IAFSM CRS Group
  - IAFSM website, LinkedIn, Mary Lou Kalsted

  mkalsted@villageoflisle.org

Premium Discounts

Class	*Points*	*SFHA*	*Non-SFHA*
1	4,500	45%	10%
2	4,000	40%	10%
3	3,500	35%	10%
4	3,000	30%	10%
5	2,500	25%	10%
6	2,000	20%	10%
7	1,500	15%	5%
8	1,000	10%	5%
9	500	5%	5%
10		0	0

Macon County Communities

	# Policies	Class 8 Savings	Annual Premiums	Avg. SFHA Policy Savings as a Class 8
Macon County	36	$1,788	$25,649	$95
Decatur	156	$10,970	$127,353	$96
Forsyth	20	$1,688	$21,358	$183

Flood Study update

Sequence of events

- ISWS review of concerns and input from this meeting
- IDNR OWR state review and approval
- ISWS to prepare FIRM and RiskMAP products
- FIRM Regulatory mapping process- Physical Map Revision (PMR)
  - Distribute Preliminary FIRMs/FIS
  - Open House
  - 30-day Comment Period
  - Appeal period – minimum 90 day period
  - Letter of Final Determination
  - 6 months for communities to adopt

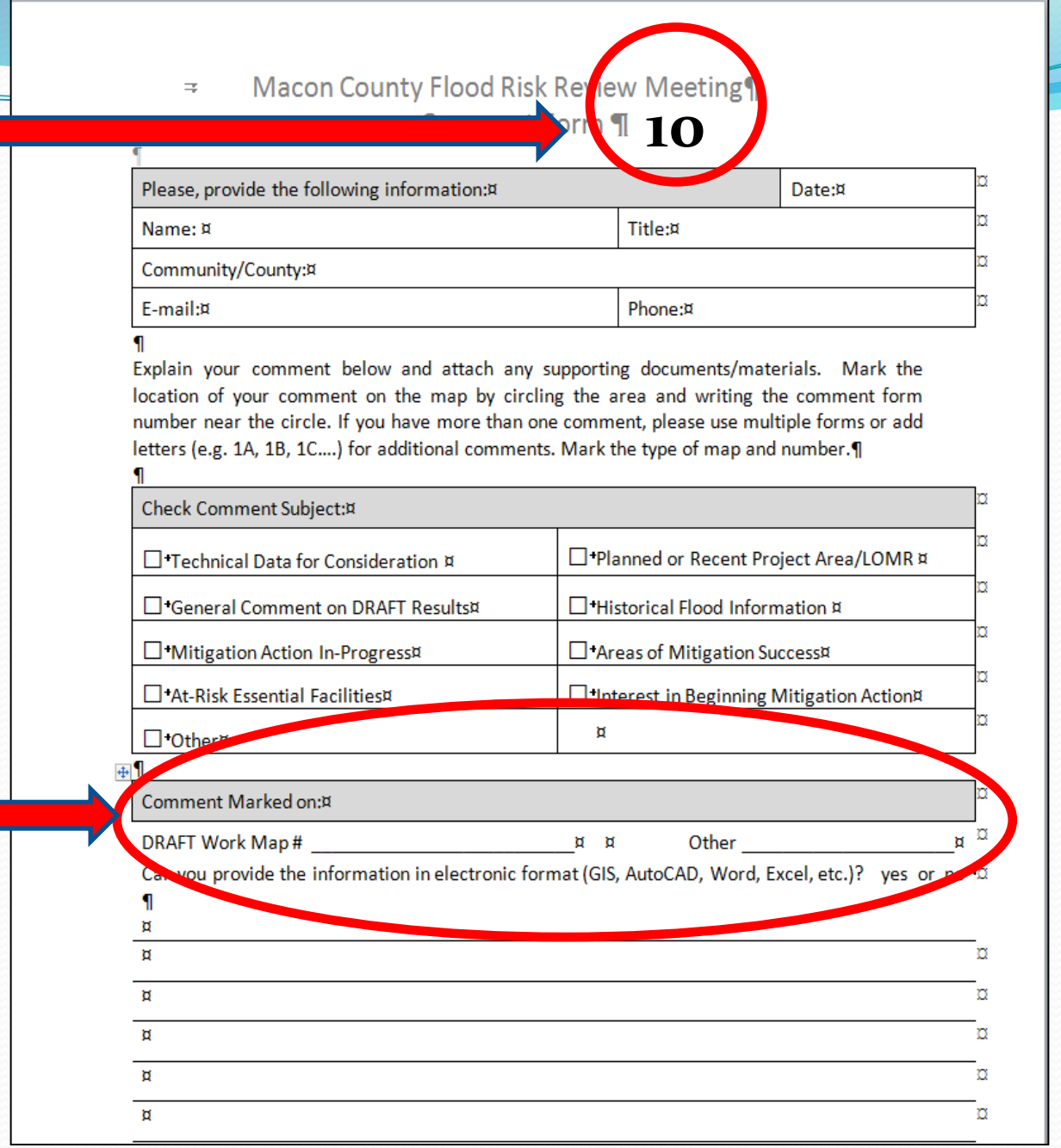
We are asking for your input!

- Review the maps.
- ASK questions!
- Provide technical data and feedback.
- Fill out the comment sheets.
- Mark up the maps.
- Get our contact information.
- For full consideration before OWR submittal, please submit issues or concerns by **December 31st**

Comment Number

Provide data in electronic format when available!

Map Marked



Macon County Flood Risk Review Meeting¶

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 ¤

Contact information

- Brian Chaille, Illinois State Water Survey
  bchaille@illinois.edu

- Pat Hubbartt, Illinois State Water Survey
  (217) 649-9049
  hubbartt@illinois.edu