



**ILLINOIS**

Illinois State Water Survey

**PRAIRIE RESEARCH INSTITUTE**

# McDonough County

FEMA Risk MAP

Project Initiation Coordination Call

October 13, 2020

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Illinois State Water Survey

PRAIRIE RESEARCH INSTITUTE



**FEMA**

# McDonough County Floodplain Mapping Project Initiation Meeting

## Agenda

- Rollcall
- Project Objectives and Goals
- National Flood Insurance Program / Mitigation
- Project Scope
- Communication
- Schedule
- Community Participation

# Rollcall

- Village of Bardolph
- Village of Blandinsville
- City of Bushnell
- City of Colchester
- Village of Good Hope
- Village of Industry
- City of Macomb
- Village of Plymouth
- Village of Prairie City
- Village of Sciota
- Village of Tennessee
- McDonough County
- Townships
- IDNR/OWR
- FEMA
- IEMA
- Prairie Hills Resource Conservation and Development Inc.
- Anyone else?

# Introduction

- The Illinois State Water Survey (**ISWS**) is a division of the Prairie Research Institute (**PRI**) at the University of Illinois.
- The Coordinated Hazard Assessment and Mapping Program (**CHAMP**) is a section within ISWS.



The staff of the Coordinated Hazard Assessment and Mapping Program which includes 18 Certified Floodplain Managers (CFM), seven Professional Engineers (PE), and seven Geographic Information Systems Professionals (GISP)

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

# Introduction

- ISWS is a Cooperating Technical Partner (**CTP**) with the Federal Emergency Management Agency (**FEMA**). CHAMP staff perform floodplain studies, mapping, mitigation planning, and related activities for Illinois communities through this partnership.
- ISWS also partners with the Illinois Department of Natural Resources-Office of Water Resources (**IDNR-OWR**) to help prioritize Illinois floodplain studies and mapping projects.
- Risk Mapping, Assessment, and Planning (**Risk MAP**) is the FEMA process used to implement National Flood Insurance Program (**NFIP**) floodplain studies and mapping projects.

# Project Objectives and Goals

# FEMA National Objectives





# McDonough County Project Objectives

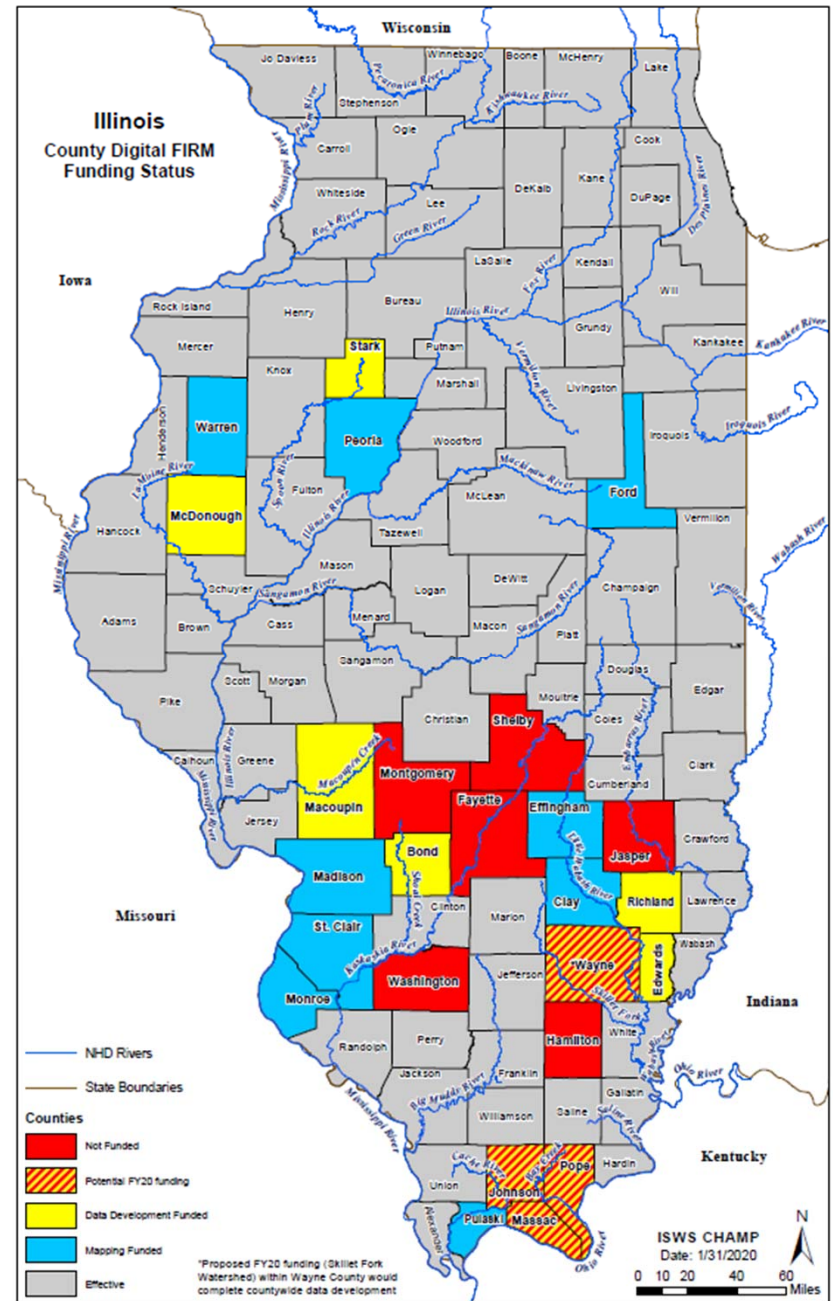
- Develop new floodplain studies for McDonough County.
- Incorporate the study results into a Hydrologic and Hydraulic report.

For the next phase, to incorporate resulting floodplain delineations into a countywide digital Flood Insurance Rate Map (FIRM).

# Illinois Countywide Digital FIRM Status

102 Counties

- 77 effective ✓
- 9 mapping funded
- 6 data development
- 4 proposed funding
- 6 not yet funded



Effective Paper Maps  
vs.  
Future Digital Maps

# McDonough County

## Effective Community-based

No FIS reports

No FIRM Databases

FIRMs:

- 1 Community set - City of Bushnell, August 20, 1976
- 6 County panels - Unincorporated Areas, January 2, 1981

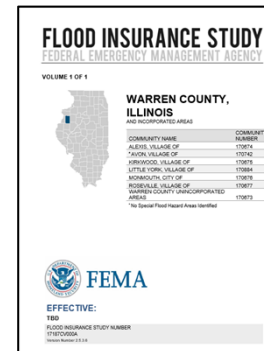
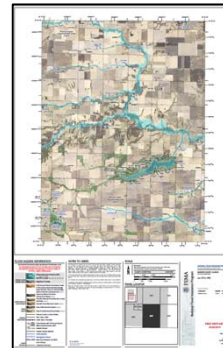
## Future County-based

Countywide FIS report

Countywide FIRM Database

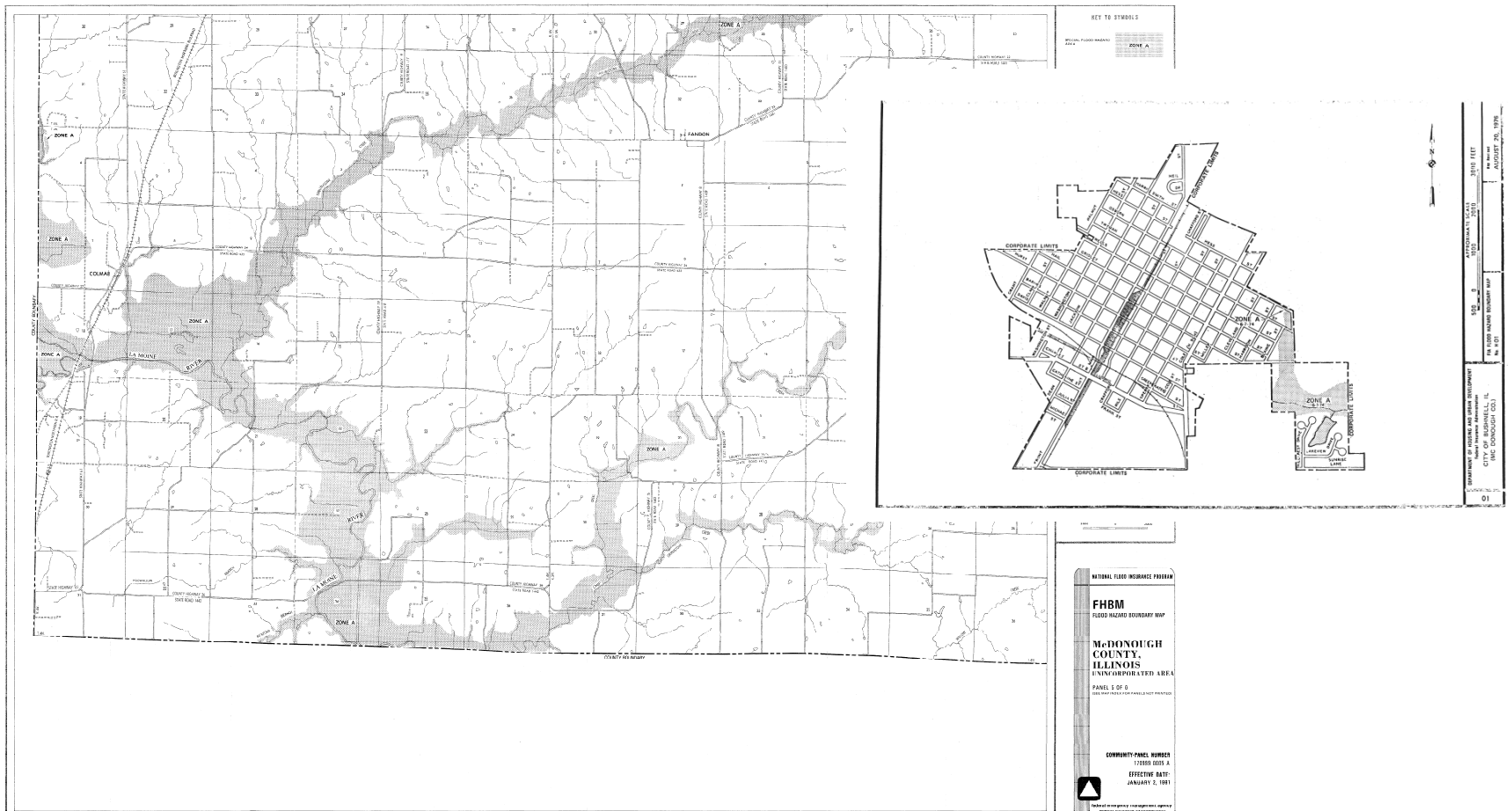
FIRMs:

- 1 Countywide map set

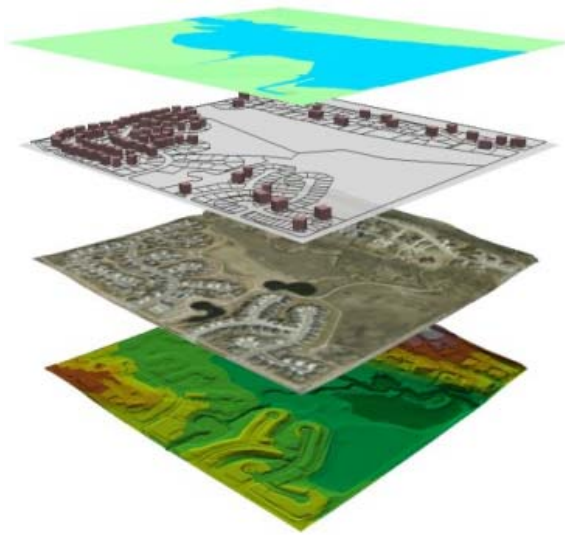


# Effective Paper FIRM

A graphical representation of the real world



# Digital Maps

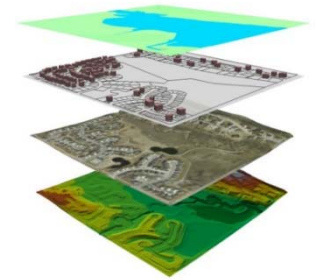


- 1. Floodplain delineation**
- 2. Roads**
- 3. Orthophotos (aerials)**
- 4. Topography**

## Advantages

- Cartographically accurate
- Easier and faster to update
- Can be used with local digital data (parcel layer, zoning layer)
- Serve as a tool for floodplain management

# Proposed Data



**Orthophoto:**  
2014 IDOT imagery



**Topographic Data:**  
Digital Terrain Model (DTM)  
from 2012 IDOT Dist. 4 LiDAR



# Special Flood Hazard Area

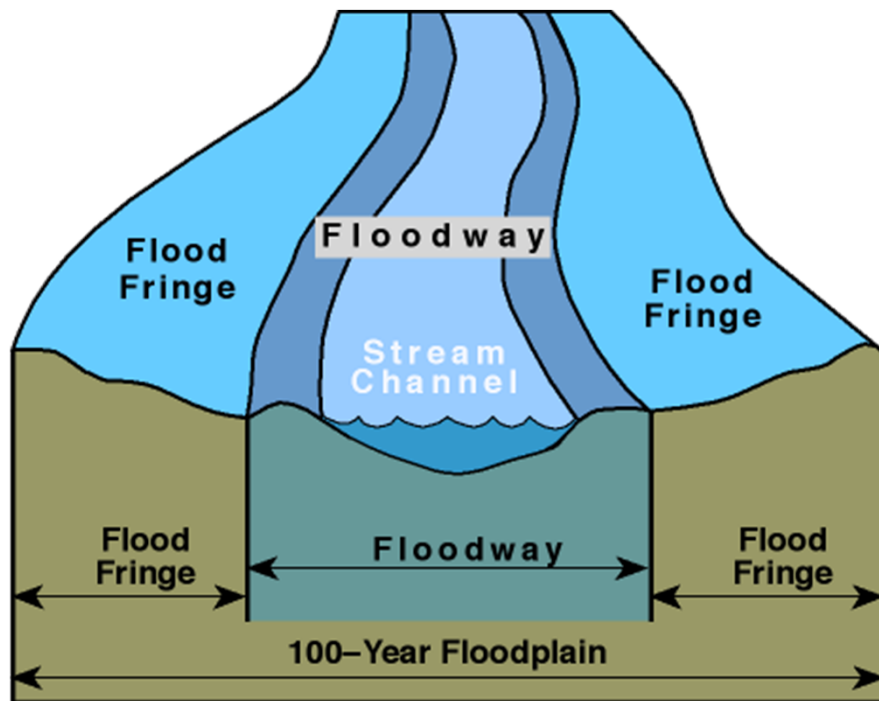
Special Flood Hazard Area (**SFHA**) zone type designation is related to the method and level of hydraulic analysis performed. Riverine hydraulic analysis typically results in SFHA designated as **Zone A** or **Zone AE** based on the analysis level deemed appropriate for the study area.

<b>Zone A</b>	Areas subject to inundation by the 1-percent-annual-chance flood event. <b>NO Base Flood Elevations are shown.</b>
<b>Zone AE</b>	Areas subject to inundation by the 1-percent-annual-chance flood event. <b>Base Flood Elevations ARE shown.</b>



# 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.



# National Flood Insurance Program (NFIP)

# The National Flood Insurance Program (NFIP)

- A voluntary program based on a mutual agreement between the Federal government and a community.
- In exchange for **adopting** and **enforcing** a floodplain management ordinance, Federally-backed flood insurance is made available to property owners throughout the community.

# NFIP Participating Communities McDonough County, Illinois

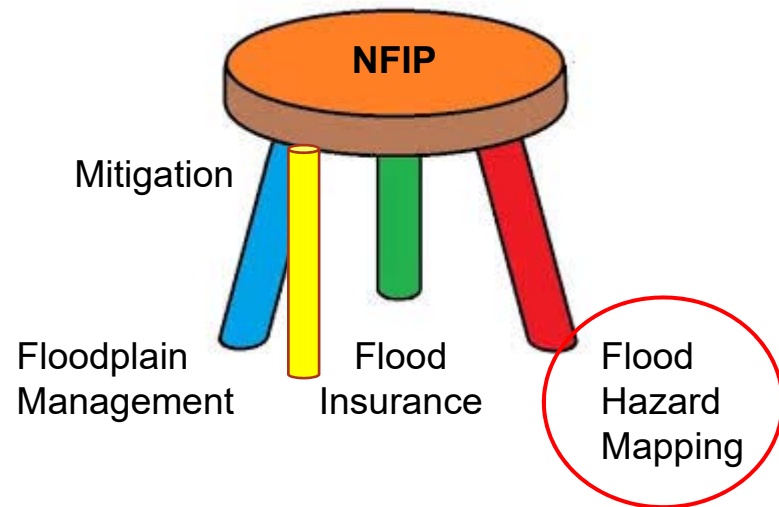
<https://www.fema.gov/cis/IL.pdf> downloaded 9/8/2020

CID	Community	Status	Firm Status	Map Date
<b>** MCDONOUGH COUNTY **</b>				
170470	BARDOLPH, VILLAGE OF	NOT PARTICIPATING	ALL ZONE C AND X - NO PUBLISHED FIRM	
170471	BUSHNELL, CITY OF	NOT PARTICIPATING	NEVER MAPPED	08/20/76
170472	GOOD HOPE, VILLAGE OF	NOT PARTICIPATING	ALL ZONE C AND X - NO PUBLISHED FIRM	
170473	MACOMB, CITY OF	PARTICIPATING	ALL ZONE C AND X - NO PUBLISHED FIRM	01/02/50
170999	MCDONOUGH COUNTY *	PARTICIPATING	NEVER MAPPED	01/02/81

# National Flood Insurance Program Three Related Program Areas

The program balances three related areas that must support each other.

- floodplain management
- flood insurance
- flood hazard mapping



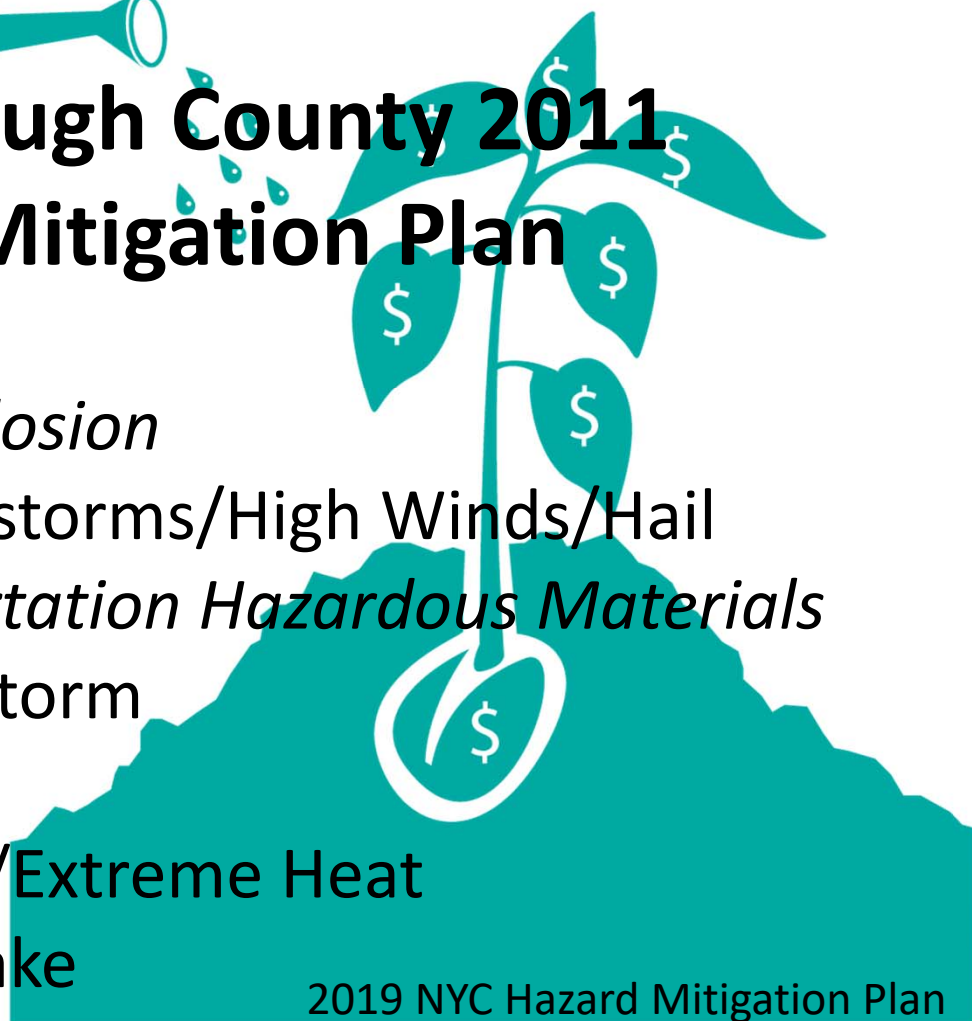
The program is recognizing the importance of mitigation



# Hazard Mitigation

## McDonough County 2011 Hazard Mitigation Plan

1. Tornado
2. *Fire/Explosion*
3. Thunderstorms/High Winds/Hail
4. *Transportation Hazardous Materials*
5. Winter Storm
6. Flooding
7. Drought/Extreme Heat
8. Earthquake

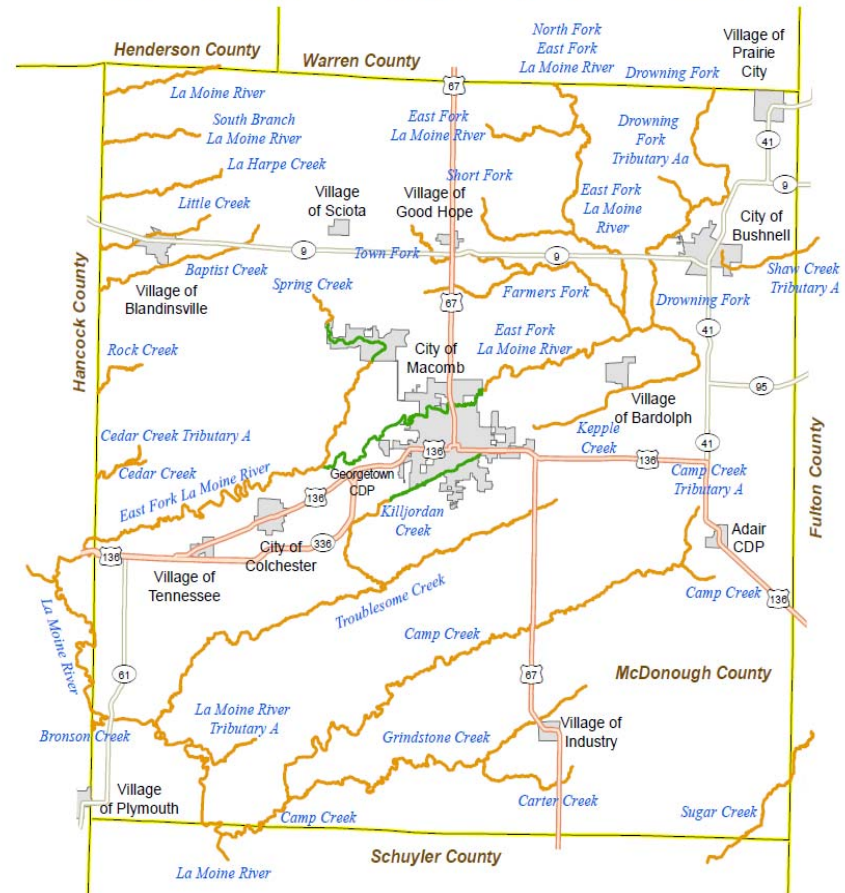


2019 NYC Hazard Mitigation Plan

# Project Scope Data Development Phase

# Floodplain Studies Overview- Proposed Studies

## McDonough County Proposed Studies



**Proposed Stream Study Type**

- Zone A
- Zone AE

- Major Highways
- Highways
- Major Roads
- County Boundary

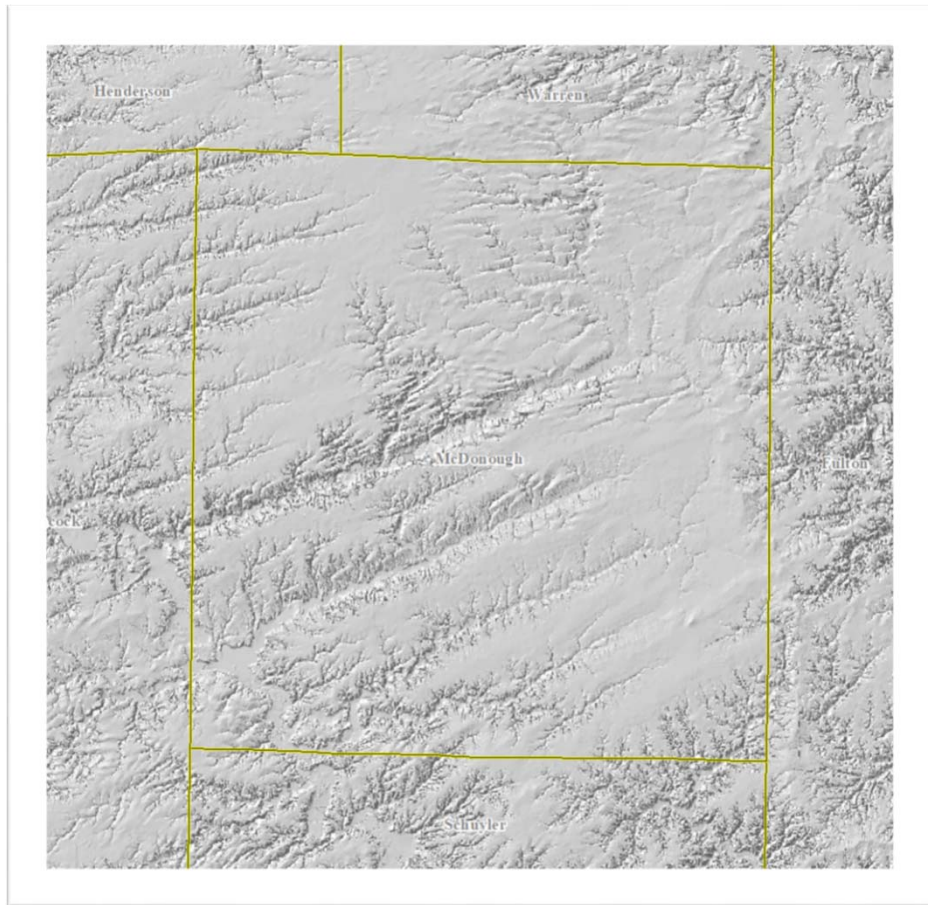


January 9, 2020

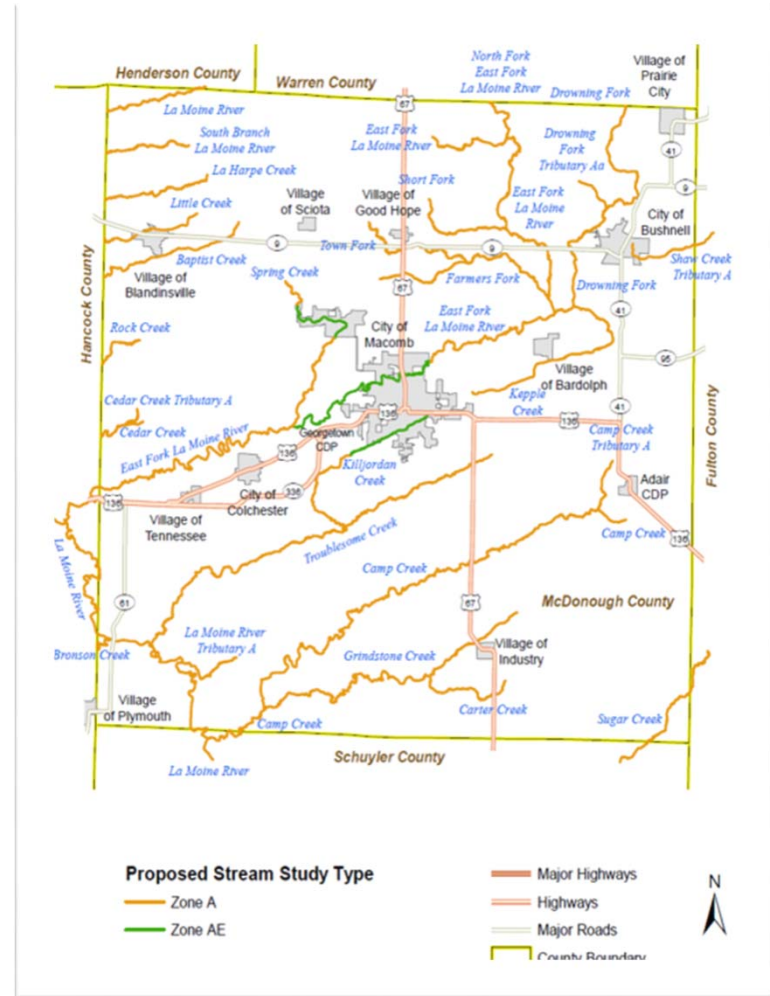


# Floodplain Studies Overview

## Geology of Interest



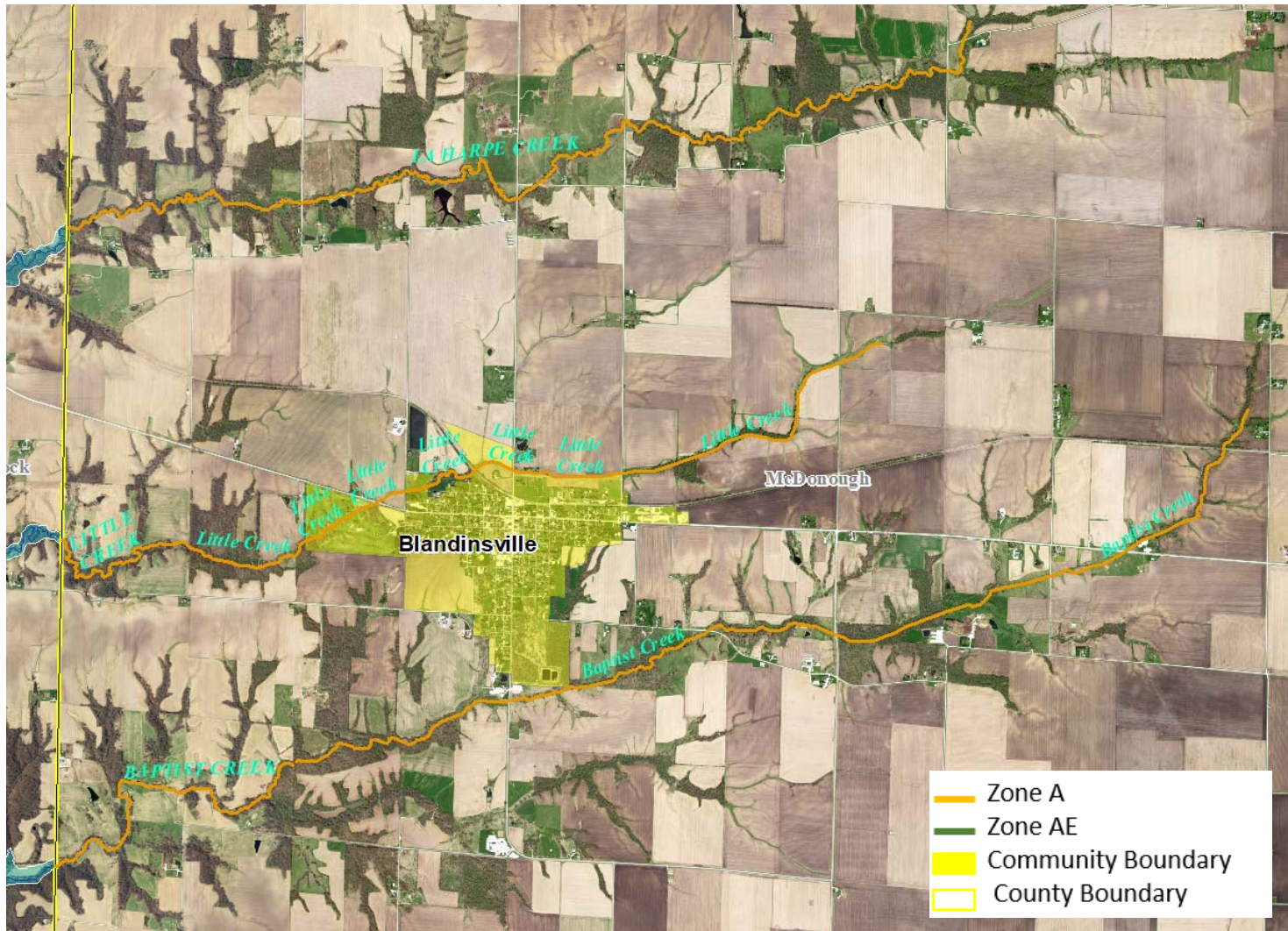
## Proposed Studies



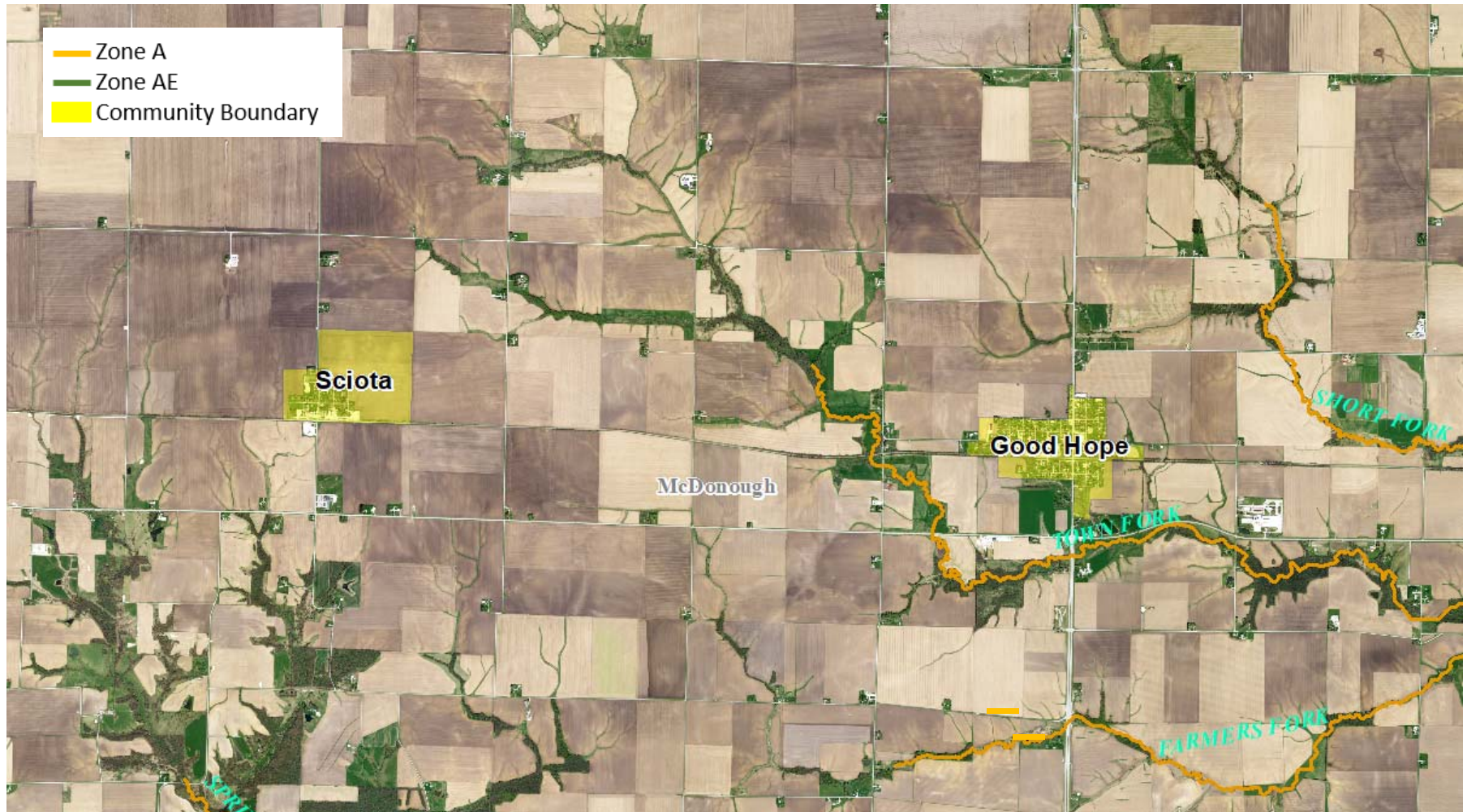
# Project Scope

- Develop New Floodplain Studies
  - 19 miles new Zone A studies
  - 232 miles of Effective Zone A streams to be restudied
  - 18 miles of new Zone AE streams will be studied using detailed methods
- Develop Draft Floodplain Mapping
- Community Outreach and Engagement

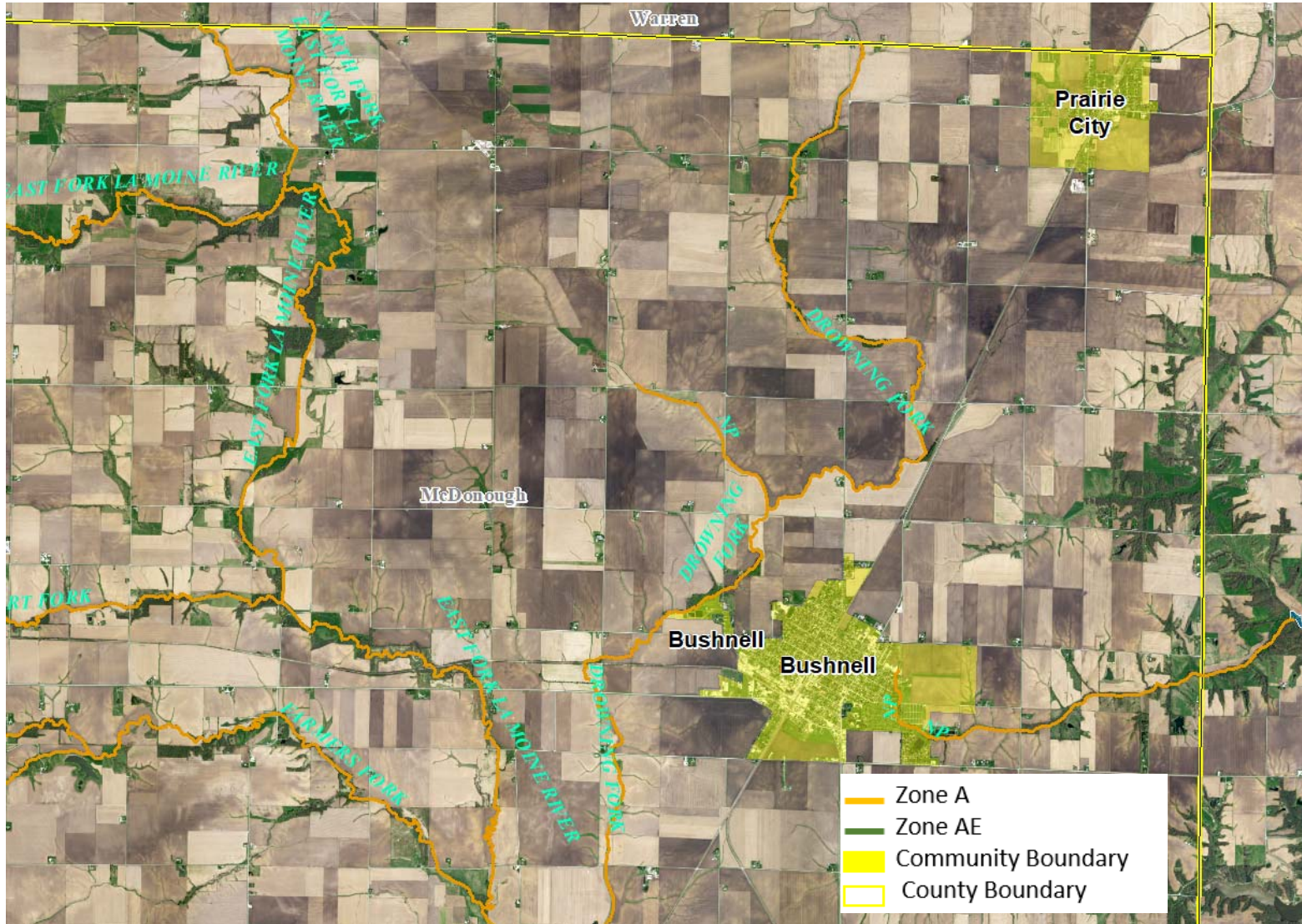
Complete Digital Flood Insurance Rate Maps  
(Later Phase)



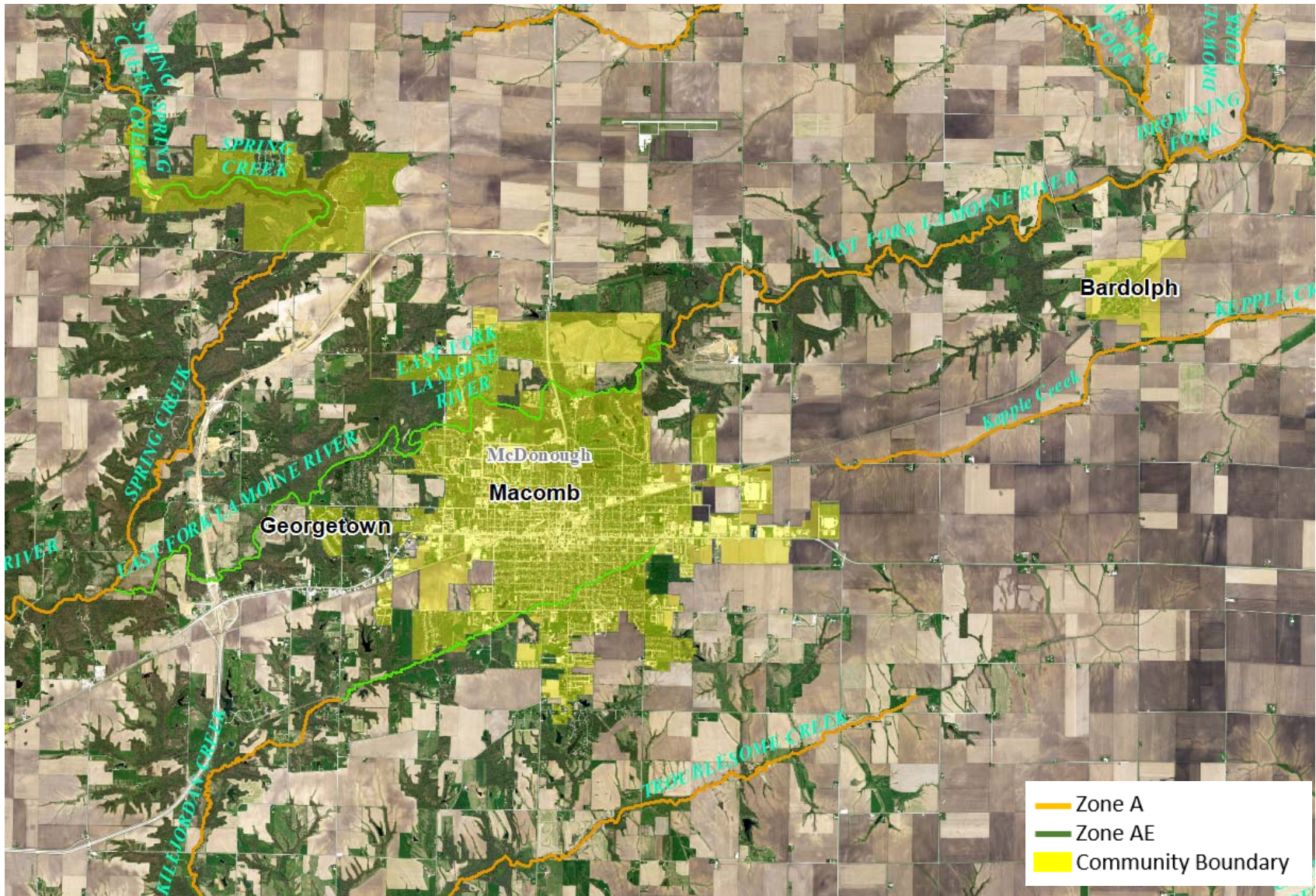
# Blandinsville Area Proposed Studies



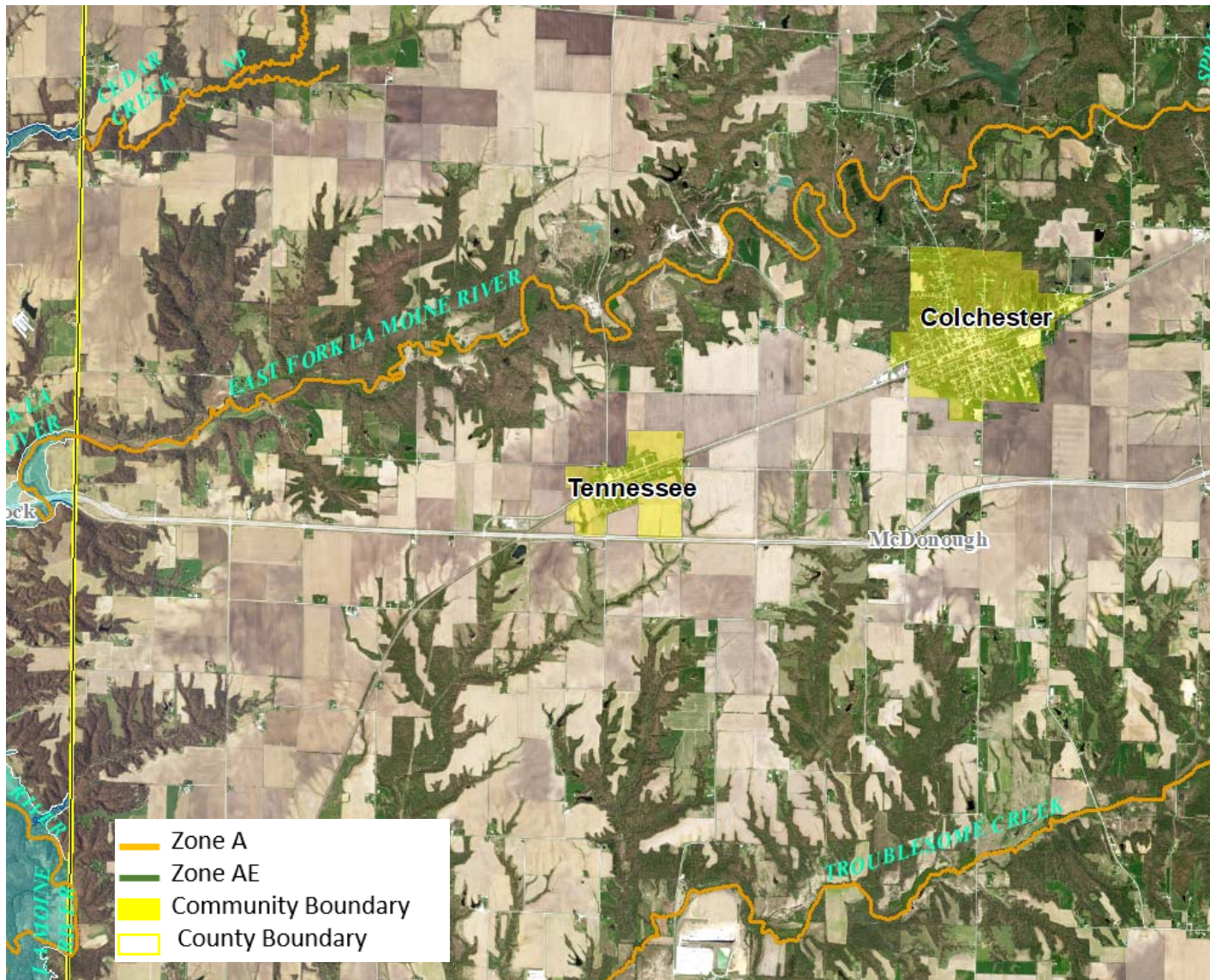
# Sciota and Good Hope Area Proposed Studies



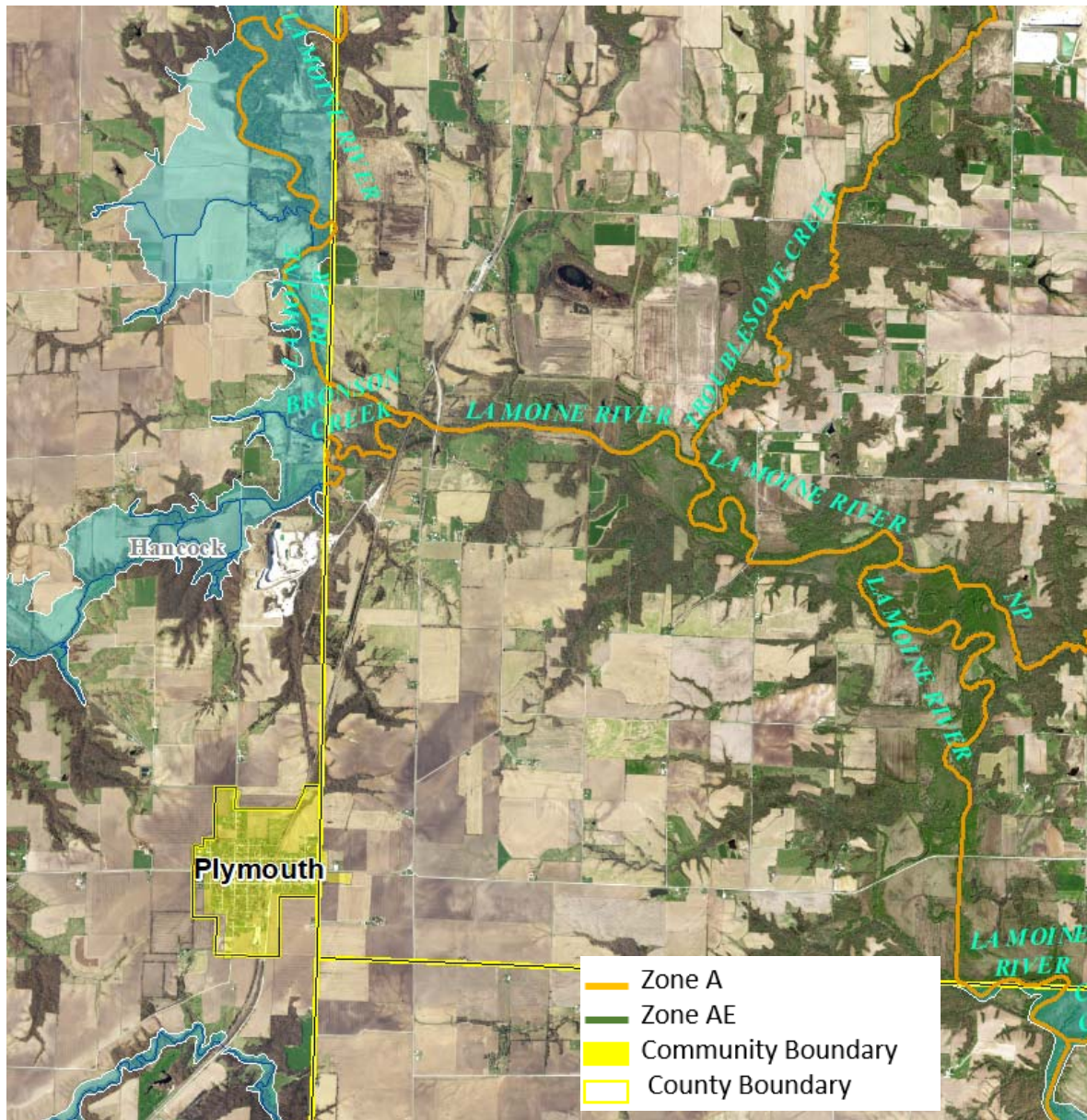
# Prairie City and Bushnell Area Proposed Studies



# Macomb and Bardolph Area Proposed Studies



# Colchester and Tennessee Area Proposed Studies



## Plymouth Area Proposed Studies



# Project Communication Data Development Phase

# Communication Plan

- Project Initiation Coordination Call (today)
- Proposed Engineering Methods Notification Letter
  - 30-Day Comment Period
- Flood Risk Review Meeting
  - 30-Day Comment Period
- Data Submission Notification Letter
  - 30-Day Comment Period

Please reach out to Mary Richardson at [mjr@Illinois.edu](mailto:mjr@Illinois.edu)

# Proposed Engineering Methods Letter FEMA Standard ID 620

- Mailed to community CEOs, Floodplain Administrator, Community Engineer
- Details the streams to be studied in community and proposed engineering methods used to study each stream
- Informs community about 30-day period to provide comments on the proposed engineering methods for the study stream

# Proposed Engineering Methods

Hydrology – Determine 1% Annual Chance (100-Year) stream **flows**

- USGS Regression Equations
- HEC-HMS Rainfall Runoff Modeling

Hydraulics – Determines 1% Annual Chance (100-Year) flood **elevations**

- Zone AE: HEC-RAS Hydraulic Models
- Zone A: HEC-RAS Hydraulic Models

# Flood Risk Review Meeting

- A technical meeting to review *draft* workmaps with community officials, engineers, and floodplain managers. Public meetings will be held later in the project.
- The meeting initiates a 30-day comment period for communities to provide feedback on the *draft* floodplain mapping.

# Data Submission Notification

## FEMA Standard ID 621

- Mailed to community CEOs, Floodplain Administrator, Community Engineer
- Makes community aware the data collection and analysis phase of the project is concluding, and Flood Insurance Rate Map (FIRM) database is being validated by FEMA
- Gives communities 30 days to comment on the data in the FIRM database

# Project Schedule

## Data Development Phase

# Estimated Schedule

- Engineering Notification Letters to communities likely by
  - **11/2020**
- ISWS/IDNR-OWR to finish field survey work by
  - **Fall 2020 (received and in review)**
- ISWS to finish Zone A & AE floodplain studies by
  - **Fall 2021**
- Flood Risk Review Meeting likely
  - **Jan 2022**
- Submit Flood Studies to IDNR for State review
- Complete draft FIRM database to conclude data development phase of project by
  - **July 2022 or sooner for Internal Handoff to Mapping**

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



Data

Data Development Phase

# Known Data

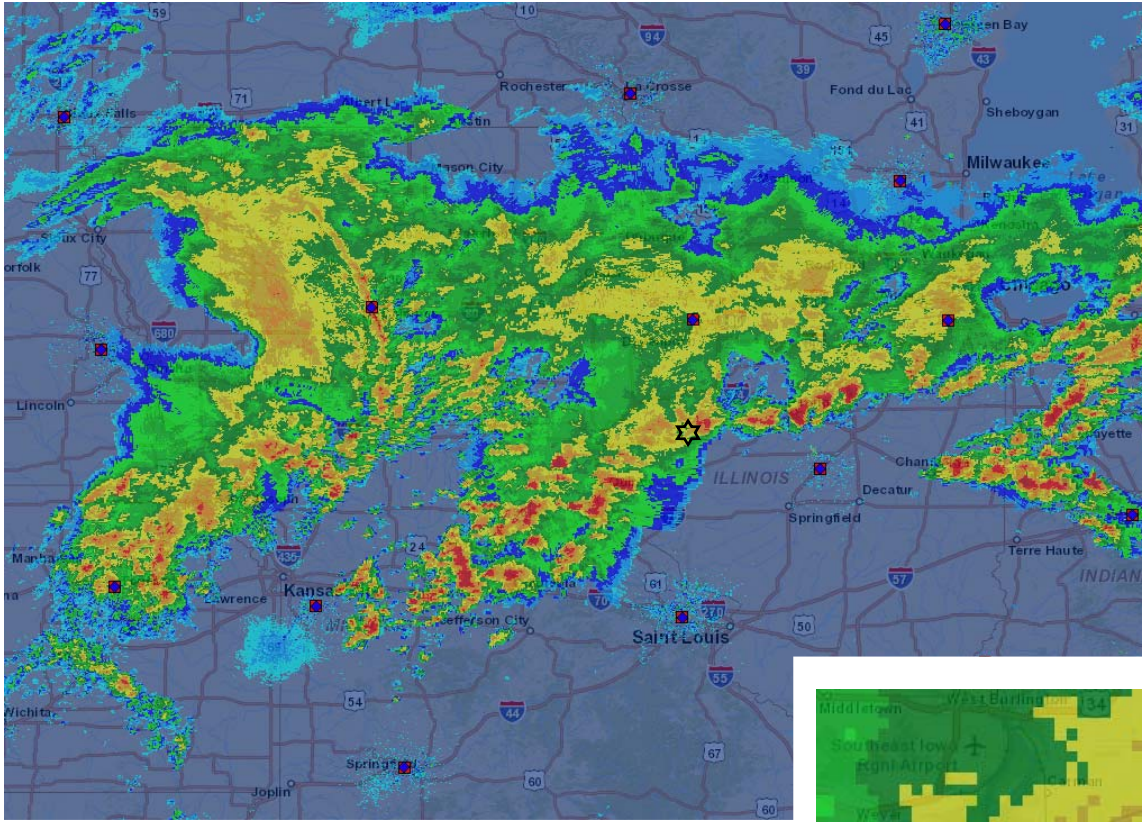
## Flood Reconnaissance Studies

- Village of Sciota – 1981
- Village of Good Hope - 1979

## Dam Safety Reports

- Argyle Lake 1998/ Dam 243- September 1978
- Blandinsville City Reservoir/ Dam 248- September 1978
- [1967 Spring Lake and Pump Station Construction.pdf](#)
- [City of Macomb - Spring Lake 2017 Dam Inspection Packet.pdf](#)

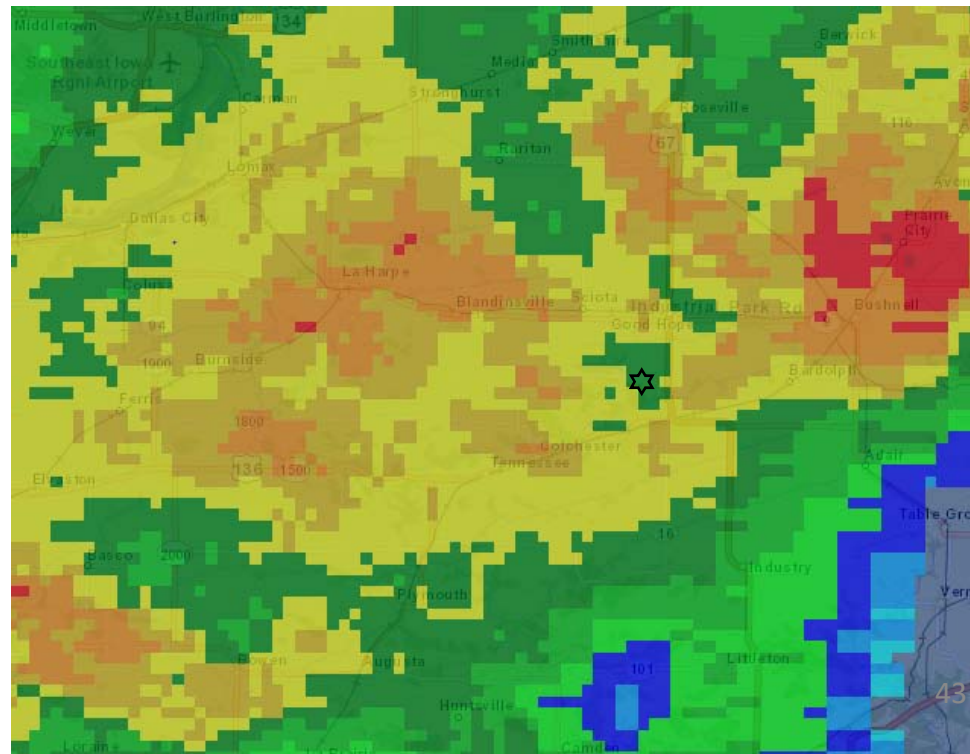
## Proposed Quarry Levee Construction on Troublesome Creek



# Storm Event Data

Hydrologic Study  
04/18/2013 6AM NEXRAD

<https://gis.ncdc.noaa.gov/maps/ncei/radar>



☆ City of Macomb

Precipitation greater than <b>3 inches</b> 1991-2020 Macomb, IL USC 00115280	
Date	Precipitation (inch)
7/21/1996	4.26
2/21/1997	3.35
5/12/2002	3.42
5/31/2006	3.34
6/21/2007	4.92
1/31/2008	4.5
7/19/2010	3.08
<b>4/18/2013</b>	<b>6.23</b>
9/10/2014	3.96
8/29/2018	3.1
9/6/2018	3.3
7/16/2020	3.57



# Storm Event Data

Event Pictures  
04/18/2013

[youtube.com/watch?v=w56Clsopa5s](https://www.youtube.com/watch?v=w56Clsopa5s)



East Fork

Source: Midwestern Regional Climate Center

<https://mrcc.illinois.edu/CLIMATE/welcome.jsp>

# Storm Event Data

Event Pictures  
04/18/2013

[youtube.com/watch?v=w56Clsoa5s](https://www.youtube.com/watch?v=w56Clsoa5s)



## Recently Reported Events

Source: NOAA Storm Events Database

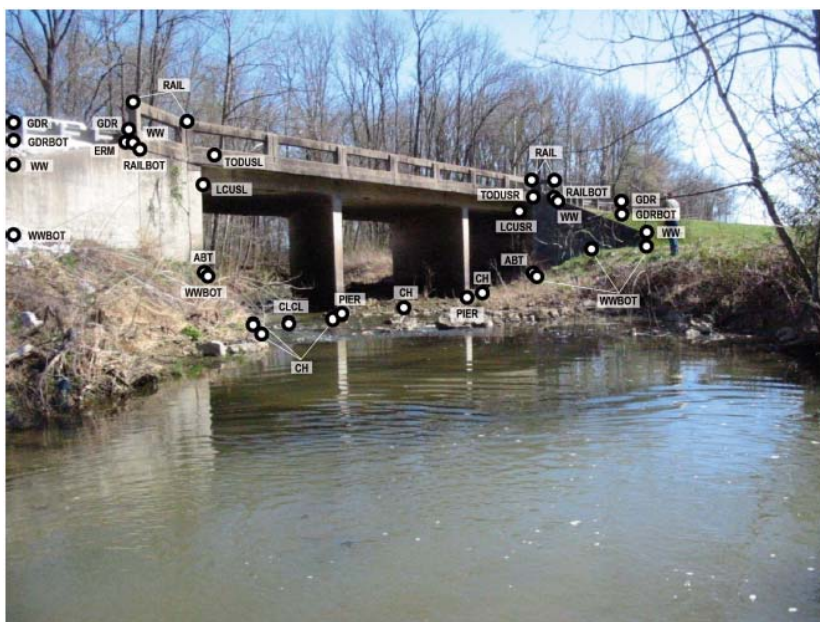
<https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?state=fips=17,ILLINOIS>

- 4/17/13
- 5/4/15
- 5/28/19

# Structure Survey Data for Zone AE studies

## Bridge & Culvert Structure Plans:

- A request for the construction plans for bridges and culverts along the streams to be studied went out in the Fall 2019.
- For those structures where we could not obtain construction plans, surveyors went out to field survey them in August & September (2020).



# Data Development Community Participation

- Do you have data or information that we can use for the floodplain studies?
  - Flood prone areas
  - Flood photos/Drone video
  - Historic highwater marks
  - Local floodplain studies and survey data
  - Any other data or information
- Stay engaged in the process...
  - Attend meetings
  - Ask questions
  - Inform others
  - Update contact Information

# Community Participation

McDonough County Comments

Find address or place

730 ft

708 ft

Argyle Lake State Park

Colchester

Macomb

Evening Park

Troublesome Creek

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

log in: watershed  
password: illinoisfloods!123

**New Comment**

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

Add Comment

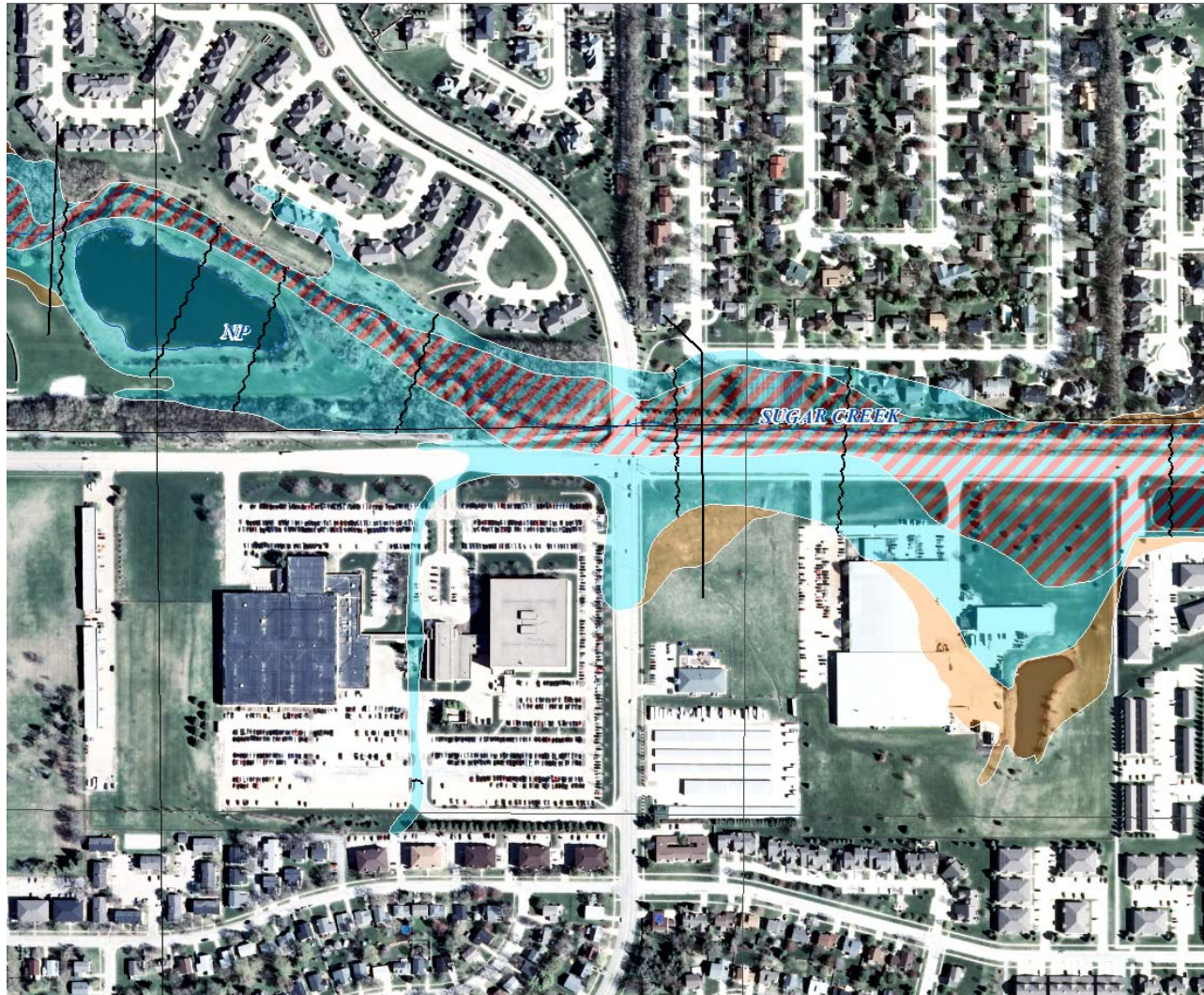
Or

**Edit Comment**

- Single-click a Comment to edit or delete it.



# Ultimate Goal! Paper Map to Digital Map





# Questions and comments



# ILLINOIS

## Illinois State Water Survey

### PRAIRIE RESEARCH INSTITUTE

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Outreach: Mary Richardson, CFM  
mjr@illinois.edu

Mitigation Planning: Rebecca Leitschuh, AICP  
rleits@Illinois.edu

[www.illinoisfloodmaps.org](http://www.illinoisfloodmaps.org)