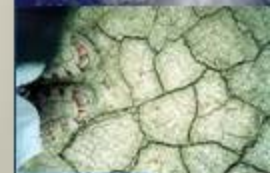
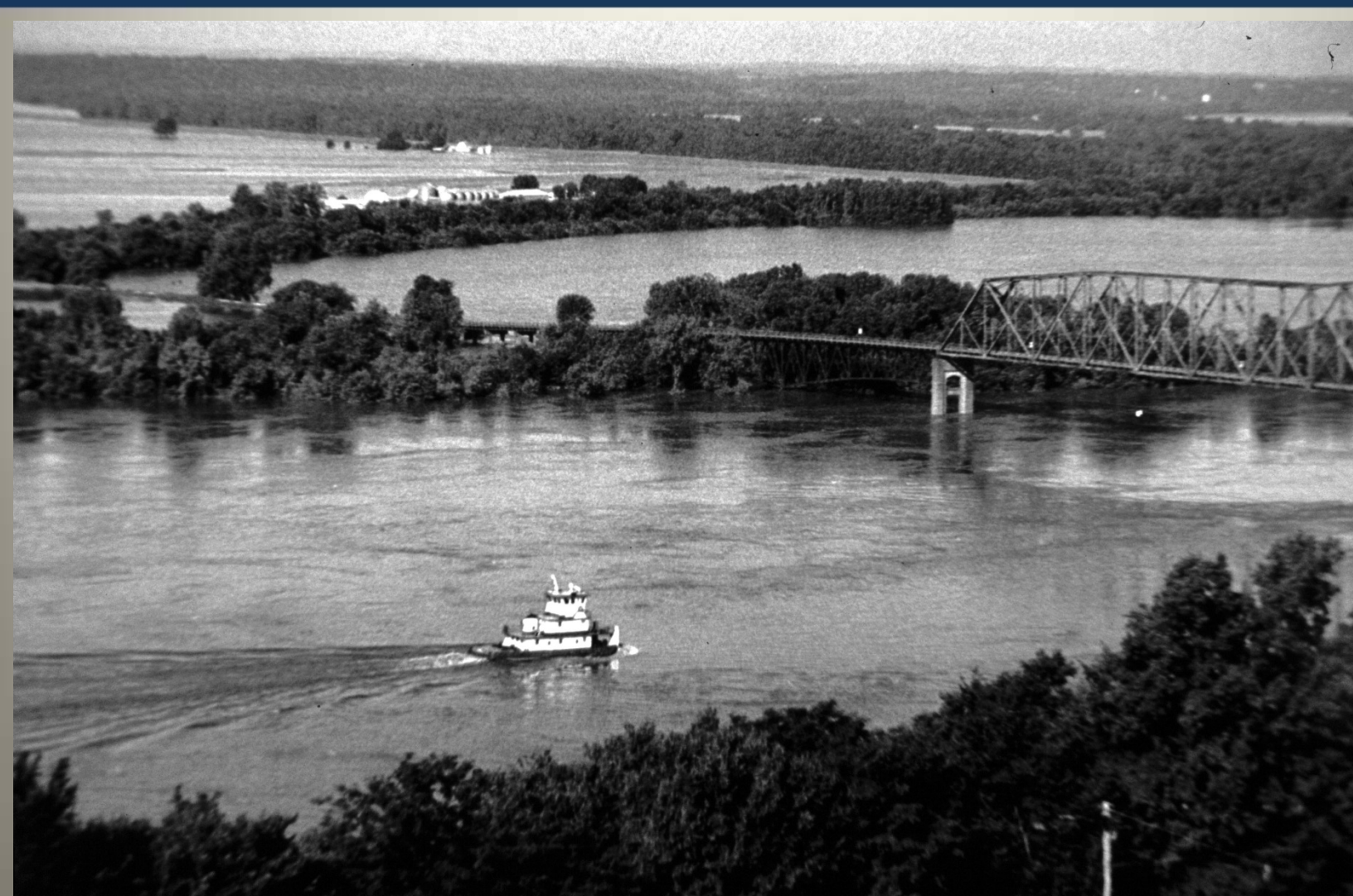




# Hazard Mitigation Planning





# Hazard Mitigation Planning

- Break the cycle of disaster damage, reconstruction, and reoccurring damage



# Section 1: Risk Assessment

**Risk assessment** provides the foundation for the rest of the mitigation planning process.

- The purpose of the risk assessment is for jurisdictions to gather existing risk information that enables them to identify and assign value to risk in order to prioritize mitigation actions and appropriate resources to reduce losses from all natural hazards.



# Risk Assessment

Three basic components of risk assessment:

1. Identify Hazards
2. Profile Hazard Events
3. Estimate Losses



# Hazards to Consider

- Severe Storms
- Tornadoes
- Flooding
- Severe Winter Storms
- Drought
- Extreme Heat
- Earthquakes
- Dam or Levee Failure
- Mine Subsidence
- Lake Michigan Storm Surge



# Boundaries vs. Planning-area wide Hazards

Remember that not all hazards have a defined hazard boundary within the planning area

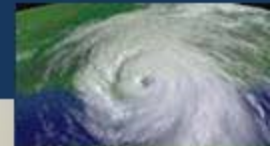
- Boundaries: Hazard has definable limits
- Planning-area wide: Could impact any jurisdiction

Boundaries	Planning-Area Wide
Flooding	Thunderstorms
Dam Failure	Hail
Levee Failure	Tornadoes
Wildfire	Winter Storms
Shoreline Erosion	
Land Subsidence/Abandoned Mines	

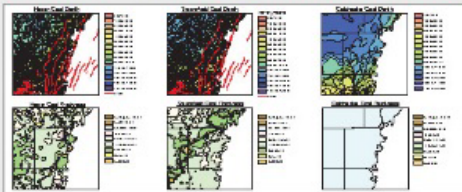
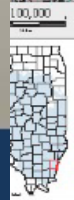
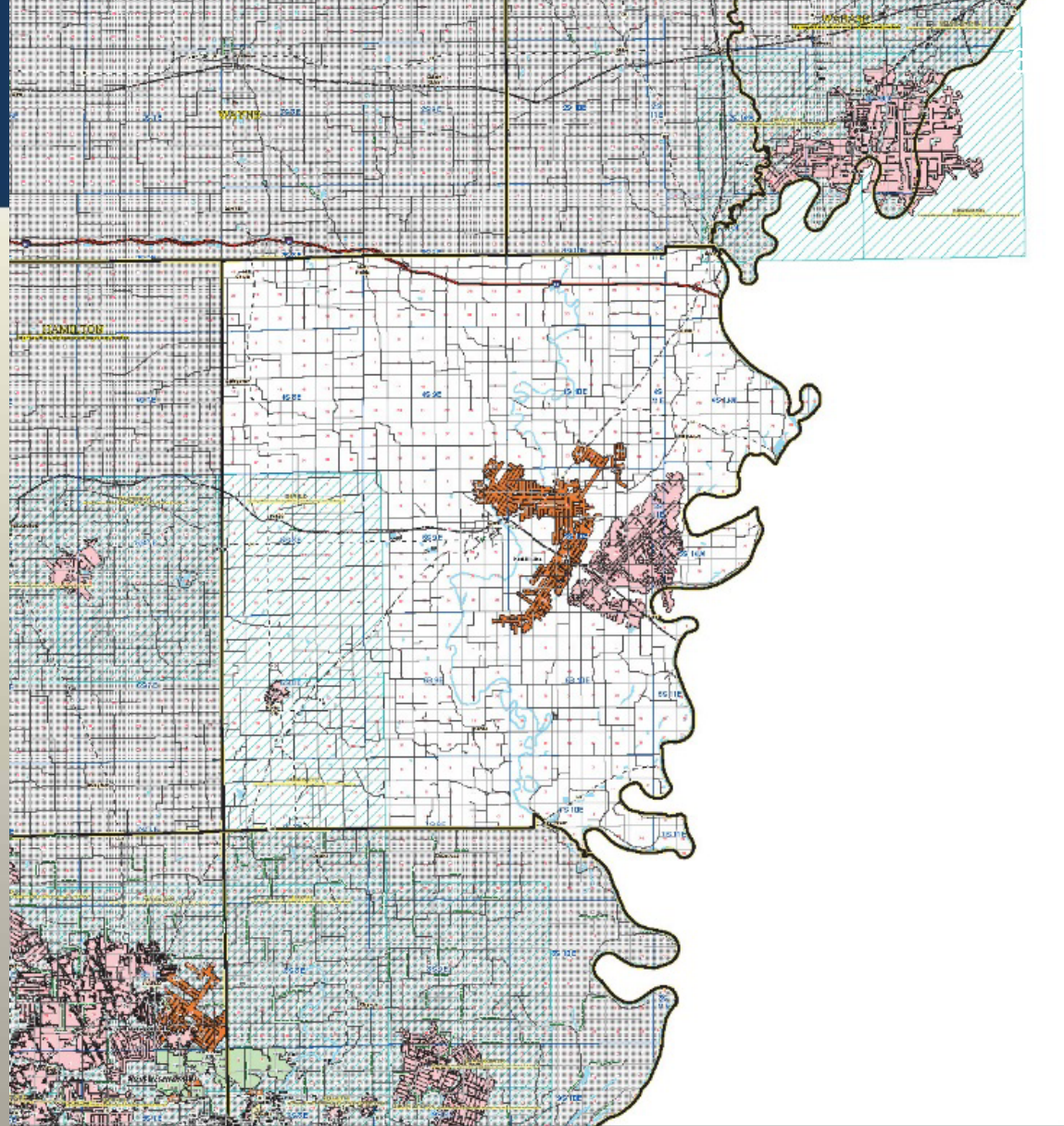


# Plan Status By County

County Name	Date of Plan Approval	Date Plan Expires	Planning Grant
Clay	No Plan	No Plan	
Coles	January 15, 2010	Expired	Yes
Cumberland	June 15, 2015	June 15, 2020	
Edwards	July 13, 2009	Expired	Yes
Effingham	No Plan	No Plan	
Jasper	May 22, 2012	May 22, 2017	
Richland	January 31, 2013	January 31, 2018	
Shelby	No Plan	No Plan	Yes
Wayne	No Plan	No Plan	Yes
White	January 15, 2010	Expired	Yes



# Active and Abandoned Mines Near Carmi, Illinois



Ore body	Unconformity
Township	Active surface fault
Section	Inactive surface fault
Coal-bearing strata (in black on white)	Lake or sea
Lake or sea	Coal-bearing strata
Coal-bearing strata	Abandoned mine
Intergovernmental-claimed	Abandoned mine
Various coal-bearing strata	Abandoned mine
Various coal-bearing strata	Abandoned mine
Various coal-bearing strata	Abandoned mine
Various coal-bearing strata	Abandoned mine

**Map Explanation**

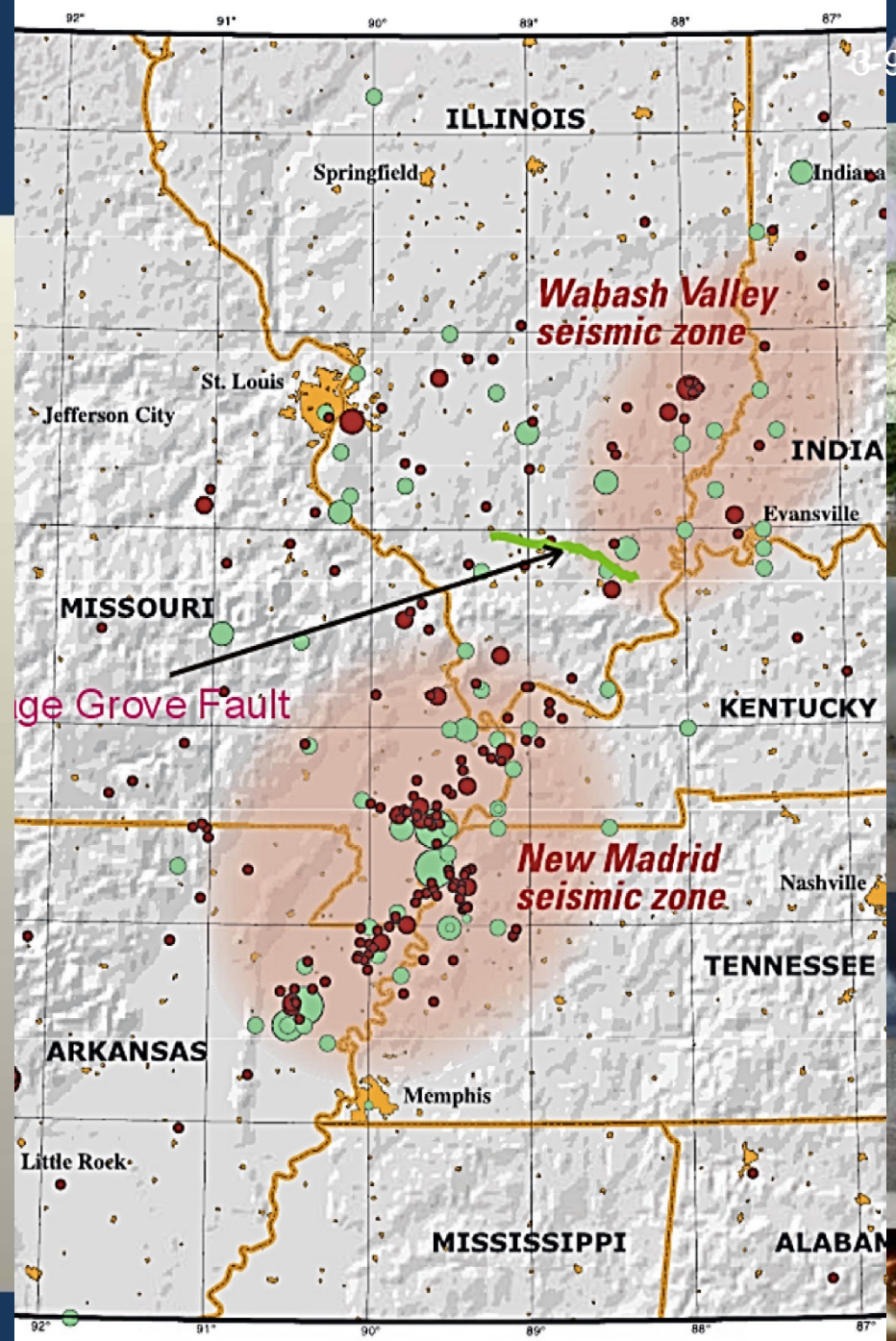
This map is prepared for general information only. It is not intended to be used as a basis for any legal action or as a substitute for a professional engineering or geological report. The user assumes all responsibility for the accuracy of the information shown on this map. The map is not a warranty of any kind. It is not intended to be used as a basis for any legal action or as a substitute for a professional engineering or geological report. The user assumes all responsibility for the accuracy of the information shown on this map. The map is not a warranty of any kind.

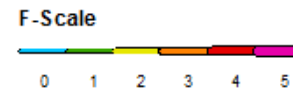
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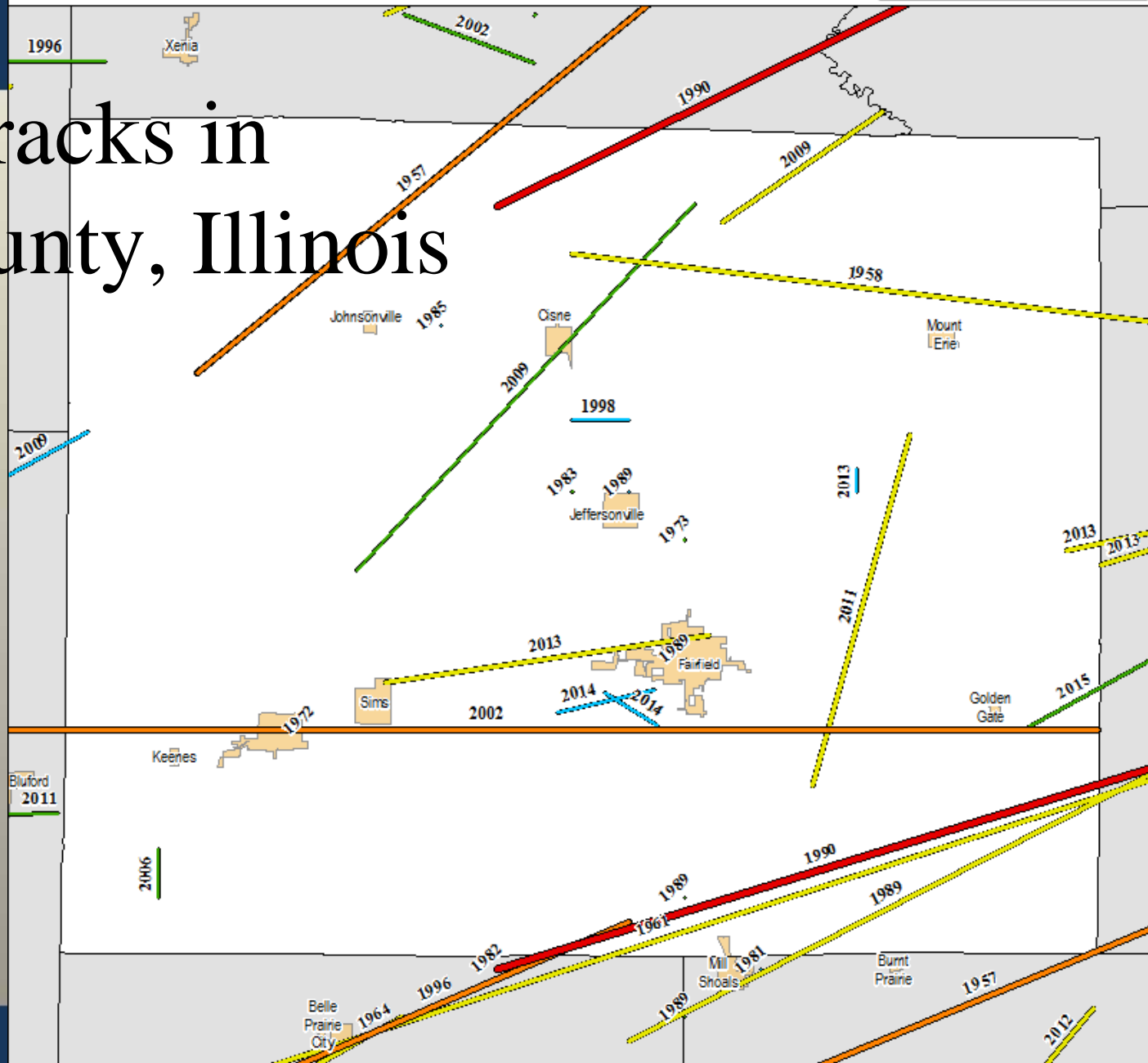


# Earthquake Risks in Watershed





# Tornado Tracks in Wayne County, Illinois



In April-May, 2002 the Little Wabash Watershed experienced flooding. A record discharge of water was recorded at the Little Wabash River near Effingham. This was determined to have been a 500 year flood event. In many locations the flood stage lasted 14 days. The Little Wabash River at Carmi, Illinois was above flood stage for 23 days.

See *Flooding in Illinois, April-June 2002*, Open File Report 02-487, USGS

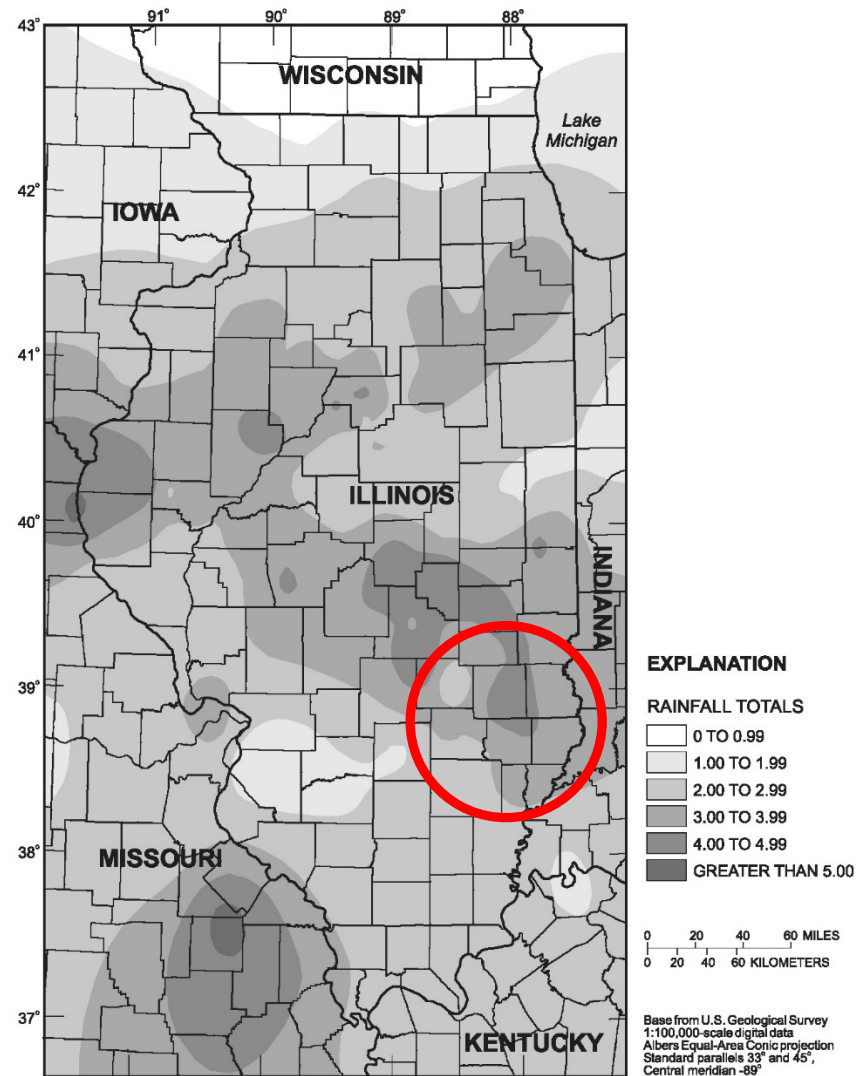


Figure 4. Provisional rainfall totals for Illinois, May 11-13, 2002, from the National Weather Service Cooperative Observer Network.



# Record Snowstorms Occurred in Winter of 1978-79.

## Storms in January, 2014 Closed Roads and Highways.



# Area Suffered Drought in 2012

## U.S. Drought Monitor

July 24, 2012

Valid 7 a.m. EST

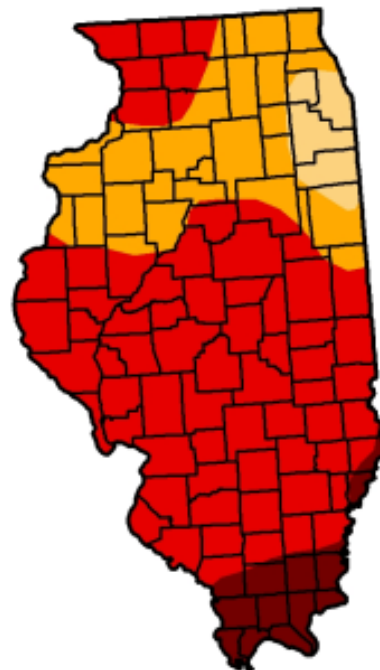
### Illinois

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	100.00	95.07	70.80	7.10
Last Week (07/17/2012 map)	0.00	100.00	100.00	95.07	8.28	1.45
3 Months Ago (04/24/2012 map)	57.77	42.23	5.55	0.00	0.00	0.00
Start of Calendar Year (12/27/2011 map)	100.00	0.00	0.00	0.00	0.00	0.00
Start of Water Year (09/27/2011 map)	45.76	54.24	30.76	14.68	0.00	0.00
One Year Ago (07/19/2011 map)	76.77	23.23	0.00	0.00	0.00	0.00

Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

<http://droughtmonitor.unl.edu>



Released Thursday, July 26, 2012

Richard Heim, National Climatic Data Center, NOAA



# Map the Properties At-Risk



Flooding in Illinois April, 2011

*Ottawa, Ohio, August 27, 2007 – Flooding in North Central Ohio damaged several towns during the summer of 2007. Mike Moore/FEMA*

# Local Officials Focus on Community Buildings, Utilities, Infrastructure

## Community Facilities Housing Vulnerable Populations

- Hospitals, Day Care and Pre-School Facilities, Housing for the Elderly, Housing for Low Income Families

## Public Assembly Buildings

- Schools, Community Centers, Movie theaters, Auditoriums, Churches, Social Hall

## Emergency Services

- Fire Stations, Ambulance Centers, Police Stations

## Water Supply Systems

- Water Treatment Plants, Sewer Treatment Plants, Water Supply Wells/Reservoirs
- Primary Delivery Pipelines, Booster or Pump Stations, Storage Tanks, Water Towers

## Communications/Power Infrastructure

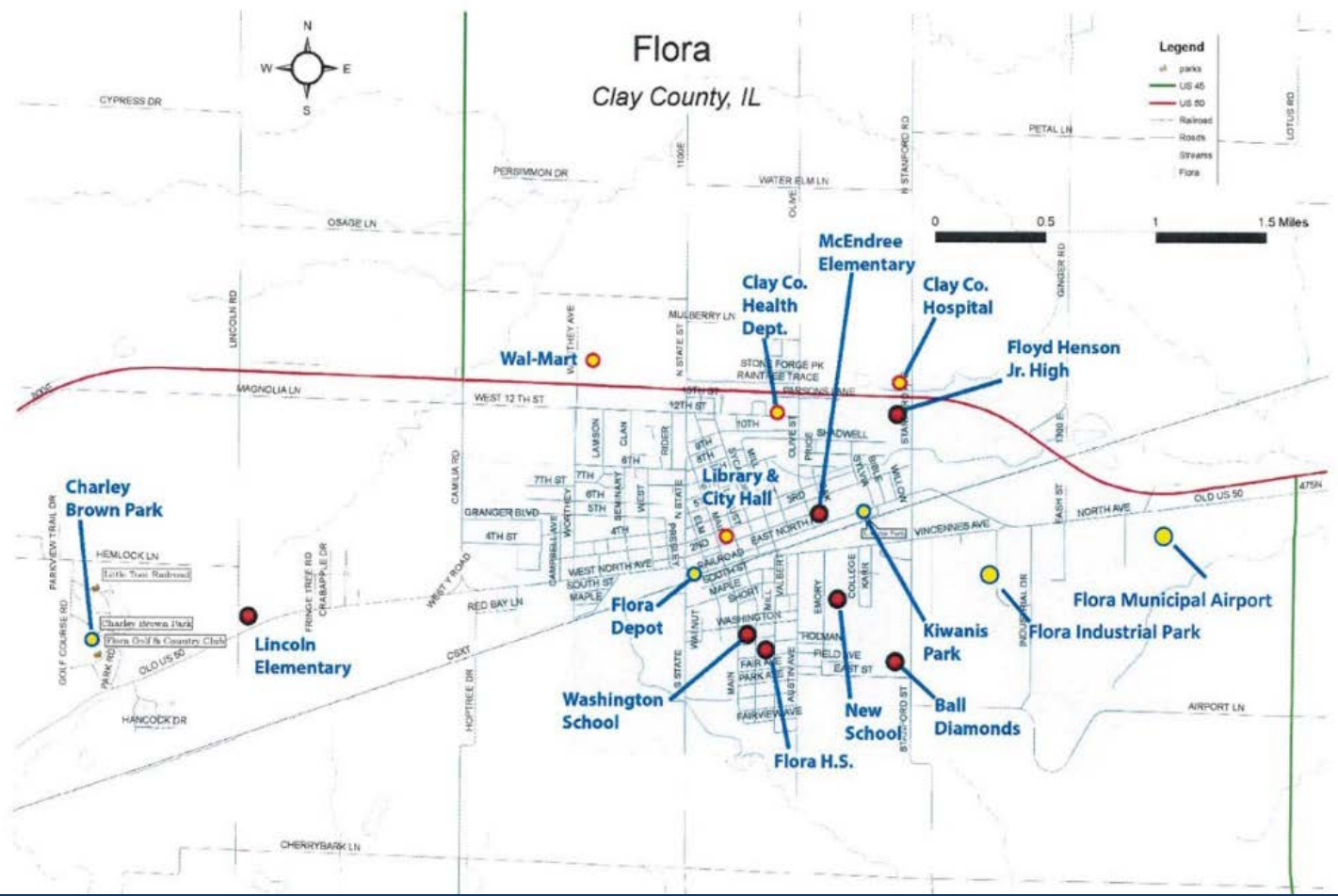
- Fiber Optic Lines, Radio, Cellular, and-or Microwave Towers
- Electrical Power Distribution Systems
- High Voltage Transmission Lines
- Transform Substations, Generation Stations, Nuclear Facilities



# What is At Risk?

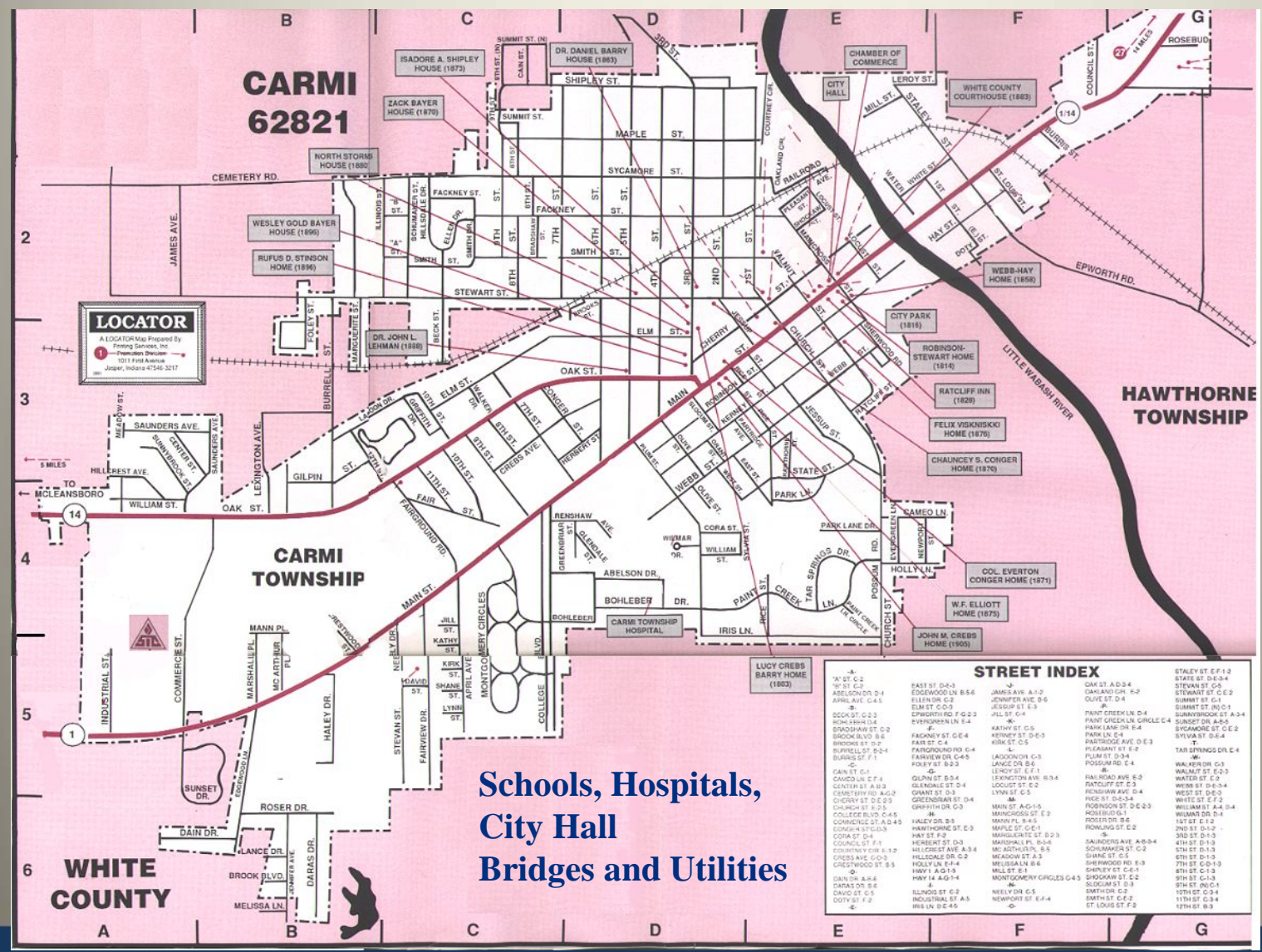
Six Schools  
 Hospital and Health Facility  
 City Hall and Library

## City of Flora Points of Interest





# What is at Risk?

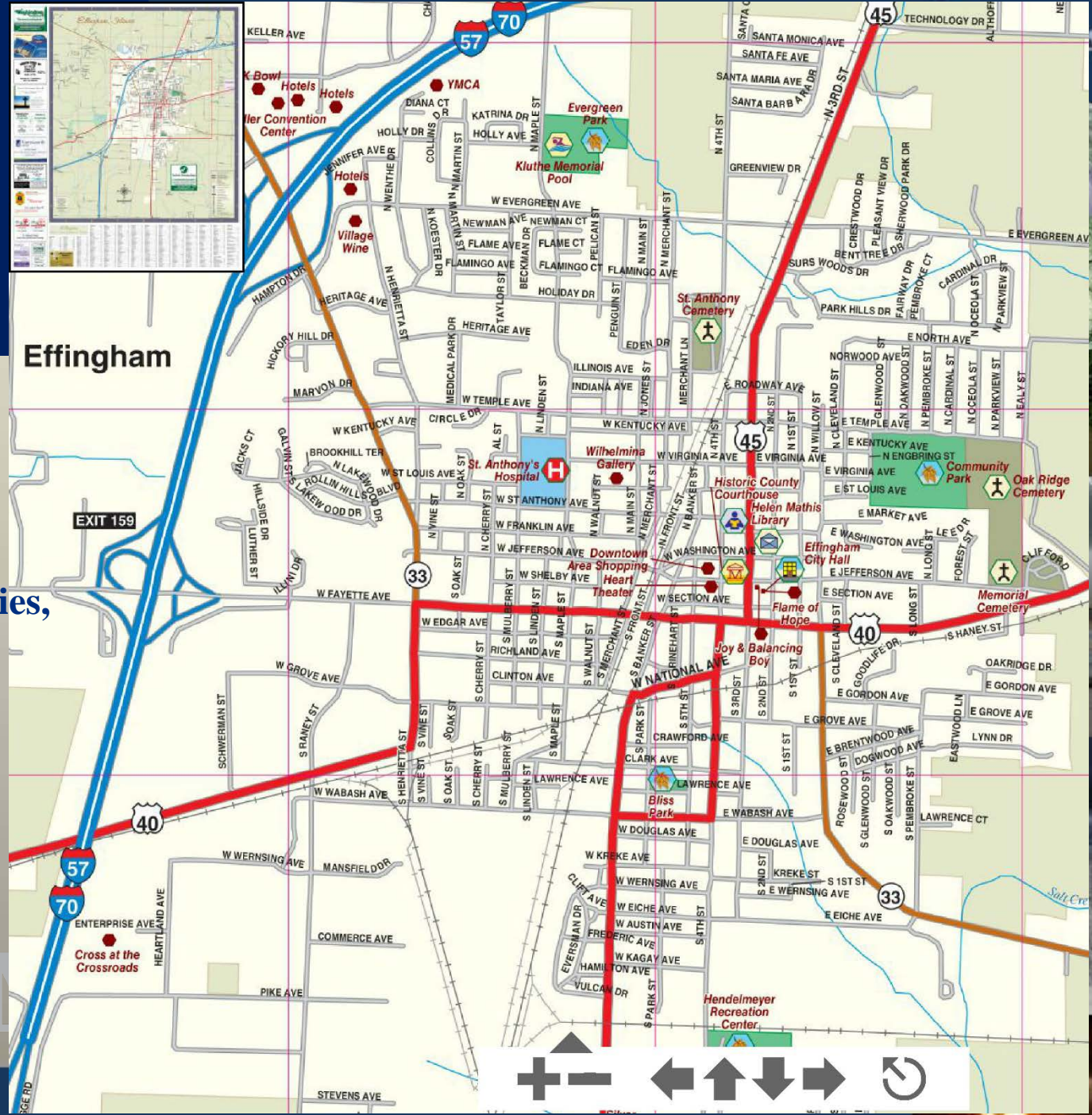


**Schools, Hospitals,  
City Hall  
Bridges and Utilities**



# What is At Risk?

More than 12 schools,  
Several hospitals and  
care facilities, public  
water and sewage facilities,  
police and fire facilities



FEDERAL

# Assess Vulnerability - Describe the Impact of Each Hazard

*The new or updated plan must address the impact of each hazard on each jurisdiction.*

For each hazard, and for each jurisdiction, discuss:

- Types of damage
- Extent of damage to
  - Structures
  - Infrastructure
  - Critical facilities
  - Major employers
  - Cultural, historical, environmental assets
  - Public assembly or public meeting facilities



# Planning Tip

**Inventory those community assets that may be uniquely vulnerable to specific hazards.**

- Hospitals
- Schools and Colleges
- Recreation Centers
- Assisted Living Center and Nursing Homes



# Ultimate Sources: Handbook/Ideas Book

- The **Local MP Handbook** and the **Mitigation Ideas** publication provide more detail including the following subsections:

- Identifying Hazards
- Profiling Hazards
- Assessing Vulnerability: Overview
- Assessing Vulnerability: Identifying Structures
- Assessing Vulnerability: Estimating Potential Losses
- Assessing Vulnerability: Analyzing Development Trends
- Identify Mitigation Strategies
- Identifying Mitigation Actions



## Local Mitigation Planning Handbook

March 2013



## Mitigation Ideas

A Resource for Reducing Risk to Natural Hazards

January 2013





# Contact Information

- **Contact Information:**

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Mitigation Planner  
Illinois Emergency Management  
Agency

