

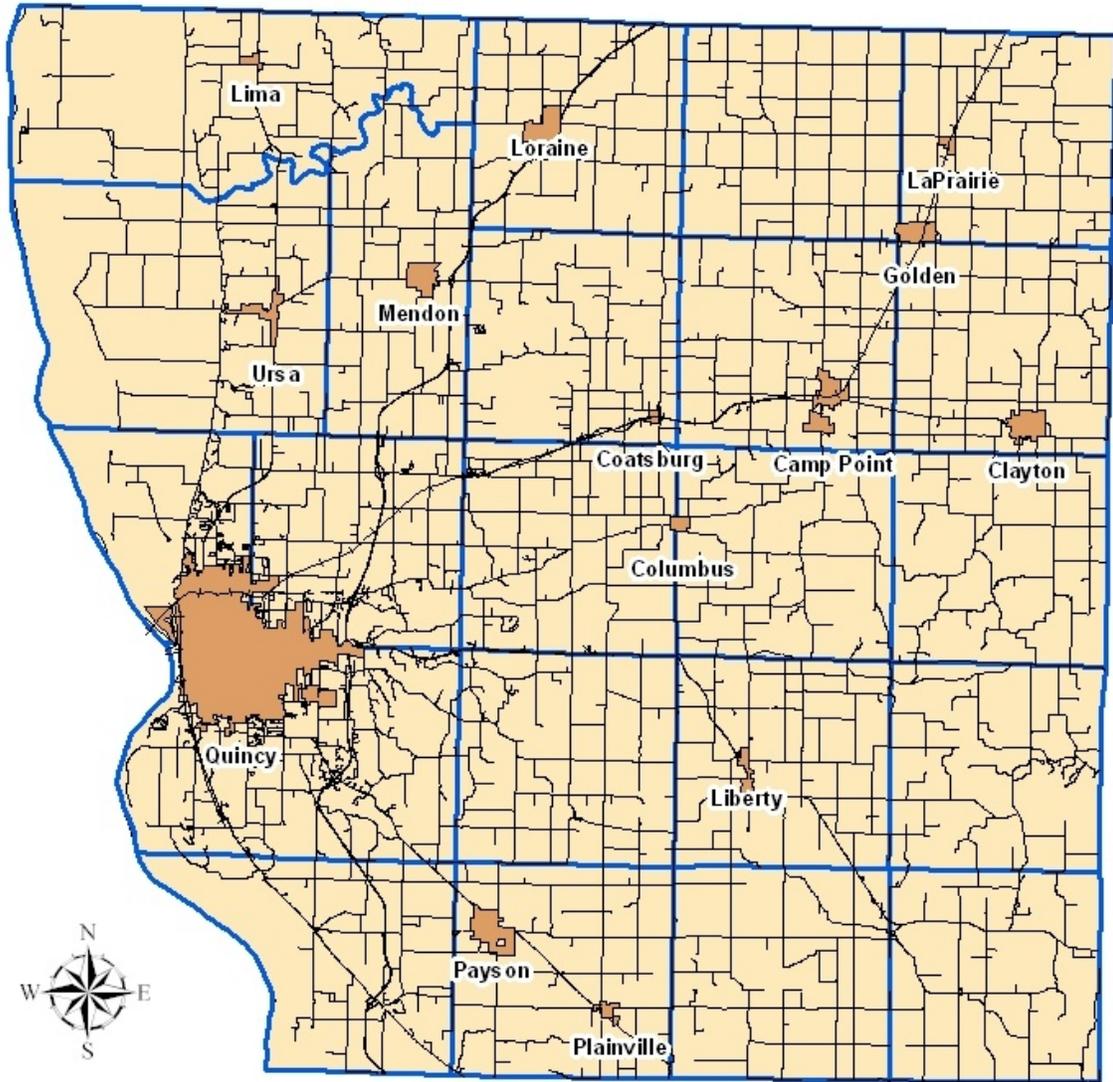
# ADAMS COUNTY DISASTER MITIGATION PLAN



**SEPTEMBER 2007**

PREPARED BY:  
Poepping, Stone, Bach and Associates  
Consulting Engineers  
Quincy, Illinois

Adams County Emergency Management Agency  
Adams County, Illinois



# Adams County, IL

**ADAMS COUNTY DISASTER MITIGATION PLAN**

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# INTRODUCTION

## INTRODUCTION

The Adams County Comprehensive Emergency Operations Plan serves as a guidance document for response to disasters. This plan will serve as a guide for the County of Adams and municipalities within to mitigate disasters. Mitigation is defined as sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects. It is recognized that in many cases it is much more financially feasible to mitigate certain hazards than to suffer the financial and human losses of that disaster. This plan while being a guide will attempt to be comprehensive both for hazards and political subdivisions within Adams County. Jurisdictions specifically mentioned and have approved this plan are the County of Adams and the City of Quincy.

This plan will address the impacts and corresponding mitigation measures associated with the following technological and natural disasters that were determined as having a higher likelihood of being experienced by residents of Adams County. The plan will also include a list of critical facilities in Adams County. Preventative measures are also addressed with goals that can be obtained. Each is rated with a low, medium or high priority and also is rated for their cost/benefits. Money figures have not been assigned to each. The following hazards will be addressed in this plan:

- Tornado
- Earthquake
- Severe Storms/Lightning/Windstorm/Hail/Severe Heat/Cold/Heavy Snow
- Pipeline Ruptures
- Drought
- Transportation Accidents
- Fire/Explosions
- Hazardous Material Spill/Release/Hazardous Chemical
- Black Outs/Power Outages
- Dam Failure (not a Levee)
- Structure/Building Collapse
- Levee Failure/Flooding (addressed in the flooding component tab 5)

The following technological and natural disasters have been evaluated and are considered to have a very low, negligible or non-existent probability of occurrence in Adams County and are not covered by this mitigation plan.

- Tsunami
- Volcano
- Land Slide
- Mine Subsidence
- Nuclear Accident

Some occurrences are beyond local government's ability to mitigate. These instances are man-made and are due to hatred towards people or a motivation of political or social gain, and as such are not included in this plan. These incidents include:

- Riots/Strikes/Demonstrations
- Terrorism/Sabotage/Bombings
- Biological/Chemical Attack

## **EXECUTIVE SUMMARY**

This disaster mitigation plan is to become an all-disasters mitigation plan for use by Adams County and local government officials in minimizing the effects of a disaster before it happens. The Adams County Board adopted the first mitigation plan that specifically covered flooding damage mitigation control measures on December 9, 1997 and which was then forwarded in February of 1998 to the Illinois Emergency Management Agency. Since that time floodplain ordinance enforcement, property buyouts and elevating structures has largely been accomplished for anyone wishing to participate.

There were 12 categories of disasters that were determined as statistically a probability of occurring in Adams County. These disasters range from a frequency of very high for severe storms to very low for earthquakes. The economic impact of these 12 categories of disasters range from the low dollar value for the collapse of a dilapidated building to massive losses during major tornadoes or earthquakes. The loss of life from a disaster will range from an almost zero risk for drought to possible massive losses of life due to major tornadoes, major earthquakes or large plane crashes.

To give a ranking to any one disaster is both impossible and foolish. The loss of life in any type disaster be it a chemical explosion, F4 tornado or collapse of an occupied building during an earthquake is stressful and disrupting to the entire community and not just to the families involved.

Significant progress on other mitigation measures for all types of disasters has occurred in Adams County prior to the drafting of this plan. The plan includes a list of those accomplishments to date, with the September 11, 2001 World Trade Center Attack being a major impetus in getting all of Adams County residents more aware of the need for cooperation, emergency preparedness and planning ahead.

Overall, with some tasks still remaining, Adams County over the last five years has done a very good job in preparing for all types of disasters and setting up crisis management teams.

This plan has been developed with input and participation from two political subdivisions. Their resolutions are in the following pages.

County of Adams  
City of Quincy

**Adopting the Adams County  
Disaster Mitigation Plan Supplement**

**Whereas**, the County of Adams recognizes the threat that natural disasters pose to people and property within our community; and

**Whereas**, undertaking disaster mitigation actions will reduce the potential for harm to people and property from future disaster occurrences; and

**Whereas**, an adopted Disaster Mitigation Plan is required as a condition of future funding for mitigation projects under multiple FEMA pre- and post-disaster mitigation grant programs; and

**Whereas**, the County of Adams fully participated in the FEMA-prescribed mitigation planning process to prepare this Disaster Mitigation Plan; and

**Whereas**, the County of Adams participated jointly in the planning process with the other local units of government within the County to prepare an Disaster Mitigation Plan; and

**Now, therefore, be it resolved**, that the County of Adams adopts the Adams County Mitigation Plan as an official plan; and

**Be it further resolved**, the County of Adams will submit this Adoption Resolution to the Illinois Emergency Management Agency and Federal Emergency Management Agency officials to enable the Plan's final approval.

Passed this \_\_\_\_\_ day of \_\_\_\_\_ year \_\_\_\_\_

\_\_\_\_\_  
*Chairman of the Board*

\_\_\_\_\_  
County Clerk

**Adopting the Adams County  
Disaster Mitigation Plan Supplement**

**Whereas**, the City of Quincy recognizes the threat that natural disasters pose to people and property within our community; and

**Whereas**, undertaking disaster mitigation actions will reduce the potential for harm to people and property from future disaster occurrences; and

**Whereas**, an adopted Disaster Mitigation Plan is required as a condition of future funding for mitigation projects under multiple FEMA pre- and post-disaster mitigation grant programs; and

**Whereas**, the City of Quincy participated jointly in the planning process with the County of Adams to prepare an Disaster Mitigation Plan; and

**Now, therefore, be it resolved**, that the City of Quincy recognizes the Adams County Mitigation Plan Supplement as an official plan.

Passed this \_\_\_\_\_ day of \_\_\_\_\_ year \_\_\_\_\_

\_\_\_\_\_

*Mayor*

\_\_\_\_\_

City Clerk

## **THE PLANNING PROCESS**

The County of Adams has been conducting local hazard mitigation projects and planning activities for many years, with the heaviest emphasis on flooding. Following the completion of the 1998 Flooding Mitigation Plan it was determined that an all-hazards plan should be developed. Funding was secured to devote to the project in 2005. The Adams County Highway Department coordinated selection of Poepping Stone Bach and Associates as the contractor to facilitate the development. On June 21, 2005 the Adams County Local Emergency Planning Committee was introduced to the contractor and worked in conjunction with others listed in this plan for its completion. The LEPC membership includes representation from all public safety sectors (police, fire, ems), local elected officials, health and medical facilities, businesses within Adams County and community organizations such as the American Red Cross / United Way. The LEPC involvement allowed for others around the community to become part of the process. Meetings were held with PSBA the LEPC, Adams County Highway Department, and the Adams County Emergency Management Agency to ensure proper coordination of information and accuracy. Each organization provided information relevant to their normal course of business that was utilized in the development. Specialist were sought out from the community both governmental agencies of the City of Quincy and the County of Adams as well as private organizations such as AmerenCIPS, Blessing Hospital, and other architects. The plan was written and posted on the Adams County website for public comment and review. The Adams County website receives on average 800 unique hits per day. Additionally, the Quincy Herald Whig reported on the plan, its progress, and the process for the public to comment. Comments were received and integrated into the plan. The plan was sent to the Illinois Emergency Management Agency for review and forwarding to FEMA.

In June of 2006 FEMA had completed review and not approved the plan pending several modifications. Those modifications were made by committee comprised of Adams County Emergency Management Agency, Adams County Highway Department, and the City of Quincy. The plan is being submitted to IEMA and FEMA again in 2007 for review.

### **Incorporation of existing plans studies, and reports**

During the planning process two documents were reviewed at length the Adams County Emergency Operation Plan (EOP) and the 1998 Flood Mitigation Plan. These documents provided the beginning basis for determining the scope of the project. The Emergency Operation Plan provided information from the hazard analysis indicating what disasters are most likely to occur and which may have the greatest impact and vulnerabilities. Furthermore, the EOP identifies critical infrastructure and routes that may require mitigation measures. Secondly, the 1998 Flood Mitigation Plan identified strategies for flood mitigation and therefore focused the planning on other all – hazard incidents.

Both jurisdictions participating in the planning process, the County of Adams and the City of Quincy had representatives included at meetings. General meetings were held on:

June 21<sup>st</sup> 2005

July 8<sup>th</sup> 2005

August 29<sup>th</sup> 2005

November 23<sup>rd</sup> 2005

The following community leaders participated in furnishing data, information, ideas, mitigation suggestions and issues on the topics included within the development of this plan. Input was both sought and required from agencies both in the City of Quincy and the County of Adams as well as organizations that provide services or infrastructure to both jurisdictions. Participants attended meetings and or provided specific information.

John Simon  
Adams County Emergency Management Agency Director  
Adams County, Illinois

Joye Baker  
Administrative Assistant to  
The Adams County Engineer  
Adams County Highway Department

Pam Peters  
Resource Conservationist  
Adams County Soil and Water  
Conservation District

Thomas Bentley  
Haz-Mat Officer  
Quincy Fire Department  
Haz-Mat Team

John Bozarth  
Director of Plant Operations  
and Safety  
Blessing Hospital

Steve Rowlands  
Director  
Adams County 9-1-1 Center

David Kent  
Director of Utilities  
City of Quincy, Illinois

John Klingner, P.E.  
Project Engineer  
Klingner and Associates, P.C.

Chuck Bevelheimer  
Quincy City Planner  
City of Quincy, Illinois

Roger Donaldson  
Electric Engineer  
AmerenCIPS

John Bozarth  
Gas Engineer  
AmerenCIPS

Sandra Akers  
Administrative Assistant to the  
Director – Quincy Regional Airport

Tim Brecht  
Electric Engineer  
Adams County Electric Cooperative

Dave Poland, P.E.  
Structural Engineer  
Poepping, Stone, Bach & Assoc.

Dave Schlembach  
Architect  
Poepping, Stone, Bach & Assoc.

Melanie Mowers  
Emergency Shelter Director  
Quincy Salvation Army

Mike Peterson  
Engineer  
IL Department of Natural Resources

The following is a copy of the newspaper article that was on the front page of the Quincy Herald Whig. This was an effort to inform and involve the public in the mitigation planning process.

**Published February 18, 2007**  
**Group aims to ready residents for disaster**

**By Edward Husar**

Herald-Whig Staff Writer

The Adams County Emergency Management Agency is encouraging property owners and public entities to take steps to minimize damage in the event of a disaster.

Some tips for achieving this goal are contained in an "Adams County Disaster Mitigation Plan Supplement" now being developed.

The county first initiated a mitigation plan in 1997. Inspired by the historic flood of 1993, that plan focused primarily on ways to mitigate damage caused by flooding or levee failures. It also provided some guidance for guarding against certain acts of terrorism, epidemics and biological threats.

The plan is being expanded now to include mitigation steps for about a dozen natural disasters that could impact county residents, such as tornados, earthquakes, fires, explosions, power outages, pipeline ruptures or severe weather conditions.

A preliminary copy of the 79-page mitigation plan has been posted on the county's Web site ([www.co.adams.il.us/](http://www.co.adams.il.us/)) for public scrutiny and comment.

John Simon, director of the Adams County Emergency Management Agency, said a number of revisions are already being made to the preliminary plan, though they haven't yet been posted.

He said a revised copy of the proposed plan eventually will be presented to both the Adams County Board and the Quincy City Council for their consideration. If those agencies approve the plan, a final version will be submitted to the Federal Emergency Management Agency (FEMA) for approval.

"That's certainly something we want to get off the ground here this summer," Simon said.

He said the final supplement would serve as a formal "plan of action" for mitigation purposes.

"We are required to have this if the county or the city ever wants to seek money from FEMA for mitigation projects," Simon said.

Simon said many people mistakenly think "mitigation" is the same as "preparedness" when dealing with disasters.

"They're different," he said.

Simon said mitigation involves "lessening the effects" of a disaster by taking steps ahead of time to minimize damage. "For instance, we lessen the effects of a flood by doing floodplain buyouts and not letting people build in the floodplain," he said.

Preparedness, on the other hand, involves getting ready to cope with a possible disaster, such as preparing a family disaster kit or stocking up on bottled water and ready-to-eat meals in case the power goes out for an extended period.

The mitigation plan offers suggestions that homeowners, builders and public officials can use to help keep the effects of a disaster to a minimum. One mitigation idea, for instance, calls for securing gas water heaters to the basement wall. Otherwise, Simon said, in the event of a tornado or earthquake the homeowner might be confronted not only a flooded basement but also a gas leak.

"We've just intensified that emergency," he said.

Other mitigation steps can be taken during the construction of new homes. When putting roof trusses on a house, Simon said a common building practice is to put a single nail in each board. A better approach — one that could help prevent the roof from blowing off in a tornado — involves using special fasteners that make a stronger connection between the roof and the wall.

Taking mitigation steps such as this "lessen the amount of damage that a disaster can have, therefore saving us all money," Simon said.

"In a sense, what we're doing is trying to get everybody to take more personal responsibility for their own property."

Simon said property owners and governmental entities are encouraged to consider disaster mitigation measures when undertaking any new construction.

"If they're going to do a building project anyway, let's make sure that it is somewhat disaster resistant," he said. "It can save them money if they look at mitigation and how they can reduce the effects of a disaster ahead of time."

# RISK ASSESMENT

## HAZARDS

The following hazards have been identified from the State of Illinois Hazard Mitigation Plan and the Adams County Emergency Operation Plan to have some potential to occur in Illinois or Adams County. While the effects of each of these hazards will vary dependant upon the population o f the area, each have some likelihood of occurring in the City of Quincy and the County of Adams.

1. Tornado
2. Earthquake
3. Severe Storms/Lightning/Windstorm/Hail/Severe Heat/Cold/Heavy Snow
4. Pipeline Ruptures
5. Drought
6. Transportation Accidents
7. Fire/Explosions
8. Hazardous Material Spill/Release/Hazardous Chemical
9. Black Outs/Power Outages
10. Dam Failure (not a Levee)
11. Structure/Building Collapse
12. Flooding (addressed specifically in the Flood Mitigation Plan attached)

## DEGREE OF DISASTER

Disaster	Probability/ Frequency	Damage Potential	Health/ Loss of Life	Community Impact	Cost to Mitigate
Tornado	3	3	3	4	3
Earthquake	1	4	4	4	4
Sever Storms	4	2	4	4	2
Pipeline Ruptures	1	2	1	2	2
Drought	3	4	1	4	4
Transportation Accidents	1	2	3	2	3
Fire/Explosions	3	3	3	3	3
Hazardous Materials	4	1	2	3	2
Black Outs/Power Outs	2	3	2	4	2
Dam Failure	1	2	1	2	2
Structure/Building Collapse	1	1	1	1	2
Major Flooding	2	2	1	3	4

- 1 – Low
- 2 – Moderate
- 3 – High
- 4 – Very High

TORNADO

## **1. Tornado**

### **Description**

A tornado is defined as a violent, dark, funnel-shaped swirling column of air that develops when thunderstorms are apparent or below heavy cumulonimbus clouds. Tornadoes cause damage by the high wind and wind-blown debris. Velocities of tornadoes may reach from speeds of 40 mph up to 200 mph. Tornadoes generally occur from March through August and tend to occur in the afternoons and evenings, but can occur at any time of the year. The Fujita scale is the standard scale for rating the magnitude of tornadoes. The size of a tornado varies greatly and can be anywhere from a few feet up to a mile.

A tornado is announced through either a watch or a warning. A tornado watch is issued by the National Weather Service when tornadoes are possible in the surrounding area. A tornado watch indicates that weather conditions may be favorable for tornadic activity. A tornado warning is issued when a tornado has been sighted or indicated by weather radar.

## Historical Data

Data below was retrieved from the National Climatic Data Center, a division of the U.S. Department of Commerce and the Storm Prediction Center Database.

Date	Time	Magnitude (Fujita scale)	Death	Injury	Property Damage
3/10/1876	N/A	F4	N/A	N/A	N/A
5/23/1878	6:30 PM	F3	N/A	N/A	N/A
4/24/1880	7:20 PM	F3	0	7	N/A
6/25/1895	7:00 PM	F2	0	N/A	N/A
3/30/1938	3:00 PM	F3	13	73	N/A
3/30/1938	4:00 PM	F2	0	0	N/A
4/12/1945	8:15 PM	F2	0	19	2.23M
4/23/1955	2:00 AM	F2	0	0	250K
5/26/1955	11:50 AM	F2	0	0	25K
6/23/1960	2:00 AM	F1	0	0	25K
5/14/1961	5:00 PM	F3	0	0	N/A
7/21/1961	2:15 PM	F1	0	0	250K
9/23/1970	2:47 PM	F1	0	0	0K
6/16/1973	7:30 PM	F1	0	0	0K
5/30/1974	11:30 AM	F2	0	12	2.5M
9/23/1977	6:00 PM	F2	0	3	250K
6/21/1981	9:00 PM	F0	0	0	N/A
6/2/1987	1:40 PM	F1	0	0	3K
5/18/1991	2:30 PM	F0	0	0	0K
6/17/1992	12:54 PM	F0	0	0	3K
7/2/1992	1:05 PM	F0	0	0	0K
7/2/1992	1:10 PM	F0	0	0	3K
7/2/1992	1:38 PM	F0	0	0	0K
5/27/1996	7:40 PM	F0	0	0	0
4/5/1997	1:30 PM	F0	0	0	10K
4/30/1997	12:22 PM	F0	0	0	0
4/30/1997	12:25 PM	F0	0	0	0
4/30/1997	12:35 PM	F0	0	0	5K
6/14/1998	3:50 PM	F1	0	1	0
5/10/2003	5:08 PM	F2	0	10	5M
5/10/2003	6:20 PM	F1	0	0	0
5/11/2005	5:35 PM	F0	0	0	0
<b>TOTALS:</b>			<b>13</b>	<b>125</b>	<b>10.55 M</b>

## Fujita Tornado Scale

F-Scale Number	Intensity Phrase	Wind Speed	Type of Damage Done
F0	Gale tornado	40-72 mph	Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages sign boards.
F1	Moderate tornado	73-112 mph	The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads; attached garages may be destroyed.
F2	Significant tornado	113-157 mph	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.
	Severe tornado	158-206 mph	Roof and some walls torn off well constructed houses; trains overturned; most trees in forest uprooted
F4	Devastating tornado	207-260 mph	Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.

F5	Incredible tornado	261-318 mph	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles fly through the air in excess of 100 meters; trees debarked; steel reinforced concrete structures badly damaged.
F6	Inconceivable tornado	319-379 mph	These winds are very unlikely. The small area of damage they might produce would probably not be recognizable along with the mess produced by F4 and F5 wind that would surround the F6 winds. Missiles, such as cars and refrigerators would do serious secondary damage that could not be directly identified as F6 damage. If this level is ever achieved, evidence for it might only be found in some manner of ground swirl pattern, for it may never be identifiable through engineering studies

## Damage

The damage by tornadoes can be very extensive and costly. Listed below are several examples of damage resulting from the above listed tornadoes. Mobile homes are particularly vulnerable to tornadoes and per the Adams County Clerk's Office; there are a total of 1149 mobile homes under the home privilege tax. Mobile homes on real estate throughout the County could not be accounted for. Residents of mobile homes should seek shelter in a building with a strong foundation or lie in a ditch away from the mobile home unit when a shelter can not be found.

March 30, 1938 – Tornado formed 3 miles south of Stillwell and moved Northeast into Hancock County, damaging and destroying five farms. The farm houses were partially unroofed. A board from one passed entirely through a home; in a west window and out an east window.

April 12, 1945 – This tornado traveled from near Palmyra, MO and traveled to Loraine, IL. The business district in Quincy was torn apart and the dome was blown from the courthouse. Homes and a hotel were unroofed. Three homes were unroofed in Mendon and a barn was destroyed near Loraine.

June 23, 1960 – This tornado formed near Big Neck and moved into Brown County. There was damage to farm buildings, trees, power lines and crops.

September 23 1970 – This tornado moved in a North – Northeasterly direction ripping a roof from a factory complex at the Northeast edge of Quincy. It left an intermittent track with damage reported to trees, roofs, and minor outbuildings. A garage was destroyed and other outbuildings damaged on a farm East of Mendon. Crop damage near Mendon indicated the tornado pattern.

May 30, 1974 – A tornado touched down at Ursa damaging a camping trailer, several cars, and a school bus. The tornado continued its Eastward path and destroyed a house trailer injuring one man at the southern edge of Mendon. The tornado was then sighted at Camp Point.

June 14, 1998 – A damaging tornado struck in Quincy, first downing some trees about 4:00 p.m. to the South-Southwest of town. The tornado weakened and moved Northeast causing only minor tree damage. Approximately 4 minutes later the tornado strengthened reaching F1 intensity about 1 mile South of Quincy near 24<sup>th</sup> Street and Payson Road. Two walls of the building housing the indoor pool of the Sheridan Swimming Club were blown away. The tornado had been spotted by lifeguards as it approached enabling all occupants to be moved to shelter areas. Only 1 minor injury occurred when a lifeguard was struck in the leg by flying glass. Numerous trees were downed in the area and a few storage sheds were destroyed. A nearby church suffered minor roof damage.

May 10, 2003 – A tornado formed just north of the Marion-Lewis County line in Missouri. The tornado did major damage in Lewis County before crossing the Mississippi River near Lock and Dam 20 just southwest of Meyer. The tornado moved East-Northeast along the barren floodplain causing sporadic tree damage. The tornado began to strengthen though, and severely damaged a home and garage along County Road 603 about 1 mile southwest of Lima. The tornado reached its maximum strength just southwest of Lima where it caused major damage. The tornado cut a 200 – 300 yard wide path of damage across the north side of Lima. 40-50 structures were damaged by the tornado. Several barns and similar type buildings were destroyed as were 2 mobile homes. One frame house lost its entire roof with several others suffering major roof damage. There were only 4 injuries as everyone took shelter in basements or interior rooms.

May 10, 2003 – The super cell storm that spawned tornadoes in Monroe and Marion Counties of Missouri spawned a third tornado in east-central Adams County, Illinois. The tornado first formed approximately 2 miles north northeast of Liberty, Illinois and traveled Northeast into northwest Brown County, Illinois. A number of barns, machine sheds and large trees were damaged or destroyed in the path of the tornado over east central Adams County. The width of the damage area varied from 75 to as much as 150 yards and was rated F0 intensity during the early part of the path and F1 over the final 4 miles in far eastern Adams County. The storm then moved into Brown County, Illinois. Below are amateur pictures taken near Lima, IL.



## **Frequency**

Illinois ranks number 7 for frequency of tornadoes and ranks number 11 for frequency per square mile. Illinois is number 27 in the ratio of tornadoes to population. Illinois has had 182 fatalities between 1950 and 1995 due to tornadoes and had 3,679 injuries involving tornadoes. The state ranks number 22 for fatality due to a tornado and number 6 for injuries. The total cost of tornadoes between 1950 and 1995 was \$841,700,608. This dollar amount ranks the state number 8 for costs and number 23 in costs for tornado per person.

(<http://www.disastercenter.com/illinois/tornado.html>)

## **Economic Impacts**

The economic impacts from tornadoes can vary from storm to storm depending upon where the storm hit. Adams County has a considerable amount of farmland and crop damage/loss can be a very big cost to the area farmers. Livestock, farm buildings, and farm machinery can all be lost or damaged due to tornadoes. A dollar amount is hard to estimate due to the variety of damage that can occur during a storm.

Buildings in either a residential area or in a business district can suffer severe loss or damage due to a tornado. Businesses can not only lose a structure itself, but can also lose possible business and customers. Tornadoes usually cause damage to above ground utilities and this can have an effect on buildings/businesses not even hit by the tornado if power lines are hit in a particular area. Utilities include not only power, but telephone lines, water lines, and they often effect the transportation in the area.

## **Health and Safety Concerns**

Injuries and even death can occur from tornadoes. Most injuries occur from flying debris. Safety is also a concern if the power and or telephone lines have been hit. Families often have mental and physical stress associated with the injuries, deaths or property loss due to a tornado.

# EARTHQUAKE

## 2. Earthquake

### Description

An earthquake is a sudden, rapid shaking of the Earth. This is caused by the breaking and shifting of rock beneath the Earth's surface, volcanic or magmatic activity, or sudden stress changes in the earth. When the accumulated energy grows strong enough, the plates break free causing the ground to shake. Most earthquakes occur at the boundaries where the plates meet; however, some earthquakes occur in the middle of plates.

How strong an earthquake feels to an observer depends on the distance to the quake, geology, type of building and the actual observer. Earthquakes are measured by magnitude on the Richter scale and by intensity on the Mercalli Scale. Earthquakes are measured by the amount of energy they release. Magnitude is the total energy released by an earthquake at its focus. The amount of destruction depends not only on the magnitude, but on the kind of ground and types of buildings thereon, and on the location of the focus in relation to heavily populated areas. The intensity of an earthquake is measured in terms of its geological effects and the overall damage it brings.

### Richter Scale

M=1 to 3: Recorded on local seismographs, but generally not felt

M=3 to 4: Often felt, no damage

M=5: Felt widely, slight damage near epicenter

M=6: Damage to poorly constructed buildings and other structures within 10 km

M=7: "Major" earthquake, causes serious damage up to ~100 km (recent Taiwan, Turkey, Kobe, Japan, and California earthquakes).

M=8: "Great" earthquake, great destruction, loss of life over several 100 km (1906 San Francisco, [1949 Queen Charlotte Islands](#)).

M=9: Rare great earthquake, major damage over a large region over 1000 km (Chile 1960, Alaska 1964, and [west coast of British Columbia, Washington, Oregon, 1700](#)).

## **Mercalli Scale**

I. Hardly felt

II. Felt only by a few persons at rest, especially on upper floors of buildings.

III. Can be felt by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake.

IV. Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed. Standing motor cars rocked noticeably.

V. Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned.

VI. Felt by all

VII. Considerable damage in poorly built or badly designed structures

VIII. Damage slight in specially designed structures. Damage great in poorly built structures. Heavy furniture overturned.

IX. Damage considerable in specially designed structures. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.

X. Many objects destroyed, buildings collapse.

XI. Few structures remain standing. Bridges destroyed. Rails bent greatly.

XII. Total Damage.

Adams County is affected by the New Madrid Fault. New Madrid events are felt for long distances due to the flat strata and relative lack of geologic complexity (especially compared to California) meaning that seismic waves travel very efficiently for long distances with little loss of energy and are felt across vast areas due to the layer-cake geology of the Midwest.

## Historical Data

The earliest report of an Illinois earthquake is of a shock in 1795 felt in Kaskaskia for a minute and a half. Subterranean noises were heard. It was also felt in Kentucky. Due to the sparse frontier population, an accurate location is not possible and the shock may have originated outside the State. Among the largest earthquakes occurring in Illinois was the May 26, 1909 shock which knocked over many chimneys in Aurora. It was felt over 500,000 square miles and strongly felt in Iowa and Wisconsin. Buildings swayed in Chicago where there was fear that the walls would collapse. Beds moved on their casters.

Just under two months later a second intensity VII earthquake struck on July 18, knocking down chimneys in Petersburg, Illinois, and at Hannibal, Missouri, and Davenport, Iowa. Over twenty windows were broken, bricks loosened and plaster cracked in the Petersburg area. It was felt over 40,000 square miles.

On August 14, 1965, a sharp but local shock occurred at Tamms, a town of about 600 people. The magnitude 5 shockwave broke chimneys, cracked walls, knocked groceries from the shelves, and muddied the water supply. Thunderous earth noises were heard. It was felt only at Elco, Unity, Olive Branch, and Olmstead, all towns less than 10 miles away. Six aftershocks were felt. It is interesting to compare this shock with the May 26, 1909, shock and the 1968 shock described below: all had maximum intensities of VII but two had abnormally large felt areas more than 100 times larger than that of the Tamms earthquake.

An earthquake of intensity VII occurred on November 9, 1968. A magnitude 5.3 shock, it was felt over 580,000 square miles in 23 states. There were reports of people in tall buildings in Ontario and Boston feeling the shock.

Damage consisted of bricks being knocked from chimneys, broken windows, toppled television antennae, and cracked plaster. There were scattered reports of cracked foundations, fallen parapets, and over-turned tombstones. Chimney damage was limited to buildings 30 to 50 years old. Many people were frightened. Church bells rang and the characteristic "X" cracks were observed at Broughton and several other towns. Loud rumbling earthquake noise was reported from many communities.

An intensity VI - VII earthquake occurred on April 12, 1883, awakening every one in Cairo. One old frame house was shaken down, resulting in slight injury to the inhabitants, the only record of injury in the State due to earthquakes.

A Missouri earthquake on November 4, 1905, cracked walls in Cairo. Aftershocks were felt over 100,000 square miles in nine states. In Illinois it cracked the wall of the new education building in Cairo and a wall at Carbondale.

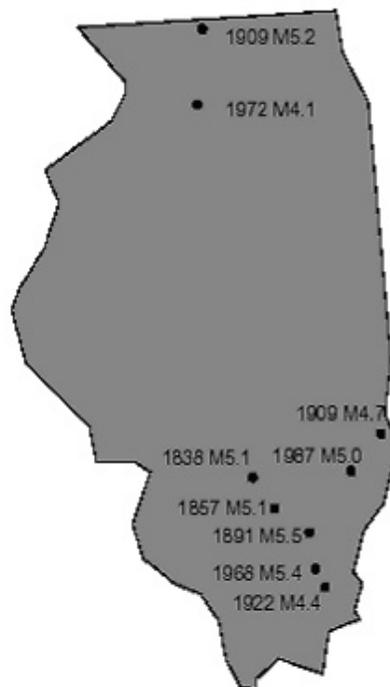
On November 7, 1958, a shock along the Indiana border resulted in damage at Bartelso, Dale and Maunie. Plaster cracked and fell, and a basement wall and floor were cracked.

Dozens of other shocks originating in Missouri, Arkansas, Kansas, Nebraska, Tennessee, Indiana, Ohio, Michigan, Kentucky, and Canada have been felt in Illinois without causing damage.

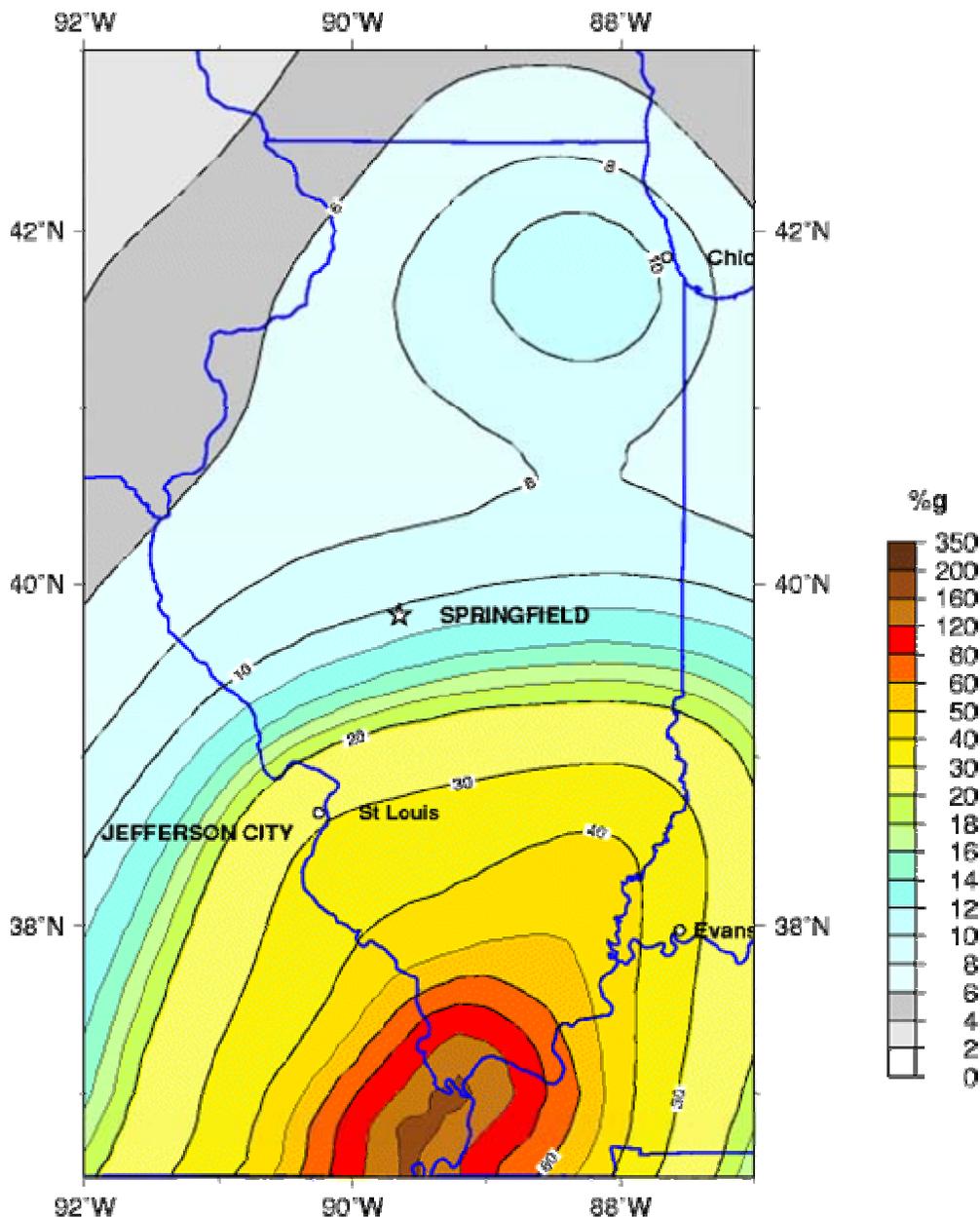
The possibility of damage to parts of Illinois from earthquakes originating outside the State is dominated by the threat of a repeat of the 1811 - 1812 New Madrid great earthquakes, which were felt over at least 2 million square miles from Canada to New Orleans, and in Boston and Washington, D.C. There are few reports from the area, but intensities VII to IX could have been experienced over the entire State.

<http://www.isgs.uiuc.edu/ground-w/staff/qk-fct-damag.pdf>

### ILLINOIS SHAKEN BY OCCASIONAL QUAKES



Location of damaging earthquakes in Illinois, year of occurrence, and magnitudes. Magnitudes are estimated for events prior to 1960.  
Source: ISGS EGN 133.



**Peak Acceleration (%g) with 2% Probability of Exceedance in 50 Years  
 site: NEHRP B-C boundary  
 National Seismic Hazard Mapping Project**

A sequence of four large earthquakes hit the New Madrid Fault Zone in December 1811 and January and February 1812, shaking the eastern United States in events that observers said made the Missouri River run backwards. Those earthquakes have remained mysterious for the past two centuries. Using reconstructions of felt ground shaking and modern measurements of recent seismicity, researchers have honed in on estimates of the sizes — between magnitudes 7 and 8 — and

epicenters of the quakes. However, new research has moved one of those earthquakes off the New Madrid faults, possibly changing the hazard conditions for the region and highlighting the potential for far-off large earthquakes to trigger other earthquakes across the eastern United States.

(<http://www.geotimes.org/may04/WebExtra052804.html>)

## **Damage**

The major damage caused by earthquakes is building collapse, landslides, fire, infrastructure damage and tsunamis. Adams County would mostly be affected by building collapse and infrastructure damage. Roads and bridges in this area of the country are not built to handle major earthquakes and would potentially sustain damage if one were to occur.

The effects of an earthquake are strongest in a broad zone surrounding the epicenter. Surface ground cracking associated with faults that reach the surface often occurs, with horizontal and vertical displacements of several yards is common. Such movement does not have to occur during a major earthquake; slight periodic movements called fault creep can be accompanied by micro earthquakes too small to be felt. The extent of earthquake vibration and subsequent damage to a region is partly dependent on characteristics of the ground. For example, earthquake vibrations last longer and are of greater wave amplitudes in unconsolidated surface material, such as poorly compacted fill or river deposits; bedrock areas receive fewer effects. The worst damage occurs in densely populated urban areas where structures are not built to withstand intense shaking. There, L waves can produce destructive vibrations in buildings and break water and gas lines, starting uncontrollable fires.

Damage and loss of life sustained during an earthquake result from falling structures and flying glass and objects. Flexible structures built on bedrock are generally more resistant to earthquake damage than rigid structures built on loose soil.

([http://www.encyclopedia.com/html/section/earthqua\\_DamageCausedbyEarthquake.s.asp](http://www.encyclopedia.com/html/section/earthqua_DamageCausedbyEarthquake.s.asp))

## **Frequency**

The likelihood of a damaging earthquake (magnitude 6.3 or greater) occurring somewhere in the central US within the next 15 years is 40 to 63% and 86 to 97% within the next 50 years. An earthquake of this size would cause damage to older structures, especially those of masonry construction.

The probability of a major earthquake (magnitude 7.5 or greater) is 5 to 9% within the next 15 years, and 19 to 29% within the next 50 years. An earthquake of this size would be felt throughout much of the central and eastern United States. Damage could amount to several billion dollars.

<http://www.isgs.uiuc.edu/ground-w/staff/qk-fct-damag.pdf>

## **Economic Impacts**

The economic impacts from earthquakes vary depending on the magnitude. Buildings, roads, water towers, sewer and water plants, sewer and water mains and residential buildings could all suffer from an earthquake.

Larger structures in Adams County are located within the urban limits of the city of Quincy. Those structures lying predominately west of Illinois 57 and US 24 below the Mississippi River limestone bluffs may be more susceptible to earthquake damage since they are located in the alluvial deposits of the river bottom. Critical structures in this area include the Quincy Water Treatment Plant and the Quincy Sewage Treatment Plant. Of special concern would be the rupture of the transmission mains that head out of the plant to the various water towers, standpipes and reservoirs in the city of Quincy.

The city of Quincy is also known for its numerous historical structures, smaller quaint buildings and shops and many residential properties dating from 1865 to 1920. The vast majority of the buildings are non-reinforced brick masonry structures that are very susceptible to earthquakes. Most of these historic structures are located on wind blown loess at the top of the limestone bluff in Quincy. These structures in a major quake could have floor and ceiling joists separate from the wall structure and subsequently collapse on the floor below.

## **Health and Safety Concerns**

The safest buildings are small wood framed houses, steel framed buildings and reinforced concrete. The most dangerous buildings are non-reinforced masonry and adobe homes. A multitude of hazards can be caused by an earthquake. Health concerns would be any ruptured pipe lines and gas mains, damage to water or sewage plants, broken sewer lines and water mains or damage to hospital and/or access roads to the hospital. Fires from broken gas mains or broken gas lines in collapsed buildings are a significant safety concern.

SEVERE STORMS/LIGHTNING/WINDSTORM/  
HAIL/SEVERE HEAT/COLD/HEAVY SNOW

### **3. Severe Storms/Lightning/Windstorm/Hail/Severe Heat/Cold/Heavy Snow**

#### **Description**

Severe storms are atmospheric disturbances usually characterized by strong winds, and frequently combined with rain, snow, sleet, hail, ice, thunder and lightning. Severe snow storms or blizzards are usually accompanied by high winds and decreased visibility. Cold temperatures can be an added hazard causing freezing and dangers when extreme wind chill temperatures develop. Ice storms occur when rain falls out of the warm, moist, upper layer of the atmosphere into a below freezing, dryer layer near the ground. The rain freezes on contact with the cold ground and with other surfaces. Hail storms occur when freezing water in thunderstorm type clouds accumulates in layers around an icy core. Severe heat becomes dangerous when the heat and humidity combine for high heat indexes.

#### **Historical Data**

Severe storms can happen at any time throughout the year in Adams County. According to data retrieved from the National Climatic Data Center (NCDC) for Adams County, between 1950 and 2005 some but not all types of storms have been documented throughout the past 55 years.

There have been 15 documented excessive heat conditions in Adams County from 1995 to 2004. 3 extreme cold/wind chill conditions have been recorded between 1995 and 2004 causing 2 deaths and 6 injuries with no reports of property or crop damage. 4 ice storms were documented between 1995 and 2004 resulting in 1 injury. 21 winter storms were recorded between 1995 and 2004 with no injuries or deaths recorded.

83 hail storms were tabulated between 1961 and 2005 causing no deaths or injuries. There were also 2 documented lightning storms in 2002 causing no deaths or injuries.

Thunderstorms are very common and approximately 120 were documented within a 48 year period between 1956 and 2004, but only 2 injuries were reported.

These numbers only approximate the number of severe storms/extreme weather events that have occurred in the surrounding Adams County area.

#### **Damage**

Thunderstorms can cause a lot of damage to buildings and residential housing. Asphalt shingles can be damaged when extreme wind conditions are present during severe storms. Heat and cold can cause physical harm to individual people as well as to crops in the area. Snow can cause damage to roofs and buildings as well and can also cause automobile accidents due to low visibility, loss of traction and drifting roadways. Damage from ice storms can range from iced over roadways to an

accumulation of ice on power lines, causing those power lines to fall. Towers that carry the high voltage feed lines from the power plants to Adams County are also vulnerable to ice accumulation, as is any tree. Hail can cause damage to crops, buildings, and vehicles. The damage can be especially extensive when accompanied by high winds.

**Frequency**

The frequency of these severe storms can not be estimated. In any given year the chance for any of the above mentioned storms is readily evident.

**Economic Impacts**

The economic impact from the severe storms listed above is usually limited to building and infrastructure damage. Extreme heat can damage crops and have a large impact to the both livestock and crop farmers in the surrounding area. Extreme cold can eventually cause water mains to break due to frost heaving and freeze/thaw cycles. Windstorms play havoc with roofs, outdoor signs, radio and telephone towers and the urban treescape of Quincy. Freeze/thaw cycles are especially hard on roadway and airport pavements in Adams County.

**Health and Safety Concerns**

Heat disorders are a safety concern when the temperatures and heat index are high. Heat cramps, heat exhaustion, heat stroke, and sunstroke are all possibilities when severe heat hits. Heat stroke is not only a safety concern, but is life threatening.

Below are general relationships between heat disorders and the heat index:

<b>Apparent Temperature Heat Stress Index</b>		
<b>Category</b>	<b>Apparent Temperature</b>	<b>Dangers</b>
Caution	80-90° F	Exercise more fatiguing than usual
Extreme Caution	90-105° F	Heat cramps, exhaustion possible
Danger	105-130° F	Heat exhaustion likely
Extreme Danger	Greater than 130° F	Heat stroke imminent

The wind chill is the effect that wind has on our perception of cold. The greater the wind speed, the faster we lose body heat. Wind chill can make a fairly moderate winter day equivalent to a much colder one. For example, if the actual air temperature is -5 degrees F with a 20 mph wind, the wind chill temperature is -29 degrees F. A wind chill advisory is issued when the forecast projects a wind velocity of at least 10 mph producing a wind chill temperature of -15 degrees F or lower for 3 hours or more. A wind chill warning is issued when the forecasted wind chill temperature is -25 degrees F or lower, which can be life threatening if the individual is not suitably dressed. Frostbite and other cold-related symptoms can be experienced in a matter of minutes when people go outside that are not properly dressed for the weather conditions.

<http://www.answers.com/topic/wind-chill>

Lightning can be deadly and the Quincy area is full of golf courses, swimming pools, tennis courts, stadiums, parks and ball fields that encourage outdoor activities. Any direct strikes are easily fatal but serious injury can also occur from falling debris and limbs when trees are hit, as well as fire when wood structures are hit.

Heavy rainstorms have caused sewer backups in the Quincy area that allow direct contact between residents and raw sewage.

Heavy snowstorms restrict access by emergency vehicles to emergency calls in the rural areas, especially when accompanied by high winds.

In the United States, the loss of human life in hot spells in summer exceeds that caused by all other weather events combined, including lightning, rain, floods, hurricanes and tornadoes. "Wikipedia Encyclopedia"

# PIPELINE RUPTURES

## **1. Pipeline Ruptures**

### **Description**

Attached is a map showing major pipelines running across Adams County. These pipelines provide natural gas to feeder lines that then serve various cities and towns in Adams County and to other counties that border Adams County.

This disaster would involve the rupture of either a natural gas pipeline or high-pressure feeder line.

When pipelines are damaged or broken they represent a serious safety concern due to the pressurized release of methane gas. Combined with a spark when they are damaged or broken, they can result in a massive explosion and would be detrimental to any person or building in close proximity to it.

Although rarer, feeder line leaks that occur in the vicinity of sanitary and storm sewer systems are also especially dangerous. The methane gas can build up in the underground sewer system until it reaches an ignition source, resulting in a large explosion over a large area.

The rupture of pipelines and gas lines are of special concern after an earthquake and result in many structure fires. An underground utility locate program is heavily publicized

### **Historical Data**

There is no historical data of any pipeline rupturing in Adams County. There have been numerous examples of gas feeder lines and standard gas mains being ruptured or broken.

The Quincy urban area and outside rural coverage has had its old bell-joint cast iron gas main system completely replaced, with the remaining steel gas mains cathodically protected, resulting in many less breaks and leaks. Much of the newer system is plastic that resists corrosion and therefore breakage.

### **Damage**

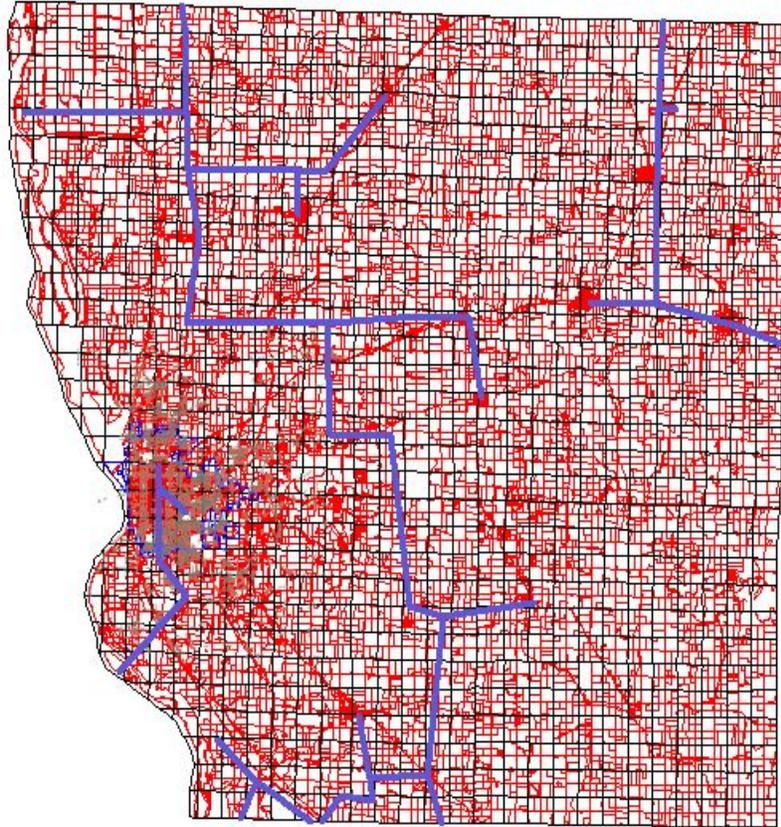
The potential for damage from these types of disasters would be more limited to the urban area of Quincy and the small villages in the County where structures are closer together and more prone to damage from an explosion or gas line fire.

## **Frequency**

Breaks in smaller, lower pressure gas lines are fairly common. Breaks in higher-pressure feeder lines are rarer. Breaks in either type of line combined with fire or explosion are very rare.

## **Health and Safety Concerns**

Loss of life in major explosions and burns from fires that may accompany them are the only significant hazards associated with this disaster. Inhalation of methane gas can be asphyxiating but the chemical smell that is added to the natural gas usually makes that scenario a problem only for victims that are trapped.



ADAMS COUNTY MAJOR GASLINES

# DROUGHT

## 5. Drought

### Description

Drought is a condition over an extended period of time, several weeks and or months where little or no precipitation occurs. This deficiency results in a water shortage for the area affected causing a deficiency of moisture in the soil. The immediate cause of drought is the predominant sinking motion of air that results in compressional warming or high pressure, which inhibits cloud formation and results in lower relative humidity and less precipitation. Drought can't be defined by only one answer and the severity depends on the degree of the water deficiency. One method of measuring drought is the Standard Precipitation Index, (SPI), and is based solely on the probability of precipitation for a given period of time.

The classification values for SPI values are:

<b>SPI Value:</b>	<b>Drought Category:</b>
2.00 and above	Extremely wet
1.50 to 1.99	Very wet
1.00 to 1.49	Moderately wet
-0.99 to 0.99	Near normal
-1.00 to -1.49	Moderately dry
-1.50 to -1.99	Severely dry
-2.00 and less	Extremely dry

A drought event is defined when the SPI is continuously negative and reaches a value of -1.0 or less, and continues until the SPI becomes positive. Drought duration is defined by the interval between the beginning and end of that period. The magnitude of the drought event is measured by the sum of the SPI values for the months of the drought.

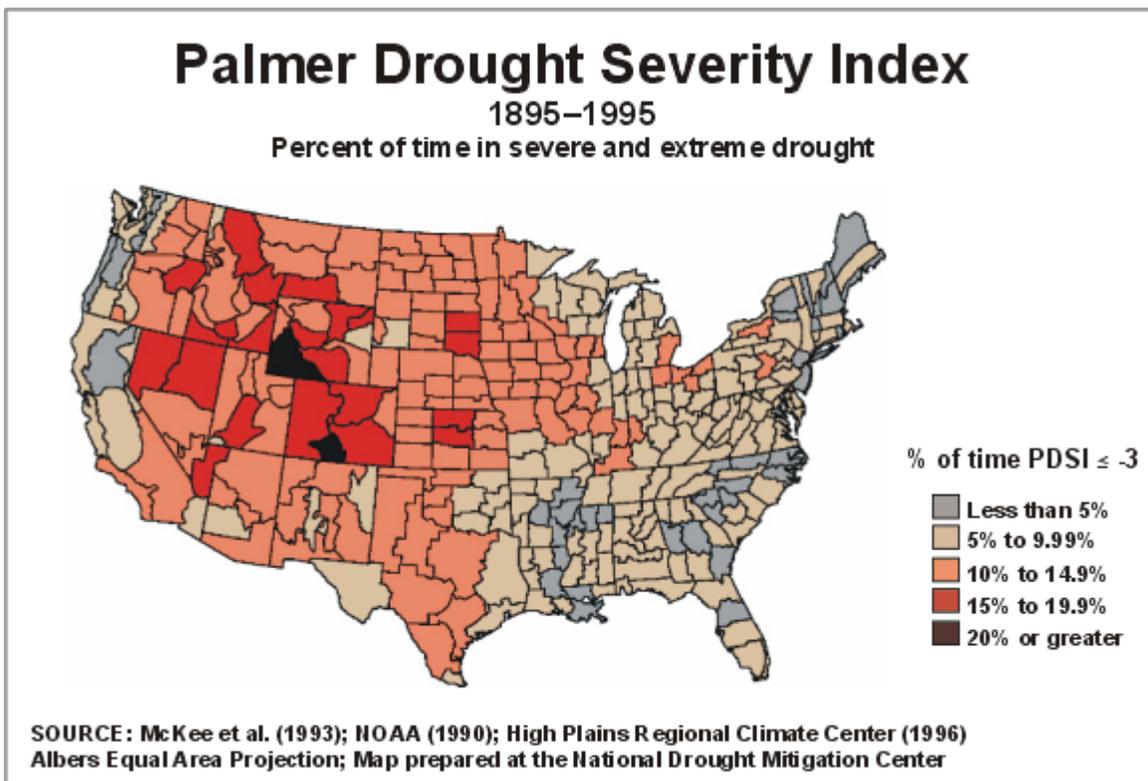
[http://www.ncdc.noaa.gov/paleo/drought/drght\\_spi.html](http://www.ncdc.noaa.gov/paleo/drought/drght_spi.html)

Another way to measure drought is the Palmer Drought Severity Index, (PDSI), is a meteorological drought index, and it responds to weather conditions that have been abnormally dry or abnormally wet. The PDSI is calculated based on precipitation and temperature data, as well as the local Available Water Content, (AWC), of the soil.

Palmer Classifications	
4.0 or more	extremely wet
3.0 to 3.99	very wet
2.0 to 2.99	moderately wet
1.0 to 1.99	slightly wet
0.5 to 0.99	incipient wet spell
0.49 to -0.49	near normal
-0.5 to -0.99	incipient dry spell
-1.0 to -1.99	mild drought
-2.0 to -2.99	moderate drought
-3.0 to -3.99	severe drought
-4.0 or less	extreme drought

### Historical Data

Scientists don't know how to predict drought except for the possibility of one a month or more in advance in most locations. Since climate is variable and can vary even across a single county and even a city, it is hard to predict or even have historical data on particular areas since the climate varies greatly. The major drought of the 20<sup>th</sup> century, in terms of duration and spatial extent, is considered to be the 1930's Dust Bowl drought.



## **Damage**

As a dry period progresses and surface water supplies dwindle, existing supplies are overtaxed and could either dry up or turn unusable. Groundwater levels in underground aquifers in an extended drought can lower due to excessive pump-out rates and an actual lowering of the aquifer due to a lack of recharge from surface rains. Wells tapped into the top of an aquifer can go dry due to the change in groundwater levels.

The primary losses of a drought in Adams County are loss of crops, loss of water for livestock and other animals, and loss of forage for livestock. Wells going dry have become less and less of a problem in Adams County as the rural water districts expand their distribution grid into previously un-served areas of the county. Wind erosion of the top soil can occur if the drought lasts long enough and winds are strong.

All rural water districts utilize the vast underground aquifers of the Illinois and Mississippi Rivers and as such remain relatively impervious to a dwindling water source. The same can be said for the city of Quincy that draws directly from the Mississippi River. Periods of drought in many cases do cause higher pumping rates or pumping over longer times each day, resulting in higher utility costs and lower levels in water towers that may affect available water main pressures.

## **Frequency**

The frequency of droughts cannot be determined. Precipitation in any given area can be very sporadic and it can rain on one side of a county and not on the other, making disasters such as drought very hard to predict.

The serious debate on global warming and its possible hotter and dryer climate trend predictions could mean many more exceedances of the 100 year historical statistic of a 10% to a 15% chance of a severe drought in any given year for Adams County.

## **Economic Impacts**

Economic impacts from drought hit the agricultural sector the hardest. It does have a trickle down effect though and could raise the direct cost of food and indirectly affect other food items relying on those crops as an ingredient. The loss of forage can cause a substantial increase in the cost of raising livestock. As most droughts remain somewhat limited in the size of the affected area the prices received for crops harvested in the drought area are not necessarily high enough to offset the reduced yields and higher livestock feeding costs. As agricultural products are now more available on a global basis, the resulting price stability even in times of severe drought hits the local sector harder.

In urban areas lawn maintenance people, mower repair shops and landscape businesses are directly impacted by a drought.

For livestock producers, stagnating ponds can also mean watering cost increases, possibly including hauling water. Drought does stress local wildlife and greatly impacts the flora and fauna of our wetlands.

### **Health and Safety Concerns**

As rural water districts have expanded their grid into Adams County, any adverse impacts to health due to a drought have for the most part been eliminated. With excellent sources of groundwater, it has been many years since a mandatory restrict usage request has been made anywhere in Adams County outside of a water tower maintenance procedure or water main break.

## TRANSPORTATION ACCIDENTS

## **6. Transportation Accidents**

### **Description**

This disaster deals with all types of accidents related to aircraft or the derailment of a passenger car train and/or tank cars. It is closely related to Hazard #8 - Hazardous Material Spill/Release/Hazardous Chemical if the railroad cars are carrying hazardous materials, but in this case the railroad cars could be empty, carry standard cargo or non-hazardous materials and standard consumer items, coal, grain or other manufactured products.

All of the railroad accidents occur either along the east-west main line Burlington Northern/Santa Fe railroad line or along the spur that runs off of it along the Quincy Riverfront to the south to serve various industries.

The Quincy Regional Airport does receive one plane landing per day carrying items for a next day delivery service. Due to air security restrictions, no hazardous materials are shipped by air.

Any major aircraft accident could be countywide and will therefore involve either single engine aircraft or larger passenger planes, with a very small chance of a military aircraft going down during practice exercises. The Quincy Regional Airport has sufficient runway lengths to handle the largest of aircraft, including large commercial passenger jets in route to other destinations and needing an emergency landing site.

### **Historical Data**

Airline accidents happen on a completely random basis. Historically, three single engine planes have gone down in Adams County over the past twenty years. All have been in close proximity to the airport and involved either inclement weather or plane equipment problems. In November of 1996, a 10 passenger jet with two crew members collided during landing with a large cargo plane with two crew members trying to take off.

There is approximately one emergency landing incident at the airport each year that usually involves single engine planes having landing gear problems, resulting from landing gear failure to drop back down and requiring a belly landing in the grass adjacent to the runway.

Large scale train derailments have been rare for Adams County as the Burlington Northern/Santa Fe Railroad main line is a very heavily traveled railroad between Chicago and points west that utilizes the railroad bridge over the Mississippi River at Quincy. It is well maintained due to its economic value as a main shipping line.

## **Damage**

Unless the accident occurs within the urban limits of the City of Quincy that could involve residences or businesses, property damage would likely be minimal since the rest of the county outside of small, isolated villages is rural in nature.

## **Frequency**

Very low

## **Economic Impacts**

The loss of the aircraft or the cost of repairing the derailment and any damaged railroad cars would be the largest impact. An aircraft crash site within the urban limits could also involve significant damage to residences.

## **Health and Safety Concerns**

The loss of life in a passenger plane crash would understandably be a major disaster. Any resulting fire during an aircraft crash could endanger rescue personnel responding to the site. The toxic fumes resulting from the fire are also injurious to the health of emergency responders and any survivors, as well as burns.

## FIRE/EXPLOSIONS

## **7. Fire/Explosions**

### **Description**

This disaster could include any large grass fires or forest fire, as well as major urban fires.

A major concern within Adams County is the large number of historic buildings located within Quincy, as well as in some of the smaller communities within the county limits. This disaster could include any urban fire in the Uptown Quincy Historic District where small historic buildings are set directly adjacent to each other without fire breaks. Connections between the buildings allow fire to jump from one building to another, resulting in a major conflagration.

This disaster could include a fire at an industrial site that stores flammable solvents and other flammable chemicals.

This disaster could involve a fire in a gasoline service station pump area, a fueling depot or a propane fuel storage facility.

This disaster could involve a leak in a structure at a gas or propane line that accumulates in an enclosed area until it reaches an ignition source such as a hot water heater, causing a violent explosion.

Another definite fire or explosion hazard would involve gasoline or propane tanker trucks (See Disaster #8 – Hazardous Material Spill/Release/Hazardous Chemical).

This disaster could involve a warehouse fire that stores standard materials that are non-hazardous but combustible. Buildings storing cardboard boxes, paper, clothing, mattresses, furniture and other large concentrations of combustibles can be especially dangerous, and more so if accompanied with high winds.

Dust explosions in grain bins are another type of this disaster.

### **Historical Data**

A fire or explosion can occur at any given time and no warning is given when they happen. Major fires have happened many times in Adams County, with the additional aggravating component of arson. Grass fires have remained small and there is no recent history of any forest fires, with the one major standing timber range being Siloam Springs State Park.

## **Damage**

Major urban fires are very costly and dangerous. Grass fires can intercept a barn or residence, greatly increasing the damage they can impose. Grass fires and forest fires would otherwise cause little damage in Adams County but would result in drastic, albeit temporary, loss of wildlife habitat. Controlled fires can easily become uncontrolled during adverse wind conditions. Embers from large urban fires can travel by wind to the roofs of other structures blocks away, setting off secondary fires.

## **Frequency**

Major fires occur often. Explosions, grass and forest fires are rare.

## **Economic Impacts**

Urban fires can be extremely costly. Explosions by their nature are violent and destructive.

## **Health and Safety Concerns**

The safety of firefighters and other emergency responders is by far the major component of any major urban fire. The health of residents and employees in the structure on fire can be greatly impaired by smoke inhalation. Grain bin explosions can be deadly to the grain company employees.

HAZARDOUS MATERIAL SPILL/RELEASE/  
HAZARDOUS CHEMICAL

## **8. Hazardous Material Spill/Release/Hazardous Chemical**

### **Description**

This disaster deals with all accidents related to the derailment of a railroad car and/or tank car carrying either hazardous waste or hazardous raw materials. Also included are semi tractor trailer trucks, tanker trucks, fuel delivery trucks, propane trucks and tanks, cargo vans and delivery vans carrying the same material.

This disaster could also involve an emergency (such as fire) at a chemical storage area, warehouse or industrial site. It could involve a large tank rupture holding hazardous liquids or fuels. It could involve the breakage or failure of process lines at an industrial site where subsequently the raw chemicals are released into the environment.

This disaster could also involve a release of toxic gases from the rupture of welding torch acetylene fuel canisters or propane tanks used in outdoor stoves and grills. It could involve fires at service stations or a leak on a propane fuel delivery truck that could ignite, resulting in a BLEVE.

It could involve the release of toxic anhydrous ammonia fumes from small tanks discovered in illegal meth lab setups. It could result either from farm tank valve failures or from large holding tanks at FS plants where product theft by illicit drug manufacturers is always a possibility.

It could involve an emergency response (usually fire) at many rural out-building structures where pesticides, insecticides and fertilizers are commonly stored. It could also involve a fire in commercial establishments that sell these types of materials.

It could involve the release of liquid chemicals through broken valves or hoses on delivery trucks in Quincy that would run into the storm and/or sanitary sewers. Accidents involving tanker trucks and passenger cars could crack the tanks of these trucks, resulting in a spill.

It could involve the spill of multiple chemicals from many cars in a train derailment that are incompatible and react violently when combined.

It could involve the accidental spill of radioactive isotopes during shipment to medical facilities. It could be something as simple as a fire in a high school chemistry lab.

It could involve old landfill sites, illegal dumps, tire stockpiles or junk piles that catch on fire. The generation of methane gas in Quincy's sanitary sewer system can build up to either explosive or asphyxiating levels.

Most aircraft that use the Quincy Airport carry passengers and not toxic materials. It is the resulting fire in an aircraft accident from the fuel it carries which burns the synthetic material used in the planes construction and that creates the toxic gases that can be so deadly to passengers and rescue personnel.

The city of Quincy, Illinois Fire Department maintains a Hazardous Materials Release Response Team. The department has received special training in response to chemical spills, releases, cleanups and fires. The team is equipped with materials to absorb spilled chemicals and respond to fires and other types of haz-mat incidents.

This team will travel without charge anywhere in Adams County to respond to a spill or other incident if requested. The Quincy team is one of 32 units throughout the State of Illinois that are available to provide a regional response to large incidents or terrorist acts.

### **Historical Data**

Data on past incidents give no real clue or statistical basis for predicting future events. Accidents can be minimized through good housekeeping, proper inspection and use of safety devices, yet spills and releases are still random in nature. With a large industrial base in the Quincy urban area numerous locations exist where hazardous chemicals are used on a daily basis. Numerous trucks pass through the county carrying shipments of raw materials and chemicals. A large number of fuel trucks travel every county road servicing farms, residences and rural businesses. Quincy is home to several service stations, garages and repair shops.

Spills to date have been fairly small to date and relatively easy to contain.

In the early 1980's a larger gasoline fuel tanker truck lost a valve and spilled its load on a city street. The fuel went into the city sewer system and eventually ended up at the sewage treatment plant. An explosion never occurred as the fire department opened hydrants in the area and flushed the diluted material downstream. The material did affect the digesters at the sewage treatment plant.

As part of the regional team concept the Quincy haz-mat team responded when requested by the State to a tanker truck crash on the north bridge of the Central Illinois Expressway Twin Bridges over the Illinois River. That truck caught on fire and it took a day to contain and another day to get the bridge open back to traffic. Although not in Adams County, it was typical of a semi-tanker truck spill that could occur in the county.

Numerous smaller spills and releases have occurred in the county that required eventual cleanup by the industries involved but did not require an emergency response. The discovery of illicit meth labs has resulted in the largest number of emergency responses.

## **Damage**

By nature these types of disasters could be some of the most dangerous to respond to. Large quantities of material can be involved. Gases can be lethal, hugging the ground during certain weather events and could cause widespread evacuations of adjoining residents to prevent a catastrophic death toll. With proper training damage can be controlled and minimized, with the saying "I'll clean it up later" being sometimes the best course of action after evacuate and isolate.

## **Frequency**

As mentioned earlier, spills and releases are usually random but are minimized with good housekeeping, parts replacement on a timely basis, vehicle inspections, emergency evacuation plans, readily available proper fire suppression equipment, placarding, shipping and warning labels, the use of sturdy containers, and employee training in proper safety and handling procedures.

## **Economic Impacts**

Once released to the environment, contaminated soil and/or ground or surface water are all very expensive to remediate and cleanup to acceptable health standards. When a spill occurs and the generator of the material can not be determined, local and state government must step in to protect the public health and safety, including a possible financial contribution to the cleanup cost.

## **Health and Safety Concerns**

An accidental spill of certain toxic gases can be lethal to adjoining residences and livestock. Spills and releases of other toxic chemicals can be accompanied by fire, creating toxic fumes. Spills of strong acids and bases can burn through clothing and even protective gear. Dermal exposure to many chemicals can cause both acute and chronic effects on the human body, including burns, blindness, unconsciousness and genetic damage. Exposure to carcinogenic chemicals increases long-term risk. This risk is not entirely known or accurate and is chemical specific but there is still a definite risk. The exposure to emergency responders and the general public at any chemical spill or release would remain the greatest health concern of this hazard.

## BLACK OUTS/POWER OUTAGES

## **9. Black Outs/Power Outages**

### **Description**

In terms of electric power, the city of Quincy for the most part and a rural portion of Adams County is serviced by AmerenCIPS company with Adams Electric Co-op serving a portion of the eastern edge of the city and the remaining portion of rural Adams County.

This disaster deals with the longer term loss of electric power supplied by the local utility company. It does not deal with the short term loss of electricity during severe storms or ice accumulation on lines causing isolated areas of power outages. It is rather the major loss of power over an extended time as feeder lines from the power plant fail or are damaged, or during an electric transmission grid overload/shutdown as happened in August of 2003 in the northeastern portions of the United States and the southeastern parts of Canada.

This disaster could also cover very high levels of power usage during a severe heat wave that causes a utility company to resort to a series of rolling blackouts in which certain areas would be purposely shut off from power during peak usage times for four to five hours or more.

The failure of larger main electric feeder lines can result in large area power outages.

### **Historical Data**

The city of Quincy and Adams County are within an interdependent power grid spanning the United States and Canada. In 1995 a heat wave in Chicago with subsequent power failures led to 739 deaths over a 5 day period. In Adams County there have been no extended power outages during heat waves due to peak usage. A contingency plan for rolling blackouts was made, adopted and publicized but was never actually implemented that summer.

### **Damage**

The contents of home and grocery store deep freezers/coolers start to thaw. Medicines requiring refrigeration are compromised or lost. Other damage is minimal.

## **Frequency**

Extended outages are very rare.

## **Economic Impacts**

The main economic effect from loss of electric power is the loss of productivity and the loss of economic activity. Computers and scanners/cash registers are down, resulting in lost retail trade. Industrial output ceases at those factories not having emergency generators, resulting in large economic impacts.

## **Health and Safety Concerns**

At the start of any power outage the loss of traffic signal control devices present an immediate threat to the traveling public at signalized intersections which are usually located on major intersecting streets. The sudden loss of red, yellow and green indicators by law means the intersection defaults to a four way stop, but past history shows multiple accidents can occur.

The largest impact of a power outage is its impact on loss of air conditioning used by vulnerable citizens such as the elderly, the handicapped and the very young.

## DAM FAILURE (NOT A LEVEE)

## **10. Dam Failure (Not a Levee)**

### **Description**

According to the computerized data base of the Illinois Department of Natural Resources, Office of Water Resources, there are 25 permitted dams in Adams County. Most are located on creeks and drainage ways and hold back water for recreational purposes such as swimming and fishing. Most of these dams shown on the attached map do not have any residences directly below them. These dams are large enough to require a permit from the State of Illinois since their failure could cause immediate and catastrophic consequences to homes, people living directly downstream, hikers, livestock and wildlife.

All but two of the 25 dams are owned and maintained by private entities. Two dams are governmentally owned. The Federal Government owns the Mississippi River Lock and Dam 21 at Quincy. The State of Illinois owns the Siloam Springs Lake Dam at Siloam Springs State Park.

The State of Illinois maintains a permit system for these dams that require engineering controls, spillway design requirements, overflow pipes and other design criteria. Written inspection reports by a registered professional engineer on a regular basis are also required.

### **Historical Data**

There has been no major history of dam failure in Adams County. The possibility of a dam failure is very rare if properly maintained and inspected.

### **Damage**

In the event of a dam failure a wall of water equal to the dam height could travel along the downstream ravine or stream, wiping out everything in its path. The State of Illinois deemed these failures significant enough to regulate under Title 17, Chapter I, III. Administrative Code 3702 after enabling legislation.

The permit system has classified dams into three categories:

- Class III – Low probability of death or injury if failure occurs
- Class II – Moderate probability of death or injury if failure occurs
- Class I – High probability of death or injury if failure occurs

Adams County currently has two dams classified as Class 1 – high hazard. Those dams are the Doyle Lake Dam located on Section 26, Township 1 South, Range 8 West and the East Lake Center Dam located in Section 5, Township 2 South, and Range 8 West.

Adams County currently has two dams classified as moderate hazard. Those dams are the Clayton Reservoir Dam located in Section 2, Township 1 South, Range 5 West and the Hadley Creek #2 Lake Dam located in Section 31, Township 3 South, and Range 5 West.

Four dams were missing various data fields and one dam was missing its location data. That dam is not marked on the attached map.

### **Frequency**

Very rare

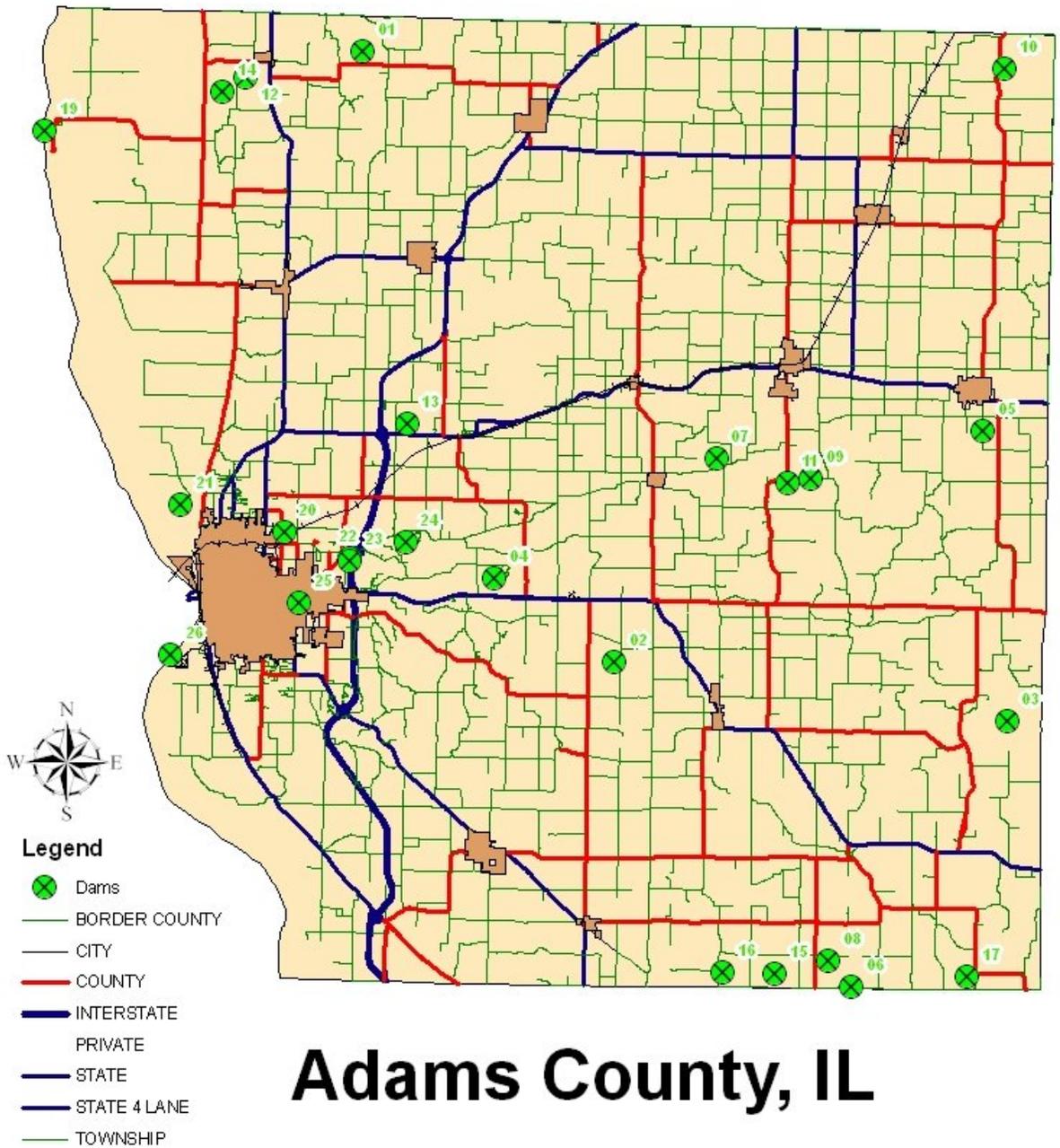
### **Economic Impacts**

Large dam failures can result in the complete loss of structures and infrastructure downstream from the failure.

### **Health and Safety Concerns**

Large losses of life in the past have occurred in other states at other dam failures. These losses were the impetus for the legislation passed in Illinois.

ID Number/ Classification	Dam Name	Section/ Twp/Range	Stream
IL00125 / III	Camp Saukenauk Lake Dam	9/2N/8W	Lick Creek, Bear Creek
IL00474 / III	Sims Pond Dam	11/2S/7W	Trib Tournear Creek
IL00475 / III	Siloam Springs Lake Dam	23/2S/5W	Trib McKee Creek
IL00476 / III	Lakeshore Hills Lake Dam	32/1S/7W	Trib South Fork Mill Creek
IL00477 / II	Clayton Reservoir Dam	2/1S/5W	Trib Walnut Fork, McKee Cr
IL00478 / II	Hadley Creek 2 Lake Dam	31/3S/5W	North Fork Hadley Creek\
IL00481 / III	Columbus Dry Gulch Club Lake Dam	8/1S/6W	Trib McKee Creek
IL00485 / III	Mayer Pond Dam	36/3S/8W	Trib Possum Hollow
IL01140 / III	Harrell Lake North Dam	11/1S/6W	Trib Figley Branch, McKee Cr
IL01159 / III	Eilers Lake Dam	11/2N/5W	Cedar Creek
IL01173 / III	Harrell Lake/South	14/1S/6W	Trib Figley Branch, McKee Cr
IL01188 / III	Scheuermann Lake Dam	13/2N/9W	Trib Whiteoak Creek, bear Cr
IL01189 / III	Jug Lake Dam	2/1S/8W	Trib Sand Branch Rock Creek
IL01190 / III	Sill Lake Dam	14/2N/9W	Trib Bluff Canal, Bear Creek
IL01204 / III	De Wees Lake Dam	34/3S/6W	Trib Beebe Creek
IL40001	Hadley Creek Str 1-7	33/3S/6W	
IL40002	Hadley Creek Structure 9-1 Dam	34/3S/5W	
IL40003	Cramsey Pond Dam		
IL50076 / III	Lock and Dam 20	24/2N/10W	Mississippi River
IL50168 / III	Moorman Park Dam	29/1S/8W	Trib Cedar Creek
IL50412 / III	Triangle Lake Dam	22,27/1S/9W	Frazier Creek
IL50418 / III	Fieldstone Subdivision Twin Dams-N	28/1S/8W	Trib Little Miller Creek
IL50419 / III	Fieldstone Subdivision Twin Dams-S	28/1S/8W	Trib Little Miller Creek
IL50450 / I	Doyle Lake Dam	26/1S/8W	Trib Little Miller Creek
IL50486 / I	East Lake Centre Dam	5/2S/8W	Trib Emery Creek
	Lock and Dam 21	15/2S/9W	Mississippi River



# Adams County, IL

## STRUCTURE/BUILDING COLLAPSE

## **11. Structure/Building Collapse**

### **Description**

In general this disaster would apply to the urban limits of Quincy where the vast majority of multi-story buildings are located. A few structures in the towns and villages of Adams County would also qualify under this scenario.

This disaster would be for those deteriorated buildings that collapse without warning. The collapse of any building under the effects of being on fire is covered under hazard #7. A building scheduled for demolition due to imminent collapse after a fire where access is controlled and restricted is not classified as a disaster.

The city of Quincy has a large inventory of historic structures in the area bounded by Locust Street, 30<sup>th</sup> Street, Harrison Street and the Mississippi River. A large inventory of brick masonry commercial buildings exists in Uptown Quincy. Areas of the city have experienced a decline in housing maintenance and structure abandonment, with the attendant drug dealing, crime and other urban ills resulting from these deteriorated/boarded up units.

For dilapidated and unoccupied buildings, structure collapse could occur as water and rot damage to the roof weakens the connection between the ceiling and/or floor joists and the wall, causing the roof or an upper floor to collapse. It is that collapse with an upper layer falling down on a lower level, causing it also to fail in a “pancake” effect that usually all end up at street level. The walls, left without support, then collapse in on themselves.

### **Historical Data**

In 1999 in Uptown Quincy on 5<sup>th</sup> Street between Hampshire Street and Vermont Street three separate very old buildings collapsed onto themselves and out into 5<sup>th</sup> street in a chain reaction collapse, with the first building pulling down the adjacent structures.

In the early 1980s a similar historic structure located at Front and Hampshire collapsed on itself and into a city alley.

There have been residential building collapses in the past, with a mix of structure types such as all wood, brick, stucco and combinations thereof. The problem has become much less pronounced in recent years as the City of Quincy’s Fix or Flatten Program continues to remove or repair these residential structures.

## **Damage**

Building collapses generally are very limited in size to the peripheral damage they cause, with most damage being the loss of the building itself.

## **Frequency**

Very rare. Partial collapses are much more frequent.

## **Economic Impacts**

The vast majority of these structures are already deteriorated so dollar loss is minimal, but there have been historic structures being used, usually as warehouse space, that have suffered collapse/partial collapse.

## **Health and Safety Concerns**

Since most severely dilapidated buildings are not occupied, the loss of life in a building collapse is reduced. These structures are used or visited, however, by the homeless, drug addicts and dealers, and neighborhood children. The safety of emergency personnel responding to the collapse is also a major concern, especially since it is usually not known if someone was in the building when it came down.

## UPDATE ON FLOODING COMPONENT

## **Update on Flooding Component (1998)**

The Mitigation Plan (1998) specifically addressed the impacts of flooding in Adams County and included such mitigation measures as buyouts and elevating structures. This document is included with this plan and is located under tab 5.

A mitigation measure that has evolved since that time came out of the United States Environmental Protection Agency that initially dealt with water quality issues. Any development that disturbed more than 5 acres of land was required to obtain a National Pollution Discharge Elimination Permit for the work that mandated best practices for controlling stormwater runoff from the site. The goal of the system was to limit the sedimentation load on our streams and rivers, with the additional benefit of reducing the siltation that lowers stream capacity, thereby increasing flooding. This limit has lately been decreased to a one acre disturbance limit before a permit is needed.

The city of Quincy has included erosion control measures in their draft version of the proposed municipal stormwater ordinance that would govern all stormwater discharges from development sites, including retention, detention and reuse, thus having a major impact on flooding.

## LIST OF CRITICAL FACILITIES IN ADAMS COUNTY

## **List of Critical Facilities in Adams County**

The Hazard Mitigation Plan Adams County, IL did not include a list of critical facilities in Adams County, Illinois. These are facilities that either provide emergency response personnel and equipment or direct others during an emergency. They are also governmental facilities that provide support for front line responders, public utilities and health facilities. The list also includes all schools and medical facilities due to the vulnerability of the occupants and the possible use of these facilities as temporary shelters or health dispensing stations during major disasters and catastrophes.

Schools

Blessing Hospital

Water Service Facilities

Quincy Sewage Treatment Plant

Water Towers

Emergency Operation Center / 911 Center

Fire Stations – Quincy, Tri-Township and Rural

County Buildings – Highway Department – Courthouse – Health Department

Quincy City Hall – Police Department

Ambulance Stations

Nursing Homes

## Vulnerability

Adams County has within its borders 36,760 properties or parcels. Many of these properties do not have structures and are used for a variety of other purposes such as agriculture. Approximately 21,185 properties have structures that would be vulnerable to many hazards. Outside of flooding most structures are subject to exposure to all other hazards. These structures are classified and utilized for three purposes residential, commercial, or industrial and are identified on the chart in the next section.

Currently, across Adams County and the City of Quincy, 80 locations have been identified as critical facilities. All of these facilities are subject to the same hazards as the general public; however, 5 of the structures have been identified to be subject to flooding. Each of these facilities is protected by levees that are certified to the 100 year flood level.

The future construction of critical facilities is to consider hazards presented in this plan in selecting their location and construction. While facilities can not be constructed where they are unaffected by disaster steps can be taken to ensure the most appropriate location.

## Potential Dollar Loss

Estimating an accurate potential dollar loss for a wide variety of hazards is extremely difficult due to varying factors such as magnitude of the event, location of the event, time the event occurs and the duration. While estimating potential losses it should be noted that these are averages based upon plausible scenarios, not necessarily the worst case. The following table identifies the types and numbers of structures that exist in Adams County as a whole and there assessed valuation.

Property Use	Number of Properties	Average Assessed Value	Total Assessed Value	Minimum Assessed Value	Maximum Assessed Value
Agriculture with structures	3330	\$21,458.83	\$71,457,920.00	\$100.00	\$280,020.00
Rural not improved / Not farmland	13	\$1,614.62	\$20,990.00	\$20.00	\$4,400.00
Agriculture without structures	5946	\$3,603.27	\$21,425,030.00	\$10.00	\$63,230.00
Vacant residential	2027	\$2,931.51	\$5,942,180.00	\$10.00	\$80,000.00
Vacant lot developer	395	\$636.18	\$251,290.00	\$150.00	\$9,200.00
Residential	21627	\$29,912.70	\$646,921,970.00	\$0.00	\$305,720.00
Demonstration Model Homes	7	\$6,510.00	\$45,570.00	\$380.00	\$41,740.00
Commercial	2400	\$76,642.42	\$183,941,800.00	\$30.00	\$5,663,440.00
Industrial	158	\$281,215.19	\$44,432,000.00	\$780.00	\$3,650,000.00
Tax Exempt	854	\$0.00	\$0.00	\$0.00	\$0.00
Railroad	3	\$20,026.67	\$60,080.00	\$1,070.00	\$51,480.00
<b>Total</b>	<b>36760</b>		<b>\$974,498,830.00</b>		

These numbers only reflect the assessed valuation and not retail or replacement value. The following chart reflects retail value to better estimate the actual potential losses.

Property Use	Number of Properties	Average Actual	Total Actual Value	Minimum Actual Value	Maximum Actual Value
Agriculture with structures	3330	\$64,376.50	\$214,373,760.00	\$300.00	\$840,060.00
Rural not improved / Not farmland	13	\$4,843.85	\$62,970.00	\$60.00	\$13,200.00
Agriculture without structures	5946	\$10,809.80	\$64,275,090.00	\$30.00	\$189,690.00
Vacant residential	2027	\$8,794.54	\$17,826,540.00	\$30.00	\$240,000.00
Vacant lot developer	395	\$1,908.53	\$753,870.00	\$450.00	\$27,600.00
Residential	21627	\$89,738.10	\$1,940,765,910.00	\$0.00	\$917,160.00
Demonstration Model Homes	7	\$19,530.00	\$136,710.00	\$1,140.00	\$125,220.00
Commercial	2400	\$229,927.25	\$551,825,400.00	\$90.00	\$16,990,320.00
Industrial	158	\$843,645.57	\$133,296,000.00	\$2,340.00	\$10,950,000.00
Tax Exempt	854	\$0.00	\$0.00	\$0.00	\$0.00
Railroad	3	\$60,080.00	\$180,240.00	\$3,210.00	\$154,440.00
<b>Total</b>	<b>36760</b>		<b>\$2,923,496,490.00</b>		

The most common type of hazard that might affect an area is a tornado. Utilizing existing property information with past tornadoes might give an estimation of the amount of damage seen in an average event. On May 10<sup>th</sup> 2003 two separate tornados caused damage in two different locations within Adams County. These two tornados damage the village of Lima and a rural area near Liberty. The Lima and Liberty tornados affected 159 and 32 structures. To estimate the losses on an average in Lima 25% of the structures were destroyed and 50% sustained major damage, this resulted in approximately 5 million dollars in damages. If this same event occurred in the City of Quincy, the damages may have exceeded 50 million.

In comparison many hazards do not created the property loss; however, do have a dollar loss from time inaccessible or out of operation. These figures are not accounted for nor could accurately reflect future trends.

# MITIGATION STRATGEY

## **MITIGATION LONG TERM GOALS**

- Provide better early warning methods for severe weather events
- Reduce the destruction and loss of life within buildings
- Provide for safer environments for transportation systems
- Eliminate flooding in populated and traveled areas
- Ensure redundant water supply systems
- Reduce effects of the natural environment on the infrastructure
- Establish guidelines to reduce risk to special populations
- Ensure redundant power systems on critical facilities
- Ensure adequate materials available for road maintenance

## **PREVENTATIVE MEASURES / ACTION PLAN**

Below is a list of stated mitigation actions. Each action is a component of the six categories of mitigation: prevention, property protection, natural resource protection, emergency services, structural projects and public awareness/education.

### **Cost Benefit Description**

The cost benefit ranking was arrived at by utilizing the guidance in State and Local Mitigation Planning #5 “Using Benefit –Cost Review in Mitigation Planning”. While some input into the review process is subjective based upon experience or professional estimates, the process provided a level baseline to allow prioritization. The review process included affects of the following before and after the mitigation action:

- Number of people affected by the hazard
- Area affected by the hazard (acreage)
- Number of properties affected
- Estimated dollar amount in loss
- Potential loss of life
- Injuries potentially sustained

After reviewing all of the above information for each mitigation action, each were classified into three categories, High, Medium, and Low. The ranking is a subjective sum of the comparison. For example, high indicates a “high” benefit even though costs may be substantial. Low leans more to a low impact even though the costs may be low. This will allow for the most beneficial mitigation actions to be implemented.

### **Priority Description**

Each action was prioritized based upon guidance from the state and Local Mitigation Planning #5 “Using Benefit –Cost Review in Mitigation Planning”. A qualitative method was used. This took into consideration the cost benefit review and the vulnerabilities the hazard creates. For example if the mitigation action was applicable to more than one hazard or without implementation greatly increased our vulnerability the action was given a high priority. Each action was given a high, medium, or low ranking.

**Actions**

Outdoor Warning Siren System			
Priority	Cost Benefit	Applicable Disasters	Applicable Jurisdictions
Medium	Medium	Tornado	City of Quincy
<p>Dependent upon grant and local funding, add additional sirens to the City of Quincy network. The city has grown since the 8 sirens were installed. Areas of poor coverage remain, especially along the river below the bluffs and the eastern portion of the city. This will be the responsibility of the Quincy Fire Department. Implementation timeframe will be ongoing as dictated by future annexation. Additional sirens, with installation, are estimated to cost \$ 20,000 per location.</p>			

Outdoor Warning Siren System			
Priority	Cost Benefit	Applicable Disasters	Applicable Jurisdictions
Medium	Medium	Tornado	Adams County Local Villages
<p>Dependent on grant and local funding, install a siren/sirens to villages/towns with a population over 200 – Coatsburg, Loraine, Golden, Clayton, Camp Point, Payson and Plainville. The siren system is to provide people that are outdoors warning to seek shelter that storms are causing damage. The Adams County Emergency Management Agency will work with villages to maintain a common operating framework and research funding opportunities. Estimated cost for each location is \$20,000. This project will be implemented as funding allows; however, may take greater than 5 years to fully construct.</p> <p>Mendon, Ursa, and Liberty have one siren each in those communities.</p>			

Safe Room Construction			
Priority	Cost Benefit	Applicable Disasters	Applicable Jurisdictions
High	High	Tornado, Severe Storms Earthquake, Hazardous Material	Adams County
<p>Maintain and disseminate information through informational sessions, fairs, and public campaigns to architects, contractors, and the general public on building “safe rooms” in newly constructed houses, especially those on a crawl or slab. This will be a responsibility of the Adams County Emergency Management Agency. Costs would include development or reproduction of related materials and meeting costs. Estimates would range dependant upon the amount of materials or meeting space required. This should be an ongoing task rather than a definite timeline.</p>			

Windstorm Construction Techniques			
Priority	Cost Benefit	Applicable Disasters	Applicable Jurisdictions
Medium	High	Tornado Severe Storms	Adams County
<p>Maintain and disseminate information to architects, contractors, and the general public on roof straps and other simple structural improvements such as anchoring walls to foundations, all as a mitigation measure for tornadoes and other violent windstorms. This can be accomplished through conducting awareness campaigns, displays at home shows, and informational meetings. This will be a responsibility of the Adams County Emergency Management Agency. Costs would include development or reproduction of related materials and meeting costs. Estimates would range dependant upon the amount of materials or meeting space required. This should be an ongoing task rather than a definite timeline.</p>			

Insulated Concrete Forms			
Priority	Cost Benefit	Applicable Disasters	Applicable Jurisdictions
High	High	Tornado Severe Storms Earthquake	Adams County
<p>Encourage contractors and general public to build using insulated concrete forms. This can be accomplished through conducting awareness campaigns, displays at home shows, and informational meetings. This will be a responsibility of the Adams County Emergency Management Agency. Costs would include development or reproduction of related materials and meeting costs. Estimates would range dependant upon the amount of materials or meeting space required. This should be an ongoing task rather than a definite timeline.</p>			

Insulated Concrete Forms			
Priority	Cost Benefit	Applicable Disasters	Applicable Jurisdictions
High	High	Tornado Severe Storms Earthquake	Adams County City of Quincy
<p>Dependant on funding and when appropriate, construction of new public safety facilities should be constructed from Insulated Concrete Forms, which currently provide the most protection from windstorms and debris created from such. The responsibility of ensuring this would rest with the County Engineer and the Emergency Manager. Costs will vary greatly dependant upon the requirements of the facility and current construction supply costs. However, it could be noted that facility construction would range from \$ 300,000 to \$ 5,000,000. New construction of facilities will be dictated by growth or deterioration of existing buildings. The county is currently exploring construction of a new health department and insulated concrete forms are being considered. Other facilities may not be replaced for 10 years or more.</p>			

Salt Dome			
Priority	Cost Benefit	Applicable Disasters	Applicable Jurisdictions
Low	Low	Severe Ice Storms Heavy Snow	Adams County
<p>If funding becomes available, the Adams County Highway Department could purchase and install a salt dome for storing larger quantities of road salt for use in fighting severe winter snow and ice storms. This will be the responsibility of the County Engineer and will be implemented as land space allows. Costs would be estimated at several hundred thousand dollars.</p>			

Air Traffic Control Tower			
Priority	Cost Benefit	Applicable Disasters	Applicable Jurisdictions
Low	Low	Transportation Accidents	City of Quincy
<p>If funding becomes available, the City of Quincy could install a traffic control tower at the Quincy Regional Airport to handle takeoffs and landings and any emergency situations. This will be implemented as required by the need identified by the Quincy Regional Airport and the Federal Aviation Administration. Major costs would include the ongoing personnel requirement.</p>			

Redundant Power			
Priority	Cost Benefit	Applicable Disasters	Applicable Jurisdictions
Medium	Low	Blackouts Power Outages	City of Quincy
The City of Quincy Water Department, dependent upon funding, should strongly investigate the acquisition of large 1260 and 1560 KVHW auxiliary power standby generators that would, in the event of a major power outage, provide electrical power to the 480 volt pumps and the 4160 volt high- service pumps that are the keys pumps of the Quincy Water Treatment Facility at Front and Hampshire.			

Redundant Power			
Priority	Cost Benefit	Applicable Disasters	Applicable Jurisdictions
Medium	Medium	Blackouts Power Outages	City of Quincy
Critical facilities, dependant on funding, should install standby generators that would, in the event of a power outage, provide electric to, at minimum, essential support functions of the facility			

Redundant Water Supply			
Priority	Cost Benefit	Applicable Disasters	Applicable Jurisdictions
Low	Low	Drought	City of Quincy Local Villages
Dependants on funding, provide redundant backup sources for water systems. This is not intended for individual wells.			

Floodplain			
Priority	Cost Benefit	Applicable Disasters	Applicable Jurisdictions
Medium	Low	Floods	Adams County
Dependent upon federal funding, the Adams County 100-year flood maps are becoming seriously out of date after the large spurt of growth experienced in the Quincy urban limits over the past 20 years. These maps need updating to reflect the significant land use changes that have occurred.			

## MITIGATION MEASURES RECENTLY ACHIEVED

Mitigating against hazards in life is an ongoing process and is a continually evolving process, not one in which a fixed portrait can easily be made. Numerous steps in this process have been made since the first mitigation plan was adopted by Adams County in 1998. Listed below is a description of just some of the mitigation measures undertaken in Adams County since that time, with many (but not all) measures a direct result of the September 11<sup>th</sup> World Trade Center Attack.

A. The Adams County Board has decided to hire a full time Emergency Services and Disaster Director.

B. The City of Quincy Fire Department upgraded their Hazardous Material Response efforts by instituting a team approach that including enhanced personnel training and additional equipment for spill containment and cleanup.

C. An Adams County Haz-Mat Team patterned after the Quincy model has been formed to serve the rural areas of the county.

D. New fire trucks and firefighter protective gear and equipment has been purchased for many rural fire districts as a direct consequence of September 11<sup>th</sup> and the subsequent need to upgrade emergency response services in rural areas.

E. The rural water districts have installed many additional miles of water lines to serve the rural residents of Adams County.

F. The City of Quincy has adopted the International Building Code with its 2000 Fire Code that strengthens code requirements and stresses fire suppression site pre-planning and commercial/industrial building sprinkling systems.

G. The Quincy Fire Department is now included with the planning, engineering and utility departments on site plan review for new development in Quincy and within the mile and one-half jurisdictional boundary of the city.

H. Blessing hospital has instituted an Emergency Response Committee that also addresses planning for disasters that may involve major power outages and other utility interruptions in addition to emergency response plans for numerous disaster scenarios.

## MITIGATION MEASURES RECENTLY ACHIEVED (continued)

- I. City of Quincy site plan review now includes green space and landscaping retention goals to help minimize flash flooding and to maximize absorption of rainwater, lessening the amount that must be handled by detention facilities.
- J. The City of Quincy installed a salt dome at its Central Garage Facility to aid in fighting winter storms.
- K. The Adams County Geographic system has been greatly expanded to include parcels and parcel mapping (portions incomplete), utility coverages in the Quincy urban limits, census data, tax information and other natural resource databases.
- L. Statewide improvements to the electric grid that supplies Adams County have been made. The maintenance of electrical generating plants has been better staggered to avoid stressing the entire transmission system during an unexpected heat wave.
- M. Rural Fire Districts personnel now receive training in hazardous material response and fire fighting.
- N. The villages of Ursa and Mendon have installed tonal warning sirens, one per community that can indicate either a severe storm or a fire call to the volunteer firefighters in its district.
- O. Adams County is in the process of constructing a new, hardened 9-1-1 center that will include room in the facility for an emergency operations center in it, with a separate office set aside for the Emergency Services and Disaster Director, helping to facilitate a coordinated response in the beginning to any disaster.
- P. The Quincy Water Department is now interconnected with both the Clayton/Camp Point Water District and the Mill Creek Water District, allowing for the movement of potable water between these entities in the event of an emergency.
- Q. Adams Electric Cooperative belongs to the AIEC, a 25 member consortium of statewide Illinois electric cooperatives where personnel and equipment can be sent on very short notice to respond to a disaster in any one community to restore electric service to key facilities and the general public.

## MITIGATION MEASURES RECENTLY ACHIEVED (continued)

- R. The Adams County Ambulance District has been set up to provide emergency medical response to all parts of Adams County that includes three outlying ambulance garages staffed by paid paramedics.
- S. Adams County is now in the process of installing an enhanced 9-1-1 emergency call system.
- T. Various police and sheriff department personnel have received training on dealing with hazardous materials encountered during meth lab drug busts.
- U. The Clayton/Camp Point Water District is looking at ways to increase the interconnectivity between its western lines in Adams County and its eastern lines in Brown County, as well as increasing the eastern end pumping capacity.
- V. The ABS Water District is investigating the extension of their mains into the remaining portions of Adams County that are not now served by a rural district, with this effort in the public meeting stage.
- W. The city of Quincy installed a six foot high chain link fence around the entire Quincy Regional Airport property, thus both enhancing security and providing the additional benefit of eliminating plane-deer collisions, a significant source of problems in the past.
- X. Quincy is now a regional haz-mat response team in a statewide response system in the state of Illinois. Adams County can now call upon other state teams in the event of an emergency/disaster.
- Y. The city of Quincy is preparing a draft storm water ordinance to address issues such as storm water retention, storm water detention systems, underground storage, release rate, maintenance and other items.
- Z. The Adams County Local Area Planning Committee – LEPC – has been formed and has started programs on emergency response training drills, cooperative joint efforts, and regional disaster response planning and response evaluation. It is this standing committee that will be responsible for updating this mitigation plan on a 5 year basis.

## PLAN MAINTENANCE PROCESS

## **PLAN MONITORING, EVALUATING, and UPDATING**

The Adams County Board and the City of Quincy, City Council must pass a resolution formally adopting this plan. Minor changes to the plan and updates that document any mitigation activity measures taken after plan approval will not require adoption by the Adams County Board or the City Council.

The plan will be monitored by the Adams County Emergency Management Agency Director in conjunction with the Adams County Engineer, Floodplain Manager, and the City of Quincy Planner. They will monitor the plan through formal and informal meeting occurring at least annually. Each jurisdiction will be responsible for implementing action items and reporting through one of the four listed.

Annually the plan shall be evaluated and updated by the Adams County Emergency Management Agency Director, County Engineer, Floodplain Manager and the City of Quincy Planner. The EMA Director shall call the meetings. Public comments should be solicited for any revisions needed, major program additions, mandated goals from either the state or federal government and the incorporation of new mitigation strategies available as technology improves. These comments shall be solicited through the most feasible method at the time including newspaper articles, posting to the county website, or public meetings. This review will be summarized in writing and become an attachment to this plan.

The Adams County Emergency Management Agency Director will be responsible for making revisions or corrections to this plan, providing plan updates and documenting these activities in the chart attached to this plan.

There are two sections of the plan that are anticipated to have the most changes from time to time with population and economical growth. These are Risk Assessment and Mitigation Strategy. The Adams County Emergency Management Agency Director should review the identified hazards yearly to ensure consistency with the hazards identified by the Illinois Emergency Management Agency in the State hazard analysis. If any should happen to be omitted, the plan should be reviewed in further detail.



## **EXISTING PLANNING MECHANISMS**

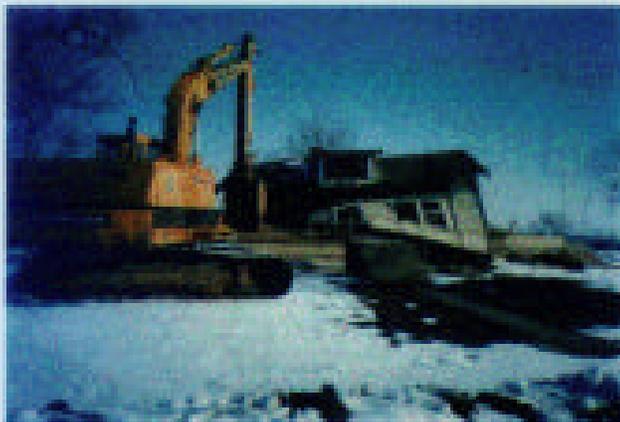
The mitigation plan committee, which meets on an annual basis, will provide a mechanism for ensuring that the actions identified in the plan are incorporated into ongoing county and city planning activities.

Adams County is currently in the process of researching and developing a comprehensive improvement plan for the county. The mitigation plan if approved will provide comprehensive planning committee with identified mitigation projects.

Additionally, the Local Emergency Planning Committee (LEPC) will incorporate this plan in preparing for incidents that may occur at chemical facilities in the City of Quincy and Adams County.



# HAZARD MITIGATION PLAN ADAMS COUNTY ILLINOIS



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# **HAZARD MITIGATION PLAN**

## **COUNTY OF ADAMS, ILLINOIS**

**With the Authority of:  
The Adams County Board  
521 Vermont  
Quincy, IL 62301  
(217) 277-2000**

**February 28, 1998**

County Board Chairman  
Mike McLaughlin

Board Members:

District 1

Nicholas J. Peters  
Melva D. Meehan  
James E. Weise  
Nicholas Loos

District 4

John C. Johnson  
William G. Twaddle  
Forrest M. Gibbs  
John A. Heidbreder

District 2

Billy Bennett  
Ronald Hinkamper  
Howard Wear Jr.  
Dave Sparks

District 5

Richard M. Obert  
Keith E. Frank  
Richard L. Baum  
Royal J. Schaefer

District 3

Gilbert Fauble  
Mike McLaughlin  
John N. Koehler  
Carl J. Wiskirchen

District 6

Ernest E. Aden  
Seldon R. Totsch  
Leslie J. Knox  
Paul W. Bruenger

District 7

Dave Bockhold  
Robert L. Scott  
Scott J. Schoonover  
Melvin J. 'Bud' Niekamp

## Mitigation Committee

Chairman:

Richard A. Klusmeyer P.E.

County Engineer

Committee Members:

Leonard Schnellbecker

Richard Baum

Bill Twaddle

Mike Klingner

Joye Baker

Mark Warren

Pat Poepping

Bob Adrian

Chuck Bevelheimer

Janet Oitker

Emergency Services Director

County Board Member/  
Township Supervisor

County Board/GIS Committee

Upper Mississippi River Flood Control  
Floodplain Management Specialist/  
Resident

GIS Specialist

Professional Engineer

Assistant States Attorney

Professional Planner

Landowner

## Government Officials

20th Congressional District  
John Shimkus

17th Congressional District  
Lane Evans

State Senator - 48th District  
Laura Kent Donahue

State Representative - 96th District  
Arthur Tenhouse

## County Officials

County Engineer  
Richard A. Klusmeyer P.E.

State's Attorney  
Byron S. Bier

Supervisor of Assessments  
Georgene Zimmerman

Sheriff  
Robert E. Nall

Civil Defense Director  
Leonard Schnellbecker

County Treasurer  
Allan W. Witte

Small Animal Warden  
John V. Mock Jr.

Circuit Clerk  
Glen F. Hultz

Director of Court Services  
Mike Hancox

Recorder of Deeds  
Charles (Charlie) Williams

Youth Home Director  
David Forrest

Coroner  
Gary W. Hamilton

Chief Probation Officer  
Charles V. Otte Jr.

Regional Superintendent of Schools  
Raymond Scheiter

Public Health Administrator  
Nancy A. Bluhm

County Board Chairman  
Mike McLaughlin

County Clerk  
George E. Schrage III

## **Governmental Agencies**

Illinois Emergency Management Agency  
110 East Adams Street  
Springfield, IL 62701-9963  
(217) 782-0922

Federal Emergency Management Agency  
Region V  
175 West Jackson  
4th Floor  
Chicago, IL  
(312) 408-5500

DNR - Office of Water Resources  
3215 Executive Park Drive  
Springfield, IL 62794-9484  
(217)782-2152

Illinois State Water Survey  
2204 Griffith Drive  
Champaign, IL 61820-7495

## **Floodplain Management Organizations**

Illinois Association for Floodplain and Stormwater Management  
153 Nanti  
Park Forest, IL 60466  
(708) 747-5273

Association of State Floodplain Managers, Inc.  
4233 West Beltline Highway  
Madison, Wisconsin 53711  
(608) 274-0123

RESOLUTION

WHEREAS, Adams County suffered substantial losses from the flooding in 1993 and can expect more flooding in the future, and

WHEREAS, Adams County may be subject to other natural and man made hazards, and

WHEREAS, The Federal Emergency Management Agency (FEMA) has suggested that Adams County prepare a Hazard Mitigation Plan for the County.

NOW, THEREFORE, BE IT RESOLVED, by the Adams County Board: That Adams County should further investigate the possibility of developing a Hazard Mitigation plan to assess the ongoing mitigation activities in the County, evaluate additional mitigation measures that should be undertaken and outline a strategy for implementation of mitigation projects.

ADOPTED: MARCH 14, 1995

John G. King  
CHAIRMAN

APPROVED: MARCH 14 1995

George L. Schmitt  
COUNTY CLERK

Mr. Wiskirchen moved to adopt the foregoing resolution.  
Mr. Sparks seconded the motion. Motion carried.



RESOLUTION

WHEREAS, Adams County suffered substantial losses from the flooding in 1993 and can expect more flooding in the future, and

WHEREAS, Adams County may be subject to other natural and man made hazards, and

WHEREAS, The Federal Emergency Management Agency (FEMA) has suggested that Adams County prepare a Hazard Mitigation Plan for the County.

NOW, THEREFORE, BE IT RESOLVED BY THE ADAMS COUNTY BOARD: That the Adams County Highway Department has developed a Hazard Mitigation Plan which assesses the ongoing mitigation activities in the County, evaluates any additional mitigation measures that could be undertaken and which outlines a strategy for implementation of these mitigation projects.

ADOPTED: DECEMBER 9, 1997 Mike M. Layton  
Chairman

APPROVED: DECEMBER 9, 1997 Greg E. Schaefer III  
County Clerk



## Introduction and Purpose

July of 1993 brought flooding to Adams County, which had never been seen before. The people of the community united in an effort to fight the rising waters. But, even with the help of people from across the country, the Mighty Mississippi was too much. The entire floodplains of the county were inundated with depths of up to 20 feet of water.

When the waters receded, the county was left with the huge job of cleaning up. Homes had been flooded and were left in rubble spread throughout the floodplain. Grain bins, sheds and other buildings were also destroyed. The floodwater killed trees and all of the crops in the normally rich, fertile floodplains were nothing more than brown, mosquito infested piles of trash. In all, 266 of the 805 buildings in the floodplain were destroyed.

It was soon apparent the county would need help with the insurmountable task of clean up. Again the community pulled together and 1 year later the clean up, with costs exceeding \$9,355,038 was complete. This was accomplished only with the help of the Federal Emergency Management Agency and the Illinois Emergency Management Agency.

The county was taken by surprise at the magnitude of the Great Flood of 1993. After all, the floodplains were protected by levees in the 4 drainage districts along the Mississippi River. The people of the community never thought the water could devastate the area in this way. They were used to yearly spring flooding. The water would rise every spring and the levees would hold it back. The waters would then recede and life would continue on as before.

The flood of 1993 was a "wake up call" to the county officials and residents. It was time to take a look at the floodplains and determine what could be done to prevent the devastation from occurring again. FEMA and DCCA offered the residents of the floodplain two programs to protect them from future flooding. A total of over \$1,500,000 was provided to buy out or elevate structures in the floodplain.

The county officials realized this was a good program to reduce flood damage to the county and have decided to find out what other alternatives may be available. This hazard mitigation plan is being developed to assess the ongoing mitigation activities in Adams County, to evaluate additional mitigation measures that should be undertaken and to outline a strategy for implementation of mitigation projects.

## Planning Process

The County Board approved a resolution on March 14, 1995 to investigate the possibility of creating a Hazard Mitigation Plan. To prepare this plan, a committee needed to be formed. This committee would need to consist of people interested in the floodplains and effects of flooding in Adams County.

The Chairman of the Adams County Board appointed Dick Klusmeyer, County Engineer, as chairman of this committee. Mr. Klusmeyer is also the floodplain manager for Adams County.

Leonard Schnellbecker was chosen to be on the committee for his perspective as Emergency Services Director. Richard Baum is the Supervisor of Riverside Township, which has a large part of the township in the floodplain.

Bill Twaddle represented the Adams County Board and Mike Klingner was chosen for his expertise in the Upper Mississippi River Flood Control Group. Joye Baker was on the committee as the Adams County Floodplain Management Specialist and also as a resident of the floodplain. Bob Adrian, of the Adams County States Attorney's Office, was asked to serve on the committee to address any legal issue which may arise.

It was obvious the Adams County GIS (Geographic Information System) would be an integral part of this planning process. Patrick Poepping, Professional Engineer and Mark Warren, GIS Specialist were selected to serve on the committee for their expertise in GIS.

Chuck Bevelheimer, professional planner was chosen to give guidance to the committee and Janet Oitker for her views as a landowner.

The committee met a various times in whole or in part and sought input from the general public. Phone calls were made to interested parties seeking solutions to the problems of flooding in Adams County.

A public meeting was held at 10 am on December 1, 1997 at the Adams County Highway Department to further investigate public input on this plan.

The following Hazard Mitigation Plan is an accumulation of all of the views expressed throughout the planning process.

# THE QUINCY HERALD-WHIG

and The Quincy Journal

State of Illinois, }  
County of Adams, } 88.  
City of Quincy, }

I do hereby certify that I am President of Quincy Newspapers, Inc., a corporation organized under the laws of the state of Illinois, with its principal office at Quincy, Illinois; that as such I am duly authorized by resolution of the Board of Directors of said Corporation to execute any and all certificates of publication for said corporation, including this certificate, and certify to the publication of any and all notices printed and published in THE QUINCY HERALD-WHIG and The Quincy Journal, and said authority appears in the minutes of said corporation and by said authority I am authorized to make this certificate.

I further certify that said Quincy Newspapers, Inc., is the owner and publisher of THE QUINCY HERALD-WHIG and the Quincy Journal, a daily secular newspaper of general circulation, published in the City of Quincy, County of Adams, and State of Illinois, and regularly issued daily, except some holidays.

I further certify that said newspaper is a newspaper as defined by Section 5 of "An Act to revise the law in relation to notices" approved July 17, 1988 (H. B. 1083).

I further certify that the notice of which the annexed is a true copy was printed and published regularly and consecutively in THE QUINCY HERALD-WHIG and the Quincy Journal on

November 21, 1997

November 22, 1997

IN WITNESS WHEREOF, said Quincy Newspapers, Inc., has caused this certificate to be signed by its said duly authorized representative and its corporate seal

affixed this 3rd day of December

A. D., 1997

**QUINCY NEWSPAPERS, Inc.,**  
Publisher.

By: Thomas A. Oakley  
Its President

Publishers Fee. \$46.71

Certificate

15697

**NOTICE OF  
PUBLIC MEETING**  
Notice is hereby given of a public meeting to be held on the premises of a Federal Inspector located in Quincy, Adams County, Illinois. The date and subject matters associated with meeting are: Justice and Fairness in Adams County. The meeting will be held at 10:00 a.m., December 3, 1997 at the Adams County Highway Department, 2000 Broadway, Quincy, IL.  
A preliminary study of the United Nations Plan for the World's Women will be given at the Adams County Highway Department, 2000 Broadway, Quincy, IL.  
Adams County Judicial Committee  
© 1997, Jan. 11, 98

## **History of Adams County**

The riverside county of Adams was created and duly incorporated by the General Assembly on January 18, 1825. In 1673, long before it was officially incorporated, two great French explorers, Father Marquette and Louis Joliet came west in canoes on the St Lawrence River, The Great Lakes and the Wisconsin River. It was then they discovered the Mississippi River.

When the Territory of Illinois was created in 1809, what is now Adams County was a part of St. Clair County. In 1812, it became part of Madison County and in 1818 Illinois was admitted to Statehood and Adams County became a part of Pike County. It stayed a part of Pike County until Adams County was established in 1825. The Rivertown of Quincy was selected to be the County Seat.

The first settler in Adams County was Justus Perigo, who arrived with his family in 1821 and settled on land in Fall Creek Township, just South of Marblehead.

Also in 1821, John Wood, the future Governor of Illinois, settled in Adams County. In the fall of 1822 he erected a small cabin (18 X 20 feet) on the bluffs, near the Mississippi River. This was the first building in Quincy.

For 20 years in the middle of the 19th Century, Quincy was the second largest city in Illinois. This was during the steamboat era and Quincy was one of the largest steamboat centers on the Mississippi River. Quincy is still the largest city within a 100 mile radius.

Adams County has always depended on the Mississippi River for its economy. In the late 1840's 20,000 hogs were shipped annually from Quincy to St. Louis by steamboat. A few years later, it went to 70,000 hogs per year. Although the steamboats are a thing of the past, Adams County is still dependent on its river industries. Large amounts of grain and other goods are shipped daily from the elevators and manufacturing plants located along the river.

## **History of Adams County Floodplains**

Farming had become the major enterprise in Adams County and farmsteads were scattered along the rich soil of the Mississippi River bottoms. Levees were built to protect this productive soil.

As the years passed, people found the riverfront to be a good spot to spend their leisure time. Fishing and boating were, and still are, popular pastimes in Adams County. With the interest in the river and what it has to offer, so came the "camps" or summer homes located along the entire length of the county on the banks of the river. The flood of 1993 destroyed most of the farm residences and several of the camps. The farm residents have since rebuilt on the bluffs, out of the way of flooding.

Industry was booming along the area just south of Quincy in the river bottoms. It was determined that a better levee would need to be built to protect this valuable asset to the community. The South Quincy levee was built in this area to protect the industry from a 500 year flooding event. This levee is the only levee in this area to hold during the Great Flood of 1993.

## **Development Trends**

Since the flood of 1993, development has come to a virtual standstill in the floodplains. It is unlikely any major development will occur in the floodplain. The people realize the danger of developing in the floodplain and have decided to develop on the bluff, out of harms way.

The little development which has occurred, has come in the way of machine sheds and grain bins. With the rich, fertile soil, farming is the major industry in the floodplain. Machine storage and grain storage are necessary to continue farming. The buildings constructed in the floodplain have the necessary openings to reduce damage in the event of another major flood.

## **Description of Adams County**

### **Location**

Adams County is located in the extreme west central Illinois (see attachment #1, location map). It encompasses 869 square miles with a population of 66,090.

### **Topography**

The county has extremes in topography. The northeast and central parts have large, nearly level areas that are part of a relatively undissected upland drainage divide between the Mississippi and Illinois rivers. Small, nearly level area and larger, gently sloping to very steep areas are in other parts of the county. The county is known for its large bluffs overlooking the flat, wide expanse of the Mississippi River bottomlands.

The highest part of the county is 860 feet above sea level near the south east corner. The lowest point is 460 feet above sea level and is in the Mississippi River floodplains at the southwest corner of the county.

The Pigeon, Mill and Bear creeks drain the Mississippi River basin. The Illinois basin is drained by McKee creek.

## **Drainage District and Floodplains**

Adams County has four levee/drainage districts in the Mississippi River floodplain (see attachment #2, drainage districts). The Lima Lake Drainage District is located in the northern part of Adams County and protects 14,256 Acres of farmland. Indian Grave Drainage District is directly south of Lima Lake and protects 19,634 acres. The South Quincy Levee District, containing 5,515 acres, is located just south of Quincy. This relatively small levee district is a major industrial area, with some agricultural and residential properties. The Sny Island Drainage District, located in southern Adams County, protects 110,000 acres in Adams and Pike Counties, with 11,792 of those acres in Adams County.

Due to the fact the entire length of the county lies along the Mississippi River, the county has a wide expanse of floodplains (attachment #3 FIRM map). There are approximately 100 square miles of floodplain in the river bottoms and an additional 20 square miles of floodplains along the small creeks and tributaries, giving Adams County 120 square miles of floodplain.

The county has 539 structures remaining in the floodplain since the flood of 1993 (see attachment #4, breakdown of structures). Many of these structures are elevated above the 100-year base flood elevation.

## **Climate**

The climate in Adams County ranges from highs of 100 degrees in the summer to 10 degrees below zero in the winter. The coldest month of the year is January and the warmest is July. Low-pressure systems and other weather fronts bring frequent changes in temperature, humidity, cloudiness and wind direction.

The average precipitation for the county is approximately 36 inches, but can range from 23 inches to 48 inches. The snowfall average is around 22 inches per year. The monthly precipitation is around 2 inches December through February and 4 inches each month, May and June. Over 50% of the precipitation received in Adams County comes from May to September.

Severe weather in the area includes heavy snowstorms, freezing precipitation, and severe windstorms (including tornadoes and straight line winds). There have been 20 tornadoes in the county since 1950. The years 1950 - 1995 brought 16 tornadoes to the area, in addition to the 1 in 1996 and 3 in April of 1997.

The summer precipitation is usually in the form of showers or thunderstorms. A single thunderstorm on average, will produce more than 1 inch of rain, sometimes accompanied by hail and damaging winds. Thunderstorms occur on average of 50 days annually.

## Transportation

Adams County has a well-developed transportation system. State Highway 96 extends north and south along the western edge of the county. State Highways 57 and 61 are spurs connecting with State Highway 96. Interstate 172 begins at the south edge of the county and extends on the East Side of Quincy, northerly to Highway 24 where it continues as Illinois 336, a four lane Highway northbound to Highway 61, east of Mendon. Construction is underway to extend this system north to Macomb.

State Highway 104 begins at Quincy and extends eastward across the county. US 24 is the main east/west highway and extends from Quincy to the eastern edge of the County and beyond.

The county has a total of 147 miles of roadway maintained by the State, 243 miles of county maintained roads and 1143 miles of road district roads for a total of 1533 miles of roads. (Attachment #5)

Fortunately, the major portion of the County Road system is on the bluff, out of the way of major floods. However, there are approximately 60 miles of township, gravel roads and 25 miles of County, asphalt roads in the floodplain.

Damages to these roads in the flood of 1993 amounted to over \$1,400,00.00. All of the roads in the floodplain were under up to 20' of water and were closed from the first part of July to late December.

These roads are an integral part of the Highway System as they provide access to farmland, the Ursa Farmers Elevator (described in Meyer Section) and the Meyer Ferry Boat Landing. With the exception of 1993, most damages to the infrastructure of the County does not come in the form of major flooding. Heavy rains have caused damages in roadways and have damaged bridges and culverts. Most of these damages have occurred outside the floodplain. With the widespread road system, it is not feasible to make every road in the county "floodproof". The county is currently creating an inventory of bridges and culverts and will evaluate the most important problem areas for mitigation.

Adams County is fortunate to have passenger and freight rail service. Amtrack provides daily passenger rail service to Chicago. Burlington/Northern/Santa Fe Freightline provides freight rail service across the country.

Barges along the Mississippi River provide a major outlet for much of the grain shipped out of the county.

Baldwin Field is the main airport located 10 miles east of Quincy. The airport provides commuter service to St. Louis and Chicago on a daily basis.

## **Industry**

Adams County has a wide variety of Industry (see attachment #6, Quincy, Illinois information brochure). Employees in the manufacturing field total more than 7200 in Quincy and Adams County. This is not to mention agriculture, one of the largest employers in the county. Over 1500 farms are located in Adams County, making farming the number one employer.

## **Zoning**

The unincorporated areas of Adams County do not currently have zoning. The city of Quincy is a home rule community and their zoning reaches a 1 1/2 mile radius of Quincy.

## **Building Code**

There are no building codes for the unincorporated areas of Adams County. Adams County does have a floodplain ordinance and a subdivision ordinance (see attachments #7 and #8, ordinances). The County Engineer administers both ordinances. The floodplain ordinance requires an additional 1-foot of freeboard above the BFE. Adams County maintains elevation certificates on all post firm structures and is in the process of gathering data for pre firm structures as well.

The County Engineer will inspect the floodplains a minimum of every six months. In the event a structure is determined to be in violation of the floodplain ordinance, the County Board, through the County Engineer will inform the landowner of such violation. This contact will be made by certified letter. The landowner will be given ten (10) days to correct the violation. If the landowner fails to correct the violation or contact the County Engineer, the County Engineer will direct the Adams County States Attorney to proceed with the penalty set forth in Section 14 of the floodplain ordinance.

The lease signed by residents of Corps of Engineers property stipulated that the lessee will abide by all regulations of the Adams County Floodplain Ordinance. The lessee also agrees not to carry flood insurance or ask for any federal assistance in the event of a disaster.

## **Land Use Plan**

Adams County does not have a land use plan.

## **Municipal Water System**

The City of Quincy and several of the incorporated villages have a municipal water system. The attached map (attachment #9, water districts) shows the water districts located within Adams County. These systems do not supply water to the floodplain areas. Structures in the floodplains are serviced by private wells and sand points at the point of service.

## **Sewage treatment**

The 13.5 million gallons per day waste water treatment facility for the City of Quincy is located in the South Quincy Drainage District. This water treatment facility is under control of the City of Quincy. Several of the incorporated villages have sewage treatment plants. Structures in the floodplain are serviced by private septic systems.

## **Critical Facilities**

Adams County is fortunate in the fact that no critical facilities such as hospitals and fire stations are located in the floodplains of the unincorporated areas of the county. For a full description of the facilities located outside of the floodplain and their response in regard to a disaster, please refer to the Adams County Emergency Disaster plan, which is under separate cover from this plan.

## **Utilities**

Adams County is serviced by the following utilities:

Electric: Central Illinois Public Service Company (CIPS)  
Adams Electrical Cooperative

Natural Gas: Central Illinois Public Service Company  
Northern Illinois Gas Company

Telephone: Ameritech  
Adams Telephone Cooperative

Cablevision: Media One Cablevision

## Fire Insurance Rating:

15 fire districts service Adams County. The following table and attached map (attachment #10) show the fire ratings for each area:

City of Quincy	3
Lima-Tioga	10
Ursa	8 within the village and 9 outside the village
Mendon	8 within the village and 10 outside the village
Lorraine	10
Bowen	8 within the village and 9 outside the village
Golden	8 within village and 9 outside village
Clayton	7 within village and 10 outside village
Camp Point	8 within village and 7 outside village
Central Adams Co.	7 within 1000 feet of hydrant and 9 outside area
Tri Township	8 within 1000 feet of hydrant and 9 outside area
Payson/Fall Creek	8 village of Payson, 8 village of Plainville, 9 outside area
Barry	8 within 1000 feet of hydrant 9 outside area
Baylis	10
Liberty	10 village 9 outside village

The rating of 10 means that the district does not meet the minimum criteria set by the Insurance Services Organization. Areas within Adams County, which are not in a fire protection district, are a class 10.

## NFIP Community Rating System

Adams County is one of the few downstate Illinois communities to join the Community Rating System (see attachment #11). The county currently has a class 9 rating effective December 15, 1995. A class 9 community allows residents of the county to receive a 5% discount on flood insurance. For every drop of 1 point in rating, the discounts on flood insurance drop another 5% for up to a 45% discount on insurance.

As a participating community in the Community Rating System, the County is also placed as forerunners for available grants and loans by State and Federal agencies.

## Previous Hazard Mitigation Plans

This is the first Hazard Mitigation Plan completed for Adams County. An emergency plan is in effect for the County.

## Public Health and Safety

In the event of a disaster, Adams County will follow all procedures outlined in the Emergency Disaster Plan approved in 1992.

## Warnings and Evacuation

In the event of a disaster, Adams County will follow all procedures outlined in the Emergency Disaster Plan approved in 1992.

## Flood Insurance Claims Information

Anyone who received Federal help after the flood of 1993 is required to maintain flood insurance for their structure. Adams County currently has 137 flood insurance policies in force with a total coverage of \$12,546,300. Total premiums paid are \$71,681. There have been 209 claims paid since the County entered the NFIP. The total claims paid are \$4,104,839. Of these 137 policies, 91 are write your own policies (WYO). The following chart details the WYO policies:

	Policies In Force	Insurance In Force	Paid Losses	Total Paid Losses
1-4 family residential	61	\$2,882,000	29	\$ 885,793
Other Structures	25	\$2,717,100	5	\$ 143,673
Small Business	5	\$ 63,300	6	\$ 44,646
Total	91	\$5,662,400	40	\$1,074,112

Adams County has 4 repetitive loss properties (attachment 12). All of these properties are located on Bonansinga Drive (previously Bayview Drive) which is an area not protected by a levee system. A discussion of mitigation activities proposed for these properties can be found in the Section for Area 5, Bonansinga Drive.

## NFIP Information

Adams County began participating in the National Flood Insurance Program (NFIP) November 15, 1985. The City of Quincy became a participating community October 15, 1981. The remaining incorporated villages within the County are not currently participating in the NFIP and are not mapped for floodplains.

## Earthquake Hazards

The attached maps and information on earthquakes in Illinois show Adams County as in Zone VII (very strong) (see attachment #13, Earthquake Zones). This is the mercalli intensity based on a 7.5 magnitude earthquake along the New Madrid Seismic Zone. The attachment, which was taken from the Adams County Emergency Disaster Plan, gives a detailed explanation of the earthquake hazard in Adams County and the emergency response procedure for such a disaster.

## Emergency Services

The Emergency Services Director of Adams County is Leonard Schnellbecker. There is a Emergency Plan in effect for Adams County (see the Adams County Emergency Disaster Plan under separate cover from this plan.) The Emergency Plan and Emergency Warning System plan for Adams County can be obtained from Mr. Schnellbecker at the Adams County Courthouse, 517 Vermont Street, Quincy, IL 62301.

## History of Disasters

### Flooding

The rising Mississippi is a yearly occurrence in Adams County. With the current levee system in place, most years the flooding does little, if any, damage. In this century there have been some major floods on record: 1903, 1909, 1912, 1913, 1944, 1960, 1965, 1973, 1985, and the great flood of 1993.

The flood of 1965 broke through the levees and flooded the river bottoms. The flood of 1973 reached record levels but the levees held on the Illinois side of the river. The floodwaters broke through on the Missouri side inundating West Quincy, Missouri.

The great flood of 1993, as stated earlier, caused major damage throughout the county. The Mississippi River reached flood stage on April 1, 1993 and remained above flood stage until September 4, 1993. It reached its peak at Quincy on July 13, 1993. Over \$9,355,000 in damages was claimed by public entities within the county. FEMA and IEMA covered 90% of the damages in this disaster or \$8,419,538. This still left the county to pay for the remaining 10% or \$935,500.

The above figures do not include the personal damages to structures during the flood of 1993. In order to determine the percentage of damages per structure, the county conducted a damage assessment of all of the structures in the floodplain. The total damages estimated to have occurred to all personal structures in the floodplain is \$4,734,072. Of this figure \$1,866,051 was for permanent residences.

The following chart depicts the damages per structure from the flood of 1993.

Structure	Permitted	Destroyed	Total
Trailers	28	32	60
Camps	170	61	231
Houses	128	33	161
Sheds	63	34	97
Machine Sheds	32	25	57
Garages	15	8	23
Grain Bins	49	61	110
Swine Buildings	5	3	8

Airplane Hangars	1	1	2
Barns	24	7	31
Commercial	21	0	21
Clubhouse	3	1	4
Total	539	266	805

## Storms

Severe thunderstorms are a common occurrence in Adams County. Tornadoes are always a threat, although not a common occurrence. Twenty tornadoes have struck the Adams County area since 1950. There were 16 tornadoes in the county between 1950 and 1995. One tornado struck in 1996 and in April of 1997 3 tornadoes hit Adams County.

Disaster declarations for storms and flooding in Adams County were declared in several years. The table below depicts the funds received from FEMA and IEMA for the declared years since 1985:

Disaster	Date	Description	Total	Federal	State	Local
735	1985	Floods/ice jams	\$ 273,620	\$ 205,215	n/a	\$ 68,405
776	1986	Flash flooding	\$ n/a	n/a	n/a	n/a
871	1990	Severe Storms	\$ 341,369	\$ 256,026	\$42,671	\$ 42,672
997	1993	Flooding	\$9,355,038	\$8,419,538	n/a	\$935,500
1112	1996	Storms. flooding	\$ 709,726	\$ 532,296	n/a	\$177,430

These funds, totaling \$10,679,753, do not reflect funds received from the Illinois Department of Transportation (IDOT) for emergency relief funds. It also does not include money spent in the programs sponsored by various agencies such as the Adams County Red Cross and the Salvation Army.

## Current Mitigation Activities

Adams County is currently engaged in several Mitigation activities. After the flood of 1993, the county was invited to take part in a buy out and elevation program sponsored by FEMA and DCCA (Department of Commerce and Community Affairs). These programs have been a success in Adams County.

## Flood Insurance Studies

Adams County has had two flood studies completed. The first (attachment 14) was completed in 1985 for the entrance into the NFIP Program. The second (attachment 15) was completed for the new levee constructed in the South Quincy Levee District in January 1996.

## **Buy Out Program**

The buy out program (attachment 16) purchased 23 structures in the floodplain. In addition to the structures bought out, the county purchased an easement on an additional 884.80 acres of farmland restricting future development on those acres. The purchase of structures and easements for this program cost \$705,411.37, the demolition of those structures cost \$160,187 for a total of \$865,599. The elevation and buy out programs were conducted with no cost to Adams County. They were completely funded by the Federal Emergency Management Agency and The Department of Commerce and Community Affairs.

## **Elevation Program**

The Elevation program (attachment 17) raised 14 structures above the level of the 1993 flood. This puts the structures at a minimum of 3 feet above the 100-year base flood elevation. This was done at a cost of \$427,900. The attached photos (attachment #18) show a sample of the structures that were elevated in this program.

The buy out and elevation programs did help to alleviate future flooding problems. However there are some drawbacks to these programs. In the buy out program, the county has taken ownership of 19 properties. These properties will need to be maintained at a cost to the County. Also, these properties are no longer on the tax rolls, no longer providing income to the county. The easement program allowed the county to minimize future damages by removing the possibility of future development without the burden of maintenance of the property and without removing it from the tax record.

## **South Quincy Levee and Pumping Facilities**

The South Quincy Drainage District constructed a 500 year levee in 1988. This levee protects a largely industrial area just to the South of Quincy.

The South Quincy Levee District has received a grant from the Illinois Department of Commerce and Community Affairs in the amount of \$880,000. to increase the pumping capacity within the district. This will increase pumping from 86,000 GPM to 225,000 GPM. This levee district previously had constructed a 500-year levee to protect the area. The FIRM map was updated on January 19, 1996 to reflect this 500-year levee.

## **Adams County GIS 2002**

Several years ago, the County realized there was a need to develop a quality spatial database for use by the community and private enterprise. It is estimated that as much as 80% of local government information has a geographic component (e.g. address, subdivision lot, ward and precinct, census tract, northeast quarter section 1, etc.) It was decided to use a Geographic Information System (GIS) in order to organize the variety of information available to the County. This system allows the user to analyze the information based on a geographic location.

The Adams County GIS is a 10-year, multiparticipant-funded effort that began in 1992 and is scheduled to be complete in 2002. Funding has been provided by Adams County, the City of Quincy and the five major principal utilities operating within the County (AmerenCIPS, Adams Electric Cooperative, Adams Telephone Cooperative, Media One Cablevision and Ameritech). There has also been funding from Federal, State and private sector sources.

The Adams County GIS consists of a digital map based on the USGS digital data, Department of Interior Aerial Photography and US Census TIGER maps. These base maps have been edited and corrected with current street names and corporate limits. Address ranges have been completed for the entire County as a part of the enhanced 911 Rural Addressing Project. Maps are available in both AutoCAD Release 12 (CAD) and Arc View (GIS) files.

The County has received the new Orthophotography, which is a part of the County's Soil Survey Update. These maps serve as a 1"=1000' base map for the rural portion of the County. Higher resolution of 1"=100' images are available for the City of Quincy and a portion of the Tri Township area around the city. The digital soils maps, including soil types and contours will be available at the end of 1997.

The orthophoto is used as a backdrop and the other layers (roads, hydrology, public land survey, etc.) are digitally overlaid on the photo. The user may interchange (i.e. turn on or off) as the need warrants. The user may only want to see the roads and parcels or may only want the hydrology.

A large number of spatial databases have been and will be developed for the Adams County GIS project. In addition to the above-mentioned data, the County plans to purchase the USGS's new Digital Raster Graphics (DRG) files for all 22 quad sheets covering the County.

The County has recently purchased the FEMA Q3 flood zone maps and the Department of Natural Resources (DNR) CD's for use with the GIS project. The DNR CD's give information such as wells, mines, geology, wetlands and natural areas. There will also be data available from the US Army Corps of Engineers pertaining to levees, rivers and streams.

Other data gathered and used with the GIS will include utilities, survey control points and planimetric features, such as building footprints.

All information entered into the GIS will be associated with a database. A simple click on a feature will give the user a photo of buildings on a site and the database information associated with the point or feature. The system will also analyze the information contained in the database. The user will be able to retrieve tax information, addresses and demographic data for the entire County.

Adams County feels the GIS 2002 project is one way to provide the quality information base needed to maintain Quincy and Adams County as one of the more progressive counties in the State.

This project has received the Special Achievement Award from the Consulting Engineers Council of Illinois and the Outstanding Civil Engineering Achievement Award from the American Society of Civil Engineers.

The multiparticipant nature of the project enabled the County to receive 2 National Spatial Data Infrastructure (NSDI) grants from the Federal Geographic Data Committee (FGDC). Due to its national exposure, the Adams County GIS is serving as a model for cooperative development and cost sharing of GIS Systems as well as a model for building GIS systems for rural and mid sized communities throughout the United States.

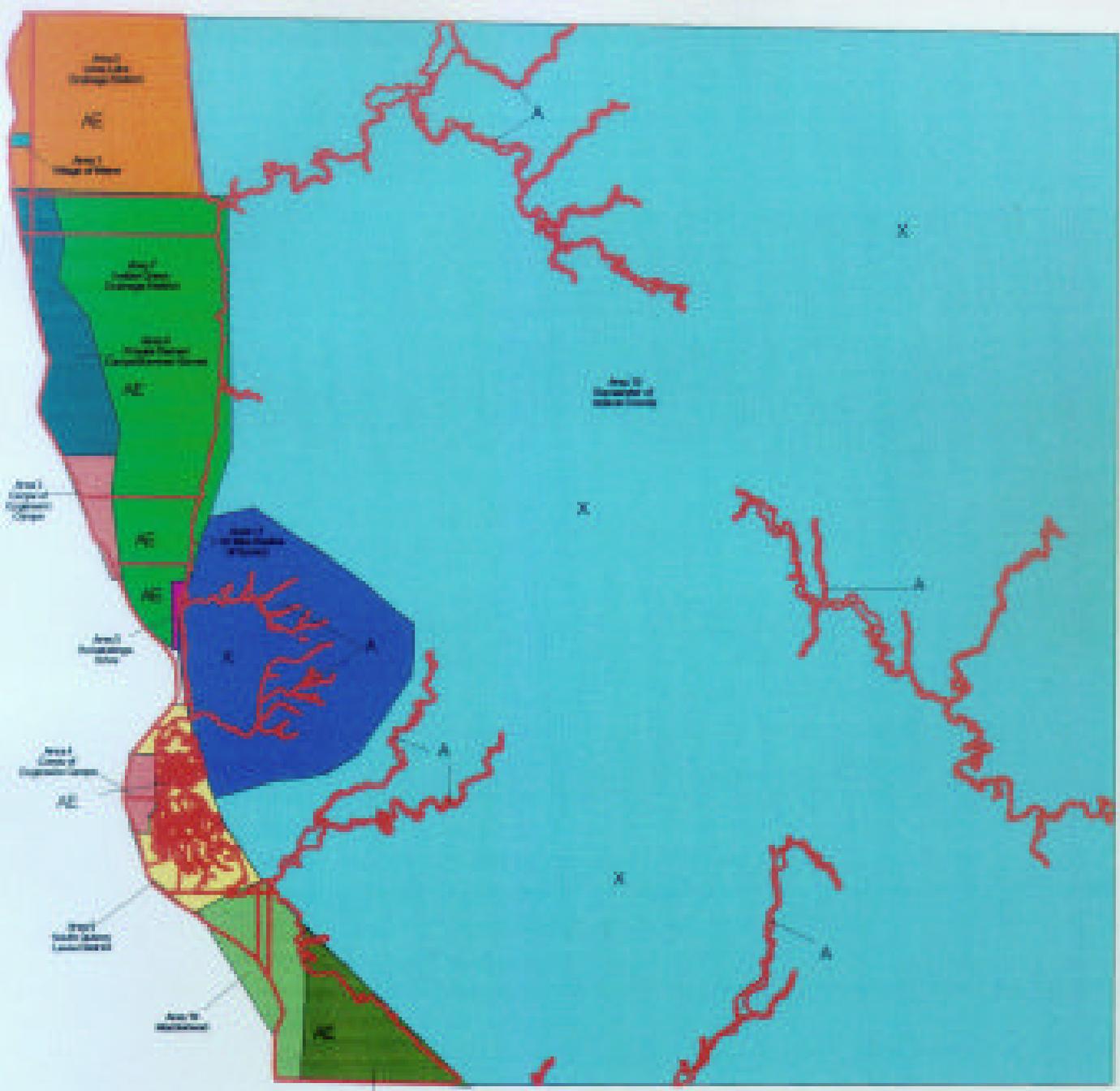
### **Workshops**

Adams County sponsored a workshop for Insurance Agents and Realtors and Lending Institutions on May 15, 1996. This workshop was held in the Quincy Mall Community Room and was attended by approximately 30 participants. The speaker was Rich Slevin, the Regional Marketing Manager for Computer Services Corporation. This informative workshop was held to educate the various groups of the responsibilities of each group in regard to the regulations set forth by the NFIP.

### **Other Activities**

Adams County will conduct flood zone determinations when requested. The County will also determine the lowest flood elevations and issue elevation certificates for residents of the floodplain. The County also has literature available on flooding in Adams County and floodproofing and retrofitting structures. The County has provided the Quincy Public Library with this information.

# ADAMS COUNTY ILLINOIS MITIGATION AREAS



ADAMS COUNTY PLANNED ZONES  
 A & B PLANNED ZONES

- MITIGATION AREAS**
- Upper Lake Strategic District
  - Sellers Grove Strategic District
  - City of Moline
  - Boweridge Drive
  - North Moline Lower District
  - May Island Strategic District
  - Village of Moline
  - Middlebrook Hill Forest
  - Private Conservation Areas
  - Surrounding County

## Designation and Description of Problem Areas

Due to the wide differences in topology, levee design and size, population growth and land ownership, the County has been divided into 12 areas for this mitigation plan. Each area has unique problems and characteristics. The county has decided to address each area individually. Below are listed each project area and the characteristics distinguishing it from other areas:

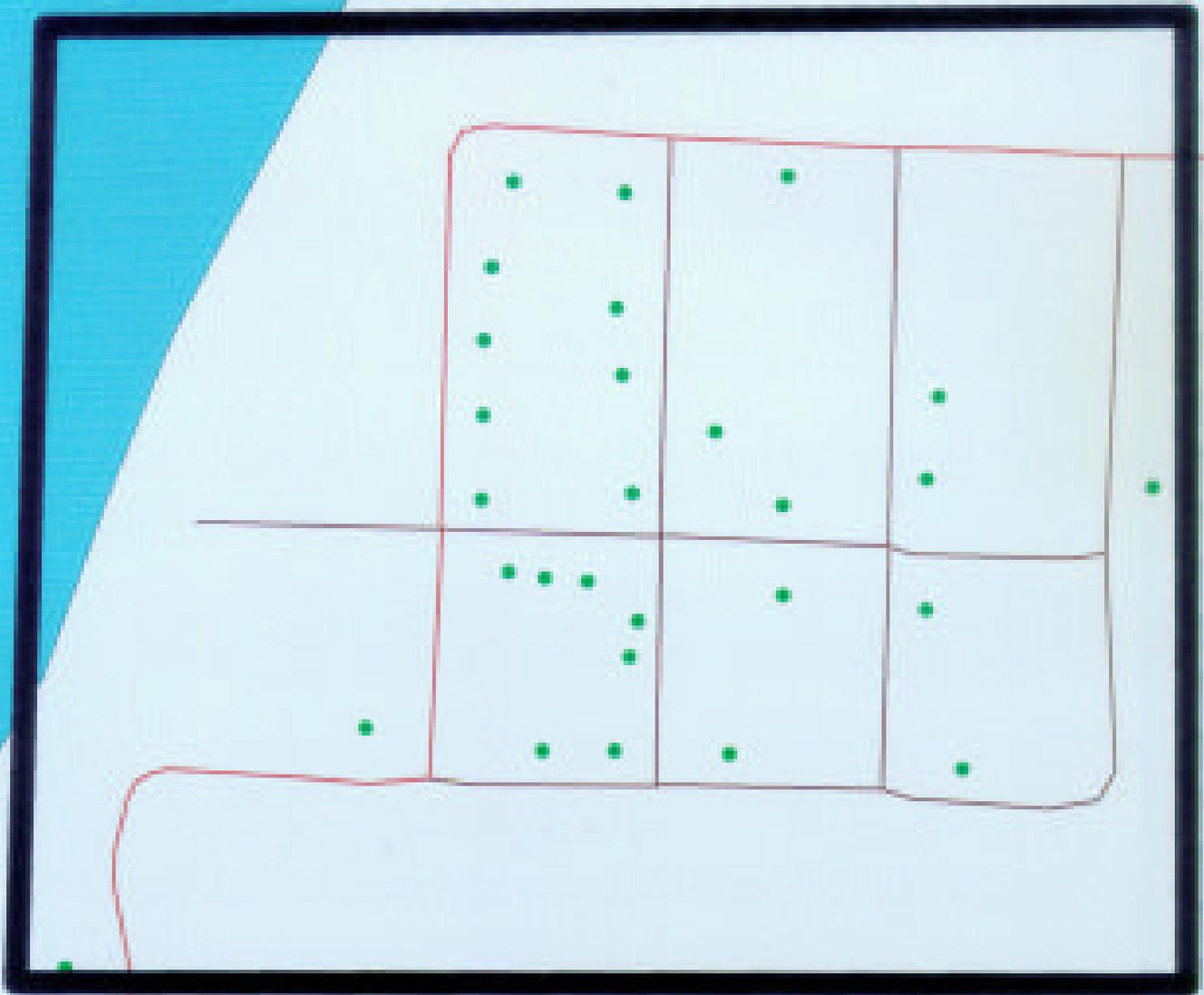
- 1) Village of Meyer - Unincorporated village and Grain Elevator
- 2) Lima Lake Drainage District - Drainage District - Separate levee system
- 3) Corps of Engineers Camps North - Federal Government Property
- 4) Corps of Engineers Camps South - Federal Government Property
- 5) Bonansinga Drive - Residential - no levee protection
- 6) Private owned camps/summer homes - summer homes- no levee protection
- 7) Indian Grave Drainage District - drainage district - separate levee system
- 8) South Quincy - Industry - 500 year levee
- 9) Sny Island - drainage district - separate levee system
- 10) Marblehead - Village - no levee protection
- 11) Quincy 1 1/2 mile radius - rapid population growth - little flooding problems
- 12) Remainder of County - little flooding problems

Since the City of Quincy is a participating community in the NFIP, this area is not included in the mitigation plan for Adams County. However, the 1 1/2 mile radius of Quincy is of similar population and topology of the City of Quincy.

The 13 incorporated villages of Adams County are not participating communities within the NFIP, therefore they are also not included in the mitigation plan. Even though the villages are not participating in the NFIP, the possibility of them joining the NFIP will be addressed.

The following pages address each area in detail. These pages will face the problems associated of each area and possible solutions to the problems. All solutions discussed will be addressed, but not necessarily be endorsed in the final recommendations. All issues pertaining to a solution must be dealt with, such as environmental concerns, approval by other governmental entities, costs and available funding. Only after these issues are satisfactorily confronted will these solutions be included in the recommendations.

# AREA 1 VILLAGE OF MEYER



## **Area #1 - Meyer Village and Grain Elevator**

### **Description**

The unincorporated village of Meyer is a small fishing village located in the north west portion of Adams County (attachment #19, plat of Meyer). It is located on the banks of the Mississippi River at the Western edge of the Lima Lake Drainage District. This area is shown on panel # 0025B of the Flood Insurance Rate Map (FIRM) of Adams County (Community #170001). There are 120 platted lots in Meyer with 25 residences and 6 other buildings located on these lots. The base flood elevation in the village of Meyer is 492.9. In accordance with the Adams County Floodplain Ordinance, all new and substantially improved structures must be elevated at least 1 foot above the base flood elevation. Therefore, all new and substantially improved structures in Meyer must be elevated to 493.0 msl.

Thirty-seven of the lots in Meyer were surveyed in 1993 by the Soil Conservation Service (see attachment #20 Meyer elevations). There is a difference of 8.37 feet in the ground elevation within the village. The lots range from a ground elevation of 481.16 on the Northeast corner of Meyer to 489.53 on the south end of Third Street. This results in structures needing to be elevated from 4.27 to 12.64 feet above ground level.

Six of the structures have been elevated since 1993. 1 of the elevated structures was raised through the FEMA elevation program and the property owners elevated 5. Most of the pre firm structures are still located below the base flood elevation. Post flood photo's and damage evaluations of all structures are on file at the Adams County Highway Department.

Adams County has purchased 10 of the lots in Meyer from 4 owners through the FEMA 404 buy out program. These lots have been cleared of all structures and no structure will ever be built on the lots.

Directly South of Meyer is a grain elevator. Ursa Farmer Coop is a farmer owned cooperative (UFC) servicing 2300 members. Ursa Farmers Cooperative employees 45 full time and 12 part time employees.

UFC has a large economic impact on Adams County. The entire UFC had over 80 million dollars in sales in 1996 with half of those sales from the Meyer operation. This cooperative services farmers in Illinois and Missouri. There is a Ferry Landing located just to the south of the Meyer elevator, allowing farmers from the Missouri side of the river to sell their grain in a timely manner. UFC hauled over 8 million bushels out of the County by barges on the Mississippi River.

The Village and the Grain Elevator are a part of Lima Lake Drainage district. They are currently protected by a Corp of Engineers Certified levee system. At river mile 347.2 the levee crown elevation is 495.9 with protection levels of this levee (3 foot below the crown) is 492.9. This protection level is considered to be at less than the 50-year level.

## **Problems**

Most of the residents of Meyer live there because they like to, not because they have nowhere else to go. They like the close proximity of the river. Most have lived in Meyer for years and know what the river can do to them. They have survived the floods of 1965 and 1993, and have returned to their homes after both floods with the knowledge that it may happen to them again. The flood of 1993 destroyed 5 houses, 13 mobile homes, 3 sheds, 1 garage, and 1 grain bin.

A database of structures in the floodplain will allow the county to accurately regulate development in this area. The county does not currently have a database of structures in the floodplain.

The Ursa Farmers Cooperative suffered large financial losses due to the flood of 1993. The following page describes their losses. This is a highly productive, not for profit grain elevator dependent on the river to haul large amounts of grain out of the county. UFC cannot buy enough flood insurance to adequately cover all losses due to flooding along the river. They currently maintain flood insurance up to the maximum allowed. It is not feasible for a buy out of the elevator, due to the fact that it is necessary for the elevator to be close to the river to operate efficiently. If the UFC were not at the present location, the nearest grain elevator is located almost 30 miles south of UFC. This would be a substantial hardship on the agricultural community that needs to get the crops out of the field and into storage in a short time period.

## **Goals**

The County would like to remove as many structures as possible from the danger of future floods. The county must first determine how many of the structures are below the base flood elevation. This will be addressed in the countywide goals.

An obvious solution for the village of Meyer is the buy out program. However, the residents of the village like living there and do not seem interested in buy out. The county could continue to educate residents of Meyer about the dangers of flooding, and keep the buy out program available to those who become interested.

The elevation program could be a viable solution for the village of Meyer.

Another possible solution for Meyer is a new levee system to protect them to the 500 year flood levels. This solution will be addressed countywide.

The Ursa Farmers Coop has suggested a separate levee system to be built around the coop. This levee will be 2600 feet in length. The following pages describe the proposed levee. The costs of building this levee amount to over \$1,987,310. The cooperative has suggested that they will take full responsibility for the upkeep of the levee after construction and will contribute up to \$200,000 in construction costs of the levee.

**INSERT URSA FARMERS LOSSES HERE**

**INSERT PRICE SHEET OF UFC LEVEE HERE**

**INSERT UFC SHEET 3 OF 7 HERE**

**INSERT UFC SHEET 5 OF 7 HERE**

**INSERT UFC SHEET 7 OF 7 HERE**

# AREA 2 LIMA LAKE DRAINAGE DISTRICT



## **Area #2 - Lima Lake Drainage District**

### **Description**

The Lima Lake Drainage District contains approximately 14,256 acres in the northern part of Adams County. This district begins at the Hancock County line and continues south to Bear Creek. It is shown on panel #0025B of the Federal Emergency Management Rate Map (FIRM) for Adams County (community #170001). This district is protected by a 50 year levee maintained by the US Army Corps of Engineers. A sample of the elevations along the levee are 492.5 msl at the 341.7 river mile with the base flood at this point of 491.6 msl and 495.9 at the 347.2 river mile with a base flood elevation of 494.4. These elevations are at the crown of the levee. The actual protection level of this levee is 3 feet below the crown. The latest improvement to this levee prior to repairs made from the flood of 1993 was in 1972.

Lock and Dam #20 crosses the Mississippi River in the West Central portion of this District at Meyer.

The Drainage District consists mostly of farmland with few remaining structures. It is unlikely much development will occur in this area. The 14,256 acres of farmland in the district are composed mostly of corn and soybeans.

### **Problems**

Structures within this area are not a major problem. However, there are a few structures which need to remain in the floodplain in order to support agriculture in the area. Most of the structures were destroyed in the flood of 1993. 5 houses were destroyed along with 1 mobile home, 4 sheds, 5 machine sheds, 1 garage, 1 grain bin, and 1 airplane hangar. There are about 10 structures remaining in the floodplain since the flood of 1993. The remaining 4 residential structures in the floodplain do not seem to be interested in a buy out program.

The drainage district commissioners have determined that additional pumping capacity is needed in order to reduce interior flooding within the district boundaries. This determination is based on the fact that excessive flooding has occurred within the district, even with the existing pumping plant in place. The excessive flooding occurred not only in 1993, but also in numerous other years, resulting in considerable damages to crops because the pumps were unable to dewater the district adequately.

Flooding within the district can result in a major financial loss to the agricultural community. Adams County has an average yield of 144 bushels per acre of corn with an average price of \$2.25 per bushel. The average yield of soybeans is 45.5 bushels per acre with an average price of \$5.60 per bushel. The following chart demonstrates the financial losses suffered during a major flood in this area:

Crop	Av bu/acre	X # acres	=	Total bushel	X	Av\$/bu	=	Total \$ lost
Corn	144	7128	=	1,026,432.00	X	\$2.25	=	\$2,309,472.00
Beans	45.5	7128	=	324,324.00	X	\$5.60	=	\$1,816,214.40

If a flood would hit the Lima Lake Drainage District again, the total losses of crops to this District only could amount to over \$4,125,686.00.

## Goals

As in area one, the County does not have a database to help regulate the development in the floodplains. This will be covered in the area wide goals and solutions.

The County realizes some structures will need to remain in the floodplain in order to maintain farm equipment for this highly productive soil. The county would like to buy out any residences remaining after the flood or assist the residents with an elevation program, if funding opportunities become apparent.

As this Drainage District is an important agricultural producer, the County would like to see flooding kept to a minimum. The proposed solution to the interior flooding is to increase the pumping capacity. The watershed consists of 16,236 acres, and in order to reduce the water level 1" in 24 hours, additional pumping capacity of at least 120,000 gallons per minute is needed. The additional pumping facilities would probably be located adjacent to the existing facility and the estimated cost is approximately \$1,100,000. A breakdown of the cost is as follows:

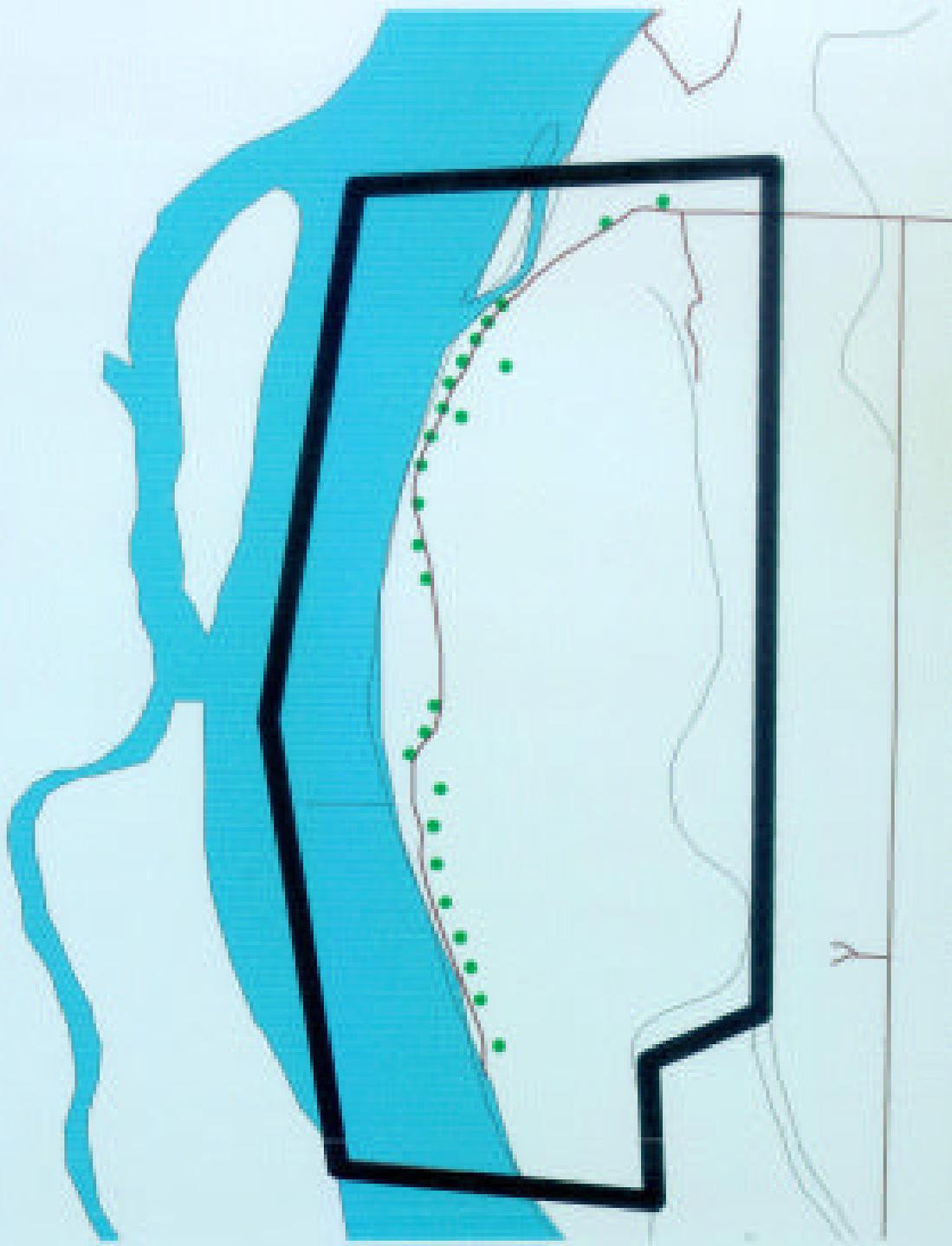
1.	Replacement of East pump and diesel motor with 60,000 gallon per minute (GPM) vertical mix flow pump and 400 HP electric motor	\$ 211,000.00
	Construction Costs	\$ 48,000.00
2.	Addition of one 120,000 GPM vertical mix flow pump and 800 HP electric motor Total costs including construction	\$ 650,000.00
3.	Replacement of two Detroit Diesel engines with two 300 HP electric motors	\$ 52,300.00
	Construction Costs	\$ 10,000.00
	Estimated Engineering Costs	\$ 70,000.00
	<b>Total Estimated Project Cost</b>	<b>\$1,041,300.00</b>

The Adwell Corporation is the primary landowner of this District. After the 1993 flood, this corporation was interested in a buy out program. At that time FEMA refused this request because the Easement portion of the program was too expensive. The easement on the Adwell property (approximately 8000 acres) would have cost over one half million dollars.

# AREA 3 FEDERAL PROPERTY NORTH



# AREA 4 FEDERAL PROPERTY SOUTH



## **Areas 3 & 4 - Federal Land**

### **Description**

Areas 3 and 4 are both property owned by the Federal Government under the control of the US Army Corps of Engineers. Area 3 is located north of Quincy at the West end of Knapheide and Point Pleasant Roads. Area 4 is located south of Quincy at the west end of Radio Road. All of these properties are leased by private individuals for camps or summer homes. Area 3 is shown on panel #100B and Area 4 on panel #170C of the FIRM for Adams County (community #170001).

Area 3 has 11 structures located at the end of Knapheide Road and 21 structures located at the end of Point Pleasant Road. Area 4 (Ward Island) has 20 structures at the end of Radio Road.

### **Problems**

All of these properties are on the riverside of the levee and suffer from frequent flooding. Although most of the structures are elevated, all have had water over their lowest floor in the past. The county is aware some of these structures are elevated above the base flood elevation.

These areas will be difficult to mitigate because, although individuals own the structures, the Federal Government owns the properties. The structures are not eligible for a buy out or elevation program.

The US Army Corps of Engineers has assured the County that they are no longer allowing new construction on these properties. They have informed the county that once a lease has been relinquished back to the corps, it will no longer be renewed and no new structures will be constructed. The lease for these properties (see attachment #21) specifically states that the lease holder may not carry flood insurance or receive any federal disaster assistance of any kind for structures or additions to federal property.

### **Goals**

Due to the fact the county can not offer buy out or elevation programs to residents on Federally owned property, there is little the county can do to mitigate these areas. The County would like to work with the Corp of Engineers to help educate the lessees about the dangers of flooding.

# AREA 5 BONANSINGA DRIVE



## **Area 5 - Bonansinga Drive**

### **Description**

The area along Bonansinga Drive consists of a mixture of structures, both permanent residential and summer homes and commercial. Bonansinga Drive is located just north of the City of Quincy along the Quincy Bay. This area is shown on panel #160C of the Flood Insurance Rate Map for Adams County (community # 170001). This area is not protected by a levee system and is not in a drainage district.

The flood of 1993 destroyed 5 of the homes located along Bonansinga Drive. The remaining structures along Bonansinga Drive are elevated. 5 were elevated to above 1993 levels through the Adams county Elevation Program. There were 2 structures purchased by the County in the FEMA 404 Buy out program.

### **Problem**

These structures are located along the bay and are flooded most every spring when the Mississippi River rises. The residents of the area are aware of the flooding problems, but don't seem to mind the inconvenience of boating to their homes during floods.

This area is not protected by a levee. It is located along the Quincy Bay. It is not feasible to construct a levee in the location surrounding these homes. The homes are located on a narrow strip of land between Bonansinga Drive and the Quincy Bay. There is not enough room to add a levee.

There is a mixture of land ownership in this area. Several of the homes are on federal land controlled by the corps of Engineers. Some of the houses are on private land leased to others. These properties are not eligible for buy out or elevation programs.

There are 3 commercial properties in this area: The Rocky Point Club, Twin Oaks Club and Triple Oaks Club. All of these are private clubs supported by a large membership.

The four repetitive loss properties (attachment 12) are all located on Bonansinga Drive.

### **Goals**

The County would like to remove these properties from the possibility of flooding. The residents of this area do not seem interested in a buy out program, although the County would like to keep that option open.

The County would also like to offer an elevation program to the property owners that are determined to stay in the floodplain.

The County sees the problems associated with the repetitive loss properties. These people have been approached with the buy out program, but have shown no interest in it. The County would like to continue to keep the possibility of a buy out open to these people. In the event a buy out is not deemed possible, an alternative plan of elevation should be examined.

# AREA 6 PRIVATE OWNED SUMMER HOMES/CAMPS



## **Area 6 - Private Owned Camps/Summer Homes**

### **Description**

This area is located in the Northern Part of the County along the Rivers Edge. These structures are situated on the River side of the Indian Grave Levee and are scattered along a 4 mile long strip of land bordered on the west by the river and on the east by the levee. Fifty-four of the camps were destroyed in the flood of 1993. There are mostly summer homes with few permanent residences located in this area. The area is shown on panel # 100B of the Flood Insurance Rate Map for Adams County (Community #170001).

The structures located in this area are mostly summer homes with a few permanent residences scattered along the riverbanks. All of the structures are elevated to some extent. Some of these camps are located on private property, others are leased from private individuals.

Four of the permanent residences were elevated through the county elevation program. Two of the residents took part in the buy out program.

### **Problems**

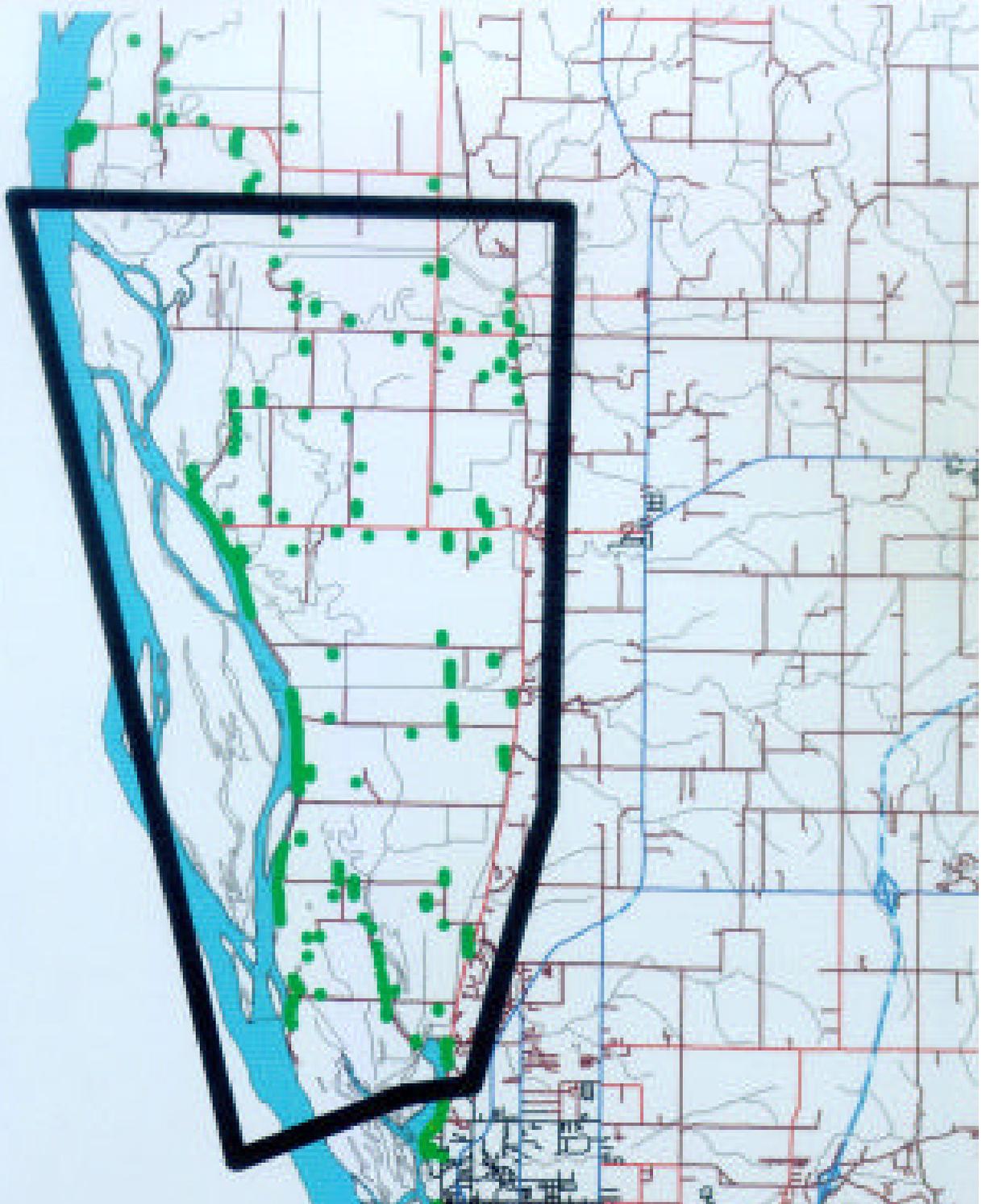
Many of the camp owners were interested in a buy out after the flood of 1993. Officials with FEMA determined that due to the fact that these were not permanent residences, the owners were not eligible for buy out or elevation programs.

Most of the camps that were destroyed in 1993 were washed away when the river broke through the levees, sweeping away everything in the path.

### **Goals**

The County would like to see all of the camps along the river removed from the possibility of flooding. The County would like FEMA or other sources to fund a program to buy out or elevate these structures.

# AREA 7 INDIAN GRAVE DRAINAGE DISTRICT



## Area 7 - Indian Grave Drainage District

### Description

The Indian Grave Drainage District contains 19,634 acres located north of Quincy, Illinois. Bear Creek on the North and the City of Quincy on the South border it. It is shown on panel #100B of the Flood Insurance Rate Map (FIRM) for Adams County (Community #170001). This district is protected by a 50-year levee maintained by the US Army Corps of Engineers. A sample of the elevation along the levee is 487.7 at the 330 river mile. The protection level at this point is 484.7 (3 ft below crown). The base flood elevation at this point is 487.10.

The drainage district is highly productive farmland with few structures remaining after the flood of 1993. In 1993, 15 homes were destroyed along with 17 trailers, 20 machine sheds, 6 garages, 41 grain bins, 3 hog sheds and 7 barns. There are now Approximately 30 structures with 12 residences remaining in the district. The 19,634 acres of cropland are mostly corn and beans.

One structure was elevated in the county program and 11 residents of this area took part in the buy out program.

### Problems

Structures do not seem to be a major problem in this area. The residents of the district have relocated their homes on the bluff. It is still necessary to maintain agricultural structures within the district in order to operate the farms efficiently. The County will issue a variance from the floodplain ordinance for agricultural structures only if the landowner can prove the structure is vital to the farming enterprise.

As with the Lima Lake Drainage District, a major flood in the Indian Grave District would cripple the landowners of the district. The following chart depicts the financial losses to the district in the event of severe flooding.

Crop	Av bu/acre	X	# acres	=	Total bushel	X	Av\$/bu	=	Total \$ lost
Corn	144		9817	=	1,413,648.00	X	\$2.25	=	\$3,180,708.00
Beans	45.5		9817	=	446,673.50	X	\$5.60	=	\$2,501,371.60

The total loss to the landowners of the district could amount to more than \$5,682, 079.

### Goals

The buy out and elevation programs will be addressed in County Wide Problems

The County would also like to minimize any damages to crops within the Drainage District. The Drainage District would like to increase the pumping capacity of the pumps. The estimate for a new 60,000 GPM (Gallons per Minute) with pumping plant is \$1,400,000.

# AREA 8 SOUTH QUINCY LEVEE DISTRICT



## **Area 8 - South Quincy Levee and Drainage District**

### **Description**

The South Quincy Levee and Drainage District is located immediately to the south of the City of Quincy on the east bank of the Mississippi River between river miles 318 and 325. The district is bordered on the north by Curtis Creek and on the south by Mill Creek which are tributaries discharging directly into the Mississippi River. The Mississippi River lock and dam no 21 is located at the north end of the district.

Approximately 3700 acres of the district is cropland. The remainder of the district consists of roads, lakes and industry. There are approximately 21 existing industries in the 5550 acres of the district which employ more than 1100 workers. These industries are valued at more than 515 million dollars.

The North end of the district is located within the 1 1/2 mile radius of the city of Quincy and is zoned for future industrial development. A portion of the industrial area is designated as enterprise zone.

The district is protected to a 500 year flooding event by a levee maintained by the US Army Corps of Engineers. This levee was constructed in 1988 at an elevation of 485.5 at the pumping station.

### **Problems**

The Mississippi River flood of 1993 was less than 2 feet below the top of the levee and floodwalls. The levee held, however, there was a considerable amount of farm land and roads under water due to seepage. The pumping station could not remove the water fast enough to prevent crop losses. Both pumps were run continuously for days. It is estimated that 36% of the tillable acres in the district were lost. This amounts to over \$460,500 loss in production for producers. The best estimate of cost to the industries in the district to fight the flood is 3.6 million dollars. Equipment and materials were moved out of the endangered areas and returned later. Normal transportation links were interrupted, production ceased and employees were switched to flood fighting tasks.

### **Goals**

The South Quincy Levee and Drainage District is currently providing additional pumping capacity to increase the current 86,000 GPM capacity to approximately 225,000 GPM at 11 feet TDH to improve interior base flood elevation from 468.1 to 466.4 msl. The Illinois Department of Commerce and Community Affairs through the Public Facilities Component funds this project for Flood Recovery Assistance Grant in the amount of \$880,000.

According to the South Quincy Levee and Drainage District Engineers report on improvement of pumping facilities and levees prepared by Klingner and Associates consulting Engineers, April 1995, improvements are also needed to the South Quincy Levee. Klingner has suggested 2 possible improvements to the South Quincy Levee (see following page) The first is an additional 2 feet added to the current levee at a cost of \$2,627,000. The second is an additional 5 feet for a cost of \$9,103,200.00

**D. PROBABLE COSTS FOR LEVEE/FLOOD WALL IMPROVEMENT**

1. Existing plus two feet.

a.	Construction		
	Stage I	\$679,400	
	Stage II	849,600	
	Stage III	<u>590,400</u>	
	<b>SUBTOTAL CONSTRUCTION COSTS</b>		\$2,118,400
b.	Engineering Services		
	Design @ 8%	\$169,500	
	Construction @ 3%	<u>63,600</u>	
	<b>SUBTOTAL ENGINEERING SERVICES</b>		233,100
c.	Legal, Finance, Administrative @ 3%		63,600
d.	Contingency @ 10%		<u>211,900</u>
	<b>TOTAL PROBABLE COSTS (1988 Design + 2 feet)</b>		\$2,627,000

2. Existing plus five feet.

a.	Construction		
	Stage I	\$1,632,800	
	Stage II	4,235,500	
	Stage III	<u>1,438,200</u>	
	<b>SUBTOTAL CONSTRUCTION COSTS</b>		\$7,331,500
b.	Engineering Services		
	Design @ 8%	\$588,600	
	Construction @ 3%	<u>220,000</u>	
	<b>SUBTOTAL ENGINEERING SERVICES</b>		808,500
c.	Legal, Finance, Administrative @ 3%		220,000
d.	Contingency @ 10%		733,200
e.	Right-of-Ways 12 Acres @ \$1,000/Acre		<u>12,000</u>
	<b>TOTAL PROBABLE COSTS (1988 Design + 5 feet)</b>		\$9,103,200

# AREA 9 SNY ISLAND DRAINAGE DISTRICT



## Area 9 - Sny Island Drainage District

### Description

The Sny Island Drainage District is a large District in Southern Adams and Northern Pike County. It contains 110,000 acres with 11, 792 of those acres in Adams County. This District is protected by a 50 year levee. The levee crown at river mile 315.9 is 481.2 msl with the actual protection 3 feet below the crown at 478.2. The base flood elevation at this point is 479. This area is shown on panel #250C of the Flood Insurance Rate Map (FIRM) of Adams County (community #170001)

This Drainage District is also an agricultural base with few structures remaining after the flood of 1993. A part of this District contains the small unincorporated Village of Fall Creek. Two structures were elevated in this area and four were bought out.

### Problems

As with the other agricultural drainage districts in the area, structures are not the problem. The loss of crops in this area would be devastating. The following chart will show losses in the event of another major flood event. This chart only reflects losses to the Adams County portion of the District.

Crop	Av bu/acre	X	# acres	=	Total bushel	X	Av\$/bu	=	Total \$ lost
Corn	144		5896	=	849,024	X	\$2.25	=	\$1,910,304.00
Beans	45.5		5896	=	265,320	X	\$5.60	=	\$1,485,792.00

The above chart indicates crop losses totaling \$3,396,096.

Although Fall Creek is mapped as a 100-year floodplain, the 1993 flood affected very few structures, which was a 500-year event. The flood maps for Adams County are not accurate. This issue will be addressed in the countywide problems section.

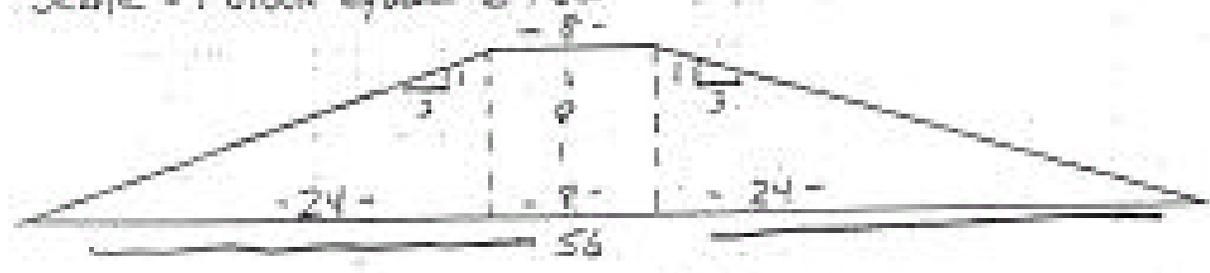
Even though it may not be in the 100-year floodplain. The residents of Fall Creek would like to construct a levee to protect the village. Highway 57 runs to the north of fall creek, and is above the 100 year protection, Highway 79 is also at 100 year protection level and runs North and South. A levee 8 feet high, 2400 feet long is needed to complete a triangle levee protecting the village from a 100-year flooding event. The following page gives the details of this levee. This levee could be constructed at a cost of approximately \$250,350.

### Goals

The US Army Corps of Engineers have conducted a flood reduction study for this area. This study recommends a new Dutch Horton Diversion Plant (900 cfs) at a cost of \$3,500,000. Due to the fact that just over 10% of this district lies in Adams County, the county share would be \$350,000.

Fall Creek = River Mile 314  
 100 year Flood 479  
 2 Foot Freeboard = 481  
 Ground Elevation 493. Area Height. (5')

Scale = 1 block equals 2 feet



Length of levee	2700 ft	
Hydraulic Sand fill	= \$135,000	
48" culvert @ 54 ft long	\$5,400	
Sluice Gate	= \$15,000	
Seeding (37 acres)	= \$5,550	
Construction =	\$161,150	
Right of Way (4.1 acres @ \$5,000)	20,500	
Legal	1,000	
Engineering	24,000	
Contingency 20%	<u>41,300</u>	
	\$250,350	

# AREA 10 MARBLEHEAD



## **Area 10 - Marblehead**

### **Description**

Marblehead is a small-unincorporated community of 80 residents located in the southwest part of Adams County in Fall Creek Township (See attachment #22, plat of Marblehead). Marblehead is shown on panel #170C of the FIRM maps for Adams County. Dated January 19, 1996.

Marblehead is diverse in topography divided by IL Route 57. 75% of the community is east of IL 57 and is located on a sloped hillside, out of the floodplain. The remaining 25% is west of IL 57, located in the floodplain.

One structure has been elevated in Marblehead and one was bought out.

### **Problems**

Very little of Marblehead is in the floodplain. During a 100-year flooding event, the water would affect no structures. However, 8 structures received damage in the flood of 1993, which was a 570-year event.

This area is not protected by a levee system. Although flooding is not normally a problem, the potential is there during a major (500 year or more) flood event to damage structures located west of IL 57.

### **Goals**

The community would like to see a levee constructed to protect them from flooding. There is currently levees on the north and south sides of Marblehead. A levee 8 feet high and 2400 feet long could be constructed to connect the levees already in place. The attached sheet gives the details of this proposed levee. The cost of constructing this levee would be in the range of \$239,520.

# Levee

MARBLEHEAD -

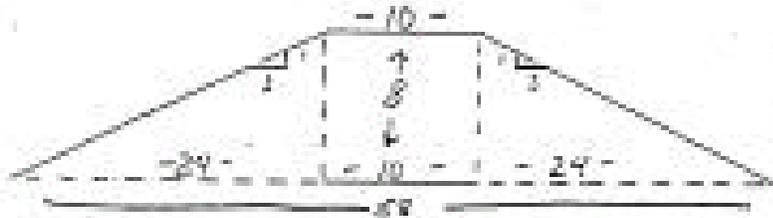
River Mile = 318 + Mill Creek

100 year Flood = 481

2 Foot Freeboard = 483

Ground at 495. Levee Height 8'

Scale = 1 block equals 2.5 feet



Volume per Foot

$$(10 + 58) \cdot \frac{1}{2} \cdot 8 = 272 \text{ ft}^2$$

$$272 \text{ ft}^2 / 27 \text{ ft}^3/\text{yd}^3 = 10 \text{ yd}^3/\text{ft}$$

Length of the Levee = 2400 ft

$$2400 \text{ ft} \times 11 \text{ yd}^3/\text{ft} = 26,400 \text{ cy}$$

$$26,400 \times 5 \text{ yd}^3 = \$132,000$$

$$48' \text{ culvert @ } 56 \text{ ft long} = 5,600$$

$$\text{sluice gate} = \underline{15,000}$$

$$\$152,600$$

$$\text{Seeding for 3.3 acres} = 5,000$$

$$\$157,600$$

Right of Way

$$3.0 \text{ Acres @ } 5,000 = \$15,000$$

$$\text{Legal Fees} = \$3,000$$

$$\text{Engineering Costs} = \$24,000$$

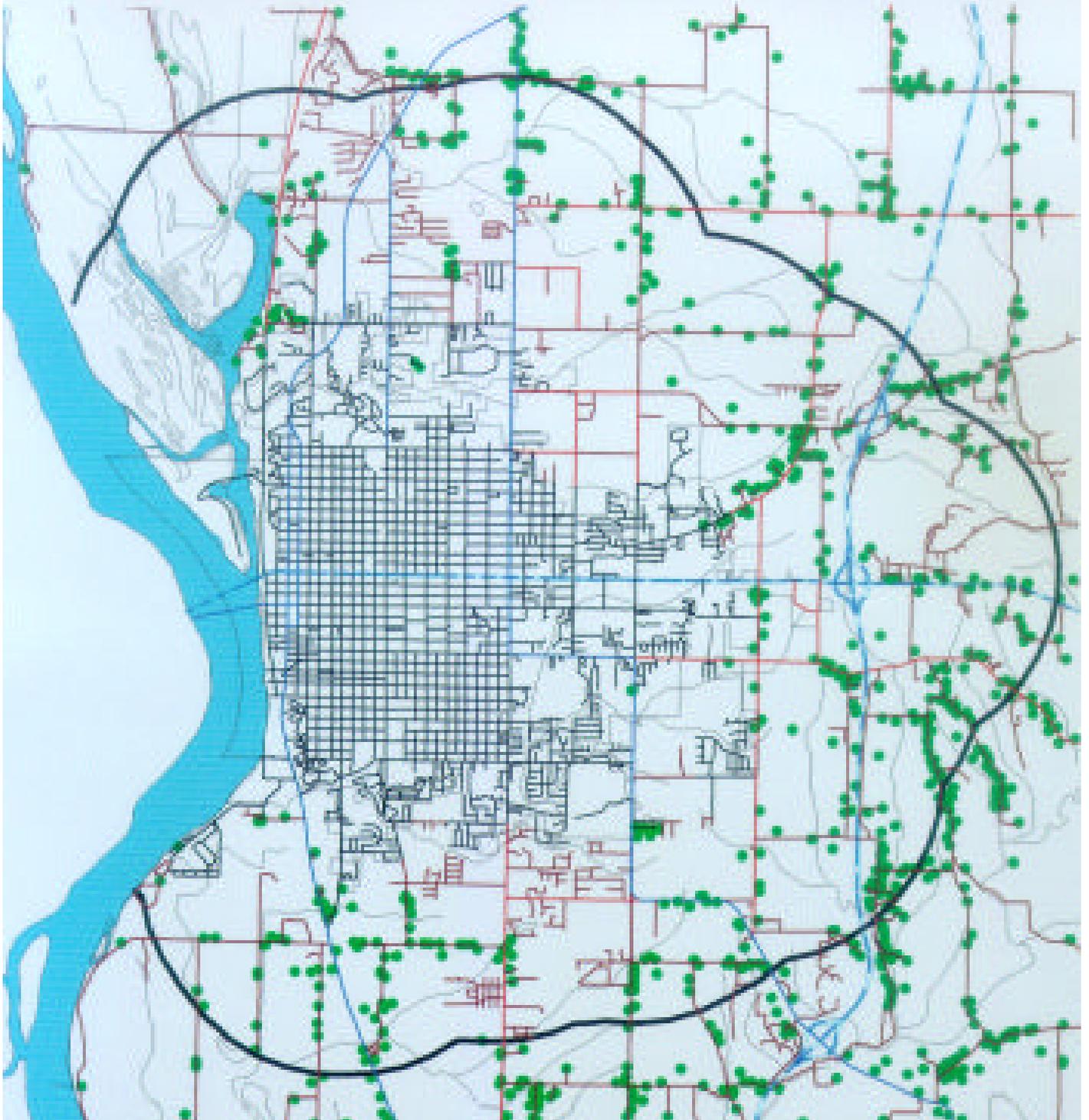
$$\$199,600$$

Contingency 20%

$$\underline{39,920}$$

$$\underline{\underline{\$239,520}}$$

# AREA 11 1 1/2 MILE RADIUS OF QUINCY



## **Area 11 - One and One Half Mile Radius of Quincy**

### **Description**

This area surrounds the City of Quincy on the north, east and south sides. This area is highly developed, mostly residential. The area has had very little, if any flooding problems over the years.

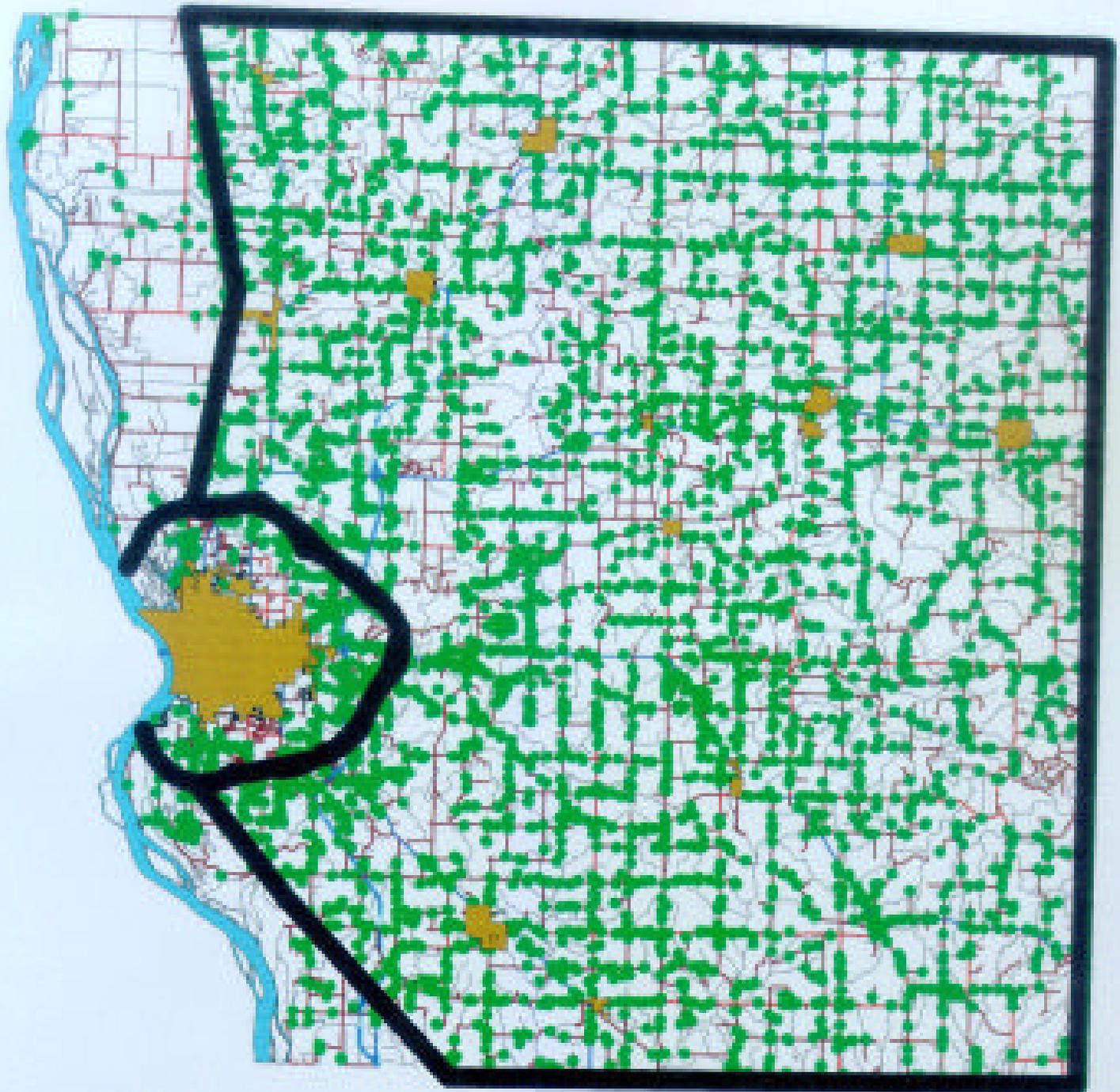
### **Problems**

Even though this area has some designated floodplain areas, there are no flooding problems. The major problem seems to be the Flood Insurance Rate Maps. These maps are not accurate for many areas in the county.

### **Goals**

The County would like to have the Flood Insurance Rate Maps for the County redone. This will provide a more accurate estimate of where the actual floodplain areas are located. This issue will be addressed in the county problems section.

# AREA 12 REMAINDER OF COUNTY



## **Area 12 - Remainder of County**

### **Description**

The remainder of the County is mostly undeveloped agricultural land. The only developed areas are within the village limits scattered throughout the county. These developed areas are not participating in the NFIP and are not mapped communities. Most homes located in this area are outside the 100-year flood boundaries.

### **Problems**

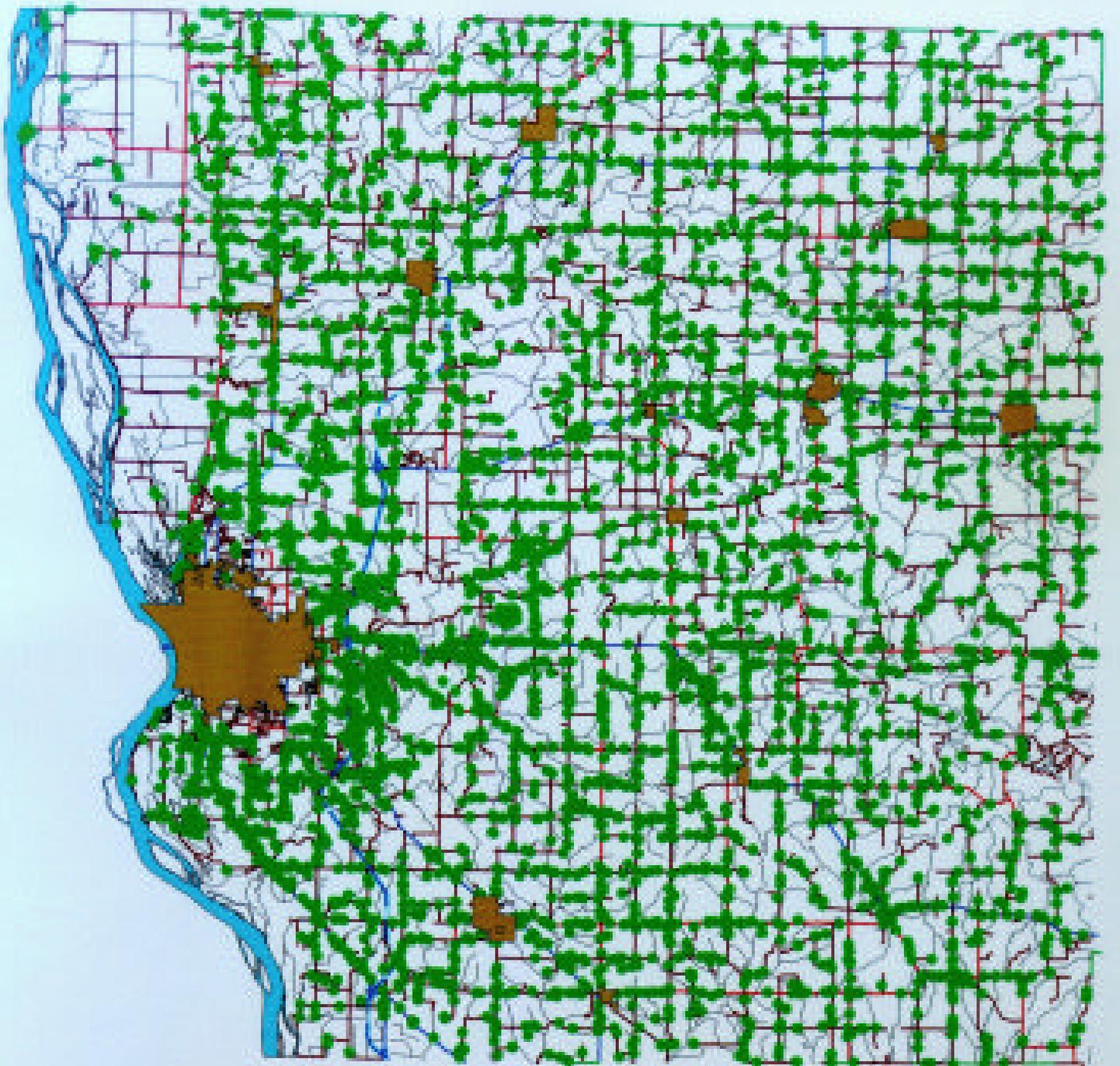
There are very few structures located within the floodplains in the remainder of the county and very few flooding problems. The incorporated villages within the county are not participating communities of the NFIP.

### **Goals**

The county will continue to enforce the floodplain ordinance in this area. The County would like to keep any new developments out of the floodplain.

The county is interested in helping the unincorporated villages to become participating communities in the NFIP.

# COUNTY WIDE AREA



## **County Wide Problems and Goals**

### **Problems**

The County has an estimate of how many structures are located in the floodplains. In order to properly regulate the floodplain areas, an accurate data base is needed of all structures in the floodplain. The county does not know how many of the current pre firm structures are already elevated above the base flood elevation.

The County has a 500 year levee protecting the South Quincy Drainage and Levee District. The remainder of the county is only protected by 50 year levees. These levees protect 45,682 acres of rich, productive farmland. In the event of another major flood, the county could sustain losses of production in these areas of over 13.2 million dollars.

The FIRM maps in Adams County were created in 1985, with the exception of South Quincy, which was completed in 1996. These maps are not accurate. The following page demonstrates a problem the county faces with the FIRM Maps. It is difficult to regulate the floodplain areas with the current maps. As this sheet shows, there are areas mapped for floodplain which are clearly not in danger of flooding. It is also a possibility areas not mapped as floodplains could suffer damages from flooding.

Many floodplain properties have changed owners within the last several years. The County will need to educate the new owners, as well as the previous owners of the dangers of flooding.

Some of the residents of the floodplain have seen what flooding can do, but are determined to stay in the floodplain. These properties will need to be elevated out of the way of flooding. The cost of flood insurance is drastically reduced if the structure is elevated above the BFE (see attachment 23, Insurance Comparisons)

Some residents are ready to move out of the floodplain. The county will need to buy these properties from the residents and remove the structures from the floodplain.

The flood disaster protection act of 1973, revised in 1994, requires federally insured or regulated lenders to require the purchase of flood insurance on all buildings being financed that are located in special flood hazard areas of communities participating in the NFIP.

### **Goals**

The County would like to incorporate the floodplain into the GIS system. This would require creating a data base of the floodplain structures with information attached, such as, location, base flood elevation, ground elevation and elevation of lowest floor. Digital photo's of all structures will be attached to this data base, enabling the county to better regulate these structures. A GPS unit will be required to accurately locate these structures. The cost of this project will be \$40,710.27. The following page outlines this cost. Attachment 24 gives an example of the GIS project.

The county could construct a 500 year levee similar to the levee protecting South Quincy. This levee would be required to be approximately 38 miles long and could be constructed at a cost of over \$1 million per mile for a total cost of over \$38 million.

The county has realized the FIRM maps contain numerous inaccuracies. In order to have an accurate accounting of the floodplains in the county, new mapping will need to be done. This will require hydraulic studies of the streams in Adams County. This can be accomplished at an estimated cost of \$50,000 to \$100,000.

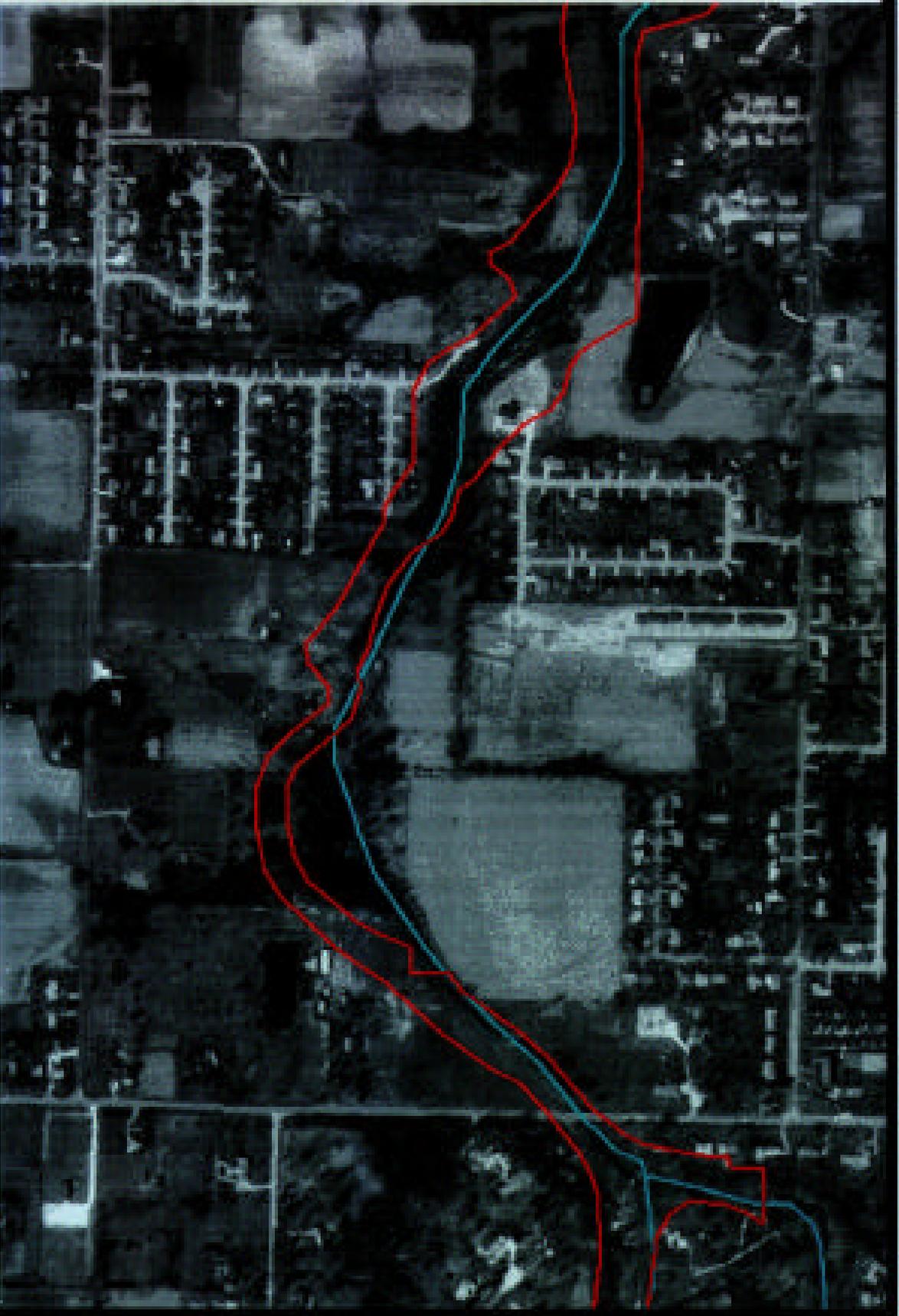
The county has participated in one buy out program to date. This program removed 23 structures from the floodplain. The county would like to continue with this program as other individuals become interested. It is estimated there are 128 homes and 28 trailers in the floodplain. The county could buy all of these houses at an approximate cost of \$5.8 million (128 homes at \$40,000 ea and 28 trailers at \$25,000 ea.)

It is not realistic for the county to assume all residents would be interested in buy out. A realistic goal for buy out would be approximately 25% of the structures. Many of the structures are located in the South Quincy Drainage District, which is protected by a 500 year levee. This could be accomplished at a cost of \$1.5 million and remove 39 structures from the danger of flooding.

The Elevation Program the county has already completed raised 14 structures. Several other structures are already above the base flood elevation. If the data base described above were completed, the county will know how many other structures are still below the BFE. For the purpose of this plan, the county will assume 40% of the structures need to be raised. This can be accomplished at a cost of \$1.3 million.

As a part of the community rating system, Adams County mails information to floodplain residents to improve awareness of flood risks, insurance and floodplain construction regulations. The flyer is sent once each year to the residence of the floodplain. (see attachment 25) The county could continue this program at a cost of \$500 per year.

The county held a one-day workshop to educate realtors, insurance agents and financial institutions on the flood insurance program requirements. This workshop was a success. The county would like to continue sponsoring workshops to educate the people involved in floodplain matters. This program was held at a cost to the county of approximately \$200.00.



Demonstration of FIRMI map Errors

Red - FIRMI Map

Blue - Actual Stream

# ADAMS COUNTY ELEVATION DETERMINATIONS ESTIMATE OF COST

## Elevations

Determine Floor and ground elevations and set bench marks:  
(25 days) Supervisor and 2 Survey Crew members:

### Labor:

Supervisor	250 Hours	@ \$18.05/hr	=	\$4,512.50	
Survey Crew	250 Hours	@ \$16.19/hr	=	\$4,047.50	
Survey Crew	250 Hours	@ \$16.19/hr	=	<u>\$4,047.50</u>	
				Total Labor	\$12,607.50

### Equipment:

Truck	250 Hours	@ \$ 7.50/hr	=	\$1,875.00	
Survey Equipment	250 Hours	@ \$10.00/hr	=	<u>\$2,500.00</u>	
				Total Equipment	\$ 4,375.00

### Photography Supplies:

Film	23 rolls	@ \$4.88	=	\$ 112.24	
Processing	539 pictures	@ \$ .25	=	<u>\$ 134.75</u>	
				Total Materials	\$ <u>246.99</u>
				Total to determine Elevations	<b>\$ 17,229.49</b>

## Zone Determinations/Data Entry into GIS system

Determine Flood Zones, Scan photo's and enter information into data base

### Determine BFE:

Labor	16 Hours	@\$15.87/hr	=	\$ 254.62
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### Computer Data Entry:

Labor:	168 Hours	@\$15.87/hr	=	\$2,666.16	
Equipment	168 Hours	@\$20.00/hr	=	\$3,360.00	
				Total BFE determination and Data Entry	<b><u>\$ 6,280.78</u></b>

Sub Total Project	<b>\$23,510.27</b>
3% Administration	<u>\$ 705.30</u>
Total Project Cost	<b>\$24,215.57</b>

Total Project Cost of \$24,215.57 for 539 Structures  
Average cost of \$44.92 per structure

## SUMMARY OF ALTERNATIVES

- 1) Buy Out Program
  - a) Total county
  - b) 25% of structures in county
- 2) Elevation Program
- 3) Easements on buy out for Whole County
- 4) Easement for Lima Lake Only (Adwell Corporation)
- 5) Levees
  - a) County Wide
  - b) Ursa Farmers Coop
  - c) South Quincy
  - d) Fall Creek
  - e) Marblehead
- 6) GIS Data Base
- 7) Increased Pumping
  - a) Indian Grave Drainage District
  - b) Lima Lake Drainage District
  - c) Sny Island Drainage District
- 8) Public Awareness
  - a) Residents
  - b) Workshops
- 9) Village participation in NFIP
- 10) Correction of FIRM Maps

### Funding Prospects

Alternative	Appropriate Cost	Funding Source				Feasibility	Comments
		Federal	State	Local	Other		
Buy Out County Wide	\$6,886,000.00	\$4,260,000.00	\$1,460,000.00			Poor	
Buy out 20% of Structures	\$1,500,000.00	\$1,125,000.00	\$375,000.00			Fair	
Elevation Program	\$1,200,000.00	\$875,000.00	\$325,000.00			Fair	
Consent on all acres (21200 acres X \$90/acre)	\$3,532,800.00	\$2,069,600.00	\$883,200.00			Poor	
Consent for Ultra Lots only (2000 acres X \$90/acre)	\$202,000.00	\$64,000.00	\$138,000.00			Poor	
County Wide Levies	\$38,000,000.00	\$28,500,000.00	\$9,500,000.00			Poor	
Ultra Farmers Coop Levies	\$1,987,210.00	\$1,480,482.00	\$206,727.00		\$290,000.00	Poor	UPC contribution
Addition to South Quincy Levies (2 st)	\$2,627,000.00	\$1,670,250.00	\$826,750.00			Poor	
Addition to South Quincy Levies (2 st)	\$5,165,200.00	\$6,627,400.00	\$2,276,600.00			Poor	
Full Creek Levies	\$256,250.00	\$187,782.50	\$68,467.50			Poor	
Manufactured Levies	\$226,200.00	\$176,840.00	\$50,360.00			Poor	
CRS Data Base	\$40,716.27	\$60,832.79			\$16,177.57	Excellent	Grant in process
Increased Pumping Inletl Gains	\$1,400,000.00	\$1,050,000.00	\$350,000.00			Fair	
Increased Pumping Ultra Lots	\$1,061,860.00	\$780,875.00	\$280,985.00			Fair	
Increased Pumping Dry Adams County Share of \$1,500,000	\$500,000.00	\$202,500.00	\$17,500.00			Fair	With Cooperation from Pike County
Public Assessments Firms sent to residents per year	\$500.00				\$500.00	Excellent	Part of CRS
Public Assessment Workshops Costs per year	\$200.00				\$200.00	Excellent	
Resort Villages for program	\$2,000.00				\$2,000.00	Excellent	
Contributions to FRM Maps	\$166,000.00	\$75,000.00			\$20,000.00	Good	

## **Final Recommendations**

It is recommended the county continues the buy out and elevation programs if funding becomes available. The county can not afford the cost share for these programs. However, if match money can be found through DCCA or other sources, the programs should be continued. The county could investigate the possibility of the resident providing the cost share (i.e. resident accepts 75% of the value of the property or pays 25% of the cost of elevation).

The county should work with FEMA/IEMA on purchase of easements for interested landowners in the floodplain. Some owners were interested in the easement program, even though there were no structures on the property. An easement will prevent new construction while keeping the property on the tax rolls. Maintenance of the property will stay with the landowner.

It is recommended the county continue with the addition of the floodplain data base to the GIS. This will enable the county to better regulate and mitigate the floodplain areas.

It is recommended the county continue education programs to all residents and people involved in floodplain management. This will include sending information each year to residents and holding workshops annually or biannually for lenders, insurance agents and realtors.

It is recommended the county encourage villages to become participating members of the NFIP. This will allow villages to determine any special flood hazard areas and will enable the villages to receive federal assistance during a disaster.

It has been determined the current FIRM maps are not accurate. It is recommended the county pursue funding to re map the floodplains. This should be done as soon as possible to alleviate any future flooding problems in areas not zoned as hazard areas and to determine which areas should not be mapped as such.

Due to the high cost, it is not recommended at this time to increase pumping or build levees throughout the county. However, if the affected districts or individuals want to pursue funding for these projects, the county will support them in their effort.

### **Overall Strategy**

The purpose of floodplain mitigation and the overall strategy of the County is to reduce or eliminate damages to structures and infrastructure in the event of a major flood. The foregoing recommendations will help the county reduce damages in the event of a major flood such as 1993.

The county has already seen the benefit of the mitigation activities conducted prior to the creation of this plan. After flooding occurred in 1996, although not as extreme as 1993, the county did not realize damages to any structures. This was a direct result of the buy out and elevation program. During the 1996 flood, elevated structures, which would normally have been under water, were well above the danger of the floodwater. This was possible only with the help of the FEMA elevation program.

## **Implementation**

The County Engineer will be responsible for implementation of this plan. The County Engineer will seek funding for projects listed in the recommendation section and will fully implement and serve as administrator for these programs.

This plan will be reviewed yearly by the County Engineer. The County Engineer will evaluate progress of this plan. Any recommendation for alterations or additions to this plan should be addressed to the County Engineer, who will submit any recommendations to the Adams County Board for approval.

## **Plan of Action**

Each year the County will poll the remaining residents of the floodplain to see if they may be interested in mitigation of their structures. These people will be reminded of the dangers of floodwaters and will be informed of possible solutions to help mitigate damages.

The County has adopted this mitigation plan as a policy for mitigating damages.

## **Post Disaster Mitigation Policies and Procedures**

In conjunction and cooperation of the Adams County Emergency Disaster Plan, the County Engineers office will follow the following post disaster procedures:

1. Insure the health and safety of residents
2. Conduct damage assessment of infrastructure
3. Conduct damage assessment of affected structures
4. Notify residents/landowners of damage determination for structures
5. Notify resident/landowners of mitigation alternatives
6. Issue building permits where applicable
7. Conduct clean up program of affected areas

In the event of a major disaster, Adams County will immediately conduct damage assessments on affected structures and infrastructure. The damage assessments will then be entered into the Adams County GIS and studies will be conducted within the parameters of this plan to determine the best mitigation strategy for the affected areas.

While the disaster is fresh in the minds of the landowners, Adams County will again approach them with the mitigation alternatives available to them.

In the event a structure is determined to be over fifty percent (50%) damaged, Adams County will notify the resident/landowner of the regulations pertaining to elevation or demolition of the structure. Building permits will be issued on structures less than fifty percent (50%) damaged, after the resident/landowner has been informed of available mitigation alternatives.

Adams County will then conduct a clean up program of the area. Priority will be given to insure all roadways and bridges are accessible before any clean up may begin on private property.

## Evaluation

Adams County is currently building a database of flood prone structures to incorporate into the GIS database. The county has applied for a grant from FEMA to build this data base. The total project cost is \$40,710.27. FEMA will pay 75% and the County will contribute 25% of the project costs.

The county sends a flyer out to residents of the floodplain (attachment 25) outlining the hazards of the floodplain.

The county held a one-day workshop to educate realtors, insurance agents and financial institutions on the flood insurance program requirements. This workshop was a success. The county would like to continue sponsoring workshops to educate the people involved in floodplain matters. This program was held at a cost to the county of approximately \$200.00.

## **References**

Klingner and Associates. South Quincy Drainage and Levee District. Adams County, Illinois. Engineers report on improvement of pumping facilities and levees. April 1995.

John Drury. This is Adams County Illinois. Loree Company. 1955.

United States Department of Agriculture, Soil Conservation Service. Soil Survey of Adams County. Issued December 1979.

Illinois Agricultural Statistics. Annual Summary 1995. Illinois Department of Agriculture.

## **Acknowledgements**

The committee thanks the following people and organizations for their input into the creation of the Hazard Mitigation Plan:

Great River Economic Development Foundation  
Jim Mentesti  
300 Civic Center Plaza  
217-223-4313

Mr. Mentesti is an integral part of the economic development for Adams County. He furnished the committee various statistics for the county demographics and gave input into the impact flooding can do to economic development.

Illinois Emergency Services and Disaster Agency/Federal Emergency Management Agency  
110 East Adams  
Springfield, IL 62706  
217-782-7860

Furnished the committee with information on past flood damages and gave guidance for the preparation of this plan.

Two Rivers Regional Planning Council  
4th and State Streets  
Quincy, IL 62301  
217-224-8171

Gave guidance to the committee in the preparation of this plan and furnished the county with information on the elevation and buy out programs.

National Weather Service  
Rod Palmer  
WCM Lincoln  
1362 State Route 10  
Lincoln, IL 62656  
217-732-4029

Furnished the committee with information on past major storms and floods.

Indian Grave Drainage District  
%Duke Lyter  
R R #2  
Quincy, IL 62301

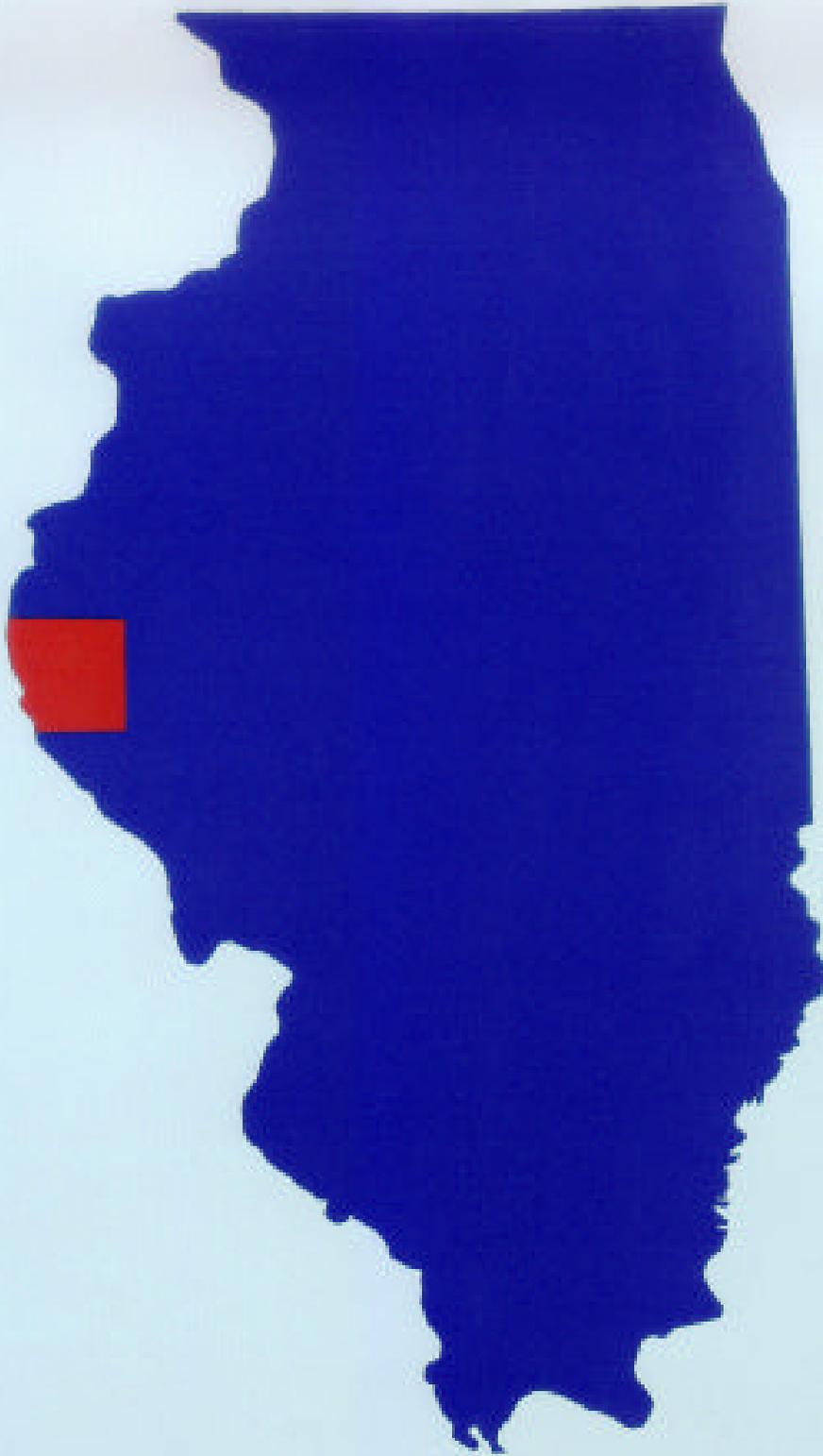
Attended public meeting for plan. Gave input into the districts views of levees and flood mitigation from their point of view.

City of Quincy Planning and Development  
Chuck Bevelheimer  
City Planner  
706 Maine Street  
Quincy, IL 62301  
217-228-4515

## **Attachments**

- 1) Location Map of County
- 2) Map of Drainage Districts
- 3) FIRM Map
- 4) Breakdown of Structures
- 5) Road Miles
- 6) Quincy, Illinois Information Brochure
- 7) Floodplain Ordinance
- 8) Subdivision Ordinance
- 9) Map of Water Districts
- 10) Map of Fire Districts
- 11) Community Rating System Information
- 12) Repetitive Losses
- 13) Map of Earthquake Zones
- 14) Flood Insurance Study (1985)
- 15) Flood Insurance Study (1996)
- 16) Buy Out Program
- 17) Elevation Program
- 18) Elevated Structure
- 19) Village of Meyer Plat
- 20) Meyer Elevations
- 21) Corps of Engineers Lease
- 22) Marblehead Plat
- 23) Insurance Rates Comparison
- 24) GIS Example
- 25) Flyer sent to residents

# ADAMS COUNTY LOCATION MAP



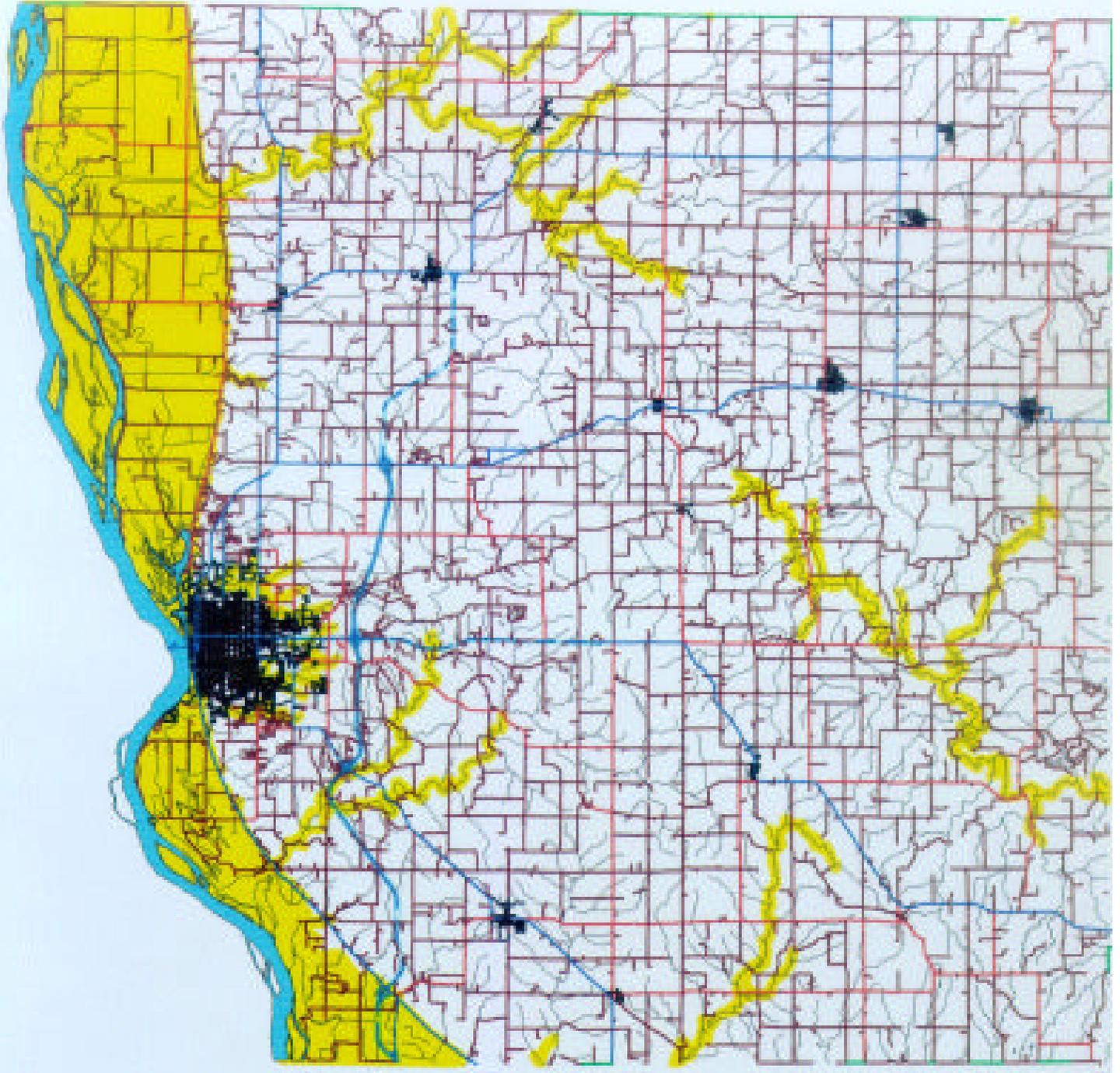
Attachment #1 Location Map

# LEVEE AND DRAINAGE DISTRICTS



Attachment #2 Levee and Drainage Districts

# ADAMS COUNTY, ILLINOIS FIRM MAP



Attachment #3 Firm Map

## BREAKDOWN OF STRUCTURES ADAMS COUNTY, ILLINOIS

	<u>PERMITTED '93</u>	<u>DESTROYED '93</u>	<u>TOTAL</u>
TRAILERS	28	32	60
CAMPS	170	61	231
HOUSES	128	33	161
SHEDS	63	34	97
MACHINE SHEDS	32	25	57
GARAGES	15	8	23
GRAIN BINS	49	61	110
SWINE BUILDINGS	5	3	8
AIRPLANE HANGAR	1	1	2
BARN	24	7	31
COMMERCIAL	21	0	21
CLUBHOUSE	3	1	4
TOTAL	539	266	805

## ROAD MILES

<u>ROAD DISTRICT</u>	<u>POPULATION 1990 CENSUS (OFFICIAL)</u>	<u>COUNTY HIGHWAY MILES</u>	<u>ROAD DISTRICT MILES</u>	<u>STATE ROAD MILES</u>	<u>TOTAL MILES</u>
CLAYTON	999	5.86	60.33	7.99	76.29
NORTHEAST	869	13.95	52.78	2.82	69.55
CAMP POINT	1622	7.18	65.32	7.65	79.35
HOUSTON	287	3.11	61.85	11.77	76.74
HONEY CREEK	700	5.89	52.72	3.79	62.40
KEENE	634	8.83	61.18	7.56	67.57
MENDON	1475	4.55	60.73	4.39	69.67
LIMA	569	29.34	52.17	4.69	77.01
URSA	1051	16.23	47.29	9.71	73.23
CONCORD	231	9.49	47.44	0.00	56.93
MCKEE	205	13.36	39.13	0.00	52.51
BEVERLY	363	14.57	38.64	6.27	59.48
COLUMBUS	500	12.46	57.05	0.00	69.51
LIBERTY	1156	12.24	56.56	8.92	77.71
RICHFIELD	431	18.86	45.18	1.83	65.87
GILMER	1107	10.13	68.81	8.21	84.95
BURTON	815	11.89	55.12	3.28	70.29
PAYSON	1926	12.15	48.66	6.92	67.73
ELLINGTON	2799	16.24	59.99	11.39	78.53
MELROSE	6098	14.22	80.38	18.53	113.13
FALL CREEK	568	2.94	41.76	11.70	56.40
RIVERSIDE	2016	6.02	22.72	9.52	38.26
TOTAL	26409	242.73	1142.51	146.88	1532.10
QUINCY	39551				
TOTAL	66060				

Insert Attachment 6 Quincy Brochure

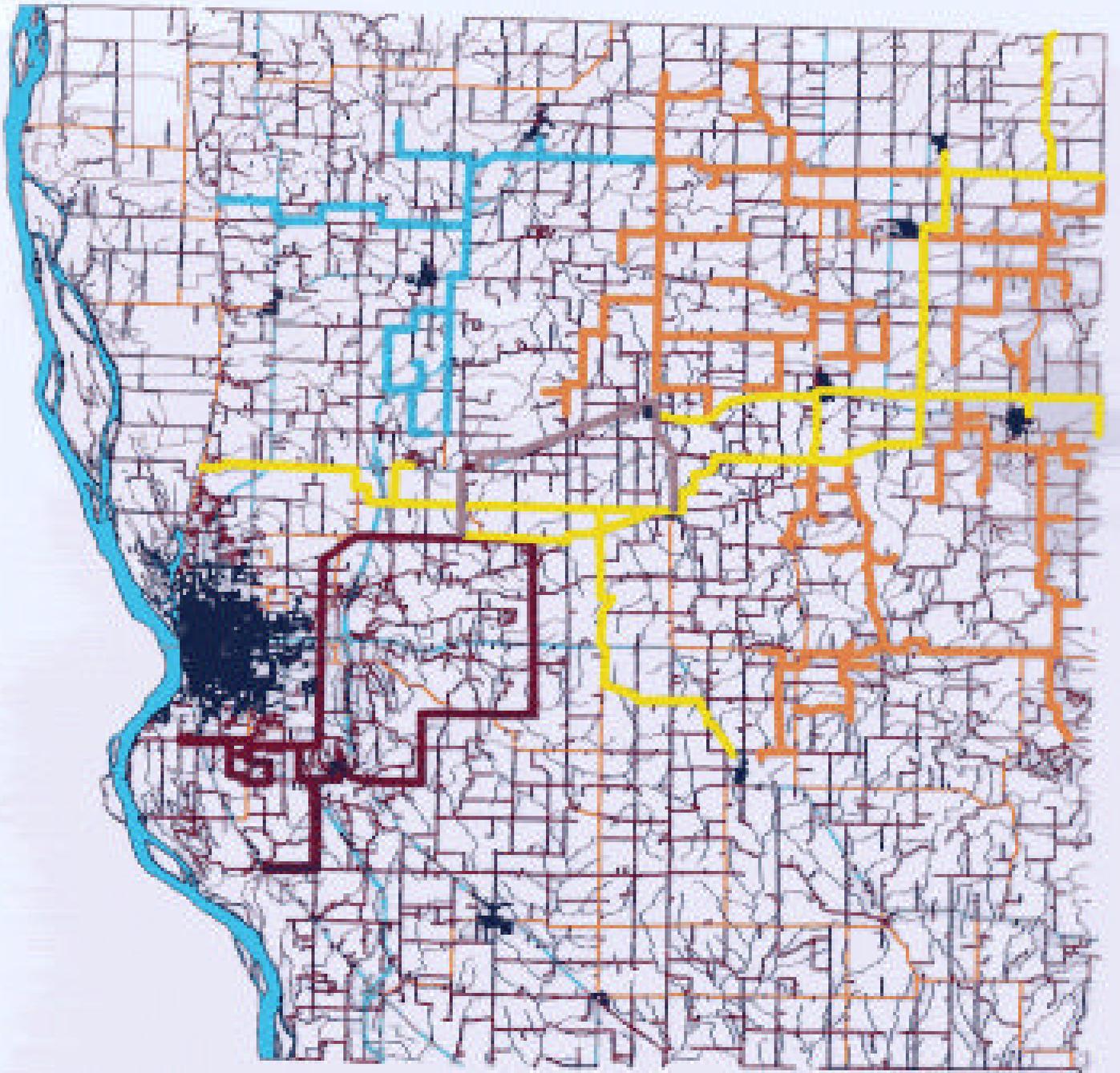
Attachment #7 Floodplain Ordinance

Please see separate entry for Floodplain Ordinance

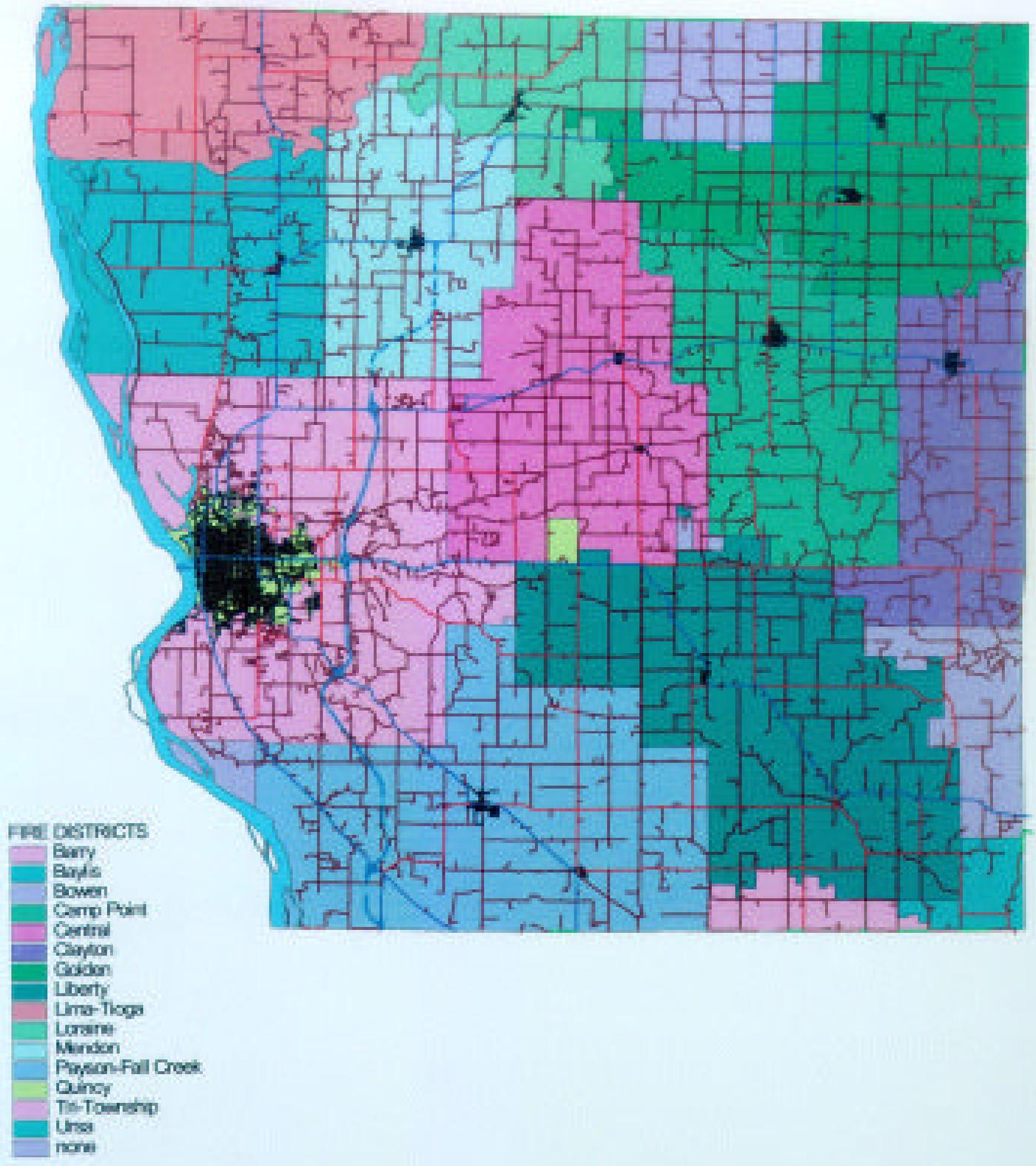
Attachment # 8 Subdivision Ordinance

Please see separate Entry for Subdivision Ordinance

# WATER DISTRICTS



# FIRE DISTRICTS













# REPETITIVE LOSS PROPERTIES

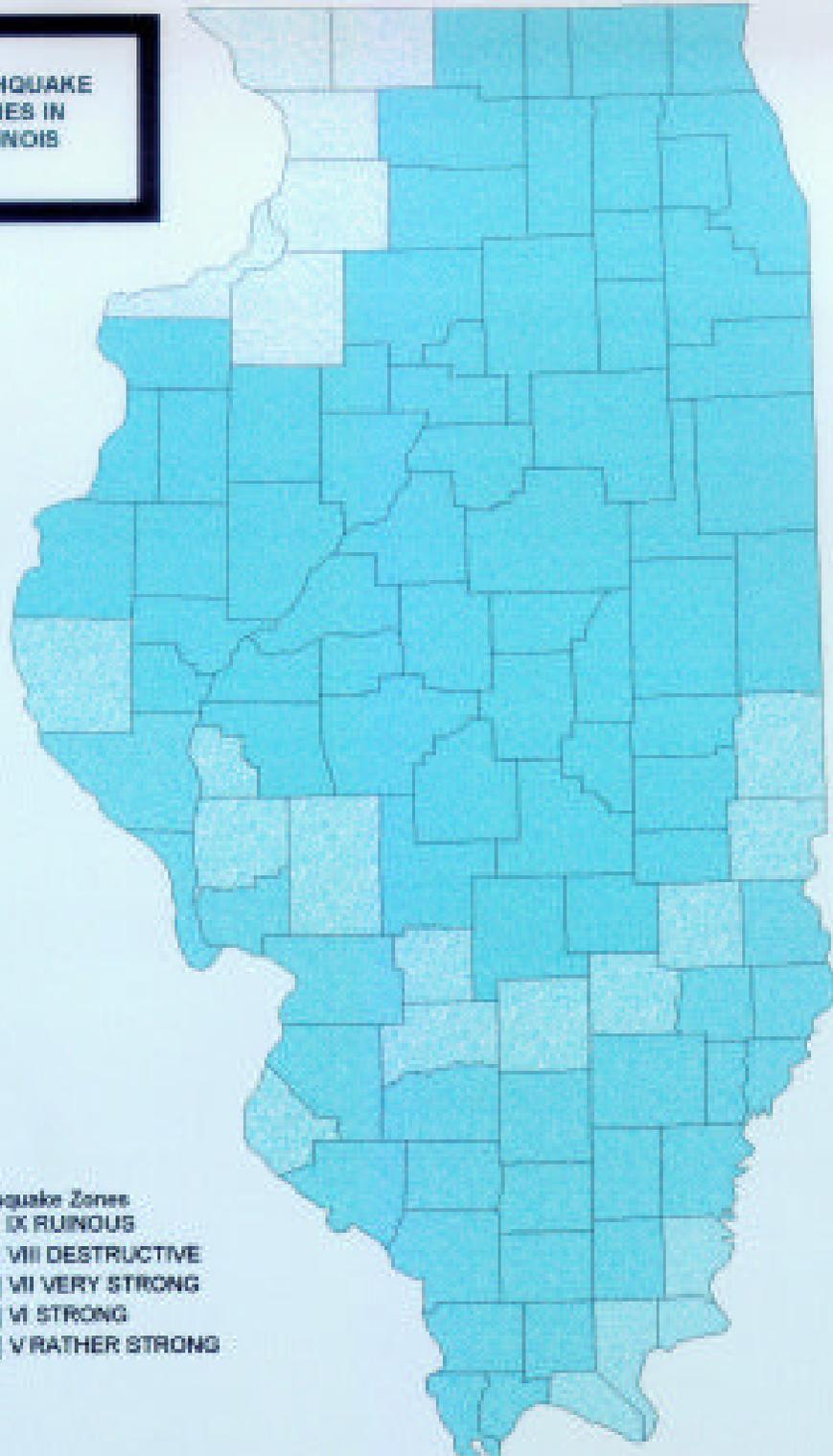


Attachment #12 Repetitive Loss Properties

**MODIFIED MERCALLI INTENSITIES BASED ON A 7.5  
MAGNITUDE EARTHQUAKE ALONG THE NEW MADRID SEISMIC ZONE**

**EARTHQUAKE  
ZONES IN  
ILLINOIS**

- Earthquake Zones**
-  IX RUINOUS
  -  VIII DESTRUCTIVE
  -  VII VERY STRONG
  -  VI STRONG
  -  V RATHER STRONG



Attachment #13 Earthquake Zones

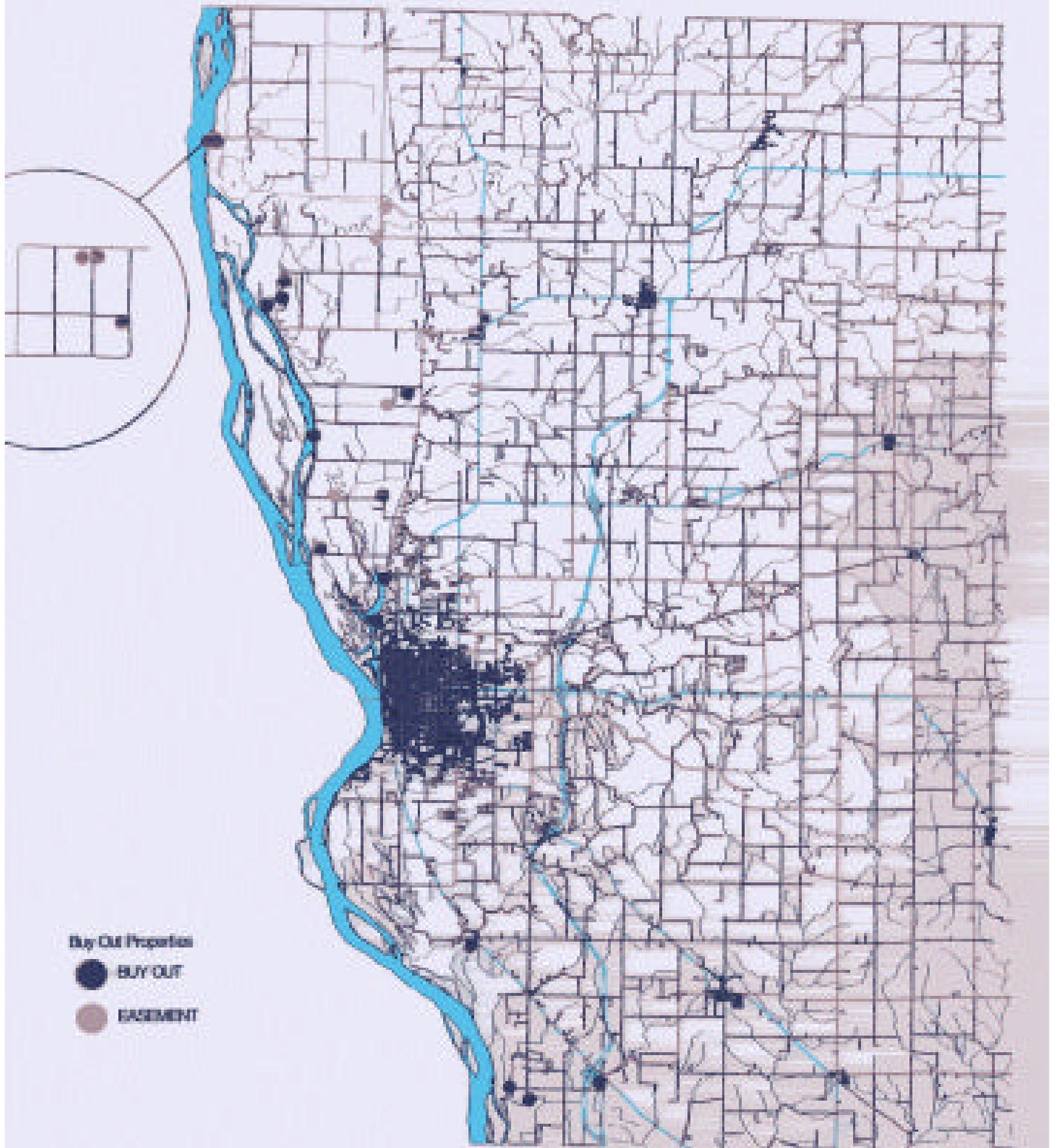
Attachment #14 Flood Study 1985

Please see separate entry for Flood Study

Attachment #15 Flood Study 1996

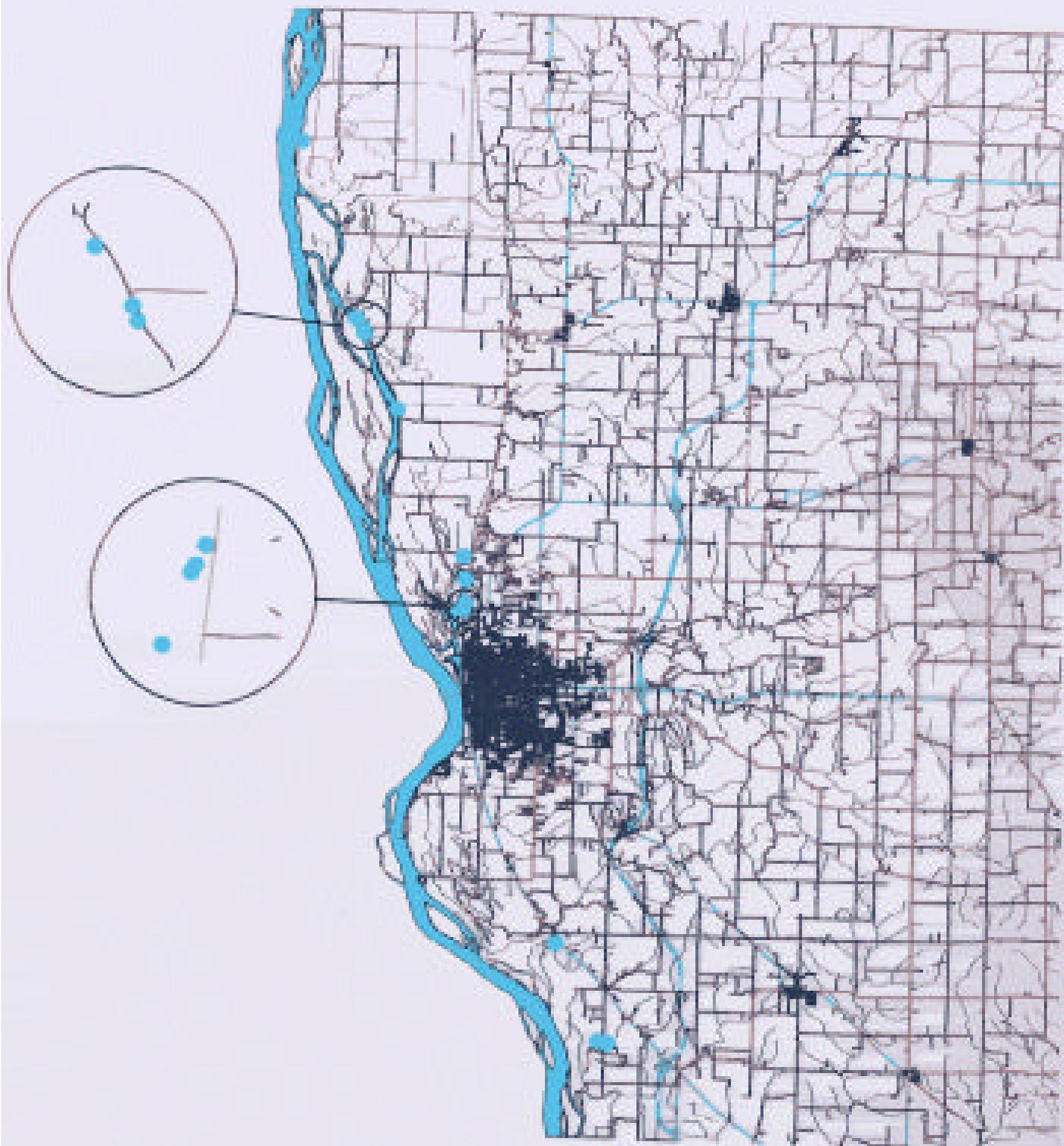
Please see Separate Entry For 1996 Flood Study

# BUY OUT PROPERTIES



Attachment #16 Buy Out Program

# ELEVATION PROPERTIES



Attachment #17 Elevation Program

# EXAMPLE OF ELEVATED STRUCTURES

**POST FLOOD  
STRUCTURE  
1993**



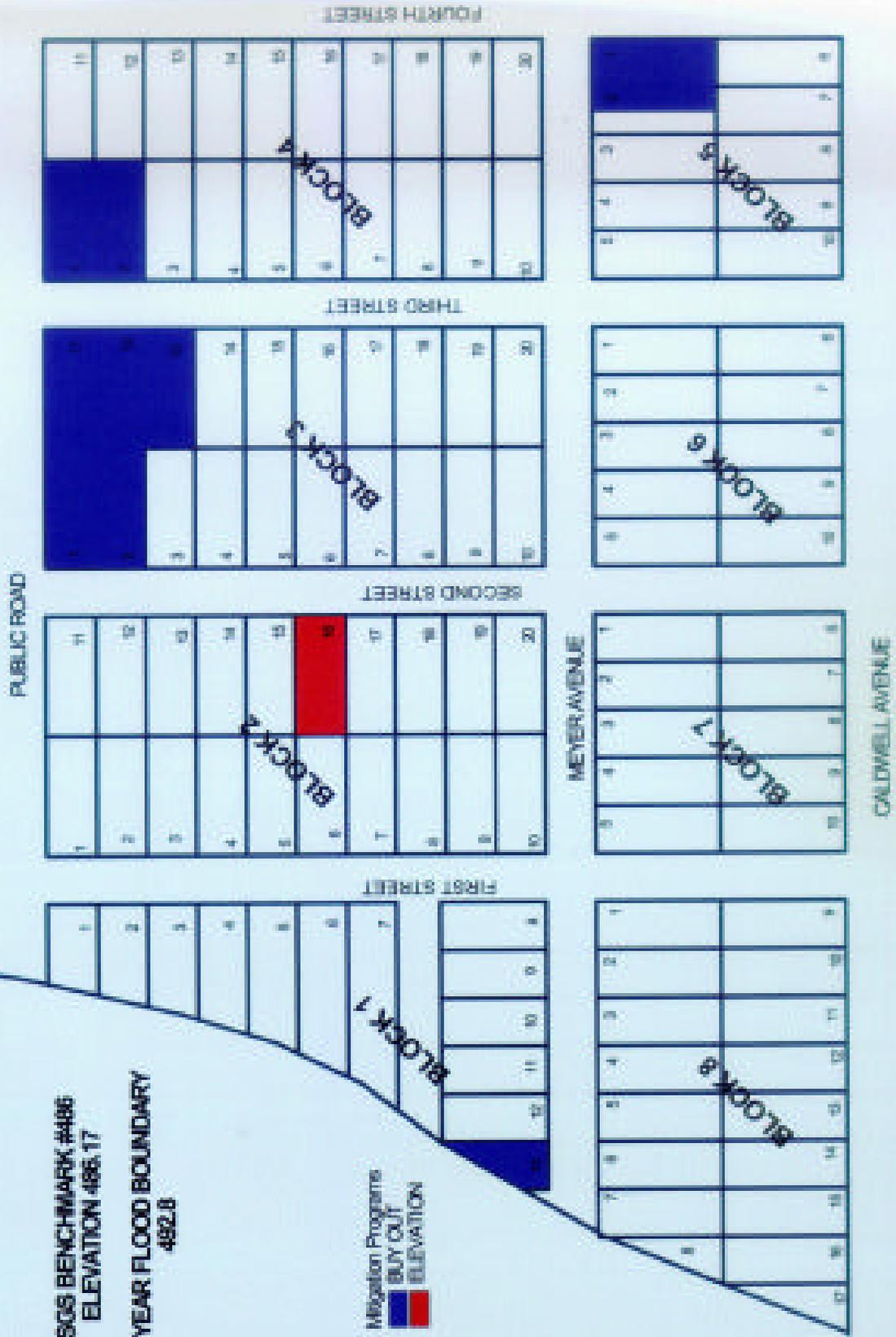
**STRUCTURE  
AFTER  
ELEVATION**

# VILLAGE OF MEYER, ILLINOIS

USGS BENCHMARK #486  
ELEVATION 486.17

100 YEAR FLOOD BOUNDARY  
492.8

Mitigation Programs  
BUY OUT  
ELEVATION



Attachment #19 Meyer

**MEYER MEAN SEA LEVEL (MSL) ELEVATIONS  
 SURVEYED 12/06/93  
 SURVEYED BY THE SOIL CONSERVATION SERVICE**

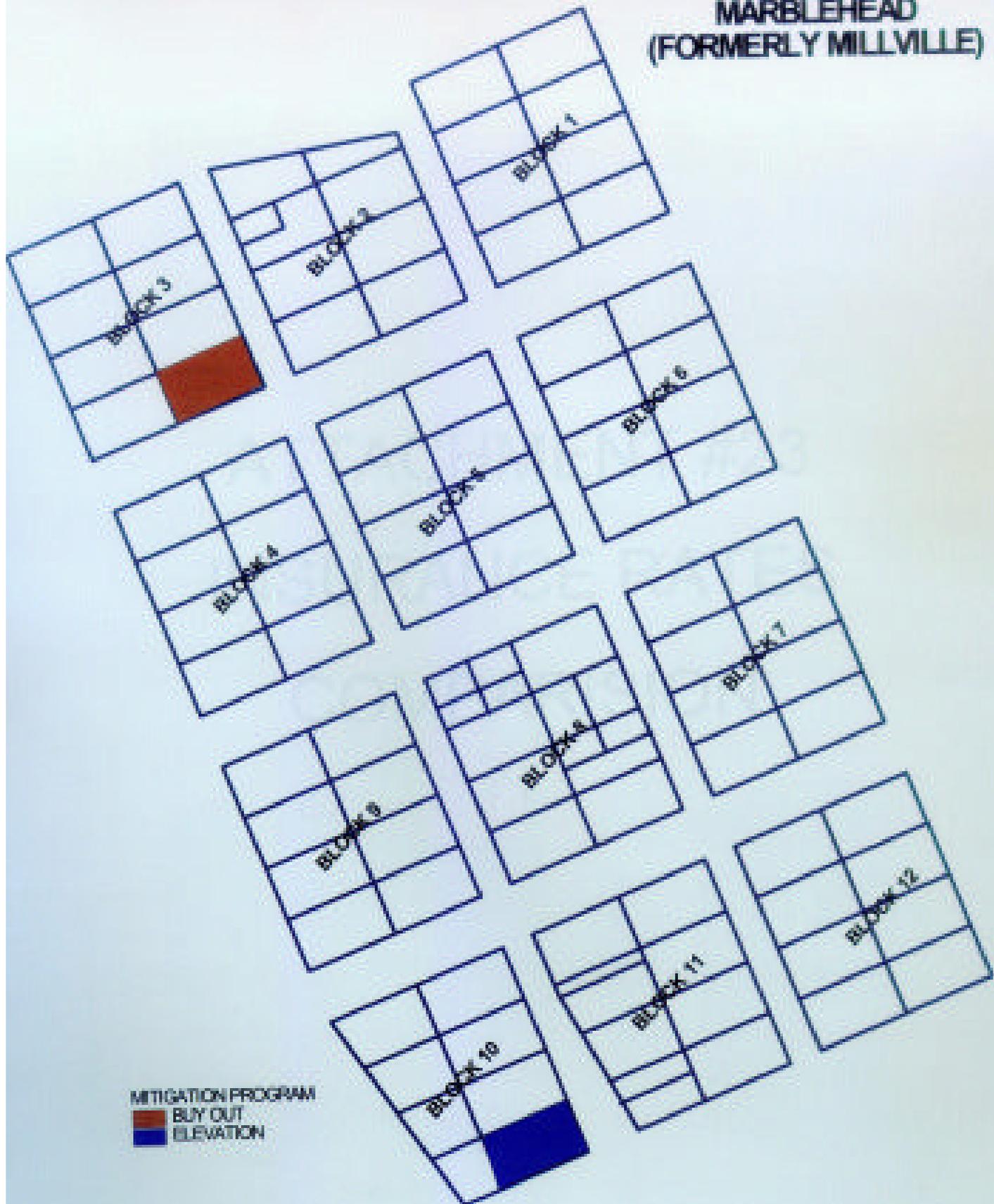
USGS BENCHMARK #488 ELEVATION 488.17  
 100 YEAR BASE FLOOD ELEVATION 492.8  
 REQUIRED FREEBOARD 1  
 REQUIRED ELEVATION 493.8

<u>BLOCK NUMBER</u>	<u>LOT NUMBER</u>	<u>ELEVATION</u>	<u>DIFFERENCE</u>
1	10	486.95	6.85
8	8	487.09	6.71
4	3	484.41	9.39
3	15	484.89	8.91
6	10	486.28	7.52
7	2	488.04	7.76
2	9	485.85	7.95
2	8	486.56	7.22
3	4	485.43	8.37
7	7	486.14	7.66
7	6	486.21	7.59
2	5	488.62	5.18
2	14	486.14	7.66
2	16	486.36	7.44
5	5	485.93	8.47
4	20	483.31	10.49
3	1	484.72	9.08
5	10	486.28	7.52
7	5	486.65	7.14
4	10	484.72	9.08
3	20	489.53	4.27
2	12	486.63	7.17
1	13	485.13	8.67
2	19	486.13	7.67
4	1	482.47	11.33
4	2	481.33	12.47
7	1	485.88	7.92
4	7	484.57	9.23
2	1	487.27	6.53
4	9	484.55	9.25
6	2	485.86	7.92
7	8	487.33	6.47
2	6	486.49	7.31
3	9	486.06	7.74
4	12	481.16	12.64
5	4	485.13	8.67
3	7	486.23	7.57

ALL ABOVE ELEVATIONS ARE GROUND ELEVATIONS ONLY  
 THESE DO NOT REFLECT ANY FLOOR ELEVATIONS FOR STRUCTURES  
 LOWEST ELEVATION 481.16 BLOCK 4 LOT 12 LOCATED IN NORTHEAST  
 CORNER OF MEYER. DIFFERENCE OF 12.64 FEET.  
 HIGHEST ELEVATION 489.53 BLOCK 3 LOT 20 LOCATED ON SOUTH END  
 OF THIRD STREET. DIFFERENCE OF 4.27 FEET  
 ELEVATIONS OF MEYER DIFFER 8.37 FEET

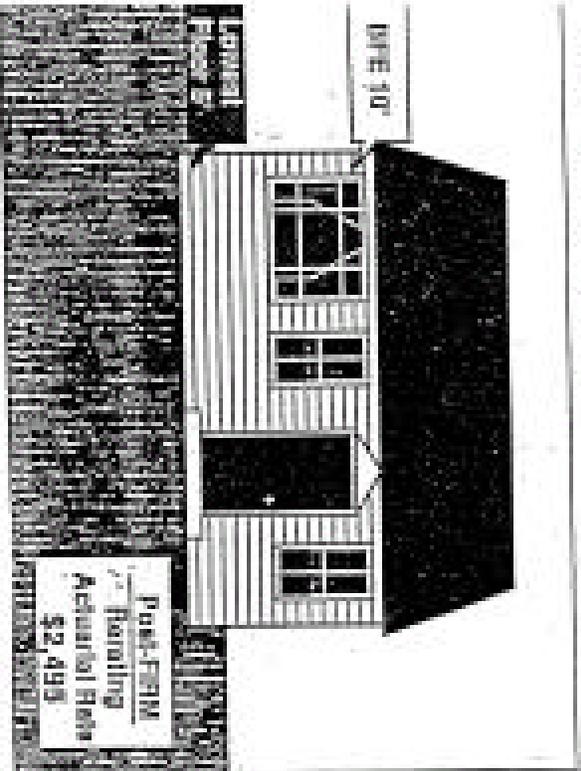
Attachment #20 Meyer Elevations

# MARBLEHEAD (FORMERLY MILLVILLE)

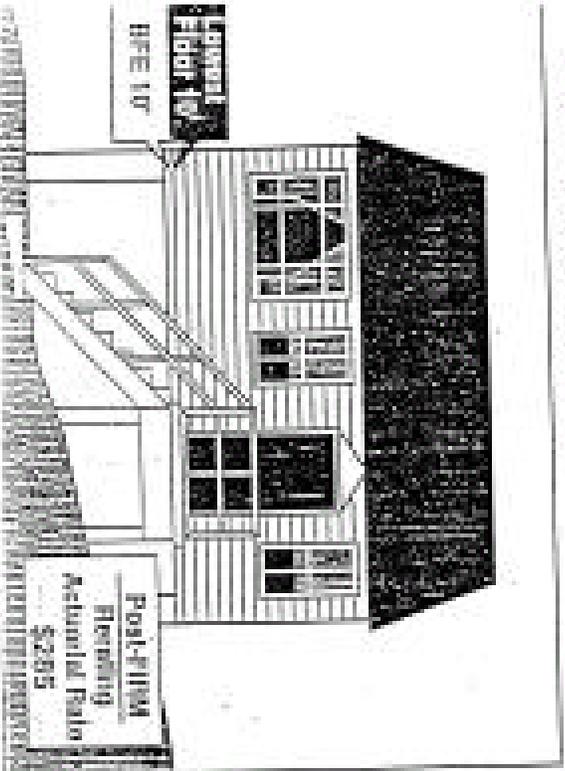


Attachment #22 Marblehead

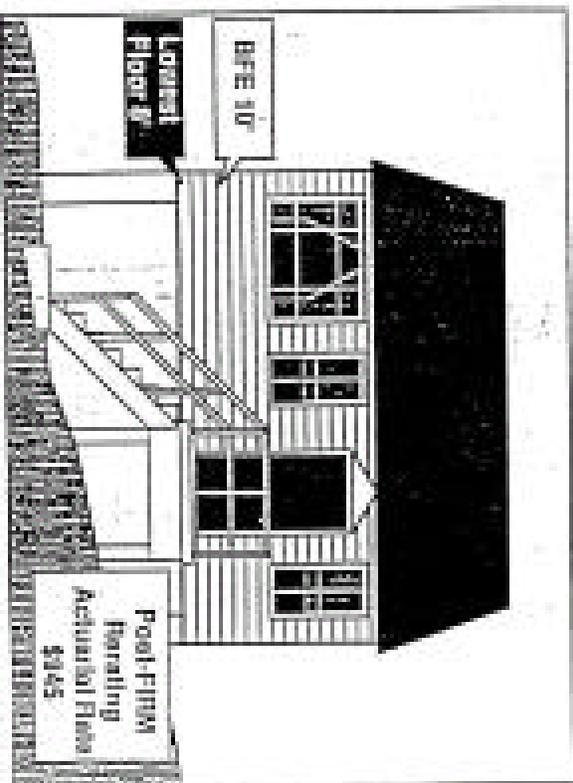
1994 - Structure Repaired - Not Elevated



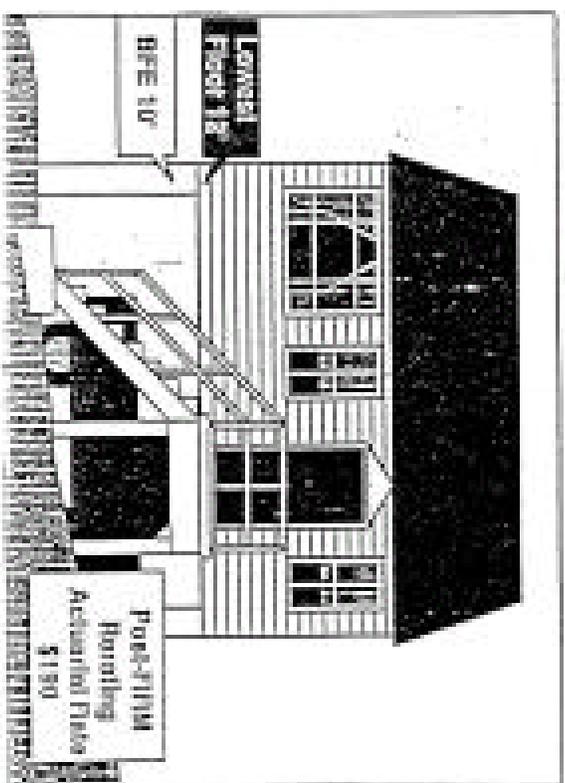
1994 - Structure Repaired - Elevated



1994 - Structure Repaired - Elevated



1994 - Structure Repaired - Elevated





# ADAMS COUNTY HIGHWAY DEPARTMENT

P.O. Box 3797

5200 Broadway, Quincy, Illinois 62305-3797

Richard A. Klusmeyer P.E. Phone  
223-0614 County Engineer  
FAX (217) 223-9418

(217)

## Flood Insurance

**NFIP:** Adams County participates in the National Flood Insurance Program (NFIP). The NFIP makes federally backed flood insurance available for all buildings, whether they are in a floodplain or not. Flood insurance covers direct loss caused by surface flooding, including a river flowing over its banks, a lake or ocean storm, and local drainage problems.

The NFIP insures buildings, including mobile homes, with two types of coverage: structural and contents. Structural coverage is for the walls, floors, insulation, furnace, and other items permanently attached to the structure. Contents coverage may be purchased separately provided the contents are in an insurable building.

**Mandatory Purchase Requirement:** The mandatory purchase requirement applies to all forms of federal or federally related financial assistance for buildings located in a Special Flood Hazard Area. This requirement affects loans and grants for the purchase, construction, repair, or improvement of any publicly or privately owned building in the Special Flood Hazard Area, including machinery, equipment, fixtures, and furnishings contained in such buildings.

Financial assistance programs affected include loans and grants from agencies such as the Department of Veterans Affairs, Farmers Home Administration, Federal Housing Administration, Small Business Administration, and Federal Emergency Management Agency. The requirement also applies to secured mortgage loans from financial institutions, such as commercial lenders, savings and loan associations, savings banks, and credit unions that are regulated, supervised, or insured by federal agencies such as the Federal Deposit Insurance Corporation and the Office of Thrift Supervision. It also applies to all mortgage loans purchased by Fannie Mae or Freddie Mac in the secondary mortgage market.

**How it Works:** Before a person can receive a loan or other financial assistance from one of the affected agencies or lenders, there must be a check to see if the building is in a Special Flood Hazard Area. The Special Flood Hazard Area is the base (100-year) floodplain mapped on a Flood Insurance Rate Map (FIRM). It is shown as one or more zones that begin with the letter "A" or "V".

Copies of the FIRM for the unincorporated areas of Adams County are available for review at the Adams County Highway Department. Many lenders and insurance agents have copies, also. It is the agency's or the lender's responsibility to check the FIRM to determine if the building is in a Special Flood Hazard Area. The Adams County Highway Department will provide assistance to determine if a property is in the Special Flood Hazard Area.

If the building is in a Special Flood Hazard Area, the agency or lender is required by law to require the recipient to purchase a flood insurance policy on the building. The requirement is for structural coverage equal to the amount of the loan (or other financial assistance) or the maximum amount available, whichever is less. The maximum amount available for a single-family house is \$250,000.

The mandatory purchase requirement does not affect loans or financial assistance for items that are not covered by a flood insurance policy, such as vehicles, business expense, landscaping, and vacant lots. It does not affect loans for buildings that are not in the Special Flood Hazard Area, even though a portion of the lot may be floodprone. While not mandated by law, a lender may require a flood insurance policy for a property in any zone on a Flood Insurance Rate Map.

### **Flood Hazard: Check Before You Buy**

Flooding and other surface drainage problems can occur well away from a river, lake or ocean. If you're looking at a property, it's a good idea to check out the possible flood hazard before you buy. Here's why:

The force of moving water or waves can destroy a building.

Slow moving floodwaters can knock people off their feet or float a car.

Even standing water can float a building, collapse basement walls, or buckle a concrete floor.

Water-soaked contents, such as carpeting, clothing, upholstered furniture, and mattresses may have to be thrown away after a flood.

Some items, such as photographs and heirlooms, may never be restored to their original condition.

Floodwaters are not clean: floods carry mud, farm chemicals, road oil, and other noxious substances that can cause health hazards.

The impact of a flood, cleaning up, making repairs, and the personal losses can cause great stress to you, your family, and your finances.

**Floodplain Regulations:** Adams County regulates construction and development in the floodplain to ensure that buildings will be protected from flood damage. Filling and similar projects are prohibited in certain areas. Houses that are substantially damaged by fire, flood, or any other cause, must be elevated above the flood level when they are repaired.

**Check for the Flood Hazard:** Before you commit yourself to buying property, do the following:

Ask the real estate agent if the property is in a floodplain, if it has ever been flooded, and if it is subject to any other hazards, such as sewer backup or subsidence.

Ask the seller and the neighbors if the property is in a floodplain, how long they have lived there, if the property has ever been flooded, and if it is subject to any other hazards.

Ask the Adams County Highway Department if the property is in a floodplain, if it has ever been flooded, what is the flood depth, velocity, and warning time, if it is subject to any other hazards and what building regulations are in effect.

**Flood Protection:** A building can be protected from most flood hazards, sometimes at a relatively low cost. New buildings and additions can be elevated above flood levels. Existing buildings can be protected from shallow floodwaters by regrading, berms, or floodwalls. There are other retrofitting techniques that can protect a building from surface or subsurface water.

**Flood Insurance:** One of the best protection measures for a building with a flood problem is National Flood Insurance, which is purchased through any property insurance agent. If the building is located in a floodplain, flood insurance will be required by most mortgage lenders. (see other side)

# ADAMS COUNTY HIGHWAY DEPARTMENT

P.O. Box 3797

5200 Broadway, Quincy, Illinois 62305-3797

Fax 217-223-9418

Office of  
Richard A. Klusmeyer P.E.  
County Engineer

Telephone 217-223-0614

**September 30, 1997**

NOTICE TO: Lending Institutions and Real Estate and Insurance Agents

SUBJECT: Flood Insurance Rate Map Zone Information

As a public service, Adams County will provide you with the following information upon request:

Whether a property is in or out of the Special Flood Hazard Area as shown on the current Flood Insurance Rate Map (FIRM) of the unincorporated areas of the County.

Additional flood insurance data for a site, such as the FIRM zone and the base flood elevation or depth, if shown on the FIRM.

We have a handout on the flood insurance purchase requirement that can help people who may need a mortgage or loan for a property in the Special Flood Hazard Area.

There is no charge for this service. If you would like to make an inquiry, please tell us the Township, Range, Section and Quarter section of the parcel. We are open 8:00 a.m. to 4:30 p.m. Monday through Friday. Call us at (217) 223-0614 (FAX 223-9418) or drop by the Adams County Highway Department at 5200 Broadway, Quincy, IL. Our mailing address is P. O. Box 3797, Quincy, IL 62305.

Yours very truly,

Richard A. Klusmeyer P.E.  
County Engineer

RAK/jdb