
ADAMS COUNTY ALL HAZARDS MITIGATION PLAN UPDATE



Adams County Emergency Management

Prepared by: North Central Wisconsin Regional Planning Commission

ADAMS COUNTY ALL HAZARDS MITIGATION PLAN UPDATE

prepared for:

Adams County Emergency Management

by:

North Central Wisconsin Regional Planning Commission

adopted by Adams County Board on:

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This update was prepared at the request and under the supervision of the Adams County Public Safety & Judiciary Committee and its Emergency Management Director by the North Central Wisconsin Regional Planning Commission (NCWRPC). For more information, contact:

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Introduction

Part I of the Adams County All Hazards Mitigation Plan (AHMP) Update describes and documents the process used to develop the plan update. This includes how it was prepared and who (committee, organizations, departments, staff, consultants, etc.) was involved in the update process. It also describes the local governments involvement, the time period in which the update was prepared, and who to contact to answer questions and make recommendations for future amendments to the plan.

Disaster Mitigation Act of 2000

The development of the Adams County All Hazards Mitigation Plan Update is a response to the passage of the Disaster Mitigation Act of 2000 (DMA2K). On October 30, 2000, DMA2K was signed into law by the U.S. Congress in an attempt to stem the losses from disasters, reduce future public and private expenditures, and to speed up response and recovery from disasters. This Act (Public Law 106-390) amended the Robert T. Stafford Relief and Emergency Assistance Act. The following is a summary of the parts of DMA2K that pertain to local governments and tribal organizations:

- The Act establishes a new requirement for local governments and tribal organizations to prepare an All Hazards Mitigation Plan in order to be eligible for funding from FEMA through the Pre-Disaster Mitigation Assistance Program and Hazard Mitigation Grant Program.
- The Act establishes a requirement that natural hazards such as tornados, floods, wildfires need to be addressed in the risk assessment and vulnerability analysis parts of the All Hazards Mitigation Plan. Manmade such as hazardous waste spills is encouraged but not required to be addressed.
- The Act authorizes up to seven percent of Hazard Mitigation Grant Program funds available to a state after a federal disaster to be used for development of state, local, and tribal organization All Hazards Mitigation Plans.
- The Act establishes November 1, 2004 as the date by which local governments and tribal organizations are to prepare and adopt their respective plans in order to be eligible for the FEMA Hazard Mitigation Grant Program and November 1, 2003 Pre-Disaster Mitigation Program.
- If a plan is not prepared by November 1, 2004, and a major disaster is declared, in order for a local government or tribal organization to be eligible to receive funding through the Hazard Mitigation Grant Program, they must agree to prepare an All Hazards Mitigation Plan within one year.

- In addition, by not having an All Hazard Mitigation Plan, local governments and tribal organizations cannot utilize funding through the Pre-Disaster Mitigation Grant Program.
- All Hazard Mitigation Plans must be updated every five years.

The Five Parts of an All Hazards Mitigation Plan Update

The Adams County All Hazards Mitigation Plan Update was categorized into five parts in order to address FEMA’s local mitigation plan requirements. The five parts are as followed:

- Part I: Update Planning Process
- Part II: Planning Area
- Part III: Risk Assessment
- Part IV: Mitigation Strategy
- Part V: Plan Maintenance Process and Adoption

Development of the All Hazards Mitigation Plan Update

The Adams County Emergency Management Department received a Planning Grant in 2008 to update its All Hazards Mitigation Plan through the Pre-Disaster Mitigation (PDM) Program.

In late 2008, the North Central Wisconsin Regional Planning Commission (NCWRPC) finalized a work agreement with Adams County and began preparation of the All Hazards Mitigation Plan at the request of the County Emergency Management Director in September of 2008.

The update process included regular Task Force Committee meetings as well as extensive involvement from the local units of government within Adams County and the counties surrounding Adams. A variety of local and regional agencies were involved in the development of the plan at various stages, and extensive opportunity for public participation was provided including public informational meetings and hearings. All sections of the plan report were reviewed and analyzed by the planning team at subsequent meetings and revised as established in the design of the update process for this Plan.

The remainder of this chapter expands on and provides more detail on key aspects of the update development process.

Key Elements Of The Update To The Original 2004 Plan

The major enhancements to the Adams County All Hazards Mitigation Plan develop through this update are as follows:

- ✓ Expanded Task Force membership - Planning committee size was expanded from 5 to 11 members greatly expanding the breadth of representation directly involved with plan development.

- ✓ Review of Recommended Revisions - The final Crosswalk for the original plan approval listed a number of "recommended revisions" which were addressed in this update through the experience of subsequent plan adoptions from other counties.
- ✓ Review and update of planning area chapter - The planning area description and inventory was expanded and improved with additional information and updated statistics.
- ✓ Review and update of risk assessment - The risk assessment was updated with documentation on recent hazard events and utilization of the **HAZUS** flood module. The priority level of hazards facing the County was also reviewed and updated.
- ✓ Review and update of Mitigation Strategy - The mitigation strategies chapter begins with a complete progress report on the strategies from the 2004 plan, establishment of new set of strategies for next five-year cycle and an updated prioritization of projects.

All Hazards Mitigation Plan Update Taskforce

The Adams County All Hazard Mitigation Plan Update was prepared under the guidance of an advisory taskforce that consisted of a broad cross section of government, agency and interest group representatives from across the County. Periodic meetings were held with the NCWRPC staff, the County Emergency Management Director (Jane Grabarski), and the Task Force to provide input on the types of hazards to be considered, appropriate mitigation strategies, and to review draft reports. Task Force members and their representation are as follows:

Dan Breene	USDA Farm Service Agency / Town of Easton Supervisor
Fred Camacho	Ho Chunk Nation
Reesa Evans	Adams County Land and Water Conservation Department
John Frantz	Fire Officers Association - Adams County / Town of Rome - Fire Chief
Todd Hanson	City of Adams - Chief of Police
John Jones	Red Cross Representative / Village of Friendship President
Steve LaValle	Adams/Friendship School District - Superintendent
Cindy Loken	Adams County Board / Public Safety Committee
Phil McLaughlin	Adams County Planning and Zoning Administrator
John Pavelec	Towns Association - Adams County Unit / Adams County Drainage Board
Jodi Stormoen	Wisconsin Department of Natural Resources

Local Government Involvement

There were a number of opportunities for the local units of government to become involved in the update process. All jurisdictions participated in the original plan as well as this update through one or more of these opportunities.

In January of 2009 a hazard mitigation issues survey was sent to each town chairperson and clerk, see APPENDIX A, requesting which hazards are a concern, input on past and future mitigation measures, and to document other information that could be incorporated into the All Hazards Mitigation Plan Update. Responses were received from 14 of 17 towns. A significant amount of information was gleaned from these questionnaires and incorporated into the planning document.

On April 17, 2009, the NCWRPC formally introduced the update to the Adams County Towns Association at a meeting at the Adams Community Center. A presentation was given describing the planning process followed by a general discussion of the hazards facing the towns. A majority of towns in the County were present at this meeting. At the end of the presentation, comments on potential mitigation strategies were solicited.

The Village of Friendship was formally introduced to the update process at a separate meeting on March 9, 2009. Village President John Jones and Public Works Superintendent, Mike Zant, were in attendance. The participants at this meeting also provided information on hazards that have significance to the area, discussed critical facilities and provided mitigation strategy ideas for the plan.

The City of Adams was formally introduced to the update process at a separate meeting on April 16 2009. Police Chief Todd Hanson and members of the City's Public Safety Committee were in attendance. The participants at this meeting also provided information on hazards that have significance to the area, discussed critical facilities and provided mitigation strategy ideas for the plan.

Neighboring Community Involvement

One of the requirements of the update process was to include neighboring communities. In previous plans, the NCWRPC experienced low attendance in response to invitations to county emergency management staff from surrounding counties. As a result, NCWRPC staff teleconferenced during the update process with staff from Columbia, Juneau, Marquette, Portage, Waushara and Wood counties. Ideas were exchanged about All Hazards Mitigation planning processes and strategies between the various counties.

Local and Regional Agency Involvement

Another requirement of the update process was to involve local and regional agencies that have a role in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia, and other private and non-private interests. To meet this objective, the NCWRPC invited a diverse group of stakeholders to discuss potential hazard mitigation strategies.

The meeting was held on March 9, 2009 at the Adams Community Center in Adams. Agencies and organizations represented include the following:

Kathie Anderson	-	Villa Pines Living Center
Tony Case	-	Oxford Federal Correctional Facility
Ron Chamberlain	-	Adams County Highway Dept
Corrie Dhein	-	Alliant Energy
John Frantz	-	Town of Rome Fire Dept
Adam Grosz	-	Town of Rome Police Dept
Mike Harris	-	Oxford Federal Correctional Facility
David July	-	Adams County Sheriff Dept
Marcia Kaye	-	Times Reporter Newspaper
Ernie Klicko	-	Village of Friendship
Linda Matzke	-	Town of Jackson
Richard Mohle	-	Easton Lake District
Chuck Price	-	Adams County Health and Human Services
Greg Pulver	-	Alliant Energy
Darrell Renner	-	Adams County Sheriff
Derk Rodger	-	Oxford Federal Correctional Facility

A number of other agencies were invited but chose not to attend.

During the meeting, the Plan Update and its components were introduced to the attendees. Mitigation strategy ideas were solicited and a number of ideas were discussed at length with the group. Part IV of the Plan was revised based on the meeting.

During the meeting a number of issues were discussed. Meeting attendees brought up issues with early warning. Warning sirens and NOAA weather radios were discussed. Evacuation and shelter issues were also brought up. The recreational nature of the County was brought up regarding the implication of providing shelter for people such as campers. Evacuation and shelter of special needs populations such as the Villa Pines Nursing Home was also discussed. The County's haz-mat situation was discussed briefly.

Public Review Process and Plan Adoption

Opportunities for public comment were provided to review the Plan Update during the drafting stage and prior to Plan approval. All meetings were properly posted and open to the public. A copy of the draft was made available on the Internet. Comments and questions about the Plan were directed to the Adams County Emergency Management Department.

A public informational meeting on the draft update was held at the Adams County Courthouse on May 21, 2009. Notices were distributed to each local unit of government and posted in the local newspapers. A total of four (4) people (in addition to staff) attended this meeting. Topics brought up include the need for more wind/snow breaks around the County such as County Highway C between 10th and 11th Avenues and "anywhere" on County Highway G. One attendee felt

that priority should be given to firefighter training for wildland fires. No additional comments were received as a result of this meeting.

A public hearing was held by the County Public Safety & Judiciary Committee on August 12, 2009. No one from the public attended and thus no public comments were received. In addition, no written comments were submitted. Following the public hearing, the County Board approved the plan update at a subsequent meeting, see the resolution in Appendix B for details on this meeting. A brief overview of the update process and resulting updated plan was provided by Staff, and there was some general discussion by the Board.

Each local unit was asked to adopt the plan update for its jurisdiction at their own properly posted and open public meeting, see APPENDIX B for the County and other local units resolutions of adoption.

Incorporated Plans, Studies, Reports And Technical Data

Many plans, reports, and technical data were referenced and incorporated into the Adams County All Hazards Mitigation Plan Update. The following is comprehensive list of the data was used:

- Adams County Comprehensive Plan
- Town of Rome Community Wildfire Protection Plan
- County Economic Development Strategy Report
- Adams County Emergency Operations Plan
- Emergency Action Plans – various dams within county
- Flood Insurance Study...for Adams County and Incorporated Areas
- DFIRM Maps for Adams County
- Hazard Analysis for the State of Wisconsin
- Land and Water Resource Management Plan – Adams County
- Zoning Ordinance – Adams County
- State of Wisconsin Hazard Mitigation Plan
- Adams County All Hazards Mitigation Plan 2004

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INTRODUCTION

Part II of the Adams County All-Hazard Mitigation Plan provides general geographical information on Adams County including demographic and economic characteristics. The general development patterns of the County are described in terms of current land use and future development trends.

In addition to developing an understanding of the planning area, this chapter represents the beginning stages of assessing vulnerability by inventorying the numbers, types and values of existing buildings, infrastructure and critical facilities within each participating jurisdiction in the planning area. This overall summary of each jurisdiction's vulnerability to hazards describes the potential impact on the community.

Land use and development trends are analyzed to project the number and type of potential future buildings, infrastructure and critical facilities within each jurisdiction so that mitigation options can be considered in future land use decisions.

The resulting information is an important element of the planning process, since sound alternative mitigation strategies cannot be formulated and evaluated without an in-depth knowledge of the relevant conditions in the study area.

GENERAL GEOGRAPHY**LOCATION**

Adams County is located in central Wisconsin (See Map 1). The largest urban areas are the City of Adams and the Village of Friendship, which border each other and are located in the center of the County. The City of Wisconsin Dells is encroaching from the south into the southwest corner of the County. The County is bounded on the north by Portage and Wood Counties, on the east by Marquette and Waushara, on the south by Columbia, and on the west by Juneau County.

Adams County lies 150 miles northwest of Milwaukee; 116 miles southwest of Green Bay; 87 miles east of La Crosse and 78 miles north of Madison. Major metropolitan areas outside of Wisconsin with transportation linkages to Adams County are Chicago, 219 miles southeast; Minneapolis-St. Paul, 202 miles northwest; and Duluth, 294 miles north.

CIVIL DIVISIONS

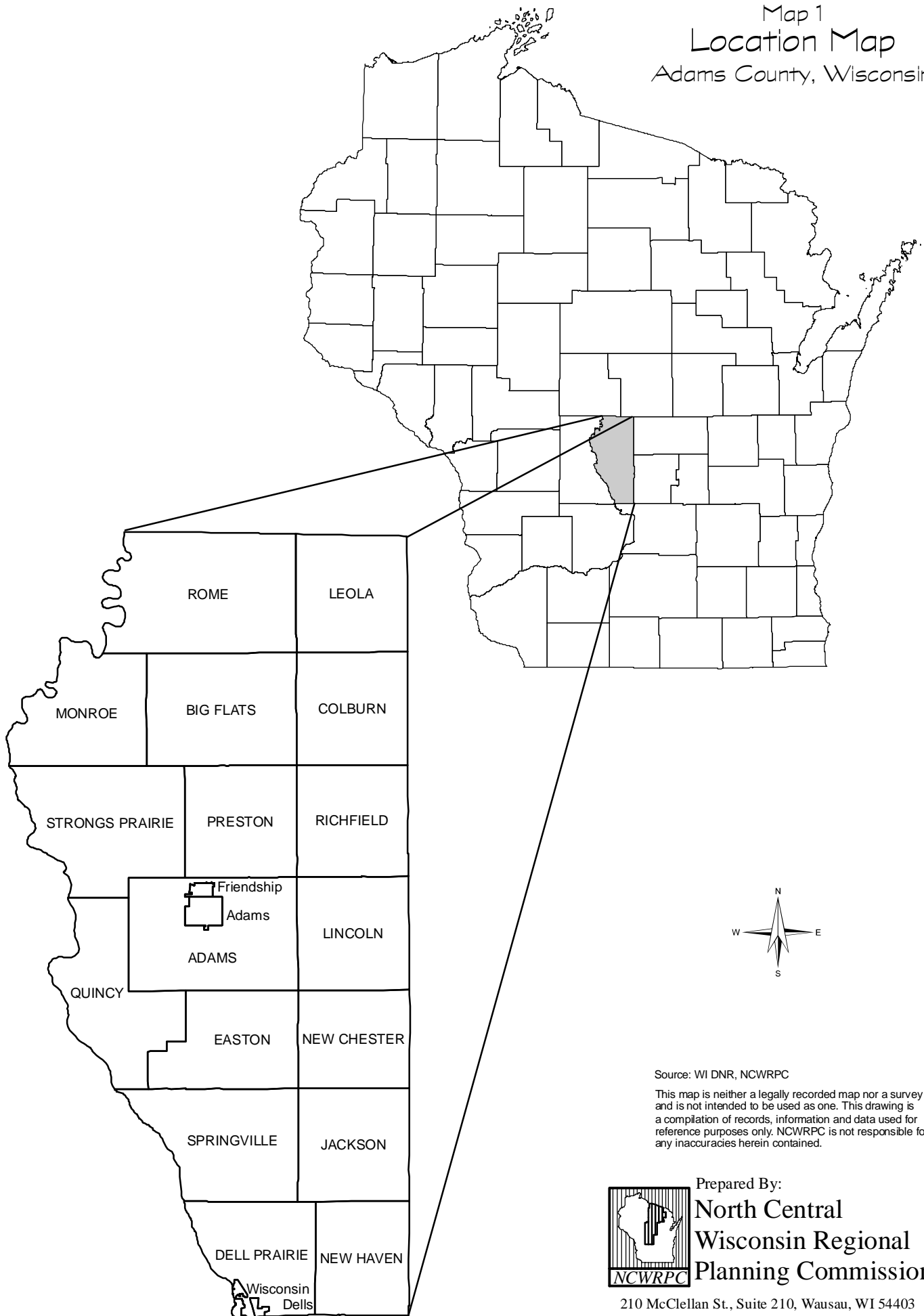
There are 20 municipalities (17 towns, 1 village, and 2 cities) in the Adams County planning area. The Village of Friendship is the County Seat. These units of government provide the basic structure of the decision-making framework. Although not general-purpose units of governments, there are also 9 lake and/or sanitary districts. The County has a total surface area of 689 square miles, of

which 6.2 % is water. The area and proportion of the County within each civil division is presented in Table 1.

Municipality	Area in square miles			Area as % of County
	Water area	Land area	Total area	
Adams city	0	2.94	2.94	0.4%
Adams town	0.09	50.5	50.59	7.3%
Big Flats town	0.01	48.1	48.1	7.0%
Colburn town	0	35.92	35.92	5.2%
Dell Prairie town	1.16	31.45	32.61	4.7%
Easton town	0.05	36.1	36.15	5.3%
Friendship village	0.03	0.89	0.92	0.1%
Jackson town	0.96	34.83	35.79	5.2%
Leola town	0	37.22	37.22	5.4%
Lincoln town	0	36.19	36.19	5.3%
Monroe town	16.58	21.91	38.49	5.6%
New Chester town	0.18	31.21	31.39	4.6%
New Haven town	1.14	29.27	30.41	4.4%
Preston town	0.47	35.39	35.86	5.2%
Quincy town	6.82	32.81	39.63	5.8%
Richfield town	0	35.45	35.45	5.1%
Rome town	8.06	54.26	62.31	9.0%
Springville town	0.75	43.9	44.65	6.5%
Strongs Prairie town	4.5	47.41	51.91	7.5%
Wisconsin Dells (part)	0	2.00	2.00	0.3%
Adams County	40.78	647.74	688.51	100.0%

Source: U.S. Census and NCWRPC

Map 1
 Location Map
 Adams County, Wisconsin



Source: WI DNR, NCWRPC
 This map is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only. NCWRPC is not responsible for any inaccuracies herein contained.



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TOPOGRAPHY

Adams County is in the Wisconsin Central Plain, which is characterized by flat or gently undulating topography. Relief is generally low, and the county has extensive wetlands of various types. There are also occasional pinnacles and hills of sandstone such as Pilot Knob, Rabbit Mound, Friendship Mound and Roche-A-Cri Mound.

Roche-A-Cri Mound rises 300 feet above the surrounding plain to an elevation of 1,185 feet. Elevations along the Wisconsin River range from 850 feet in the southern part of the County to 950 feet in the northern part. The altitude of the outwash plain ranges from 1,000 to 1,100 feet.

The Johnstown moraine in southeastern Adams County divides the drainage between the Wisconsin and Fox Rivers. The principal drainage in Adams County is westward to the Wisconsin River. Little Roche-A-Cri Creek, Big Roche-A-Cri Creek and Fourteen Mile Creek are the major tributaries. Drainage east of the moraine is to the Fox River via Neenah Creek, Widow Green Creek, and other tributaries.

Streams in Adams County begin in outwash plains, which provide relatively large and constant amounts of ground water. Average regional runoff is about 9 inches per year. The Wisconsin River is regulated by dams and has a relatively constant flow. Floodplains in Adams County are small, and floods occur only during periods of exceptionally heavy rainfall.

CLIMATE

Adams County has a continental climate that is characterized by long, cold, snowy winters; warm summers; and springs and falls that are often short. From late fall through spring, the weather changes every few days because of air masses that are part of pressure systems moving eastward and northeastward over the northern states.

In winter, the average temperature is 18 degrees F., and the average daily minimum temperature is 8 degrees. The lowest temperature on record is -43 degrees, which occurred in 1951. The number of days at or below 0 degrees has varied from 9 in 1931 to 53 in 1950. In summer, the average temperature is 69 degrees and the average daily temperature is 82 degrees. The highest recorded temperature is 112 degrees, which occurred in 1936. The number of days at or above 90 degrees has varied from 1 in 1951 to 35 in 1933.

Average total annual precipitation is 29.27 inches. Of this, about 60% usually falls in May through September. The heaviest 1-day rainfall on record was 5.04 inches on June 22, 1940. Thunderstorms occur on about 32 days each year. Hail falls on an average of two days a year. Average seasonal snowfall is 38.1 inches, with 97 inches (2007-8) being the greatest total on record.

DEMOGRAPHIC AND ECONOMIC PROFILE

POPULATION AND HOUSEHOLDS

The official state 2008 population estimate for Adams County shows a population of 21,836 people for the County. This represents a nearly 10% increase over the 2000 Census reported population of 19,920 people. Since 1990, the population of Adams County has increased by 39% or by 6,154 people. Adams County has been among the fastest growing counties in the state for some time, outpacing its neighbors and only more recently being matched by the likes of Juneau and Waushara counties (refer to Table 2). If the growth rate continues at the current level, there will be approximately 23,932 people in Adams County in 2016, and 26,229 people in 2024.

Population concentrations and trends are important when prioritizing hazard mitigation strategies. Approximately 14 percent of the population is classified by the Census as urban and 86 percent is rural. Adams/Friendship is one of the most densely populated and developed areas in the County. Other areas of population concentrations are around Lakes Camelot, Sherwood, and Arrowhead in the Town of Rome; along Castle Rock Lake in the Town of Quincy; and the communities of Dellwood, Easton, Brooks, Grand Marsh, and Big Flats. Map 2 (below) shows areas of residential population concentrations in the County. Overall population density of the County is 31.7 persons-per-square-mile and ranges from a high of 865 in the Village of Friendship to a low of 4.3 in the Town of Richfield.

County	2000	2008	# Change	% Change
Adams	19,920	21,836	1,916	9.6%
Columbia	52,468	56,130	3,662	7.0%
Juneau	24,316	27,359	3,043	12.5%
Marquette	14,555	15,423	868	6.0%
Portage	67,182	70,506	3,324	4.9%
Waushara	23,066	25,322	2,256	9.8%
Wood	75,555	77,049	1,494	2.0%
Wisconsin	5,363,675	5,675,156	311,441	5.8%

Source: U.S. Census, WisDOA and NCWRPC

Between 2000 and 2008, most communities within Adams County have experienced an increase in their population base (refer to Table 3). The greatest amount of growth occurred in the Town of Monroe with a 30% increase between 2000 and 2008. The Town of Rome continued to have strong growth, increasing 20% over that time period. The City of Wisconsin Dells has also exhibited strong

growth numbers within Adams County as a result of annexing into the Town of Dell Prairie. However, the relatively small numbers involved skew the result.

MINOR CIVIL DIVISION	2000:	2000:	2008:	2008:	% '00-'08:'00-'08 %	
	Population	Households	Population	Households	Population	Households
Adams town	1,267	547	1,317	568	3.9%	3.8%
Big Flats town	946	402	1,045	445	10.5%	10.6%
Colburn town	181	83	193	89	6.6%	6.7%
Dell Prairie town	1,415	553	1,580	629	11.7%	13.8%
Easton town	1,194	486	1,293	526	8.3%	8.2%
Jackson town	926	397	1,002	430	8.2%	8.3%
Leola town	265	107	285	115	7.5%	7.4%
Lincoln town	311	129	312	129	0.3%	0.4%
Monroe town	363	168	473	219	30.3%	30.3%
New Chester* town	2,141	371	2,263	n/a	5.7%	n/a
New Haven town	657	260	707	279	7.6%	7.5%
Preston town	1,360	561	1,494	617	9.9%	10.0%
Quincy town	1,181	569	1,333	641	12.9%	12.6%
Richfield town	144	62	1,513	652	4.9%	5.0%
Rome town	2,656	1,181	3,190	1,418	20.1%	20.0%
Springville town	1,167	487	1,281	534	9.8%	9.6%
Strongs Prairie town	1,115	502	1,216	548	9.1%	9.1%
Friendship village	781	257	796	263	1.9%	2.3%
Adams city	1,831	769	1,879	803	2.6%	4.4%
Wisconsin Dells city (part)	19	9	26	12	36.8%	36.9%
Adams County Total	19,920	7,900	21,836	9,970	9.6%	18.8%

Source: U.S. Census, WisDOA and NCWRPC

*Includes Oxford Federal Prison in pop. totals.

According to the Wisconsin Department of Workforce Development the median age in Adams County is 43, and only 10 counties in the State have an older population. The County has been identified as a retirement area resulting from being a vacation spot for many seasonal homeowners. Location of seasonal housing is a strong indicator in terms of retirement location. In Adams County 41% of all housing units have been identified as seasonal/recreational, which is the seventh highest percentage in the State.

SEASONAL POPULATION

The impact of this seasonal population cannot be overlooked when planning for hazards. Table 4 shows potential seasonal residents by municipality estimated based on housing data presented in the Adams County Comprehensive Plan. Determining when and for how long these seasonal residents will be in the County is problematic, but the numbers give some indication of what weekend or other peak period population levels might be.

Another component of the seasonal population includes short-term accommodations such as campgrounds or hotel-style lodging. The scope of this plan did not provide for a detailed inventory of accommodations, however the Adams County Outdoor Recreation Plan identifies about 1,900 campsites within the County including 500 at Petenwell County Park in the Town of Monroe, 200 at Castle Rock County Park in the Town of Quincy, 41 at Roche-A-Cri State Park in the Town of Preston and 1,160 private sites in various campgrounds across the County.

In addition, the NCWRPC estimates that there are over 860 resort / motel type rooms within the County including the 620 room (equivalents) Chula Vista Resort within the area annexed to the City of Wisconsin Dells and 160 units at Northern Bay in Strongs Prairie.

Municipality	Est. 2008 Seasonal Housing Units	Est. 2008 Seasonal Population
Adams town	299	693
Big Flats town	373	876
Colburn town	74	160
Dell Prairie town	190	477
Easton town	321	790
Jackson town	582	1,355
Leola town	63	157
Lincoln town	72	174
Monroe town	317	684
New Chester town	720	1,677
New Haven town	48	122
Preston town	441	1,068
Quincy town	1,117	2,324
Richfield town	45	105
Rome town	1,351	3,039
Springville town	389	934
Strongs Prairie town	462	1,025
Adams city	24	56
Friendship village	24	56
Wisconsin Dells (part)	0	0
Adams County	6,852	15,759

Source: U.S. Census and NCWRPC

EMPLOYMENT

Office and administrative support occupations make up the greatest percentage of jobs in Adams County. These jobs, the backbone of the vast service industry, employ 15% of the County's workforce. Employment in the leisure and hospitality sector swells to cater to the waves of tourists that move through the County each year, as well as to the retirees relocating here. As a result, Adams has a higher concentration of food preparation and sales related occupations than the statewide average.

Accommodation and food services and drinking places together employ over 650 workers. Many of these jobs are seasonal or part-time. As resorts in the Wisconsin Dells area continue to expand, the accommodations sector within the County has added significant jobs (i.e. 159 in 2006 according to WisDWD). Chula Vista Resort is actually the third largest employer in Adams County, refer to Table 5. Employment in food services and drinking places has remained relatively constant over the last few years.

The education and health sector is the second largest source of jobs in the County. The Adams-Friendship School District is the single largest employer in the County. The Moundview Hospital is one of the largest employers in the County, and Villa Pines Living Center nursing home is also in the top ten employers. Government is also a significant employer, where the Oxford Federal Corrections Facility near Grand Marsh is the second largest employer within the County.

Company	Product or Service	Size	Location
Adams-Friendship Public School	Elementary and secondary schools	250-499	Various locations
Oxford Federal Correctional Institution	Correctional institutions	250-499	T. of New Chester
Chula Vista Inc.	Hotels and motels...	250-499	C. Wisconsin Dells
County of Adams	Executive & legislative offices...	250-499	Various locations
Smurfit Stone Container Enterprises	Corrugated & solid fiber box mfg	100-249	C. of Adams
Moundview Hospital and Clinics	General medical & surgical hospitals	100-249	V. of Friendship
Terrace Homes	Prefab. building mfg	100-249	T. of Preston
Villa Pines Living Center	Nursing care facilities	100-249	V. of Friendship
Adams-Columbia Electric Coop	Electric power distribution	50-99	V. of Friendship
Spencer IGA Inc. (dba County Market)	Supermarkets and other grocery stores	50-99	C. of Adams

Source: WisDWD

Looking at the concentration of employment geographically shows the number of jobs spread across the County, see Table 6. However, the locations of major employers again become evident: the City of Adams has the highest concentration of jobs as the commercial center of the County, Friendship has County government and New Chester the Federal prison, while Terrace Homes is reflected in the Town of Preston and Chula Vista in Wisconsin Dells.

Identifying locations of large employment is important when prioritizing hazard mitigation strategies. It is difficult to predict the long-term effect of the recent downturn in the economy on the local employment picture.

Table 6 Estimated Employment by Municipality	
Municipality	Est. 2008 Employment
Adams town	86
Big Flats town	84
Colburn town	30
Dell Prairie town	173
Easton town	154
Jackson town	153
Leola town	40
Lincoln town	37
Monroe town	70
New Chester town	504
New Haven town	91
Preston town	213
Quincy town	73
Richfield town	67
Rome town	208
Springville town	159
Strongs Prairie town	175
Adams city	1,074
Friendship village	510
Wisconsin Dells (part)	300
Adams County	4,204

Source: Adams County Comp Plan and NCWRPC

In addition to the seasonal swells in employment, the number of people working in a given locality fluctuates on a daily basis. The average commute time for

Adams County residents is nearly 27 minutes. The county is a net exporter of labor. In other words, the County has fewer local jobs than residents who work. Over half of the County's workforce leaves the County for work while only about 1/5th comes in from other counties.

Agriculture is a major component of the economy in Adams County. There is significant agricultural employment in the area. The fact that a large portion of this employment is made up of migrant seasonal workers makes it difficult to quantify and track.

Adams County has a significant poverty rate, with the average annual per capita income more than \$10,000 under the Wisconsin state average.

LAND USE/LAND COVER AND DEVELOPMENT PATTERNS

Land use is an important determinant in the potential impact a particular hazard may have, and in action which may be taken to mitigate the hazard impacts. An understanding of the amount, type, and spatial distribution of urban and rural land uses within the County is an important consideration in the development of a sound hazard mitigation plan.

The Adams County Comprehensive Plan has categorized land use in Adams County into classifications. Aerial photos were used to digitize a land use Geographic Information System (GIS) coverage. Map 2 shows the land use and development concentrations in Adams County. Table 7 shows the acreage and percent of each classification.

Table 7 Land Use in Adams County		
Description	Acres	Percent
Agriculture*	110,941.63	25.2%
Commercial and Industrial	3,149.88	0.7%
Governmental/ Public/Institutional	1,566.03	0.4%
Outdoor Recreation	1,603.48	0.4%
Residential	33,341.85	7.6%
Transportation	15,033.85	3.4%
Water	27,424.02	6.2%
Woodlands	247,471.45	56.2%
Total	440,532.19	100.0%

Source: County Comp. Plan *Includes Open Grassland

FORESTRY AND AGRICULTURE

The dominant land uses in Adams County are forestry and agriculture. Land area in the County is approximately 56 percent forested, comprised of 247,471 acres of woodland. Agricultural land covers another 25 percent of the county's land area. The main agricultural practices in the county are irrigated vegetables and dairy farming. There are also 200-500 acres of cranberry production concentrated in the Town of Leola. Agriculture is scattered through out the county but much of it is on the eastern side. According to the Wisconsin Agricultural Statistic Service, Adams County actually gained farmland during the 1980's and 1990's – something uncharacteristic compared to the majority of Wisconsin's counties.

RESIDENTIAL DEVELOPMENT

Land in residential development makes up 7.6 percent of the total county area. Residential concentrations are scattered throughout the county (see "Population and Households" above). Much of the scattered rural development is related to direct recreational demand as various types of housing have clustered along streams and lakes.

There are a number of mobile home parks in the county. According to the U.S. Census, there were 3,748 mobile homes in 2000. This is about 27 percent of housing units for the County compared to about 4 percent for the entire state. This is significant due to their vulnerability in natural hazards especially tornados. Map 15 displays the mobile home concentrations within the County.

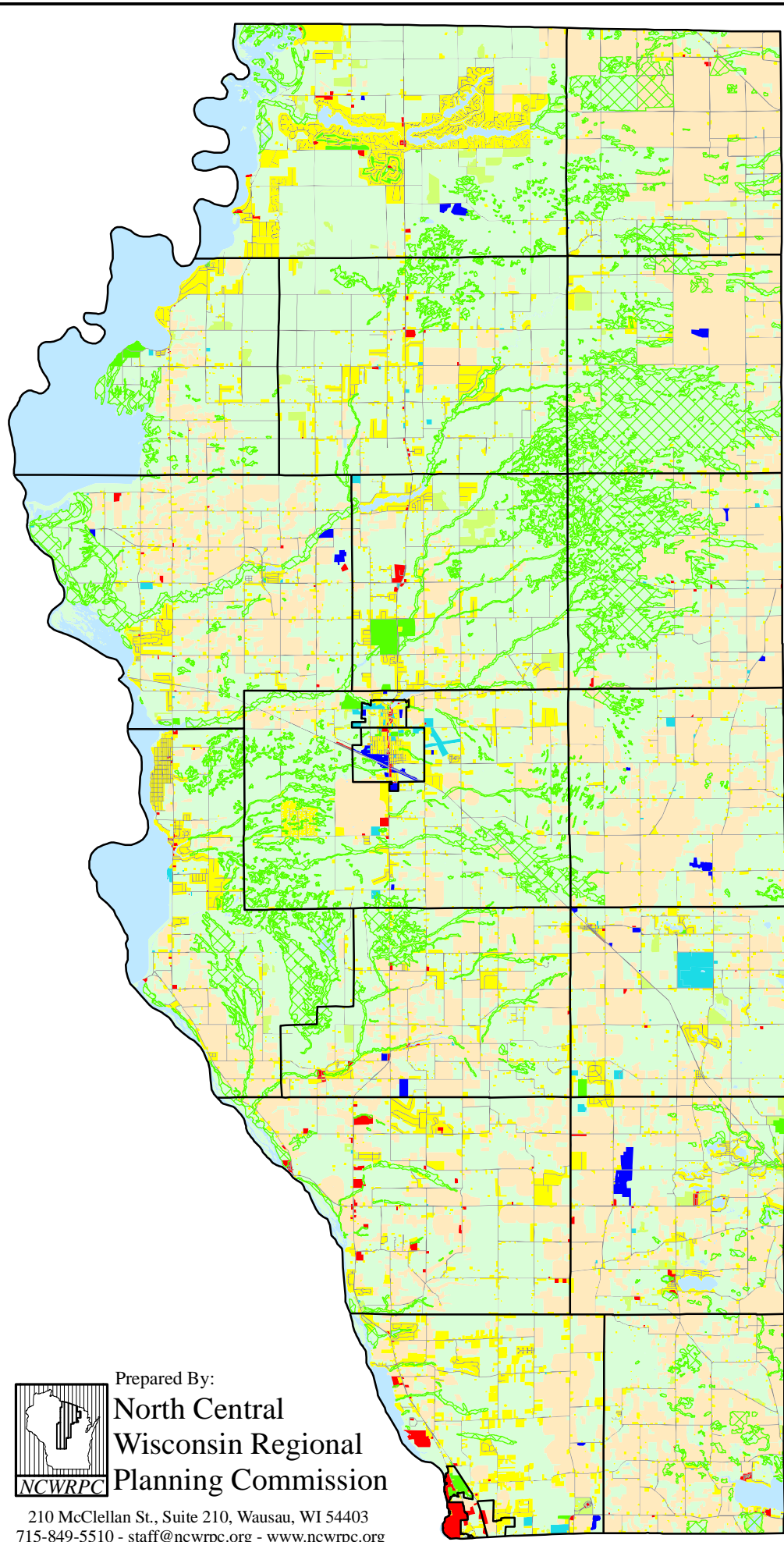
COMMERCIAL AND INDUSTRIAL DEVELOPMENT

Commercial and industrial development makes up only about 0.7 percent of the total area of the County. Land use for commercial and industrial development is also scattered throughout the county. There are four designated industrial parks in Adams County. They are in the City of Adams, Village of Friendship, Town of Preston, and Town of Rome. Other industrial sites are located in the towns of Jackson and Lincoln. Commercial activity is located in the City of Adams and Friendship where it serves as a sub regional service center supported by the surrounding agri-business and tourist industry. Commercial activity in the unincorporated areas is primarily dominated by private commercial recreation.

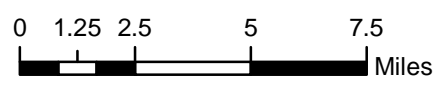
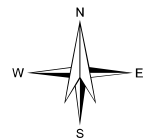
SURFACE WATER

The majority of the land in the County is part of the Central and Upper Wisconsin River Basins. Five main watersheds make up the two Wisconsin River basins in Adams County – Fourteen Mile Creek, Big Roche A Cri, Little Roche A Cri, Duck and Plainville Creeks, and Neenah Creek. The Johnstown terminal moraine in southeastern Adams County forms the drainage divide between the Wisconsin and Upper Fox River Basins. Neenah Creek is the main watershed in Adams County for Upper Fox Basin.

Map 2
**Generalized
 Land Use**
 Adams County, Wisconsin



- Minor Civil Divisions
- DNR Wetlands
- Agriculture
- Commercial
- Governmental
- Industrial
- Multi-Family
- Open Lands
- Outdoor Recreation
- Residential
- Transportation
- Water
- Woodlands



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Source: WI DNR, NCWRPC, 2005 Airphoto Interpretation
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Within the watersheds, there are 73 interior streams covering 234.5 linear miles and 450 surface acres (see Map 3 and 4), but 12 (of 26) named streams and 27 (of 47) unnamed streams possessing 31 percent of the total stream frontage have average widths of less than 10 feet, making them relatively undesirable for development. However, all the streams, like the lakes, are important in the hydrological and ecological regime and should be protected by shoreland zoning and physical protective measures.

Streams in Adams County, except the Wisconsin River, have their headwaters in outwash plains, which contribute relatively large and constant amounts of groundwater base flow to the streams. Regional average runoff in Adams County is about nine inches/0.7 cfs per square mile of drainage basin. The Wisconsin River is well regulated and has a relatively constant flow.

The total surface water area of lakes and streams in Adams County exceeds 25,000 acres. Petenwell and Castle Rock flowages, the 2nd and 5th largest lakes in the state, cover 16,295 acres together. Unlike most counties in the west central part of the state, Adams County has 7 natural lakes, all located on the east side of the moraine, in the Towns of Jackson and New Chester. All the other lakes in the county are impoundments (man-made lakes). Most of these are located west of the moraine. The 48 interior lakes add 2,439 acres, of which 22 have surface areas of less than 5 acres. Twenty-nine lakes have maximum depths of less than 10 feet. Several are subject to winter fishkill because of their shallowness. The two flowages and the 22 named lakes provide the bulk of the County's high quality lake resources. Of the 26 unnamed lakes, the largest is 12.5 acres, only one is over ten feet deep, and 17 have no fishery. Named lakes have a total of about 71 miles of shoreline, and unnamed lakes add another 7.

Lake Sherwood, Lake Camelot, and Lake Arrowhead Dams are located in the Town of Rome, see Map 3. These lakes were designed for recreational and economic purposes related to property development. They were formed by artificially constructing earthen dams made of native soil material across the river valleys. In 1967, Lake Sherwood was the first of the three dams created by damming Fourteen Mile and Spring Branch creeks. Lake Camelot was created in 1969 by damming Spring Branch Creek near the end of the upper arm of Lake Sherwood and Fourteen Mile Creek near the end of the lower arm. A channel between the two diverts part of the flow of Fourteen Mile Creek to the upper part of Lake Camelot to reduce stagnation problems that could have arisen from low flow in Spring Branch Creek and the resultant slow replacement of water in the lake. The Lake Arrowhead Dam was the last of the dams constructed in 1978 over Fourteen Mile Creek and is located approximately 2.7 miles west of State Highway 13. Nine of the dams in the county are owned by Adams County and managed by the Adams County Land & Water Conservation Department.

Floodplains and wetlands are important subsidiary components to the surface water system as described below.

Floodplain

The primary value of floodplains is their role in natural flood control. Flood plains represent areas where excess water can be accommodated whether through drainage by streams or through storage by wetlands and other natural detention/retention areas. Specific areas that will be inundated will depend upon the amount of water, the distance and speed that water travels, and the topography of the area. If uninterrupted by development, the areas shown on a map as floodplains should be able to handle the severest (regional) flood, i.e. those that have a probability of occurring once every one hundred years.

There is a value in preserving and protecting these natural flood control areas from encroachment. First, by preventing development in the floodplain, the cost of building dikes, levies, or other man-made flood control devices will be saved. Second, for each structure that is constructed in a flood-prone area, that flood-prone area expands, potentially subjecting other structures originally built outside the delineated flood hazard area to the risk of flooding. Each new structure (or modification to existing) placed in the flood plain puts more life and property in danger.

Counties, cities, and villages are required to adopt reasonable and effective floodplain zoning ordinances. The requirement is found in section 87.30 of the Wisconsin Statutes and Chapter NR 116 of the Wisconsin Administrative Code. Floodplain zoning is designed to protect individuals, private property, and public investments from flood damage.

Floodplain zoning maps identify areas where major floods occur. Regulations prohibit development in the floodway, the most dangerous flood area. In other flood areas, the flood fringe, development that is built above flood levels and otherwise flood-protected is allowed if it is in accordance with local ordinances. For regulatory purposes, a floodplain is generally defined as land where there is a 1% chance of flooding in any year (also known as the 100-year floodplain).

In order to participate in the Federal Emergency Management Agency's (FEMA) National Flood Insurance Program (NFIP), the County, City of Adams, and Village of Friendship have completed a Flood Insurance Study and a Flood Insurance Rate Map (FIRM) that encompasses Adams County, see Table 7.5 for summary of NFIP status. This FIRM delineates the "A" Zones including the floodway and flood fringe which are those areas inundated by the 100-year flood within the County. Adams County recently participated with FEMA in updating its FIRM to new digital standards. The new digital FIRMs are referred to as DFIRM. The NCWRPC downloaded the DFIRM from FEMA's website for use in this plan. Although unofficial, the digital files indicate there are 19,016 acres floodplain in Adams County, or 4.6 percent of the land area. Map 4 shows the approximate floodplains in Adams County. Floodplains in Adams are small and floods occur only during periods of exceptionally heavy rainfall.

Table 7.5 FEMA Community Status Book Report Communities Participating in the National Flood Insurance Program Wisconsin - Adams County				
Community	Initial FHBM	Initial FIRM	Current Map	Program Entry
Adams County	02/20/76	11/16/90	06/17/08	11/16/90
City of Adams	05/14/76	09/01/88	NSFHA*	11/16/90
Village of Friendship	05/03/74	11/16/90	06/17/08	11/16/90
*No special flood hazard area - all zone C.				

Source: FEMA

Currently, there are no repetitive loss structures, those with multiple flood insurance claims, in Adams County.

Adams County has also chosen to participate in the Community Rating System (CRS), which is a voluntary program that provides incentives for floodplain management activities that exceed minimum requirements for NFIP. Adams County was recently increased to a Class 8 rating in the CRS which results in a 10% discount for flood insurance premiums.

Wetlands

Wetlands perform many indispensable roles in the function of the hydrologic cycle and local ecological systems. In terms of hazard mitigation, they act as water storage devices in times of high water. Like sponges, wetlands absorb excess water and release it back into the watershed slowly, preventing flooding and minimizing flood damage. As more impermeable surfaces are developed, this excess capacity for water runoff storage becomes increasingly important.

The DNR has also identified the location of wetlands on their WISCLAND database. According to this, Adams County has 48,348 acres, or 11 percent of its total area. Map 2 shows these wetland areas in Adams County. There are concentrations of wetlands in Adams County including Leola Marsh Wildlife Area, Colburn Wildlife Area, and the Quincy Bluff and Wetland Natural Area. Additional wetlands are associated with the floodplains discussed above, however, smaller wetlands are scattered throughout the County.

Eradication of wetlands can occur through the use of fill material. This can destroy the hydrological function of the site and open the area to improper development. The Wisconsin Department of Natural Resources (DNR) has promulgated minimum standards for managing wetlands.

OTHER LAND COVER/USES

Recreational lands including parks and outdoor sports facilities total about 1,600 acres or 4/10th of 1 percent of the county land area. Other lands may have recreational aspects, particularly woodlands. Governmental, public and institutional lands total about 1,566 acres or about 0.4% of the County land area.

The transportation category is primarily the roadway travel corridors for federal, state, county and local highways and roads. Sometimes overlooked, transportation land use can be significant. In Adams County, surface transportation facilities consume about 15,000 acres of land or about 3.4 percent of total land area. Note that this is more than three times as much land area as is used for commercial, industrial and institutional uses in the County.

FUTURE GROWTH AND DEVELOPMENT IN ADAMS COUNTY

Adams County's population has increased 9.6% over the last eight years for a net gain of 1,916 residents. The County remains one of the fastest growing counties in the state, but the rate of growth has declined from the very high rates observed during the 1990's. Overall, the County's rate of growth has been faster than state and national averages. For example going back to the 1980s, the County's population increased 17% over the decade, compared to the state's growth of 4% over this same period.

From a net growth perspective, residential migration into Adams County has been solely responsible for all of its population growth because natural growth has been negative (more deaths than births). This growth pattern is reflective of an aging population and booming seasonal-to-permanent housing markets.

The Towns of Rome and Monroe in the northwest corner of the County should continue to see strong growth as the primary lakeshore/riverfront development areas of the County. The other riverfront towns including Strongs Prairie, Quincy, Springville and Dell Prairie will also likely see continued development due to the attraction of the river and other recreational amenities. In addition, the "northern" towns of Leola, Big Flats and Preston and the "southern" towns of Easton, Jackson and New Haven will continue to grow in part as "bedroom communities" to Wisconsin Rapids and Wisconsin Dells, respectively.

By 2024, Adams County will have grown to a population of about 26,229, a gain of 4,339 residents if the growth rate continues at the current level. In light of the recent nation-wide economic downturn, this may be an overly optimistic projection; however, it is difficult to predict the long-term effect on overall growth and development in the County.

New commercial and industrial development is expected to be gradual over time, paralleling population growth. The most significant concentrations of this development will likely be in the Town of Rome, City of Adams and Town of Dell Prairie. Annexation of the later by Wisconsin Dells may ultimately wrest that development away. The County is expected to remain a net exporter of labor as proximity to the Dells and the Wisconsin Rapids area attracts much of the new commercial and industrial development that would serve Adams County.

New infrastructure or public facilities will be somewhat minimal, excepting limited replacement of existing facilities such as the anticipated new main fire station in the Town of Rome and planned new Town Halls in Leola and Lincoln. The majority of population growth will occur in the towns, which, with the exception of Rome, do not provide extensive services, and budget constraints will curtail local governments' ability to develop new facilities and result in a tendency to make do with existing infrastructure and delay expansion plans.

All these new buildings and facilities, including new housing units, will be subject to each hazard addressed in this Plan. Even best efforts to keep new building out of flood plain and dam shadow areas cannot guarantee new construction will be exempt from flooding due to the nature of flooding within the County.

The County's population is generally older, with a median age of 43 years, versus statewide median age of 36 years. Over the next few decades, the residential base will become even older, aging much more quickly than the state as a whole. In fact, the number of persons 60 and older will likely exceed the population 16 and under by 2030. This will have implications affecting the demand for emergency services.

PUBLIC FACILITIES AND SERVICES

TRANSPORTATION

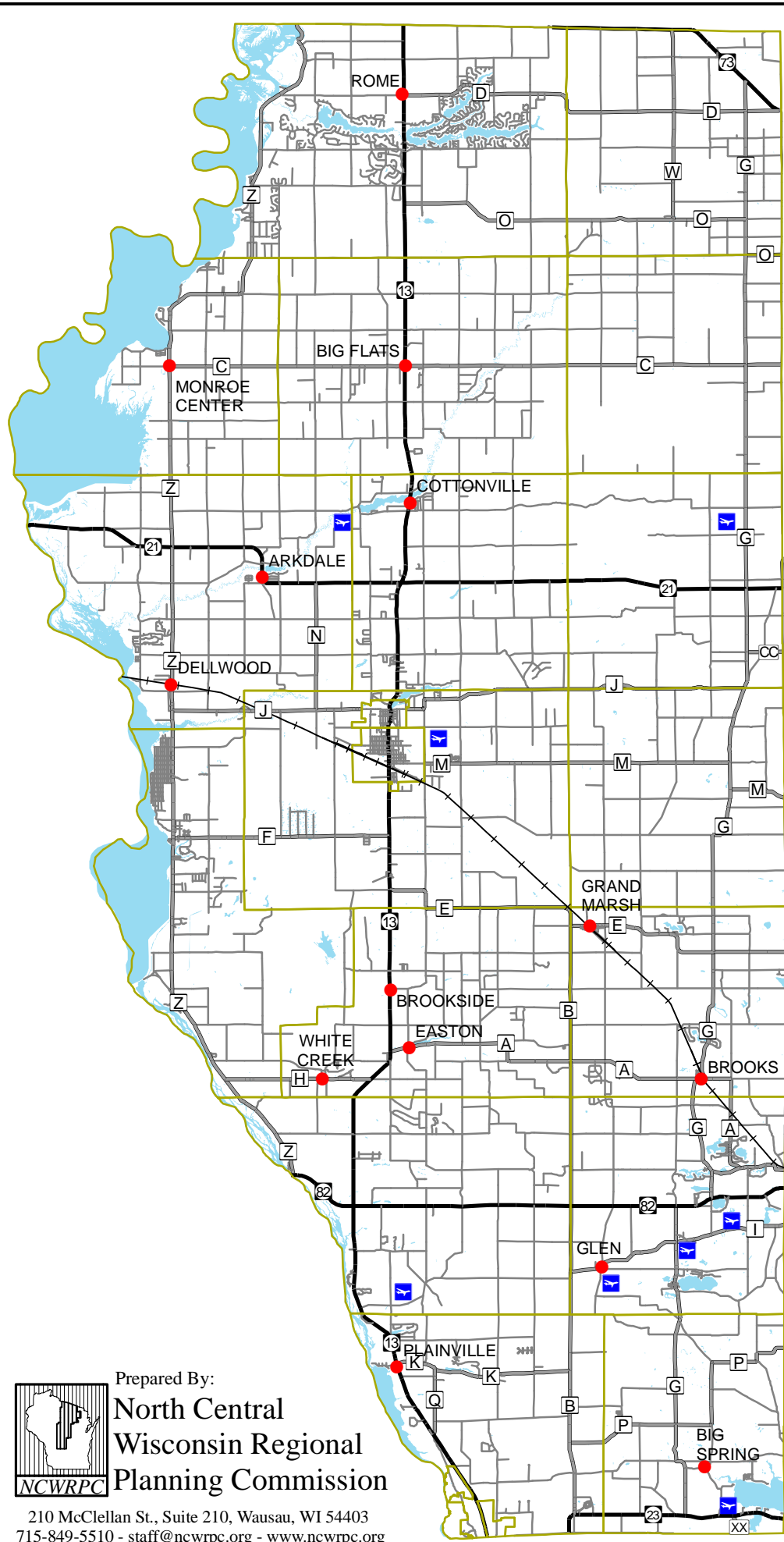
The transportation system of Adams County provides the basis for movement of goods and people into, out of, through, and within the County. An efficient transportation system is essential to the sound social and economic development of the County and the Region. The analysis of transportation routes should be considered in the possible event of a disaster (See Map 5).

The principal highway serving the County is north-south, State Trunk Highway (STH) 13 which bisects the County through Adams/Friendship. STHs 21 and 82 provide the main east-west routes, and State highways 23 and 73 also serve the County. These highways link the County with neighboring communities and are vital to the County's tourism and recreation-based economy.

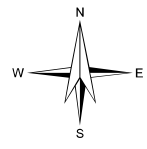
Networks of county trunk highways collect traffic from rural land uses. These county highways serve an important role in linking the area's agricultural and timber resources to the County's major highways and population centers. Local roads provide access to local development, farming and forest areas, as well as to the County's lake areas.

The Wisconsin Department of Transportation maintains 7 bridges on state highways within the County. Adams County itself owns another 10 bridges on various County highways. Local roads have 21 bridges belonging to various towns. There is also one rail bridge in the Town of New Chester.

Map 5 Transportation Map Adams County, Wisconsin



-  Minor Civil Divisions
-  State Highways
-  County Highways
-  Local Roads
-  Railroad
-  Airports
-  Unincorporated Communities
-  Water



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Source: WI DNR, NCWRPC, Adams Co.
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Adams County Health & Human Services coordinates transit service for elderly and disabled in the County. Vans and mini-buses provide work routes, a weekly grocery run, a monthly food pantry run and serve nutrition sites. A volunteer driver network is also available. The Adams County Transit System runs a fixed route between Adams/Friendship and Wisconsin Dells 3 times per weekday.

The Union Pacific Railroad also serves Adams County. The rail line arcs east-west with a yard at City of Adams. There are approximately seven through trains per day on this line.

The “Adams County Legion Field” airport located east of the City serves the area. It is a basic utility airport designed for aircraft under 12,500 pounds and 49 feet in wingspan. There are 5 other landing strips within the County.

UTILITIES

Utility systems are important in hazard mitigation planning because of the dependency on water, wastewater treatment, gas service, electricity, and communications. Because of this reliance and vulnerability to hazards, utility systems must be identified for this Plan.










The protection of the public water supply facilities from potential contamination from hazards such as flooding is a consideration for hazard mitigation planning. The City of Adams and Village of Friendship provide municipal water supplies for domestic and commercial use, while the Oxford Federal Correctional Institution supplies water for their inmates. The Rome Water Utility also provides a water supply system to a few customers around Lake Camelot.

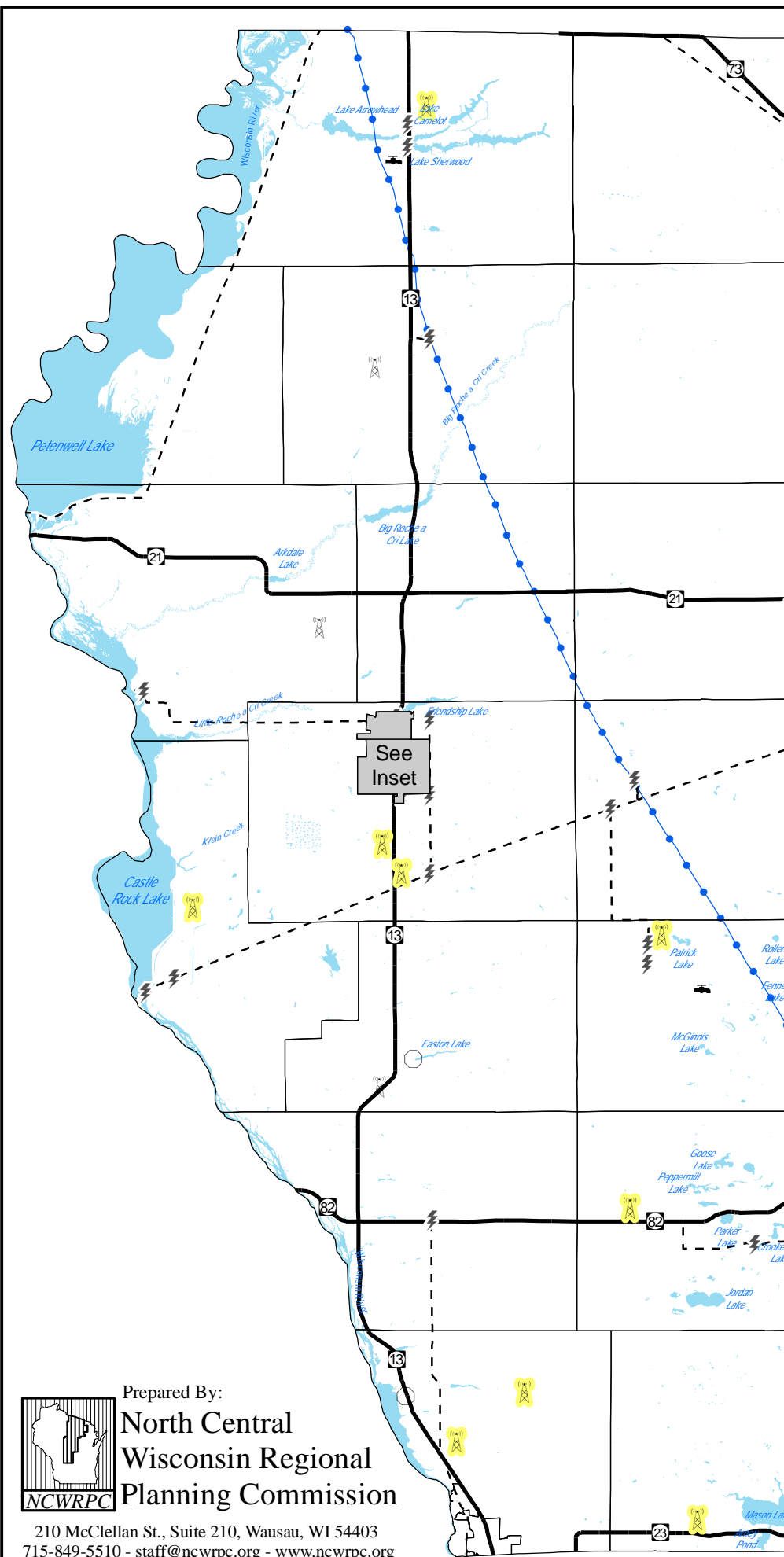
The protection of the wastewater facilities is an important consideration for hazard mitigation planning because of its potential to contaminate nearby waterbodies in the event of high water. Also of concern during periods of flooding is the threat of damage to infrastructure and associated facilities. A municipal wastewater treatment facility serves the Adams-Friendship area. This utility is located on the west side of Friendship along the Little Roche a Cri Creek but outside the floodplain area. A private wastewater treatment facility serves the Easton Lake District. It is located in the Town of Easton along Campbell Creek. This is of concern because of its location within a designated floodplain.

Wisconsin Gas Company provides natural gas to the City of Adams and Friendship, along with the towns of Preston, Adams, Richfield, Lincoln, Colburn, New Chester, Rome, and Jackson. A major petroleum product pipeline traverses the County for 31 miles generally northwest to southeast. The capacity of this line was recently expanded.

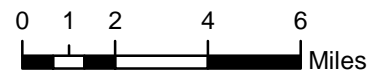
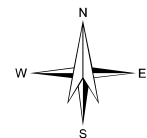
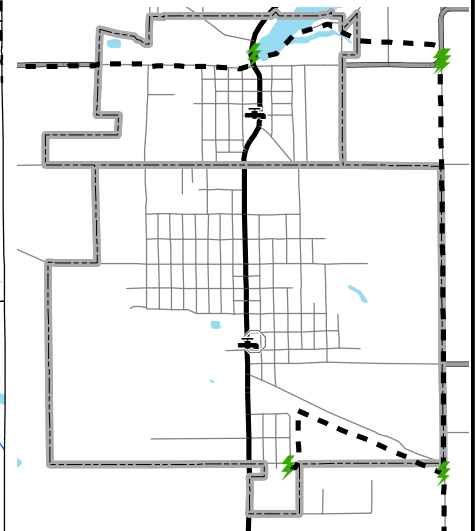
Map 6 Utilities

Adams County, Wisconsin

-  Minor Civil Divisions
-  State Highways
-  Communication Towers
-  Substations
-  Waste Water Treatment Plant
-  Public Water Supply
-  High Voltage Powerline
-  Pipeline
-  Water



Adams - Friendship Inset



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Source: WI DNR, NCWRPC, ATC

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The infrastructure of electric and telephone lines should be considered in the events of high wind, ice storms, tornados, flooding, and fire. Alliant Energy and Wisconsin Public Service provide Adams County with electric service throughout the County. As of 2001, an independent company, American Transmission Company (ATC), owns, maintains, and operates the major transmission facilities located in the State of Wisconsin, including Adams County. The general locations of the major electrical transmission facilities, owned by ATC are shown on Map 6. Four providers in the County – Solarus, Union, GTE North, and Marquette-Adams, supply telephone service.

Nationwide, cellular telephones account for about half of all 911 calls. Service coverage is based upon the handset receiving a direct line-of-sight signal from a system provider's antenna on a tower. Limitations for receiving a signal include topography and the thickness & type of building materials. Signals generally cannot travel well in dense forest cover, over tall hills, or through thick or multiple cement walls. Although improving, the County has numerous "dead zones" in cell phone coverage.

EMERGENCY SERVICES AND FACILITIES

The type and location of public emergency services are an important consideration in hazard mitigation planning, because of the potential direct involvement of such facilities in certain hazard situations. The location of fire stations, police departments, and ambulance services in Adams County are shown on Maps 7 through Map 9. Adams County operates the 911-call center providing dispatch for virtually all of the emergency services discussed below.

There are eleven fire departments that serve the local units of governments in Adams County. The Rome Fire Department provides a full-time fire chief, while the remainder of the departments relies on volunteers for this service. Six municipalities rely on the Adams County Fire District, including Strongs Prairie, Preston, Town and City of Adams, Easton and the northern half of Springville with station locations in Strongs Prairie and the City. Five departments are located outside the County - Coloma, Hancock, Plainfield, Oxford, and Kilbourn. The location of each of the fire stations and fire service areas are on Map 7.

There are six ambulance service providers to the County. Curtis Ambulance Service provides service for 9 municipalities in central Adams County. Waushara covers the Towns of Colburn, Leola and Richfield. Marquette County ambulance covers the Towns of Jackson and New Chester. Nekoosa provides their service to the Town of Rome through their fire department and also covers Monroe and Big Flats. The Dells-Delton Ambulance provides service to the Town of Dell Prairie. New Haven is served by Divine Savior out of Columbia County. The locations of ambulance service areas are on Map 8.

The Adams County Sheriff's Department provides service to all the towns and the Village of Friendship for law enforcement. The County has two road

sergeants, three lieutenants, 15 full time officers, three part time officers, and nine dispatchers. The City of Adams has five full time officers and two part time officers. The Town of Rome is provided with seven full-time officers and one part-time officer. The County provides dispatch to the City and Rome. Of course Wisconsin Dells Police patrols the area of southern Adams County annexed by the city. The locations of police service areas are on Map 9.

The American Red Cross maintains agreements with the owner/operators of various facilities around the County to act as shelters in the event of an emergency. Schools and churches are the most common shelter facilities. Adams County is part of a larger chapter of the American Red Cross with ten other counties. The chapter's administrative office is located in Madison, but a volunteer disaster action team is maintained locally.

To coordinate these services, Adams County has created an *Emergency Operations Plan (EOP)* (updated in 2008). This provides a general overview for county and municipal emergency response personnel during response to a number of disasters. This document serves to coordinate the County and local units of government during times of response and recovery. It also provides a link between the County and municipal plans. The County is currently converting the EOP to an Emergency Response Plan (ERP) format as required by 2010.

CRITICAL COMMUNITY FACILITIES

In addition to emergency service facilities, other community facilities are also important in hazard mitigation planning. Government administration buildings serve as the headquarters that link to resources in helping solve potential problems. Hospitals and ambulance services are very important for knowing where injured residents have to be transported and as to how many people each hospital can handle if a hazard would breakout.

Moundview Memorial Hospital in the Village of Friendship is a 25-bed acute care facility. Moundview Clinic is associated with the hospital and Roche-a-Cri Clinic is an independent facility adjacent to the hospital.






Adams County Courthouse

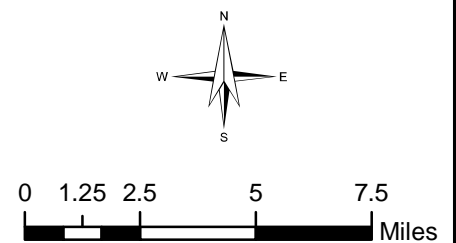
There is also a clinic in the Town of Rome. Villa Pines Living Center in Friendship is the primary nursing home within the county. Nursing homes are vulnerable, because of the high level of assistance needed with the residents that live there. The schools are another facility that are important, since hundreds of the county's children are there for most of the year. Map 10 shows the location of selected types of critical community facilities within Adams County.

Map 7

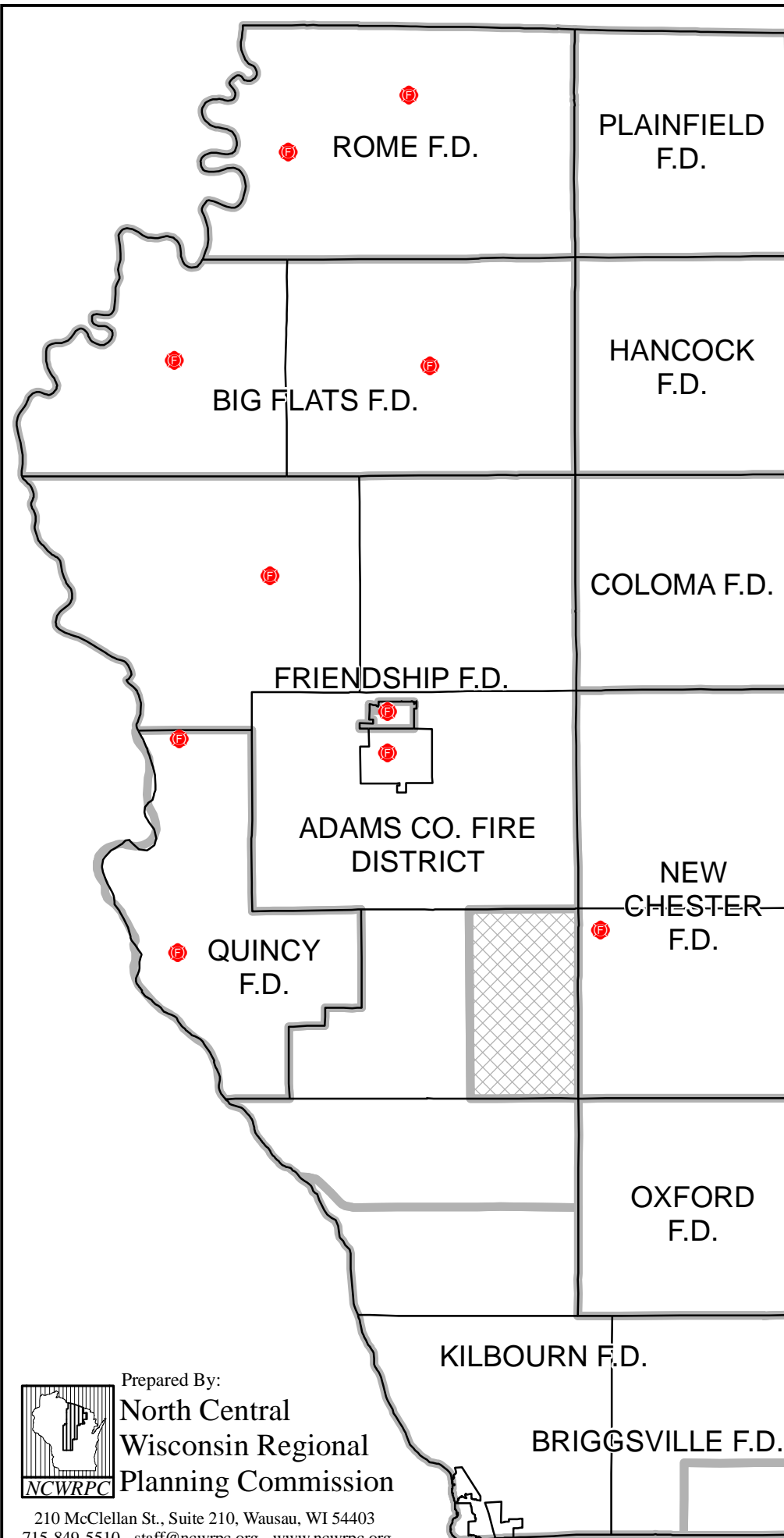
Fire Service

Adams County, Wisconsin

- Minor Civil Divisions
-  Fire Stations
-  Fire District Boundaries
-  Double Coverage
(New Chester & Adams)



Source: WI DNR, NCWRPC, Adams Co. EM
 This map is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only. NCWRPC is not responsible for any inaccuracies herein contained.



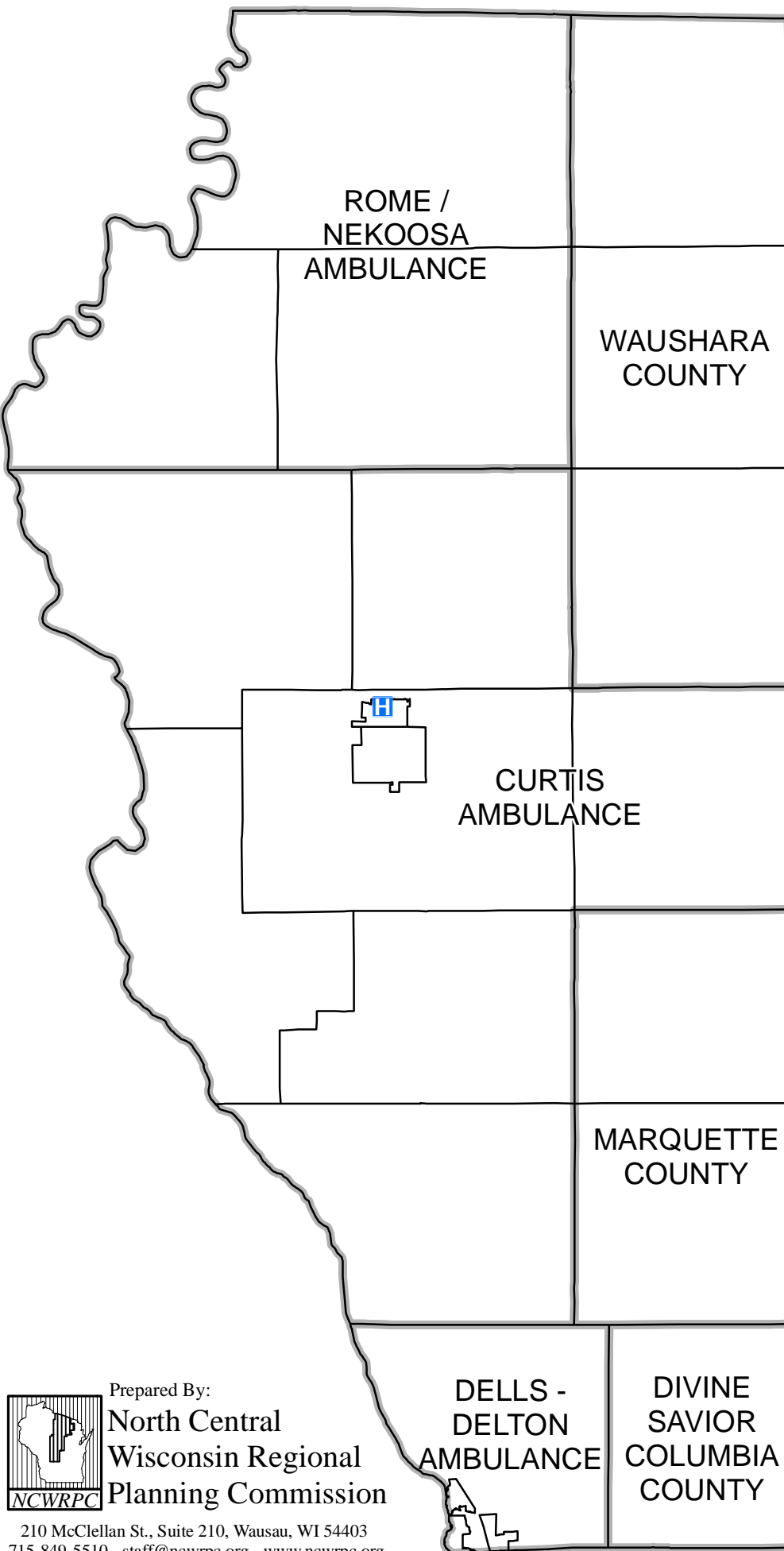
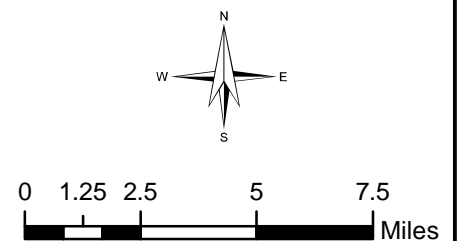
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 Wisconsin Regional
 Planning Commission**

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Map 8
Ambulance
Service

Adams County, Wisconsin

- Minor Civil Divisions
-  Moundview Memorial Hospital
-  Service Boundaries



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Source: WI DNR, NCWRPC, Adams Co. EM

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Map 9

Police

Service

Adams County, Wisconsin

★
ROME / ADAMS
CO. SHERIFF'S
DEPARTMENT

ADAMS COUNTY
SHERIFF'S DEPARTMENT

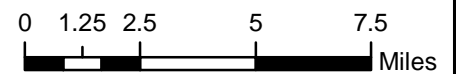
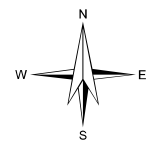
★
★
ADAMS
CITY
POLICE

WISCONSIN
DELLS
POLICE

— Minor Civil Divisions

★ Police Departments

▭ Service Boundaries



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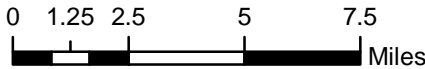
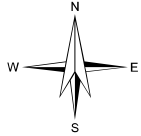
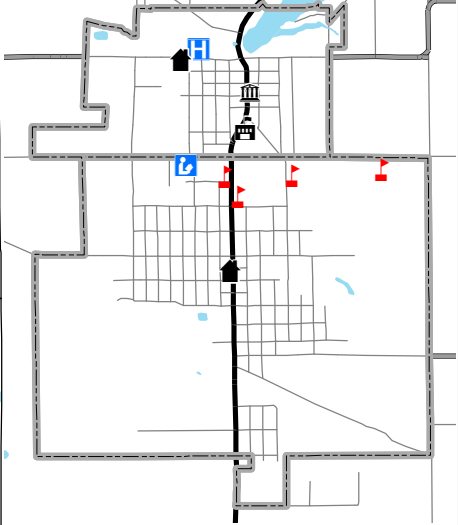
Source: WI DNR, NCWRPC, Adams Co. EM

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Map 10 Critical Community Facilities Adams County, Wisconsin

- Minor Civil Divisions
- State Highways
- 🏠 City/Village/Town Halls
- 🏰 Prison
- 🚩 Schools
- 🏥 Hospital
- 📖 Library
- ⚖️ Courthouse
- 🚒 DNR Ranger Station
- Tornado Shelter
- 🌊 Water

Adams - Friendship Inset

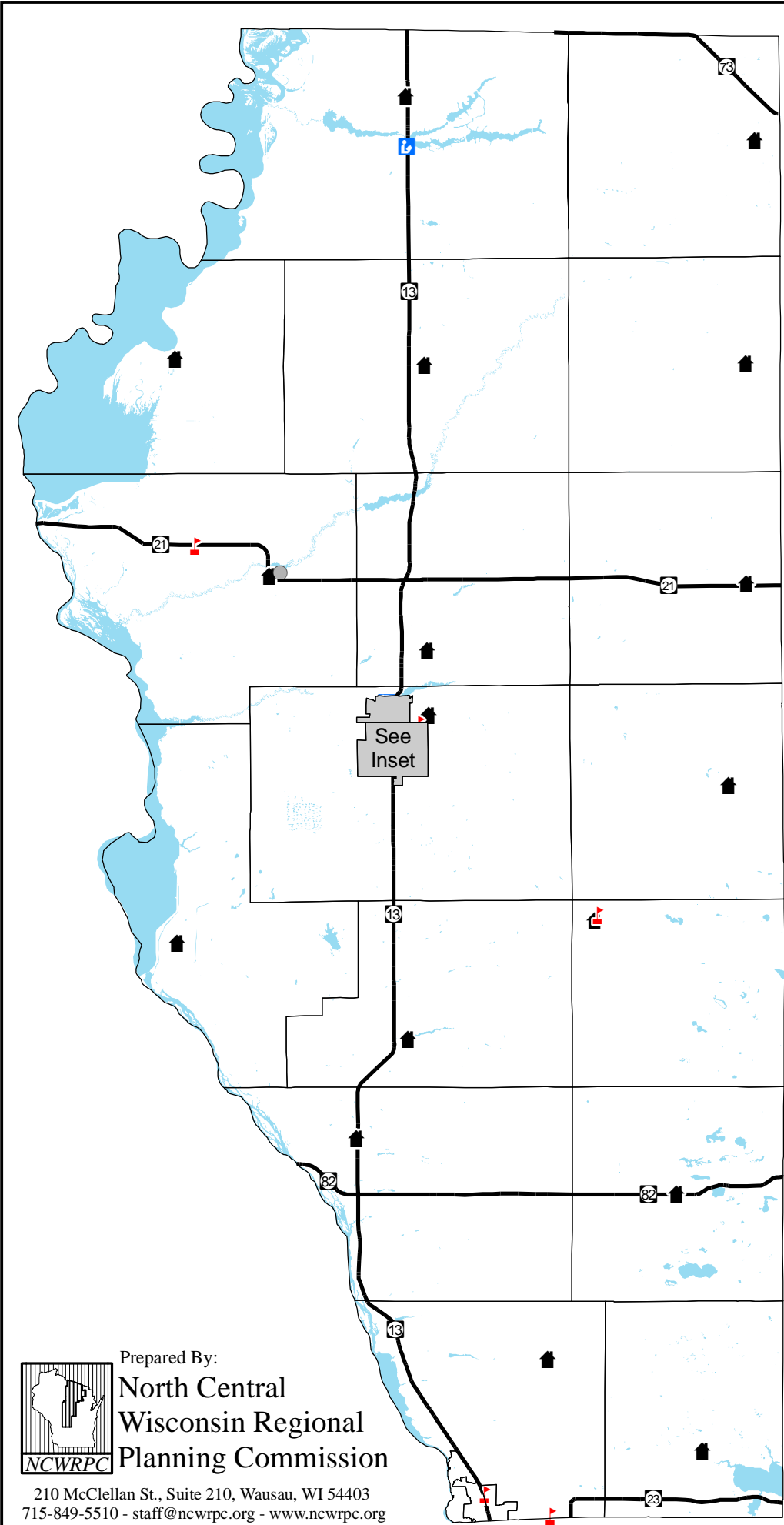


Source: WI DNR, NCWRPC, ATC
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INVENTORY & VALUE OF STRUCTURES & PROPERTY IN ADAMS COUNTY

The value of the real estate and personal property in a community reflects the upper end of the potential for property damages in each community. The annual equalized value of each municipality represents the Department of Revenue estimate of market value (Agricultural land is included at Use Value) of all taxable property. Property tax levies of jurisdictions are apportioned to each municipality on the basis of equalized value. Table 8 lists each municipality's total equalized values for real estate, personal property, and all property and the percent each municipality represents of the county total.

District	Real Estate	Personal Property	Total	% of Total
Adams town	\$128,349,600	\$2,284,700	\$130,633,700	4.7%
Big Flats town	\$96,814,000	\$443,300	\$97,257,300	3.5%
Colburn town	\$42,037,500	\$246,500	\$42,284,000	1.5%
Dell Prairie town	\$176,681,500	\$2,657,900	\$179,339,400	6.5%
Easton town	\$94,313,600	\$468,000	\$94,781,600	3.4%
Jackson town	\$189,702,500	\$775,100	\$190,477,600	6.8%
Leola town	\$38,858,800	\$334,900	\$39,193,300	1.4%
Lincoln town	\$45,021,400	\$123,500	\$45,144,900	1.6%
Monroe town	\$108,858,000	\$697,000	\$109,555,000	3.9%
New Chester town	\$94,031,000	\$626,500	\$94,657,500	3.4%
New Haven town	\$57,829,200	\$429,300	\$58,258,500	2.1%
Preston town	\$159,468,000	\$502,300	\$159,970,300	5.7%
Quincy town	\$227,374,200	\$2,289,100	\$229,663,300	8.2%
Richfield town	\$30,202,100	\$228,200	\$30,430,200	1.1%
Rome town	\$759,978,400	\$2,622,400	\$762,600,800	27.1%
Springville town	\$138,557,100	\$1,221,300	\$139,778,400	5.0%
Strongs Prairie town	\$280,910,600	\$1,701,100	\$282,611,700	10.1%
Friendship village	\$27,449,000	\$1,873,700	\$29,322,700	1.0%
Adams city	\$64,734,000	\$2,648,600	\$67,382,600	2.4%
Wisconsin Dells (part)	\$23,500,400	\$1,457,800	\$24,958,520	0.9%
Adams County	\$1,501,471,700	\$16,649,900	\$1,518,121,600	100.0%

Source: WisDOR

The valuation of property in a community reflects the potential for property damages across the community. However, only taxable properties are included in this valuation. Tax exempt government properties are not included. With Adams County owning many critical facilities that are needed in times of disaster, the potential for damages to these structures could be devastating for the county. In Table 9a, the county owned critical facilities are listed with the general location they are in and the value of the facilities. Estimates for local government facilities are given in Table 9b - d.

Name	Value*	Location
Courthouse / Sheriff	\$17,531,462	Friendship village
Fairgrounds	\$1,709,667	Friendship village
Property Maintenance shop	\$1,061,895	Friendship village
Solid Waste Main Bldg	\$1,282,169	Strongs Prairie
Social Services	\$1,790,699	Friendship village
Airport	\$291,020	Adams town
Industrial Park	\$756,064	Jackson town
Highway Department	\$4,059,103	Adams town
Community Center	\$3,103,561	Adams city
HHS Practical Cents Store	\$1,400,264	Adams city
Parks	\$2,903,099	Various locations
Misc. Other	\$3,017,820	Various locations
Total	\$39,043,947	Above Locations

**=Includes insured buildings, contents, and property in the open.
 Source: Statement of Values State of Wisconsin Local Government Property Insurance Fund, 2008.*

Property	Value*
Municipal Building	\$1,925,074
City Garage	\$360,201
Pump Station	\$246,556
Treatment Plant	\$5,218,811
Pavilion	\$62,579
3 Well Houses	\$1,400,688
2 Water Towers	\$1,333,583
Lift Station	\$345,506
Misc Other	\$282,218
Total	\$11,175,216

**includes insured building contents and property in the open.
 Source: Local Government Property Insurance Statement of Values*



City of Adams Municipal Building

Property	Value*
Village Hall / Fire House	\$850,920
Public Works Building	\$628,419
Beach Park	\$142,606
Park	\$182,696
Lift Station	\$66,998
Other Misc.	\$230,430
Total	\$2,102,269

**includes insured building contents*

Source: Local Government Property Insurance Statement of Values

Municipality	Property	Value*
Adams town	Town Hall/Garage	\$140,000
Big Flats town	Town Hall/Fire Dept	\$800,000
Colburn town	Town Hall/Garage	\$140,000
Dell Prairie town	Town Hall	\$70,000
Easton town	Town Hall	\$70,000
Jackson town	Town Hall	\$70,000
Leola town	Town Hall	\$65,537
Lincoln town	Town Hall/Garage	\$139,000
Monroe town	Town Hall/Fire Dept	\$800,000
New Chester town	Town Hall/Fire Department	\$801,460
New Haven town	Town Hall	\$143,800
Preston town	Town Hall/Garage	\$120,000
Quincy town	Town Hall/Fire Department	\$800,000
Richfield town	Town Hall	\$67,689
Rome town	Municipal Building	\$999,999
Springville town	Town Hall	\$140,000
Strongs Prairie town	Town Hall / Fire Dept	\$800,000

**includes insured building contents and property in the open*

Source: Local Government Insurance Policy Declarations and NCWRPC



Town of New Chester Fire Department

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INTRODUCTION

Analyzing the hazards in a community is an important and vital step in the mitigation planning process. Before mitigation strategies can be determined, a risk assessment must be made. Part III of Adams County All-Hazards Mitigation Plan will focus on the following:

- Identification of all types of natural hazards that can affect Adams County
- An analysis of the hazards identified as pertinent to Adams County

The Hazard Analysis will consist of:

- Background Information
- History of previous occurrences of hazard events
- An analysis of the County's vulnerability to future events
- An estimate of future probability and potential losses from the hazard

HAZARD IDENTIFICATION

The process of identifying those hazards that should be specifically addressed in the Adams County All-Hazards Mitigation Plan was based on consideration of a number of factors. The process included a review of past hazard events to determine the probability of future occurrences and threat to human safety and property damage.

Worksheets from the Wisconsin Guide to All-Hazards Mitigation Planning were used by the Planning Taskforce to evaluate and rank the listing of possible hazards to help identify which hazards should be included in the Plan according to threat to human safety and possible damage to property. The ranking was compared against the ranking from the original County mitigation plan.

After review of the hazard scoring exercise, the Committee decided to move flooding ahead of winter storms in priority because flooding is a serious recurring problem in the County with more opportunity for effective mitigation projects. Drought was moved up in priority because it has been an on-going problem in recent years with significant impacts on agriculture and tourism, which are major components of the County's economy.

The resulting priority ranking of hazards accepted by the Committee is as follows:

1. Forest/Wild Fires
2. Tornado
3. Flood/Dam Failure
4. Winter Storms/Extreme Cold
5. Drought/Extreme Heat
6. Severe Thunderstorms/Lightning/Hail
7. Hazardous Materials Incidents

This plan focuses on natural hazards that have or could cause disasters that can be mitigated on a local level. Technological or manmade hazards include things like transportation incidents, civil disturbances, mass casualty events, war, and

terrorism. Adams County already has action plans for these types of events, so they are not included in this planning process. Low magnitude earthquakes occur in Wisconsin every few years, but none have exceeded a magnitude of 3.9, which would have vibrations similar to the passing of a semi-truck, therefore, earthquakes are not covered in this plan. Adams County does not have avalanche, coastal hazard, hurricane, tsunami or volcano issues and conditions for landslide, subsidence or expansive soil problems are not significant in the County.

Although a significant concern, human communicable diseases are not addressed in the plan. The Adams County Health Department and area hospitals work with the Wisconsin Department of Health Services (WDHS) and the CDC to monitor and plan for these situations.

HAZARD ANALYSIS

The hazard analysis for each hazard included in this plan is broken down into four components, as follows:

1. Background on Hazard - The next step after identifying a hazard is to define the hazard and give some general background behind it. This can include occurrence of hazard within the County or State. This section may also give some indication of the risk to public health and safety and to personal and public property.

2. History of Hazards - Past experiences of disasters is an indication of the potential for future disasters for which Adams County would be vulnerable. A review of past occurrences for each identified hazard in Adams County was completed.

Some disasters have had damages that exceeded the capabilities of local communities and state agencies. Federal assistance is then requested. Federal assistance may be offered through a variety of programs. Assistance may be directed to agricultural producers, individuals and families, businesses, or local governments. There have been 10 natural disasters in Adams where Presidential Declaration was requested from 1971-2008. They include the following:

- 1973 Flood – Disaster Declaration Approved
- 1976 Drought - Disaster Declaration Approved
- 1993 Flood - Disaster Declaration Approved
- 1994 Tornados - Disaster Declaration Denied
- 2000 Severe Storms/Flooding - Disaster Declaration Approved
- 2001 Severe Storms/Flooding - Disaster Declaration Approved
- 2002 Severe Storms/Flooding - Disaster Declaration Approved
- 2004 Severe Storms/Flooding/Tornado - Disaster Declaration Approved

- 2005 Cottonville Wildfire - State Disaster Fund
- 2008 Flood – Disaster Declaration Approved

It should be noted that this significantly underestimates the number of hazards that have occurred in Adams County. Almost every year there are significant weather events or disasters that cause thousands of dollars in damage for which no Federal disaster assistance is requested. Major indicators of hazard severity are the deaths, injuries, and economic losses resulting from natural hazards and disasters.

The National Oceanic and Atmospheric Administration (NOAA) and National Climatic Data Center (NCDC) publish the National Weather Service (NWS) data describing recorded weather events and resulting deaths, injuries, and damages. From January 1, 1950 to December 31, 2008, NCDC reported 294 severe weather events for Adams County.

Note that since the earlier NCDC data is somewhat incomplete, this report focuses on the 10-year period from 1999 to 2008 for hazard analysis purposes. Other sources of data are used to supplement the NCDC data. These sources included other plans and reports, documents from the Adams County Emergency Management Department, past local newspaper articles, the Wisconsin Department of Natural Resources (DNR), Wisconsin Emergency Management (WEM), and the National Weather Service.

3. Vulnerability Assessment For Hazards - For each hazard identified, a summary of the impact that may be caused to the community is given. When possible, existing buildings, infrastructures, and critical facilities located in the hazard areas are identified. Critical facilities are community buildings that are especially important to the health and welfare of the population following hazard events. Examples of such facilities include hospitals, police & fire stations, town halls, and shelters.

Because this is a multi-jurisdictional plan, FEMA requires that the plan assess each jurisdiction's risks where they vary from the risks facing the entire planning area. This section of the plan will identify variations in vulnerability for specific municipalities where they occur.

4. Future Probability and Potential Dollar Losses for Hazard - The historic data and vulnerability assessment for each hazard is used to project the potential future probability of that hazard occurring in the County and the potential damages in dollars that might be reasonably expected. This section sets the benchmark to mitigate for each hazard.

HAZARD ANALYSIS: FOREST FIRES / WILDFIRES

Background on Forest Fire / Wildfire Hazard:

A forest fire is an uncontrolled fire occurring in a forest or in woodlands outside the limits of incorporated villages or cities. A wildfire is any instance of uncontrolled burning in brush, marshes, grasslands or field lands. For the purpose of this analysis, both of these kinds of fires are being considered together.

Forest fires and wildfires can occur at any time the ground is not completely snow covered. The season length and peak months may vary appreciably from year to year. Land use, vegetation, amount of combustible materials present and weather conditions such as wind, low humidity and lack of precipitation are the chief factors for fire season length.

History of Forest Fire / Wildfire in Adams County:

The Wisconsin DNR maintains a database of wildfire data. This data represents the most comprehensive source of information for analyzing fire trends in an area such as Adams County. However, the data is only current through 2005, so a 20-year span is used for analysis. Between 1985 and 2005, there was an average of 67 fires that have burned 100 acres, annually (excluding Cottonville). The typical fire in Adams County burns about 1.5 acres.

April is the leading month for wildfire in Adams with 33% of the total number of fires between 1985 and 2005. However, wildfires have occurred in each month of the year in Adams.

The Town of Rome experienced the most wildfires between 1985 and 2005 with 155. These fires burned a total of 332 acres, which would again lead the County, if not for the Cottonville fire. The Town of Richfield had the fewest fires, among non-urban areas, with 21 over that period. New Haven had the least area burned, among non-urban areas, with only 32 acres affected.

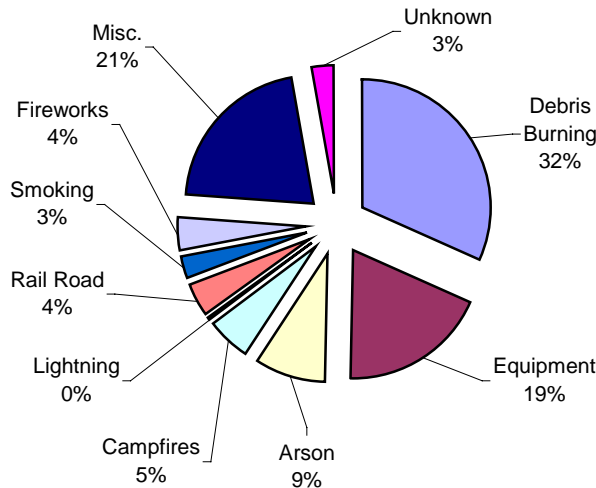


Now famous Cottonville Firemonster Picture

The chart below breaks down the causes of wildfire within Adams County between 1985 and 2005 as classified by the WDNR. The principle cause of wildfire in Adams County and Wisconsin as a whole is debris burning which resulted in 444 or 32% of wildfires within the County. Equipment is the next

leading category at 19% and includes vehicle, motor and other machinery related causes except railroad. Miscellaneous includes a variety of factors such as power lines, structure fires, and improper ash disposal. Arson resulted in nearly 10% of wildfires and includes "playing with matches" and experimenting with fire. Lightning, the only natural cause of fire, was responsible for only 6 of the fires or less than 1%.

Fire Causes in Adams Co. 1985-2005



Source: WDNR

In 2005, Adams County experienced the largest wildfire in Wisconsin in the last 25 years. Known as the Cottonville Fire, the fire began on May 5 when debris burning in a fire pit got out of control. Approximately 3,410 acres were burned in the Towns of Big Flats, Colburn and Preston covering an area 1.5 miles wide and 7 miles long. Weather conditions were ideal for fire: warm and windy with very low humidity. Part of "sand country", Adams County's dominant vegetation is grass, pine and scrub oak, which are all known to burn quickly and intensely. Fire spread quickly to the tops of the pine trees.

Losses included 9 primary homes, 21 seasonal homes, and 60 outbuildings. Damage was sustained to 15 other homes. Evacuation of 200 residents was required. Firefighting efforts were massive with 5 aircraft (1 from Minnesota DNR), 200 WDNR personnel from across the state, 30 volunteer fire departments and law enforcement from State Patrol, Adams, LaCrosse and Vernon County Sheriffs and Onalaska Police. The fire took 11 hours to bring under control and several days for mop-up. The courts set restitution at over \$1.4 million indicating the level of damages.

According to the National Climatic Data Center's database a wildfire, fanned by gusty winds, charred 158 acres of red pine in the Town of Rome during the early

morning of April 13, 1998. The fire necessitated the evacuation of some nearby residences. Nobody was injured and no homes were lost, but there was an estimated property value loss of \$80,000.

The NCDC also reported a period of wildfire activity across the state including Adams County in April of 1994. Warm, windy and dry conditions were again responsible

More fires have been recorded during the drought years like 1976 and 1988.

Forest Fire / Wildfire Vulnerability Assessment:

Adams County has 247,471 acres of forestland, or 56 percent of the total land area, scattered throughout the County. The potential for property damage from fire increases each year as more recreational and retirement homes are developed on wooded land.

The trend toward introducing more human development into fire prone areas has brought about the term wildland urban interface or WUI. The WUI identifies areas where structures and human development meet or intermingle with undeveloped wildlands. It is within these areas where wildfire poses the greatest risk to human lives and property.

The WDNR has completed a statewide evaluation of fire risk, referred to as the CAR or Communities At Risk assessment. This assessment uses extensive DNR geo-databases to analyze and map hazardous woodland fuel types and the degree of the intermixing of development with wildlands. The maps identify the level of risk for each community on a scale of very high, high, moderate, or low, and also have a community of concern designation. Virtually all of Adams County is rated very high or high except for Leola and Colburn, which are designated as communities of concern.

WDNR reports on the Cottonville Fire indicate that the loss of buildings was due, in part, to a lack of access (long, narrow driveways) and a lack of defensible space (free of fuels that can transmit fire to the structure and allow firefighters to safely operate).

Campgrounds are also a concern because of campfires. Adams County has seven campgrounds. Locations of the campgrounds are shown on Map 11.

Future Probability and Potential Dollar Losses – Forest/Wild Fires:

Forest and wild fires are relatively common occurrences in Adams County. Over the last 20 years, there has been an average of 67 fires per year in the County. In other words, the probability is 1.0 or 100% chance of wildfire each year. However, these fires are typically contained rapidly and remain small, so that each has a minimal impact. The probability of a fire becoming more substantial, like Cottonville, might be estimated at (less than) 5% per year or 0.05.

Because of the relatively small impact of typical individual fires in the County, loss data is not tracked. This makes it difficult to develop an estimate of potential future dollar losses. However, with 67 fires per year, the County should expect some fires to "get out of hand" and likely approach or exceed the \$1.4 million in damages of the Cottonville Fire.

HAZARD ANALYSIS: TORNADOS

Background on Tornado Hazard:

A tornado is a relatively short-lived storm composed of an intense rotating column of air, extending from a thunderstorm cloud system. It is nearly always visible as a funnel, although its lower end does not necessarily touch the ground. Average winds in a tornado, although never accurately measured, are between 100 and 200 miles per hour, but some tornados may have winds in excess of 300 miles per hour.

Table 10 Tornado Wind and Damage Scale		
Tornado Scale	Wind Speeds	Damage
EF0	65 to 85 MPH	Some damage to chimneys, TV antennas, roof shingles, trees, and windows.
EF1	86 to 110 MPH	Automobiles overturned, carports destroyed, trees uprooted
EF2	111 to 135 MPH	Roofs blown off homes, sheds and outbuildings demolished, mobile homes overturned.
EF3	136 to 165 MPH	Exterior walls and roofs blown off homes. Metal buildings collapsed or are severely damaged. Forests and farmland flattened.
EF4	166 to 200 MPH	Few walls, if any, standing in well-built homes. Large steel and concrete missiles thrown far distances.
EF5	OVER 200 MPH	Homes leveled with all debris removed. Schools, motels, and other larger structures have considerable damage with exterior walls and roofs gone. Top stories demolished

Source: National Weather Service

A tornado path averages four miles, but may reach up to 300 miles in length. Widths average 300 to 400 yards, but severe tornados have cut swaths a mile or more in width, or have formed groups of two or three funnels traveling together. On average, tornados move between 25 and 45 miles per hour, but speeds over land of up to 70 miles per hour have been recorded. Tornados rarely last more than a couple of minutes in a single location or more than 15 to 20 minutes in a ten-mile area.

Tornados are classified into six intensity categories, EF0-EF5. This scale is an updated or "enhanced" version of the Fujita Tornado Scale (or "F Scale"). The scale estimates wind speeds within tornados based upon the damage done to buildings and structures. It is used by the National Weather Service in investigating tornados and by engineers in correlating building design and construction standards against anticipated damage caused by different wind speeds.

Wisconsin lies along the northern edge of the nation's maximum frequency belt for tornados, known as "Tornado Alley". Tornado Alley extends northeast from Oklahoma into Iowa and then across to Michigan and Ohio. Winter, spring and fall tornados are more likely to occur in southern Wisconsin than in northern counties. Tornados have occurred in Wisconsin every month except February.

History of Tornados in Adams County:

Adams County has had 22 verified tornados from 1971 to 2008 (Table 11). The most recent was on June 7, 2008 when an EF0 tornado hit the Town of New Haven about 2.5 miles north of Briggsville before crossing into Marquette County and strengthening to EF1. Power lines and trees were downed and some received minor damage. Adams County estimated about \$75,000 in damages. A warm front extending east to west across the Upper Mississippi River Valley was the focus for a significant severe weather event on June 7. A total of four tornados were confirmed, while numerous reports of wind damage and large hail were received from law enforcement officials and storm spotters across the state.

A tornado briefly touched down near the intersection of Highway 82 and 13 in the Town Springville August 18, 2005. One of six tornados that affected southwest Wisconsin, this tornado was part of an all-time one day record of 27 tornados hitting the state. Mobile homes were damaged, along with nearby trees and the roof of a home under construction. Damages were estimated at about \$5,000.

A line of thunderstorms that moved out of Minnesota produced wind damage, hail and several tornados in June of 2004. A Presidential Disaster Declaration was issued as a result. One tornado formed in extreme eastern Juneau County, about 2 miles west of Castle Rock Dam. The tornado moved east-northeast across Castle Rock Lake and into western Adams County. It tracked near or along Edgewood Ave, with extensive tree damage to the Quincy Bluff area, including the lookout ranger tower there. Hundreds of trees were blown down

from strong winds in excess of 90 mph at times. The tornado intermittently tracked east to areas just north of Edgewood Drive crossing Highway 13 approximately 5 miles south of Adams/Friendship. Downburst winds on the south side of the storm demolished at least 8 mobile homes in Edgewood Estates that were orientated north-south and took the full brunt of the cross wind. Most of the Town of Easton had extensive damage with hundreds of trees down. It continued to move east-southeast before lifting shortly before the Adams-Marquette County line about 3 miles southeast of Grand Marsh around 7:55 pm. A broad area of straight line wind damage was found south of this tornado track with widespread tree damage occurring up to 1 mile south of the track. The tornado path was approximately 17 to 18 miles in length. The tornado was rated an F1 with estimated winds in the 73 to 112 mph range.



2004 Tornado Damage

Adams County reported that 11 people were injured including 2 that required airlifting to the hospital at UW-Madison. A total of 16 homes were destroyed along with 41 having major damage and another 67 with minor damage. Governmental expenses exceeded \$500,000. Private sector damage were estimated at about \$6.5 million primarily agricultural including entire farms and many irrigation systems and other equipment as well as crops.

In August of 1994, a F3 tornado tore a 13-mile long, $\frac{1}{4}$ wide swath through Adams County. Two people were killed and 22 people injured by this tornado. Damage was estimated at \$4.5 million with 24 homes, a tavern, a potato warehouse, and numerous out buildings destroyed. Eight homes suffered major damage, and 160 were reported to have light to moderate damage, primarily in the Town of Big Flats. In addition, the Big Flats Fire Department and town hall were destroyed, as well as a thrift shop. Seventy cows were crushed to death in one barn as the walls blew out and the upper floor, filled with 16,000 bales of hay and roof collapsed. Presidential Disaster Declaration was not issued for this event.

The largest and deadliest tornado recorded in Adams County occurred a century ago in 1903 in the Town of Rome. A large F4 tornado apparently formed over extreme northern Adams County and then moved east-northeast passing 1.5 miles south of Bancroft in Portage County. The tornado was up to a half mile wide but most of the damage was in Portage County. Five people were killed and forty were injured by this tornado.

Only the 1994 and 1903 tornados have caused deaths, however several others have caused significant damages. The July 10, 1984, a F2 tornado that touched down in the Dellwood subdivision near Castle Rock Lake hit 59 homes and destroyed 14. More than 2,000 trees were downed.

Date	Time CST	Location	Other Counties Affected	Length (miles)	Width (yards)	Deaths**	Injuries**	F-Scale
6/7/08	1357	New Haven	Marquette	3	50	0	0	F0
8/18/05	1641	Springville	None	1	30	0	0	F1
6/23/04	1855	Quincy, Easton, New Chester	Juneau	17	50	0	11	F1
8/27/94	2210	Plainville 1SE	None	0.1	25	0	0	F0
8/27/94	2041-2057	Monroe Center 2SE	None	10.5	850	2	22	F3
6/8/93	1635	Adams 8E	None	0.5	25	0	0	F0
6/8/93	1630	Adams 7ESE	None	2	75	0	0	F0
6/8/93	1552	Rome 1SE	None	1.5	75	0	0	F0
6/8/93	1548	Rome 2.5W	None	1	50	0	0	F0
6/8/93	1330	Brooks 1N	None	1.5	75	0	0	F0
8/29/92	1900	Big Flats 3.5E	None	5	100	0	0	F1
5/24/89	1730	Adams 5W	None	0.5	50	0	0	F0
7/10/84	1551-1553	Castle Rock	None	4	500	0	0	F2
4/2784	1410	Brooks 3S	None	2	220	0	0	F1
7/3/83	1900	Lake Mason	None	0.1	10	0	0	F0
7/3/83	1845	Plainville	None	0.1	12	0	0	F0
7/3/83	1803	Dellwood	None	6	50	0	0	F1
7/19/80	2345	T. Quincy & T. Adams	None	2	?	0	0	F2
5/18/79	1645	southeast Adams Co.	None	0.1	35	0	0	F1
4/17/75	2145	Leola	None	0.3	20	0	0	F0
6/9/74	1430	Highway 73 & CTH 1	None	?	?	0	0	F1
5/18/71	1640	Adams-Friendship Hancock	to Waushara	15.9	100	0	5	F1
5/8/64	1815	Lyndon Station 3NW Adams	to Juneau	23.5	150	0	0	F2
6/25/34	2330	Briggsville	None	1.5	880	0	0	?
10/3/03	1600	Rome 5E	Portage	22	200	5	40	F4

* The data in this table came from **Storm Data, Significant Tornadoes--1680-1991** by Thomas P. Grazulis, **Wisconsin Tornado Database 1950-2000** Geographic Techniques Report No. ST-WTDB01, NCDC database and Adams County EM.

** Injuries and Deaths are for the entire tornado track.

Tornado Vulnerability Assessment:

Though Adams County is mostly a rural county, there are concentrations of population scattered throughout County. Subdivisions, rural unincorporated communities, and the Adams/Friendship area can be regarded as more vulnerable because these areas pose more of a threat to human safety and property damage. Map 11 illustrates these areas with in the County.

Mobile homes are of significant concern in assessing the hazard risks from tornados. In general, it is much easier for a tornado to damage and destroy a



Foster Trailer Park Tornado Damage

mobile home than standard constructed houses and buildings. Since 27 percent of Adams County's housing units are mobile homes, vulnerability to health and safety along with property damage is much greater. Research by the NWS shows that between 1985 and 1998, 40 percent of all deaths in the nation from tornados were in mobile homes, compared to 29 percent in permanent homes, and 11 percent in vehicles.

The 2000 U.S. Census reported there are 3,748 mobile homes in Adams County. While mobile homes are scattered throughout the County, many are concentrated in mobile home parks. Map 11 displays the location of the mobile home parks. Table 12 below lists the number of mobile homes reported by the Census for each municipality in the County. It also lists the personal property valuations for the mobile homes in each municipality. Owners of these mobile homes do not own the land but rather rent or lease the land it resides on. In most cases, these are in mobile home parks. The total personal property valuations of all the mobile homes for each municipality was totaled and divided by the number of mobile homes with personal property valuations. The County average for personal property of those mobile homes was \$11,937.

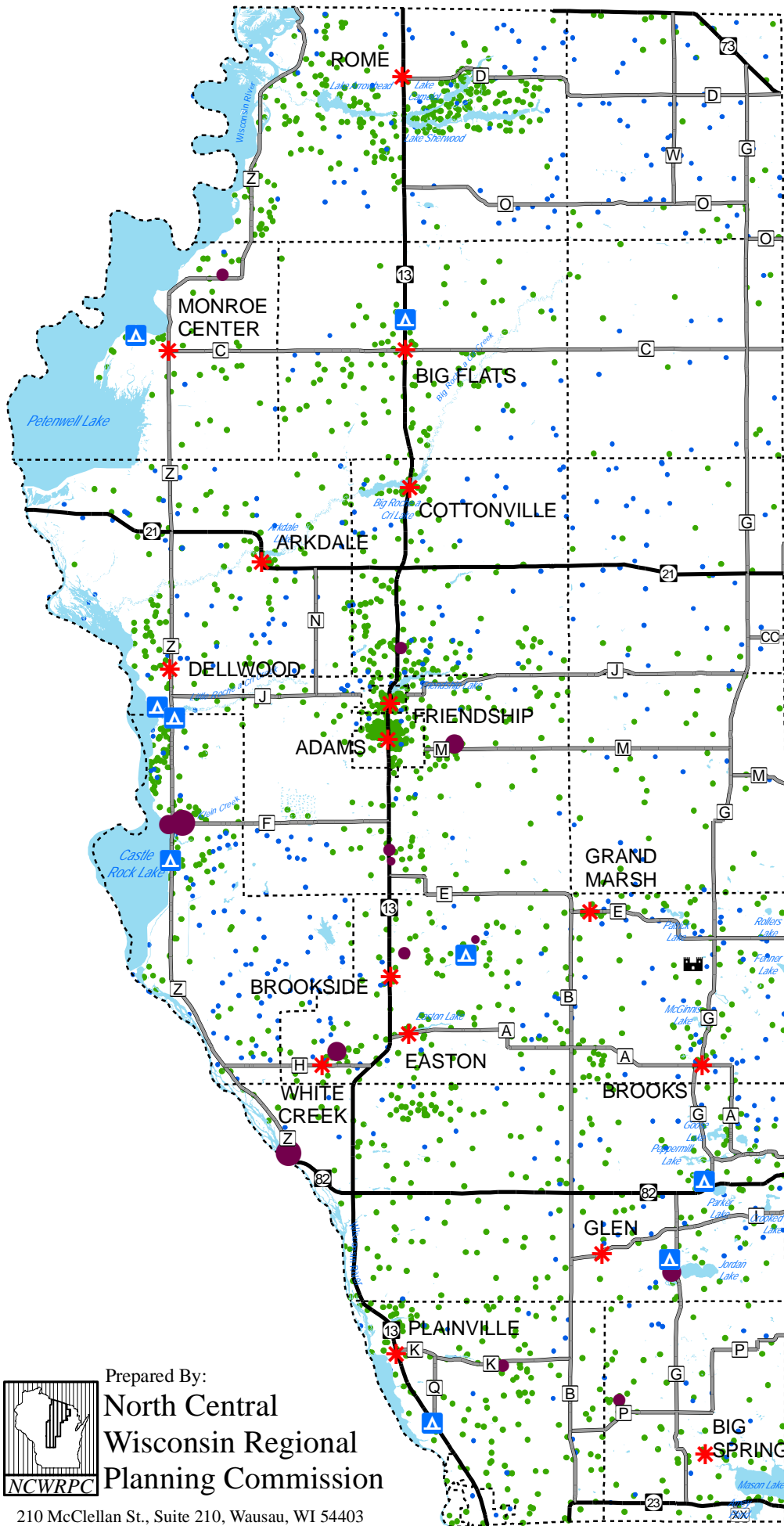
Besides mobile homes, there are many other areas vulnerable to tornados such as campgrounds. Like mobile homes parks, campgrounds are of concern in the County because often times there is a concentration of people in them and there is little shelter provided. Map 11 also shows the location of campgrounds in the County.

The following is a list of things that may be affected by a tornado. Much of this list can be referenced in Part II.

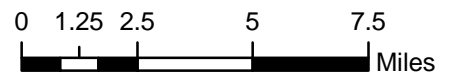
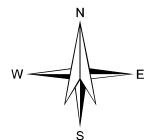
- Community facilities – hospitals, schools, nursing homes, "prisons/jails"
- Public Service - police and fire departments
- Utilities - power lines, telephone lines, radio communication
- Transportation – debris clean-up
- Residential – nursing homes, garages, trees and limbs, siding, windows, trees
- Businesses – signs, windows, siding, billboards
- Agricultural - buildings, crops, livestock

Based on review of the historic events of tornados, there are no specific areas in the county that have unusual risks. The events are relatively uniform and a countywide concern.

Map 11
Tornado
Vulnerability
Adams County, Wisconsin



- Minor Civil Divisions
- State Highways
- County Highways
- * Population Concentration
- ▲ Campgrounds
- Oxford Federal Prison
- Mobile Home Parks
- 10
- 11 - 37
- 38 - 61
- 62 - 87
- Resident Population Pattern, 1 dot = 10
- Seasonal Housing Unit Pattern, 1 dot = 10
- Water



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Source: WI DNR, NCWRPC, Adams Co. EM
This map is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only. NCWRPC is not responsible for any inaccuracies herein contained.

Municipality	2000 Census*	Number**	Total Value	Average Value
Adams town	284	89	\$973,800	\$10,942
Big Flats town	292	12	\$122,800	\$10,233
Colburn town	53	0	\$0	\$0
Dell Prairie town	213	0	\$0	\$0
Easton town	379	62	\$822,800	\$13,271
Jackson town	255	24	\$443,700	\$18,488
Leola town	54	4	\$65,000	\$16,250
Lincoln town	33	0	\$0	\$0
Monroe town	122	9	\$139,300	\$15,478
New Chester town	235	8	\$87,100	\$10,888
New Haven town	75	7	\$114,000	\$16,286
Preston town	276	4	\$23,100	\$5,775
Quincy town	592	110	\$1,712,800	\$15,571
Richfield town	21	1	\$23,700	\$23,700
Rome town	230	1	\$8,800	\$8,800
Springville town	326	86	\$449,600	\$5,228
Strongs Prairie town	191	4	\$41,500	\$10,375
Friendship village	29	3	\$33,200	\$11,067
Wisconsin Dells (part)	0	0	\$0	\$0
Adams city	88	0	\$0	\$0
Adams County	3,748	424	\$5,061,200	\$11,937

*=Number of mobile homes reported in 2000 Census

**=Number of assessed mobile homes by municipality on rented/leased land

Source: Adams County and NCWRPC

Future Probability and Potential Dollar Losses – Tornado:

Based on the historic data presented here, Adams County can expect a tornado about once every 3 years on average. This equates to a probability of 0.3 or about a 30 percent chance in a given year. Table 13 indicates the probability of tornadoes of a specific magnitude. There also appears to be a trend of a major damaging tornado event every 10 years. The County has experienced a tornado resulting in over \$2 million in damage in 1984, 1994 and 2004.

Tornado Scale	F0	F1	F2	F3	F4	F5
Number of Reported Tornadoes*	11	8	2	1	0	0
Probability of Occurrence	50%	36%	9%	4%	<1.0%	<1.0%

Source: National Weather Service & NCWRPC – *Based on historical data from 1971 to 2008.

Historic data is again used to estimate potential future dollar losses due to tornado. Estimated damages resulting from various tornados in Adams County range from \$0 to \$7 million. On average, Adams County might expect damages of \$670,000 per tornado, however, only three of these 22 historic tornados resulted in damages exceeding \$1 million, two others had \$250,000, and the rest were \$25,000 or less. Over the next ten-year period, tornado losses in Adams County could approach \$2 million, however, if the ten-year cycle continues damages might exceed \$4.6 million.

HAZARD ANALYSIS: FLOODING/DAM FAILURE

Background on Flood Hazard:

There are a variety of classifications for flooding including coastal, dam or levee failure, flash, lake, riverine, stormwater and urban/small stream. Adams County has the potential for all these types except coastal. The following descriptions of the types of flooding are compiled from various FEMA and other notable hazard planning sources:

Coastal – Different from other types of flooding which relate to movement of water through a watershed, coastal flooding is due to the effect of severe storm systems on tides resulting in a storm surge. Primarily known as an ocean-based event, the Great Lakes coastal areas can also be affected.

Dam or levee Failure – More of a technology related hazard than a natural hazard, various factors can result in the failure of the structural technology that is a dam, thus causing flooding of areas downstream of the dam often similar in effect to flash flooding.

Flash – Involves a rapid rise in water level moving at high velocity with large amounts of debris which can lead to damage including tearing out of trees, undermining buildings and bridges, and scouring new channels. Dam failure, ice jams and obstruction of the waterway can also lead to flash flooding. Urban /built-up areas are increasingly subject to flash flooding due to removal of vegetation, covering of ground with impermeable surfaces and construction of drainage systems.

Lake – Prolonged wet weather patterns can induce water-level rises that threaten lakeshore areas.

Riverine – Also known as overbank flooding, this is the most common type of flooding event. The amount of flooding is a function of the size and topography of the watershed, the regional climate, soil and land use characteristics. In steep valleys, flooding is usually rapid and deep, but of short duration, while flooding in flat areas is typically slow, relatively shallow, and may last for long periods.

The cause of flooding in rivers is typically prolonged periods of rainfall from weather systems covering large areas. These systems may saturate the ground and overload the streams and reservoirs in the smaller sub-basins that drain into larger rivers. Annual spring floods are typically due to the melting of snowpack.

Stormwater – Water from storm event that exceeds the capacity of local drainage systems, either man-made or natural, can result in flooding. Inadequate storm sewers and drainage systems are often the primary factor resulting in this type of flooding.

Urban and Small Stream – Locally heavy rainfall can lead to flooding in smaller rivers and streams. Streams through urban or built-up areas are more susceptible due to increased surface runoff and constricted stream channels.

Major floods in Adams County tend to occur in the spring when melting snow adds to normal runoff and in summer or early fall after intense rainfalls. Flooding occurs in the spring due to snowmelt and frozen soil. This build up continues until the river or stream overflows its banks, for as long as a week or two and then slowly recedes inch by inch. The timing and location of this type of flooding is fairly predictable and allows ample time for evacuation of people and protection of property.

Flooding is a significant hazard in Adams County, particularly because it borders the Wisconsin River. As described in Part II, there are approximately 235 miles of streams in Adams County within five main watersheds. Four are part of the Wisconsin River Basin, while the Neenah Creek Watershed is part of the Upper Fox River Basin.

Floodplains exist along the Wisconsin River and the tributaries that feed into it. These floodplains are narrow along tributaries and lakes but extensive throughout the County. Floodplains are described in Part II and shown on Map 4 of this plan. The Federal Emergency Management Agency (FEMA) identifies these floodplains on Digital Flood Insurance Rate Maps (DFIRMs) as downloaded by the NCWRPC from FEMA's website.



New Haven Flood Damage

There are 55 dams in Adams County (See Map 3 and Table 14). These dams serve many useful purposes including agricultural uses, providing recreational areas, electrical power generation, erosion control, water level control and flood control. According to the DNR, Adams County has 24 large dams (including Castle Rock and Petenwell Dam), which have a structural height of over 6 feet and impounds 50 acre-feet or more. The other 31 are regarded as small dams. The Wisconsin DNR regulates all dams on waterways to some degree, however

the small dams are not stringently regulated for safety purposes. The federal government has jurisdiction over large dams that produce hydroelectricity. Castle Rock and Petenwell Dams are the major producers of hydroelectricity in Adams County. Friendship and Big Roche-A-Cri also produce electricity.



Friendship Dam

A dam can fail for a number of reasons such as excessive rainfall or melting snow. It can also be the result of poor construction or maintenance, flood damage, earthquake activity, weakening caused by burrowing animals or vegetation, surface erosion, vandalism or a combination of these factors. Dam failures can happen with little warning resulting in the loss of life and significant property damage in an extensive area downstream of the dam.

The WDNR assigns hazard ratings to large dams within the state. When assigning hazard ratings, two factors are considered: existing land use and land use controls (zoning) downstream of the dam. Dams are classified into three categories that identify the potential hazard to life and property downstream should the dam fail. A high hazard indicates that a failure would most probably result in the loss of life. A significant hazard indicates a failure could result in appreciate property damage. A low hazard exists where failure would result in only minimal property damage and loss of life is unlikely. For Adams County, there are five dams that have a high hazard rating: Castle Rock, Camelot, Fawn Peppermill, Roche-a-Cri, McGinnis and Petenwell. Sherwood has a significant rating, while the rest are rated low.

History of Flooding in Adam County:

Flooding was the principal cause of damage in seven of eight Presidential Disaster Declarations in Adams County from 1971 to 2008. The most recent declaration as of this plan occurred in 2008 and included most of southern Wisconsin. Heavy rain resulted in flooding that caused numerous road and culvert washouts throughout the southern half of the County. Crop losses and water damage to homes and outbuildings including mold problems were significant. Public sector damages exceeded \$400,000, and individual losses have exceeded \$300,000. High wind including a tornado in the Town of New Haven was also associated with this event.

In 2004, severe storms resulted in flooding and a disaster declaration for central and southern Wisconsin including Adams County. Flash flooding occurred after 3 to 6 inches of rain fell within two hours. High water conditions persisted for some time after the initial flood. Several roads were impassable. Approximately 40 homes were damaged along with a number of government facilities throughout the County. NCDRC reported property damages of \$125,000 and crop damages of \$25,000.

Table 14		Dams in Adams County				
DAM NAME	DAM SIZE TYPE	MILES NEXT CITY IS DOWN FROM DAM	NAME OF NEXT CITY DOWN FROM DAM	HAZARD RATING	UPDATED EAP YEAR	
CASTLE ROCK	LARGE	19	WISCONSIN DELLS	HIGH	2008	
LAKE CAMELOT	LARGE	0	LAKE SHERWOOD SUBDIV	HIGH	2006	
LAKE PETENWELL	LARGE	1	DELLWOOD SUBDIVISION	HIGH	2008	
PEPPERMILL LAKE (Coddington)	LARGE	4	OXFORD	HIGH		
SHERWOOD	LARGE	0	LAKE SHERWOOD SUBDIV	SIGNIFICANT	2006	
#10 (White Creek)	LARGE			LOW		
ARKDALE	LARGE	0	ARKDALE	LOW		
BINGHAM CR 1 CECIL BROWN ETUX	SMALL	35	WISCONSIN DELLS	LOW		
CARTER CREEK (Splitek)	LARGE	0	NONE	LOW		
EASTON	LARGE	0	EASTON , CTH A	LOW	1990	
FARREY (McGinnis Lake)	LARGE	2	BROOKS	HIGH		
FEDLER	LARGE	0	NONE	LOW		
FRIENDSHIP	LARGE	0	FRIENDSHIP	LOW		
HORNER (Fawn Lake)	LARGE	0	NONE	HIGH		
LAKE ARROWHEAD	LARGE	0	ROME	LOW	2006	
LANDIS,CHARLES	SMALL	9	FRIENDSHIP	LOW		
LAVERNE NEWBY (White Creek)	SMALL	1	WHITE CREEK	LOW		
LEOLA 16	LARGE	17	NEW ROME	LOW		
LEOLA 19	LARGE	15	NEW ROME	LOW		
LEOLA 4	LARGE	14	NEW ROME	LOW		
LEOLA 9	LARGE	12	NEW ROME	LOW		
LEOLA DRAINAGE DISTRICT	SMALL	17	NEW ROME	LOW		
LEOLA DRAINAGE DISTRICT	SMALL	15	NEW ROME	LOW		
LEOLA DRAINAGE DISTRICT	SMALL	13	NEW ROME	LOW		
LEOLA DRAINAGE DISTRICT	SMALL	12	NEW ROME	LOW		
LEOLA DRAINAGE DISTRICT	SMALL	13	NEW ROME	LOW		
LEOLA DRAINAGE DISTRICT	SMALL	15	NEW ROME	LOW		
LEOLA DRAINAGE DISTRICT	SMALL	16	NEW ROME	LOW		
LEOLA DRAINAGE DISTRICT	SMALL	18	NEW ROME	LOW		
LEOLA DRAINAGE DISTRICT	SMALL	14	NEW ROME	LOW		
LEOLA DRAINAGE DISTRICT	SMALL	14	NEW ROME	LOW		
LEOLA DRAINAGE DISTRICT	SMALL	16	NEW ROME	LOW		
LEOLA DRAINAGE DISTRICT	SMALL	17	NEW ROME	LOW		
LEOLA DRAINAGE DISTRICT	SMALL	15	NEW ROME	LOW		
LEOLA DRAINAGE DISTRICT	SMALL	16	NEW ROME	LOW		
MR NERO (Risk Creek)	SMALL	4	WHITE CREEK	LOW		
NO. 9A	LARGE			LOW		
NORTHERN DAM OR #9 (White Creek)	LARGE			LOW		

Table 14 continued	Dams in Adams County				
ROCHE-A-CRI / COTTONVILLE (Big Flats)	LARGE	4	ARKDALE	HIGH	2004
SCHWAHN	LARGE	0	NONE	LOW	
SOUTHERN DAM OR #8 (White Creek)	LARGE			LOW	
WALKER, HARRY	LARGE	9	PLAINFIELD	LOW	
BINGHAM CR 2 CECIL BROWN ETUX	SMALL				
EVANS, ORVEL	SMALL				
HENNING,H.A.	SMALL				
HENRY REEVES,ETUX	SMALL				
HOLM, HAROLD	SMALL				
HYLER,DONALD	SMALL				
JOHN KISH & ED KUBACKI	SMALL				
KOHL, KARL	SMALL				
RANDORF,CLAYTON	SMALL				
RICHARD E BIERI	SMALL				
SCIEPKO, JOSEPH	SMALL				
SUS, EDWARD	SMALL				

Source: WDNR on-line database and NCWRPC

In 2002, at least 15 inches of rain fell in northern Adams County on June 21 and 22. The disaster declaration covered eight Wisconsin counties including Adams. Numerous roads were reported closed due to flooding. The risk of a dam failure was issued for areas along Lake Arrowhead, Lake Sherwood and Lake Camelot drainages. Runoff filled lakes to the point of nearly breaching the levees and embankments. Water had to be released into the drainage system to prevent levee and dike failures. In some locations, the water flooded homes and businesses, washed out roads, bridges and culverts, and damaged crops. Estimated damage by NCDRC to Adams County was about \$577,000. The Town of Big Flats suffered major damage to roads, resulting in more than \$195,000 in repair costs.

Severe storms again resulted in flooding (and disaster declaration) in 2001 and 2000. Flash flooding was reported near Grand Marsh by the NCDRC in 1997 with \$30,000 in damages.

The Flood of 1993 was one of the worst flood events experienced by Adams County, the state, and entire Midwest. The flooding in Adams County was a result of several compounding factors including heavy rains and flooding in the fall of 1992, above average amounts of precipitation in the Spring of 1993, and unusually heavy amounts of rain onto already saturated ground from early June throughout July. Fortunately, before the flood peaks arrived on the Wisconsin River in Adams County, the Petenwell and Castle Rock Reservoirs were drawn down. This created additional storage capacity that helped ease flow and lowered discharges downstream.

East of the Wisconsin River in the County, there was substantial flooding reported near the border of the City of Adams and the Village of Friendship. The Health and Social Services Building, DNR Offices, Jr. High School, and numerous homes all experienced flooding and water damage. Standing water plagued the area for months afterward. Adams County received approximately \$792,562 in disaster disbursements. The major impacts from flooding were to agriculture lands public roadway washouts. Nearly 50 percent of financial aid disbursements were for agriculture where wet croplands prevented normal farming operations and stunted or killed crops. Twenty percent of the funds were for public relief. High groundwater eroded road bases and caused excessive runoff that washed out culverts and embankments or stripped gravel surfaces off of town roads. In the private sector, the three most common problems were groundwater in basements, failing septic systems, and polluted wells.

Major flooding also occurred in 1973 affecting a large portion of the county with flooding along the entire length of the Mississippi River resulting in a disaster declaration. Flood crest at Wisconsin Dells was 20.7 feet compared to 18.2 feet in 1993. Other notable flooding includes 1967 and 1965 with crests measured at Wisconsin Dells of 19.2 and 19.0 feet respectively.

Prior to the construction of the reservoirs at Petenwell and Castle Rock, large-magnitude floods were recorded on the Wisconsin River in September 1911, July 1912, September 1938 and September 1941. A maximum discharge of 72,200 cubic feet per second (cfs) was recorded on September 14, 1938, on the Wisconsin River near Wisconsin Dells just south of the Adams County line.

Adams County has not experienced a dam failure with any loss of life or substantial property damage. However, there have been notable incidences of threatened failure. The Town of Rome avoided dam blowouts with the help of many volunteer sandbaggers during the June 2002 flooding when the Lake Camelot dam came within an inch of failure; Lake Arrowhead dam came within seven inches of failure; and Sherwood was about four inches away from failure.

In 2006, the Tri-Lakes dams were again threatening failure. The Kingsway Dam on Upper Lake Camelot is the uppermost dam in a series of dams. Failure of this dam could ultimately lead to failure of 3 other dams downstream and close State Highway 13 as well as various County and local roads. Rapid draw down of the lakes prevented the dam failure and allowed repair of a failing drain system.

In 2007, a bowed and leaking stop log at the base of the Easton Lake Dam required draw down and emergency repair. The dam was built in the 1860s to form a 24-acre millpond. During the repairs, other issues were revealed, and full replacement of the dam was subsequently planned.

Flood Vulnerability Assessment:

Flood events in the County have caused substantial property and infrastructure damage in the past and have the potential to cause future damage, since a significant number of structures still exist in the floodplain. Looking at past events, the following have been significantly impacted by flooding:

- Infrastructure – flooded public facilities and schools
- Utilities - down electric lines/poles/transformers, telephone lines, lost radio communication
- Roadways – washouts, inundated roadways, debris clean-up
- Residential structures – flooded basements, damaged septic systems
- Businesses – loss of commerce
- Agriculture - inundated cropland

To assess the vulnerability of the Adams County area to flooding hazards, basic inventory data described in Part II must be analyzed. For this purpose, consideration should be given to structures (specifically critical facilities), infrastructure, and cropland.

Municipality	Number	Total Value	Average Value
Adams town	3	\$250,818	\$83,606
Big Flats town	22	\$908,160	\$41,280
Colburn town	1	\$54,819	\$54,819
Dell Prairie town	69	\$7,449,861	\$107,969
Easton town	95	\$5,989,940	\$63,052
Jackson town	27	\$2,060,235	\$76,305
Leola town	20	\$1,170,660	\$58,533
Lincoln town	0	\$0	\$0
Monroe town	5	\$351,965	\$70,393
New Chester town	1	\$45,810	\$45,810
New Haven town	80	\$5,326,320	\$66,579
Preston town	59	\$3,743,255	\$63,445
Quincy town	131	\$9,031,926	\$68,946
Richfield town	3	\$123,597	\$41,199
Rome town	194	\$16,371,660	\$84,390
Springville town	94	\$6,511,380	\$69,270
Strongs Prairie town	17	\$1,704,488	\$100,264
Friendship village	3	\$174,948	\$58,316
Wisconsin Dells (part)	0	\$0	\$0
Adams city	0	\$0	\$0
Adams County	824	\$61,269,842	\$74,357

Source: WDOR and NCWRPC

One of the first reports to reference in assessing vulnerability to structures during flooding is the Wisconsin Repetitive Loss Report. The Repetitive Loss Report provides information to the status of repetitive loss properties by community. FEMA classifies a repetitive loss structure “when more than one flood insurance claim of at least \$1,000 is made within a ten-year period”. The information is used as a floodplain management tool and to supplement information provided by communities for flood mitigation grants administered by WEM. According to the report, there are no repetitive loss structures within Adams County.

Since no structures are listed in the Repetitive Loss Report, structures within floodplains were analyzed, see methodology outlined below. The floodplain boundaries within Adams County are shown on Map 4. Table 15 shows the number of structures in each municipality identified as "vulnerable to flooding" according to proximity to floodplains. There were a total of 824 structures identified in the designated floodplain boundaries, see Map 12.


Methodology – Structures within Floodplains:

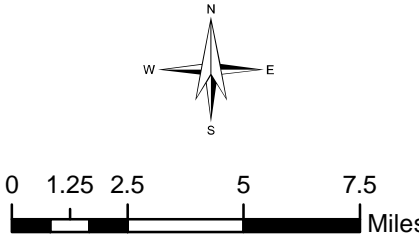
1. NCWRPC downloaded the new DFIRM floodplain maps from the FEMA website into a GIS coverage for the County.
2. A building point cover was digitized from 2008 digital aerial photography of the floodplain areas.
3. The floodplain coverage was then combined with the building point coverage to identify those structures within the floodplain boundary.
4. Total structures with the floodplain were then tabulated by municipality.
5. County assessed value data was used to determine total value for the identified vulnerable structures by municipality.

Flooding in Adams County is often felt beyond the floodplain boundaries due to factors such as topography and high groundwater. The drainage (surface runoff) network in the County is poorly defined. During periods of extended rainfall and/or snowmelt, a general condition of flooding exists throughout the communities. During this time, basements and roadways suffer considerable damage. Examining areas of flooding from the 2008 flood illustrates areas of the County that may be affected by flooding in the future, See Map 13.

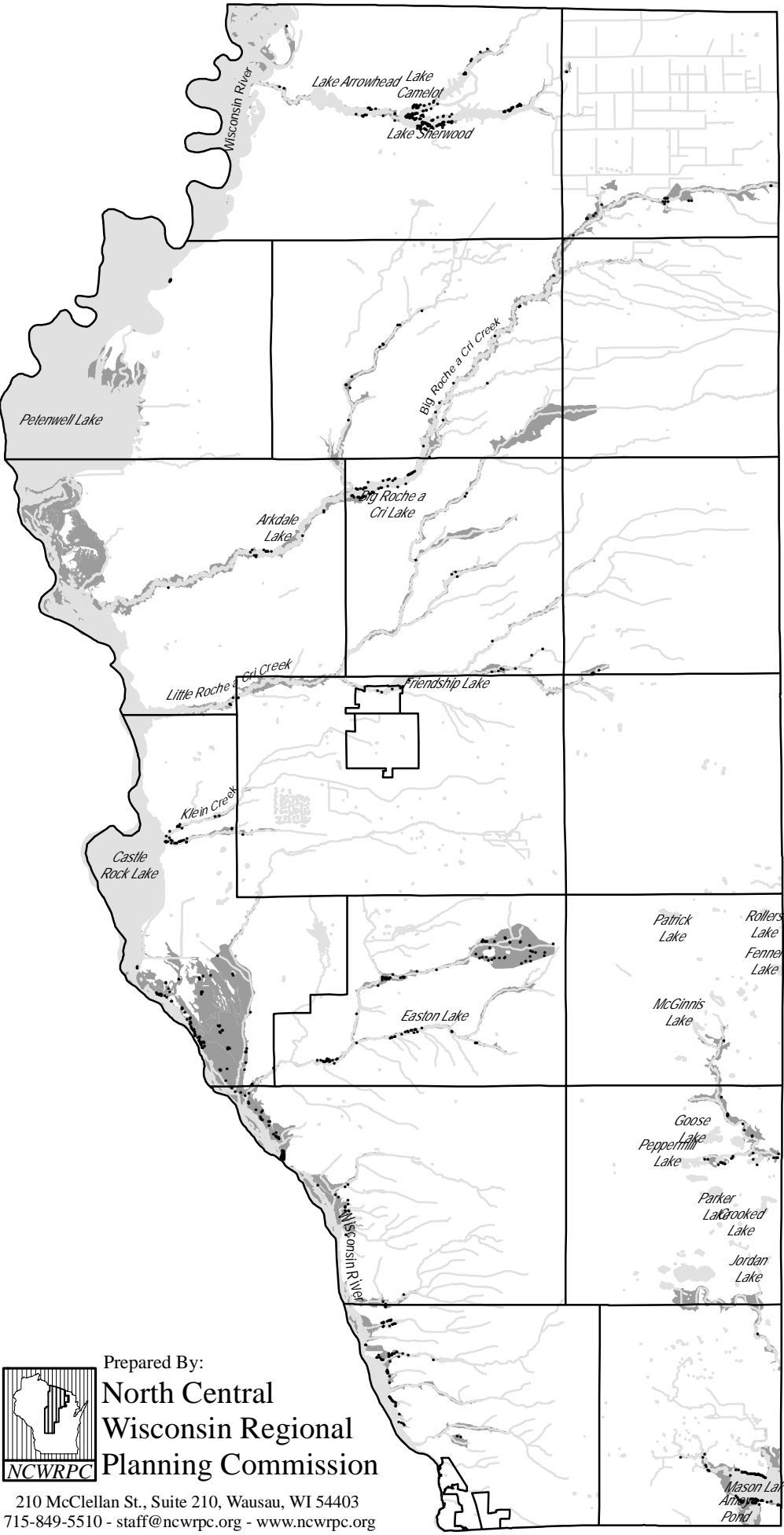
In addition to structural damage from flooding, there would be significant damages to public roadways, particularly to roadway surfaces, culverts and bridges. Flooding would inundate or close roadways due to washouts from a period of a few days up to as much as three months. Such interruptions in the County transportation network cause travel delays through detours. Businesses are often impacted by this restriction in access.

Map 12
Flood Vulnerability
 Adams County, Wisconsin

-  Minor Civil Divisions
-  Structures in Floodplain
-  Water
-  Floodplain



Source: WI DNR, NCWRPC, FEMA
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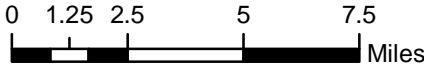
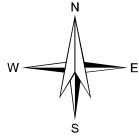
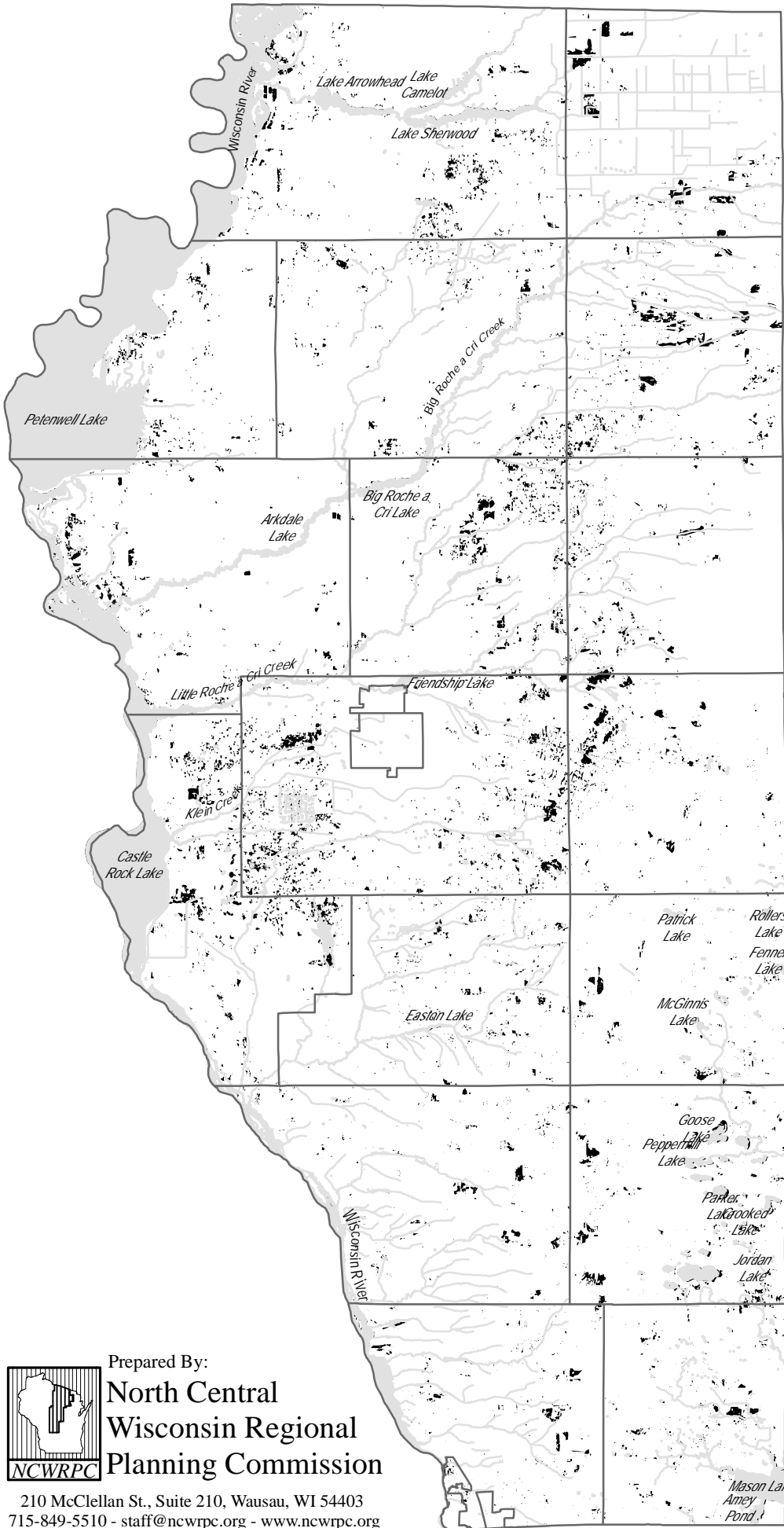


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Map 13
2008 Flood
 Adams County, Wisconsin

- Minor Civil Divisions
- 2008 Flood Areas
- Water



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 Planning Commission**

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Source: WI DNR, NCWRPC, FEMA
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Businesses can be forced to close due to septic system problems and other issues resulting from flooding and the high water table. Tourism is an important industry in the County and several campgrounds, lodges, and restaurants may be affected by flooding.

The agriculture industry is a sector that can face substantial losses during a flood. Flood conditions can leave farmers with the following economic setbacks:

- Delayed planting (reduced growing season)
- Prevention of fields from being seeded
- Seed and agricultural chemicals washing out of fields
- Rotting of plants due to excess moisture
- Areas where planted crops left in the fields due to excessive moisture
- Crops not reaching full maturity or stunted growth
- Requirements by farmers to expend higher amounts of money on additional soil amendments
- Lower quality (nutritional value) of harvestable crops as a feed source.

Reductions in quantity can result in loss of revenues from cash crops and increased expenses for purchasing the needed livestock feed from outside sources. Additionally, reductions in crop quality result in lower prices received for cash crops and increased amounts spent for nutritional supplements to animal feed, which need to be added even in much of the purchased feed.

Economic losses to farmers can generate a ripple affect to the local community as well. Reduction in farm income will curtail the farmers' ability to purchase new equipment and make other improvements. Farmers will have less money to spend at farm dealers, farm supplies, building/hardware suppliers, fertilizer, feed and seed dealers, and other agribusiness and retail establishments. The State itself will have reduced tax revenues. Farmers will have less money to save and invest, and suffer still more increases in debt load.

The forest products industry is affected similarly to agriculture. Forestlands become too wet for logging operations and many water logged tree plantations suffer high mortality rates. Mill inventories become very low, resulting in increased prices for consumers.

The areas considered to have a higher risk for impact from flooding include those communities with structures in floodplains as shown in Map 12.

Future Probability and Potential Dollar Losses – Flood:

Based on the historic data presented here (frequency of past events), Adams County can expect a significant flood event about every 2 years on average. This equates to a probability of 0.5 or about a 50 percent chance in a given year.

It appears that the probability of flooding has increased in recent years. This may be attributable to a number of factors including shrinking societal tolerance for the impacts of a disaster, increasing growth and development across the County resulting in greater value at risk, and/or global climate change. Scientific determination regarding these factors is beyond the scope of this study, however, in light of global climate change, it seems less likely that the trend is simply a result of natural cycle in which a period of relief can be automatically assumed.

Due to the significant number of dams and particularly large dams with high hazard ratings, dam failure is an important hazard event to plan for in Adams County. However, based on past experience, the actual probability of a major dam failure is very low. Considering the near failure of the Lake Camelot Dam in 2002 in conjunction with historic flood frequency data, probability of dam failure might be estimated at (less than) 0.03 or 3 percent chance in a given year, although this is not completely accurate, since failure of the dam was avoided by human intervention. The Easton Lake Dam and Kingsway Dam incidents in 2006 and 2007 may be an indicator that age and structural condition dams in the County may be pushing the probability of dam failure.

Historic data is again used to estimate potential future dollar losses due to flood. Based on the last three flood events for which we have fairly good loss figures, Adams County can anticipate property and crop losses of approximately \$750,000, on average, between the public and private sector for each significant flood occurrence. Over the next ten-year period, flood losses in Adams County could approach \$4 million.

FEMA offers a loss estimation tool known as HAZUS. HAZUS is a computer model, which is multi-hazard in nature in that it has modules for flood, earthquake and hurricane. However, the flood component is the only element applicable to Adams County. The loss estimates generated by HAZUS are intended to be used for planning to reduce risk and prepare for response and recovery. In its first application in Adams County, a basic Level 1 analysis is performed with limited updating of default data. A county-wide 100-year level is used as the analysis scenario although somewhat of a worst-case as this level of flooding has not been seen since at least 1973 and the reservoir system tends to control flooding. For this scenario, HAZUS estimates nearly \$52 million in building losses (\$31M building, \$21M content and \$1/4M inventory) and another \$1/4M in business interruption losses. In addition, HAZUS goes beyond direct economic loss by estimating other damage factors such as debris generation and shelter requirements. In the 100-year flood scenario, HAZUS estimates that 13,271 tons or 531 truckloads of debris would be generated, and that 379 households would be displaced from their homes due to flooding and associated evacuation with about 231 people needing temporary emergency shelter.

HAZARD ANALYSIS: WINTER STORMS / EXTREME COLD**Background on Winter Storms/Extreme Cold Hazard:**

A variety of weather phenomena and conditions can occur during winter storms. For clarification, the following are National Weather Service approved descriptions of winter storm elements:

Heavy snowfall – the accumulation of six or more inches of snow in a 12-hour period or eight or more inches in a 24-hour period.

Blizzard – the occurrence of sustained wind speeds in excess of 35 miles per hour accompanied by heavy snowfall or large amounts of blowing or drifting snow.

Ice Storm – an occurrence where rain falls from warmer upper layers of the atmosphere to the colder ground, freezing upon contact with the ground and exposed objects near the ground.

Freezing drizzle/freezing rain – the effect of drizzle or rain freezing upon impact on objects that have a temperature of 32 degrees Fahrenheit or below.

Sleet – solid grains or pellets of ice formed by the freezing of raindrops or the refreezing of largely melted snowflakes. This ice does not cling to surfaces.

Wind chill – an apparent temperature that describes the combined effect of wind and low air temperatures on exposed skin.

Winter storms can vary in size and strength and include heavy snowfall, blizzards, ice storms, freezing drizzle/freezing rain, sleet, wind chill, and blowing and drifting snow conditions. Extremely cold temperatures accompanied by strong winds can result in wind chills that cause bodily injury such as frostbite and death.

True blizzards are rare in Wisconsin. They are more likely to occur in the northwestern part of the state than in south-central Wisconsin, even though heavy snowfalls are more frequent in the southeast. However, blizzard-like conditions often exist during heavy snowstorms when gusty winds cause the severe blowing and drifting of snow. Heavy snow and ice storms have been part of nearly every winter in Adams County.

Dangerously cold conditions can be the result of the combination of cold temperatures and high winds. The combination of cold temperatures and high wind creates a perceived temperature known as "wind chill". Wind chill is the apparent temperature that describes the combined effect of wind and air temperatures on exposed skin. When wind blows across the skin, it removes the insulating layer of warm air adjacent to the skin. When all factors are the same,

the faster the wind blows the greater the heat loss, which results in a colder feeling. As winds increase, heat is carried away from the body at a faster rate, driving down both the skin temperature and eventually the internal body temperature.

The National Weather Service issues wind chill advisories when wind chill readings of -20 to -34 degrees are expected. Wind chill warnings are issued when wind chill values are expected at or below -35 degrees. Extreme cold events are most likely during the months of January and February.

History of Winter Storms/Extreme Cold in Adams County:

The NCDL has reported 30 major snow events for Adams County since 1999. All of these storms contained some form of snow, sleet, freezing rain, or ice conditions.

Most recently, a Dec 19, 2008 winter storm produced 6 to 12 inches of snow across southwest Wisconsin. In Adams, the heaviest snowfall was across the far southern end of the County. This large winter storm system moved out of the southern plains to the lower Great Lakes region on December 18 and 19 bringing snow, freezing rain and sleet to much of the Upper Midwest. This followed an earlier winter storm that brought ice glazing up to ¼ inch topped by heavy snow on December 8 and 9. The winter of 2007-2008 was one of the worst on record for Adams County with 97.4 inches setting a seasonal snowfall record.

Blizzard conditions affected southwest Wisconsin on February 24-25, 2007. Winds gusting to around 40 mph caused whiteout conditions, especially on the ridge tops near the Wisconsin River. Considerable blowing and drifting snow occurred due to the strong winds, with drifts as high as 4 to 5 feet in some locations.

On December 20-21, 2004, the northern 1/3 of the County sustained a power outage due to a winter storm. A power substation in Wood County failed leaving 5,100 customers in the Towns of Big Flats and Rome without power with temperatures below zero. Most had power restored in about a day, but 700 were without power for two days. Critical facilities affected by the outage included the Town of Rome Police and Fire Stations. This event required opening of the County EOC, Red Cross and Salvation Army shelter operations and door-to-door notification/transportation for elderly.

In February of 2001, Adams County was hit by consecutive ice storms. The first period of freezing rain produced a widespread coating of 1/4 to 1/2 inch of ice, which was followed by 1 to 3 inches of snow accumulation. This caused hazardous traveling conditions, but law enforcement officials reported only minor accidents. The second period of freezing rain affected southwest and central Wisconsin. Even though glazing was widespread, with ice accumulations of 1/4 inch, law enforcement officials reported only minor automobile accidents.

The first winter storm of the 1999 season brought 8 to 13 inches of snow to southwest and central Wisconsin. Strong northeast winds created two to four foot drifts, making many roads impassable. Cooperative observers at Mauston in Juneau County reported the highest snowfall accumulations of 12 to 13 inches.

Arctic cold outbreaks are common in the upper Midwest and sub-zero readings occur 22 times per winter on average. Occasionally strong northwest winds will combine with cold outbreaks to create dangerous wind chill conditions. The coldest temperatures are usually in January and February with average lows in the single digits and record lows colder than -25 degrees. The all-time record low in Adams County is -43 degrees set in 1951.

In late January and early February 1996, the Adams County area went 6 consecutive days with temperatures below zero following a blizzard. Low temperatures ranged between -34 and -37 during that time. The wind chill at Friendship hit -44 degrees on January 30, 2008.

Winter Storms / Extreme Cold Vulnerability Assessment:

Winter storms present a serious threat to the health and safety of affected citizens and can result in significant damage to property. Heavy snow or accumulated ice can cause the structural collapse of buildings, down power lines, motor vehicle accidents or isolate people from assistance or services.

The following is a list of things that may be adversely affected by a winter storm. Much of these community assets can be referenced in Part II.

- Infrastructure – operation of emergency services, operation of public facilities and schools
- Utilities – down power and telephone lines
- Transportation – automobile accidents, roadway plowing, salting/sanding
- Residential – roofs
- Businesses – commerce
- Agricultural - livestock

There are no specific areas in the county that have unusual risks. Winter storms cover a broad area and are a region-wide concern.

The extreme cold weather can affect the entire county. The risk to public health includes the chance of getting frostbite and hypothermia, and motor vehicle accidents. Everyone is at risk for becoming injured in extreme cold weather, either because of a frail body or because of travel in a motor vehicle.

Future Probability & Potential Dollar Losses – Winter Storms/Extreme Cold:

Based on historical frequency, Adams County can expect 3 major winter storms per year on average. In other words the probability is 1.0 or a 100 % chance in a given year.

Estimating potential future losses for winter storms is difficult. Damages and losses are typically widespread. Auto accidents and additional snow removal time are typical impacts of winter storms, and such claims are not aggregated or tracked for monetary damage. About 189 annual motor vehicle accidents occur with snow/ice/slush road conditions, and produce about 71 injuries and 1.4 deaths annually. Winter storms do have the potential to be extremely destructive, particularly in the case of ice storms. Potential future losses per incident might range from \$5,000 to \$2 million based on experiences from other counties.

For extreme cold temperatures, based on historical frequency, Adams County can expect an occurrence about every 2.5 years on average. Although, extreme cold temperatures may also accompany winter storms, so a probability of 100% chance in a given year cannot be ruled out.

HAZARD ANALYSIS: DROUGHT / EXTREME HEAT**Background on Drought / Extreme Heat Hazard:**

A drought is an extended period of unusually dry weather, which may be accompanied by extreme heat (temperatures which are 10 or more degrees above the normal high temperature for the period). There are basically two types of drought in Wisconsin: agricultural and hydrologic. Agricultural drought is a dry period of sufficient length and intensity that markedly reduces crop yields. Hydrologic drought is a dry period of sufficient length and intensity to affect lake and stream levels and the height of the groundwater table. These two types of drought may, but do not necessarily, occur at the same time.

Droughts, both agricultural and hydrologic, are relatively common in the state. Small droughts of shortened duration have occurred at an interval of about every ten years since the 1930's.

Extended periods of warm, humid weather can create significant risks for people, particularly the elderly who may lack air conditioning or proper insulation or ventilation in their homes. Animals are also at risk during extended periods of heat and humidity. The National Weather Service issues a Heat Advisory when the Heat Index ranges from 105 to 114 degrees daytime and remains at or above 80 degrees at night, during a 24-hour period. The heat index combines the effects of heat and humidity to better reflect the risk of warm weather to people and animals. When heat and humidity combine to reduce the amount of evaporation of sweat from the body, outdoor activity becomes dangerous even

for those in good shape. The index measures the apparent temperature in the shade. People exposed to the sun would experience an even higher apparent temperature. A heat index of 105 is considered dangerous and prolonged exposure can result in heat stroke, exhaustion and cramps. People should be reminded to use extreme caution when the heat index is between 95 and 105. A heat index of 95 occurs when the temperature is 90 degrees and the relative humidity is 50 percent.

History of Drought / Extreme Heat in Adams County:

National Weather Service reports indicate that much of Wisconsin including Adams County has been under drought conditions since 2005 and the Governor has declared a state of emergency to get assistance to the state's agricultural sectors. The extended dry conditions posed serious challenges for farmers from drought stressed crops to issues providing feed for livestock.

Adams County experienced the 1987-1988 drought with the rest of the Midwest. It was characterized not only by below level precipitation, but also persistent dry air and above normal temperatures. Stream flow measuring stations in the state indicated a recurrence interval of between 75 and 100 years. The drought occurred early in the growing season and resulted in a 30-60% crop loss, with agricultural losses set at \$1.3 billion for the state. No statistics were available for the amount of crops lost in Adams County, but 52 percent of the state's 81,000 farms were estimated to have losses of 50 percent or more, with 14 percent estimated having losses of 70 percent or more.

The drought of 1976-1977 was most severe in a wide band stretching from north to south across the state. Stream flow measuring stations recorded recurrence intervals from 10 to 30 years. Agricultural losses during this drought were set at \$624 million. Adams County was one of 64 counties that were declared federal drought areas and deemed eligible for assistance under the Disaster Relief Act.

Since 1999, the NCDC lists 3 incidences of excessive heat. The high temperature hit 90 degrees or higher for 9 consecutive days from July 31 to August 10, 2001. High humidity pushed the heat indices to 105-115. These dangerous levels lead to two deaths, although outside of Adams County. In 1999, temperatures reaching 95 to 100 combined with high humidity levels to produce heat indices of 105 to 115 over the Fourth of July holiday. Local hospitals reported treating a few people for heat exhaustion, but there were no deaths related to the excessive heat and humidity. Then, between July 23 and July 30, 1999, consecutive days of high temperatures in the 90s, combined with high humidity levels again caused afternoon heat indices of 105 to 115. An 80-year-old man died of heat stroke in Crawford County.

Drought / Extreme Heat Vulnerability Assessment:

Droughts can have a dramatic effect on Adams County. The County has 123,539 acres of farmland with 414 farms according to the Wisconsin Agriculture

Statistics Service. With agriculture being a critical sector of the County's economy, droughts have disastrous effects. Even small droughts of limited duration can significantly reduce crop growth and yields, adversely affecting farm income. More substantial events can decimate croplands and result in total loss, hurting the local economy.

There are a number of high capacity wells in the County, mostly for crop irrigation. Irrigation can withdraw significant amounts of groundwater. The Central Wisconsin Groundwater Data Center reports that 95 percent of all groundwater withdrawal was used for irrigation for Adams County. Not only does irrigation consume large quantities of groundwater sometimes recharging very little back into the ground.

Irrigation can negatively impact the environment by drawing water that naturally goes to aquifers and surface water. Drought can exacerbate the problem when high withdrawal rates versus little precipitation deplete waterbodies and aquifer supplies, therefore decreasing drinking water supplies, drying streams, and hindering aquatic and terrestrial wildlife. During severe droughts, some wells - mainly private wells - will go dry.

Another significant area of impact from drought includes the tourism sector of the economy. As lake levels go down, there is less tourism seen in the County. Recent drought conditions have left lake levels down as much as 1 foot, and many boat launches cannot be used.

Droughts can trigger other natural and man-made hazards as well. They greatly increase the risk of forest fires and wildfires because of extreme dryness. In addition, the loss of vegetation in the absence of sufficient water can result in flooding, even from average rainfall, following drought conditions.

The following is a list of things that may be adversely affected by a drought. Much of these community assets can be referenced in Part II.

- Infrastructure – municipal water supplies
- Surface water –groundwater reserves, recreation, and wildlife
- Forests
- Agricultural - crops, livestock

The areas most susceptible to drought conditions would be agricultural towns. Agricultural land is scattered throughout the County but largely the Towns of New Haven, Lincoln, New Chester, Jackson, Colburn, and Leola.

According to the Wisconsin Emergency Management, excessive heat has become the most deadly hazard in Wisconsin in recent times. Extreme heat can happen anywhere within Adams County affecting everyone, however the elderly and young are the ones with the highest risk of getting heat related injuries,

which can lead to death. Ways to prevent injuries include wearing light-colored clothing, drink plenty of water, slow down, and do not stay in the sun for too long.

Future Probability and Potential Dollar Losses – Drought/Extreme Heat:

Based on the historic data presented here (frequency of past events), Adams County can expect a drought every ten years on average, which is a probability of 0.10 or a 10 percent chance in a given year. Significant severe drought is somewhat less common, affecting Wisconsin once about every 15 years.

Drought is another hazard lacking good loss figures at the county level. However, a look at aggregate data for the last two major droughts can give some indication of potential impact. The last two major droughts in Wisconsin resulted in losses of \$9.6 million (1976-77) to \$18 million (1987-88) per county on average.

Normally, central Wisconsin is known for its cold winters, however, extreme heat waves will affect Adams County in the future. Adams County can expect a heat wave once every 3 years or a 30 percent chance in a given year based on the historic data presented.

HAZARD ANALYSIS: SEVERE THUNDERSTORM/HIGH WIND/LIGHTNING/HAIL

Background on Severe Thunderstorm Hazard:

The National Weather Service definition of a severe thunderstorm is a thunderstorm event that produces any of the following: downbursts with winds of 58 miles per hour or greater (often with gusts of 74 miles per hour or greater), hail 1 inch (recently increased from ¾ inch) in diameter or greater or a tornado. Strong winds, hail, and lightning will be addressed in this section, however tornados will be referenced as a separate hazard.

Lightning results from discharge of energy between positive and negative areas separated by rising and falling air within a thunderstorm. This discharge heats the surrounding air to 50,000 degrees. Hail results as the warm rising air cools, forming ice crystals which are held by the updrafts until accumulating enough weight to fall. The hail size depends on strength of the updrafts keeping it up.

Thunderstorms frequency is measured in terms of incidence of thunderstorm days or days on which thunderstorms are observed. Wisconsin averages between 30 and 50 thunderstorm days per year depending on location. A given county may experience ten or more thunderstorm days per year. The southwestern area of the state normally has more thunderstorms than the rest of the state.

History of Severe Thunderstorms in Adams County:

The NCDC has reported 41 severe storm events for Adams County since 1999. These storms typically contain some form of heavy rain, strong winds, and lightning. About 26 significant hail events, typically related to a severe thunderstorm, were listed during this time period. There was also one notable lightning incident identified.

Most recently, trees and power lines were blown down southeast of the City of Adams, as a front remained nearly stationary from southwest Wisconsin into western Minnesota on July 10, 2008. An upper level disturbance tracked along the front, triggering a line of severe thunderstorms. Some of the storms produced up to nickel size hail and wind gusts up to 70 mph.



Wind Damage - Communication Tower

On September 1, 2000, winds estimated at 75 mph completely destroyed one mobile home, while flipping another on its top south of the Adams/Friendship area. Two small children and an elderly woman sustained minor injuries. There were numerous large trees blown down nearby and west of Highway 13. NOAA listed this event number six out of the top 10 weather events in 2000 for the southeast Minnesota, northeast Iowa, and western Wisconsin Region.

The most recent hail incident occurred on June 12, 2008 in Big Flats where $\frac{3}{4}$ inch size hail was reported. In May of 2000, law enforcement officials and spotters reported hail the size of quarters, half-dollars and golf balls in Friendship and Big Flats. The hail caused extensive damage to vehicles, with insurance claims of over \$300,000.

On August 3, 2000, lightning struck the roof of a home, causing a fire, which completely gutted the attic. Within minutes, another home was hit by lightning, damaging a freezer in the basement. Damages were reported at \$13,000, and no one was injured in either incident.

Severe Thunderstorm Vulnerability Assessment:

The National Weather Service can forecast and track a line of thunderstorms that may be likely to produce severe high winds, hail, and lightning but where these related hazards form or touch down and how powerful they might be, remains unpredictable. The distribution of thunderstorms and related hazard events have been widely scattered throughout the County.

Many thunderstorm events (without tornados) have caused substantial property and infrastructure damage, and have the potential to cause future damage. In

order to assess the vulnerability of the Adams County area to thunderstorms and related storm hazards, a review of the past events indicate significant impacts to:

- Infrastructure – hospitals, schools, street signs, police and fire departments
- Utilities - electric lines/poles/transformers, telephone lines, radio communication
- Transportation – debris clean-up
- Residential - mobile homes, garages, trees and limbs, siding, windows
- Businesses – signs, windows, siding, billboards
- Agricultural - buildings, crops, livestock
- Vehicles – campers, boats, windshields, body, paint

Based on review of the historic patterns of thunderstorms associated with high wind, hail, or lightening, there are no specific municipalities that have unusual risks. The events are relatively uniform and a countywide concern.

Future Probability and Potential Dollar Losses - Severe Thunderstorms:

Based on historical frequency, Adams County can expect 4.1 thunderstorm events per year on average. In other words, the probability is 1.0 or a 100% chance of multiple storms in a given year. The probability of a thunderstorm with damaging hail in Adams County is also at 1.0 or 100% chance with about 2.6 incidents in a given year. There is not enough data available regarding lightning events to indicate probability.

According to the NCDC, historic thunderstorm events with associated high wind and reported damages averaged \$11,300 in property damage per incident and \$1,300 in reported crop damage. Historic thunderstorm events with associated hail that reported property damage averaged \$7,600 and \$2,600 in reported crop damage. Historic thunderstorm events with associated lightening that reported property damage averaged \$13,000. Losses in Adams County associated with severe thunderstorms could approach \$794,800 over the next ten-year period.

HAZARD ANALYSIS: HAZARDOUS MATERIALS INCIDENTS

Background on Hazardous Materials Incidents Hazard:

This type of hazard occurs with the uncontrolled release or threatened release of hazardous materials from a fixed site or during transport that may impact public health and safety and/or the environment.

Under the Emergency Planning and Community Right to Know Act (EPCRA), a hazardous material is defined as any chemical that is a physical hazard or health hazard [defined at 29 CFR 1910.1200(c)] for which the Occupational Health and Safety Administration (OSHA) requires a facility to maintain a Material Safety Data Sheet (MSDS). Under EPCRA there is no specific list of hazardous

materials. An extremely hazardous substance (EHS) is defined as one of 356 substances on the United States Environmental Protection Agency list of extremely hazardous substances, identified at 40 CFR Part 355.

EPCRA of 1986 also known as SARA Title III, brings industry, government and the general public together to address emergency planning for accidental chemical releases. The emergency planning aspect requires communities to prepare for hazardous chemical releases through emergency planning. This provides essential information for emergency responders. The community right-to-know aspect increases public awareness of chemical hazards in their community and allows the public and local governments to obtain information about these chemical hazards.

Counties in Wisconsin, including Adams County have a Local Emergency Planning Committee (LEPC) that is set up in accordance with the federal legislation and is responsible for implementation of EPCRA at the county level. The County Emergency Management Director is a member of the LEPC to ensure continuity and coordination of emergency response planning.

To meet the requirements of Title III of EPCRA, the LEPC developed the County Hazardous Materials Response Plan. This plan establishes policies and procedures for responding to hazardous material incidents. The LEPC is required to review, test, and update the Plan every two years. Methods for notification and reporting an incident are outlined in the plan. This plan also works in conjunction of the County Emergency Operations Plan (EOP) where alert to the public, communications, and response procedures are outlined. The plan is tested through tabletop, functional and full-scale exercises and actual response situations.

To provide a high level of hazardous materials response capabilities to local communities, Wisconsin Emergency Management contracts with eight Regional or "Level A" Hazardous Materials Response Teams. The Regional team for Adams County is located at Oshkosh/Appleton. The Regional Response Team may be activated for an incident involving a hazardous materials spill, leak, explosion, injury or the potential of immediate threat to life, the environment, or property. The Regional or "Level A" Teams respond to the most serious of spills and releases requiring the highest level of skin and respiratory protective gear. This includes all chemical, biological, or radiological emergencies.

County or "Level B" Teams respond to chemical incidents which require a lower level of protective gear but still exceed the capabilities of standard fire departments. Those teams may provide assistance to surrounding counties and are approved by the Local Emergency Planning Committees. At this time, Adams County is negotiating with Juneau County to provide Level B coverage under contract.

History of Hazardous Materials Incidents in Adams County:

There has not been any significant reported hazardous material problems involving fixed facilities, roadways, railways, or pipelines. Hazardous materials incidents do occur but on a relatively small scale. They still however can cause considerable property damage and can have a high risk in terms of loss of human life or injury. The WDNR Bureau for Remediation and Redevelopment Tracking System or BRRTS maintains a listing of contaminated properties on-line. The BRRTS database identifies 57 environmental spills in Adams County since 1999. All of these spill sites have been cleaned and closed at this time.

Vulnerability Assessment:

Some of the risk factors that make hazardous materials incidents a keen concern in Adams County are reviewed below:

Fixed Facilities

As of 2009, six facilities reported that they had an extremely hazardous substance present at any one time in amount equal to or exceeding the chemical-specific threshold planning quantity (TPQ). Of these facilities, four indicated having substances subject to EPA reporting requirements. Most of these substances are for farm use.

Highway

Trucks carry the bulk of hazardous materials to and through the County. Regular shipments of gasoline, propane, acid and other substances are delivered across Wisconsin. Every roadway in the County is a potential route for hazardous material transport, but major transportation routes are State Highways 13, 21, and 82 (see Map 3).

On May 20, 2003, a traffic study of Adams County was completed by REI between the time of 7 am and 7 pm. The traffic study only counted trucks with Hazardous Warning Placards. Four intersections were included in the traffic study. The locations of the intersections and the total number of trucks with Hazardous Materials are seen in Table 16.

Intersection	Number of Trucks
State Hwy. 73 & Cty Hwy. G	27
State Hwy. 13 & State Hwy. 21	38
State Hwy. 82 & State Hwy. 13	17
State Hwy. 23, 6th Ln., & Cty. Hwy. B	7

Source REI

A concern for the future may be the transportation of nuclear wastes from the Kewaunee Nuclear Power Plant. In 2010, spent nuclear fuel and high-level

radioactive wastes from 131 temporary storage sites located in 39 states, including one in Kewaunee, Wisconsin, will be transported to Yucca Mountain in Nevada for permanent repository. Optional routes from Kewaunee may include STHs 21 and 82 through Adams County.

Railroad

The Union Pacific Railroad – another mode for the transportation of hazardous material, provides 24 miles of track to Adams County (see Map 3) with a rail yard located on the south side of the City. Although trucks transport most of the hazardous materials in the state and the U.S., rail can carry significantly larger loads of hazardous materials.

There are no statistics available regarding the different EHSs transported annually throughout Adams County, but the potential exists for the transport of any EHS listed on the US EPA's list or OSHA's Toxic and Hazardous Material List. These substances are transported in containers that range from ten-ounce agricultural packages to 196,000 pounds of rail car quantities.

Pipeline

Enbridge Pipeline Company provides pipeline to move petroleum through the County (see Map 6). It runs 31 miles from the northern part of the county to the eastern part. There has not been a major incident with the pipeline within Adams County, there was a major leak of 176,000 gallons of crude oil in Rusk County in 2007. Groundwater contamination was the primary consequence of that spill.

A hazardous materials incident can have far reaching impacts, however, those communities which are traversed by major highways, rail or pipeline are susceptible to a higher risk, refer to Maps 5 and 6.

Future Probability & Potential Dollar Loss – Hazardous Materials Incidents:

Within Adams County there have been spills that have been cleaned up and brown fields have cropped up, but there has been no sudden disastrous event to prepare for or mitigate against. So, there is no historic frequency to base a probability for Adams County. Unfortunately, serious disastrous events do take place as witnessed around the state. In Wisconsin, just between 1995 and 1999, there were 823 HazMat transportation spills, and the number is on the incline. Between 1986 and 2000, there were 28 natural gas pipeline incidents and 35 hazardous liquid pipeline incidents in Wisconsin. With the number of verified trucks carrying hazardous materials, a major industrial railway and a petroleum pipeline moving through the County, the chances appear to be high for a disastrous hazardous materials incident in Adams County.

As with the probability, there is no historic data to base an estimate of potential dollar losses from HazMat incidents. However, based on occurrences statewide, damages range from \$95.00 to \$1.5 million per incident. The higher end of the range is not impossible in Adams County.

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INTRODUCTION

Hazard mitigation is any action taken to reduce or eliminate the long-term risk to human life and property damage from natural hazards. This chapter describes the mitigation goals and actions to be taken by Adams County and the local units of government within the county for each of the hazards identified in Part III – Risk Assessment. The intention is to reduce or avoid long-term vulnerability to the identified hazards.

Part IV of the Adams County All Hazards Mitigation Plan will discuss the following factors in establishing the multi-jurisdictional mitigation strategies:

- Benchmark Progress of Previous Plan 2004-2009
- Review of Mitigation Goals
- Prioritize Identified Mitigation Strategies
- Establish Mitigation Action Plan

PROGRESS REPORT 2004 - 2009

Table 17 identifies the completed, deleted or deferred mitigation actions from the original 2004 Plan. For each action recommendation, a brief status report is provided which describes the progress made on that measure. If an item remains unchanged, a description is provided as to why no action has been taken and whether that item is deferred to the new plan.

The table also provides the new status of each recommendation with regard to the updated plan along side the original timeframe target for comparison. Many of the recommendations are on-going efforts and are carried over as such in the updated action plan. Some have had significant progress or have been deferred, but are recommended for further action with new target date or on-going status. If the recommendation has been completed with no further specific action anticipated within the next five year planning period, it is shown as "deleted" and will not appear in the updated action plan. In some cases, an incomplete action is not selected for various reasons (noted) and is shown as deleted. In a few cases, related recommendations are combined as indicated.

This progress report serves as a benchmark for progress in achieving the multi-jurisdictional mitigation goals of Adams County and the local jurisdictions that participated in the Plan.

TABLE 17 BENCHMARK FOR PROGRESS 2004 - 2009 PLAN			
2004-2009 Plan Measure	Progress Report	Original Status	New Status
Continue to promote the increase use of National Oceanic and Atmospheric Administration (NOAA) weather radios	Received grant to purchase and distribute NOAA alert radios. Regularly promotes including special events. Supports Storm Spotter training.	Ongoing	Ongoing
Continue to add/update Emergency Management Department link off their existing County web site	Website actively maintained with hazard information.	Ongoing	Ongoing
Incorporate (Flooding) into local comprehensive planning process	Completed - Floodplain development and wetland preservation issues addressed in adopted County Plan.	2003-06	Deleted (Completed)
Acquire new topographical maps for the entire County with two (2) foot contour intervals	Scheduled - Digital orthophotography to be taken in 2010 with Adams as part of regional consortium.	2005	Deleted
Engage a study to update its hydrology data	Completed - Hydrology data updated through DFIRM creation process.	2007	Deleted (Completed)
Amendments/ revisions should be made to Flood Insurance Rate Maps (FIRMs)	Completed - New digital flood insurance rate maps have been created for Adams County.	2009	Deleted (Completed)
Establish a GIS coverage and database to identify individual property owners and businesses located in a revised 100 year floodplain	DFIRMs to facilitate this recommendation.	2009	2010
Inform property owners of properties that are located in the revised 100-year floodplain	DFIRMs now complete for this process. Combine with recommendation above.	2009	Combined
Re-evaluate floodplain zoning ordinances	Completed - Evaluation of County zoning ordinances was completed as part of the comprehensive plan process.	2010	Deleted (Completed)
Survey floodplain owners on interest in voluntary buyout and relocation projects.	DFIRMs now complete for this process. Combine with DFIRM recommendations above.	Pending new FIRMS	Combined
Develop a Stormwater Management Plan for the City of Adams	Completed - The City of Adams has studied and addressed some of its storm water drainage problems.	2006	Deleted (Completed)
Encourage the Towns of Leola, Monroe, Big Flats, and Colburn to adopt county zoning	Efforts by County have not brought towns on board and is not likely to change in foreseeable future.	Ongoing	Deleted
Develop a dam break analysis and Emergency Action Plan (EAP) for all county owned dams	County has completed break analysis and continues to make progress on completing EAPs for its dams.	2005	Ongoing
Identify owners of property that would be inundated from dam failure of Petenwell and Castle Rock. Incorporate those into the EAPs for warning.	Completed - EAPs for both recently updated including identification of affected properties and warning measures w/ cooperation of Towns of Strongs Prairie, Quincy, Springville and Dell Prairie.	2005	Deleted (Completed)

2004-2009 Plan Measure	Progress Report	Original Status	New Status
Promote the planting of windbreaks to protect farmsteads, buildings & open fields from high winds	A number of plantings have been installed around the County, but more is needed.	Ongoing	Ongoing
Enforce local building codes to improve structures' ability to withstand greater wind velocities	Ongoing regulation of new buildings and renovations. Uniform Dwelling Code (UDC) has been updated.	2004	Ongoing
Promote public awareness of proven lightning safety guidelines to reduce risk	County EM has had articles published in the local newspaper and posted information on the County website.	2004	Ongoing
Identify buildings that will provide protection to the public in the event of a tornado warning	Still identified as a need, but not yet completed as County & municipalities focused on other achievements. Expand scope to include all hazards.	2004	2011
Identify and construct tornado shelters in areas where deficient	County has applied for funds for this recommendation and been denied. Combine with recommendation above.	Ongoing	2012
Require and promote construction standards and techniques (tornado/wind)	Ongoing enforcement of standards. Now "hurricane" clip requirements for new construction.	2004	Ongoing
Encourage builders and owners of manufactured and mobile homes to use tie-downs with ground anchors	Found to be ineffective.	2004	Deleted
Encourage the development of snow fences	A number have been installed around the County but more are needed.	Ongoing	Ongoing
Promote winter hazards awareness, including home and travel safety measures	County does annual winter awareness "PR" campaign.	Ongoing	Ongoing
Encourage farmers that irrigate to use the WI Irrigation Scheduling Program (WISP)	Ongoing efforts of the County UWEX Agricultural Agent and FSA Office.	Ongoing	Ongoing
County should be prepared how to inform farmers during times of drought	Ongoing efforts of the County UWEX Agricultural Agent and FSA Office.	Ongoing	Ongoing
Inform farmers on purchasing crop insurance	Ongoing efforts of the County UWEX Agricultural Agent and FSA Office.	Ongoing	Ongoing
Continue to provide outreach efforts to homeowners on protecting homes and structures from wildfires	Wildfire protection plan and Firewise programs fully implemented in Town of Rome and process starting in the Towns of Big Flats and Monroe.	Ongoing	Ongoing
Provide ample training for volunteer fire fighters for larger fires.	Regular training and exercises being conducted cooperatively by the DNR, Adams County & local municipal FDs.	Ongoing	Ongoing
Develop Level B HazMat to respond to hazardous spill situations	County continues to try and resolve this issue.	2005	2010
Prevent or reduce hazmat exposure by separation & buffering between industrial and other land uses	Standard zoning practice - determined to not require special mention within mitigation plan.	2004	Deleted

LOCAL HAZARD MITIGATION GOALS

The mitigation strategy is based on a set of goals to reduce or avoid long-term vulnerabilities to the hazards identified in the Risk Assessment. The goals were established by the previous Mitigation Plan Taskforce during the development of the original plan. The update Plan Taskforce reviewed the goals and concurred that these goals continue to represent the desired conditions to strive for through the mitigation efforts of the County and municipalities.

The mitigation goals for reducing or avoiding the long-term vulnerability of Adams County are as follows:

- Prepare and protect residents and visitors from all hazards.
- Lessen the impact floods have on people, property, and the environment.
- Eliminate the loss of life and reduce the risk of property damage in downstream areas that result from a dam failure.
- Minimize the threat to human life and property damage caused by associated high wind and lightning.
- Protect the health, safety, and welfare of county residents and visitors, along with mitigating future loss of property from tornados.
- Create safety awareness to citizens and travelers of Adams County to protect them during and after winter storm events or periods of extreme cold.
- Minimize crop loss while maintaining water supplies during times of drought.
- Protect the safety and property of residents from forest and wildfires.
- Protect people and natural resources from adverse affects of hazardous material incidents.



Strongs Prairie Fire Department

PRIORITIZATION OF STRATEGIES

The Mitigation Planning Committee considered a number of factors in identifying and ranking proposed mitigation strategies. The matrix, below, describes the factors incorporated into the prioritization process. The resulting priority of each strategy is shown in the summary Table 18.

Prioritization Factors for Adams County Mitigation Strategies

<i>Strategy Prioritization Factor</i>	<i>Description of Factor Considerations</i>
Priority of Hazard Type	The ranking of hazard types, tornado, flooding, etc., accounts for threat to human safety and possible property damage and was carried over to groups of strategies by hazard type. Strategies believed to benefit multiple hazards (listed under "All Hazards") were valued higher.
Ease of Implementation	Strategies where existing staff and resources are adequate were valued higher than those where additional resources are necessary. Consideration was also given to strategies that meet other countywide goals or incorporated as part of another county project. Project timing was also a consideration as to when funding such as grant applications might be available and when various activities could be scheduled.
Perceived Cost versus Potential Benefit	Although a detailed cost-benefit analysis was deemed beyond the scope of this study, the Committee weighed the perceived costs of each strategy against the potential benefit anticipated. Proposals that seemed economically unfeasible were rejected.
Multi-jurisdictional Application	Strategies benefiting multiple jurisdictions were valued more than those pertaining to fewer jurisdictions.

Members of the Taskforce scored each strategy on ease of implementation and cost-benefit using a 3 point scale where 3 was more favorable and 1 less favorable. Weighting factors were assigned to reflect the priority of hazard type the strategy was designed to address and whether it was a multi-jurisdictional effort. Scores were averaged and then scaled to determine the high, medium or low priority shown in Table 18.

MITIGATION ACTION PLAN

The mitigation strategies are organized by hazard beginning with some overall strategies that apply to a number of different hazards and are listed under the category, “all hazards”. For each hazard, a goal was established as to what the County intends to achieve by implementing the specific action strategies and is based on the risk assessment findings. Each action strategy is then briefly described and followed by a discussion of the jurisdictions/agencies that will pursue the action including the proposed lead jurisdiction/agency.

Each section of this part is broken down as follows:

Goal:

Broad, long-term mitigation goals to reduce or avoid vulnerabilities to the identified hazard are stated.

Action:

Each action strategy proposed to aid in achieving the overall goal for the identified hazard is described. A given action strategy may be comprised of a number of related sub-actions.

Participating Jurisdictions:

The proposed lead agency or lead jurisdiction is identified along with a listing of the other agencies or jurisdictions that the recommended action applies to. This does not preclude other agencies or jurisdictions from participating in the action.

The chapter concludes with a summary of the recommended mitigation strategies shown in Table 18.

Hazard: All Hazards**Goal:**

Prepare and protect residents and visitors from all hazards.

Action 1:

The County will continue to promote an increased use of National Oceanic and Atmospheric Administration (NOAA) weather radios. NOAA Weather Radio (NWR) is a nationwide network of radio stations broadcasting continuous weather information direct from a nearby National Weather Service office. NWR broadcasts National Weather Service warnings, watches, forecasts and other hazard information 24 hours a day. NWR is not only for thunderstorms, but also for other hazards as well making it a single source for comprehensive weather and emergency information. NWR also broadcasts warning and post-event information for all types of hazards--both natural and environmental (such as chemical releases or oil spills).

Participating Jurisdictions for Action 1:

Lead agency will be Adams County Emergency Management. Jurisdictions participating in this action will include: Adams County, City of Adams, Village of Friendship and all Towns including: Adams, Big Flats, Colburn, Dell Prairie, Easton, Jackson, Leola, Lincoln, Monroe, New Chester, New Haven, Preston, Quincy, Richfield, Rome, Springville and Strongs Prairie.

Action 2:

The County will continue to add and update information an Emergency Management Department link off their existing County web site. The web site should contain information describing the types of natural and manmade hazardous disasters in the County and how to respond when a hazard threatens. The site should also contain information on ordinances pertaining to hazards, locations of tornado shelters, and links to other sites with useful information on related matters such as burning permits and weather conditions.

Participating Jurisdictions for Action 2:

Lead agency will be Adams County Emergency Management. The only directly participating jurisdiction will be Adams County.

Action 3:

The county-wide emergency response zone atlas should be updated. Often referred to as a fire zone atlas, these atlas books were originally conceived to help direct fire fighting and evacuation operations in rural areas at high risk for wildfire. A number of counties across the state have developed, or are developing these atlases, typically sponsored by WisDNR. In Adams County, the atlas was credited as being instrumental in fighting the Cottonville Fire. Recognizing their potential value in responding to a wide variety of hazard events, many counties are utilizing them as a tool in responding to and managing other situations beyond fire.

Zones are drawn around groups of structures based on factors related to access and evacuation. The zones are named, colored-coded and indexed for ease of reference. Atlas books are distributed to police, fire and EMS units responsible for responding to emergency situations in rural areas of the county covered by the atlas.

Participating Jurisdictions for Action 3:

Lead agency will be Adams County Emergency Management Department in conjunction with the Wisconsin Department of Natural Resources. Jurisdictions participating in this action will include Adams County, City of Adams, Village of Friendship and all Towns including: Adams, Big Flats, Colburn, Dell Prairie, Easton, Jackson, Leola, Lincoln, Monroe, New Chester, New Haven, Preston, Quincy, Richfield, Rome, Springville and Strongs Prairie.

Action 4:

Shelter and evacuation related concerns were identified during the development of this All-Hazards Plan. To address these concerns, the County should work to develop a countywide disaster evacuation and shelter plan. One issue with shelters may stem from lack of knowledge regarding existence of shelters and procedures for use. Plan distribution and public informational efforts are recommended.

The plan should identify available shelters by function and determine where coverage is deficient. The function of a shelter is to protect people during a disaster event, to accommodate displaced people in the aftermath, or both. Existing facilities (schools, churches, public buildings, etc.) should be evaluated for suitability or locations determined for new structures. Mobile home parks, campgrounds and County parks within the County lack shelters and are a particular concern.

Establish zones to help people to identify which shelter they should go to and procedures for notification. It is also important to evaluate shelters for suitability for various types of hazards. For example, a shelter located within a floodplain may not be the best place to send people during a storm that could result in flooding. Adequate heat (and back-up source of energy to run it) is an important consideration when seeking to shelter people during a winter weather power outage. Local sponsors should be identified to help maintain shelters and ensure they are open in time of need. Transportation options should also be considered especially for the elderly and those with disabilities. The transportation and subsequent shelter of persons with special medical or other needs are critical factors to address.

Participating Jurisdictions for Action 4:

Lead agencies will be Adams County Emergency Management as well as Health and Human Services and the City of Adams and Village of Friendship. Jurisdictions participating in this action will include Adams County, City of Adams, Village of Friendship and all Towns including: Adams, Big Flats, Colburn, Dell Prairie, Easton, Jackson, Leola, Lincoln, Monroe, New Chester, New Haven, Preston, Quincy, Richfield, Rome, Springville and Strongs Prairie. The American Red Cross Chapter should also be consulted.

Action 5:

Like shelter and evacuation, early warning related concerns were identified during the development of this All-Hazards Plan. It was suggested that warning sirens are needed at points of concentration such as the City, Village, Grand Marsh, Brooks, County parks such as Castle Rock and Petenwell, etc. The Town of Monroe has indicated it is interested in a warning siren. The Town of Rome has talked about sirens, but funding has been the stumbling block.

Some counties in Wisconsin have been experimenting with new technology based alternatives to the traditional warning siren. One example is CodeRED, which is a phone-based early warning system that can deliver targeted emergency notifications to phone numbers in an affected area.

Development of early warning and communication systems to include Emergency Alert System (EAS) capabilities and expanded use of emerging technologies is recommended. Currently, NOAA weather radio is the primary trigger for activating the EAS on commercial radio, television and cable systems. Local access to these types of warning systems could facilitate more timely notification of a hazard situation as well as the ability to tailor important information or instructions for the specific area.

Participating Jurisdictions for Action 5:

Lead agency will be Adams County Emergency Management. Jurisdictions participating in this action will include: Adams County, City of Adams, Village of Friendship and all Towns including: Adams, Big Flats, Colburn, Dell Prairie, Easton, Jackson, Leola, Lincoln, Monroe, New Chester, New Haven, Preston, Quincy, Richfield, Rome, Springville and Strongs Prairie.

Action 6:

The Village of Friendship and Town of New Chester have each indicated the need to update and improve their emergency communications. The Village needs new, updated radios for its emergency services. Interoperability is an important consideration for a small community that relies on outside services and mutual aid.

As a result of past problems, the Town of New Chester has identified a need to expand phone capacity (additional land lines) in the Town Hall/Fire Station. This improvement in communications capability will allow the Town Hall to effectively serve as an emergency operations center.

Participating Jurisdictions for Action 6:

Lead agencies and only directly participating jurisdiction will be the Village of Friendship and Town of New Chester.

Hazard: Forest Fires and Wildfires**Goal:**

Protect the safety and property of residents from forest and wildfires.

Action 7:

The County and DNR should continue to make outreach efforts to homeowners on protecting their homes and structures from wildfires. Since Adams County is mostly rural with many industrial woodland parcels, emphasis should be placed on building construction materials and establishing defensible areas around structures. Roofs and exterior siding should be made of ignition-resistant materials. At least 30 feet should be left between homes and surrounding combustible vegetation. Outreach efforts can exist in the form of web sites, local newspaper articles, and pamphlets to homeowners.

Participating Jurisdictions for Action 7:

Lead agencies will be Adams County Emergency Management with WisDNR. Adams County will be the only directly participating jurisdiction.

Action 8:

Local fire departments should provide more training for responding to larger fires.

Participating Jurisdictions for Action 8:

Lead agencies will be Adams County Emergency Management and fire districts serving Adams County. Other participating jurisdictions will include: Adams County, City of Adams, Village of Friendship and all Towns including: Adams, Big Flats, Colburn, Dell Prairie, Easton, Jackson, Leola, Lincoln, Monroe, New Chester, New Haven, Preston, Quincy, Richfield, Rome, Springville and Strongs Prairie.

Action 9:

Support establishment of Firewise Communities across the County. The national Firewise Communities program is a multi-agency program, which promotes partnerships between community leaders, homeowners, planners, developers and others to promote wildfire preparedness - before a fire starts. The Firewise approach emphasizes local community responsibility for designing and maintaining safe communities through land use planning, mitigation activities, collective decision-making and effective response.

Firewise Communities/USA is a project of the National Wildfire Coordinating Group's Wildland/Urban Interface Working Team and is the latest component of the Firewise program. According to the NWCG, the Firewise Communities concept "provides citizens with the knowledge necessary to maintain an acceptable level of fire readiness, while ensuring firefighters that they can use equipment more efficiently during a wildland fire emergency."

Becoming a Firewise Community involves a 7-step process.

- Step 1: Contact Firewise
- Step 2: Site visit with local Firewise Communities USA representatives
- Step 3: Community representatives create a multi-discipline Firewise board/committee
- Step 4: Assessment & evaluation
- Step 5: Create plan – Create agreed-upon, area-specific solutions to its WUI fire issues
- Step 6: Implement solutions – Local solutions are implemented following a schedule designed by the local Firewise board and WUI specialist.
- Step 7: Apply for recognition

Participating Jurisdictions for Action 9:

Lead agency will be the respective jurisdictions. Jurisdictions participating in this action will include: Adams County, City of Adams, Village of Friendship and all Towns including: Adams, Big Flats, Colburn, Dell Prairie, Easton, Jackson, Leola, Lincoln,

Monroe, New Chester, New Haven, Preston, Quincy, Richfield, Rome, Springville and Strongs Prairie.

Action 10:

Towns with high risk of wildfire should develop Community Wildfire Protection Plans (CWPPs). In Adams County, virtually all towns have been identified by WDNR as very high or high risk for wildfire except Leola and Colburn, which are identified as "communities of concern" for wildfire risk. A CWPP identifies and prioritizes areas for hazardous fuels reduction treatments and recommends types and methods of treatment that will protect at-risk areas and critical infrastructure. WisDNR has grant funding available for community wildfire protection planning.

Participating Jurisdictions for Action 10:

Lead agency will be the respective jurisdictions. Jurisdictions participating in this action will include: Adams County, City of Adams, Village of Friendship and all Towns including: Adams, Big Flats, Colburn, Dell Prairie, Easton, Jackson, Leola, Lincoln, Monroe, New Chester, New Haven, Preston, Quincy, Richfield, Rome, Springville and Strongs Prairie.

Action 11:

The City of Adams should install a new municipal well and water distribution system on its south end to enhance its firefighting capacity in a critical area that includes a rail yard and agricultural coop.

Participating Jurisdictions for Action 11:

Lead agency will be the City of Adams. The City will be the only directly participating jurisdiction.

Action 12:

The Village of Friendship has identified a need to replace its aging fire engine with a new one and update firefighting equipment including turnout gear and air tanks.

Participating Jurisdictions for Action 12:

Lead agency will be the Village of Friendship. The Village will be the only directly participating jurisdiction.

Hazard: Tornadoes**Goal:**

Protect health, safety, and welfare of county residents and visitors, along with mitigating future loss of property from tornadoes.

Action 13:

The County and the local units of governments should identify buildings that will provide protection to the public in the event of a tornado or other hazard. As an example, the

pastor at the Trinity Lutheran Church in Arkdale opens the doors when a tornado warning is issued. There are a number of buildings in the County that can accommodate people during a tornado or other hazard. The basement at the City Hall in Adams for example provides ample room. Closed school buildings are maintained by the District and may have the potential to act as a shelter if needed. Part of this effort would be to work with building owners to reach understanding on use of facilities as shelter.

Participating Jurisdictions for Action 13:

Lead agency will be Adams County Emergency Management. Participating jurisdictions will include: Adams County, City of Adams, Village of Friendship and all Towns including: Adams, Big Flats, Colburn, Dell Prairie, Easton, Jackson, Leola, Lincoln, Monroe, New Chester, New Haven, Preston, Quincy, Richfield, Rome, Springville and Strongs Prairie.

Action 14:

Upon identifying existing buildings that could provide protection, the County and its local units of governments should identify areas that remain deficit in tornado shelters. Shelters should be planned and constructed in these areas. Structures available to the public during tornado warnings should be publicized by a number of sources such as area newspapers, signs, county maps, and the County web site. A basement sharing concept was discussed by the Taskforce and is a concept that may warrant further evaluation.

Funding for the construction of shelters may be available through the Wisconsin Department of Commerce's Committee Development Block Grant (CDBG). Adams County did apply for funding to build shelters but was not awarded.

Participating Jurisdictions for Action 14:

Lead agency will be Adams County Emergency Management. Participating jurisdictions will include: Adams County, City of Adams, Village of Friendship and all Towns including: Adams, Big Flats, Colburn, Dell Prairie, Easton, Jackson, Leola, Lincoln, Monroe, New Chester, New Haven, Preston, Quincy, Richfield, Rome, Springville and Strongs Prairie.

Action 15:

The County should require and promote construction standards and techniques. To strengthen public and private structures against severe wind damage, communities can require or encourage wind engineering measures and construction techniques that may include structural bracing, straps and clips, anchor bolts, laminated or impact-resistant glass, reinforced pedestrian and garage doors, window shutters, waterproof adhesive sealing strips, or interlocking roof shingles. Also, architectural design can make roofs less susceptible to uplift. See also Action 29.

Participating Jurisdictions for Action 15:

Lead agencies will be Adams County Planning & Zoning, City of Adams, and the Towns of Dell Prairie, Lincoln and Rome. Participating jurisdictions will include: Adams County,

City of Adams, Village of Friendship and all Towns including: Adams, Big Flats, Colburn, Dell Prairie, Easton, Jackson, Leola, Lincoln, Monroe, New Chester, New Haven, Preston, Quincy, Richfield, Rome, Springville and Strongs Prairie.

Action 16:

Establish shelter facilities in the Towns of Leola, Monroe, New Haven and Rome. These towns identified a need for tornado / emergency shelter within the Town in the mitigation issues survey distributed as part of this plan. Locations indicated vary by town, however the town hall or municipal building was a common site reference.

Participating Jurisdictions for Action 16:

Lead agency will be the Towns of Leola, Monroe, New Haven and Rome. These Towns will be the only directly participating jurisdictions for their area.

Hazard: Flooding / Dam Failure**Goal:**

Lessen the impact floods have on people, property, and the environment.

Goal:

Eliminate the loss of life and reduce the risk of property damage in downstream areas that result from a dam failure.

Please note: actions denoted with an asterisk (*) relate to compliance with the NFIP.

Action 17*:

Adams County should seek to mitigate the impacts of flooding through the acquisition and demolition of homes in the floodplain, particularly those flood damaged. A GIS coverage (map) should be established to identify individual property owners and businesses located in the revised 100-year floodplain. A coverage has already been established in Part III of this Plan, however a more sophisticated methodology should be developed with the updated DFIRMs. Property owners should be informed of their floodplain status and the related insurance issues. A survey to gauge interest in buy out and relocation of properties within the floodplain is recommended to help evaluate the County's options in capturing part of a major stream of federal mitigation dollars.

Participating Jurisdictions for Action 17:

Lead agencies will be Adams County Planning & Zoning and Emergency Management. Adams County will be the only directly participating jurisdiction.

Action 18:

The Adams County Land and Water Conservation Department (LWCD) has completed dam break analysis for all county owned dams. The County will continue to develop Emergency Action Plans (EAPs) based on the dam break analysis for each of these

dams. The LWCD Committee has already approved a schedule for this to take place and significant progress has been made.

Participating Jurisdictions for Action 18:

Lead agencies will be Adams County Land & Water Conservation and Emergency Management. Adams County will be the only directly participating jurisdiction.

Action 19*:

Communities within Adams County currently participating in the National Flood Insurance Program (NFIP) should work to ensure continued compliance. Compliance primarily entails adopting and enforcing floodplain management regulations that meet minimum criteria. Adams County, the City of Adams and the Village of Friendship are in the program. All towns are included under the umbrella of the County through the state mandated county shoreland zoning.

Participating Jurisdictions for Action 19:

Lead agencies include Adams County Zoning, the City of Adams and the Village of Friendship. The only directly participating jurisdictions are Adams County, City of Adams and the Village of Friendship.

Action 20:

Improve Village of Friendship stormwater capacity through installation of a lift station / pumps.

Participating Jurisdictions for Action 20:

Lead agency will be the Village of Friendship. The only directly participating jurisdiction is the Village of Friendship.

Action 21:

As a result of the federal response to the flooding in 2008, the U.S. Economic Development Agency (EDA) has been assisting communities throughout the Midwest with efforts to recover from the economic impacts of the flooding. In Adams County, the EDA is assisting in the development of a business park in the City of Adams including roads, other infrastructure and development costs. The goal is to facilitate creation of jobs to stabilize and improve economic conditions in Adams County.

Participating Jurisdictions for Action 21:

Lead agency will be the City of Adams. Other participating jurisdictions include Adams County Economic Development Corp., NCWRPC and U.S. EDA.

Hazard: Winter Storms / Extreme Cold

Goal:

Create safety awareness to citizens and travelers of Adams County to protect them during and after winter storm events or periods of extreme cold.

Action 22:

The County should encourage the development of snow fences for public safety. Using snow fences or “living snow fences” (rows of trees or other vegetation) can limit blowing and drifting of snow over critical roadway segments. Assistance can be provided by the County Land and Water Conservation Department and NRCS to develop windbreaks. Windbreaks would be advantageous to the County Highway Department and towns to prevent blowing and drifting on roadways. The intersection of STH 21 and CTH D was identified as a critical location for snow fence / wind break establishment.

Participating Jurisdictions for Action 22:

Lead agencies will be Adams County Land & Water Conservation and Highway Departments. Participating jurisdictions will include: Adams County, City of Adams, Village of Friendship and all Towns including: Adams, Big Flats, Colburn, Dell Prairie, Easton, Jackson, Leola, Lincoln, Monroe, New Chester, New Haven, Preston, Quincy, Richfield, Rome, Springville and Strongs Prairie.

Action 23:

The County should promote winter hazards awareness, including home and travel safety measures, such as avoiding travel during winter storms. If travel cannot be avoided, having a shovel, sand, warm clothing, food, water, etc. should be encouraged to have in vehicles.

Participating Jurisdictions for Action 23:

Lead agency will be Adams County Emergency Management. Participating jurisdictions will include: Adams County, City of Adams, Village of Friendship and all Towns including: Adams, Big Flats, Colburn, Dell Prairie, Easton, Jackson, Leola, Lincoln, Monroe, New Chester, New Haven, Preston, Quincy, Richfield, Rome, Springville and Strongs Prairie.

Hazard: Drought / Extreme Heat**Goal:**

Minimize crop loss while maintaining water supplies during times of drought.

Goal:

Create safety awareness in citizens of Adams County to help protect themselves during extreme heat events.

Action 24:

The County should promote heat hazards awareness, including home and travel safety measures. Include suggestions regarding checking on neighbors or other known that live alone or that may be at a disadvantage in fending for themselves.

Participating Jurisdictions for Action 24:

Lead agency will be Adams County Emergency Management. Participating jurisdictions will include: Adams County, City of Adams, Village of Friendship and all Towns including: Adams, Big Flats, Colburn, Dell Prairie, Easton, Jackson, Leola, Lincoln, Monroe, New Chester, New Haven, Preston, Quincy, Richfield, Rome, Springville and Strongs Prairie.

Action 25:

The County should encourage farmers that irrigate to use irrigation scheduling programs and drip or misting systems. Also work with corporate growers. Research-based programs can assist growers in determining frequency and amounts of irrigation throughout the growing season; it can be extremely helpful during a drought.

Participating Jurisdictions for Action 25:

Lead agencies will be Adams County Land and Water Conservation and Adams County UW-Extension. Adams County will be the only directly participating jurisdiction.

Action 26:

The County should be prepared on how to inform farmers during times of drought. This could include feed assistance or financial assistance programs and managing crops and livestock during drought conditions.

Participating Jurisdictions for Action 26:

Lead agencies will be Adams County Land and Water Conservation and Adams County UW-Extension. Adams County will be the only directly participating jurisdiction.

Action 27:

The County should inform farmers on the advantages/disadvantages of crop insurance for preserve economic stability for farmers during a drought.

Participating Jurisdictions for Action 27:

Lead agencies will be Adams County UW-Extension with FSA. Adams County will be the only directly responsible jurisdiction.

Hazard: Severe Thunderstorms / Hail / Lightning / Wind**Goal:**

Minimize the threat to human life and property damage caused by associated high wind and lightning.

Action 28:

The County should continue to promote the planting of windbreaks to protect farmsteads, buildings, and open fields from high winds. Established trees and shrubs can slow wind on the downwind side of a windbreak for a distance of 10 times the

height of the trees. The windbreaks can also reduce soil erosion, act as snow fences, provide wildlife food and cover, and offer a number of other benefits.

There are a number of resources area landowners use to help install and pay for windbreaks. Both the Central Wisconsin Windshed Partnership and the County Land and Water Conservation Department provide assistance to help establish windbreaks. Windbreaks can also be established through the Conservation Reserve Program (CRP), Conservation Enhancement Reserve Program (CREP), Conservation Security Program (CSP), and Environmental Quality Incentive Program (EQIP) from the USDA Natural Resource Conservation Service (NRCS).

Participating Jurisdictions for Action 28:

Lead agency will be Adams County Land & Water Conservation. Adams County works cooperatively with NRCS on this activity.

Action 29:

Continue to enforce local building codes to improve new buildings and renovations ability to withstand greater wind velocities. The State of Wisconsin Uniform Dwelling Code (UDC) used by Adams County was recently updated, and there is some concern that this area of the code was actually weakened.

Adams County should conduct a review of these building codes to determine if the County should "add back" provisions to improve the structures ability to withstand greater wind velocities. The building code should include requirements for construction methods that employ cross-bracing, anchoring of walls to foundation, and anchoring roof rafters to walls (also mitigates tornado risk) and measures to provide wind protection and retrofits for vulnerable features (windows, garage doors, patio doors, double-wide entry doors, siding, and bracing for walls and rafters). A document was created by FEMA and WEM to help provide adequate and inexpensive wind mitigation measures to local officials, residents, and business owners. This document (provided on the WEM website) should be referenced when making changes to buildings codes. See also Action 15.

Participating Jurisdictions for Action 29:

Lead agencies will be Adams County Planning & Zoning, City of Adams, and the Towns of Dell Prairie, Lincoln and Rome. Participating jurisdictions will include: Adams County, City of Adams, Village of Friendship and all Towns including: Adams, Big Flats, Colburn, Dell Prairie, Easton, Jackson, Leola, Lincoln, Monroe, New Chester, New Haven, Preston, Quincy, Richfield, Rome, Springville and Strongs Prairie.

Action 30:

Since the County, particularly the Town of Rome, provides a variety of recreation activities, public awareness of proven lightning safety guidelines to reduce risk should be promoted. Such measures as constructing signs to inform people when to get out of the water or off a golf course when there is lightning can be taken.

Participating Jurisdictions for Action 30:

Lead agency will be Adams County Emergency Management. Participating jurisdictions will include: Adams County, City of Adams, Village of Friendship and all Towns including: Adams, Big Flats, Colburn, Dell Prairie, Easton, Jackson, Leola, Lincoln, Monroe, New Chester, New Haven, Preston, Quincy, Richfield, Rome, Springville and Strongs Prairie.

Hazard: Hazardous Materials Incidents**Goal:**

Protect people and natural resources from adverse affects of hazardous material incidents.

Action 31:

The County should contract for Level B Emergency Response team coverage to respond to hazardous spill situations. Several factors support this such as the density of traffic carrying hazardous materials over the major transportation routes of State Highways 13, 21, and 82, the pipeline that delivers petroleum through 31 miles of the County, and a railway that crosses along several communities and across some major rivers. Establishing access to a Level B Team will provide more immediate response to incidents that require hazardous material spills.

Participating Jurisdictions for Action 31:

Lead agencies will be Adams County Emergency Management and fire districts serving Adams County. Other participating jurisdictions will include: Adams County, City of Adams, Village of Friendship and all Towns including: Adams, Big Flats, Colburn, Dell Prairie, Easton, Jackson, Leola, Lincoln, Monroe, New Chester, New Haven, Preston, Quincy, Richfield, Rome, Springville and Strongs Prairie.

Table 18 - Summary of Mitigation Strategies

Mitigation Measures (See Expanded Text in Plan)	Cost Estimate	Existing and Potential Resources to Implement	Responsible Units	Project Timeframe	Priority Level
ALL HAZARDS					
1 Continue to promote the increase use of National Oceanic and Atmospheric Administration (NOAA) weather radios	Staff Time	Dept. Budget	County EM Dept	On-going	High
2 Continue to add/update Emergency Management Department link off their existing County web site	Staff Time	Dept. Budget	County EM Dept	On-going	High
3 Maintain County Emergency Response Zone Atlas - update, reprint and distribute.	\$20,000	WisDNR Funding	County EM Dept	2010	Medium
4 Develop County-wide evacuation and shelter plans including i.d. of potential available shelters, needs of special populations and facilities such as County campgrounds, etc.	\$45,000	General Fund Dept. Budget	County / City / Village / All Towns	2011	Medium
5 Work toward development of county-wide early warning systems that may include sirens and/or tech based systems such as Code Red for key areas around the County.	Cost to be determined	General Fund Dept. Budget	County / City / Village / All Towns	2014	Low
6 Update radio / emergency communications systems	Cost to be determined	Homeland Security Special Program Funding	Village of Friendship / Town of New Chester	2010	Medium
FOREST / WILDFIRE					
7 Continue to provide outreach efforts to homeowners on protecting homes and structures from wildfires	Staff Time	Dept. Budget	Co. EM Dept / WDNR	On-going	High
8 Provide ample training for volunteer fire fighters for larger fires	Staff Time	Dept. Budget	Local Fire Depts / WDNR	On-going	High
9 Support establishment of Firewise Communities across the County.	Staff Time	Dept. Budget	County / All Towns	On-going	Medium
10 Develop Community Wildfire Protection Plans in high risk Towns.	\$30,000 ea.	WDNR National Fire Plan funding	County / City / Village / All Towns	2014	Medium
11 Enhance fire fighting capacity of the municipal water supply in the southern part of the City - new well.	943,000	EDA Flood Recovery Funds / Local Bonding	City of Adams	2010	Low
12 Obtain new fire engine and firefighting gear.	Cost to be determined	Assistance to Firefighters Grant	Village of Friendship	2010	Low
TORNADO					
13 Identify buildings that will provide protection to the public in the event of a tornado warning	Staff Time	Dept. Budget	County / City / Village / All Towns	2012	Medium
14 Identify and construct tornado shelters in areas where deficient	Cost to be determined	CDBG Program	County / City / Village / All Towns	On-going	Low
15 Require and promote construction standards and techniques	Staff Time	Dept. Budget	County P&Z Dept	On-going	Medium
16 Establish shelters in the Towns of Leola, Monroe, New Haven and Rome.	\$100,000 ea.	CDBG Program / Local budgets	Leola, Monroe, New Haven and Rome	2010	Low

Mitigation Measures (See Expanded Text in Plan)	Cost Estimate	Existing and Potential Resources to Implement	Responsible Units	Project Timeframe	Priority Level
FLOOD / DAM FAILURE					
17 Mitigate impacts of flooding through acquisition/demolition of homes in the floodplain/flood damaged. Establish a GIS database of property located in 100 year floodplain. Inform owners and survey on interest in buyout and relocation.*	Costs to be determined	Mitigation Grants	EM Dept/ P&Z Dept	2010	Medium
18 Continue development of Emergency Action Plans (EAP) for all county owned dams.	Cost to be determined	Dept. Budget NRCS funding programs	LWCD	On-going	Medium
19 County/City/Village continued compliance in the National Flood Insurance Program - NFIP.*	Staff Time	Dept. Budget	County / City / Village	On-going	High
20 Improve Village stormwater capacity through installation of lift station / pumps.	Cost to be determined	General Fund, CDGB or Rural Developm't Programs	Village of Friendship	2010	Low
21 Develop business park - EDA Economic Recovery Project.	\$1.85 million	EDA Flood Recovery Funds / Local Bonding	City of Adams	2010	Low
WINTER STORMS / EXTREME COLD					
22 Encourage the development of snow fences.	Costs vary	NRCS funding programs	Hwy Dept / LWCD	On-going	High
23 Promote winter hazards awareness, including home and travel safety measures.	Staff Time	Dept. Budget	County EM Dept	On-going	High
DROUGHT / EXTREME HEAT					
24 Promote heat hazards awareness, including protecting oneself and watching out for others.	Staff Time	Dept. Budget	County EM Dept	On-going	Medium
25 Encourage farmers that irrigate to use irrigation scheduling programs and drip/misting systems.	Staff Time	Dept. Budget	UW-Ext. Dept / LWCD	On-going	Medium
26 County should be prepared on how to inform farmers during times of drought	Staff Time	Dept. Budget	UW-Ext. Dept	On-going	High
27 Inform farmers on purchasing crop insurance	Staff Time	Dept. Budget	UW-Ext. Dept/FSA	On-going	Medium
SEVERE THUNDERSTORM / HAIL / LIGHTNING / WIND					
28 Promote the planting of windbreaks to protect farmsteads, buildings & open fields from high winds	Staff Time	NRCS funding programs	LWCD and NRCS	On-going	High
29 Enforce local building codes to improve structures' ability to withstand greater wind velocities	Staff Time	Dept. Budget	County P&Z Dept	On-going	High
30 Promote public awareness of proven lightning safety guidelines to reduce risk	Staff Time	Dept. Budget	County EM Dept	On-going	Medium
HAZARDOUS MATERIALS INCIDENTS					
31 Develop a Level B Emergency Response team to respond to hazardous spill situations	Cost to be determined	General Fund	County EM Dept	2010	Low

* Denotes actions related to compliance with NFIP.

INTRODUCTION

Part V of the Adams County All Hazards Mitigation Plan Update describes the plan adoption, implementation, and evaluation and maintenance.

PLAN UPDATE ADOPTION

The adoption of the Adams County All Hazards Mitigation Plan Update lends itself to serve as a guiding document for all local government officials. It also certifies to program and grant administrators from the FEMA and WEM that the plan's recommendations have been properly considered and approved by the governing authority and the jurisdiction's citizens. Finally, it helps to ensure the continuity of mitigation programs and policies over time because elected officials, staff, and other community decision-makers can refer to the official document when making decisions about the community's future.

Before adoption of the Plan Update by the incorporated areas, the update must be sent to the state and federal level to verify that all DMA2K requirements are met. Once a draft of the updated Plan has been completed, it is submitted to the State Hazard Mitigation Officer (SHMO) at the state level at WEM. Previous drafts of the update have already been reviewed prior to this submittal. The SHMO will determine if the updated Plan meets DMA2K and/or other state program requirements. Upon approval of the draft by WEM, the SHMO is responsible for showing the update to the FEMA Region V Office for review.

Prior to final approval by WEM and FEMA, the update must be formally adopted by Adams County and its incorporated areas by resolution. Incorporated communities that do not adopt the Plan Update cannot apply for mitigation grant funds unless they opt to prepare, adopt, and submit their own plan. Adoption of the Plan Update gives the jurisdiction a legal basis to enact ordinances, policies, or programs to reduce hazard losses and to implement other mitigation actions.

All general purpose units of government (i.e. city, village, towns) within Adams County were offered one or more avenues to participate in the development of this Plan Update. Adoption of the Plan by a local unit of government certifies their participation. The Adams County Board has adopted this Update. Resolutions of adoption are contained in APPENDIX B.

PLAN UPDATE IMPLEMENTATION**ADMINISTRATIVE RESPONSIBILITIES**

Once the Plan Update has been approved, stakeholders must be informed. The County Emergency Management Director will distribute copies to stakeholders. The County will make the Plan Update available to the public by linking the report on their web site.

Along with monitoring the progress of the action projects, the County Emergency Management Director and Public Safety and Judiciary Committee should also work to secure funding to implement the Plan Update. State and federal agencies, nonprofit organizations, and foundations continually make grants available. Emergency Management should research these grant opportunities to determine eligibility for the County and its local units of government.

When implementing this Plan Update, the County Public Safety and Judiciary Committee and staff team should consider innovative ways to involve active participation from nonprofit organizations, businesses, and citizens to implement the update. The relationship between these groups will result in greater exposure of the Plan Update and provide greater probability of implementation of the action projects listed.

The role of department administrators, elected officials, and local administrators are to ensure that adopted actions from Part IV are considered in their budgets. It is understood that projects may not be carried out as they are scheduled in Part IV due to budget constraints. However, since many of these action projects are considered an investment in safeguarding the public's health, safety, and property, they should be carefully considered as a priority.

PROMOTE SUCCESS OF IDENTIFIED PROJECTS

Upon implementing a project covered by this Plan Update, it is important to promote the accomplishment to the stakeholders and to the communities. This will help inform people that the update is being implemented and is effective.

INCORPORATION INTO OTHER LOCAL PLANNING MECHANISMS

FEMA requires a process by which the mitigation plan is incorporated into other planning mechanisms where appropriate. When undergoing any planning process, County departments, local units of government and/or any professional staff assisting them, typically review and incorporate any related pre-existing plans as a matter of course. However, to help ensure this outcome, Adams County has established a two-part process to incorporate the All Hazards Mitigation Plan into other County and local planning efforts as follows:

- Notification of County Departments and Local Units of Government - Upon adoption of the All Hazards Mitigation Plan, the County EM Director will distribute a letter that explains how the Plan applies to other planning efforts they might undertake and how to obtain copies of the Mitigation Plan.
- Promotion by EM Director - The EM Department will promote incorporation of the All Hazards Mitigation Plan as the EM Director is made aware of or becomes a participant in any new planning process.

A number of upcoming planning efforts have been identified for incorporation of the All Hazards Mitigation Plan. Upcoming planning efforts at the County or local level include: Community Wildfire Protection Plans (CWPPs) for Big Flats/Monroe (and possibly others as yet unidentified), updates to the Comprehensive Plans for the County and all local unit, and a county-wide Farmland Preservation Plan.

The County's original All Hazard Mitigation Plan has already been incorporated into two other planning processes, including the Adams County Comprehensive Plan and the Town of Rome CWPP, as follows.

Town of Rome CWPP

The Adams County Emergency Management Director participated as a member of the Planning Taskforce for the Town of Rome Community Wildfire Protection Plan. The All Hazards Mitigation Plan was reviewed and discussed extensively at a CWPP planning meeting. The wildfire components of the risk assessment and mitigation strategy from the All Hazards Mitigation Plan were incorporated into the Town of Rome CWPP.

Adams County Comprehensive Plan

The following concepts were considered when developing the Adams County and local unit comprehensive plans (except Rome), based on the nine elements of the Wisconsin comprehensive planning law:

- *Issues and Opportunities Element* – a summary of major hazards local government is vulnerable to, and what is proposed to done to mitigate future losses from the hazards.
- *Housing Element* – an inventory of the properties that are in the floodplain boundaries, the location of mobile homes, recommendation on building codes, shelter opportunities, and a survey of homeowners that may be interested in a voluntary buyout and relocation program.
- *Utilities and Community Facilities Element* – identify critical facilities such as shelter, schools, medical, water infrastructure, etc. and make recommendations on how to mitigate specific risks factors
- *Transportation Element* – identify any transportation routes or facilities that are more at risk during flooding, winter storms, or hazardous material spills.
- *Agricultural, Natural Resources, and Cultural Resources Element* – identify the floodplains and agricultural areas that area at risk to hazardous events. Incorporate recommendations on how to mitigate future losses to agricultural areas.
- *Economic Development Element* – describe the impact past hazards have had on County and municipal business.
- *Intergovernmental Cooperation Element* - identify intergovernmental police, fire, and rescue service sharing agreements that are in effect, or

- which may merit further investigation, consider cost-sharing and resource pooling on government services and facilities.
- *Land Use Element* - describe how flooding have impacted land uses and what is being done to mitigate negative land use impacts from flooding; map and identify hazard areas such as floodplains, hazardous materials areas, and soils with limitations.
 - *Implementation Element* – have action plans from this Plan implemented into comprehensive plans.

PLAN UPDATE EVALUATION AND MAINTENANCE

Planning is an ongoing process. Because of this, this document should grow and adapt in order to keep pace with growth and change of the County and its local jurisdictions. DMA2K requires that local plans be evaluated and updated at least every five years to remain eligible for assistance.

The Plan will be reviewed and evaluated on an annual basis. Within this period, the Adams County Emergency Management Director will evaluate incoming information against the contents of the Plan as needed to prepare for revisions. It is recommended that the County Public Safety and Judiciary Committee discuss evaluation and revisions to the Plan one year from its adoption and annually thereafter as it fits the Committee's scheduling. The Emergency Management Director is encouraged to consult/coordinate with the NCWRPC at the time of revision.

The Plan must also be evaluated and revised following disaster events to determine if the recommended actions are appropriate given the impact of the event. The risk assessment (Part III) should also be reviewed to see if any changes are necessary based on the pattern of disaster damages.

Full updates are required every five years. As a result, every fifth year, the annual review will be expanded to an overall plan update to meet FEMA requirements. All stakeholders and the public will again be involved in the update. The County will conduct a survey and open comment meeting. This also provides an opportunity to inform on the progress of any projects.

The County Public Safety and Judiciary Committee and County Board must approve all changes and updates to the Plan.

Appendix A – Local Unit Survey



Adams County Emergency Management

400 Main Street PO Box 144
Telephone 608-339-4248
Friendship WI 53934-0144
608-339-4299

emgmt@co.adams.wi.us

FAX

MEMORANDUM

TO: Town Chairpersons and Clerks

FROM: Jane Grabarski, Adams County Emergency Management

DATE: January 19, 2009

RE: Adams County All Hazard Mitigation Plan Survey

Adams County has received a grant through the Federal Emergency Management Agency (FEMA) to complete an update of its existing All Hazard Mitigation Plan for the purposes of reducing the County's vulnerability to the impacts of natural hazards. Local governments must have an approved, up-to-date, local plan to remain eligible for certain FEMA disaster funds that would be available after a disaster declaration. By participating and being included in the County Plan, local units of government can satisfy the requirement.

The County is being assisted by the North Central Wisconsin Regional Planning Commission (NCWRPC) to develop this plan. We are currently seeking information from local officials. The enclosed survey has been created for this purpose.

Please complete and return the survey to me by February, 16, 2009. Your participation in completing this survey is critical in completing a plan that satisfies FEMA's requirements. We will keep you apprised of future meetings and provide opportunity to review drafts of the report. If you have any questions in the meantime, please feel free to call me at 608-339-4248 or Darryl Landeau of the NCWRPC at 715-849-5510 extension 308.

Thank you.

**Adams County All Hazard Mitigation Plan
Local Government Survey**

1. Town of _____

2. Which of the following hazards (if any) do you consider your community to be more vulnerable than others? (check all that apply)
 - Flooding
 - Dam Failures
 - Drought
 - Forest Fires and Wildfires
 - Insect Infestation
 - Thunderstorms
 - Lightning
 - Hail
 - High Winds
 - Tornados
 - Winter Storms (heavy snow, freezing rain)
 - Other _____

If you checked any of the above, please describe why your community is more vulnerable to each of those hazards over others.

3. Please identify any public or private facilities or specific areas of the community that may be more vulnerable to a natural hazard.

8. Is there a need for emergency shelters in your community?

Yes

No

If so, where are some possible locations to place or construct a shelter facility?

9. Please describe any areas in your community that became isolated and inaccessible during or after a past disaster where access by law enforcement or rescue personnel was hampered?

10. One of the plan requirements is to quantify the value of critical infrastructure such as government buildings and property. Your Statement of Values form from the Local Government Property Insurance Fund or a similar declarations page from a private insurer. If you would be willing to provide us a copy of this form for your town, we would greatly appreciate it. Please include the copy when you return this survey or mail separately to the address below.

11. Please feel free to comment on any other related issues to this plan.

Please return completed surveys to:

Jane Grabarski, Adams County Emergency Mgmt, PO Box 144, Friendship, WI 53934-0144

THANK YOU FOR YOUR ASSISTANCE

Appendix B – Resolutions of Plan Update Adoption

RESOLUTION # 48-2009

**RESOLUTION TO
ADOPT THE ADAMS COUNTY ALL HAZARDS MITIGATION PLAN UPDATE**

INTRODUCED BY: Public Safety & Judiciary Committee

INTENT & SYNOPSIS: Adams County to adopt the Adams County All Hazards Mitigation Plan Update as an official plan and forward to Wisconsin Emergency Management and Federal Emergency Management officials for final review and approval.

FISCAL NOTE: None.

WHEREAS, Adams County recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save tax payer dollars; and

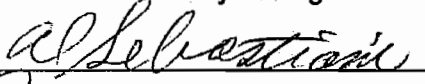
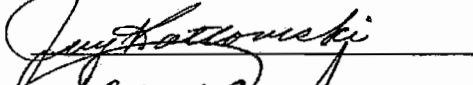

WHEREAS, an adopted all hazards mitigation plan is required as a condition of future grant funding for mitigation projects; and

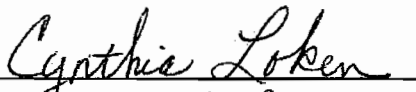
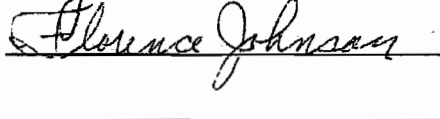
WHEREAS, Adams County participated jointly in the planning process with the other local units of government within the County to prepare an update to its All Hazards Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the Adams County Board of Supervisors, hereby adopts the Adams County All Hazards Mitigation Plan Update as an official plan; and

BE IT FURTHER RESOLVED, that the Adams County Emergency Management Department will submit, on behalf of the participating municipalities, the adopted All Hazards Mitigation Plan Update to Wisconsin Emergency Management and Federal Emergency Management Agency officials for final review and approval.

Dated this 12th day of August 2009.

Adopted
Defeated
Tabled by the Adams County Board of Supervisors this
18th day of August 2009.



County Board Chair



County Clerk

RECEIVED

OCT 19 2009

NORTH CENTRAL WISCONSIN
REGIONAL PLANNING COMMISSION

RESOLUTION 2009-18R

A RESOLUTION ADOPTING THE
ADAMS COUNTY ALL HAZARDS MITIGATION PLAN
UPDATE

WHEREAS, the Common Council of the City of Adams, Wisconsin did adopt Resolution No. 2004-14R on May 3, 2004; and,

WHEREAS, the City of Adams, Wisconsin recognizes the threat that natural hazards pose to people and property; and,

WHEREAS, under taking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save tax payer dollars; and,

WHEREAS, an adopted all hazards mitigation plan update is required as a condition of future grant funding for mitigation projects; and,

WHEREAS, the City of Adams participated jointly in the planning process with Adams County and the other local units of government within the County to prepare an All Hazards Mitigation Plan Update;

NOW, THEREFORE, BE IT RESOLVED, that the Common Council of the City of Adams, Wisconsin hereby adopts the Adams County All Hazards Mitigation Plan Update as an official plan; and,

BE IT FURTHER RESOLVED, that the Adams County Emergency Management Department will submit, on behalf of the City, the adopted All Hazards Mitigation Plan Update to Wisconsin Emergency Management and Federal Emergency Management Agency officials for final review and approval.

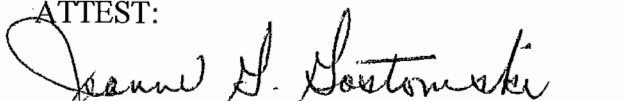
DATED the 8th day of September, 2009

City of Adams

By:


Warren LaQueue, Council President

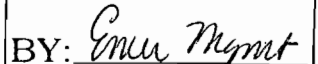
ATTEST:

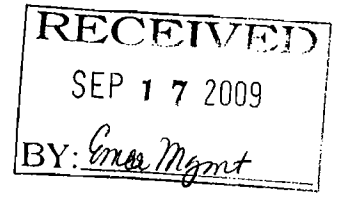

Jeanne G. Gostomski, Deputy Clerk/Treasurer

The above resolution was passed at a
Regular Meeting of the Adams City Council
on the 8th day of September, 2009
by a vote of 6 for, 0 against, and 0 absent.

Motion to adopt Resolution No. 2009-18R

by Manthey second by Jensen.

RECEIVED
SEP 17 2009
BY: 



RESOLUTION NO. 2009-9-8

ADOPTING THE ADAMS COUNTY ALL HAZARDS MITIGATION PLAN UPDATE

WHEREAS, the Village of Friendship recognizes the threat that natural hazards pose to people and property; and

WHEREAS, under taking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save tax payer dollars; and

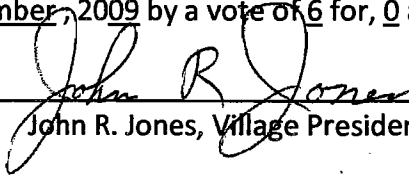
WHEREAS, an adopted all hazards mitigation plan update is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the Village of Friendship participated jointly in the planning process with Adams County and the other local units of government within the County to prepare an All Hazards Mitigation Plan Update;

NOW, THEREFORE, BE IT RESOLVED, that the Village Board of Trustees of the Village of Friendship hereby adopts the Adams County All Hazards Mitigation Plan Update as an official plan; and

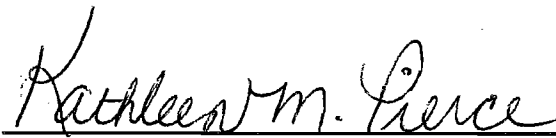
BE IT FURTHER RESOLVED, that the Adams County Emergency Management Department will submit on behalf of the Village of Friendship, the adopted All Hazards Mitigation Plan Update to Wisconsin Emergency Management and Federal Emergency Management Agency officials for final review and approval.

Adopted this 8th day of September, 2009 by a vote of 6 for, 0 against, 1 absent.



John R. Jones, Village President

ATTEST:



Kathleen M. Pierce, Clerk/Treasurer

2009-
RESOLUTION # 4

ADOPTING THE ADAMS COUNTY ALL HAZARDS MITIGATION PLAN UPDATE

WHEREAS, the Town of Adams recognizes the threat that natural hazards pose to people and property; and

WHEREAS, under taking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save tax payer dollars; and

WHEREAS, an adopted all hazards mitigation plan update is required as a condition of future grant funding for mitigation projects; and

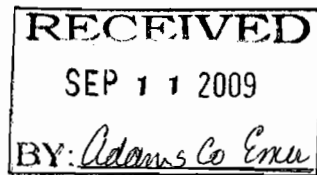
WHEREAS, the Town of Adams participated jointly in the planning process with Adams County and the other local units of government within the County to prepare an All Hazards Mitigation Plan Update;

NOW, THEREFORE, BE IT RESOLVED, that the Town Board of the Town of Adams, hereby adopts the Adams County All Hazards Mitigation Plan Update as an official plan; and

BE IT FURTHER RESOLVED, that the Adams County Emergency Management Department will submit, on behalf of the Town, the adopted All Hazards Mitigation Plan Update to Wisconsin Emergency Management and Federal Emergency Management Agency officials for final review and approval.

PASSED: 3 to 0.

James Bays
Certifying Official



Resolution #03-09

ADOPTING THE ADAMS COUNTY ALL HAZARDS MITIGATION PLAN
UPDATE

WHEREAS the Town of\ recognizes the threat that natural hazards pose to people and property; and

WHEREAS under taking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save tax payer dollars; and

WHEREAS, an adopted all hazards mitigation plan update is required as a condition of future grant funding for mitigation projects; and

WHEREAS the Town of Big Flats participated jointly in the planning process with Adams County and the other local units of government within the County to prepare an all Hazards Mitigation Update Plan Update,

NOW THEREFORE, BE IT RESOLVED , that the Town Board of the Town of Big Flats, hereby adopts the Adams County All Hazards Mitigation Plan Update as an official plan, and

BE IT FURTHER RESOLVEWD, that the Adams County Emergency Management Department will submit, on behalf of the Town the adopted All Hazards Mitigation Plan Update to Wisconsin Emergency Management and Federal Emergency Management Agency officials for final review and approval

Passed: 09-08-2009

Verifying officials:

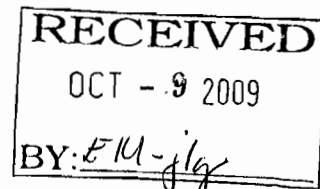
Todd Peterson Todd Peterson

Larry Beck Larry Beck

Eugene Blackburn Eugene Blackburn

Attest: Mary Clapper Mary Clapper

Posted:09-09-09



RESOLUTION # 9609

ADOPTING THE ADAMS COUNTY ALL HAZARDS MITIGATION PLAN UPDATE

WHEREAS, the Town of Colburn recognizes the threat that natural hazards pose to people and property; and

WHEREAS, under taking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save tax payer dollars; and

WHEREAS, an adopted all hazards mitigation plan update is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the Town of Colburn participated jointly in the planning process with Adams County and the other local units of government within the County to prepare an All Hazards Mitigation Plan Update;

NOW, THEREFORE, BE IT RESOLVED, that the Town Board of the Town of Colburn, hereby adopts the Adams County All Hazards Mitigation Plan Update as an official plan; and

BE IT FURTHER RESOLVED, that the Adams County Emergency Management Department will submit, on behalf of the Town, the adopted All Hazards Mitigation Plan Update to Wisconsin Emergency Management and Federal Emergency Management Agency officials for final review and approval.

PASSED: 9/1/09.

P. Bonkowski
Certifying Official

RECEIVED
SEP 17 2009
BY: *Gene Mgmt*

Resolution # 2009- 10

**ADOPTING THE ADAMS COUNTY
ALL HAZARDS MITIGATION PLAN UPDATE**

The town board of the Town of Dell Prairie, Adams County, Wisconsin, by this resolution, adopted on proper notice with a quorum and by a roll call vote of a majority of the town board members present and voting, resolves and orders as follows:

WHEREAS, The Town of Dell Prairie recognizes the threat that natural hazards pose to people and property; and

WHEREAS, under taking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save tax payer dollars: and

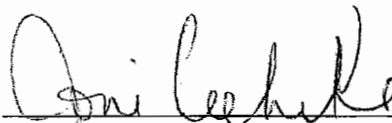
WHEREAS, an adopted all hazards mitigation plan update is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the Town of Dell Prairie participated jointly in the planning process with Adams County and the other local units of government within the County to prepare an All Hazards Mitigation Plan Update;

NOW, THEREFORE, BE IT RESOLVED, that the Town Board of the Town of Dell Prairie, hereby adopts the Adams County All Hazards Mitigation Plan Update as an official plan; and

BE IT FURTHER RESOLVED, that the Adams County Emergency Management Department will submit, on behalf of the Town, the adopted All Hazards Mitigation Plan Update to Wisconsin Emergency and Federal Emergency Management Agency officials for final review and approval.

PASSED: 8th day of September, 2009



Attest: Town Clerk



Town Chairperson

Posting Date: 9/11/09

RECEIVED

OCT 22 2009

NORTH CENTRAL WISCONSIN
REGIONAL PLANNING COMMISSION

RESOLUTION # 25

ADOPTING THE ADAMS COUNTY ALL HAZARDS MITIGATION PLAN UPDATE

WHEREAS, the Town of Easton recognizes the threat that natural hazards pose to people and property; and

WHEREAS, under taking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save tax payer dollars; and

WHEREAS, an adopted all hazards mitigation plan update is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the Town of Easton participated jointly in the planning process with Adams County and the other local units of government within the County to prepare an All Hazards Mitigation Plan Update;

NOW, THEREFORE, BE IT RESOLVED, that the Town Board of the Town of Easton, hereby adopts the Adams County All Hazards Mitigation Plan Update as an official plan; and

BE IT FURTHER RESOLVED, that the Adams County Emergency Management Department will submit, on behalf of the Town, the adopted All Hazards Mitigation Plan Update to Wisconsin Emergency Management and Federal Emergency Management Agency officials for final review and approval.

PASSED: 3 yes 10-20-09

Thomas C. Dungan
Certifying Official



RECEIVED

OCT 26 2009

NORTH CENTRAL WISCONSIN
REGIONAL PLANNING COMMISSION

No. 09-1015-001

RESOLUTION
Adopting the Adams County
ALL HAZARDS MITIGATION PLAN Update

WHEREAS, the Town of Jackson recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save tax payer dollars; and

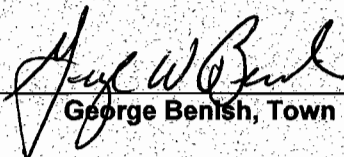
WHEREAS, an adopted all hazards mitigation plan update is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the Town of Jackson participated jointly in the planning process with Adams County and the other local units of government within the County to prepare an All Hazards Mitigation Plan Update;

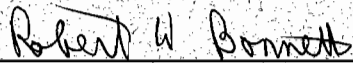
NOW, THEREFORE, BE IT RESOLVED, that the Town Board of the Town of Jackson, hereby adopts the Adams County All Hazards Mitigation Plan Update as an official plan; and

BE IT FURTHER RESOLVED, that the Adams County Emergency Management Department will submit, on behalf of the Town, the adopted All Hazards Mitigation Plan Update to Wisconsin Emergency Management and Federal Emergency Management Agency officials for final review and approval.

Adopted this 15th day of OCTOBER, 2009.


George Benish, Town Chair


Dennis Schad, Supervisor I


Robert Bonnett, Supervisor II

ATTESTED BY:


Candace Pegler, Town Clerk

RECEIVED
SEP 17 2009
BY: *Emer Mynt*

RESOLUTION # 2009-1

ADOPTING THE ADAMS COUNTY ALL HAZARDS MITIGATION PLAN UPDATE

WHEREAS, the Town of Leola recognizes the threat that natural hazards pose to people and property; and

WHEREAS, under taking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save tax payer dollars; and

WHEREAS, an adopted all hazards mitigation plan update is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the Town of Leola participated jointly in the planning process with Adams County and the other local units of government within the County to prepare an All Hazards Mitigation Plan Update;

NOW, THEREFORE, BE IT RESOLVED, that the Town Board of the Town of Leola, hereby adopts the Adams County All Hazards Mitigation Plan Update as an official plan; and

BE IT FURTHER RESOLVED, that the Adams County Emergency Management Department will submit, on behalf of the Town, the adopted All Hazards Mitigation Plan Update to Wisconsin Emergency Management and Federal Emergency Management Agency officials for final review and approval.

PASSED: 9-16-09

Kenneth J. ...
Certifying Official

RECEIVED
SEP 25 2009
BY: _____

RESOLUTION # 3-2009

ADOPTING THE ADAMS COUNTY ALL HAZARDS MITIGATION PLAN UPDATE

WHEREAS, the Town of MONROE recognizes the threat that natural hazards pose to people and property; and

WHEREAS, under taking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save tax payer dollars; and

WHEREAS, an adopted all hazards mitigation plan update is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the Town of MONROE participated jointly in the planning process with Adams County and the other local units of government within the County to prepare an All Hazards Mitigation Plan Update;

NOW, THEREFORE, BE IT RESOLVED, that the Town Board of the Town of MONROE, hereby adopts the Adams County All Hazards Mitigation Plan Update as an official plan; and

BE IT FURTHER RESOLVED, that the Adams County Emergency Management Department will submit, on behalf of the Town, the adopted All Hazards Mitigation Plan Update to Wisconsin Emergency Management and Federal Emergency Management Agency officials for final review and approval.

PASSED: 9-22-09

Dorine C. Hoyle
Certifying Official / Chairman

Robert A. Kittinger
Supervisor 1

Patricia Hoover
Supervisor 2

**TOWN OF NEW CHESTER
RESOLUTION #05-2009**

**ADOPTING THE ADAMS COUNTY ALL
HAZARDS MITIGATION PLAN UPDATE**

WHEREAS, the Town of New Chester recognizes the threat that natural hazards pose to people and property; and

WHEREAS, under taking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save tax payers dollars; and

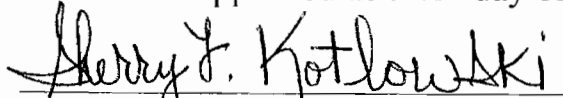
WHEREAS, an adopted all hazards mitigation plan update is required as a condition of future grant funding for mitigation projects; and


WHEREAS, the Town of New Chester participated jointly in the planning process with Adams County and the other local units of government within the County to prepare an All Hazards Mitigation Plan Update;

NOW, THEREFORE, BE IT RESOLVED, that the Town Board of the Town of New Chester, hereby adopts the Adams County All Hazards Mitigation Plan Update as an official plan; and

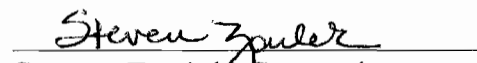
BE IT FURTHER RESOLVED, that the Adams County Emergency Management Department will submit, on behalf of the Town, the adopted All Hazards Mitigation Plan Update to Wisconsin Emergency Management and Federal Emergency Management Agency officials for final review and approval.

Passed and approved this 21st day of September, 2009


Sherry L. Kotlowski, Town Clerk


Barbara Morgan, Chairperson


James Nelson, Supervisor


Steven Zoulek, Supervisor

RECEIVED

OCT 2 2009

NORTH CENTRAL WISCONSIN
REGIONAL PLANNING COMMISSION

RESOLUTION # 3-2009

ADOPTING THE ADAMS COUNTY ALL HAZARDS MITIGATION PLAN UPDATE

WHEREAS, the Town of Quincy recognizes the threat that natural hazards pose to people and property; and

WHEREAS, under taking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save tax payer dollars; and

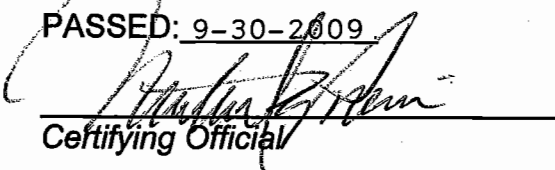
WHEREAS, an adopted all hazards mitigation plan update is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the Town of Quincy participated jointly in the planning process with Adams County and the other local units of government within the County to prepare an All Hazards Mitigation Plan Update;

NOW, THEREFORE, BE IT RESOLVED, that the Town Board of the Town of Quincy, hereby adopts the Adams County All Hazards Mitigation Plan Update as an official plan; and

BE IT FURTHER RESOLVED, that the Adams County Emergency Management Department will submit, on behalf of the Town, the adopted All Hazards Mitigation Plan Update to Wisconsin Emergency Management and Federal Emergency Management Agency officials for final review and approval.

PASSED: 9-30-2009



Certifying Official

COPY