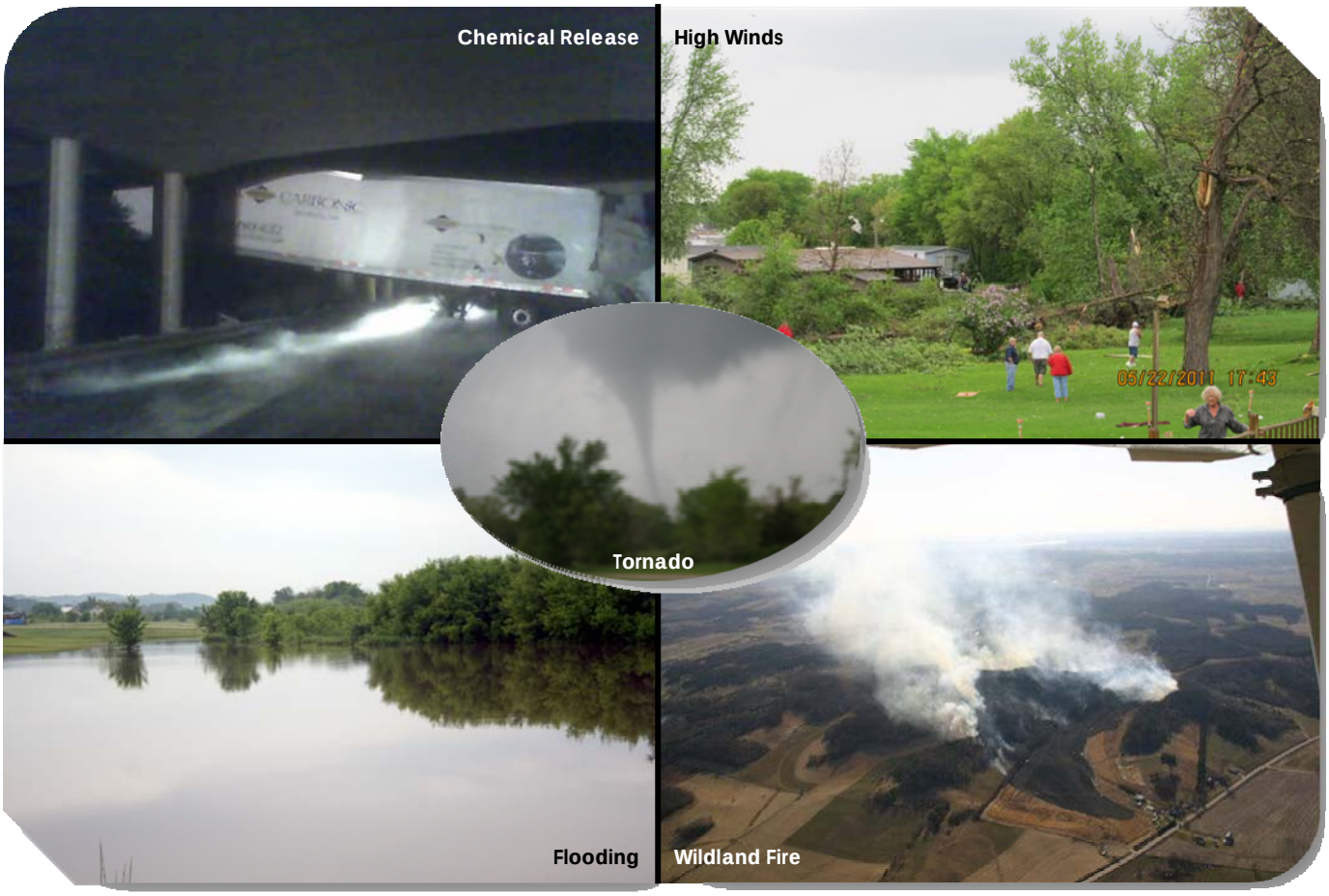
MONROE COUNTY

ALL HAZARD MITIGATION PLAN



EMERGENCY MANAGEMENT DEPARTMENT

Prepared by
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PART 1 - PLANNING PROCESS

INTRODUCTION

Part I of the Monroe County All Hazards Mitigation Plan describes and documents the process used to develop the plan. This includes how it was prepared and who (committee, organizations, departments, staff, consultants, etc.) was involved in the planning process. It also describes the local government's involvement, the time period in which the plan was prepared, and who to contact to answer questions and make recommendations for future amendments to the plan. The plan was prepared under the guidance of the Monroe County Emergency Management Department due to their familiarity with flooding issues and floodplain management. The County Emergency Management Director also participated in committee meetings and served as a liaison between local unites of government in the County.

DISASTER MITIGATION ACT OF 2000

The development of the Monroe County All Hazards Mitigation Plan 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 Hazard Mitigation Plan. Manmade, such as hazardous waste spills, are encouraged to be addressed, but it is not required.

- 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 Hazards 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.

FIVE PARTS OF ALL HAZARD MITIGATION PLAN

The Monroe County All Hazards Mitigation Plan was categorized into five parts in order to address FEMA's local mitigation plan requirements. This plan was prepared under the direction of the Monroe County Emergency Management Department and the Committee of Jurisdiction.

The five parts are as follow:

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

INVOLVEMENT FROM LOCAL GOVERNMENTS

There were a number of opportunities for the local units of government to become involved in the planning process. Emergency Management Coordinator attended each Town, City and Village Board meetings to discuss this plan. Information regarding potential mitigation problems was received the night of the meeting or further meetings were scheduled for a more inclusive look into problem areas. The concerns of the municipalities were gathered and incorporated into the plan. The municipalities listed are represented in the plan by returning a survey (below).

Name	Title	Name	Title
Kathy Schmitz	Town of Adrian, Clerk	Deborah Ferries	Town of Sheldon. Clerk
Mary Carlisle	Town of Angelo, Clerk	Janice R. Janzen	Town of Sparta, Clerk
Victoria Neitzel	Town of Byron, Clerk	Patricia Christensen	Town of Tomah, Clerk
Mary J. Cook	Town of Clifton, Clerk	Larry Arndt	Town of Wellington, Clerk
Cheryl Scheeter	Town of Glendale, Clerk	Diane Schwarz	Town of Wells, Clerk
Sandy Wood	Town of Grant, Clerk	Rebecca Pitel	Town of Wilton. Clerk
Muriel J. Finch	Town of Greenfield, Clerk	Barbara Pederson	City of Sparta, Clerk
Deb Mashak-Hundt	Town of Jefferson, Clerk	JoAnn Cram	City of Tomah, Clerk
Audrey Zebell	Town of Lafayette, Clerk	Beth Hemmersbach	Village of Cashton, Clerk
Arthur Tralmer	Town of LaGrange, Clerk	Sharon Karis	Village of Norwalk, Clerk
Doug Schroeder	Town of Leon, Clerk	Lynne Hanson	Village of Kendall, Clerk
Lynda Krog	Town of Lincoln, Clerk	Tara Brueggen	Village of Melvina, Clerk
Donna Heuer	Town of Little Falls, Clerk	Lori Brueggen	Village of Wilton, Clerk
Lois M. Anderson	Town of New Lyme, Clerk	Paulette D Bradley	Village of Oakdale, Clerk
Marian M. Belcher	Town of Oakdale, Clerk	Jolene Rhea	Village of Warrens, Clerk
David Milne	Town of Portland, clerk	Joan C. Sutherland	Village of Wyeville, Clerk
Rita Williams	Town of Ridgeville. Clerk	Quentin Graham	Fort McCoy EM
James VanWychen	Town of Scott, Clerk	Nicholas Flugaur	Ho-Chunk Nation Emergency Management
Jack Dittmer	Monroe County Highway Dept		

The plan was developed by the Monroe County Emergency Management staff: Cynthia J. Struve, Coordinator and Kathleen L. Hehn, Administrative Assistant.

NEIGHBORING COMMUNITY INVOLVEMENT

One of the requirements of the planning process was to include neighboring communities. With this requirement in mind, the Monroe County Emergency Management Coordinator sent to the county emergency management staff from surrounding counties a copy of this plan on June 26, 2007, requesting a response and any input they deemed necessary; no input was received.

LOCAL AND REGIONAL AGENCY INVOLVEMENT

Another requirement of the planning process was to involve local and regional agencies 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. Meetings and phone interviews with county department staff, government agencies, and private businesses were done throughout the planning process. In addition to this, Monroe County Emergency Management e-mailed a copy of this plan to each of the agencies listed below and requested them to review it and respond with changes or concerns that were incorporated into the plan.

Fire Districts	Sheriff's Dept	Tomah Memorial Hospital
Monroe County Planning & Zoning Dept.	Mayo – Sparta Campus	Monroe County Land and Water Dept
University of Wisconsin-Extension	School Districts	Highway Dept
Forestry & Parks Dept.	Area Fertilizer Plants	DNR Ranger Station
Public Health	Oakdale Electric	CenturyLink
Mississippi River Regional Planning Commission	Human Services	DNR Drinking Water System

Monroe County Emergency Management	WE Energies	Tomah VA
Fort McCoy Emergency Management	Xcel Energy	

PUBLIC MEETINGS AND HEARINGS

Public hearings were held on August 21, 2008 and May 4, 2011 to review the plan, answer questions and concerns and add information to the plan during the drafting stage and prior to plan approval. A copy of the draft was made available on the Monroe County web site and at the Public Libraries of Cashton, Kendall, Norwalk, Sparta, Tomah and Wilton and the Warrens Village Hall. Any comments and questions about the plan prior to the public hearing were directed to the Monroe County Emergency Management Department (MCEMD). During the public hearing the plan would have been discussed in detail; however, no one from the public showed up at either meeting.

INCORPORATED PLANS, STUDIES, REPORTS, AND TECHNICAL DATA

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

- Monroe County Emergency Operations Plan (March 2009)
- Monroe County Hazardous Materials Response Plan (2009)
- Municipal Emergency Response Plan – City of Sparta (February 2001)
- Municipal Emergency Response Plan – City of Tomah (February 2001)
- Municipal Emergency Response Plan – Village of Wilton (October 2010)
- Municipal Emergency Response Plan – Village of Kendall (September 2009)
- Municipal Emergency Response Plan – Village of Norwalk (April 2010)
- Municipal Emergency Response Plan – Town of Angelo(July 2010)
- Municipal Emergency Response Plan – Town of LaGrange (September 1999)
- Municipal Emergency Response Plan – Town of Ridgeville (September 1999)
- Municipal Emergency Response Plan – Town of Greenfield (September 1999)
- Municipal Emergency Response Plan – Town of Leon (January 2000)
- Municipal Emergency Response Plan – Town of Sparta (January 2010)
- Emergency Action Plan for Lake Tomah, Perch Lake (2003 update)
- Flood Insurance Study…for Monroe County and Incorporated Areas (January 20, 2010)
- Hazard Analysis for the State of Wisconsin (November 2008)
- Flood Plain Ordinance (November 24, 2009)
- Present and Proposed Zoning Ordinance – Monroe County (revised October 28, 2009)
- State of Wisconsin Hazard Mitigation Plan (2009)
- Norwalk Dam 1991 with flow charts updated annually
- Angelo Dams Emergency Action Plan (2003 update)

CONTACT INFORMATION

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PART II – PLANNING AREA

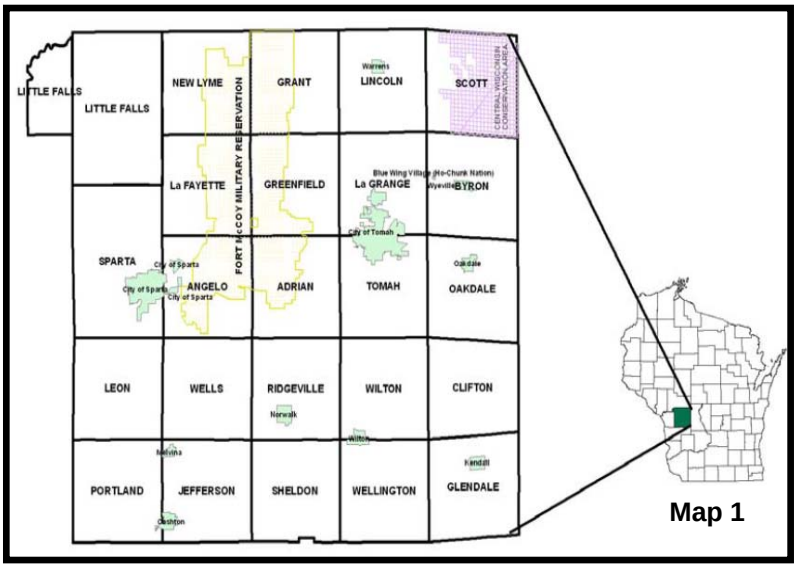
INTRODUCTION

Part II of the Monroe County All-Hazard Mitigation Plan provides political, geographical, and demographic information on Monroe County. This collection of data must be referenced in order to determine sound hazard mitigation strategies. The resulting information is an important element of the planning process, since sound alternative plans cannot be formulated and evaluated without an in-depth knowledge of the relevant conditions in the study area.

GENERAL GEOGRAPHY

LOCATION

Monroe County, established in 1854, is located in west central Wisconsin, **Map 1 (below)** and is bordered on the west by La Crosse County, on the south by Vernon County, on the east by Juneau County, and on the north by Jackson County. The county is approximately 33 miles from east to west and 30 miles across from north to south. The total area is approximately 586,828.8 acres, or 916.92 square miles. The population in 1990 was 36,633, rising to 44,673 in 2010 increasing by 9.2%. Sparta (9,522) and Tomah (9,093) are the largest cities. Sparta is located in the west-central part of the county and is the county seat.



Map 1

The largest city in land area in the county is Tomah, with an area of 8.16 square miles. The smallest city in land area is Sparta, with of 7.01 square miles. Cashton is the largest village in land area, with1.2 square miles. The town with the largest land area is Little Falls, which covers 68.69 square miles. There are 2 cities, 9 villages, and 24 town governments in the County. The Ho-Chunk Nation also owns land in the City of Tomah and Towns of Byron, Greenfield, LaGrange, Leon and Oakdale. The Fort McCoy Military Reservation is located in parts of six townships and encompasses 60,000 acres. The Central Wisconsin Conservation Area, owned primarily by the U.S. Fish and Wildlife Service (USFS) and managed cooperatively by USFWS and Wisconsin DNR, is located on 16,000 acres of Scott Township.

Monroe County lies 155 miles northwest of Milwaukee; 146 miles southwest of Green Bay; 93 miles west of Madison; 91 miles south of Wausau; 78 miles south of Eau Claire; and 23 miles east of La Crosse. Major metropolitan areas outside of Wisconsin with transportation linkages to Monroe County are Chicago, 215 miles southeast; Minneapolis-St. Paul, 133 miles northwest; and Duluth, 206 miles north.

CIVIL DIVISIONS

There are a total of 34 municipalities in Monroe County and the planning area. These units of government provide the basic structure of the decision-making framework. The area and proportion of the County within each civil division are presented in **Table 1**.

Twenty-four townships make up the county. The two largest urban areas are the Cities of Sparta and Tomah. The eight villages are Cashton, Kendall, Melvina, Norwalk, Oakdale, Warrens, Wilton and Wyeville.

TABLE 1	GEOGRAPHICAL SIZE BY CIVIL DIVISION AREA IN SQUARE MILES			
MUNICIPALITY	TOTAL AREA	WATER AREA	LAND AREA	AREA AS % OF COUNTY
TOWN:				
Adrian	35.24	0.01	35.25	3.88%
Angelo	34.55	0.13	34.68	3.80%
Byron	36	0.58	36.58	3.96%
Clifton	34.12	0	34.12	3.75%
Glendale	35.61	0.01	35.62	3.92%
Grant	35.92	0.16	36.08	3.95%
Greenfield	35.38	0.06	35.44	3.89%
Jefferson	34.78	0	34.78	3.82%
Lafayette	35.35	0.04	35.39	3.89%
LaGrange	31.5	1.59	33.09	3.46%
Leon	35.72	0	35.72	3.93%
Lincoln	33.92	0.83	34.75	3.73%
Little Falls	68.84	0.42	69.26	7.57%
New Lyme	36.9	0.49	37.39	4.06%
Oakdale	35.73	0.08	35.81	3.93%
Portland	35.8	0.01	35.81	3.94%
Ridgeville	34.3	0.04	34.34	3.77%
Scott	36.58	2.62	39.2	4.02%
Sheldon	35.35	0	35.35	3.89%
Sparta	48.36	0	48.36	5.32%
Tomah	31.5	0	31.5	3.46%
Wellington	35.45	0	35.45	3.90%
Wells	35.67	0	35.67	3.92%
Wilton	34.92	0	34.92	3.84%
VILLAGES:				
Blue Wing*	0.05	0	0.05	0.01%
Cashton	1.2	0	1.2	0.13%
Kendall	0.76	0	0.76	0.08%
Melvina	0.48	0	0.48	0.05%
Norwalk	1.03	0	1.03	0.11%
Oakdale	0.77	0	0.77	0.08%
Warrens	1.5	0.02	1.52	0.16%
Wilton	0.87	0	0.87	0.10%
Wyeville	0.56	0	0.56	0.06%
CITIES:				
Sparta	6.95	0.06	7.01	0.76%
Tomah	7.77	0.39	8.16	0.85%
MONROE COUNTY:				
Total Land	909.38	7.54	916.92	100%

Source: Monroe County Land Information **Blue Wing Village is part of the Ho-Chunk Nation*

Demographic and Economical Profile

POPULATION AND HOUSEHOLDS

The most recent population estimate by the US Census Bureau is for 2010, which estimates a population of 44,673 people for the County. The Census Bureau estimates the population base for 2009 at 43,760 people. In 2010 approximately 49.788 percent of the population is urban residents and 50.2115 percent are rural. Since 2000, the population of Monroe County has increased by 9.2% or by 8,040 people (***Table 2***). That rate of increase in population is similar than many other areas of the state. If the growth rate continued at this same level, there will be approximately 47,911 people in 2020 in Monroe County.

TABLE 2	POPULATION OF ADJACENT COUNTIES						
COUNTY	1990	2000	2010	NO CHANGE 1990-2000	NO CHANGE 1990-2004	% CHANGE 1990 – 2000	% CHANGE 2000-2010
Monroe	36,633	40,899	44,673	4,266	5,743	12%	9.2%
Jackson	16,588	19,100	20,449	2,512	3,022	15%	7.1%
Juneau	21,650	24,316	26,664	2,666	3,879	12%	9.7%
La Crosse	97,904	107,120	114,638	9,216	10,850	9%	7.0%
Vernon	25,617	28,056	29,773	2,439	3,085	9%	6.1%

Source: U.S. Census Data

Population concentrations and trends are important when prioritizing hazard mitigation strategies. Sparta and Tomah are the most densely populated and developed areas in the county. Other areas of population

concentrations are the villages of Cashton, Kendall, Norwalk, Melvina, Oakdale, Warrens and Wilton, along Highway 27 north in Cataract (Town of Little Falls). **Map 2 (right)** shows areas of population concentrations in the County.

Between 1990 and 2010, most communities within Monroe County have experienced an increase in their population base (***Table 3***). The greatest amount of growth occurred in the Cities of Sparta and Tomah with a 20.72% increase between 2000 and 2010. Between 2000 and 2010, Monroe County saw some of the biggest jumps in the county population for those 35-44 years of age. According to the Department of Workforce Development, this trend will probably continue in the years to come.

Map 2

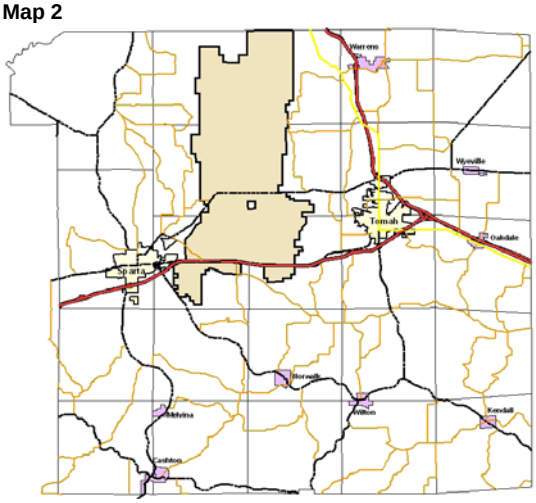


TABLE 3 POPULATION SIZE BY CIVIL DIVISIONS

MINOR CIVIL DIVISION	1990 POPULATION	2000 POPULATION	2008 POPULATION	2010 POPULATION	#CHANGE 1990-2010	% CHANGE 2000-2010
TOWNS						
Adrian	520	682	794	762	242	1.71%
Angelo	1219	1,268	1,431	1,320	77	2.90%
Byron	1,250	1,394	1,580	1,436	92	3.00%
Clifton	587	693	732	732	103	1.54%
Glendale	564	563	616	616	103	1.49%
Grant	346	483	491	491	149	1.11%
Greenfield	556	626	745	669	151	1.58%
Jefferson	815	800	906	845	4	1.83%
Lafayette	297	318	379	348	99	0.89%
LaGrange	1,507	1,761	1,918	1855	500	4.49%
Leon	746	858	921	1,078	340	2.43%
Lincoln	765	827	959	898	70	1.87%
Little Falls	1,137	1,334	1,427	1,540	386	3.41%
New Lyme	156	141	170	157	12	0.38%
Oakdale	643	679	722	798	129	1.73%
Portland	766	686	729	715	42	1.81%
Ridgeville	497	491	540	575	4	1.12%
Scott	120	117	157	119	15	0.30%
Sheldon	521	682	730	707	206	1.63%
Sparta	2,385	2,753	2.837	3,048	743	7.00%
Tomah	1,076	1,194	1.246	1,309	324	3.13%
Wellington	566	544	581	593	55	1.39%
Wells	442	529	854	596	77	1.16%
Wilton	777	925	967	978	250	2.30%
CITIES/VILLAGES						
Cashton	780	1,005	1,055	1,048	322	2.47%
Kendall	453	469	463	460	19	1.06%
Melvina	115	41	88	87	-11	0.23%
Norwalk	564	653	616	604	74	1.43%
Oakdale	162	297	312	319	135	0.66%
Warrens	343	286	347	3,407	20	0.81%
Wilton	478	519	544	533	26	1.13%
Wyeville	154	146	140	135	-7	0.33%
Sparta	7,788	8,643	8,823	9,067	1,734	21.31%
Tomah	7,570	8,419	8,664	8,860	1,523	20.35%
MONROE COUNTY						
Total	**36,665**	**40,905**	**43,350**	**43,760**	**8008**	**100.00%**

Source: U.S. Census Data (Official 2000 census information)

EMPLOYMENT

Industry is the principal area of employment especially manufacturing, playing an important role in this county. This is followed by small businesses and recreational sector services. Most of the private sector employees in the Monroe County area employ fewer than 100-250 people at each site. There are few large employers with employment levels of 500-1000 people. Manufacturing accounts for a little over 3,000 jobs in the area, which is a

somewhat higher number than is usually found in a rural county the size of Monroe. As seen in **Table 4**, many of the jobs are in manufacturing, retail trade, accommodation and food service. Identifying locations of large employment is important when prioritizing hazard mitigation strategies.

TABLE 4 TOTAL FULL-TIME AND PART-TIME EMPLOYMENT BY INDUSTRY

INDUSTRY	NUMBER OF JOBS 2006	2007	2008	2009
Total employment	27,228	27,264	27,890	26,777
Wage and salary employment	20,981	21,098	21,490	20,774
Proprietors employment	6,247	6,166	6,400	6,003
Farm proprietors employment	1,849	1,922	1,919	1,900
Non-farm proprietors employment (2)	4,398	4,244	4,481	4,103
Farm employment	2,171	2,372	2,372	2.342
Non-farm employment	25,057	24,892	25,518	24,435
Private employment	20,447	20,195	20,594	19,317
Forestry, fishing, related activities, and other (3)	(D)	(D)	(D)	(D)
Mining	(D)	(D)	(D)	(D)
Utilities	(D)	(D)	(D)	(D)
Construction	1,301	1,180	1,156	1,075
Manufacturing	4,356	4,154	4,047	3,548
Wholesale trade	(D)	(D)	(D)	(D)
Retail trade	2,822	2,723	2,831	2,686
Transportation and warehousing	2,163	2,316	2,372	2,226
Information	170	154	150	151
Finance and insurance	584	616	645	677
Real estate and rental and leasing	474	539	585	515
Professional and technical services	628	(D)	(D)	700
Management of companies and enterprises	86	(D)	(D)	90
Administrative and waste services	1,071	1,002	1,089	1,024
Educational services	199	171	136	145
Health care and social assistance	1,958	1,943	2,005	2,020
Arts, entertainment, and recreation	157	192	202	208
Accommodation and food services	2,364	2,269	2,266	2,069
Other services, except public administration	1,274	1,242	1,328	1,234
Government and government enterprises	4,610	4,697	4,924	5,118
Federal, civilian	2,146	2,193	2,321	2,500
Military	207	196	223	184
State and local	2,257	2,308	2,380	2,434
State government	204	207	208	207
Local government	2,053	2,101	2,172	2,227

Source: U.S. Department of Commerce, Bureau of Economic Analysis (table CA25 NAICS – April 2008)

1. The estimates of employment for 2001-2006 are based on the 2002 North American Industry Classification System (NAICS).
2. Excludes limited partners.
3. "Other" consists of the number of jobs held by U.S. residents employed by international organizations and foreign embassies and consulates in the United States.

(D) Not shown to avoid disclosure of confidential information, but the estimates for this item are included in the totals.

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 5 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.

TABLE 5 2010 EQUALIZED VALUES BY MUNICIPALITY

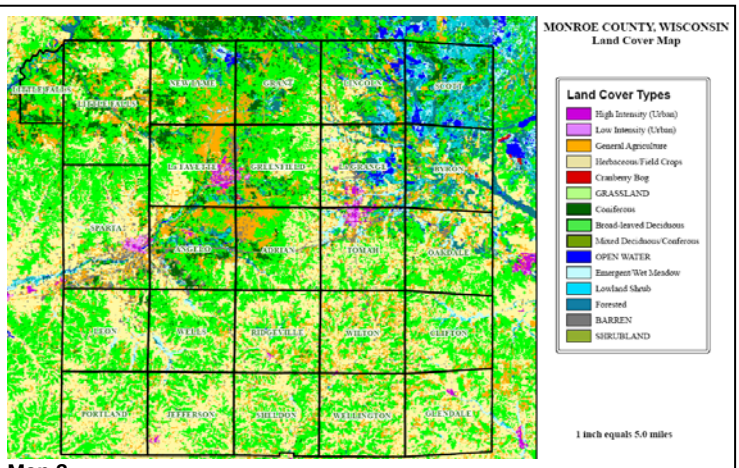
MUNICIPALITY	REAL ESTATE	PERSONAL PROPERTY	TOTAL	% OF TOTAL
TOWNS:				
Adrian	57,165,000	207,100	57,372,100	2.17%
Angelo	61,946,500	439,400	62,385,900	2.36%
Byron	85,326,400	4,352,100	89,678,500	3.39%
Clifton	34,836,300	173,300	35,009,600	1.32%
Glendale	36,211,900	91,900	36,303,800	1.37%
Grant	39,039,500	318,700	39,358,200	1.49%
Greenfield	54,869,100	3,155,800	58,024,900	2.19%
Jefferson	32,949,400	238,700	33,188,100	1.25%
Lafayette	20,239,000	132,600	20,371,600	0.77%
LaGrange	132,271,700	584,300	132,856,000	5.02%
Leon	78,344,000	205,000	78,549,000	2.97%

TABLE 5	2010 EQUALIZED VALUES BY MUNICIPALITY			
MUNICIPALITY	REAL ESTATE	PERSONAL PROPERTY	TOTAL	% OF TOTAL
TOWNS:				
Lincoln	70,546,200	1,045,500	71,591,700	2.70%
Little Falls	108,359,300	784,700	109,144,000	4.12%
New Lyme	21,153,000	199,800	21,352,800	0.81%
Oakdale	55,040,700	126,500	55,167,200	2.08%
Portland	47,090,200	561,400	47,651,600	1.80%
Ridgeville	33,450,700	805,700	34,256,400	1.29%
Scott	11,962,400	210,400	12,172,800	0.46%
Sheldon	28,745,500	180,300	28,925,800	1.09%
Sparta	199,873,600	766,500	200,640,100	7.57%
Tomah	92,895,900	4,336,100	97,232,000	3.67%
Wellington	31,147,300	37,700	31,185,000	1.18%
Wells	39,397,600	160,600	39,558,200	1.49%
Wilton	37,711,400	50,600	37,762,000	1.43%
CITIES AND VILLAGES:				
Cashton	49,456,800	12,445,100	61,901,900	2.34%
Kendall	17,181,100	422,600	17,603,700	0.66%
Melvina	2,178,500	21,400	2,199,900	0.08%
Norwalk	13,750,300	217,600	13,967,900	0.53%
Oakdale	19,480,600	1,429,300	20,909,900	0.79%
Warrens	67,476,700	855,000	68,331,700	2.58%
Wilton	22,501,100	361,900	22,863,000	0.86%
Wyeville	5,094,500	30,400	5,124,900	0.19%
Sparta	428,156,700	22,391,000	450,547,700	17.01%
Tomah	526,192,700	29,406,700	555,599,400	20.98%
MONROE COUNTY:				
Total	**2,562,041,600**	**86,745,700**	**2,648,787,300**	**100%**

Source: Department of Revenue

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. **Map 3 (right)** shows the land use and surface water in Monroe County.



Map 3

FORESTRY AND AGRICULTURE

The dominant land-use in Monroe County is forestry and agriculture. Land area in the County is approximately 31.13 percent woodland. Agricultural land covers another 60.36 percent of the county's land area. The main agriculture practices in the county are dairy and beef cattle farming, and forage and row crop production. The county also has about 3,654 acres of land in cranberry production, primarily in Lincoln, LaGrange and Scott Township. There are small greenhouse and fresh market vegetable farms primarily in the southern part of the county. Agriculture is common throughout the county.

According to the "Wisconsin Agricultural Statistic Service", Monroe County has lost 15,469 acres of farmland between 1990 and 2008 the latest statistics available.

RESIDENTIAL DEVELOPMENT

Land in residential development makes up .79% 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 visual preferences as various types of housing have clustered along the higher areas in the county such as bluffs and ridges. Areas of growth are on the west side of Sparta along St Hwy 16

towards La Crosse, as Sparta is limited in growth to the east with Fort McCoy on the north side of St Hwy 16. Tomah's growth can be expected on all sides as they are not limited. The villages are not limited so expansion can be expected on all sides. Housing Occupancy in 2009 was 19,283 with total housing units at 17,408 and vacancies of 1,875.

COMMERCIAL AND INDUSTRIAL DEVELOPMENT

Commercial and industrial development makes up only about 0.51 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 Monroe County. They are in the Cities of Sparta and Tomah. Other industrial sites are located in the Townships of Cashton and Norwalk.

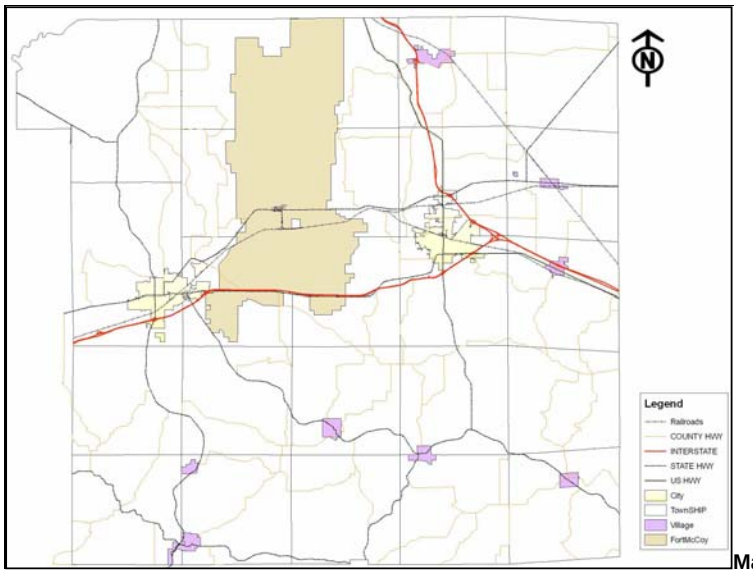
Commercial activity is located in the Cities of Sparta and Tomah where it serves as a sub regional service center supported by the surrounding agri-business and tourist industry. Private commercial recreation primarily dominates commercial activity in the unincorporated areas.

TRANSPORTATION

The transportation system of Monroe 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 the major accidents or spills of hazardous materials. Trucks are the most common way of transporting hazardous materials, accounting for as much as 94% of all hazardous material shipments nationwide according to the USDOT.

Major highways link Monroe County to some of the major cities located in Wisconsin, Minnesota and Illinois such as La Crosse, Wisconsin Dells, Madison, Milwaukee, Eau Claire, Rochester, Minneapolis-St. Paul and Chicago. These are the arteries, which feed Monroe County its workforce, visitors, goods, and resources.

Map 4 (right) shows the Monroe County transportation system. US Highway 12 runs northeast through the northern third of the county, Two (2) Interstate Highways, 90 and 94 run east and west through the county, the interstate divides just east of the city of Tomah and five State Highways 16, 21, 27, 33, 71, 131, 173, and 162 provide 167 miles of highway access to Monroe County. State Highways 27, 71and 131 run north and south through the center of the county; State Highway 21 runs east and west through the northern third of the county; State Highway 33 runs east and west near the southern border of the county and State Highway 162 runs north and south along the western border of the county. The county also maintains an additional 231 miles of its own highway system, along with 1,107 miles of local roads.



Map 4

Canadian Pacific and Union Pacific Railways serve Monroe County (AMTRAK uses the Canadian Pacific rail lines). Although trucks transport most of the hazardous materials in the state, significantly larger and various loads can be transported across rail. Approximately 80-100 trains are passing through or delivering goods to Monroe County on a daily basis, with the more extremely hazardous loads being transported through the county during the evening or nighttime hours.

The Sparta Municipal Airport with 4,708 feet of primary runway and Tomah "Bloyer Air Field" are located east of their respected cities. They are a basic utility-B airport that is designed to accommodate aircraft of less than 12,500 pounds gross weight, with approach speeds below 121 knots and wingspans of less than 49 feet.

TABLE 6 MONROE COUNTY TRANSPORTATION ASSESSMENT

MUNICIPALITY	FED/STATE NUMBERED HIGHWAYS ARTERIAL MILES (2)	FED/STATE NUMBERED HIGHWAYS COLLECTOR MILES (2)	COUNTY HWY MILES (2)	TOWN ROADS (2)	VILLAGE / CITY STREETS (2)	TOTAL HWY MILES	CANADIAN PACIFIC / UNION PACIFIC RAIL MILES	AMTRAK	TOTAL RAIL MILES
TOWNS:									
Adrian	6.22	5.99	8.89	36.27		57.37			
Angelo	8.76	6.33	10.33	23.56		48.98	4.72	4.72	9.44
Byron	7.42		11.98	46.41		65.81	12.34		12.34
Clifton	0.42		20.58	41.63		62.63			
Glendale	5.80		15.86	51.86		73.52			
Grant	3.53	1.15	6.85	21.82		33.35	1.75		1.75
Greenfield	5.93		10.69	27.43		44.05	3.68	3.00	6.68
Jefferson	6.96		14.77	40.58		62.31			
Lafayette	3.85		17.12	10.57		31.54	2.62	2.62	5.24
LaGrange	7.75	7.78	15.04	45.69		76.26	6.69	6.69	13.38
Leon	4.79		13.12	35.07		52.98			
Lincoln	3.64	5.92	17.72	35.37		62.65	6.76		6.76
Little Falls	16.12		18.09	73.94		108.15			
New Lyme	0.00		8.34	15.91		24.25			
Oakdale	7.91	6.72	15.67	37.26		67.56	8.46	6.71	15.17
Portland	12.96		12.56	45.13		70.65			
Ridgeville	5.68		19.59	39.11		64.38			
Scott	6.08		8.94	25.59		40.61			
Sheldon	7.71		10.50	46.69		64.90			
Sparta	7.75	6.28	13.14	70.76		97.93	4.51	4.51	9.02
Tomah	6.59	6.57	12.67	45.67		71.50	1.45	1.45	2.90
Wellington	2.56		21.54	44.74		68.84			
Wells	8.73		16.54	25.69		50.96			
Wilton	11.42		13.47	35.79		60.68			
VILLAGES:									
Cashton	1.45		0.62		11.47	13.54			
Kendall	1.13	1.47	1.45		3.60	7.65			
Melvina	0.76				1.57	2.18			
Norwalk	1.73		1.00		3.58	6.31			
Oakdale	0.97	1.08	1.15		2.31	3.33			
Warrens	0.00	0.50	1.80		6.77	3.25	0.98		0.98
Wilton	1.27		0.42		3.59	5.28			
Wyeville	0.87		0.00		3.33	4.20	2.49		2.49
CITIES									
Sparta	6.91		1.03		44.00	51.94	2.57	2.57	5.14
Tomah	7.70	2.74	3.52		98.00	111.96	3.70	3.70	7.40
MONROE COUNTY:									
Total	181.37	52.53	346.07	922.54	178.22	1671.50	62.72	35.97	98.69

(2) There are five jurisdictional classifications: Interstate Highways (Example I94), State System Highways (Examples USH 12-Sth 27), County Highways (Example CTH B), Town Roads (Examples Acorn Ave), and Village/City Streets (Example Main Street). Within incorporated areas (villages/cities), highways marked as state systems or county roads will be classed by mileage by that system – even though they may also carry a local street name. The State system highways are either identified by functional classification – Principal/Minor Arterial (example USHs 12/16, STH 27, STH 33) or as Major/Minor collectors (examples STH 33). Some local roads that are not identified as state systems roads may be a "federal aid" road.

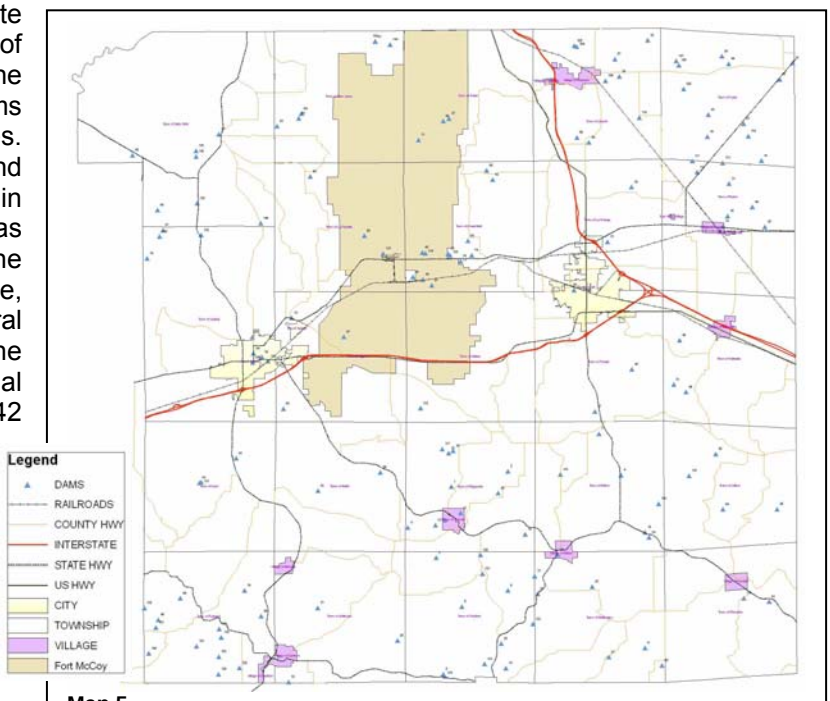
SURFACE WATER

The northeastern and east-central parts of the county are part of the lake basin of Glacial Lake Wisconsin. All of the major drainage ways in Monroe County have their headwaters within the county, with the exception of the Black River in the northwestern corner. The La Crosse and Little La Crosse Rivers drain much of the west-central part of the county. The Lemonweir and Little Lemonweir Rivers drain much of the eastern part of the county.

The majority of the land in the County is part of the Central and Upper Wisconsin River Basins with a small portion in the Mississippi River and Black River Basin. Five main watersheds make up the two Wisconsin River basins in Monroe County – Lemonweir, Black River, La Crosse, Kickapoo and Baraboo Rivers.

Within the watersheds, there are 179 interior streams covering 531.7 linear miles and 702 surface acres ***(Map 7, pp 15)***, but 68 named streams and 111 unnamed streams possessing 85.5 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 shore land zoning and physical protective measures.

Streams in Monroe County contribute relatively large and constant amounts of groundwater base flow to the streams. The total surface water area of lakes and streams in Monroe County exceeds 1,077 acres. Monroe county Flowage (263 acres) and North Flowage (247 acres) are the largest in the county with Lake Tomah (225 acres) as the third largest in the county. Most of the counties in the west central part of the state, Monroe County has relatively few natural lakes of any significance, primarily in the pitted outwash area east of the terminal moraine. Twenty -eight interior lakes add 342 acres, of which 13 have surface areas of 5 or less acres. Sixteen lakes have maximum depths of less than 10 feet. The three flowages and the 27 named lakes provide the bulk of the County's high quality lake resources. Named lakes have a total of about 32.43 miles of shoreline, and unnamed lakes add another 106.11miles.



Map 5

Lake Wazeda (Lincoln Township), Lake Tomah (City of Tomah), Angelo Pond (Angelo Township), Perch Lake (City of Sparta) and the cranberry flowages in the upper east tiers of the towns. **Map 5 (above)** shows the location of these dams. The three lakes were designed for recreational and economic purposes related to property development. The lakes were formed by artificially constructing earthen dams made of native soil materials across the river valleys.

Dams are classified as Low, Significant or High Hazard. A dam is assigned a rating of High Hazard when its failure would put lives at risk. The "Hazard" rating is not based on the physical attributes, quality or strength of the dam itself, but rather the potential for loss of life or property damage should the dam fail.

TABLE 7 DAMS IN MONROE COUNTY WI

OBJECT ID #	DAM - OFFICIAL NAME	DAM - POPULAR NAME	STATUS	SIZE	DOWN CITY MILES AMOUNT	HAZARDOUS RATING ODE
1	TRI CREEK NUMBER ONE			LARGE	NORWALK - 2	H
2	MCMULLIN, ROGER E			LARGE	NONE	L
3	HALDEMAN			LARGE	NONE	L
4	KICKAPOO SPRINGS			SMALL		
5	DOBBS,LARRY			SMALL		
6	WINANS, ROGER L.			SMALL		
7	WOLF, TOM			SMALL		
8	ERPENBACH, HUBERT	LAVERNE SCHMITZ		SMALL		
9	GORN,KEITH			SMALL		
10	KOEBERNICH,K.G.	WILTON ROD AND GUN CLUB		SMALL		
11	LUETHE,LLOYD L.			SMALL		
12	MUEHLENKAMP, GLEN			SMALL		
13	NOFSINGER,ELMER			SMALL		
14	RUECKHEIM, LEONARD			SMALL		
15	VON RUDEN, ANTON			SMALL		
16	WINSTON,EMANUEL			SMALL		
17	HENZE,DALE			SMALL		
18	LAUFENBERG,HENRY			SMALL		
19	WALKER, GEORGE			SMALL		
20	SLETTEN, DUANE			SMALL		
21	KOTTEN, BERNARD			SMALL		
22	YAGER'S DAM	YAGER'S DAM	ABAND			
23	OLD VOGEL DAM	OLD VOGEL DAM	ABAND			
24	MCDANIEL			SMALL		L
25	DURBROW			SMALL		
26	HURTZ			SMALL		L
27	BURCH			SMALL		L
28	HANSEN		PLAND	SMALL		L
29	TOMAH LAKE			LARGE	TOMAH -0	H
30	NORTH SCOTT TOWNSHIP	TIMBER DAM NO.4		SMALL	NONE	L
31	DANDY CREEK 9			LARGE	NONE	L
32	DANDY CREEK 11			LARGE	NONE	L
33	NORTH TOMAH CRANBERRY CO			LARGE	NONE	L
34	WATER MILL			LARGE	NONE	L
35	STROZEWSKI	MAIN & EAST OUTLETS		LARGE	NONE	L

TABLE 7 DAMS IN MONROE COUNTY WI

OBJECT ID #	DAM - OFFICIAL NAME	DAM - POPULAR NAME	STATUS	SIZE	DOWN CITY MILES AMOUNT	HAZARDOUS RATING ODE
36	JENSEN			LARGE	NONE	L
37	DANDY CREEK 236-C			SMALL	NONE	L
38	DANDY CREEK 2	BUSHING,DON		SMALL	NEW LISBON-14	L
39	DANDY CREEK 4	USDI BSFW		SMALL	WYEVILLE-4	L
40	DANDY CREEK 5	PEDERSON,AGNES		SMALL	NEW LISBON-16	L
41	DANDY CREEK 7	USDI BSFW		SMALL	NEW LISBON-18	L
42	DANDY CREEK 10	A WENNINGER,T BURBULIS		SMALL	NEW LISBON-16	L
43	DANDY CREEK 12	USDI BSFW (US INTERIOR DEPT)		SMALL		
44	DANDY CREEK 13	B.M. PALLASH		SMALL		
45	STELTER, GORDEN			SMALL		
46	OLSON,ARNOLD			SMALL		
47	KLITZKE,DALE	BURNSTAD AND KLITZKE		SMALL		
48	HENDERSON, JOHN A.			SMALL		
49	BEHRENS, GARLAND			SMALL		
50	CLARK	JOE RICE		SMALL		
51	CHRISTENSEN, LEROY			SMALL		
52	STEELE, ROBERT E.			SMALL		
53	DANDY CREEK 236-A	WI DNR		SMALL		
54	WARSAW, NEIL			SMALL		
55	DANDY CREEK 236-B	WI DNR		SMALL		
56	COOK, DALE			SMALL		
57	SELZ					
58	GEORGE		PLAND	SMALL		L
59	HELMING			SMALL		L
60	RUMPE		PLAND	SMALL		L
61	FRIEDL, HARRY			SMALL	ELROY-5	
62	HABELMAN	LOWER STRUCTURE		LARGE	NONE	L
63	EVANS POND	WI DNR	ABAND-1998	SMALL	CATARACT DAM-3	L
64	SULLIVAN, DAVE			SMALL		
65	WILDES-SCHENESE-WISEMAN	KEN WILDS		SMALL		
66	CARDOZA,LESTER			SMALL		
67	CATARACT	CATARACT MILL DAM	OWNER	SMALL		
68	MOSKONAS			SMALL		L
69	PARKHURST		PLAND	SMALL		L
70	PAPER MILL			LARGE	SPARTA -0	S
71	ALDER LAKE	ALDERWOOD LAKE		LARGE	CAMP MCCOY-6	L
72	ANGELO			LARGE	ANGELO-0	L
73	SPRING BANK	SPRING BANK CORP.		SMALL	ANGELO - 9	S
74	FLORA DELL	LORA DELL ASSOC.		SMALL	ANGELO-10	S
75	WILLIAM HALL	NINNEMAN,THOMAS		SMALL	NONE	L
76	ROCK GARDEN	RAPHAEL EIRSCHELE		SMALL		L
77	PINNACLE ROCK	WI DNR		SMALL		
78	JOHNSON,MONROE			SMALL		
79	TREU, JAMES	ARVARD B. GARVES		SMALL		
80	JORDAN,DONALD			SMALL		
81	LEIS, ERNEST B.			SMALL		
82	LINTON, JOHN	ORWOOD S. ASHLEY		SMALL		
83	YOUNG,TOM NO.1			SMALL		
84	HALL, FAY R.			SMALL		
85	SPARTA ROD AND GUN CLUB	WARREN KASTBERG		SMALL		
86	MILLER,EUGENE F.			SMALL		
87	HAZEL DELL LAKE				FORT MCCOY-7	
88	FORT MC COY			LARGE	FORT MCCOY-0	L
89	HABELMAN , RAY , ETAL					
90	STILLWELL CR					
91	FORT MC COY				FORT MCCOY -0	
92	UPPER BEAVER CREEK DAM	UPPER BEAVER CREEK DAM	ABAND			
93	LEON DAM	LEON DAM	ABAND			
94	BUNNELLS DAM	BUNNELLS DAM	ABAND			
95	SPARTA CREEK DAM	SPARTA CREEK DAM	ABAND			
96	DINSMORE DAM	DINSMORE DAM	ABAND			
97	SILVER CREEK DAM	SILVER CREEK DAM	ABAND			
98	COON CREEK 31			LARGE	NONE	H
99	COON CREEK 29			LARGE	NONE	L
100	COON CREEK 53			LARGE	NONE	H
101	COON CREEK 25			LARGE	NONE	L
102	COON CREEK 23			LARGE	NONE	L
103	LEE,HOWARD	ARY OLSEN		SMALL		
104	SHERK LOWER	LOWER		SMALL	NONE	L
105	SHERK UPPER	UPPER			NONE	L
106	GEBHARDT, VERN			SMALL		
107	POTTER (UPPER RESERVOIR)	UPPER WEST AND EAST STRUCTRS		LARGE	NONE	L
108	POTTER (LOWER RESERVOIR)	MAIN STRUCTURE		LARGE	NONE	L
109	WETHERBY			LARGE	NONE	L
110	JOHNSON			LARGE	NONE	L
111	VALLEY CORPORATION	UPPER		LARGE	WYEVILLE -3	L
112	VALLEY CORPORATION	LOWER		LARGE	WYEVILLE-3	L
113	DANDY CREEK 6	MEADOW VALLEY WORK UNIT #14		LARGE	NONE	L
114	DANDY CREEK 8	USDI BSFW		SMALL	NEW LISBON-19	L
115	COOK,ALVIN			SMALL		
116	ECKELBERG, LOREN			SMALL		
117	DONSKEY,RAYMOND			SMALL		
118	WAEGE		PLAND	SMALL		L
119	PREUSS, GEORGE			SMALL		
120	LEIS, JEROME			SMALL		
121	VIETH, ALVIN			SMALL		
122	KOHLHOF,ADOLF			SMALL		
123	BREY,EARL			SMALL		
124	DOBBS,LARRY			SMALL		
125	MITCHELL,LESTER			SMALL		

TABLE 7 DAMS IN MONROE COUNTY WI

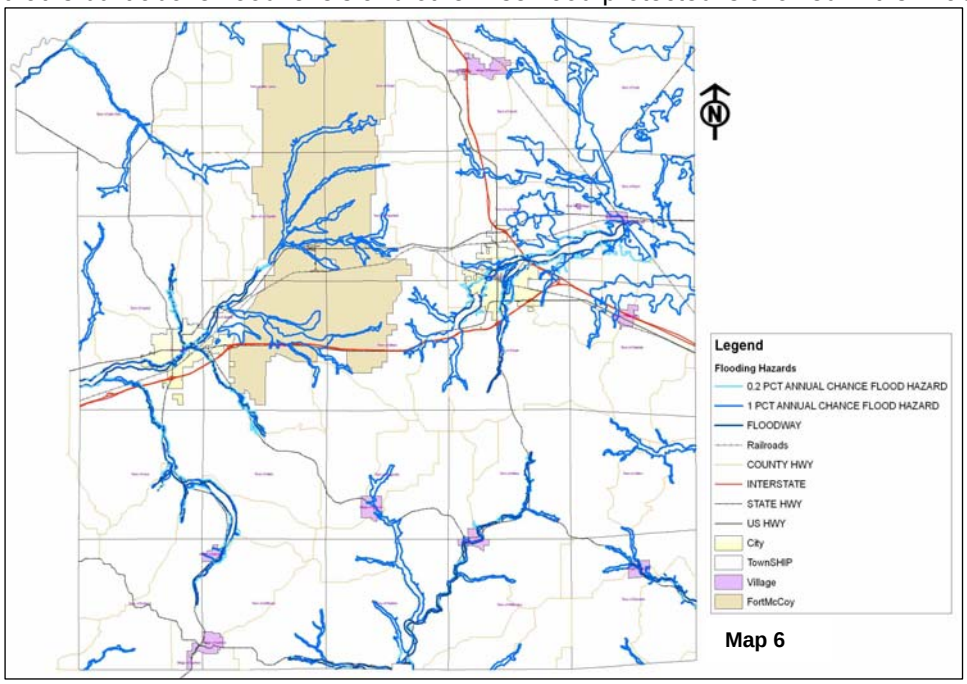
OBJECT ID #	DAM - OFFICIAL NAME	DAM - POPULAR NAME	STATUS	SIZE	DOWN CITY MILES AMOUNT	HAZARDOUS RATING ODE
126	COON CREEK 21	LUCKASON DAM		LARGE	NONE	L
127	PETERSON,JON			SMALL		
128	COON CREEK 24			LARGE	NONE	H
129	CAULUM, LAWRENCE					
130	MOLSTAD, GEORGE			SMALL		
131	YOUNG,TOM NO.2			SMALL		
132	DONSKEY,JOHN			SMALL		
133	FORT MC COY					
134	STORKEL	OD USA		SMALL	NONE	L
135	NINNEMAN, THOMAS			SMALL		
136	CITY MILLS DAM	CITY MILLS DAM	ABAND			
137	GILMAN DAM	GILMAN DAM	ABAND			
138	KELLY, JOHN J.	ELBROS INC.		SMALL		
139	ANDERSON, VERDELL	HOODED INLET DAM		SMALL		
140	MCCOY, ALAN			SMALL		
141	TEASDALE, HOWARD NO.2					
142	TEASDALE, HOWARD NO.1					
143	HABELMAN	MAIN STRUCTURE		LARGE	NONE	L
144	HABELMAN	UPPER STRUCTURE		LARGE	NONE	L

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.



Map 6

For regulatory purposes, a floodplain is generally defined as land where there is a one percent chance of flooding in any year (also known as the 100-year floodplain).

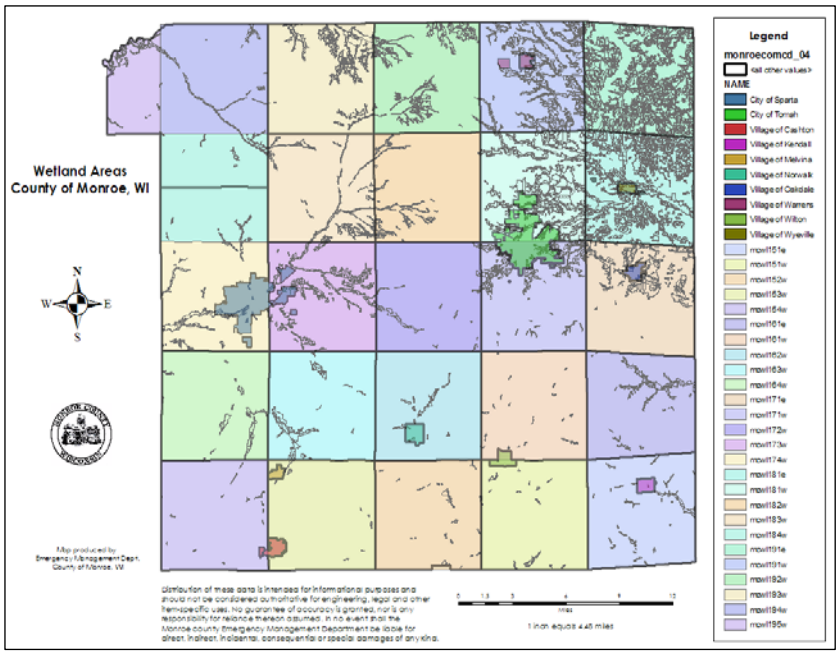
In order to participate in the Federal Emergency Management Agency's (FEMA) National Flood Insurance Program, the County, two cities and all 8 villages have completed a Flood Insurance Study and a Flood Insurance Rate Map (FIRM) that encompasses Monroe County. This FIRM delineates the "A" Zones including the floodway and flood fringe which are those

areas inundated by the 100-year flood within the County. According to the FIRMs, there are 19,016 acres of floodplain in Monroe County, or 4.6 percent of the land area. **Map 6 (previous page, bottom left)** shows the approximate floodplains in Monroe County. Floodplains in Monroe County are small and floods occur only during periods of exceptionally heavy rainfall.

Monroe County Zoning Department hosted a FEMA Flood Map Update Scoping Meeting on September 18, 2006 and brought together all local, state and federal stakeholders within the county. The intent of the meeting was to discuss data sharing opportunities, review current types of county maps, identify unique flood mapping areas (levees, reservoirs…), discuss mapping needs, share handouts and acquire contact information. The project will modernize the 1982 Flood Maps by re-delineating the 100-year and 500-year flood maps. The project will be completed by CDM in approximately 27 months.

WETLANDS

Wetlands perform many indispensable roles in the proper 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 are able to 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.



Map 7

The DNR has also identified the location of wetlands on their WISCLAND database, according to this; Monroe County has 56,000 acres, or 10 percent of its total area. **Map 7 (right)** shows these wetland areas in Monroe County. There are concentrations of wetlands in Monroe County including the cranberry bogs in the Townships of Scott, Lincoln, LaGrange and Byron. 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.

Table 8 shows the flooding potential by township, cities and villages. A total of 2010 land value, assessed improvement value and total assessed value are totaled by township, city and villages and a total of all township, cities and villages followed by a total of the county flooding monetary assessment. There are three (3) current residences that are repetitive losses; 2 are in the City of Tomah and 1 in the Town of Portland. (This table is a work in progress).

TABLE 8 STRUCTURES IN THE FEMA 100-YEAR FLOODPLAIN

MUNICIPALITY	STRUCTURE TYPE	2010 LAND VALUE	2010 ASSESSED IMPROVEMENT VALUE	TOTAL ASSESSED VALUE
T. Little Falls	Building	8,300.00	27,700.00	36,000.00
T. Little Falls	Building	2,500.00		2,500.00
T. Little Falls	Resident	52,300.00	95,600.00	147,900.00
T. Little Falls	Resident	25,400.00	107,800.00	133,200.00
T. Little Falls	Resident	15,900.00	71,200.00	87,100.00
T. Little Falls	Resident	19,200.00	133,200.00	152,400.00
T. Little Falls	Resident	73,300.00	196,400.00	269,700.00
T. Little Falls	Resident	49,800.00	231,000.00	280,800.00
T. Little Falls	Business	1,000.00		1,000.00

TABLE 8 STRUCTURES IN THE FEMA 100-YEAR FLOODPLAIN

MUNICIPALITY	STRUCTURE TYPE	2010 LAND VALUE	2010 ASSESSED IMPROVEMENT VALUE	TOTAL ASSESSED VALUE
T. Little Falls	Resident	32,500.00	81,100.00	113,600.00
T. Little Falls	Resident	18,000.00	119,200.00	137,200.00
T. Little Falls	Historical	Exempt	Exempt	0.00
T. Little Falls	Resident	28,000.00	78,600.00	106,600.00
T. Little Falls	Resident	47,300.00	90,100.00	137,400.00
T. Little Falls	Resident	29,300.00	118,600.00	147,900.00
T. Little Falls	Resident	47,300.00	90,100.00	137,400.00
T. Little Falls	Resident	13,900.00	152,700.00	166,600.00
T. Little Falls	Resident	20,300.00	63,100.00	83,400.00
T. Little Falls	Resident	13,000.00	141,000.00	154,000.00
T. Little Falls	Resident	16,700.00	120,700.00	137,400.00
T. Little Falls	Resident	12,500.00		12,500.00
T. Little Falls	Resident	26,700.00	110,000.00	136,700.00
T. Little Falls	Resident	15,500.00	31,800.00	47,300.00
T. Little Falls	Resident	2,600.00		2,600.00
T. Little Falls	Resident	15,500.00	25,800.00	41,300.00
T. Little Falls	Resident	12,500.00	135,800.00	148,300.00
T. Little Falls	Resident	24,100.00	32,100.00	56,200.00
T. Little Falls	Resident	12,500.00	55,300.00	67,800.00
T. Little Falls	Resident	13,600.00	75,900.00	89,500.00
T. Little Falls	Resident	12,500.00	84,200.00	96,700.00
T. Little Falls	Resident	15,500.00	51,000.00	66,500.00
T. Little Falls	Resident	28,000.00	167,800.00	195,800.00
T. Little Falls	Resident	15,500.00	67,600.00	83,100.00
T. Little Falls	Resident	12,500.00	68,600.00	81,100.00
T. Little Falls	Resident	23,300.00	70,100.00	93,400.00
T. Little Falls	Resident	15,500.00	24,000.00	39,500.00
T. Little Falls Totals		**772,300.00**	**2,918,100.00**	**3,690,400.00**
T. New Lyme	Resident	27,700.00	185,700.00	213,400.00
T. New Lyme	Resident	28,900.00	218,100.00	247,000.00
T. New Lyme	Business	24,700.00	1,328,400.00	1,353,100.00
T. New Lyme	Business	14,200.00	76,600.00	90,800.00
T. New Lyme	Business	12,900.00	86,100.00	99,000.00
T. New Lyme Total		**108,400.00**	**1,894,900.00**	**2,003,300.00**
T. Lincoln	Resident	18,200.00	160,300.00	178,500.00
T. Lincoln	Business	34,400.00	0.00	34,400.00
T. Lincoln	Resident	19,000.00	104,200.00	123,200.00
T. Lincoln	Resident	15,300.00	108,900.00	124,200.00
T. Lincoln	Business	34,400.00	0.00	34,400.00
T. Lincoln	Resident	8,400.00	11,780.00	20,180.00
T. Lincoln	Resident	21,400.00	127,000.00	148,400.00
T. Lincoln	Resident	22,400.00	118,000.00	140,400.00
T. Lincoln Total		**173,500.00**	**630,180.00**	**803,680.00**
T. Scott	Business	44,600.00	263,900.00	308,500.00
T. Scott	Business	27,100.00	170,000.00	197,100.00
T. Scott	Business	27,800.00	79,100.00	106,900.00
T. Scott	Business	71,900.00	566,600.00	638,500.00
T. Scott Total		**171,400.00**	**1,079,600.00**	**1,251,000.00**
T. Greenfield	Resident	40,500.00	72,300.00	112,800.00
T. Greenfield	Resident	20,000.00	40,200.00	60,200.00
T. Greenfield	Resident	12,000.00	18,000.00	30,000.00
T. Greenfield	Resident	21,100.00	48,300.00	69,400.00
T. Greenfield	Resident	10,700.00	134,600.00	145,300.00
T. Greenfield	Resident	4,500.00	96,000.00	100,500.00
T. Greenfield	Building	21,700.00	227,700.00	249,400.00
T. Greenfield	Resident	11,500.00	208,600.00	220,100.00
T. Greenfield	Resident	53,100.00	70,500.00	123,600.00
T. Greenfield	Resident	437,600.00	24,100.00	461,700.00
T. Greenfield				0.00
T. Greenfield				0.00
T. Greenfield				0.00
T. Greenfield				0.00
T. Greenfield				0.00
T. Greenfield				0.00
T. Greenfield				0.00

TABLE 8 STRUCTURES IN THE FEMA 100-YEAR FLOODPLAIN

MUNICIPALITY	STRUCTURE TYPE	2010 LAND VALUE	2010 ASSESSED IMPROVEMENT VALUE	TOTAL ASSESSED VALUE
T. Greenfield				0.00
T. Greenfield	Resident	78,600.00		78,600.00
T. Greenfield				0.00
T. Greenfield				0.00
T. Greenfield				0.00
T. Greenfield				0.00
T. Greenfield				0.00
T. Greenfield				0.00
T. Greenfield				0.00
T. Greenfield				0.00
T. Greenfield				0.00
T. Greenfield Totals		**711,300.00**	**940,300.00**	**1,651,600.00**
T. LaGrange	Resident	23,200.00	8,400.00	31,600.00
T. LaGrange	Resident	14,800.00	3,100.00	17,900.00
T. LaGrange	Resident	38,900.00	127,100.00	166,000.00
T. LaGrange	Resident	16,600.00	78,100.00	94,700.00
T. LaGrange	Business	35,700.00	214,700.00	250,400.00
T. LaGrange	Resident	33,000.00	706,600.00	739,600.00
T. LaGrange	Resident	13,000.00	107,100.00	120,100.00
T. LaGrange	Resident	22,900.00	89,100.00	112,000.00
T. LaGrange	Resident	17,700.00	37,200.00	54,900.00
T. LaGrange	Building	19,300.00	74,200.00	93,500.00
T. LaGrange	Resident	19,500.00	70,600.00	90,100.00
T. LaGrange	Resident	25,900.00	175,700.00	201,600.00
T. LaGrange	Resident	15,000.00	67,800.00	82,800.00
T. LaGrange	Resident	17,000.00	67,600.00	84,600.00
T. LaGrange	Building	15,300.00	99,700.00	115,000.00
T. LaGrange	Business	3,100.00	0.00	3,100.00
T. LaGrange	Resident	23,500.00	272,600.00	296,100.00
T. LaGrange	Building	2,000.00	0.00	2,000.00
T. LaGrange	Resident	9,300.00	20,500.00	29,800.00
T. LaGrange	Resident	47,200.00	152,200.00	199,400.00
T. LaGrange Totals		**412,900.00**	**2,372,300.00**	**2,785,200.00**
T. Byron	Land	57,300.00	0.00	57,300.00
T. Byron	Resident	12,000.00	9,000.00	21,000.00
T. Byron	Resident	10,500.00	113,000.00	123,500.00
T. Byron	Resident	10,500.00	231,700.00	242,200.00
T. Byron	Resident	7,000.00	75,500.00	82,500.00
T. Byron	Land	28,800.00	0.00	28,800.00
T. Byron	Resident	7,600.00	16,900.00	24,500.00
T. Byron	Resident	25,600.00	41,200.00	66,800.00
T. Byron	Resident	9,400.00	141,500.00	150,900.00
T. Byron	Resident	9,600.00	31,200.00	40,800.00
T. Byron	Business	10,400.00	40,800.00	51,200.00
T. Byron	Resident	18,900.00	68,900.00	87,800.00
T. Byron	Resident	16,300.00	25,140.00	41,440.00
T. Byron	Resident	11,000.00	56,100.00	67,100.00
T. Byron	Resident	7,100.00	0.00	7,100.00
T. Byron	Business	40,900.00	29,500.00	70,400.00
T. Byron	Building	700.00	0.00	700.00
T. Byron	Resident	10,500.00	103,200.00	113,700.00
T. Byron	Resident	13,900.00	106,300.00	120,200.00
T. Byron	Resident	10,200.00	150,400.00	160,600.00
T. Byron	Resident	26,400.00	129,600.00	156,000.00
T. Byron	Resident	11,900.00	90,400.00	102,300.00
T. Byron	Resident	20,700.00	114,500.00	135,200.00
T. Byron	Building	19,200.00	110,200.00	129,400.00
T. Byron	Resident	58,000.00	25,600.00	83,600.00
T. Byron	Resident	16,300.00	115,200.00	131,500.00
T. Byron	Resident	16,500.00	84,000.00	100,500.00
T. Byron	Resident	22,100.00	34,300.00	56,400.00
T. Byron	Resident	14,000.00	23,100.00	37,100.00
T. Byron	Resident	3,500.00	74,700.00	78,200.00
T. Byron	Resident	23,800.00	8,300.00	32,100.00
T. Byron	Building	3,600.00	0.00	3,600.00
T. Byron	Resident	10,200.00	26,400.00	36,600.00
T. Byron	Resident	186,010.00	20,500.00	206,510.00
T. Byron	Building	14,000.00	0.00	14,000.00
T. Byron	Resident	11,700.00	107,400.00	119,100.00
T. Byron	Building	13,200.00	6,500.00	19,700.00

TABLE 8 STRUCTURES IN THE FEMA 100-YEAR FLOODPLAIN

MUNICIPALITY	STRUCTURE TYPE	2010 LAND VALUE	2010 ASSESSED IMPROVEMENT VALUE	TOTAL ASSESSED VALUE
T. Byron Totals		**789,310.00**	**2,211,040.00**	**3,000,350.00**
T. Sparta	Building	90,000.00	400.00	90,400.00
T. Sparta	Land	28,200.00	0.00	28,200.00
T. Sparta	Building	15,500.00	98,500.00	114,000.00
T. Sparta	Land	5,700.00	0.00	5,700.00
T. Sparta	resident	6,600.00	54,500.00	61,100.00
T. Sparta	Building	30,200.00	206,700.00	236,900.00
T. Sparta	Building	17,800.00	54,000.00	71,800.00
T. Sparta	Resident	25,100.00	59,000.00	84,100.00
T. Sparta	Resident	5,700.00	600.00	6,300.00
T. Sparta	Resident	42,000.00	129,200.00	171,200.00
T. Sparta	Resident	29,000.00	204,400.00	233,400.00
T. Sparta	Resident	18,000.00	81,600.00	99,600.00
T. Sparta	Resident	42,100.00	306,400.00	348,500.00
T. Sparta	Resident	28,100.00	185,700.00	213,800.00
T. Sparta	Resident	46,400.00	357,300.00	403,700.00
T. Sparta Totals		**430,400.00**	**1,738,300.00**	**2,168,700.00**
T. Angelo	Monroe Co	Exempt	Exempt	0.00
T. Angelo	Resident	9,500.00	23,300.00	32,800.00
T. Angelo	Resident	8,100.00	0.00	8,100.00
T. Angelo	Resident	4,600.00	10,800.00	15,400.00
T. Angelo	Resident	8,700.00	14,700.00	23,400.00
T. Angelo	Resident	13,500.00	5,600.00	19,100.00
T. Angelo	Resident	14,100.00	65,100.00	79,200.00
T. Angelo	Building	12,700.00	195,400.00	208,100.00
T. Angelo	Resident	8,500.00	66,400.00	74,900.00
T. Angelo	Resident	5,900.00	68,800.00	74,700.00
T. Angelo	Resident	7,100.00	81,600.00	88,700.00
T. Angelo	Resident	9,900.00	118,600.00	128,500.00
T. Angelo	Resident	3,600.00	61,900.00	65,500.00
T. Angelo	Church	Exempt	Exempt	0.00
T. Angelo	Resident	6,900.00	69,500.00	76,400.00
T. Angelo	Resident	9,000.00	86,500.00	95,500.00
T. Angelo Totals		**122,100.00**	**868,200.00**	**990,300.00**
T. Adrian	Resident	24,400.00	154,600.00	179,000.00
T. Adrian	Resident	18,000.00	102,700.00	120,700.00
T. Adrian	Building	23,000.00	285,900.00	308,900.00
T. Adrian	Resident	16,700.00	59,900.00	76,600.00
T. Adrian	Land	13,000.00	0.00	13,000.00
T. Adrian	Resident	12,100.00	124,300.00	136,400.00
T. Adrian	Resident	10,100.00	60,700.00	70,800.00
T. Adrian	Resident	18,700.00	90,700.00	109,400.00
T. Adrian	Building	18,400.00	128,600.00	147,000.00
T. Adrian	Resident	12,000.00	60,000.00	72,000.00
T. Adrian	Building	15,500.00	75,000.00	90,500.00
T. Adrian	Land	18,900.00	113,000.00	131,900.00
T. Adrian Totals		**200,800.00**	**1,255,400.00**	**1,456,200.00**
T. Tomah	Resident	10,700.00	91,700.00	102,400.00
T. Tomah	Building	13,000.00	31,100.00	44,100.00
T. Tomah	Building	11,100.00	17,300.00	28,400.00
T. Tomah	Resident	14,900.00	172,700.00	187,600.00
T. Tomah	Resident	17,900.00	72,700.00	90,600.00
T. Tomah	Land	3,700.00	0.00	3,700.00
T. Tomah	Resident	11,200.00	74,300.00	85,500.00
T. Tomah	Building	18,800.00	67,000.00	85,800.00
T. Tomah	Building	12,800.00	133,100.00	145,900.00
T. Tomah	Resident	7,800.00	7,500.00	15,300.00
T. Tomah	Resident	8,100.00	34,000.00	42,100.00
T. Tomah	Resident	25,200.00	180,100.00	205,300.00
T. Tomah Totals		**155,200.00**	**881,500.00**	**1,036,700.00**
T. Oakdale	Business	31,000.00	165,800.00	196,800.00
T. Oakdale	Resident	1,490.00	12,360.00	13,850.00
T. Oakdale	Resident	23,000.00	139,800.00	162,800.00
T. Oakdale	Resident	33,300.00	216,100.00	249,400.00
T. Oakdale	Resident	12,800.00	58,400.00	71,200.00
T. Oakdale	Resident	16,200.00	159,000.00	175,200.00
T. Oakdale	Resident	15,200.00	96,500.00	111,700.00
T. Oakdale	Building	Exempt	Exempt	0.00
T. Oakdale	Resident	102,300.00	130,900.00	233,200.00
T. Oakdale	Resident	22,100.00	52,500.00	74,600.00
T. Oakdale	Resident	16,700.00	96,100.00	112,800.00

TABLE 8 STRUCTURES IN THE FEMA 100-YEAR FLOODPLAIN

MUNICIPALITY	STRUCTURE TYPE	2010 LAND VALUE	2010 ASSESSED IMPROVEMENT VALUE	TOTAL ASSESSED VALUE
T. Oakdale	Resident	11,000.00	97,500.00	108,500.00
T. Oakdale	Resident	14,700.00	249,700.00	264,400.00
T. Oakdale	Resident	12,800.00	138,500.00	151,300.00
T. Oakdale	Resident	11,000.00	69,900.00	80,900.00
T. Oakdale	Resident	12,300.00	74,300.00	86,600.00
T. Oakdale	Resident	21,400.00	45,400.00	66,800.00
T. Oakdale	Building	20,900.00	123,600.00	144,500.00
T. Oakdale	Resident	18,800.00	56,600.00	75,400.00
T. Oakdale Totals		**396,990.00**	**1,982,960.00**	**2,379,950.00**
T. Leon	Resident	15,200.00	60,800.00	76,000.00
T. Leon	Resident	19,700.00	118,400.00	138,100.00
T. Leon	Building	9,000.00	12,100.00	21,100.00
T. Leon	Resident	16,300.00	208,000.00	224,300.00
T. Leon	Resident	14,000.00	74,600.00	88,600.00
T. Leon	Building	Exempt	Exempt	0.00
T. Leon	Resident	5,000.00	79,400.00	84,400.00
T. Leon	Resident	12,800.00	53,800.00	66,600.00
T. Leon Totals		**92,000.00**	**607,100.00**	**699,100.00**
T. Wells	Resident	20,070.00	117,190.00	137,260.00
T. Wells Total		**20,070.00**	**117,190.00**	**137,260.00**
T. Ridgeville	Business	21,100.00	192,300.00	213,400.00
T. Ridgeville	Resident	12,700.00	156,600.00	169,300.00
T. Ridgeville	Business	19,600.00	556,700.00	576,300.00
T. Ridgeville	Resident	8,900.00	77,700.00	86,600.00
T. Ridgeville	Building	12,100.00	93,200.00	105,300.00
T. Ridgeville Totals		**74,400.00**	**1,076,500.00**	**1,150,900.00**
T. Wilton	Resident	13,700.00	124,200.00	137,900.00
T. Wilton	Building	11,400.00	48,800.00	60,200.00
T. Wilton	Resident	23,900.00	259,000.00	282,900.00
T. Wilton	Building	Exempt	Exempt	0.00
T. Wilton	Building	4,800.00	34,000.00	38,800.00
T. Wilton	Building	11,400.00	55,800.00	67,200.00
T. Wilton Totals		**65,200.00**	**521,800.00**	**587,000.00**
T. Clifton	Resident	15,300.00	95,400.00	110,700.00
T. Clifton Total		**15,300.00**	**95,400.00**	**110,700.00**
T. Portland	Resident	20,400.00	53,300.00	73,700.00
T. Portland	Building	16,000.00	91,500.00	107,500.00
T. Portland	Resident	5,100.00	30,000.00	35,100.00
T. Portland	Resident	6,000.00	38,700.00	44,700.00
T. Portland	Resident	10,300.00	49,500.00	59,800.00
T. Portland	Resident	7,700.00	50,600.00	58,300.00
T. Portland Totals		**65,500.00**	**313,600.00**	**379,100.00**
T. Jefferson	Resident	11,200.00	91,700.00	102,900.00
T. Jefferson	Resident	11,700.00	73,600.00	85,300.00
T. Jefferson	Resident	9,200.00	142,000.00	151,200.00
T. Jefferson	Resident	10,600.00	79,500.00	90,100.00
T. Jefferson	Resident	11,600.00	75,000.00	86,600.00
T. Jefferson	Land	900.00	0.00	900.00
T. Jefferson Totals		**55,200.00**	**461,800.00**	**517,000.00**
T. Sheldon	Church	Exempt	Exempt	0.00
T. Sheldon	Resident	6,000.00	160,800.00	166,800.00
T. Sheldon	Land	25,600.00	0.00	25,600.00
T. Sheldon	Building	15,200.00	65,000.00	80,200.00
T. Sheldon	Building	19,000.00	130,500.00	149,500.00
T. Sheldon	Resident	11,200.00	23,000.00	34,200.00
T. Sheldon	Building	9,700.00	107,400.00	117,100.00
T. Sheldon	Building	16,900.00	32,000.00	48,900.00
T. Sheldon	Building	15,400.00	84,400.00	99,800.00
T. Sheldon Totals		**119,000.00**	**603,100.00**	**722,100.00**
T. Wellington	Resident	7,500.00	46,800.00	54,300.00
T. Wellington	Building	100,000.00	50,200.00	150,200.00
T. Wellington Totals		**107,500.00**	**97,000.00**	**204,500.00**
T. Glendale	Resident	5,100.00	19,800.00	24,900.00
T. Glendale	Resident	9,100.00	154,600.00	163,700.00
T. Glendale	Building	8,000.00	43,800.00	51,800.00
T. Glendale	Building	34,600.00	212,000.00	246,600.00
T. Glendale Totals		**56,800.00**	**430,200.00**	**487,000.00**
C. Sparta	Business	Exempt	Exempt	0.00

TABLE 8 STRUCTURES IN THE FEMA 100-YEAR FLOODPLAIN

MUNICIPALITY	STRUCTURE TYPE	2010 LAND VALUE	2010 ASSESSED IMPROVEMENT VALUE	TOTAL ASSESSED VALUE
C. Sparta	Business	179,000.00	1,398,600.00	1,577,600.00
C. Sparta	Land	30,600.00	0.00	30,600.00
C. Sparta	Land	15,700.00	0.00	15,700.00
C. Sparta	Land	15,700.00	0.00	15,700.00
C. Sparta	Resident	39,100.00	191,300.00	230,400.00
C. Sparta	Land	1,500.00	0.00	1,500.00
C. Sparta	Resident	24,900.00	52,400.00	77,300.00
C. Sparta	Resident	21,500.00	62,500.00	84,000.00
C. Sparta	Resident	34,900.00	161,300.00	196,200.00
C. Sparta	Business	Exempt	Exempt	0.00
C. Sparta	Resident	805,000.00	727,400.00	1,532,400.00
C. Sparta				0.00
C. Sparta				0.00
C. Sparta				0.00
C. Sparta				0.00
C. Sparta				0.00
C. Sparta	Mobile Home Park			0.00
C. Sparta				0.00
C. Sparta				0.00
C. Sparta				0.00
C. Sparta				0.00
C. Sparta				0.00
C. Sparta	Resident	693,000.00	640,800.00	1,333,800.00
C. Sparta	Business	Exempt	Exempt	0.00
C. Sparta	Business	112,600.00	246,400.00	359,000.00
C. Sparta				
C. Sparta				
C. Sparta				
C. Sparta				
C. Sparta				
C. Sparta	Mobile Home Park			
C. Sparta				
C. Sparta				
C. Sparta				
C. Sparta				
C. Sparta				
C. Sparta	Resident	12,400.00	54,900.00	67,300.00
C. Sparta	Resident	17,600.00	51,400.00	69,000.00
C. Sparta	Resident	9,700.00	38,400.00	48,100.00
C. Sparta	Resident	28,500.00	73,400.00	101,900.00
C. Sparta	Resident	21,400.00	91,800.00	113,200.00
C. Sparta	Resident	20,500.00	21,400.00	41,900.00
C. Sparta	Resident	16,400.00	36,800.00	53,200.00
C. Sparta	Resident	11,200.00	63,500.00	74,700.00
C. Sparta	Resident	11,200.00	59,800.00	71,000.00
C. Sparta	Resident	11,200.00	39,400.00	50,600.00
C. Sparta	Resident	11,200.00	45,000.00	56,200.00
C. Sparta	Resident	7,600.00	37,700.00	45,300.00
C. Sparta	Resident	7,500.00	69,400.00	76,900.00
C. Sparta	Resident	5,800.00	69,800.00	75,600.00
C. Sparta	Resident	17,800.00	34,100.00	51,900.00
C. Sparta	Land	Exempt	Exempt	0.00
C. Sparta	Resident	20,500.00	85,900.00	106,400.00
C. Sparta	Resident	17,000.00	57,100.00	74,100.00
C. Sparta	Land	Exempt	Exempt	0.00
C. Sparta Totals		**2,221,000.00**	**4,410,500.00**	**6,631,500.00**
C. Tomah	Business	80,500.00	252,200.00	332,700.00
C. Tomah	Resident	75,500.00	47,300.00	122,800.00
C. Tomah	Business	111,000.00	845,600.00	956,600.00
C. Tomah	Business	112,100.00	296,000.00	408,100.00
C. Tomah	Business	Exempt	Exempt	0.00
C. Tomah	Resident	9,700.00	43,400.00	53,100.00
C. Tomah	Resident	12,700.00	48,800.00	61,500.00
C. Tomah	Resident	13,200.00	64,500.00	77,700.00
C. Tomah	Resident	13,200.00	56,000.00	69,200.00
C. Tomah	Resident	12,600.00	63,700.00	76,300.00
C. Tomah	Resident	12,600.00	75,100.00	87,700.00
C. Tomah	Resident	12,900.00	45,500.00	58,400.00
C. Tomah	Resident	13,100.00	65,000.00	78,100.00
C. Tomah	Resident	13,000.00	50,300.00	63,300.00

TABLE 8 STRUCTURES IN THE FEMA 100-YEAR FLOODPLAIN

MUNICIPALITY	STRUCTURE TYPE	2010 LAND VALUE	2010 ASSESSED IMPROVEMENT VALUE	TOTAL ASSESSED VALUE
C. Tomah	Resident	12,800.00	44,700.00	57,500.00
C. Tomah	Resident	13,500.00	50,800.00	64,300.00
C. Tomah	Resident	12,000.00	63,900.00	75,900.00
C. Tomah	Resident	11,800.00	58,200.00	70,000.00
C. Tomah	Resident	31,000.00	67,500.00	98,500.00
C. Tomah	Resident	17,300.00	67,600.00	84,900.00
C. Tomah	Resident	14,400.00	62,800.00	77,200.00
C. Tomah	Resident	11,700.00	81,500.00	93,200.00
C. Tomah	Resident	13,800.00	65,200.00	79,000.00
C. Tomah	Resident	13,700.00	74,200.00	87,900.00
C. Tomah	Resident	14,000.00	41,100.00	55,100.00
C. Tomah	Resident	14,000.00	29,800.00	43,800.00
C. Tomah	Resident	13,700.00	47,100.00	60,800.00
C. Tomah	Resident	12,900.00	62,200.00	75,100.00
C. Tomah	Resident	11,600.00	32,800.00	44,400.00
C. Tomah	Resident	10,800.00	40,600.00	51,400.00
C. Tomah	Resident	10,800.00	36,300.00	47,100.00
C. Tomah	Resident	12,100.00	41,000.00	53,100.00
C. Tomah	Resident	13,300.00	71,600.00	84,900.00
C. Tomah	Resident	13,300.00	83,400.00	96,700.00
C. Tomah	Resident	16,900.00	69,900.00	86,800.00
C. Tomah	Resident	17,800.00	66,500.00	84,300.00
C. Tomah	Resident	18,700.00	61,500.00	80,200.00
C. Tomah	Resident	17,800.00	62,500.00	80,300.00
C. Tomah	Resident	17,000.00	76,500.00	93,500.00
C. Tomah	Resident	15,500.00	68,000.00	83,500.00
C. Tomah	Resident	13,200.00	68,100.00	81,300.00
C. Tomah	Resident	13,200.00	44,900.00	58,100.00
C. Tomah	Resident	13,200.00	60,200.00	73,400.00
C. Tomah	Resident	13,600.00	33,100.00	46,700.00
C. Tomah	Resident	14,100.00	52,700.00	66,800.00
C. Tomah	Resident	13,800.00	40,600.00	54,400.00
C. Tomah	Resident	12,800.00	66,400.00	79,200.00
C. Tomah	Resident	15,400.00	67,100.00	82,500.00
C. Tomah	Resident	19,900.00	66,500.00	86,400.00
C. Tomah	Resident	22,000.00	75,100.00	97,100.00
C. Tomah	Resident	Exempt	Exempt	0.00
C. Tomah	Resident	11,300.00	43,900.00	55,200.00
C. Tomah	Resident	12,500.00	56,300.00	68,800.00
C. Tomah	Resident	12,700.00	56,900.00	69,600.00
C. Tomah	Resident	11,000.00	61,700.00	72,700.00
C. Tomah	Resident	13,200.00	47,200.00	60,400.00
C. Tomah	Resident	13,200.00	61,600.00	74,800.00
C. Tomah	Resident	13,200.00	65,300.00	78,500.00
C. Tomah	Resident	12,400.00	51,400.00	63,800.00
C. Tomah	Resident	12,200.00	52,500.00	64,700.00
C. Tomah	Resident	13,400.00	55,900.00	69,300.00
C. Tomah	Resident	13,100.00	66,500.00	79,600.00
C. Tomah	Resident	16,200.00	46,400.00	62,600.00
C. Tomah	Resident	14,000.00	46,000.00	60,000.00
C. Tomah	Resident	13,100.00	63,100.00	76,200.00
C. Tomah	Resident	12,600.00	64,000.00	76,600.00
C. Tomah	Resident	12,400.00	54,900.00	67,300.00
C. Tomah	Resident	12,600.00	54,000.00	66,600.00
C. Tomah	Resident	10,500.00	43,500.00	54,000.00
C. Tomah	Resident	10,900.00	58,700.00	69,600.00
C. Tomah	Resident	10,800.00	39,000.00	49,800.00
C. Tomah	Resident	10,800.00	34,800.00	45,600.00
C. Tomah	Resident	12,000.00	66,500.00	78,500.00
C. Tomah	Resident	17,800.00	66,300.00	84,100.00
C. Tomah	Resident	13,400.00	56,500.00	69,900.00
C. Tomah	Resident	13,400.00	62,900.00	76,300.00
C. Tomah	Resident	14,200.00	70,900.00	85,100.00
C. Tomah	Resident	14,300.00	74,800.00	89,100.00
C. Tomah	Resident	13,700.00	60,300.00	74,000.00
C. Tomah	Resident	19,400.00	83,100.00	102,500.00
C. Tomah	Resident	21,600.00	62,000.00	83,600.00
C. Tomah	Resident	11,900.00	48,900.00	60,800.00
C. Tomah	Resident	11,900.00	34,800.00	46,700.00
C. Tomah	Resident	13,200.00	46,300.00	59,500.00
C. Tomah	Resident	20,800.00	55,600.00	76,400.00
C. Tomah	Resident	13,500.00	64,500.00	78,000.00

TABLE 8 STRUCTURES IN THE FEMA 100-YEAR FLOODPLAIN

MUNICIPALITY	STRUCTURE TYPE	2010 LAND VALUE	2010 ASSESSED IMPROVEMENT VALUE	TOTAL ASSESSED VALUE
C. Tomah	Resident	13,500.00	52,900.00	66,400.00
C. Tomah	Resident	13,500.00	48,000.00	61,500.00
C. Tomah	Resident	13,500.00	75,900.00	89,400.00
C. Tomah	Resident	13,500.00	44,000.00	57,500.00
C. Tomah	Resident	13,500.00	64,300.00	77,800.00
C. Tomah	Resident	13,500.00	66,000.00	79,500.00
C. Tomah	Resident	13,500.00	59,000.00	72,500.00
C. Tomah	Resident	13,500.00	40,300.00	53,800.00
C. Tomah	Resident	14,000.00	58,600.00	72,600.00
C. Tomah	Resident	12,000.00	49,700.00	61,700.00
C. Tomah	Resident	9,600.00	46,300.00	55,900.00
C. Tomah	Resident	11,100.00	76,900.00	88,000.00
C. Tomah	Resident	12,000.00	59,700.00	71,700.00
C. Tomah	Resident	20,700.00	107,400.00	128,100.00
C. Tomah	Resident	23,300.00	83,900.00	107,200.00
C. Tomah	Resident	20,700.00	86,300.00	107,000.00
C. Tomah	Resident	20,700.00	98,800.00	119,500.00
C. Tomah	Resident	14,100.00	74,500.00	88,600.00
C. Tomah	Resident	13,900.00	47,600.00	61,500.00
C. Tomah	Resident	12,700.00	40,700.00	53,400.00
C. Tomah	Resident	19,100.00	59,900.00	79,000.00
C. Tomah	Resident	12,700.00	61,900.00	74,600.00
C. Tomah	Resident	19,300.00	39,700.00	59,000.00
C. Tomah	Resident	12,900.00	42,000.00	54,900.00
C. Tomah	Resident	19,200.00	51,800.00	71,000.00
C. Tomah	Resident	12,900.00	49,200.00	62,100.00
C. Tomah	Resident	25,500.00	115,200.00	140,700.00
C. Tomah	Resident	22,900.00	11,700.00	34,600.00
C. Tomah	Resident	22,900.00	86,600.00	109,500.00
C. Tomah	Resident	21,100.00	65,100.00	86,200.00
C. Tomah	Resident	20,400.00	108,800.00	129,200.00
C. Tomah	Resident	20,400.00	83,300.00	103,700.00
C. Tomah	Resident	28,500.00	125,800.00	154,300.00
C. Tomah	Resident	15,100.00	50,200.00	65,300.00
C. Tomah	Resident	15,100.00	84,200.00	99,300.00
C. Tomah	Resident	15,100.00	69,400.00	84,500.00
C. Tomah	Resident	15,100.00	55,700.00	70,800.00
C. Tomah	Resident	15,100.00	87,700.00	102,800.00
C. Tomah	Resident	15,100.00	63,200.00	78,300.00
C. Tomah	Resident	15,100.00	49,400.00	64,500.00
C. Tomah	Resident	20,800.00	85,200.00	106,000.00
C. Tomah	Business	42,900.00	89,200.00	132,100.00
C. Tomah	Business	34,500.00	118,700.00	153,200.00
C. Tomah	Resident	33,600.00	39,500.00	73,100.00
C. Tomah	Resident	18,700.00	118,400.00	137,100.00
C. Tomah	Resident	24,300.00	69,000.00	93,300.00
C. Tomah	Resident	18,900.00	121,000.00	139,900.00
C. Tomah	Resident	25,100.00	6,400.00	31,500.00
C. Tomah	Resident	13,600.00	41,200.00	54,800.00
C. Tomah	Resident	161,200.00	1,224,600.00	1,385,800.00
C. Tomah				0.00
C. Tomah				0.00
C. Tomah				0.00
C. Tomah				0.00
C. Tomah	Mobile Home Park			0.00
C. Tomah				0.00
C. Tomah				0.00
C. Tomah				0.00
C. Tomah				0.00
C. Tomah	Resident	Exempt	Exempt	0.00
C. Tomah	Resident	18,200.00	92,500.00	110,700.00
C. Tomah	Resident	18,700.00	100,200.00	118,900.00
C. Tomah	Resident	23,500.00	54,200.00	77,700.00
C. Tomah	Resident	13,500.00	49,300.00	62,800.00
C. Tomah	Resident	24,100.00	67,400.00	91,500.00
C. Tomah				0.00
C. Tomah				0.00
C. Tomah	Tomah Public Housing			0.00
C. Tomah				0.00
C. Tomah				0.00
C. Tomah	Resident	40,300.00	163,000.00	203,300.00
C. Tomah	Resident	30,400.00	116,000.00	146,400.00

TABLE 8 STRUCTURES IN THE FEMA 100-YEAR FLOODPLAIN

MUNICIPALITY	STRUCTURE TYPE	2010 LAND VALUE	2010 ASSESSED IMPROVEMENT VALUE	TOTAL ASSESSED VALUE
C. Tomah	Resident	25,400.00	148,900.00	174,300.00
C. Tomah	Resident	25,300.00	46,400.00	71,700.00
C. Tomah	Resident	24,800.00	46,700.00	71,500.00
C. Tomah	Resident	17,700.00	46,300.00	64,000.00
C. Tomah	Resident	19,200.00	52,700.00	71,900.00
C. Tomah	Resident	17,700.00	32,700.00	50,400.00
C. Tomah	Resident	19,200.00	47,000.00	66,200.00
C. Tomah	Resident	17,300.00	55,100.00	72,400.00
C. Tomah	Resident	19,200.00	72,800.00	92,000.00
C. Tomah	Resident	16,800.00	61,400.00	78,200.00
C. Tomah	Resident	16,800.00	14,000.00	30,800.00
C. Tomah	Resident	17,200.00	53,800.00	71,000.00
C. Tomah	Resident	19,200.00	65,000.00	84,200.00
C. Tomah	Building	16,800.00	43,100.00	59,900.00
C. Tomah	Resident	19,200.00	47,200.00	66,400.00
C. Tomah	Resident	16,800.00	41,700.00	58,500.00
C. Tomah	Resident	19,200.00	41,100.00	60,300.00
C. Tomah	Resident	16,800.00	51,200.00	68,000.00
C. Tomah	Resident	16,800.00	75,800.00	92,600.00
C. Tomah	Resident	19,200.00	65,400.00	84,600.00
C. Tomah	Resident	16,800.00		16,800.00
C. Tomah	Resident	19,200.00	34,500.00	53,700.00
C. Tomah	Resident	16,800.00	41,400.00	58,200.00
C. Tomah	Resident	19,200.00	46,000.00	65,200.00
C. Tomah	Resident	19,200.00	42,500.00	61,700.00
C. Tomah	Resident	16,800.00	53,700.00	70,500.00
C. Tomah	Resident	16,800.00	72,700.00	89,500.00
C. Tomah	Resident	19,200.00	58,000.00	77,200.00
C. Tomah	Resident	16,800.00	53,000.00	69,800.00
C. Tomah	Resident	19,200.00	33,400.00	52,600.00
C. Tomah	Resident	16,800.00	78,400.00	95,200.00
C. Tomah	Resident	19,200.00	38,200.00	57,400.00
C. Tomah	Resident	19,200.00	36,800.00	56,000.00
C. Tomah	Resident	33,500.00	52,700.00	86,200.00
C. Tomah	Resident	19,200.00	61,400.00	80,600.00
C. Tomah	Resident	16,800.00	46,200.00	63,000.00
C. Tomah	Resident	20,900.00	80,300.00	101,200.00
C. Tomah	Resident	26,700.00	78,200.00	104,900.00
C. Tomah	Resident	19,200.00	26,700.00	45,900.00
C. Tomah	Business	58,600.00	304,300.00	362,900.00
C. Tomah	Business	37,500.00	105,300.00	142,800.00
C. Tomah	Business	24,900.00	226,500.00	251,400.00
C. Tomah	Business	6,000.00		6,000.00
C. Tomah	Business	20,600.00	73,300.00	93,900.00
C. Tomah	Business	13,000.00	205,500.00	218,500.00
C. Tomah	Resident	26,500.00	108,800.00	135,300.00
C. Tomah	Resident	24,600.00	140,600.00	165,200.00
C. Tomah	Resident	27,000.00	178,600.00	205,600.00
C. Tomah	Business	34,400.00	203,700.00	238,100.00
C. Tomah	Resident	Exempt	Exempt	0.00
C. Tomah	Resident	22,900.00	87,900.00	110,800.00
C. Tomah	Resident	19,100.00	76,300.00	95,400.00
C. Tomah	Resident	20,100.00	78,200.00	98,300.00
C. Tomah	Resident	23,600.00	87,200.00	110,800.00
C. Tomah	Resident	21,900.00	111,900.00	133,800.00
C. Tomah	Resident	23,700.00	93,100.00	116,800.00
C. Tomah	Resident	55,400.00	772,300.00	827,700.00
C. Tomah	Resident	30,700.00	166,800.00	197,500.00
C. Tomah	Resident	24,400.00	164,100.00	188,500.00
C. Tomah	Resident	40,200.00	234,200.00	274,400.00
C. Tomah	Resident	40,200.00	229,900.00	270,100.00
C. Tomah	Resident	40,500.00	213,100.00	253,600.00
C. Tomah	Resident	39,800.00	220,800.00	260,600.00
C. Tomah	Business	79,300.00	77,000.00	156,300.00
C. Tomah	Resident	33,300.00	233,900.00	267,200.00
C. Tomah	Resident	43,000.00	229,600.00	272,600.00
C. Tomah	Resident	27,300.00	225,400.00	252,700.00
C. Tomah	Resident	41,700.00	229,600.00	271,300.00
C. Tomah	Resident	27,300.00	233,900.00	261,200.00
C. Tomah	Resident	42,100.00	229,600.00	271,700.00
C. Tomah	Resident	38,500.00	229,600.00	268,100.00
C. Tomah	Resident	42,600.00	229,600.00	272,200.00

TABLE 8 STRUCTURES IN THE FEMA 100-YEAR FLOODPLAIN

MUNICIPALITY	STRUCTURE TYPE	2010 LAND VALUE	2010 ASSESSED IMPROVEMENT VALUE	TOTAL ASSESSED VALUE
C. Tomah	Resident	79,900.00	142,200.00	222,100.00
C. Tomah	Resident	48,700.00	136,800.00	185,500.00
C. Tomah	Resident	22,600.00	69,300.00	91,900.00
C. Tomah	Resident	58,100.00	159,300.00	217,400.00
C. Tomah	Business	Exempt		0.00
C. Tomah	Business	94,900.00	386,600.00	481,500.00
C. Tomah	Business	24,800.00	65,400.00	90,200.00
C. Tomah	Resident	24,600.00	171,900.00	196,500.00
C. Tomah	Resident	72,700.00	40,600.00	113,300.00
C. Tomah	Resident	8,700.00	54,000.00	62,700.00
C. Tomah	Resident	10,100.00	75,600.00	85,700.00
C. Tomah	Resident	22,600.00	127,500.00	150,100.00
C. Tomah	Resident	16,100.00	93,100.00	109,200.00
C. Tomah	Resident	15,400.00	95,600.00	111,000.00
C. Tomah	Resident	19,900.00	116,000.00	135,900.00
C. Tomah	Business	Exempt	Exempt	0.00
C. Tomah	Resident	29,900.00	157,200.00	187,100.00
C. Tomah	Resident	21,200.00	79,900.00	101,100.00
C. Tomah	Resident	19,200.00	104,300.00	123,500.00
C. Tomah	Business	Exempt	Exempt	0.00
C. Tomah	Resident	23,800.00	116,600.00	140,400.00
C. Tomah	Resident	23,800.00	107,700.00	131,500.00
C. Tomah	Resident	21,900.00	104,900.00	126,800.00
C. Tomah	Resident	23,800.00	120,400.00	144,200.00
C. Tomah	Resident	24,900.00	125,500.00	150,400.00
C. Tomah	Resident	24,900.00	122,300.00	147,200.00
C. Tomah	Resident	23,600.00	122,100.00	145,700.00
C. Tomah	Resident	23,600.00	108,900.00	132,500.00
C. Tomah	Resident	23,600.00	134,100.00	157,700.00
C. Tomah	Resident	23,600.00	121,200.00	144,800.00
C. Tomah	Resident	23,600.00	112,900.00	136,500.00
C. Tomah	Resident	24,800.00	113,800.00	138,600.00
C. Tomah	Resident	23,600.00	125,700.00	149,300.00
C. Tomah	Resident	20,900.00	107,000.00	127,900.00
C. Tomah	Resident	23,600.00	103,400.00	127,000.00
C. Tomah	Resident	Exempt	Exempt	0.00
C. Tomah	Resident	23,600.00	123,700.00	147,300.00
C. Tomah	Resident	23,600.00	106,800.00	130,400.00
C. Tomah	Resident	23,600.00	110,400.00	134,000.00
C. Tomah	Resident	23,600.00	110,300.00	133,900.00
C. Tomah	Resident	23,600.00	109,300.00	132,900.00
C. Tomah	Resident	23,600.00	119,400.00	143,000.00
C. Tomah	Resident	23,700.00	122,900.00	146,600.00
C. Tomah	Resident	23,800.00	121,600.00	145,400.00
C. Tomah	Resident	17,700.00	100,500.00	118,200.00
C. Tomah	Resident	23,800.00	121,600.00	145,400.00
C. Tomah	Resident	25,100.00	130,200.00	155,300.00
C. Tomah	Resident	16,800.00	101,800.00	118,600.00
C. Tomah	Resident	16,800.00	100,600.00	117,400.00
C. Tomah	Resident	16,800.00	101,800.00	118,600.00
C. Tomah	Resident	16,800.00	123,600.00	140,400.00
C. Tomah	Resident	16,800.00	102,800.00	119,600.00
C. Tomah	Resident	17,900.00	136,700.00	154,600.00
C. Tomah	Resident	18,000.00	128,900.00	146,900.00
C. Tomah	Resident	18,000.00	122,800.00	140,800.00
C. Tomah	Resident	18,000.00	122,800.00	140,800.00
C. Tomah	Resident	18,100.00	100,600.00	118,700.00
C. Tomah	Resident	14,100.00	121,600.00	135,700.00
C. Tomah	Resident	16,400.00	108,200.00	124,600.00
C. Tomah	Resident	16,400.00	120,400.00	136,800.00
C. Tomah	Resident	14,800.00	118,200.00	133,000.00
C. Tomah	Resident	17,000.00	117,100.00	134,100.00
C. Tomah	Resident	18,000.00	107,900.00	125,900.00
C. Tomah	Resident	18,000.00	137,200.00	155,200.00
C. Tomah	Resident	18,000.00	111,800.00	129,800.00
C. Tomah	Resident	1,300.00		1,300.00
C. Tomah	Resident	18,000.00	114,300.00	132,300.00
C. Tomah	Resident	16,800.00	141,800.00	158,600.00
C. Tomah	Resident	18,000.00	137,500.00	155,500.00
C. Tomah	Resident	16,600.00	139,500.00	156,100.00
C. Tomah	Resident	18,000.00	130,000.00	148,000.00
C. Tomah	Resident	16,600.00	137,600.00	154,200.00

TABLE 8 STRUCTURES IN THE FEMA 100-YEAR FLOODPLAIN

MUNICIPALITY	STRUCTURE TYPE	2010 LAND VALUE	2010 ASSESSED IMPROVEMENT VALUE	TOTAL ASSESSED VALUE
C. Tomah	Resident	18,000.00	114,400.00	132,400.00
C. Tomah	Resident	18,000.00	151,200.00	169,200.00
C. Tomah	Resident	16,600.00	139,500.00	156,100.00
C. Tomah Totals		**6,183,800.00**	**27,661,800.00**	**33,845,600.00**
V. Wyeville	Resident	9,700.00	7,500.00	17,200.00
V. Wyeville	Resident	10,800.00	44,200.00	55,000.00
V. Wyeville	Resident	3,500.00	18,800.00	22,300.00
V. Wyeville	Resident	2,100.00		2,100.00
V. Wyeville	Resident	2,800.00	30,300.00	33,100.00
V. Wyeville	Resident	4,800.00	79,500.00	84,300.00
V. Wyeville	Resident	5,300.00	57,200.00	62,500.00
V. Wyeville	Resident	2,200.00	98,500.00	100,700.00
V. Wyeville	Resident	3,500.00	94,500.00	98,000.00
V. Wyeville	Resident	7,800.00	138,100.00	145,900.00
V. Wyeville	Resident	2,800.00	31,700.00	34,500.00
V. Wyeville	Resident	2,800.00	28,100.00	30,900.00
V. Wyeville	Resident	11,300.00	83,600.00	94,900.00
V. Wyeville	Resident	4,900.00	99,600.00	104,500.00
V. Wyeville	Resident	4,200.00	113,700.00	117,900.00
V. Wyeville	Resident	5,100.00	72,900.00	78,000.00
V. Wyeville	Resident	2,200.00	25,600.00	27,800.00
V. Wyeville	Resident	3,700.00	67,500.00	71,200.00
V. Wyeville	Resident	5,600.00	53,400.00	59,000.00
V. Wyeville	Resident	3,200.00	63,400.00	66,600.00
V. Wyeville	Resident	2,100.00		2,100.00
V. Wyeville	Resident	2,600.00	45,700.00	48,300.00
V. Wyeville	Resident	3,200.00		3,200.00
V. Wyeville	Resident	4,500.00	63,400.00	67,900.00
V. Wyeville	Resident	3,400.00	39,500.00	42,900.00
V. Wyeville	Resident	9,300.00	81,600.00	90,900.00
V. Wyeville	Business	12,800.00	102,000.00	114,800.00
V. Wyeville	Resident	4,200.00	13,700.00	17,900.00
V. Wyeville	Resident	9,600.00	87,500.00	97,100.00
V. Wyeville Totals		**150,000.00**	**1,641,500.00**	**1,791,500.00**
V. Norwalk	Resident	7,400.00	67,500.00	74,900.00
V. Norwalk	Resident	7,100.00	58,000.00	65,100.00
V. Norwalk	Resident	4,000.00	21,400.00	25,400.00
V. Norwalk	Resident	8,100.00	111,200.00	119,300.00
V. Norwalk	Resident	7,400.00	50,800.00	58,200.00
V. Norwalk	Resident	1,700.00	6,500.00	8,200.00
V. Norwalk	Resident	6,100.00	29,400.00	35,500.00
V. Norwalk	Resident	6,800.00	55,100.00	61,900.00
V. Norwalk	Resident	6,100.00	47,300.00	53,400.00
V. Norwalk	Resident	8,300.00	76,100.00	84,400.00
V. Norwalk	Resident	4,400.00	63,200.00	67,600.00
V. Norwalk	Resident	4,400.00	39,700.00	44,100.00
V. Norwalk	Resident	6,800.00	19,400.00	26,200.00
V. Norwalk	Resident	8,800.00	70,000.00	78,800.00
V. Norwalk	Resident	8,100.00	43,600.00	51,700.00
V. Norwalk	Resident	6,100.00	39,100.00	45,200.00
V. Norwalk	Resident	6,100.00	74,900.00	81,000.00
V. Norwalk	Resident	7,400.00	59,500.00	66,900.00
V. Norwalk	Business	Exempt	Exempt	0.00
V. Norwalk	Business	8,600.00	103,300.00	111,900.00
V. Norwalk Totals		**123,700.00**	**1,036,000.00**	**1,159,700.00**
V. Wilton	Business	28,400.00	172,100.00	200,500.00
V. Wilton Totals		**28,400.00**	**172,100.00**	**200,500.00**
V. Kendall	Building			0.00
V. Kendall	Business	Exempt	Exempt	0.00
V. Kendall	Resident	4,700.00	34,000.00	38,700.00
V. Kendall	Business	6,400.00	67,100.00	73,500.00
V. Kendall	Resident	4,700.00	39,000.00	43,700.00
V. Kendall	Resident	12,400.00	80,600.00	93,000.00
V. Kendall	Resident	8,200.00	54,300.00	62,500.00
V. Kendall	Resident	7,600.00	88,000.00	95,600.00
V. Kendall	Business	15,100.00	57,500.00	72,600.00
V. Kendall	Resident	9,700.00	50,300.00	60,000.00
V. Kendall	Resident	4,100.00	72,600.00	76,700.00
V. Kendall	Resident	9,400.00	87,800.00	97,200.00
V. Kendall	Resident	6,400.00	8,400.00	14,800.00
V. Kendall	Resident	4,700.00	70,700.00	75,400.00

TABLE 8 STRUCTURES IN THE FEMA 100-YEAR FLOODPLAIN

MUNICIPALITY	STRUCTURE TYPE	2010 LAND VALUE	2010 ASSESSED IMPROVEMENT VALUE	TOTAL ASSESSED VALUE
V. Kendall	Resident	7,100.00	71,000.00	78,100.00
V. Kendall	Resident	4,100.00	55,200.00	59,300.00
V. Kendall	Resident	9,400.00	86,000.00	95,400.00
V. Kendall	Resident	6,400.00	8,400.00	14,800.00
V. Kendall	Building	2,600.00		2,600.00
V. Kendall	Business	2,600.00	60,200.00	62,800.00
V. Kendall	Resident	4,400.00	68,300.00	72,700.00
V. Kendall	Resident	1,900.00	34,900.00	36,800.00
V. Kendall	Resident	6,900.00	77,600.00	84,500.00
V. Kendall	Business	10,700.00	59,000.00	69,700.00
V. Kendall	Resident	4,700.00	2,000.00	6,700.00
V. Kendall	Business	11,700.00	48,600.00	60,300.00
V. Kendall	Business	6,100.00	126,400.00	132,500.00
V. Kendall	Resident	9,900.00	87,900.00	97,800.00
V. Kendall	Business	17,900.00	40,000.00	57,900.00
V. Kendall Totals		**199,800.00**	**1,535,800.00**	**1,735,600.00**
Township Totals		5,115,570.00	23,096,470.00	28,212,040.00
Village Totals		501,900.00	4,385,400.00	4,887,300.00
City Totals		8,906,700.00	36,457,700.00	45,364,400.00
Monroe County Flood Totals		**14,022,270.00**	**59,554,170.00**	**73,576,440.00**

CRITICAL FACILITIES

In the county (185) service orientated critical facilities were identified. These include (37) government and military facilities (**Table 16, page 70**), 6 hospitals and clinics (**Table 12, Page 63**); 9 Ambulance Services (**Table 13, Page 64**); 5 1st Responder Groups **(Table 14, Page 64**); (23) Hazardous Materials Site (**Table 11, Page 62**) and 35 residential facilities (**Table 17, Page 69**); 9 police departments (**Table 15. Page 66**) and 13 fire facilities **(Table 10, Page 59**) including military and DNR; (48) schools of which (12) are Amish, (1) Technical College and the rest a combination of Public, Private and Religious Schools (**Table 16, Page 67**). There are 35 wells, towers and reservoirs in Monroe County, (**Table 9, and Page 56**). That leads to a total of **220 various critical facilities** in Monroe 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 Cities of Sparta and Tomah and Villages of Cashton, Kendall, Norwalk, Oakdale, Warrens, Wilton and Wyeville provide municipal water supplies for domestic and commercial use.

TABLE 9 MONROE COUNTY CRITICAL FACILITIES: WELLS

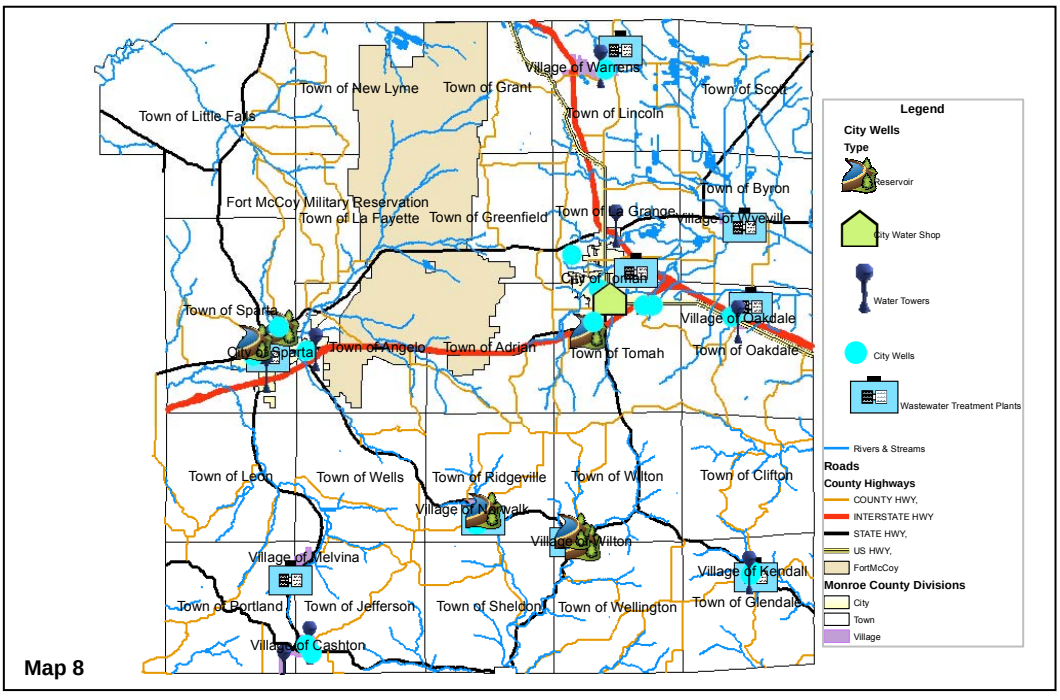
MUNICIPALITY	WELL ID #	WELL DEPTH (FT)	DESIGN YIELD (GPD)	ACT'L CAP (GPM)	CURRENTLY IN SERVICE	GROUND STORAGE	ELEV. STORAGE(GAL)
VILLAGES:							
Cashton	4	852	432,000	280	Yes		
	5	660	432,000	300	Yes		
	Tower				Yes		250,000
	Tower				Yes		250,000
Kendall	2	370	346,000	330	Yes		
	4	300	404,000	360	Yes		
	Tower				Yes		100,000
Norwalk	1	360	360,000	300	Yes		
	2	350		285	Yes		
	Reservoir				Yes	150,000	
Oakdale	1	250	720,000	537	Yes		
	Tower				Yes		75,000
Warrens	1	180	288,000	175	Yes		
	2	380		1000	Yes		
	Tower				Yes		100,000
Wilton	2	225	310,000	445	Yes		
	3	220	374,000	513	Yes		

TABLE 9	MONROE COUNTY CRITICAL FACILITIES: WELLS						
MUNICIPALITY	WELL ID #	WELL DEPTH (FT)	DESIGN YIELD (GPD)	ACT'L CAP (GPM)	CURRENTLY IN SERVICE	GROUND STORAGE	ELEV. STORAGE(GAL)
VILLAGES:							
	Reservoir				Yes		131,000
CITIES:							
Sparta	2	165	720,000	480	Yes		
	4	185	540,000	750	Yes		
	6	222	504,000	402	Yes		
	7	264	720,000	510	Yes		
	9	286	1,152,000	800	Yes		
	10	300		1000	Yes		
	Reservoir				Yes	425,000	
	Reservoir				Yes	600,000	
	Tower				Yes		600,000
	Tower				Yes		600,000
Tomah	6	325	864,000	450	Yes		
	9	175		425	Yes		
	10	300		1,000	Yes		
	11	240		1,050	Yes		
	12	240		1,050	Yes		
	Reservoir				Yes	1.000.000	
	Tower				Yes		500,000

MONROE COUNTY CRITICAL FACILITIES: WASTEWATER TREATMENT PLANTS	
COMMUNITY	2010 GPS
Cashton /Melvina	3.85
Kendall	3.45
Norwalk	4.0
Oakdale	3.92
Warrens	3.92
Wilton	3.06
Sparta	4.0
Tomah	4.0

Sparta Waterworks serves 4,000 customers; Tomah Waterworks serves about 3107, Villages of Cashton – 574, Kendall - 233, Melvina – 40 (provided by Cashton), Norwalk - 247, Oakdale - 317, Warrens - 347, Wilton - 249 and Wyeville – 143.

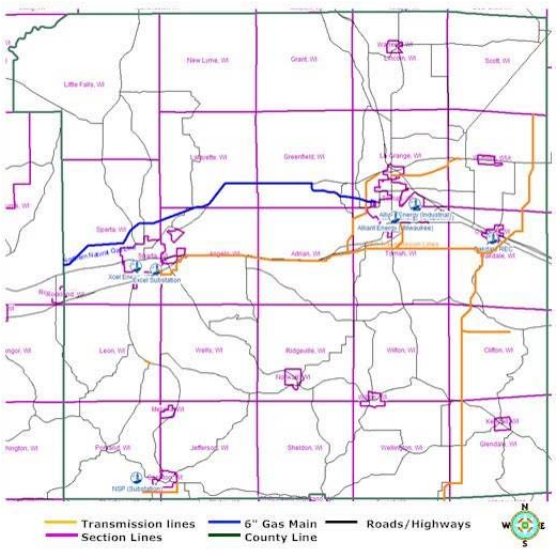
The protection of the wastewater facilities, location shown on **Map 8 (right)**, is an important consideration for hazard mitigation planning because of its potential to contaminate nearby water bodies in the event of high water. Also of concern during periods of flooding is the threat of damage to infrastructure of associated facilities. A municipal wastewater treatment facility that serves the Cashton-Melvina area is located on the east side of the Little La Crosse River. This utility is located



Map 8

outside the designated floodplain area.

Wisconsin Gas Company (WE Energies) provides natural gas to the Cities of Sparta and Tomah the Villages of Cashton and Wyeville and the Townships of Adrian, Angelo, Byron, Greenfield, Jefferson, LaGrange, Leon, Portland and Sparta. There is also a Northern Natural Gas Company pipeline that runs through Monroe County to the City of Tomah from La Crosse County.



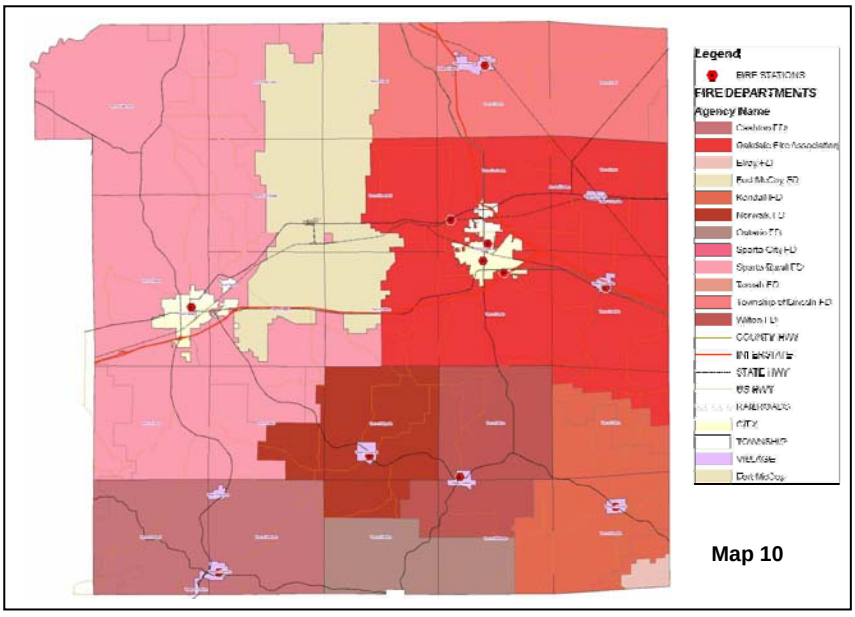
Map 9

The infrastructure of electric and telephone lines should be considered in the events of high wind, ice storms, tornadoes, flooding, and fire. Alliant and Excel, also Oakdale REC, Vernon REC, Jackson REC Cooperatives and Bangor Electric (municipally owned) provide Monroe 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 a small portion of eastern Monroe County. Xcel Energy (Northern States Power Co.) and Alliant Energy owns, maintains and operates the transmission facilities in the rest of the county. The general locations of the major electrical transmission facilities, owned by ATC, NSP, and Alliant Energy are shown on **Map 9 (left).**

Telephone services for Monroe County are provided by CenturyLink, Kendall Telephone Company and Camp Douglas/Lemonweir Telephone Company.

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 Monroe County are shown on **Maps 10 through Map 14**.



Map 10

Fire Departments

There are ten volunteer fire departments **(Map 10, right)** that serve the local units of government in Monroe County **(Table 10)**. Fort McCoy Fire & Emergency Services and the Veterans Administration Medical Center Fire Department are federal agencies and the only full-time fire departments in Monroe County. Fort McCoy and VAMC Fire Departments will provide mutual aid assistance. All Fire Departments located in Monroe County have signed a Mutual Aid Agreement and each department including Emergency Management has a copy on file.

TABLE 10 MONROE COUNTY CRITICAL FACILITIES: FIRE FACILITIES

FIRE DEPT	COMMUNITY	ADDRESS	TELEPHONE
Cashton	Towns of Portland. Jefferson, the Villages of Cashton and Melvina.	545 Front St Cashton, 54619	608.654.5601
Elroy	Southeastern portion of Glendale	225 Main St Elroy, 53929	608.462.5378
Kendall	Towns of Clifton (south-western portion), Wellington (eastern portion) and Glendale	120 E South Railroad St Kendall, 54638	608.463.7192

TABLE 10	MONROE COUNTY CRITICAL FACILITIES: FIRE FACILITIES		
FIRE DEPT	**COMMUNITY**	**ADDRESS**	**TELEPHONE**
Norwalk	Towns of Wells (eastern portion), Ridgeville and Sheldon (northern part) and the Village of Norwalk.	213 W South St Norwalk, 54648	608.823.7760
Oakdale	Towns of Greenfield, LaGrange, Byron, Adrian (eastern portion), Tomah, Clifton (north-eastern portion) Oakdale and the Villages of Oakdale and Wyeville.	230 Ballpark Dr Oakdale, 54649	608.372.4915
Ontario	Towns of Sheldon (southern portion) Wellington (southern portion),	205 State St Ontario, 54651	608.337.4620 608.337.4315
Sparta City	City of Sparta	118 E Oak St Sparta, 54656	608. 487.9223
Sparta Rural	Towns of Little Falls, Sparta, Leon, New Lyme, Lafayette, Angelo, Adrian (western portion) and Wells (western portion).	202 E Oak St Sparta, 54656	608. 269.6333
Tomah	City of Tomah	819 Superior Ave Tomah, 54660	608.374.7465
Town of Lincoln	Towns of Lincoln, Grant and Scott, Village of Warrens and their coverage area extends into Jackson County.	506 Hartwell Dr Warrens, 54666	608.378.4923
Wilton	Towns of Wilton, Wellington (northern portion) and Village of Wilton	804 Railroad St Wilton, 54670	608.435.6898
WiDNR	Towns of Grant, Lincoln, Scott, Greenfield, LaGrange, Bryon	310 N. Superior Ave Tomah, 54660	608.372-.2811
Fort McCoy	Military Instillation	1941 S C Street Fort McCoy, 54656	608.388.2508

Hazardous Materials Response Team (HMRT)

The Monroe County Hazardous Materials Response Team (HMRT) was created in 1989 and formally recognized by the Monroe County Board of Supervisors by resolution in 2001, as this was not done when the team was created. The HMRT Team consists of volunteers from fire departments, law enforcement, EMS, 1st Responder and other volunteer agencies and falls under the administrative supervision of the Monroe County Emergency Management Coordinator. The HMRT is considered a Level "B" response team per Wisconsin State Statute Chapter 323.61(2m)(e) and will respond to spills as follows:

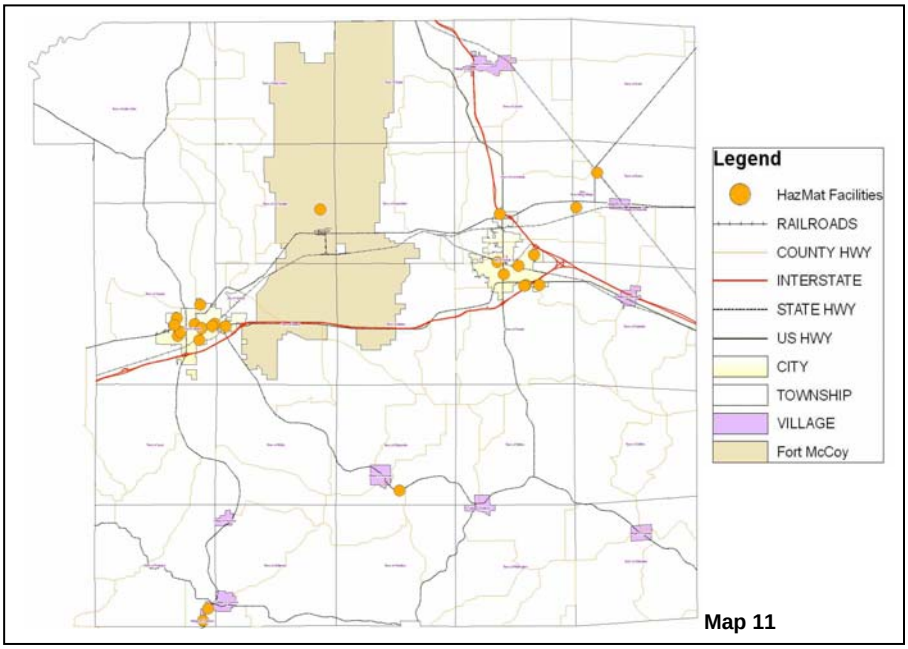
323.70 Hazardous substances information and emergency planning
(gi) "Level B release" means a release of a hazardous substance that necessitates the highest level of protective equipment for the respiratory systems of emergency response personnel, but less skin protection than a level A release, because operations at the site of the release do not involve a high potential for exposure to liquids or particulates that are harmful to the skin or capable of being absorbed through intact skin and any of the following conditions exists:

1. The type and concentration of substances in the atmosphere have been identified and are dangerous to respiration but are not harmful to skin or capable of being absorbed through intact skin.

2. The atmosphere contains less than 19.5% oxygen but does not contain substances that are harmful to skin or capable of being absorbed through intact skin.

3. Vapors or gases are present that have not been completely identified but it is known that those vapors or gases are not harmful to skin or capable of being absorbed through intact skin.

The county HMRT provides coverage for the entire county. **Map 11 (right)** shows the location of each Emergency Planning and Community Right-to-Know Act (EPCRA) Planning Facility that has extremely hazardous substances (EHS) at or above the threshold planning quantities (TPQ). The EPCRA Off-site Planning Facility



Map 11

information can be found in **Table 11** **(next page)**.

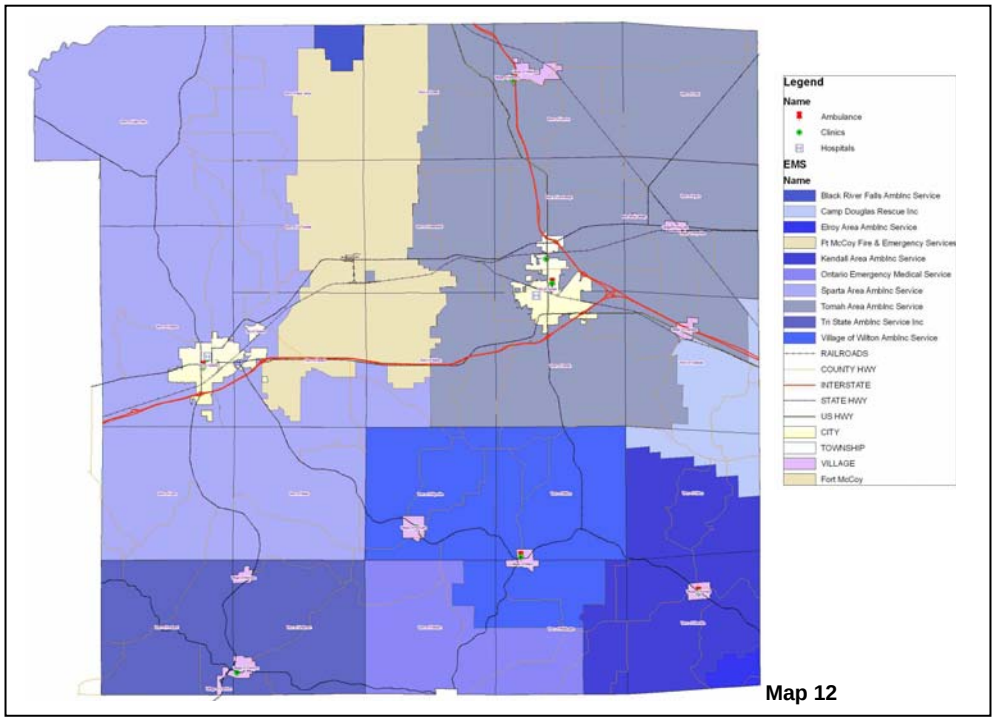
The HMRT vehicle and equipment are kept in the Emergency Response Building (ERB) located in the City of Tomah. Some equipment has been strategically placed with the Sparta City and Sparta Rural Fire Departments and an equipment trailer is kept at the HazMat Chief's residence. This equipment will allow for a quicker response to minor spills located on the west side of the county.

TABLE 11 MONROE COUNTY CRITICAL FACILITIES: EXTREMELY HAZARDOUS SUBSTANCE (EHS) SITES

EPCRA OFF-SITE PLANNING FACILITY	COMMUNITY	ADDRESS	TELEPHONE	REPORTING YEAR
Americold Logistics Inc	Town of Byron	28063 Essex Ave, Tomah 54660	608-372-2500	2011
Best Bio Diesel	Village of Cashton	111 Eagle Drive, Cashton 54619	608-654-6115	2010
Century Food International Plant 2 & 3	City of Sparta	920 Industrial Blvd, Sparta 54656	608-269-1900	2011
Century Food International Plant 4	City of Sparta	400 Century Court, Sparta 54656	608-269-1900	2011
CenturyLink Sparta	City of Sparta	311 South Court Street, Sparta 54656	608-269-0817	2011
CenturyLink Tomah	City of Tomah	120 E Milwaukee Street, Tomah 54660	608-372-8144	2011
Con-Way Central Express	City of Tomah	1710 Winnebago Ave, Tomah 54660	608-372-7388	2011
CROPP Cooperative	Village of Cashton	500 Organic Dr, Cashton 54619	608-625-2666	2011
Exopack, LLC	City of Tomah	501 Williams Street, Tomah 54660	608-372-2153	2011
Foremost Farms	City of Sparta	427 East Wisconsin St, Sparta 54656	608-269-3126	2011
Fort McCoy (National Security)	Fort McCoy	2171 South 8th Ave, Fort McCoy 54656	608-388-4776	2011
Level 3 - SPRTWIA3	City of Sparta	120 E Wisconsin St, Sparta 54656	720-888-0676	2011
Level 3 - TOMAWI1W	City of Tomah	29175 Dorsett Ave, Tomah 54660	720-888-0676	2011
Water Department Service Building	City of Sparta	1227 North Chester St, Sparta 54656	608-269-6511	2011
Water Well 7	City of Sparta	202 Tower St, Sparta 54656	608-269-6511	2010
Water Well 9	City of Sparta	920 Standard Dr, Sparta 54656	608-269-6511	2010
Water Well 10	City of Sparta	2050 Riley Rd, Sparta 54656	608-269-6511	2010
Sparta Coop Services-Fertilizer Plant	City of Sparta	1205-60 S Water St, Sparta 54656	608-269-5201	2011
The Toro Company	City of Tomah	200 Sime Ave, Tomah 54660	608-372-3991	2011
Valley Pride Pack, Inc	Village of Norwalk	19081 STH 71 East, Norwalk 54648	608-823-7445	2011
Wal-Mart FDC #6085-4881	City of Tomah	525 Industrial Ave, Tomah 54660	608-374-8500	2011
Wal-Mart Supercenter #979	City of Sparta	1600 W Wisconsin St, Sparta 54656	608-269-7501	2011
Wal-Mart Supercenter #965	City of Tomah	222 W McCoy Blvd, Tomah 54660	608-372-7900	2011

Hospital and Ambulance Services

There are eight ambulance service providers to the County ***(Map 12, right)***. Tomah Memorial Hospital and Mayo Healthcare-Sparta Campus provides the 24 municipalities with service. Other hospitals that service Monroe County are Gundersen Lutheran and Mayo Healthcare, which are both located in La Crosse (La Crosse County), Vernon Memorial in Viroqua (Vernon County) and Hess Memorial Hospital in Mauston (Juneau County). Fort



Map 12

Fort McCoy has a mutual aid agreement with all of the ambulance services in Monroe County, however, there is only one ambulance that serves the Fort and it only leaves the post to transport patients to the hospital.

TABLE 12 MONROE COUNTY CRITICAL FACILITIES: HOSPITALS AND CLINICS

FACILITIES	ADDRESS	TELEPHONE
Mayo Hospital – Sparta Campus	310 W Main St, Sparta 54656	608-269-4312
Tomah Memorial Hospital	321 Butts Ave, Tomah 54660	608-372-2181
Gundersen Lutheran – Sparta Clinic	315 W. Oak St, Sparta 54656	608.269-6731
Scenic Bluff Community Health Centers	238 Front St, Cashton, 54619	608-654-5100
Norwalk Clinic	200 North St, Norwalk 54648	608-823-7853
Gundersen Lutheran – Tomah Clinic	1330 N Superior Ave, Tomah 54660	608-372-4111
Mayo – Lake Tomah Clinic	321 Butts Ave, Tomah 54660	608-372-5951

TABLE 13 MONROE COUNTY CRITICAL FACILITIES: AMBULANCE SERVICES

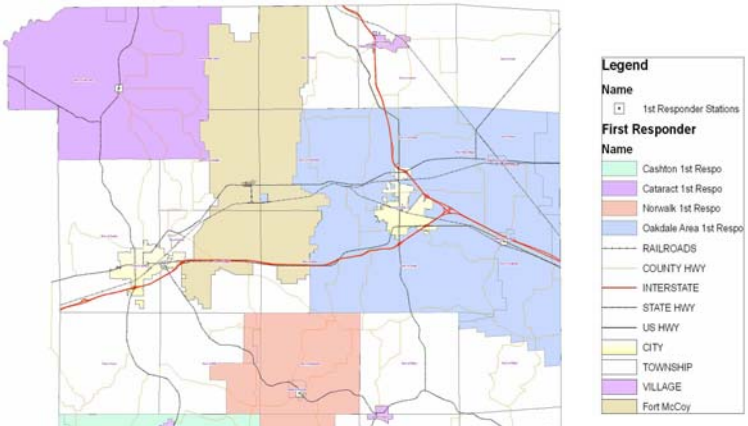
FACILITIES	COMMUNITY	ADDRESS	TELEPHONE
Sparta Area Ambulance	Towns of Little Falls, Sparta, Leon, New Lyme, Lafayette, Angelo and Wells	619 Stelting St Sparta, WI 54656	608-269-4949
Tomah Area Ambulance	Towns of Grant, Greenfield, Adrian, Lincoln, LaGrange, Tomah, Scott, Byron and Oakdale.	319 Arthur St Tomah, WI 54660	608-374-7460
Kendall Ambulance	Clifton, Wellington and Glendale	120 E S. Railroad St, Kendall, WI 54638	608-372-1466
Wilton Ambulance	Villages of Wilton and Norwalk and the Towns of Wilton, Sheldon, Wellington, and Ridgeville.	805 Railroad St Wilton, WI 54670	608-45-6527
Ontario Ambulance	Towns of Sheldon and Jefferson	205 State St Ontario, WI 54651	608.337-4305
Tri-State Ambulance	Town of Portland	221 Buchner Pl La Crosse, WI 54601	608-784-8827
Camp Douglas Ambulance	Portion of the Towns of Oakdale and Byron	502 Center St Camp Douglas, WI 54618	608-427-6969
Elroy Ambulance	the southeastern portion of the Town of Glendale	Railroad St, Elroy, WI 53929	608-562-3962
Fort McCoy	Military Instillation	1941 S C Street, Fort McCoy 54656	608-388-2508

TABLE 14 MONROE COUNTY CRITICAL FACILITIES: 1ST RESPONDERS

FACILITIES	COMMUNITY	ADDRESS	TELEPHONE
Cashton	Towns of Portland. Jefferson, the Villages of Cashton and Melvina.	545 Front St, Cashton	608.654.5601
Cataract 1st Responders	Towns of Little Falls, Sparta (north), New Lyme and the northern portion of Lafayette and the unincorporated Village of Cataract.	4013 Co Hwy I, Cataract	608-272-3190
Norwalk	Towns of Wells (eastern portion), Ridgeville and Sheldon (northern part) and the Village of Norwalk.	213 W South St, Norwalk	608.823.7760
Oakdale	Towns of Greenfield, LaGrange, Byron, Adrian Tomah, Oakdale and the Villages of Oakdale and Wyeville.	230 Ballpark Dr, Oakdale	608.372.4915
Town of Lincoln	Towns of Lincoln, Grant and Scott, Village of Warrens and their coverage area extends into Jackson County.	506 Hartwell Dr, Warrens	608.378.4923

1st Responders

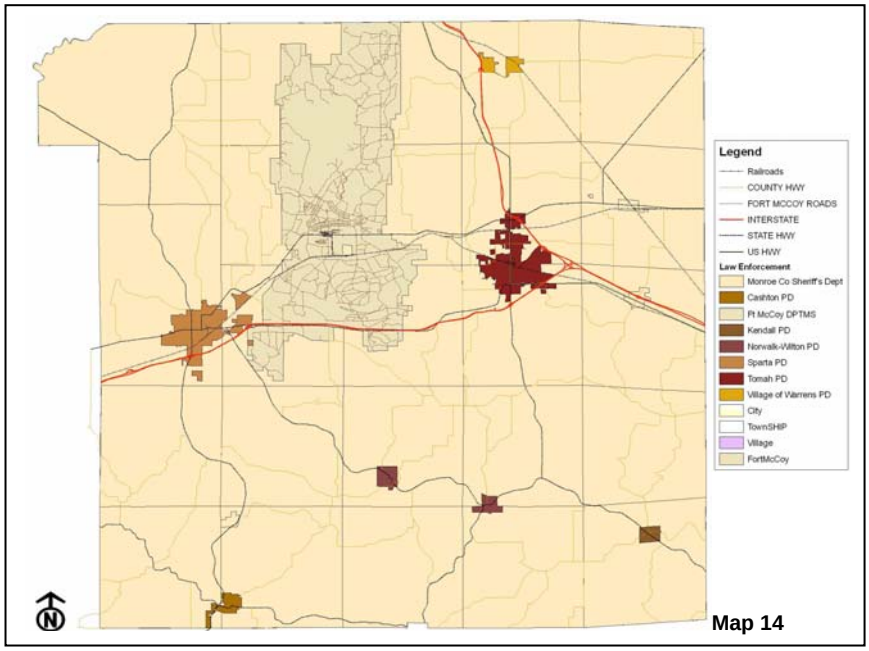
There are 5 First Responder Groups servicing Monroe County ***(Map 13, right)***. They assist fire and ambulance services with medical and non-medical emergency incidents, by providing first aid, CPR, bandaging wounds etc. The following is a general description of the area coverage for each 1st responder group in Monroe County:



Map 13

Law Enforcement

The Monroe County Sheriff's Department provides service to all the towns and the Villages of Wyeville, Oakdale and Melvina for law enforcement ***(map 14, below)***. Sparta and Tomah have their own police departments and the Villages of Norwalk and Wilton share a police department.



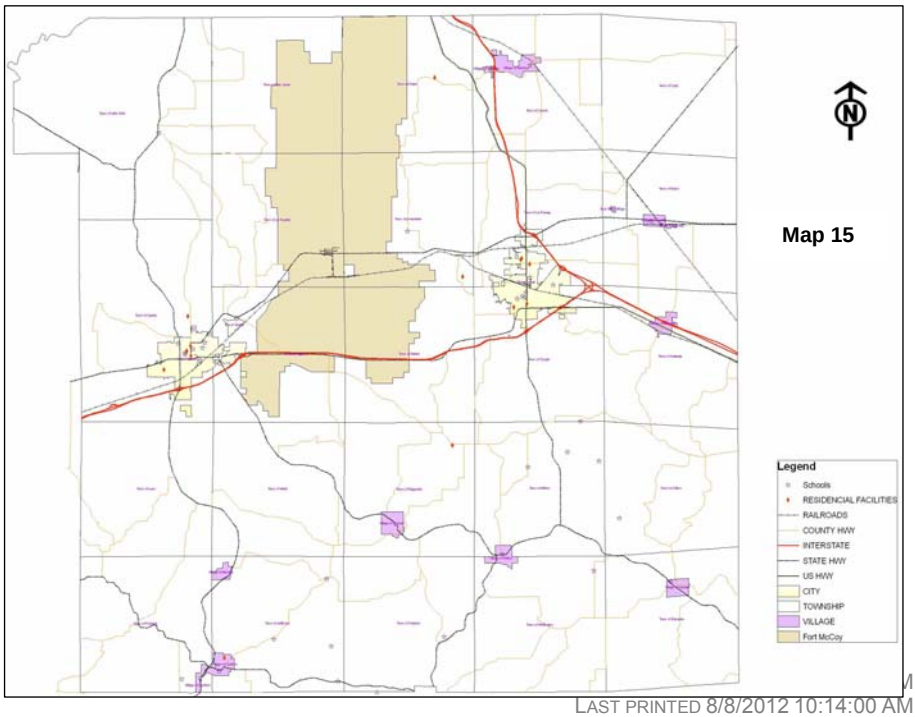
Map 14

The County has 3 road sergeants, and 1 Detective Sergeant, 4 investigators, 11 full time officers, 3 on call officers, 2 bailiffs and 10 jailers. There are also 11 Transport drivers of which 3 are certified. There are thirteen (13) full-time and five (5) on call dispatchers. The City of Sparta has 15 full time officers and 3 part time officers. The City of Tomah has 16. The Village of Cashton has 2 fulltime and 5 part-time, Kendall has 1 full time, Warrens has 2 part-time, Norwalk and Wilton share a full-time Chief of Police and 1 part-time officer (8-16 / month). The Monroe County 9-1-1 Communications Department provides dispatch service for the entire county.

TABLE 15 MONROE COUNTY CRITICAL FACILITIES: POLICE

NAME	COMMUNITY	ADDRESS	TELEPHONE
Cashton	Cashton	811 Main St PO Box 188, Cashton	608.654.7828
Ft. McCoy Law Enforcement	Military Instillation	1941 S C Street, Fort McCoy	608.388.2266
Kendall	Kendall	219 W South Railroad St., Kendall	608.463.7124
Monroe County Sheriff Department	Monroe County	210 W Oak St, Sparta	608.269.2117
Norwalk / Wilton	Norwalk/Wilton	208 S Church St PO Box 230, Norwalk	None
Sparta	Sparta	201 E Oak Street, Sparta	608.269.3102
Tomah	Tomah	819 Superior Ave, Tomah	608.374.7398
Veterans Administration	Tomah	500 E Veterans St., Tomah	608.372.6252
Warrens	Warrens	212 George St PO Box 97, Warrens	608.378.4177

To coordinate these services, Monroe County has created an *Emergency Operations Plan (EOP)* (updated in 2010). 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.



Map 15

In addition to emergency service facilities, other community facilities ***(Map 15 right)*** that are of importance in hazard mitigation planning include schools listed in Table 16,

nursing homes and residential facilities listed in Table 17 and government buildings listed in Table 18 ***(see Map 16, pp. 34)***.

TABLE 16 MONROE COUNTY CRITICAL FACILITIES: SCHOOL FACILITIES

FACILITIES	COMMUNITY	ADDRESS	TELEPHONE
Amish	Sheldon	30996 Opaque Rd, Ontario	None
Amish	Wilton	26808 Juneberry Ave, Wilton	None
Amish	Jefferson	15700 St Hwy 33, Cashton	None
Amish	Jefferson	28484 Co Hwy U, Cashton	None
Amish	Clifton	23349 King Rd, Kendall	None
Amish	Jefferson	15831 Co Hwy F, Cashton	None
Amish	Jefferson	28960 Nevada Rd, Cashton	None
Amish	Wellington	25645 Co Hwy V, Kendall	None
Amish	Wilton	20788 King Rd, Wilton	None
Amish	Wilton	21002 Co Hwy MM, Wilton	None
Amish	Wilton	20385 Juneau Rd, Wilton	None
Amish	Portland	8644 Odin Ave, Cashton	None
Brookwood High School	Ontario	28861 St Hwy 131, Ontario	608.337.4403
Cashton Elementary	Cashton	436 Front St, Cashton	608.654.7377
Cashton High	Cashton	540 Coe St, Cashton	608.654.5131
Cataract Elementary	Sparta	6070 St Hwy 27, Sparta	608.366.3453
Congregational Pre-school	Tomah	115 W. Lacrosse St, Tomah	608.372.2969
Kendall Grade	Kendall	601 Spring St, Kendall	608.463.7133
LaGrange Elementary	Tomah	600 Straw, Tomah	608.374.7057
Lakeview Montessori	Sparta	711 Pine St, Sparta	608.366.3468
Lawrence-Lawson Elementary	Sparta	429 N. Black River St, Sparta	608.366-3438
Lemonweir Elementary	Tomah	711 N. Glendale Ave, Tomah	608.374.7847
Maplewood Elementary	Sparta	900 E Montgomery St, Sparta	608.269.4827
Meadowview Intermediary	Sparta	1225 N Water St,, Sparta	608.366-3481
Meadowview Middle	Sparta	1225 N Water St., Sparta	608.366-3497
Mennonite School	Sparta	602 Walrath St., Sparta	None
Miller Elementary	Tomah	813 Oak St, Tomah	608.374.7026
Milwaukee Street Academy	Tomah	1310 Townline Rd, Tomah	608.374.7395
Oakdale Elementary	Oakdale	217 S Oakwood St., Oakdale	608.374.7081
Norwalk/Ontario/Wilton Elementary	Ontario	28861 St Hwy 131, Ontario	608.337.4420
Robert Kupper Learning Center	Tomah	1310 Townline Rd, Tomah	608.374.7391
Southside Elementary	Sparta	1023 Walrath St, Sparta	608.366.3450
Sparta High	Sparta	506 N. Black River St, Sparta	608.366.3424
Sparta Charter	Sparta	201 E Franklin St, Sparta	608.366.3459
Sparta High Point	Sparta	201 E. Franklin St, Sparta	608.366.3491
St John's Evangelical Lutheran	Sparta	405/419 Jefferson Ave, Sparta	608.269.6001
St Mary's Catholic	Tomah	315 W Monroe St, Tomah	608.372.5765
St Mary's Ridge Catholic	Cashton	26382 Co Hwy U, Cashton	608.823.7577
St Patrick's Catholic	Sparta	316 W Oak St, Sparta	608.269.4748
St Paul's Lutheran	Tomah	505 Superior Ave., Tomah	608.372.4022
Sacred Heart	Cashton	710 Kenyon Ave, Cashton	608.654.7733
Tar Valley Seventh Day Adventist	Tomah	10541 Edgewater Rd, Tomah	608.372.7863
Tomah Middle	Tomah	612 Hollister Ave., Tomah	608.374.7881
Tomah High	Tomah	901 Lincoln Ave, Tomah	608.374.7246
Warrens Elementary	Warrens	409 Main St, Warrens	608.374.7800
Wisconsin Technical	Sparta	11177 Co Hwy A, Sparta	608.269.3791
Wisconsin Technical	Tomah	120 E Milwaukee St, Tomah	608.374.7700
Wyeville Elementary	Wyeville	225 W Tomah Rd, Wyeville	608.374.7259

TABLE 17 MONROE COUNTY CRITICAL FACILITIES: RESIDENTIAL FACILITIES

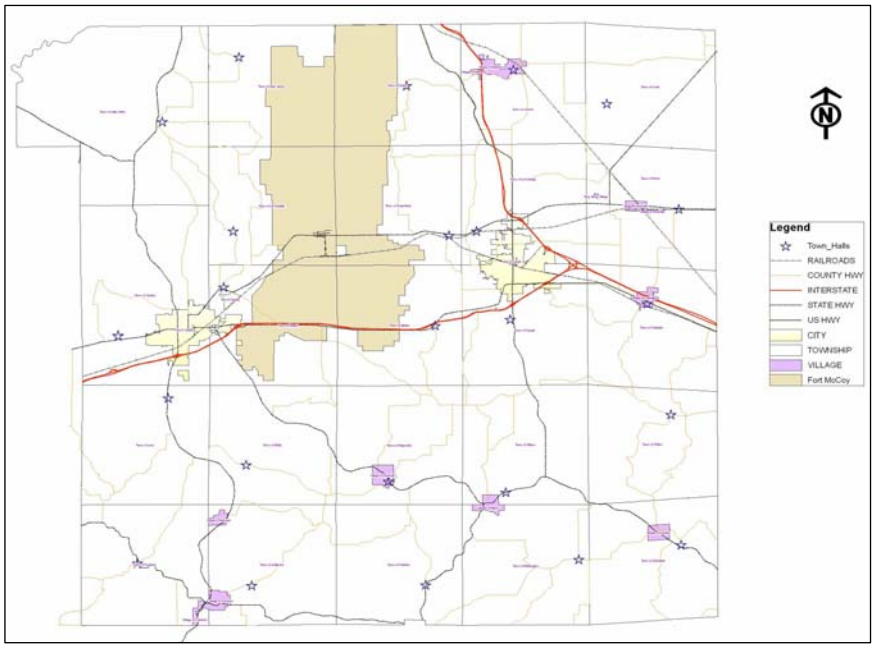
FACILITIES	STREET ADDRESS	CITY/STATE/ZIP	TELEPHONE
A Touch of Home	1211 Mark Ave	Tomah, WI 54660	608-372-5454
Agape Acres	3737 Blueberry Rd.	Warrens, WI 54666	608-378-4054
Bethel Village Group Home	904 Wall St,	Cashton, WI 54619	608-654-7600
Close to Home, Inc.	1206 Mark Ave.	Tomah, WI 54660	608-374-5300
Courtyard at Willow Woods	1500 Lincoln Ave.	Tomah, WI 54660	608-372-2631
Cranberry Court LLC	1031 Heeler Ave.	Tomah, WI 54660	608-372-5070
Greenfield House	21444 Flatiron Ave.	Tomah, WI 54660	608-372-7335
Heritage Haven Apartments	622 S. Court St.	Sparta, WI 54656	608-269-5544
Liberty Village	200 Liberty Place	Tomah, WI 54660	608-374-5005
Little Falls, CBRF	4039 County I	Sparta, WI 54656	608-272-3238
Monroe Co. Housing Auth.	1108 W. Wisconsin St.	Sparta, WI 54656	608-269-5017
Brookside Apartments	*307 N. Court St.*	*Sparta, WI 54656*	*608-269-2188*
Eastwood Manor I	*711 Wisconsin Ave*	*Tomah, WI 54660*	

TABLE 17 MONROE COUNTY CRITICAL FACILITIES: RESIDENTIAL FACILITIES

FACILITIES	STREET ADDRESS	CITY/STATE/ZIP	TELEPHONE
Eastwood Manor II	*612 E. Brownell St.*	*Tomah, WI 54660*	
Elder Manor	*1500 Lincoln Ave.*	*Tomah, WI 54660*	
Hilltop Apartments	*405 Market St.*	*Warrens, WI 54666*	
Hillcrest Manor	*300 Trescher Ave.*	*Cashton, WI 54619*	
Kenview Apartments	*412 Spring St.*	*Kendall, WI 54638*	
Norcrest Apartments	*206 W. Center St.*	*Norwalk, WI 54648*	
Oakdale Apartments	*208 Tara Drive*	*Tomah, WI 54660*	
Sparta Arms	*106 North "L" Street*	*Sparta, WI 54656*	
Tomah Manor	*901 McLean Ave.*	*Tomah, WI 54660*	*608-374-7455*
Village Apartments	*S. Court & Maple Streets*	*Sparta, WI 54656*	
Westwood Manor	*1108 W. Wisconsin St.*	*Sparta, WI 54656*	
Wilcrest Manor I	*500 Cemetery Rd.*	*Wilton, WI 54670*	
Wilcrest Manor II	*500 Cemetery Rd*	*Wilton, WI 54670*	
Morrow Memorial Apts.	331 S. Water St.	Sparta, WI 54656	608-269-3168
Bridge Path	*503 S. Water St.*	*Sparta, WI 54656*	
Mary Crest Assisted Living	*401 S. Water St.*	*Sparta, WI 54656*	
Homestead Apts.	*331 S. Water St.*	*Sparta, WI 54656*	
Parkview Independent Apts.	*315 S. Spring St.*	*Sparta, WI 54656*	
Rolling Hills Rehabilitation Center	14345 Co Hwy B	Sparta, WI 54656	608-269-8800
Sparta Arms	106 North "L" St.	Sparta, WI 54656	608-269-4070
Sunset Ridge Estates, CBRF	20035 Junco Road	Tomah, WI 54660	608-372-0570
Time for Ease, CBRF	1848 W. River Road	Sparta, WI 54656	608-269-8532
Tomah Health Care Center	1505 Butts Ave	Tomah, WI 54660	608-372-3241

TABLE 18 MONROE COUNTY CRITICAL FACILITIES: GOVERNMENT AND MILITARY FACILITIES

FACILITIES	COMMUNITY	ADDRESS	TELEPHONE
Adrian Town Hall	Adrian	15937 Co Hwy T, Tomah	608.372.6694
Angelo Town Hall	Angelo	14123 Co Hwy I, Sparta	None
Byron Town Hall	Byron	23286 St Hwy 21, Warrens	608.372.9689
Clifton Town Hall	Clifton	31819 Co Hwy A, Camp Douglas	608.427-6814
Glendale Town Hall	Glendale	27337 Mocha Rd, Kendall	608.463.7559
Grant Town Hall	Grant	19460 Bittersweet Ave, Warrens	608.378.4583
Greenfield Town Hall	Greenfield	11575 Fisher Rd, Tomah	608.374.5646
Jefferson Town Hall	Jefferson	12035 Olympic Ave, Cashton	608.654.7855
Lafayette Town Hall	Lafayette	13336 Co Hwy Q, Sparta	608.269.2738
LaGrange Town Hall	LaGrange	22731 Flint Ave, Tomah	608.372.3792
Leon Town Hall	Leon	8108 Jackrabbit Ave, Sparta	608.269.5873
Lincoln Town Hall	Lincoln	506 Hartwell Dr, Warrens	None
Little Falls Town Hall	Little Falls	4124 Co Hwy I, Sparta	608.272.3175
New Lyme Town Hall	New Lyme	2682 Co Hwy S, Sparta	None
Oakdale Town Hall	Oakdale	228 Ballpark Dr, Oakdale	608.372.6475
Portland Town Hall	Portland	6736 St Hwy 33	608.654.5187
Ridgeville Town Hall	Ridgeville	309 Main St, Norwalk	608.823.7459
Scott Town Hall	Scott	28788 Buckley Ave, Warrens	608.378.4727
Sheldon Town Hall	Sheldon	29215 St Hwy 131, Norwalk	None
Sparta Town Hall	Sparta	5724 Hamlet Ave, Sparta	608.269.4830
Tomah Town Hall	Tomah	24381 Heritage Ave, Tomah	608.372.4611
Wellington Town Hall	Wellington	27503 Co Hwy P, Kendall	None
Wells Town Hall	Wells	11754 Co Hwy XX, Norwalk	608.269.4391
Wilton Town Hall	Wilton	23988 ST Hwy 71, Wilton	608.435.6161
Cashton Village Hall	Cashton	811 Main St, Cashton	608.654.7828
Kendall Village Hall	Kendall	219 W S Railroad, Kendall	608.463.7124
Melvina Village Hall	Melvina	604 Central Dr, Cashton	608.654.7433
Norwalk Village Hall	Norwalk	208 S Church St, Norwalk,	608.823.7760
Oakdale Village Hall	Oakdale	133 Well Dr, Oakdale	608.372.2927
Warrens Village Hall	Warrens	212 George St, Warrens	608.378.4177
Wilton Village Hall	Wilton	400 East St, Wilton	608.435.6666
Wyeville Village Hall	Wyeville	215 Wyeville Ave, Wyeville	608.372.7403
Sparta City Hall	Sparta	201 W Oak St, Sparta	608.269.4340
Tomah City Hall	Tomah	819 Superior Ave, Tomah	608.372.7420
National Guard Armory – Sparta	Sparta	602 E Division, Sparta	608.269.4625
National Guard Armory – Tomah	Tomah	530 Mill St, Tomah	608.372.5434
Fort McCoy Headquarters	Military Instillation	1941 S C Street, Sparta	608.388.7113 / 608.372.5961



Map 16 (MONROE COUNTY CRITICAL FACILITIES: GOVERNMENT AND MILITARY FACILITIES)

Part III – Risk Assessment

INTRODUCTION

Analyzing the hazard 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 the Monroe County All-Hazards Mitigation Plan will focus on the following:

- Identification of all types of natural and manmade hazards that can affect Monroe County
- An analysis of the hazards identified in Monroe County
- History of previous occurrences of hazard events
- The County's vulnerability to future events

HAZARD IDENTIFICATION

The process of identifying those hazards that should be specifically addressed in the Monroe County All-Hazard Mitigation Plan was based on consideration of a number of factors. The process first included a review of past hazard events to determine the probability of future occurrences and threat to human safety and property damage. From past events it is advised that all townships are interconnected with each other. That is to said, if something happens in one township, all townships are affected. Thus the hazard planning and mitigations is for all townships.

The most accessible tool in identifying hazards in Monroe County was from reports that already existed. In November 2002, the Wisconsin Emergency Management (WEM) created the *Hazard Analysis for the State of Wisconsin*. It details the hazards that have caused disasters in the county since the early 1970's it can also be used to determine what events are likely to cause disasters. This report also discusses hazards that threaten public health and safety, but may not be likely to cause a disaster. The descriptions of disasters, hazards and threats include information on frequency of occurrence, significant occurrences, potential and actual impacts and related programs.

A listing of possible hazards was to help identify which hazards should be included in the Plan. The identification also included input from the Monroe County Emergency Management Coordinator and the Emergency Management Committee. Based on these factors, hazards listed in this chapter are ranked according to threat to human safety and possible damage to property.

The number of events that have occurred from 1/1/1950 – 12/31/2010 have determined the priority ranking of the top ten hazards that have or will affect Monroe County; they are as follows:

1. Severe Thunderstorms	2. Snow/Ice
3. Tornados	4. Extreme Temperatures
5. Flooding	6. Hazardous Materials Incidents
7. Drought	8. Dam Failures
9. Forest/Wild Fires	10. Earthquakes

HAZARD ANALYSIS

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 of Part III may also give some indication of the risk to public health and safety and to personal and public property.

HISTORY OF HAZARDS

Past experiences of disasters are an indication of the potential for future disasters for which Monroe County would be vulnerable. A review of past occurrences for each identified hazard in Monroe County was completed. Some disasters have had damages that have 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 eight natural disasters in Monroe County where a Presidential Disaster Declaration was requested from 1971-2008. They include the following:

- 2008 Severe Storm/Flash Flooding – Presidential Disaster Declaration Approved
- 2004 Severe Storm/Flash Flooding/Tornado-Presidential Disaster Declaration Approved

- 2000 Severe Storm/Flash Flooding/Tornado-Presidential Disaster Declaration Approved
- 1998 Severe Storms/Straight-Line Winds/Tornadoes, Heavy Rain/Flash Flooding – Presidential Disaster Declaration Approved
- 1993 Flooding-Presidential Disaster Declaration Approved
- 1990 Flooding-Presidential Disaster Declaration Approved
- 1980 Floods, Tornadoes and High Winds - Request for Presidential Disaster Declaration was not approved
- 1978 Flooding/Tornadoes-Presidential Disaster Declaration Approved
- 1976 Drought-Presidential Emergency Declaration Approved

It should be noted that this significantly underestimates the number of hazards that have occurred in Monroe County. Almost every year there are significant weather events or disasters that cause millions 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's (NOAA) National Climatic Data Center (NCDC) publishes National Weather Service (NWS) data describing recorded weather events and resulting deaths, injuries, and damages. From January 1, 1950 to March 31, 2010, NCDC reported 382 weather events for Monroe County. **Table 19** summarizes the NCDC data by event. Though this data does give a good indication of the severity of each event, it is not indicative of the extent of deaths, injuries, and damage for the County as a whole. In many cases, the geographic area impacted by the hazard event was much larger than the County itself. For instance, 21 injuries were reported by the NCDC for temperature extremes for Monroe County. These 21 injuries however were actually from one event between 53 other counties.

TABLE 19 WEATHER HAZARD RECORDED FOR MONROE COUNTY (1955- OCTOBER 2011)

EVENT	NUMBER OF EVENTS	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Thunderstorm/High Wind	151	1	4	$5,635M	$8491M
Hail	122	0	0	$1091M	$4.466M
Snow/Ice	54	1	42	$297K	$0
Tornado	18	0	4	$3.916M	$45K
Temperature Extremes	19	5	21	$0	$0
Flood	10	0	0	$1.837M	$712K
Lightning	7	0	0	$69K	$0
Drought	0	0	0	$0	$0
Wild/Forest Fire	4	0	0	$525K	$502K
Total	**381**	**7**	**71**	**$13.290M**	**$14.216M**

Source: National Climatic Data Center

Because the NCDC data is not entirely comprehensive and indicative of the hazards that have occurred in the County, other sources of information were referenced. These sources included other plans and reports, documents from the Monroe County Emergency Management Department, past local newspaper articles, the Wisconsin Department of Natural Resources (DNR), Wisconsin Emergency Management (WEM), and the National Weather Service.

VULNERABILITY ASSESSMENT

For each hazard identified, a summary of the impact on the community is given. When possible, the numbers of existing buildings, infrastructure and critical facilities located in the hazard areas are inventoried. Critical facilities are defined as facilities that are critical to the health and welfare of the population, and are especially important following hazard events. This can include a hospital, town hall, mobile homes, or a concentration of homes around a lake.

Where possible, an estimate of the potential dollar losses to vulnerable structures is given. Values are identified by tax assessments, equalized values, or statement of values from insurance companies.

Because Monroe County is made up of local units of government, it is a requirement by FEMA to assess each jurisdiction's risks for each hazard. Given that the County is not uniform in (but not limited to) land use, surface water, vegetation, and population concentration, certain areas in the County may be more vulnerable than other areas.

HAZARD: SEVERE THUNDERSTORMS (HAIL, LIGHTNING AND HIGH WINDS)

Hazard Analysis:
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 ¾ of an inch in diameter or greater or a tornado. Strong winds, hail, and lightning will be addressed in this section; however tornadoes will be referenced separately. Thunderstorms frequency is measured in terms of incidence of thunderstorm days or days on which thunderstorms are observed. Monroe County averages 39 thunderstorm days per year. 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 Monroe County:
One recorded death and five injuries have resulted in association with the 151 reported severe thunderstorms in the area since 1/1/1950 – 10/1/11. All three requests for a Presidential Disaster Declaration for Monroe County have been associated with severe storms since 1971.

Apr 10, 2011 A cold front pushed east into Wisconsin during the late afternoon and evening hours of April 10th. Severe thunderstorms developed along the cold front and produced very large hail and three tornadoes over portions of western and central Wisconsin. The hail ranged from quarter to tennis ball size and caused extensive damage to siding and cars in the southern portions of the city of La Crosse (La Crosse County). Although difficult to estimate, damage estimates from insurance companies and contractors in the area were between 20 and 30 million dollars from the one hail storm. National Weather Service storm survey teams confirmed two EF1 tornadoes and an EF2 tornado in Juneau and Adams counties. The tornadoes uprooted trees, knocked power lines down, flipped automobiles, and damaged or destroyed homes and businesses. In Adams County, 7 homes and 3 businesses were destroyed and damage assessments exceeded three and a half million dollars. The roof was blown off a barn in Melvina, south of Sparta. A storm chaser estimated a wind gust of 70 mph in Tomah.

April 3, 2011 A warm front lifted north across central Wisconsin during the morning hours of April 3rd. Severe thunderstorms developed over central Wisconsin and produced large hail ranging from penny size at Volk Field (Juneau County) to quarter size five miles south of Mauston (Juneau County).

Aug 13, 2010 A line of severe thunderstorms moved out of Minnesota and into western and central Wisconsin during the morning hours of August 13th. Strong winds created tree and minor structural damage, while widespread heavy rain of 3 to 4 inches caused some flash flooding, road closures, and rises along rivers, streams and creeks. Significant damage occurred to roads, homes and businesses in west central Wisconsin due to the flooding with an estimated $2.78 million in damage to public sector infrastructure. More thunderstorms developed south of the initial storms across southwest Wisconsin, which brought heavy rains and caused flooding problems into the afternoon hours. Damage was reported to a rural street sign along Garden Avenue on the county line between Monroe and La Crosse Counties. A tree was blown down, while damage was also reported to a parking lot light at a local business in Tomah. Trees were blown down in Wilton.

July 14, 2010 A cold front tracked west to east across western and central Wisconsin during the afternoon and evening hours of July 14th. Severe thunderstorms developed along the cold front and produced severe wind gusts, funnel clouds, large hail and one tornado. The severe winds knocked trees down onto power lines and caused power outages across portions of central and western Wisconsin. Trained spotters estimated hail up to two inches in diameter near Osseo in Trempealeau County. The severe thunderstorms also produced an EF1 tornado in northern Jackson and southern Clark Counties. These storms also produce very heavy rain which caused flash flooding across southern Jackson, northern Monroe and Richland Counties. Law enforcement reported several roads closed due to water over roads and washouts. Cooperative observers and amateur radio operators reported rainfall amounts ranging from three to seven inches across southern Jackson and northern Monroe Counties. A trained spotter reported a fifteen inch diameter tree down on Highway 131 near Wilton. Amateur radio operators estimated a 60 miles per hour wind gust near Tunnel City.

June 26, 2010 Thunderstorms developed along a nearly stationary front over western and central Minnesota during the late afternoon and early evening of the 26th. These storms then tracked east across western Wisconsin late in the evening of the 26th into the early morning hours of the 27th. Three 5 to 7 inch diameter tree branches were blown down onto vehicles parked under the trees.

June 7, 2008 Damages affected the Towns of Glendale, Wellington, Sheldon, Jefferson, Portland, Wells, Leon, Ridgeville, Wilton, Byron; the villages of Cashton, Wilton and Kendall and the Monroe County Highway Department. An extremely large number of trees were uprooted, blown over or large limbs snapped which caused some minor to major personal property damage as well as costs associated for debris removal and road repairs to the public sector. Many homes sustained minor -major flood damage in the south - southeast portion of the county due to 6" – 9" of torrential rains falling in a brief time. Crop damages (corn, soy beans, cranberries, fresh market vegetables etc.) resulted in over a million-dollar loss; Monroe County was awarded assistance from the USDA and Wisconsin Farm Services Agencies. Monroe County was awarded a Presidential Disaster Declaration for both Public and Individual Assistance.

According to the National Weather Service located in La Crosse, WI "June 1998, a large squall line moved through the region with winds gusts in excess of 100 mph knocking down hundreds of trees and damaging buildings. The Cataract area and St Hwy 71 were hardest hit. There have been 4 damaging wind reports since 1994 in the county.

SEVERE THUNDERSTORM WATCHES		SEVERE THUNDERSTORM WARNINGS	
YEAR	#	YEAR	#
2010	13	2010	10
2009	3	2009	6
2008	12	2008	9
2007	14	2007	9
2006	24	2006	11
2005	16	2005	7
2004	8	2004	2
2003	11	2003	3
2002	21	2002	6
2001	11	2001	8
2000	14	2000	6
1999	13	1999	6

Large hail can also occur in a severe thunderstorm. June is the peak month with the most common time between 1 and 9PM. Hail is typically a crop damaging hazard but can damage roofs, windows, and vehicles if large enough (>1"). Expenses can be high. Injuries or fatalities are rare for hail. On June 1, 2000 hail the size of softballs hit Oakdale, WI damaging sidling, roofs and numerous vehicles. Here have been 122 large hail (>3/4") reports in the county since 1950."

Non-severe thunderstorms still pose a lightning risk in Monroe County there have been 23 injuries from lightning since 1982.

Based on past reported events from the National Weather Service, from 1955-2010 Monroe County has experienced hurricane force winds of 75 mph or higher (Category 2 Hurricane type winds) four times which is the average for the state. With these past events in mind, the county has a 25 percent chance in a given year of experiencing winds of this magnitude. The historical frequency for the occurrence of hail is much greater. The county averages 0.77 periods of hail per year with sizes ranging from .75 to 1.75 inches in diameter, based on the reported events of the past 50 years,

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 lightening but where these related hazards form or touchdown 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 tornadoes) have caused substantial property and infrastructure damage, and have the potential to cause future damage. In order to assess the vulnerability of the Monroe County area to thunderstorms and related storm hazards, a review of the past events indicates 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

According to the NCDC, historic thunderstorm events with associated high wind averages $38,000 in property damage, and $4,000 in reported crop damage. Historic thunderstorm events with associated hail that reported property damage averaged $3,800, and $2,100 in events that reported crop damage. Historic thunderstorm events with associated lightning that reported property damage averaged $3,000. Based on review of the historic patterns of thunderstorms associated with high wind, hail, or lightning, 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:

Frequency data from the National Weather Service indicates that the probability of a thunderstorm with damaging winds occurring in Monroe County is average for the State of Wisconsin. There is a 25 percent chance in a given year of a thunderstorm with damaging winds occurring in Monroe County. This equates to about once every 4 years. The probability of a thunderstorm with damaging hail (0.75 inch-diameter or greater) is higher in Monroe County at 0.77 or 77% chance in a given year. The probability of a storm severe enough to warrant a Presidential Disaster Declaration is 0.13 or a 13 percent chance in a given year. Historic data is again used to estimate potential future dollar losses due to severe thunderstorms. In Monroe County, severe thunderstorms have averaged damages of $31,602 for high wind events and $3,825 in hail events. Over the next ten-year period, losses associated with severe thunderstorms in Monroe County could approach $330,000.

HAZARD: WINTER STORMS (HEAVY SNOWSTORMS, BLIZZARDS, FREEZING RAIN ETC.)

Hazard Analysis:

Winter storms can vary in size and strength and include heavy snowstorms, blizzards, freezing rain, sleet, ice storms, 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 a part of nearly every winter in Monroe County.

History of Winter Storms in Wisconsin:

The 30-year average seasonal snowfall at Sparta is 40.0 inches, but the nearby ridge tops can receive several more inches per year according to the National Weather Service. There are occasions where milder daytime temperatures in valleys produce rain when a wintry mix or snow is falling on ridges. Blowing snow is more common on ridge tops as well. The NCDC has reported 60 major snow events for Monroe County since 1955, **Table 20**. All of these storms contained some form of snow, sleet, freezing rain, or slippery road conditions.

Table 20 Reported Snow and Ice Events

Date	Time	Location or County	Type	Dth/Inj	Property Damage
1/13/1993	0000	Statewide	Heavy Snow	0/0	0
1/5/1994	1200	West Central and Southwest Regions	Heavy Snow	0/0	0
1/16/1994	0400	West Central and Southwest Regions	Heavy Snow	0/0	0
1/26/1994	2000	All but Far Northwest of WI	Heavy Snow / ice Storm	0/0	0
2/22/1994	1800	Southern Half of Wisconsin	Heavy Snow	0/0	0
3/6/1995	1000	West Central, Southwest and Northeast Regions	Heavy Snow	0/0	0
3/27/1995	0300	West Central, Southwest and Northeast Regions	Heavy Snow	0/0	0
11/26/1995	2000	West Central and Southwest Regions	Heavy Snow	0/1	0
12/13/1995	1000	West Central Region	Ice Storm	0/0	0
1/18/1996	0700	Buffalo, Clark, Crawford, Jackson, La Crosse, Monroe, Taylor, Trempealeau, Vernon	Heavy Snow	0/0	0
2/26/1996	1500	Buffalo, Clark, Crawford, Jackson, La Crosse, Monroe, Taylor, Trempealeau, Vernon	Ice Storm	0/0	0
11/20/1996	1300	Buffalo, Grant, Jackson, La Crosse, Monroe, Richland, Trempealeau	Winter Storm	0/0	100K
12/23/1996	1200	Buffalo, Crawford, Grant, Jackson, Monroe, Richland, Trempealeau, Vernon	Winter Storm	0/0	0
1/15/1997	1900	Adams, Buffalo, Clark, Crawford, Grant, Jackson, Juneau, La Crosse, Monroe, Richland, Taylor, Trempealeau, Vernon	Winter Storm	0/0	0
2/4/1997	0200	Adams, Buffalo, Clark, Crawford, Grant, Jackson, Juneau, La Crosse, Monroe, Richland, Trempealeau, Vernon	Winter Storm	0/0	0
3/13/1997	1200	Adams, Buffalo, Clark, Jackson, Juneau, La Crosse, Monroe, Richland, Taylor, Trempealeau, Vernon	Winter Storm	0/0	0
1/4/1998	1400	Adams, Buffalo, Clark, Crawford, Jackson, Juneau, La Crosse, Monroe, Richland, Taylor, Trempealeau, Vernon	Ice Storm	0/14	67K
1/24/1999	1200	Juneau, La Crosse, Monroe	Heavy Snow	0/20	130K
12/18/2000	0600	Adams, Buffalo, Clark, Crawford, Grant, Jackson, Juneau, La Crosse, Monroe, Richland, Trempealeau, Vernon	Winter Storm	0/0	0
2/8/2001	1700	Adams, Buffalo, Clark, Crawford, Grant, Jackson, Juneau, La Crosse, Monroe, Richland, Taylor, Trempealeau, Vernon	Winter Storm	0/0	0

Table 20		Reported Snow and Ice Events			
Date	**Time**	**Location or County**	**Type**	**Dth/Inj**	**Property Damage**
2/24/2001	0400	Adams, Buffalo, Clark, Crawford, Grant, Jackson, Juneau, La Crosse, Monroe, Richland, Taylor, Trempealeau, Vernon	Ice Storm	0/0	0
3/1/2002	1500	Adams, Crawford, Grant, Jackson, Juneau, La Crosse, Monroe, Richland, Vernon	Winter Storm	0/0	0
2/2/2003	1700	Adams, Clark, Jackson, Juneau, La Crosse, Monroe, Richland, Taylor, Trempealeau, Vernon	Winter Storm	0/0	0
4/7/2003	0230	Crawford, Monroe, Richland, Vernon	Winter Storm	0/0	0
12/9/2003	1200	Adams, Buffalo, Juneau, Monroe, Richland, Taylor, Vernon	Winter Storm	0/0	0
2/5/2004	1500	Adams, Crawford, Grant, Juneau, Monroe, Richland, Vernon	Winter Storm	0/0	0
12/20/2004	1300	Adams, Clark, Jackson, Juneau, La Crosse, Monroe, Trempealeau	Winter Storm	0/0	0
1/1/2005	1200	Buffalo, Clark, Jackson, La Crosse, Monroe, Taylor, Trempealeau	Ice Storm	0/0	0
1/4/2005	1900	Adams, Crawford, Grant, Juneau, Monroe, Richland, Vernon	Winter Storm	0/0	0
1/21/2005	0000	Adams, Buffalo, Clark, Crawford, Grant, Jackson, Juneau, La Crosse, Monroe, Richland, Taylor, Trempealeau, Vernon	Winter Storm	0/0	0
2/20/2005	0100	Adams, Buffalo, Clark, Jackson, Juneau, La Crosse, Monroe, Trempealeau	Winter Storm	0/0	0
3/17/2005	1800	Adams, Buffalo, Clark, Jackson, Juneau, La Crosse, Monroe, Richland, Trempealeau, Vernon	Winter Storm	0/0	0
02/16-17/2006	0000	Adams, Buffalo, Clark, Jackson, Juneau, La Crosse, Monroe, Richland, Trempealeau, Vernon	Winter Storm	0/0	0
3/5/2006	0600	Crawford, Juneau, Monroe, Vernon	Heavy Snow	0/0	0
1/14/2007	1600	Monroe	Heavy Snow	0/0	0
2/23/2007	1815	Monroe	Winter Storm	0/0	0
3/2/2007	1200	Adams, Clark, Monroe, Trempealeau,	Winter Storm	0/0	0
4/11/2007	0000	Grant, Jackson, Monroe	Winter Storm	0/0	0
12/1/2007	1000	Adams, Buffalo, Clark, Monroe	Winter Storm	0/0	0
12/22-23/2007	2230	Adams, Buffalo, Clark, Jackson, Juneau, La Crosse, Monroe, Richland, Trempealeau, Vernon	Winter Storm	0/0	0
1/21/2008	0815	Monroe	Heavy Snow	0/0	0
1/29/2008	1135	Monroe, Taylor	Winter Storm	0/0	0
2/14/2008	0300	Monroe	Heavy Snow	0/0	0
2/17/2008	0300	Adams, Juneau, Monroe	Winter Storm	0/0	0
3/21/2008	0220	Monroe	Heavy Snow	0/0	0
12/8/2008	1500	Adams, Buffalo, Clark, Jackson, Juneau, La Crosse, Monroe, Trempealeau, Vernon	Winter Storm	0/0	0
12/19/2008	0115	Juneau, Monroe	Winter Storm	0/0	0
12/20/2008	0830	Juneau, La Crosse, Monroe, Vernon	Winter Storm	0/0	0
1/3/2009	1600	Adams, Buffalo, Clark, Crawford, Grant, Jackson, Juneau, La Crosse, Monroe, Richland, Taylor, Trempealeau, Vernon	Winter Weather	0/0	0
2/26/2009	1220	Adams, Juneau, La Crosse, Monroe, Vernon	Winter Storm	0/0	0
3/8/2009	0815	Monroe	Ice Storm	0/0	0
12/8/2009	0600	Buffalo, Jackson, Monroe	Winter Storm	0/1	0
1/6/2010	2255	Monroe	Winter Storm	0/0	0
11/24/10	1500	Monroe	Winter Storm	0/0	0
12/03/10	1745	Monroe	Heavy Snow	0/0	0
12/29/10	1800	Monroe	Winter Weather	0/0	0
TOTAL:				**1/42**	**297K**

April 19, 2011 Snowfall amounts generally were in the 5 to 7 inch range. The highest reported total was 9 inches southwest of Warrens. An area of low pressure tracked from Kansas into lower Michigan from April 19th into the 20th. Enough cold air was in place across western Wisconsin for the precipitation from this system to fall as snow. Some of this snow was locally heavy with amounts in excess of 6 inches. The highest reported totals were 9 inches southwest of Warrens (Monroe County) and 8.3 inches at the La Crosse National Weather Service office (La Crosse County).

February 20, 2011 Snowfall amounts of 6 to 9 inches were common across the county by 8 a.m. on the 21st with storm totals of 7 to 11 inches by late in the day on the 21st. Some sleet also occurred during the 20th with only

minor accumulations. A winter storm came out of the southwest United States and brought snow, sleet and freezing rain to western Wisconsin from February 20th into the 21st. The freezing rain mainly fell across southwest Wisconsin and created ice accumulations up to a quarter of an inch in Crawford County. The sleet mainly occurred in the Interstate 90 corridor of western Wisconsin with amounts up to a half inch reported in Holmen (La Crosse County). Snow accumulations over the 2 days ranged from around an inch for southwest Wisconsin up to a foot across the central and north central part of the state. In addition to the precipitation, strong winds hit the area with sustained winds of 20 to 25 mph and gusts between 30 and 35 mph. The highest report snowfall amount was 12 inches west of Medford (Taylor County) and in Rock Dam (Clark County).

January 28, 2011 A light snow event on the 28th transitioned to freezing drizzle before ending during the early morning hours of the 29th. Four people were injured in three separate accidents across Monroe County. The freezing drizzle created icy conditions and was responsible for several other accidents across western Wisconsin. Freezing drizzle created widespread slippery conditions across the county. Several slide offs and accidents occurred, especially in the Sparta area

January 1, 2005 -Widespread freezing rain affected southwest and central Wisconsin on New Year's Day, which lasted into the early morning hours of January 2. This produced significant glazing, with ice accumulations of 1/4 to 1/2 inch. Specific reports from weather observers included 1/2 inch of ice accumulation at Medford (Taylor County) and Alma (Buffalo County), while 3/8 inch was reported at Tunnel City and Warrens (Monroe County). Law enforcement officials reported numerous automobile accidents due to the icy conditions, but there were no serious injuries.

December 20, 2004 - A narrow, but intense band of heavy snowfall affected parts of southwest and central Wisconsin, generally from La Crosse (La Crosse County) eastward to Tomah (Monroe County) and Friendship (Adams County). Snow accumulations of 6 to 9 inches were common in these locations. Other reports included 7.3 inches near Sparta (Monroe County) and La Crosse, as well as 7 inches near Friendship (Adams County).

February 5, 2004 - 6 to 9 inches of snow affected parts of southwest and central Wisconsin. Snowfall reports from weather observers included 8.7 inches at Readstown (Vernon County) and 8 inches at both Plainville (Adams County) and Platteville (Grant County). Other reports included 7.8 inches near Steuben (Crawford County), 7.5 inches at Mauston (Juneau County), as well as Richland Center and Hub City (Richland County). Cuba City (Grant County) had 6.5 inches of snow, while 6.0 inches was reported at Wilton (Monroe County) and Mt. Sterling (Crawford County).

Source: National Climatic Data Center Storm Event database

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, 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

TOP 5 SEASONAL SNOWFALLS IN SPARTA

YEARS	SNOWFALL
1996-97	72.4"
1985-86	69.3"
1951-52	69.1"
1958-59	68.7"
1961-62	67.9"

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

Future Probability and Potential Dollar Losses – Winter Storms:

Based on historical frequency, Monroe County can expect 2.4 major winter storms per year on average. In other words the probability is 1.00 or a 100 % chance in a given year. Estimating potential future losses for winter storms is difficult. Damages and losses are typical minor and widespread. Minor auto accidents and additional snow removal time are typical impacts of winter storms, and such claims are not aggregated or tracked. Winter storms, however, do have the potential to be extremely disastrous, particularly in the case of ice storms. Potential

future losses per incident might range from $6,700,000 (per county average from 1998 ice storm) to $130,000 (per county average from a 1999 ice storm).

HAZARD: TORNADOS

Hazard Analysis:

In the United State tornados are classified into six intensity categories, named EF0-EF5. These categories are based upon the estimated maximum winds occurring within the funnel. The Enhanced Fujita Tornado Scale (or the "EF Scale") has subsequently become the definitive scale for estimating wind speeds within tornados based upon the damage done to buildings and structures. It is used extensively by the National Weather Service in investigating tornados (all tornados are now assigned an “EF” scale), and by engineers in correlating damage to building structures and techniques with different wind speeds caused by tornados. Though the Fujita scale itself ranges up to F12, the strongest tornadoes max out in the F5 range (261 to 318 mph).

Wisconsin lies along the northern edge of the nation’s maximum frequency belt for tornados, called “tornado alley” by some, which extends northeastward from Oklahoma into Iowa and then across to Michigan and Ohio. Broadly speaking, the southern and western portions of Wisconsin have a higher frequency of tornadoes; however Monroe County is not part of this area.

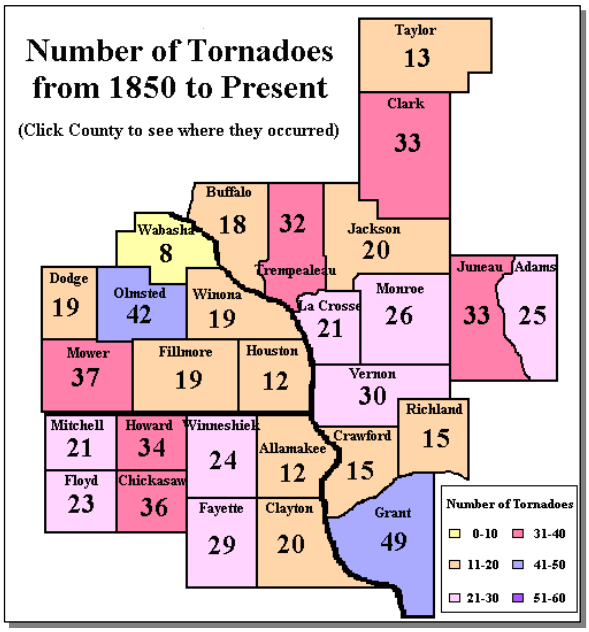


TABLE 21	TORNADO WINDS AND DAMAGE SCALE ENHANCED FUJITA SCALE*		
*EF-SCALE NUMBER	INTENSITY PHASE	WIND SPEED (MPH)	TYPE OF DAMAGE DONE
EF-0	Gale tornado	65 - 85	Light damage. Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over. Confirmed tornadoes with no reported damage (i.e. those that remain in open fields) are always rated EF0.
EF-1	Moderate tornado	86 - 110	Moderate damage. Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
EF-2	Significant tornado	111 - 135	Considerable damage. Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
EF-3	Severe tornado	136 - 165	Severe damage. Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance.
EF-4	Devastating tornado	166 - 200	Devastating damage. Well-constructed houses and whole frame houses completely leveled; cars thrown and small missiles generated.
EF-5	Incredible tornado	>200	Incredible damage. Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 m (109 yd); steel reinforced concrete structure badly damaged; high-rise buildings have significant structural deformation; incredible phenomena will occur.
A key point to remember is this: the size of a tornado is not necessarily an indication of its intensity. Large tornadoes can be weak, and small tornadoes can be violent.			
			Note*: Started February 1, 2007

Source: Wikipedia Free Encyclopedia

History of Tornados in Monroe County:

Monroe County has had 20 verified tornados from 1955-2010 (**Table 22**). The most recent was August 18, 2005 when a tornado touched down at approximately 4:54 pm along County Highway N just east of the Interstate 90/94 split in eastern Monroe County. Further damage surveys yielded a broken 10 mile track from County N to just east of the intersection of highway 21 and County Road H ending just west of the Necedah wildlife refuge headquarters on Grand Dyke Road at around 515 pm. The initial tornado had a path length of 2 miles with a width of 25-yards followed by an 8-mile continuing broken path of damage; total path length was 10-miles. There was tree, agricultural and structural damage. One house currently under construction was completely destroyed.

Three (3) other homes sustained minor damage. Corn was flattened and there was significant tree damage as well. This tornado has been rated F1 on the Fujita damage scale. Tornadoes that cause F1 damage usually have wind speeds on the order of 73 to 112 mph. No fatalities or injuries were associated with this storm.

Monroe County Tornado Facts:
Strongest tornadoes: (1850-2008)

No F5 or EF5* tornadoes
Only one F4 tornado and two F3s
2 deaths and 86 injuries since 1850
Tornadoes have occurred April – Sept.
Most have occurred in June and August (7)

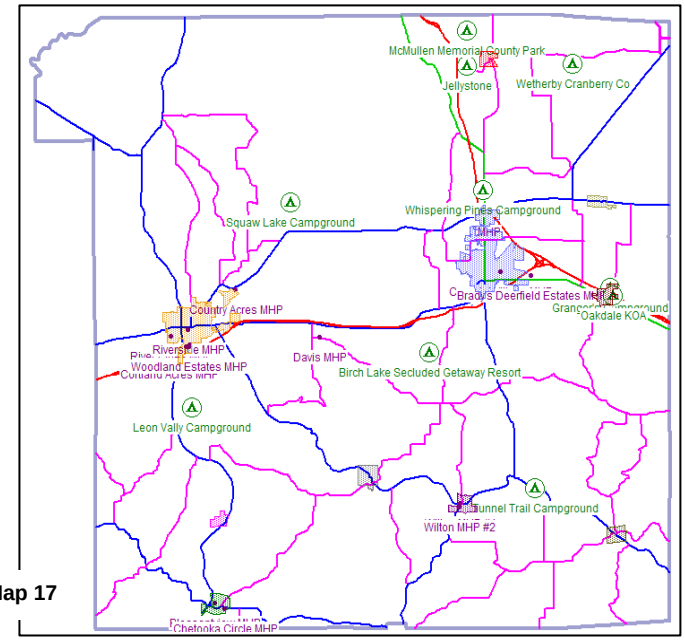
July 3, 1907 (F4) – 40 injured, 11 dead
May 1, 1930 (F3) – 15 injured, 0 dead
Apr. 19, 1957 (F3) – 0 injured, 0 dead
Aug. 12, 1985(F2) – 22 injured, 0 dead
May 23, 1933 (F2) – 3 injured, 0 dead

TABLE 22 REPORTED TORNADOS IN MONROE COUNTY

DATE	TIME	LOCATION	OTHER COUNTIES AFFECTED	LENGTH (MILES)	WIDTH (YDS)	DEATHS** INJURIES**	F-SCALE
6/06/1906	1900	Sparta	Jackson	15	100	0/0	F2
7/03/1907	1700	Oakdale	Juneau, Clark			11/40	F4
8/11/1907	0730	La Crosse to Tomah	La Crosse	30	?	0/2	?
8/01/1930	1930	Holmen to Tomah	La Crosse	33	100	0/15	F3
5/23/1933	1500	Reno to Sparta	Houston (MN), La Crosse, Vernon	35	100	0/3	F2
4/19/1957	2015	Kendall 1NW		8	400	0/0	F3
8/28/1960	1515	Sparta 8N		.05	50	0/0	F2
4/11/1965	1614	Tomah 4.5W		2	200	0/0	F2
7/15/1965	2012	Cataract 4SE		1	?	0/0	F1
8/06/1968	2014	Norwalk		.05	?	0/0	F0
7/18/1971	1400	Melrose 2S to Cataract	Jackson	10	100	0/0	F2
6/14/1974	1600	Monroe/Jackson County line southeast of Shamrock to Camp McCoy		9	35	0/0	F1
8/30/1974	1700	Leon		.03	15	0/0	F0
5/10/1979	1815	Tomah		.02	?	0/0	F2
8/12/1985	1835	Kendall 1S to Castle Rock Lake	Juneau	22	880	2/22	F2
6/26/1986	2017-2025	Sparta 5W to Sparta 2.5N		5.5	100	0/0	F2
5/08/1988	1430-1512	Cashton 1NE to Warrens 5W		27	800	0/0	F2
4/24/1994	1535	1m north of Cataract		.5	50	0/0	F1
4/24/1994	1627	1m northwest of Tomah	(Funnel cloud)			0/0	N/A
6/01/2000	1402-1411	3 SW Cataract to 3 SE Cataract, WI		4.5	125	0/0	F1
7/09/2000	0300-0303	2 SE Norwalk to 3 SE Norwalk, WI		0.9	30	0/0	F1
9/07/2001	1500	6 N Angelo to 6.3 N Angelo		0	30	0/1	F0
6/23/2004	1800-1812	3m northwest of Warrens to 3 mi southeast of Warrens	Taylor, Adams, Juneau	4.5	50	0/4	F1
8/18/2005	1554-1615	2m NW to 3m NE of the Vlg. of Oakdale	Juneau	10	25	0/0	F1

Source: National Climatic Data Center Storm Event database
** Injuries and Deaths are for the entire tornado track.

Vulnerability Assessment: Though Monroe County is mostly a rural county, there are concentrations of population scattered throughout. Subdivisions and communities can be regarded as vulnerable because these areas pose more of a threat to human safety and property damage. **Map 2, page 11** illustrates these areas within 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 mobile home than standard constructed houses and buildings. Since 27 percent of Monroe 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 are1,890 mobile homes in Monroe County.



Map 17

Tornado Watches		Tornado Warnings	
Year	#	Year	#
2010	4	2010	1
2009	2	2009	0
2008	8	2008	3
2007	6	2007	1
2006	2	2006	0
2005	6	2005	0
2004	5	2004	1
2003	3	2003	0
2002	4	2002	0
2001	5	2001	0
2000	3	2000	2
1999	6	1999	1

While mobile homes are scattered throughout the County, many are concentrated in mobile home parks. (**Map 17 pp. 43)** displays the location of the mobile home parks.

Table 23 below lists the percentage of mobile home units reported by the 2000 Census for each municipality in the County. Owners of these mobile homes do not own the land but rather rent or lease the land it resides on. The total personal property valuations of the 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.

TABLE 23 MOBILE HOMES

MUNICIPALITY	% MOBILE HOMES	# OF HOUSING UNITS	MUNICIPALITY	% MOBILE HOMES	# OF HOUSING UNITS
TOWNS			Sparta	7.9	958
Adrian	20.7	518	Wilton	7.0	256
Angelo	22.9	262	Tomah	8.9	461
Byron	24.4	557	Wellington	9.6	229
Clifton	4.7	232	Wells	6.9	188
Glendale	10.0	259			
Grant	18.7	209	**VILLAGES**		
Greenfield	3.7	268	Cashton	17.3	463
Jefferson	7.0	229	Kendall	3.0	203
Lafayette	11.7	120	Melvina	0	41
LaGrange	6.3	695	Norwalk	0	226
Leon	11.4	325	Oakdale	17.9	117
Lincoln	19.0	373	Warrens	3.2	125
Little Falls	17.3	572	Wilton	5.4	240
New Lyme	22.7	88	Wyeville	0	60
Oakdale	13.2	258			
Portland	12..7	276	**CITIES**		
Ridgeville	10.2	186	Sparta	10.9	3740
Scott	45.8	59	Tomah	10.1	3673
Sheldon	6.4	204			

Source: U. S. Census Bureau (2000 Census)

Besides mobile homes, there are many other areas vulnerable to tornados such as campgrounds. Like mobile home parks, campgrounds are of concern in the County because often times there are a large concentration of people in them and there is little shelter provided**.** **(Map 17 pp. 44)** 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
- 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.

Future Probability and Potential Dollar Losses – Tornados:

Based on the historic data presented here, Monroe County can expect a tornado about once every 1.6 years on average. This equates to a probability of 0.61 or about a 61% chance in a given year. **Table 24** indicates the probability of tornados of a specific magnitude.

TABLE 27	PROBABILITY OF TORNADO IN MONROE COUNTY					
TORNADO SCALE	F0	F1	F2	F3	F4	F5
Number of Reported Tornados*	3	8	6	1	0	0
Probability of Occurrence	32.3%	19.4%	6.5%	3.2%	<1.0%	<1.0%

*Source: National Weather Service and NCWRPC – *Based on historical data from 1956 to 2005.*

Historic data is again used to estimate potential future dollar losses due to tornado. Estimated damages resulting from various tornados in Monroe County range from $0 to $2.5 million. On average, Monroe County might expect damages of $228,000 per tornado, however, only 1 of these 17 historic tornados (not counting the 1907 tornado) resulted in damages exceeding $1 million, four others had $250,000, and the rest were $100,000 or less.

HAZARD: FOREST FIRES

Hazard Analysis:

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. The causes of these fires include lightening, human carelessness and arson. Forest fires and wildfires can occur at any time of day and during any month of the year, but the peak season in Wisconsin is normally from March through November. 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.

History of Forest Fires in Monroe County:

The Wisconsin DNR Fire Intensive Fire Protection in Black River Falls maintains a database of forest fires for the northern 3/5 of Monroe County. From 1959 to 2010, there has been an annual average of 36 fires that have burned 496.63 acres in this area of the County. One of the more substantial fires burned was a 62-acre fire on October 23, 1999. According to the National Climatic Data center's database, there have been 4 forest fires in Monroe County. (The "Four Corners Fire" in 2000 recorded in La Crosse County. Fort McCoy Fire Department along with several other Monroe County Volunteer Fire Departments assisted through mutual aid agreements.) More fires have been recorded during the drought years of 1976 and 1988.

Vulnerability Assessment:

Monroe County has 251,358 acres of forestland, or 57% percent of the area, scattered throughout the County. The potential for property damage from fire increases each year as more recreational and retirement structures are developed on wooded land and increased numbers of people use these areas. Some of the more critical areas in the County are homes located near forest reserves. These areas are fire prone because of the probability of dried and combustible vegetation. Subdivisions in the all part of the County are especially vulnerable because of extensive industrial forestland surrounding them. Rural buildings may be more vulnerable because of lack of access. Access to buildings off main roads is sometimes long, narrow driveways with minimal vertical clearance making it hard for emergency vehicles to combat the fire. These buildings also may not have much of a defensible space because of minimal space between the structures themselves and highly flammable vegetation. Campgrounds are also a concern because of campfires. Monroe County has eleven (11) campgrounds. Locations of the campgrounds are shown on **Map 15. (Page 68)**

Future Probability and Potential Dollar Losses – Forest Fires:

Forest and wild fires are relatively common occurrences in Monroe County. In recent years, there has been an average of 36 fires per year in the County burning 82.76 acres total on average each year. These fires are typically contained rapidly and remain small, so that each has a minimal impact. More substantial fires are rare in Monroe County and include the 132.70-acre fire in 2003 and the 132.45-acre fire in 2000. 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 an average of 37 fires per year, the County should expect some fires to "get out of hand" and likely approach or exceed the $80,000 in damages of the 1998 fire.

May 18, 2010 after several days of dry conditions, a brush fire got out of control and burned almost 2.5 acres near Cataract. No buildings were damaged or injuries occurred because of the fire. A brush fire became uncontrollable and burned almost 2.5 acres near Cataract (Monroe County) before being extinguished. For several days before

the fire, high pressure remained anchored over the Great Lakes setting up a dry east to northeast flow over the region. On the day of the fire, the automated weather observing equipment at the Sparta airport recorded a minimum relative humidity around 15 percent.

April 14, 2010 A prescribed burn got out control when exhaust from a tractor ignited dry prairie grass. The fire burned 97 acres northwest of Sparta in rural western Monroe County. No structures were damaged or injuries sustained because of the fire. A nearly stationary area of high pressure from Hudson Bay Canada into the northeastern section of the United States produced several days of breezy and dry conditions across western Wisconsin. The automated weather observing equipment at Sparta recorded average sustained speeds around 10 mph out of the east to southeast on both the 13th and 14th of April. The minimum relative humidity averaged less than 25 percent from the 9th of April through the 14th. These conditions set the stage for a prescribed burn to get out of control and torch 97 acres northwest of Sparta in rural western Monroe County. No structures were damaged or injuries sustained from this fire.

April 14, 2009 a grass fire burned nearly 250 acres near County Road BC northwest of Sparta, WI in rural Monroe County. More than 50 fire fighters from seven different departments battled the blaze that began as a controlled burn but quickly got out of control.
Very dry conditions during the first half of April 2009, combined with low relative humidity's and strong winds, led to favored days of above normal and dangerous fire weather behavior. This led to several wild fires across western Wisconsin.

HAZARD: HAZARDOUS MATERIALS (HAZMAT) INCIDENTS

Hazard Analysis:

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 CF 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. As of January 2008, twenty-four (24) 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). The most common EHSs at fixed facilities in the County are anhydrous ammonia, sulfuric acid and chlorine.

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 the major transportation routes are State Highways 27, 33,173, 21, and US Highway 12 and also I 90/94 as shown on (**Map 4** ***pp. 9)***. On May 20, 2003, a traffic study of Monroe 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 25**.

TABLE 25 NUMBER OF TRUCKS CARRYING HAZARDOUS MATERIALS IN MONROE COUNTY

NTERSECTION	NUMBER OF TRUCKS
State Highway 73 and County Highway G	27
State Highway 13 and State Highway 21	38
State Highway 82 and State Highway 13	17
State Highway 21 and County Highway B	7

Source: REI

Railroad

The Burlington Northern, Canadian Pacific (CP) Rail System/Soo Line, Union Pacific (Chicago & Northwestern Railroad) Wisconsin Southern and Wisconsin Central are another mode for the transportation of hazardous material, provides 24 miles of track through Monroe County, (**Map 4 pp. 9).** 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 EHS's transported annually throughout Monroe 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

Northern Natural Gas Company provides pipeline to move natural gas through the County, (**Map 9 *pp. 27)*** it runs 31 miles from west to east.

History of Hazardous Materials Incidents in Monroe County:

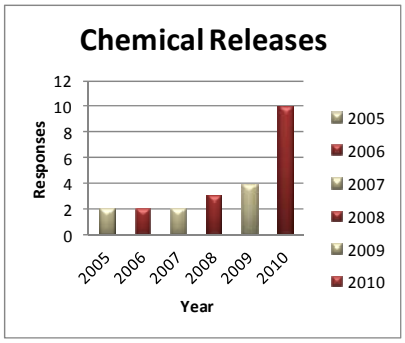
There have not been any significant reported hazardous material problems involving fixed facilities, roadways, railways, or pipelines. Hazardous materials incidents do occur but on a relatively small scale. They still however can cause considerable property damage and can have a high risk in terms of loss of human life or injury.

TABLE 26 HAZARDOUS MATERIALS RESPONSE TEAM 2005-2010 RESPONSE

YEAR	DATE	AMOUNT	CHEMICAL	LOCATION	DESCRIPTION
2005	5/03	150-gal	Diesel Fuel	STH 131	A car hit a semi on St Hwy 131 resulting in the death of the driver of the car. This resulted in a spill of gas, oil and diesel fuels among other fluids.
	7/12	10-gal	Diesel Fuel	Kwik Trip STH 16/71	Diesel fuel spill by pump island; between 5-10 gallons spilled (Kwik Trip, STH 16/71)
2006	7/12	100-gal	Diesel Fuel	STH 71 N (4/10-miles of STH 27)	Semi w/o trailer hit water truck that was siphoning water out of Spencer Creek on St Hwy 71 N (approximately 4/10th's of mile west of STH 27) in the Town of Little Falls. The semi sustained major damage and rolled over on its side causing the diesel tanks to leak and the fuel lines to snap. Approximately 75-100 gallons of diesel fuel was released some of it ending up in Spencer Creek. DNR notification was attempted but there was no answer (Sparta or Tomah Wardens).
	8/23	239-gal	Gasoline	Shell Travel Mart (STH 21 / US 12)	Straight lines winds pushed a fuel pump over on to its side causing the cast iron pipe to snap in half. Fuel from the underground storage tank spewed out releasing approximately 239 gallons of gasoline. Incident occurred at the Shell Travel Mart located near the intersection of STH 21 (McCoy Blvd) and USH 12.
2007	7/10	Unk	Diesel Fuel	I-94 east bound	A semi lost 40-50 industrial saw mill blades on I-94 E at milepost 140.5. The blades approx. 24" and weighing approx. 15-lbs. each were scattered ½ mile in the roadway. One blade crossed the median and lodged into the saddle tank of another semi and released an unknown amount of diesel fuel over approximately 25-miles.
	8/11	44,000-lbs	Dry Ice	Haven Avenue between both I-90 overpasses	A semi lost control on I90 traveling eastbound and took out the guard rail and landed on Hazel Ave. The semi was carrying 44,000 lbs of dry ice. Both fuel tanks were ruptured and oil was leaking from the oil pan.
2008	2/15	Unk	Natural Gas	112 W Oak St (behind building)	A gas line owned by WE Energies had cracked and was leaking natural gas into the substrate causing the gas to enter into two buildings through cracks in the foundation. Because the soil was leaching out the mercaptin it wasn't discovered until WE Energies was doing routine checks on the lines. The City Public Works Director requested assistance from the County EM Department to identify type of gas. The gas line is located behind 112 W Oak Street, Sparta
	8/16	½ cup	Mercury	E Glendale Ave (City of Tomah)	Anonymous report made of a mercury spill located in the gutter on E Glendale Avenue in the City of Tomah. Regional Response Team, WDNR and Dept of Health notified of the spill. Approximately ½ cup of mercury was recovered using a mercury spill cleanup kit and the Department of Health sent a meter to detect further traces of mercury. Unknown spiller.
	11/21	20-lbs.	Ammonia, anhydrous	Foremost Farms Cooperative USA	Approximately 20# of anhydrous ammonia was released from a broken gasket on an ammonia pipe in the compressor room at

TABLE 26	HAZARDOUS MATERIALS RESPONSE TEAM 2005-2010 RESPONSE				
YEAR	DATE	AMOUNT	CHEMICAL	LOCATION	DESCRIPTION
				(fixed facility – planning site)	Foremost Farms Cooperative USA. The Sparta City Fire Department responded to the leak and the IC had his firefighters go into the room with SCBA and turnout gear to shut off the valves to stop the leak. The county team and regional response teams were not requested. No monitoring of IDLH levels was performed.
	2/21	Unk	Hydraulic fluid		Croell Redi-Mix, 11007 St Hwy 16, Sparta - Cement Truck Fire (arson) caused the hydraulic fuel lines and diesel fuel lines to melt resulting in a release or Unknown Amt of hydraulic fuel and diesel fuel.
2009	5/12	500-lbs	Ammonium Sulfate	16338 Holiday Road	Truck brake released rolled downhill and flipped over on its side spilling fertilizer into waterway that drained into Bear Creek.
	9/1	Unk	Diesel Fuel	Co Hwy PP & Fulda Avenue – T/Byron	Semi load shifted causing the driver to lose control of the vehicle resulting in it flipping once it went off the road, fuel lines snapped releasing fuel onto roadway and majority of it onto soft shoulder and ground. Unknown amt released into soil, approx. 7-gal of diesel fuel recovered on roadway
	11/6	200-gal	Diesel Fuel	I90 MM 48	car struck semi causing it to leave the road and crash into the median (swampy area) 200 gal or diesel fuel
	1/22	5-gal	Oxidizer	I-94 48-mm east bound	Semi on I94 Eastbound hauling oxidizers
2010	4/3	55-gal	Unknown	Luv's Truck Stop (V – Oakdale)	Steyer Trucking Company leaking unknown substance
	4/8	100-gal	Diesel Fuel	Oxbow Ave	Semi hauling Chicken manure tipped over releasing fuel from saddle tank
	5/13	N/A	N/A	St Hwy 16 Westbound	Semi truck out of Canada - possible explosives, energy drinks
	5/18	50-gal	Diesel Fuel	I-90 22-mm east bound	Semi tipped over on the interstate spilling diesel and other petroleum fuels
	7/8	400 batteries	Sulfuric Acid	I90 45-mm west bound	Semi rollover carrying used batteries, batteries broke or exploded leaking an undetermined amount of sulfuric acid. 500# of sodium bicarbonate was used to neutralize acid.
	7/17	Unk	Adhesive	Luv's Truck Stop (V – Oakdale)	An Old Dominion semi hauling multiple chemicals was leaking an adhesive from a large tote that had been punctured by a metal bar
	10/6	100-gal	Diesel fuel	STH 173 & 21	Semi hauling cranberries took turn to fast, load shifted causing the semi to flip over onto its side onto the east shoulder and ditch along STH 173.
2011	5/31	Unk	Muriatic Acid	6869 Maple Ave, Cashton (T-Portland)	Juveniles filled pop bottles with muriatic acid and dropped aluminum foil into them to create "pop bottle bombs". Approximately four were thrown into a residence yard where they detonated. A gallon jug (1/2 full) of muriatic acid was located lying in the driveway.
	8/31	5-gal	Aliphatic Polyisocyanate Mixture	Northern Engraving	Chemical fire started due to a faulty thermostat on an oven. Mixture contained 20-40% Dicyclohexylmethane-4-4'-Diisocyanate and 60-80% Aliphatic Polyisocyanate
	11/11	200-400 gallons	Diesel Fuel	Road Ranger Truck Stop, Oakdale	Diesel Truck Driver connected hose to wrong underground fuel tank (¾ filled) turned on switches to begin refueling and went into the store. When he returned fuel was flowing across the parking lot and down into ditch.

Vulnerability Assessment:



Counties in Wisconsin, including Monroe County have a Local Emergency Planning Committee (LEPC) that is set up in accordance with federal legislation and is responsible for implementation of the Emergency Planning and Community Right-to-Know Act (EPCRA) at the county level. The County Emergency Management Coordinator is a member of the LEPC to ensure continuity and coordination of emergency response planning. To meet the requirements of SARA 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 with 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 Hazardous Materials Response Teams. The Regional team for Monroe County is located in La Crosse. The Regional

Response Team may be activated for an incident involving a hazardous material spill, leak, explosion, injury or the potential of immediate threat to life, the environment, or property. The Regional Team responds 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 Teams respond to chemical incidents, which require a lower level of protective gear but still exceed the capabilities of standard fire departments. Currently, there are 36 counties that have local HazMat Response Teams. Those teams may provide assistance to surrounding counties and are approved by the LEPC. Monroe County has a Hazardous Materials Response Team, which consists of chief and 23 members. The response vehicle and all of the equipment are housed in Tomah at the Emergency Response Building and 24-hour access is available. The HazMat Team falls under the direct supervision of the Monroe County Emergency Management Coordinator.

Future Probability and Potential Dollar Losses – Hazardous Materials Incidents:

Within Monroe County there have been spills that have been contained, 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 Monroe County. Unfortunately, serious disastrous events do take place as witnessed around the state since 1973. 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 Monroe 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 Monroe County.

HAZARD: DROUGHT

Hazard Analysis:

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.

History of Drought in Monroe County:

Monroe County experienced the 1987-1988 droughts 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 Monroe 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. Monroe County was one of 64 counties that were declared federal drought areas and deemed eligible for assistance under the Disaster Relief Act.

Vulnerability Assessment:

Droughts can have a dramatic effect on Monroe County. The County has 351,775 acres of farmland with 1,938 farms in 1999 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. During severe droughts, some wells - mainly private wells - will go dry. 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 area most susceptible to drought conditions would be agricultural towns. Agricultural land is scattered throughout the County.

Future Probability and Potential Dollar Losses – Drought:

Based on the historic data presented here (frequency of past events), Monroe 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.

HAZARD: FLOODING AND FLASH FLOODING

Hazard Analysis:

Minor flooding and flash flooding in Monroe County tends to occur either in the spring when melting snow adds to normal runoff or in summer or early fall after intense rainfalls. Flooding which occurs in the spring due to snowmelt and/or a prolonged period of heavy rain is characterized by a period of days. This build up continues until the river or stream overflows its banks, for as long as a week and then slowly recedes over a couple of days. The timing and location of this type of flooding is fairly predictable and does not require an evacuation of people nor does it impact largely on homes. As described in Part II, there are approximately 235 miles of streams in Monroe County within ten (10) main watersheds, **(Map 5, pp. 11)**. **Table 27** details the watersheds that are located within the four (4) DNR River Basins in Monroe County.

TABLE 27 DNR RIVER BASINS AND WATERSHEDS

BLACK-BUFFALO-TREMPEALEAU RIVER BASIN	WEST CENTRAL RIVER BASIN
Trout Run	Beaver Creek
Big Creek	Juneau Creek
Douglas Creek	Little Lemonweir River
Robinson Creek	Seymour Creek
	Upper Baraboo River
BAD AXE – LA CROSSE RIVER BASIN	**LOWER WISCONSIN RIVER BASIN**
Coon Creek	Middle Kickapoo River
Little La Crosse River	Upper Kickapoo River
Upper La Crosse River	

Floodplains are described in Part II and shown on **(Map 5 pp. 11)** of this plan. The Federal Emergency Management Agency (FEMA) identified these floodplains on Federal Insurance Rate Maps (FIRMs).

History of Flooding and Flash Floods in Monroe County:

Flooding was a contributing cause of damage in all four of the Presidential Disaster Declarations 1971 to 2010. **Table 28 (below)** shows details of the flood events that have been reported since 1950.

TABLE 28 REPORTED FLOOD EVENTS 1950-2010

LOCATION OR COUNTY	DATE	TIME	TYPE	DEATH	INJURY	PROP. DAMAGE	CROP DAMAGE
Tomah	08/19/1995	05:00 AM	Urban Flood	0	0	0	0
Tomah	06/27/1998	12:57 AM	Flash Flood	0	0	20K	0
Countywide	05/17/2000	05:00 PM	Flash Flood	0	0	8K	5K
Northern Portion	06/16/2004	06:15 PM	Flash Flood	0	0	140K	30K
Adams, Grant, Monroe	06/16/2004	08:00 PM	Flood	0	0	255K	105K
Monroe County/Cities and Villages	06/06/2008	06:00PM	Flood	0	0	2.04M	572K
4 Corners/ Little Falls	07/14/2010	09:00PM	Flash Flood	0	0	10K	0
Countywide	09/23/2010	07:00AM	Flood	0	0	38K	0
TOTALS:				**0**	**0**	**1.885M**	**712K**

Source: National Climatic Data Center Storm Event database

22-23 Sept 2010, a stationary front set up across central Wisconsin on the evening of September 22nd. As an unusually moist air mass flowed over this boundary, heavy rain developed and fell repeatedly across the area

during the evening and overnight hours. Soils were abnormally wet for this time of year; therefore the extreme rainfall amounts that fell caused significant widespread flooding and flash flooding. Buffalo, Trempealeau, Jackson, Taylor, Clark, and Juneau counties were included in federal disaster declarations (FEMA-1933-DR). A cranberry dam failed and washed out a portion of County Road O north of Warrens. There were minor road washouts during this event throughout the county.

7-12 June 2008, after heavy rains and severe weather from the 7th, a lingering warm front across the area lead to further storm development on the 8th, resulting in more heavy rains. This rainfall exasperated the already dangerous flooding conditions across parts of southeast Minnesota, northeast Iowa, and southwest into central Wisconsin resulting in a flood of historic proportions. Many roads were already closed from the Saturday (the 7th) rain due to water over the roadways, mudslides, or partial washouts. The Sunday rains worsened the conditions, leading to more road closures, sandbagging, and some evacuations. Some area rivers responded with a foot per hour rises, while others eventually exceeded their river gauges ability to record the river levels. These gauges were under water themselves! All-time record crests were set at a few locations, with top 5 records at many others. Some 2-day rainfall totals (7th and 8th) from this event: In WI: Ontario (9.84), Westby (9.24), Hillsboro (7.55), La Farge (7.53), Necedah (5.98) and Wilton (5.25) The weekend of heavy rain and storms brought flash flooding to mainly southern parts of the county, including the communities of Leon, Sparta, Melvina, Kendall. Many roads were washed out with nearly a million dollars in damage to infrastructure. Mudslides were also common, especially in hilly terrain. There were also reports of residential flooding. This brought a Presidential Declaration for both private and public.

16 June 2004 - Excessive rainfall amounts of 3 to 6 inches in two hours or less caused extensive flash flooding. Law enforcement officials reported several roads were impassable, with water a foot deep in some places. Residents near the La Crosse River in Sparta were evacuated due to rising floodwaters. Hardest hit were locations along the La Crosse River near Sparta, where high water caused several roads to remain closed. In addition, hundreds of acres of crops were ruined by soil erosion caused by floodwaters. Estimated damage was $395,000 in property damage and $135,000 in crop damage.

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.

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. 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

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

One of the first reports to reference in assessing vulnerability to structures during flooding is the State of Wisconsin Repetitive Loss Report (updated in 2000). The Repetitive Loss Report provides information to the status of repetitive loss properties by community in Wisconsin. FEMA, through the Federal Insurance Administration (FIA), 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 administrated by WEM. According to the report, there are no local units of government within Monroe County containing existing repetitive loss structures. There are currently 3 residential structures in

the County shown in the Repetitive Loss Report. The floodplain boundaries (as well as the watershed boundaries) within Monroe County are shown on (**Map 7 pp. 15**)**.** These areas are generally located along the Black, Lemonweir and Kickapoo Rivers and their major tributaries and are based off the Monroe County Flood Insurance Study of 1983.

Future Probability and Potential Dollar Losses – Flood and Flash Flooding:

One of the first reports to reference in assessing vulnerability to structures during flooding is the State of Wisconsin Repetitive Loss Report (updated in 2000). The Repetitive Loss Report provides information to the status of repetitive loss properties by community in Wisconsin. FEMA, through the Federal Insurance Administration (FIA), 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 floodplain management tool and to supplement information provided by communities for flood mitigation grants administrated WEM. According to the Repetitive Loss list, Monroe County has 2 properties. Both located in the City of Tomah.

Based on the historic data presented here (frequency of past events), Monroe County can expect a significant flood event about every 6.2 years on average. This equates to a probability of 0.16 or about a 16 percent chance in a given year. The spacing between the 1993 and 2000 flood events supports this estimate. Although a look at more recent history, i.e. the 2000 flooding being quickly followed by flooding again in 2004, and again in 2008 might indicate an increasing probability of flood; this is most likely an anomaly rather than a sign of increasing probability of flood.

According to the HAZUS-MH Essential Facility Loss Analysis an essential facility would encounter many of the same impacts as any other building within the flood boundary. These impacts include: structural failure, extensive water damage to the facility, and loss of facility functionality (i.e. a damaged police station will no longer be able to serve the community).
The HAZUS-MH analysis identified 1 Fire Station, 1 Police Station, and 4 Schools that may be subject to flooding. A careful study of the FIRM maps shows other that are in the flood area. A list of the essential facilities within Monroe County is included in **Tables 9-18**.

TABLE 29 MONROE ESSENTIAL FACILITY LOSS - 100-YEAR FLOOD

CLASS	BUILDING COUNT	AT LEAST MODERATE DAMAGE	AT LEAST SUBSTANTIAL DAMAGE	LOSS OF USE
Care Facilities	35	1	0	0
EOC	1	0	0	0
Fire Stations	12	1	0	0
Police Stations	12	1	0	1
Schools	48	2	0	0
Hospital/Clinics	7	1	0	0
Total	**115**	**6**	**0**	**1**

TABLE 30 MONROE DAMAGED ESSENTIAL FACILITIES

FACILITY NAME	
Norwalk Area Fire District	Lemonweir Elementary*
Tarr Valley Private School	Kendall Elementary*
28960 Nevada Rd – Amish School	

*Essential Facilities that may be outside of the 100 year flood boundary according to orthophoto interpretation or address verification.

The flood boundaries were overlaid with State of Wisconsin property boundaries as provided by the Department of Natural Resources within Monroe County. **Table 31** provides the names of state properties that overlay with the HAZUS-MH flood boundary.

TABLE 31 MONROE STATE PROPERTY FLOOD INUNDATION

STATE PROPERTY	PERCENT INUNDATED	ACRES INUNDATED
Meadow Valley Wildlife Area	27%	4226
Big Creek Fishery Area	39%	577
La Crosse Area Comprehensive Fishery Area	70%	346
Stream Bank Easement Program	69%	299
La Crosse River Fishery Area	32%	146
Mill Creek Fishery Area	71%	78
Elroy-Sparta State Trail	13%	74

TABLE 31	MONROE STATE PROPERTY FLOOD INUNDATION	
STATE PROPERTY	PERCENT INUNDATED	ACRES INUNDATED
Coon Creek Fishery Area	16%	50
Kickapoo River Fishery Area	61%	17
La Crosse River State Trail	8%	11
Rem-Little Lacrosse River	60%	10
Tomah Station	18%	1
Statewide All Regulatory-Wetland Mitigation Program	5%	1

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, Monroe County can anticipate losses of approximately $85,000, on average, between the public and private sector for each significant flood occurrence. Over the next ten-year period, flood losses in Monroe County could approach $500,000. **Table 8 (pp 15-25)** shows the amount of loss possible during a 100 year flood with the total for Monroe County could easily be $74,000,000.00 or more.

Only 6% of the critical facilities would be damaged during a one-hundred year flood. Through mutual aid the other agencies would assist during this time.

On November 24, 2009 Monroe County adopted the Maps and Floodplain ordinance amendments that went into effect on January 20, 2010, to continue the county's participations in the NFIP. Enforcement will be by Land Use Permits due to the lack of staffing in Sanitation and Zoning who have only 2 employees to enforce the floodplain regulations.

TABLE 32	COMMUNITIES PARTICIPATING IN THE NFIP			
Village of Kendall	Monroe County	Village of Norwalk	City of Sparta	Village of Oakdale
City of Tomah	Village of Wilton	Village of Wyeville	Village of Melvina	Village of Warrens
Village of Cashton's elevation is 1,362 ft (415 m) which is out of the flood plane				

HAZARD: DAM FAILURES

Hazard Analysis:

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. There are 4 major dams in Monroe County, **Map 6 (pp. 14)** followed by a listing on the Dam Information Table. These dams serve many useful purposes including agricultural uses, providing recreational areas, erosion control, water level control and flood control. According to the WDNR, Monroe County has 31 large dams and 109 small dams. Of the 140 dams, WDNR has listed three as a significant hazard.

The Wisconsin DNR regulates all dams on waterways to some degree; however the small dams are not stringently regulated for safety purposes. 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 Monroe County, there are three dams that have a ***significant*** hazard rating – Perch Lake (City of Sparta), Spring Creek (Spring Bank Lake, Town of Greenfield) and Flora Creek (Flora Dell Lake, Town of Greenfield) and two (2) dams that have a ***high*** hazard rating – Tri Creek Number One – Morris Creek (Village of Norwalk) and Tomah Lake – Lemonweir River (City of Tomah). See **Map 6 (pp. 14)** and the Dam Information Table for more detailed information about the significant and high hazard dams.

All dams perceived as posing a threat to downstream development should have a dam failure analysis performed in order to identify the hydraulic shadow (that area of land downstream from a dam that would be inundated by water upon failure of the dam during a regional flood). This information can be used to develop an Emergency Action Plan (EAP) for the dam. This EAP includes provisions for notifying emergency authorities for assistance and warning affected downstream residents if the potential for failure exists.

History of Dam Failures in Monroe County:
Monroe County has not experienced a dam break with any loss of life or substantial property damage. However, the recent Marquette County dam blowout in Michigan's Upper Peninsula is a prime example of the kind of destruction a dam failure can cause. On May 15, 2003, an earthen dike washed away after heavy rainfall. The preliminary damage was estimated at $102 million. It washed away $3 million worth of roads and bridges, plus 20 homes, and sent a massive plume of sediment into Lake Superior. It was a serious blow to the economy of Marquette County, hurting basic industries and tourism.

Vulnerability Assessment:
Monroe County has two dams within its boundaries that have a high hazard rating, and three that have a significant hazard rating. Only two of these five dams have an Emergency Action Plan – Norwalk Tri-Creek and the Angelo Dam.

Monroe County Land Conservation Department produced an Emergency Action Plan (EAP) for the Norwalk Tri-Creek Dam, which has a high hazard rating. This plan was updated in 2003. The EAP was based off a hydrologic, hydraulic, and stability analysis completed by R.A. Smith & Associates in March of 1992.

Monroe County Highway Department developed an EAP for the Angelo Dam, the plan was The EAP was based off a hydrologic, hydraulic, and stability analysis that was completed in 1999.

Future Probability of Potential Dollar Losses - Dam Failure:
Due to the significant number of dams; particularly Dams with significant or high hazard ratings, dam failure is an important hazard event to plan for in Monroe County. However, based on past experience, the actual probability of a major dam failure is very low. Considering the failure of the Dam on Angelo Pond in the early 1980's, significant rainfall in 2002 that caused an earthen dam to erode on the Fort McCoy installation and 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 Angelo Pond Dam was avoided by human intervention. Estimating future dollar losses for dam failure is problematic as well.

HAZARD: TEMPERATURE EXTREMES - HEAT

Hazard Analysis:
Extreme weather includes weather phenomena that are at the extremes of historical patterns, especially severe or unseasonal weather. Increasing dramatic weather catastrophes are due to an increase in the number of severe events and an increase in population densities which increase the number of people affected and damage caused by an event of given severity.

A heat wave is a prolonged period of excessive heat, often combined with excessive humidity. Generally, excessive heat is defined as temperatures that hover 10 degrees or more above the average high temperature for the region during summer months, last for a prolonged period of time, and often are accompanied by high humidity.

Per the National Climatic Data Center there have been six significant events reported for Monroe County in which three (3) deaths resulted.

TABLE 33 HISTORY OF EXTREME HEAT IN MONROE COUNTY

LOCATION OR COUNTY	DATE	TIME	TYPE	MAG	DTH	INJ	PRD	CRD
Statewide	10/12/1995	1400	Record Warmth	N/A	0	0	0	0
Adams, Buffalo, Clark, Crawford, Grant, Jackson, Juneau, La Crosse, Monroe, Richland, Taylor, Trempealeau, Vernon	07/04/1999	07:00 AM	Excessive Heat	N/A	0	0	0	0
Adams, Buffalo, Clark, Crawford, Grant, Jackson, Juneau, La Crosse, Monroe, Richland, Taylor, Trempealeau, Vernon	07/23/1999	10:00 AM	Excessive Heat	N/A	0	0	0	0
Adams, Buffalo, Clark, Crawford, Grant, Jackson, Juneau, La Crosse, Monroe, Richland, Taylor, Trempealeau, Vernon	07/28/1999	10:00 AM	Excessive Heat	N/A	1	0	0	0
	Description: Oppressive heat and humidity affected the area once again with highs in the middle 90s to 100. La Crosse (La Crosse County) established new record highs when the temperature reached 98 and 100 on the 29th and 30th respectively. Heat indices both days topped out around 120. An 80 year old man died of heat stroke in Crawford County.							

Adams, Buffalo, Clark, Crawford, Grant, Jackson, Juneau, La Crosse, Monroe, Richland, Taylor, Trempealeau, Vernon	07/31/2001	01:00 PM	Excessive Heat	N/A	2	0	0	0
	Description: Temperatures climbed into the middle to upper 90s, with La Crosse (La Crosse County) even reaching 100. The excessive heat combined with high humidity pushed heat indices dangerously high, with values of 105 to 115. As a result, there were two deaths directly related to the heat. The dangerous heat would continue affecting southwest and central Wisconsin through the first week and a half of August.							
Adams, Buffalo, Clark, Crawford, Grant, Jackson, Juneau, La Crosse, Monroe, Richland, Taylor, Trempealeau, Vernon	08/01/2001	12:00 AM	Excessive Heat	N/A	0	0	0	0
TOTALS					**3**	**0**	**0**	**0**

HIGH TEMPERATURE	POSSIBLE HEAT DISORDER
80° F – 90° F	Fatigue possible with prolonged exposure and physical activity.
90° F – 105° F	Sunstroke, heat cramps and heat exhaustion possible
105° F – 130° F	Sunstroke, heat cram[s, and heat exhaustion likely, and heat stoke possible
130° F or greater	Heat stoke highly with continued exposure

Source: National Weather Service

Vulnerability Assessment:

Excessive heat does not have particular impacts in any one geographical section of the county. The most vulnerable individuals to this hazard are the very old and the young, as well as those individuals whose social-economic status prevents them from having access to artificial cooling methods. The economic impacts of this hazard cannot be evaluated geographically. Critical County infrastructure is unlikely to be affected by this hazard.

Impacts/Risk

Excessive heat can have a major impact, causing multiple deaths, but sparing property. With extreme heat, there is little physical destruction, although roads can buckle, trains derail, and livestock die. Extreme heat conditions can pose problems for those not accustomed to the climate or who are outside for prolonged periods of time. Extreme heat can create a threat even to individuals and communities that are accustomed to high temperatures. Excessive heat can also cause utility outages due to an increased demand for electricity.

WARMEST HIGHS AT SPARTA, WI	
HIGH	DATE
106F	7/13/1936
106F	7/12/1936
105F	7/14/1995
104F	7/11/1936
103F	7/15/1936

Elderly residents, young children, those who are overweight, individuals who live alone, residents who lack access to transportation and air-conditioning, and people suffering from serious illnesses are especially prone to heat-related problems. Accounting to the Federal Emergency Management Agency, between 1936 and 1975, nearly 20,000 people succumbed to the effects of heat and radiation from the sun. Extreme heat disorders include sunburn, heat cramps, heat exhaustion, and heat stroke.

NWS HEADLINES

Heat Advisory
Daytime heat indices≥ 100F

Excessive Heat Warning
Daytime heat indices≥ 105F
Minimum (night) heat indices≥ 75F
Lasting 48 hours or more
Advisory criteria expected ≥ 4 days

National Weather Service La Crosse, WI

People living in urban areas may be at greater risk from the effects of a prolonged heat wave than people living in rural regions. An increased health problem can occur when stagnant atmospheric conditions trap pollutants in urban areas, thus adding contaminants to excessively hot temperatures.

There are seasonal patterns to excessive heat waves with an event most likely to occur in the summer months. Excessive heat can also cause utility outages due to an increased demand for electricity. Utility outages could severely hamper the county's ability to provide services as facilities become inoperable and must be closed due to a lock of power or water.

Future Probability of Potential Dollar Losses - Extreme Heat:

Based on historical frequency, Monroe County can expect extreme temperatures every 5 per year on average. In other words the probability is 1.00 or a 100 % chance in a given year. Estimating potential future losses for extreme temperatures is difficult. Damages and losses are typical minor and widespread. Extreme temperature, however, do have the potential to be extremely disastrous, particularly for Elderly residents, young children, those

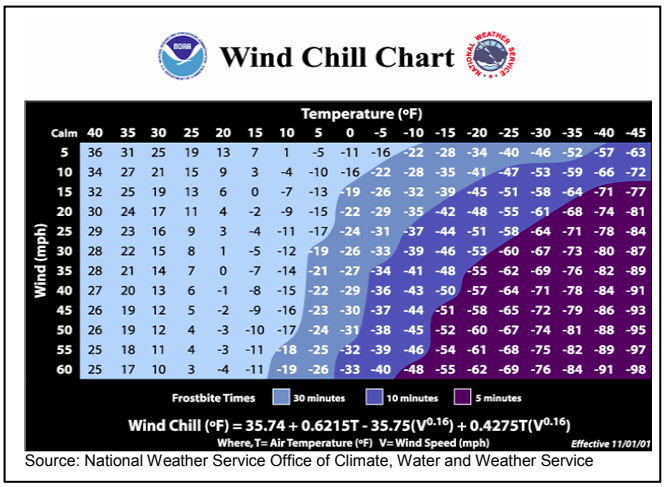
who are overweight, individuals who live alone, residents who lack access to transportation and air-conditioning, and people suffering from serious illnesses are especially prone to heat-related problems.

HAZARD: TEMPERATURE EXTREMES - COLD

Hazard Analysis:

On average, January is the coldest month, with daytime highs of averaging 29.5°F and night time lows of 0°F. Maximum temperatures in January have been as high as 57°F and minimums as low as -48°F in Monroe County. The winter months on average produce 27 days of 0° F or lower.

Dangerously cold weather can include relatively cold temperatures with strong winds, creating low wind chills that put both people and livestock at risk. Wind chills of -35°F and lower can present significant risk, particularly if people are not properly clothed or protected. A -15°F air temperature with wind speeds of 10 miles per hour can creates a wind chill of -35°F. In the open under these conditions, frostbite can occur in minutes on exposed skin. The National Weather Service issues a Wild Chill Advisory when wind chills of -35° are expected. A Wind Chill Warning is issued when wind chills of -50° are expected.



Source: National Weather Service Office of Climate, Water and Weather Service

COLDEST LOWS AT SPARTA, WI	
LOW	DATE
-48F	1/30/1951
-43F	1/15/1963
-41F	2/03/1996
-40F	2/02/1951
-40F	1/07/1951

The "Wind Chill" Index is a calculation of how cold it feels outside when the effects of temperature and wind speed are combined. The La Crosse National Weather Service issues Wind Chill Advisories when they reach -20 F and Wind Chill Warnings when they drop to -35 F or lower. Exposure to cold, biting air for long periods of time is dangerous.

TABLE 29 OCCURRENCE IN MONROE COUNTY

LOCATION OR COUNTY	DATE	TIME	TYPE	MAG	DTH	INJ	PRD	CRD
Southwest Wisconsin, Monroe	1/30/1951		Cold	N/a	0	0	0	0
	An arctic high pressure system brought record cold to northeast Iowa and southwest Wisconsin. Coldest temperatures on record were set in: In WI: Sparta (-48),							
Monroe	11/27/1977		Cold	N/A/	0	0	0	0
	-18, coldest November temperature							
Monroe, La Crosse	2/19/1979		Cold	N/A	0	0	0	0
	this was the last day of a stretch of 52 consecutive days where temperatures never got above freezing in La Crosse. The average high temperature during the stretch was 16.1 degrees.							
Monroe	02/10/1995	2100	Cold	N/A	0	0	0	0
Adams, Brown, Buffalo, Calumet, Clark, Columbia, Crawford, Dane, Dodge, Door, Florence, Fond Du Lac, Forest, Grant, Green, Green Lake, Iowa, Jackson, Jefferson, Juneau, Kenosha, Kewaunee, La Crosse, Lafayette, Langlade, Lincoln, Manitowoc, Marathon, Marquette, Menominee, Milwaukee, Monroe, Northern Marinette, Northern Oconto, Oneida, Outagamie, Ozaukee, Portage, Racine, Richland, Rock, Sauk, Shawano, Sheboygan, Taylor, Trempealeau, Vernon, Vilas, Walworth, Washington, Waukesha, Waupaca, Waushara, Winnebago, Wood	12/09/1995	0300	Cold	N/A	2	21	0	0
	Bitter-cold arctic air swept into Wisconsin on northwest winds of 20 to 40 mph. Temperatures dropped as much as 15 degrees F in 15 minutes as the strong front moved through. Wind chill values ranged from 25 below to 50 below zero. In Milwaukee County two people died directly from hypothermia, while hypothermia was a secondary cause (indirectly-related) for one death in Dane County and one death in Kenosha County. As for frostbite injuries, 12 were registered in Milwaukee County, six in Waukesha County, two in Sheboygan County, and one in Fond du Lac County. Low temperatures ranged from five below at Milwaukee (Milwaukee County) to 28 below at Thompson Lake (Oneida County). The maximum temperature at Milwaukee was only one above zero. Many schools canceled evening activities, and retailers across the state reported very little shopping activity in spite of the upcoming Holidays. The AAA Club (3,000 calls) and service stations were overwhelmed with requests for assistance with stalled vehicles. There were also a scattering of frozen water pipes which resulted in flooded rooms or basements. At least 30 frozen water pipe incidents were noted in Waukesha County, while there were at least six cases in Dane County, and one in Racine County.							
Buffalo, Clark, Crawford, Jackson, La Crosse, Monroe, Taylor, Trempealeau, Vernon	01/29/1996	1800	Extreme Cold	N/A	0	0	0	0
Buffalo, Clark, Crawford, Jackson, La Crosse, Monroe, Taylor, Trempealeau, Vernon	02/01/1996	0000	Extreme Cold	N/A	0	0	0	0

TABLE 29	OCCURRENCE IN MONROE COUNTY							
LOCATION OR COUNTY	DATE	TIME	TYPE	MAG	DTH	INJ	PRD	CRD
Adams, Buffalo, Clark, Crawford, Grant, Jackson, Juneau, La Crosse, Monroe, Richland, Taylor, Trempealeau, Vernon	01/16/1997	1600	Extreme Wind chill	N/A	0	0	0	0

Vulnerability Assessment:
The following table summarizes the overall vulnerability to extreme temperatures:

OVERALL VULNERABILITY TO EXTREME TEMPERATURES	
Frequency	Likely – (>10% but <100% probable in next year, or at least one chance in 10 years)
Intensity	Moderate
Location	County-wide
Geographic Extent	County-wide
Duration	Days to Weeks
Seasonal Pattern	Winter and Summer
Warning Time	More than 12 hours

Future Probability of Potential Dollar Losses - Extreme Temperature:
Based on historical frequency, Monroe County can expect extreme temperatures every 5 per year on average. In other words the probability is 1.00 or a 100 % chance in a given year. Estimating potential future losses for extreme temperatures is difficult. Damages and losses are typical minor and widespread. Extreme temperature, however, do have the potential to be extremely disastrous, particularly for Elderly residents, young children, those who are overweight, individuals who live alone, residents who lack access to transportation and air-conditioning, and people suffering from serious illnesses are especially prone to heat-related problems.

HAZARD: EARTHQUAKES

Hazard Analysis:
Earthquakes are defined as shifts in the earth's crust that cause the surface to become unstable. This instability can manifest itself in intensity from slight tremors to large shocks that last from a few seconds up to 5 minutes. A period of tremors (and shocks) can last up to several months. These larger shocks can cause ground failure, landslides, liquefaction, uplifts, and sand blows.

Most earthquakes occur when great stresses building up within the earth are suddenly released. This sudden release of stored energy causes movement of the earth's crust along fractures, called faults, and generates shock waves. These shock waves, or seismic waves, radiate in all directions from the focus, much as ripples radiate outward in two dimensions when a pebble is dropped into a pond.

The two basic types of seismic waves are body waves, or primary waves, which travel through the interior of the earth, and surface waves, which travel along the earth's surface and are believed to be responsible for most earthquake damage.

The theory of plate tectonics explains most earthquake occurrences. Ninety percent of more of all earthquakes occur along boundaries between large, slowly moving slabs, or plates of the earth's crust and upper mantle, collectively called the lithosphere.

Vulnerability Assessment:
According to the National Geophysical Data Center, Wisconsin and surrounding areas have had several earthquakes, but none have impacted Monroe County.

TABLE 30	EARTHQUAKE HISTORY IN WISCONSIN			
LOCATION	DATE	FELT AREA SQUARE KM	MAXIMUM INTENSITY	MAGNITUDE
1. Kenosha	Oct 12, 1899	-	II	3.0
2. Marinette	Mar 13, 1905	-	V	3.8
3. Shorewood	Apr 22, 1096	-	II	3.0
4. Milwaukee	Apr 24, 1906	-	III	-
5. Marinette	May 26, 1909	-	III	-
6. Beloit	May 26, 1909	800,000	VIII	5.1
7. Madison	Oct 7, 1914	-	IV	3.0

8. Madison	May 31, 1916	-	II	3.0
9. Fond du Lac	7 Jul 1922	-	V	3.6
10. Madison	Oct 18, 1931	-	III	3.4
11. Stoughton	Dec 6, 1933	1,200	IV	3.5
12. Dubuque	Nov 7, 1938	-	II	3.0
" (aftershocks)	"	-	II	3.0
"(aftershocks)	"	-	II	3.0
13. Thunder Mountain	Feb 9, 1943	-	III	3.2
14.Milwaukee	May 6, 1947	8,000	V	4.0
15. Lake Mendota	Jan 15, 1948	-	IV	3.8
16. Oostburg	July 18, 1956	-	IV	3.8
" (aftershocks)	"	-	IV	3.8
17. South Milwaukee	Oct 13, 1956	-	IV	3.8
18. Beaver Dam	Jan 8. 1957	-	IV	3.6
19. Bill Cross Rapids	28 Feb 1979	Instrumental	-	<1.0MoLg
20. Madison	Jan 9, 1981	Local	II	-
21. Madison	Mar 13, 1981	Local	II	-
22. Oxford	June 12, 1981	Local	IV-V	-
23. Milwaukee	Feb 12, 1987	Local	IV-V	-
24. Milwaukee	Feb 12 1987	Local	IV-V	-
25. W. Kenosha Co.	June 18, 1990	160	III	-

Source: University of Wisconsin-Extension, Geological and Natural History Survey, List of Earthquakes in Wisconsin, M.G. Mudrey, Jr. Open File Report 84-1, 12/11/84. Ron Friedel, Department of Geological and Geophysical Sciences, U.W. Milwaukee, 1987.

Impacts/Risk

Human lives are not likely to be lost as a result of an earthquake in Monroe County. There is little likelihood of any detrimental effect on the County's economy, residents' lifestyle or physical structures.

Future Probability and Potential Dollar Losses:

Based on the historic data presented here (frequency of past events), Monroe County can expect little or no impact from an earthquake. The earthquake threat to Wisconsin is considered low. Minor damages, such as plaster cracking, have occurred but most often the only results have been windows rattling and ground shaking. There is little risk except to badly constructed structures. Most of the earthquakes that could be felt were centered in Wisconsin and adjacent states. The causes of these local quakes are poorly understood and are thought to be the result of continuing rebound of the earth's crust after the retreat of the last glacial ice. The nearest major active fault is the New Madrid Fault.

A potential effect of a major New Madrid Fault earthquake to Monroe County could be damage to natural gas and petroleum supply pipelines that pass through or near the New Madrid Fault Zone.

In the county (185) service orientated critical facilities were identified. These include (37) government and military facilities (Table 16, page 70), 6 hospitals and clinics (Table 12, Page 63); 9 Ambulance Services (Table 13, Page 64); 5 1st Responder Groups (Table 14, Page 64); 23 Hazardous Materials Site (Table 11, Page 62) and 35 residential facilities (Table 17, Page69); 9 police departments (Table 15. Page 66) and 13 fire facilities (Table 10, Page 59) including military and DNR; (48) schools of which (12) are Amish, (1) Technical College and the rest a combination of Public, Private and Religious Schools (Table 16, Page 67). There are 35 wells, towers and reservoirs in Monroe County, (Table 9, and Page 56). That leads to a total of 220 various critical facilities in Monroe County.

Critical facilities will be at a risk for minor damage due to plaster cracking, windows rattling and possibly breaking. There would likely be damage ranging from low to moderate. The monetary amount will be in the hundreds to thousands of dollar range. Closing to schools and commercial buildings will cause loss of wages and time.

Until such time monetary amounts or death tolls would be hard to determine.

Part IV – Mitigation Strategies

Introduction

As defined by the Disaster Mitigation Act of 2000 (DMA2K), hazard mitigation is any action taken to reduce or eliminate the long-term risk to human life and property from hazards. Part IV of the Monroe County All Hazard Mitigation Plan describes the mitigation goals and actions by Monroe County and its local units of government for each of the hazards identified in Part III. The intention is to reduce or avoid long-term vulnerability to the identified hazards. According to FEMA, hazard mitigation refers to any sustained actions taken to reduce or eliminate the long-term risk to human life and property from hazardous conditions. The hazards are listed in the order given in Part III of this plan. As extensive as this list is of hazards, it does not preclude other natural and man-made hazards that can occur in the County. Furthermore, for those hazards that are listed, it should be noted that the range of mitigation actions and projects is more extensive than this. Following each hazard is a list of mitigation goals and possible action projects for Monroe County and its local units of government. It was compiled from a number of mitigation plans and reports, government agencies, the County Emergency Management Coordinator, Emergency Management Committee, other County departments, local units of government officials, and suggestions from the public.

Project studies will be launched to determine whether a project needs to be done, but will not be used to prioritized a goal. A cost effectiveness study will be completed when costs for the project are known and sources of funds have been committed to undertake them. The project timetable on the following pages is how the County and municipalities will prioritize these goals, actions and projects.

Mitigation projects were determined by each township according to their needs. Resources will come in the form of Grants or public budgeted monies.

HAZARD: ALL HAZARDS

Goal:

Goals are general descriptions of desired long-term outcomes. State and federal guidance and regulations pertaining to mitigation planning require the development of mitigation goals to reduce or avoid long-term vulnerabilities to identified hazards. Also to developed an overall goal to reduce or eliminate the long-term risk of loss of life and property damage from the full range of natural and man-made hazards. In addition to this overall goal, the Planning Team also established six specific goals:

1. Protect the residents of Monroe County from natural and man-made hazards.
2. Increase public understanding, support and demand for hazard mitigation.
3. Protect existing and new properties.
4. Build and support local capacity and commitment to become less vulnerable to hazards.
5. Maximize resources for investment in hazard mitigation.
6. Reduce the potential impact of natural and man-made disasters on the County's natural systems.

Objectives:

Objectives are well-defined intermediate points in the process of achieving goals. For the six goals listed above the Monroe County EM established a list of objectives within each goal. Monroe County mitigation planning objectives for each goal include:

Goal 1: Protect the residents of Monroe County from natural hazards and man-made hazards.

- Objective 1.1: Advise the public and implement activities related to health and safety precautions that protect lives by making homes, businesses, critical infrastructure facilities, and other property more resistant to hazards.
- Objective 1.2: Target owners of properties within identified hazard areas for additional outreach regarding mitigation and disaster preparedness.
- Objective 1.3: Evaluate existing shelters to determine adequacy for current and future populations.
- Objective 1.4: Maximize the use of the latest technology to provide adequate warning, communication, and mitigation of hazard events. The County will continue to promote an increase 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).

• Objective 1.5: Continue to develop hazard data for Monroe County to meet new threats and refine knowledge of existing threats.

Goal 2: Increase public understanding, support, and demand for hazard mitigation.

• Objective 2.1: Develop education and outreach programs and materials to increase public awareness of the risks associated with natural hazards.
• Objective 2.2: Educate the public on actions they can take to prevent or reduce the loss of life or property from natural hazards.
• Objective 2.3: Cultivate a spirit of cooperation between County residents and County government that ensures an ongoing commitment to future mitigation activities.

Goal 3: Protect existing and new properties.

• Objective 3.1: Reduce losses and repetitive damages from chronic hazard events by encouraging adequate and well-understood insurance coverage, including separate personal property coverage, among property owners.
• Objective 3.2: Use cost-effective approaches to protect existing buildings and public infrastructure from hazards.
• Objective 3.3: Ensure that development will not put people in harm's way or increase threats to existing properties.

Goal 4: Build and support local capacity and commitment to continuously become less vulnerable to hazards.

• Objective 4.1: Build and support local partnerships to continuously become less vulnerable to hazards.
• Objective 4.2: Provide information on tools, partnership opportunities, and funding resources to assist in implementing mitigation activities.
• Objective 4.3: Ensure adequate training, exercise, and resources for emergency organizations and personnel.
• Objective 4.4: Continue to foster collaboration with County departments so that hazard mitigation concerns are consistently incorporated into normal County operations (i.e. budgeting, planning, and zoning).

Goal 5: Maximize resources for investment in hazard mitigation.

• Objective 5.1: Strengthen communication and participation between public agencies, citizens, non-profit organizations, businesses, and industry to facilitate the mitigation process.
• Objective 5.2: Maximize the use of outside sources of funding.
• Objective 5.3: Encourage maximum participation of property owners, community associations, and special tax districts in protecting their property.

Goal 6: Reduce the potential impact of natural disasters on the county's natural systems.

• Objective 6.1: Balance natural resource management, and land use planning with natural hazard mitigation techniques.
• Objective 6.2: Preserve, rehabilitate, and enhance natural ecosystems to serve natural hazard mitigation functions.

The objectives identified above will be periodically reviewed as part of the Plan maintenance and any additional objectives or modifications will be incorporated into the next scheduled Plan update. This will be done with meetings on a yearly basis with emails after the different seasons; the meetings with the towns will be scheduled during their Towns Association Meetings.

PARTICIPATING JURISDICTIONS:

Lead agency will be Monroe County Emergency Management. Jurisdictions participating in this action will include: Monroe County, Cities of Sparta and Tomah, Villages of Cashton, Kendall, Melvina, Norwalk, Oakdale, Warrens,

Wilton and Wyeville. The Townships of Adrian, Angelo, Byron, Clifton, Glendale, Grant, Greenfield, Jefferson, Lafayette, LaGrange, Leon, Lincoln, Little Falls, New Lyme, Oakdale, Portland, Ridgeville, Scott, Sheldon, Sparta, Tomah, Wellington, Wells, Wilton, Fort McCoy and the Ho-Chunk Nation.

The County's villages, city and towns overall all-hazards mitigation goal is to identify economical and environmentally sound ways to protect life, health, and property from future hazards.

Starting on this page and ending on page 64 is the list of projects and actions the Municipal and County governments designated to achieve this goal that collectively serve as an overall strategy for hazard mitigation. These goals, actions and projects are the result of the public outlined participation process and the hazard risk assessment conducted in Part 1 of this plan.

Cost effectiveness is not used to prioritize projects due to costs being unknown until the time that the project study is actually launched. A cost effectiveness study will be completed when costs for the project are known and sources of funds have been committed to undertake them. The project timetable on the following pages is how the Municipalities and County of Monroe will prioritize these goals, actions and projects.

Other goals, actions and participating agencies/jurisdictions are listed in Part IV – Section 1 below. EM Coordinator in the combined, municipalities and County of Monroe, table (below) refers to the County Emergency Management Coordinator.

Part IV – Section 1

TABLE ACRONYMS		
Co - County	EMD – Emergency Management Dept	EMS – Emergency Medical Services
ESA – Emergency Services Association	FD – Fire Department	FSA – Farm Services Agency
Hwy - Highway	LE – Law Enforcement	WIDNR – Wisconsin Dept of Nat'l Resources

MONROE COUNTY ALL-HAZARDS MITIGATION ACTION PLAN			
MUNICIPALITIES AND COUNTY OF MONROE ***DENOTES CONTINUING EFFORTS TO PROMOTE THE NFIP**			
MITIGATION ACTIONS AND PROJECTS	EST. COST IN TODAY'S COSTS (THOUSANDS)	RESPONSIBLE OFFICIAL, PARTY, AGENCY OR ORG.	PROJECT TIMETABLE
HAZARD GOAL HAIL, LIGHTNING, THUNDERSTORMS & FOG *Inform residents on the dangers of hail, lightning, thunderstorms, fog and take actions to improve warning and communications and reduce losses.*			
PARTICIPATING MUNICIPALITIES Adrian, Angelo, Byron, Clifton, Glendale, Grant, Greenfield, Jefferson, Lafayette, LaGrange, Leon, Lincoln, Little Falls, New Lyme, Oakdale, Portland, Ridgeville, Scott, Sheldon, Sparta, Tomah, Wellington, Wells and, Wilton, Villages of Cashton, Kendall, Melvina, Norwalk, Oakdale, Warrens, Wilton and, Wyeville and Cities of Tomah & Sparta. If a township/village/city has a special Goal it will be noted at the end of the hazard.			
Encourage burying electrical, telecommunication, power and cable lines	Town and County staff resources	Town Board, EM Committee	Continual Program
Utilize Severe Weather Awareness Week to alert residents of the need for concern about natural hazards and actions they can take to minimize losses.	County staff resources	County EMD	Annually
Improvements to public warning systems	Town staff/resources	Chairman – Dennis Hemmersbach, Tn of Wells PH: 608.823.7630	
Improvements to roadways & waterways to provide aid to visibility	Town staff/resources	Chairman – Dennis Hemmersbach, Tn of Wells PH: 608.823.7630	
Fuse Kits for Lift Stations	$700.00 each	Village of Oakdale Harry Nelson 608.343.1708	
Stand by generators for lift station	$50,000 each	Village of Oakdale Harry Nelson 608.343.1708	
Surge Protection	<$50,000	Village of Oakdale Harry Nelson 608.343.1708	
HAZARD GOAL TORNADOES / HIGH WINDS *Protect the health safety and welfare of residents and property by improving emergency communication systems and shelters.*			
PARTICIPATING MUNICIPALITIES Adrian, Angelo, Byron, Clifton, Glendale, Grant, Greenfield, Jefferson, Lafayette, LaGrange, Leon, Lincoln, Little Falls, New Lyme, Oakdale, Portland, Ridgeville, Scott, Sheldon, Sparta, Tomah, Wellington, Wells and, Wilton, Villages of Cashton, Kendall, Melvina, Norwalk, Oakdale, Warrens, Wilton and, Wyeville and Cities of Tomah & Sparta. If a township/village/city has a special Goal it will be noted at the end of the hazard.			
Encourage installation of anchors for new mobile homes, carports, and porches.	Town and County staff resources	Town Board, EM Committee	Continual Program

MONROE COUNTY ALL-HAZARDS MITIGATION ACTION PLAN

MUNICIPALITIES AND COUNTY OF MONROE

*DENOTES CONTINUING EFFORTS TO PROMOTE THE NFIP

MITIGATION ACTIONS AND PROJECTS	EST. COST IN TODAY'S COSTS (THOUSANDS)	RESPONSIBLE OFFICIAL, PARTY, AGENCY OR ORG.	PROJECT TIMETABLE
Encourage construction of safe rooms in mobile home parks and other residential structures subject to high winds.	Town and County staff resources	Town Board, EM Committee	Continual Program
Encourage use of interlocked roofing shingles.	Town and County staff resources	Town Board, EM Committee	Continual Program
Identify buildings that would provide protection to the public in the event of tornado or high winds.	Town and County staff resources	Town Board, EM Committee	Continual Program
Improve and update communication and advanced warning systems	Town and County staff resources	Town Board, EM Committee	Continual Program
Utilize Severe Weather Awareness Week to alert residents of the need for concern about natural hazards and actions they can take to minimize losses.	County staff resources	County EMD	Annually
Communications systems – weather radios	Town staff/resources	Chairman – Dennis Hemmersbach, Tn of Wells PH: 608.823.7630	
Weather spotters	Town staff/resources	Chairman – Dennis Hemmersbach, Tn of Wells PH: 608.823.7630	
Purchase power supply – portable generators	Town staff/resources	Chairman – Dennis Hemmersbach, Tn of Wells PH: 608.823.7630	
Replace and install 2 Severe Weather Warning Sirens	$25,000	Wes Revels, Police Chief 608.374.7400	
HAZARD GOAL	FLOODING, STORM WATER DRAINAGE & DAMS *Protect the health and safety of residents and property in high water events by improving infrastructure and warning and Communication systems.*		
PARTICIPATING MUNICIPALITIES	Adrian, Angelo, Byron, Clifton, Glendale, Grant, Greenfield, Jefferson, Lafayette, LaGrange, Leon, Lincoln, Little Falls, New Lyme, Oakdale, Portland, Ridgeville, Scott, Sheldon, Sparta, Tomah, Wellington, Wells and, Wilton, Villages of Cashton, Kendall, Melvina, Norwalk, Oakdale, Warrens, Wilton and, Wyeville and Cities of Tomah & Sparta. If a township/village/city has a special Goal it will be noted at the end of the hazard.		
*Cooperate with the County on monitoring and enforcement of N.R. 116 Floodplain, Shore Land - Wetland Regulations and any changes to it.	County staff resources	County Zoning Administrator	Annually
*In conjunction with the County investigate the idea of promoting the National Flood insurance Program (NFIP) through a community seminar where federal and state officials would present the program and answer questions.	County staff resources	County EM Committee	Annually
*Assist the County in working to reduce or eliminate repetitive loss or substantially damaged structures by undertaking the following: 1. The EM Dept. shall biannually write a letter to owners of repetitive loss structures or substantially damaged structures to inform them of techniques and potential state and federal resources available to reduce further flood losses. Specific emphasis will be placed on contacting them if the County proceeds with a voluntary buyout program as described above. 2. Inform property owners through the annual survey to act as a resource for information and answer questions on how to reduce future flood losses.	County staff resources	County EMD	Biannually
*The Townships/Municipalities/Cities will work in conjunction with the County to review flood disaster impacts and revise and update this plan as needed after a flood disaster. New flood hazard mitigation projects and strategies are likely to arise after a flood disaster. To deal with this situation the County EM Coordinator and Zoning Administrator shall meet and report in a timely manner to the County Emergency Management Committee on potential changes to the County's All-Hazards Mitigation Plan. The EM Committee shall recommend reaffirmation, amendment or update (rewrite) of this plan to the County Board for action. This disaster assessment may be included in the annual review process discussed in the Plan Maintenance and Adoption section, if the response to the recent flood disaster will not be impaired by doing so.	County staff resources	County Zoning Administrator, Town Board, EMD, Emergency Management Committee	After each flood disaster
Road repairs – Blueberry, Cherrystone, Cheyenne, Charcoal, Chariot & Blazer	$80,000+	Tn of Grant – Doug Lambert 608.378.4916	
Culvert repairs – Charcoal and Clay, Cinder and Charcoal		Tn of Grant – Doug Lambert 608.378.4916	
Flood damage on Nevada Rd and Omaha – wash outs	$100,000/mile each	Tn of Jefferson Russell Mack	
2 bridges (Bridgework) Oneida & Nevada		Tn of Jefferson Russell Mack	

MONROE COUNTY ALL-HAZARDS MITIGATION ACTION PLAN

MUNICIPALITIES AND COUNTY OF MONROE

*DENOTES CONTINUING EFFORTS TO PROMOTE THE NFIP

MITIGATION ACTIONS AND PROJECTS	EST. COST IN TODAY'S COSTS (THOUSANDS)	RESPONSIBLE OFFICIAL, PARTY, AGENCY OR ORG.	PROJECT TIMETABLE
Culvert Repair: culvert fills w/debris after every rain/storm		Tn of Wellington Mark O'Rourke 608.343.1290	
Flood warning plans		Chairman – Dennis Hemmersbach, Tn of Wells PH: 608.823.7630	
Road raising		Chairman – Dennis Hemmersbach, Tn of Wells PH: 608.823.7630	
Evacuation Plans		Chairman – Dennis Hemmersbach, Tn of Wells PH: 608.823.7630	
Flood proofing of buildings – raising of buildings		Chairman – Dennis Hemmersbach, Tn of Wells PH: 608.823.7630	
Replacement of box culvert at the intersection of St Hwy 71 & Main St	$55-80,000 Village share	Village of Norwalk State of Wisconsin	
Larger pump submersible (2)	$6,000 each	Village of Oakdale Harry Nelson 608.343.1708	
Larger forced main going to top of hill	$400,000-600,000	Village of Oakdale Harry Nelson 608.343.1708	
2nd well	$100,000-200,000	Village of Oakdale Harry Nelson 608.343.1708	
Storm water drainage	$500,000	City of Tomah Ken Patterson – Water Dept 608.374.7431	
HAZARD GOAL	EXTREME COLD AND HEAT *Provide educational information to the public on the dangers of extreme heat and cold to reduce future loss of life.*		
PARTICIPATING MUNICIPALITIES	Adrian, Angelo, Byron, Clifton, Glendale, Grant, Greenfield, Jefferson, Lafayette, LaGrange, Leon, Lincoln, Little Falls, New Lyme, Oakdale, Portland, Ridgeville, Scott, Sheldon, Sparta, Tomah, Wellington, Wells and, Wilton, Villages of Cashton, Kendall, Melvina, Norwalk, Oakdale, Warrens, Wilton and, Wyeville and Cities of Tomah & Sparta. If a township/village/city has a special Goal it will be noted at the end of the hazard.		
Identify buildings that could be used as shelters with appropriate heating, ventilation and air conditioning for housing that segment of the population that are more vulnerable to extreme temperature events, such as low income, elderly, and sick persons.	Municipal Officials and County staff resources	Town Board, EMD, EM Committee	
HAZARD GOAL	FOREST AND WILD LAND FIRES *Protect residents and property from forest and wild land fires.*		
PARTICIPATING MUNICIPALITIES	Adrian, Angelo, Byron, Clifton, Glendale, Grant, Greenfield, Jefferson, Lafayette, LaGrange, Leon, Lincoln, Little Falls, New Lyme, Oakdale, Portland, Ridgeville, Scott, Sheldon, Sparta, Tomah, Wellington, Wells and, Wilton, Villages of Cashton, Kendall, Melvina, Norwalk, Oakdale, Warrens, Wilton and, Wyeville and Cities of Tomah & Sparta. If a township/village/city has a special Goal it will be noted at the end of the hazard.		
Periodic cutting of Conservation Reserve Program (CRP) land per program requirements.	Municipal Officials	Town Board	Continual Program
Enforce countywide burning bans during dry seasons.	Municipal Officials, County and State Staff Resources	Town Board, ESA, WIDNR	Continual Program
Maintain cooperative fire agreements among area fire departments and the Department of Natural Resources.	Fire Boards and Fire Departments	Fire Boards, FD's, ESA	Continual Program
Pruning & clearing of vegetation		Chairman – Dennis Hemmersbach, Tn of Wells PH: 608.823.7630	
Create buffer zones between structures and woodlands		Chairman – Dennis Hemmersbach, Tn of Wells PH: 608.823.7630	
HAZARD GOAL	HEAVY SNOW, ICE STORMS & BLIZZARDS *Inform the public about the threat of heavy snow and Ice storms and blizzards and take actions to improve warning and communications and reduce future losses.*		
PARTICIPATING MUNICIPALITIES	Adrian, Angelo, Byron, Clifton, Glendale, Grant, Greenfield, Jefferson, Lafayette, LaGrange, Leon, Lincoln, Little Falls, New Lyme, Oakdale, Portland, Ridgeville, Scott, Sheldon, Sparta, Tomah, Wellington, Wells and, Wilton, Villages of Cashton, Kendall, Melvina, Norwalk, Oakdale, Warrens, Wilton and, Wyeville and Cities of Tomah & Sparta. If a township/village/city has a special Goal it will be noted at the end of the hazard.		
Cooperate with the County in preparing timely releases that inform the public on actions and precautions they can take to minimize disruptions and losses	County staff resources	County EMD	Annually

MONROE COUNTY ALL-HAZARDS MITIGATION ACTION PLAN			
MUNICIPALITIES AND COUNTY OF MONROE ***DENOTES CONTINUING EFFORTS TO PROMOTE THE NFIP**			
MITIGATION ACTIONS AND PROJECTS	EST. COST IN TODAY'S COSTS (THOUSANDS)	RESPONSIBLE OFFICIAL, PARTY, AGENCY OR ORG.	PROJECT TIMETABLE
Utilize the Winter Weather Awareness Week to alert residents of the need for concern about heavy snow, ice storms and blizzards and the actions they can take to minimize losses from these hazards.	County staff resources	County EMD	Annually
Investigate the concept of identifying locations in the Towns where snow fences could be constructed or trees and bushes (living snow fence) could be planted to increase more vehicle safety.	Town and County staff resources	EMD, Co Hwy Commissioner, Town Board	Annually
HAZARD GOAL EARTHQUAKE, LANDSLIDE & SUBSIDENCE *Lessen the impact of earthquakes, landslides, and subsidence on persons and property*			
PARTICIPATING MUNICIPALITIES	Adrian, Angelo, Byron, Clifton, Glendale, Grant, Greenfield, Jefferson, Lafayette, LaGrange, Leon, Lincoln, Little Falls, New Lyme, Oakdale, Portland, Ridgeville, Scott, Sheldon, Sparta, Tomah, Wellington, Wells and, Wilton, Villages of Cashton, Kendall, Melvina, Norwalk, Oakdale, Warrens, Wilton and, Wyeville and Cities of Tomah & Sparta. If a township/village/city has a special Goal it will be noted at the end of the hazard.		
Investigate developing an inventory/prioritization of roads/road segments that have shoulders with slopes conducive to erosion and land/mud slides. The roads/road segments identified can be stabilized as funding becomes available.	Town and County staff resources	EMD, Town Board, Co Hwy Commissioner and Hwy Safety Committee	Annually
Identify and warn public of areas of landslides		Chairman – Dennis Hemmersbach, Tn of Wells PH: 608.823.7630	
Identify and warn public where falling rocks from hillsides or cliffs could damage		Chairman – Dennis Hemmersbach, Tn of Wells PH: 608.823.7630	
HAZARD GOAL AGRICULTURAL AND DROUGHT *Inform the public on the hazards associated with drought, provide information on methods to reduce water usage and minimize agriculture losses.*			
PARTICIPATING MUNICIPALITIES	Adrian, Angelo, Byron, Clifton, Glendale, Grant, Greenfield, Jefferson, Lafayette, LaGrange, Leon, Lincoln, Little Falls, New Lyme, Oakdale, Portland, Ridgeville, Scott, Sheldon, Sparta, Tomah, Wellington, Wells and, Wilton, Villages of Cashton, Kendall, Melvina, Norwalk, Oakdale, Warrens, Wilton and, Wyeville and Cities of Tomah & Sparta. If a township/village/city has a special Goal it will be noted at the end of the hazard.		
Consider developing an education/information program that informs agricultural producers about crop insurance.	County and State staff resources	UW-Extension, FSA, Town Board	Annual Program
Encouraging the purchase of crop insurance		Chairman – Dennis Hemmersbach, Tn of Wells PH: 608.823.7630	
HAZARD GOAL HAZMAT INCIDENTS *Provide educational information to the public on the dangers of and what to do during a chemical related incident.*			
PARTICIPATING MUNICIPALITIES	Adrian, Angelo, Byron, Clifton, Glendale, Grant, Greenfield, Jefferson, Lafayette, LaGrange, Leon, Lincoln, Little Falls, New Lyme, Oakdale, Portland, Ridgeville, Scott, Sheldon, Sparta, Tomah, Wellington, Wells and, Wilton, Villages of Cashton, Kendall, Melvina, Norwalk, Oakdale, Warrens, Wilton and, Wyeville and Cities of Tomah & Sparta. If a township/village/city has a special Goal it will be noted at the end of the hazard.		
Utilize the EPCRA (Emergency Planning & Community Right-to-Know Act) Awareness Week Campaign to educate residences about chemical safety issues.	Existing County staff resources	County Emergency Management Coordinator	Annual Program
Mutual Aid agreement to be put in place between Vernon County and Monroe County Hazardous Materials Response Team	Existing County staff resources	County Emergency Management Coordinator	Annual Program

Completing a thorough capability assessment has led to the identification and development of specific mitigation recommendations and actions. By evaluating the effectiveness of the existing county capabilities it was discovered that a need for additional programs to assist communities in their mitigation efforts were needed, and included those mitigation action items in the Mitigation Action Plan. Monroe County has identified the following programs as having the greatest impact on mitigating damage from natural hazards:

- The Pre-Disaster Mitigation Competitive Program (PDM-C) provides mitigation grants to state and local governments, and tribal organizations for comprehensive all-hazards mitigation planning and to implement cost-effective mitigation projects. Local governments find it difficult to provide the required 25% local match. When possible, other funding sources can and will be used to supplement the remaining local match. Communities must have an approved all-hazards mitigation plan in order to be eligible for project grant funds. All grant funds are awarded through a national competition. Fund availability from year to year is unpredictable. The State of Wisconsin receives management costs based on the approved grants. Staff spends a tremendous amount of time soliciting applications and providing technical assistance to potential subgrantees without any guarantee of receiving State Management Costs

• The Hazard Mitigation Grant Program (HMGP) provides mitigation grants to state and local governments, eligible private, non-profit organizations, and tribal organizations for comprehensive all-hazards mitigation planning and to implement cost-effective mitigation projects. The State of Wisconsin currently provides half of the required 25% local match for the HMGP. When possible, other funding sources are used to supplement the remaining 12.5% local match. Local match sources that have been utilized in the past include the Wisconsin Department of Natural Resources' Stewardship programs and Municipal Flood Control program, and Community Development Block Grants through the Department of Commerce. HMGP funding is dependent on the State receiving a federal disaster declaration and federal disaster assistance thereafter. Historically the State has received more requests for funding after a major disaster than the funds that have been available.

• Increased Cost of Compliance (ICC) coverage pays insurance claims for the cost of compliance with state or community floodplain management laws or ordinances after a direct physical loss by flood. When a building covered by a Standard Flood Insurance Policy under the NFIP sustains a flood loss and the State or community State of Wisconsin Hazard Mitigation Plan 4-3 declares the building to be substantially or repetitively damaged, ICC will pay up to $30,000 for the cost of elevation, flood proofing, demolition, or relocation.

• The Flood Mitigation Assistance (FMA) program provides annual funding for the development of comprehensive flood mitigation plans and implementation of cost effective mitigation measures on NFIP insured properties. Local governments find it difficult to provide the required 25% local match. When possible, other funding sources are used to supplement the remaining local match. Local match sources that have been utilized in the past include the Wisconsin Department of Natural Resources' Stewardship programs and Municipal Flood Control program, and Community Development Block Grants through the Department of Commerce. Communities must have a FEMA-approved flood mitigation plan in order to receive mitigation project funds.

• The Repetitive Flood Claims (RFC) grant program is designed to reduce or eliminate the long-term risk of flood damage to structures that are insured under the NFIP and have had one or more claim payments for flood damages. RFC funds may only be used to mitigate structures located within a state or community that is participating in the NFIP and cannot meet the requirements of the FMA program due to lack of cost share funding or lack of capacity to manage the activities. This program is 100% funded without the requirement for a mitigation plan. However, it can only be used for properties that are NFIP-insured and have had at least one paid claim. In addition, the community has to certify that they cannot meet the local match or program management requirements of the other programs. RFC has great potential if the State can identify the eligible properties.

• The Severe Repetitive Loss (SRL) program provides funds to assist states, tribal organizations, and local governments participating in the NFIP in reducing or eliminating the long-term flood risks to severe repetitive loss properties, thus reducing outlays from the NFIP. Local governments may find it difficult to provide the required 25% local match. When possible, other funding sources can and will be used to supplement the remaining local match. Communities must have an approved all-hazards mitigation plan in order to be eligible for project grant funds. The program can only be used for flood mitigation of NFIP-insured properties that meet FEMA's criteria for SRL properties.

• NR 116 Local and State Floodplain Standards prohibits construction in floodways and requires elevation and dry-land access in flood fringe areas. It limits improvements to non-conforming structures and requires compensatory storage in flood storage areas.

Comprehensive planning legislation requires local governments to have comprehensive plans to guide them in making good land use decisions. It complements mitigation planning and has added momentum to the mitigation planning movement by requiring the incorporation mitigation elements into comprehensive plans by 2010.

• The Home Safety Act requires the State's Uniform Dwelling Code (UDC) be enforced throughout the state. It includes the imperative to have all new construction inspected for compliance with the UDC. This law will improve the disaster resistance of homes, by requiring implementation of safety standards at the time of construction. The effect will be a reduction in injury and property loss from all types of natural hazards.

• The Municipal Flood Control and Riparian Restoration Program provides grants for the mitigation of flood-prone property, the restoration of riparian areas, and the construction of flood control projects.

• The Firewise Communities program is intended to serve as a resource for agencies, tribes, organizations, fire departments, and communities across the U.S. who are working toward a common goal: reduce loss of life, property, and resources to wildland fire by building and maintaining communities in a way that is compatible with our natural surroundings. Firewise Communities is part of the National Wildland/Urban Interface Fire Program.

Public Assistance (PA): The State of Wisconsin currently provides half of the required 25% local match for the PA program. Mitigation funding through this program could be substantial. However, the program is underutilized for several reasons. The more mitigation measures included in the PA program, the more funds will be made available for not only PA, but also for the HMGP. (HMGP is calculated as 15% [20% with an approved enhanced state mitigation plan] of eligible FEMA Public and Individual Assistance programs.)

State Disaster Fund: The State of Wisconsin will reimburse (up to 70%) local governmental units for damages and costs incurred as the result of a major catastrophe if federal disaster assistance is not available. When applicable the eligible reimbursement includes damages and costs for debris clearance, protective measures and roads and bridges with the local governmental unit's share of the costs being not less than 30%.

As stated previously in this section, the primary funding sources for state and local hazard mitigation projects have been federal hazard mitigation programs available through FEMA. Funds for the state match or state contribution toward the local match (12.5% for the Hazard Mitigation Grant Program) come from the state's general fund budget. Local governments have used a variety of other sources to fund hazard mitigation projects including local revenues, local in-kind goods and services. Community development Block Grants, grants through the Department of Natural Resources Stewardship Programs and the Municipal Flood Control and Riparian Restoration Program, and others. Presently there is no designated state program or funding source for all-hazards mitigation for planning or project implementation. The State does provide half or up to 12.5% of the local match required for the HMGP and the PA program. If the state were to lose federal funds, the State's hazard mitigation program would certainly suffer.

Monroe County does not have monies set aside for any potential losses from disasters.

LOCAL CAPABILITY ASSESSMENT			
Program or Initiative	**Description**	**Support for Local Mitigation**	**Effectiveness in Local Mitigation**
Wisconsin Commercial Building Code	The Wisconsin Enrolled Commercial Building Code is chapters Comm. 61 to 65 of the Wisconsin Administrative Code and the adopted provisions of the International Code Council codes: *International Building Code, International Energy Conservation Code, International Mechanical Code, International Existing Building Code* and *International Fuel Gas Code*. The 2009 IBC was adopted with State of Wisconsin Amendments in 2011. The Department of Safety and Professional Services, Division of Safety and Buildings reviews and approves plans for compliance with building codes and administers inspection certificates.	The code protects the health, safety, and welfare of the public and employees by establishing minimum standards for the design, construction, maintenance, and inspection of public buildings, including multi-family dwellings and places of employment. Notable requirements of the code: • Windows, doors, parapets, awnings, exterior wall coverings, and rooftop equipment must be designed to resist wind loads up to 90 mph • Wind loads are factored during design by a factor of safety as high as 1.6 (calculated wind load)	All structures built after the adoption of the state building code have increased resistance to hazards due to code enhancements. However, for existing structures, state building code requirements indicate that damaged building components only need to be replaced to the pre-damage condition as specified by the building code in effect at the time of original construction. If the structure is improved, the current code is to be used to regulate the redesign and reconstruction.
Wisconsin Uniform Dwelling Code	The Wisconsin Uniform Dwelling Code is the State's administrative code Comm. 20 and 21, provides construction and remodeling requirements for one- and two-family dwellings built after June 1, 1980. The code	The code protects the health, safety, and welfare of the public by establishing minimum standards for the design, construction, maintenance, and inspection for one- and two-family	All structures built after adoption of state building code have increased resistance to hazards due to code enhancements.

LOCAL CAPABILITY ASSESSMENT

Program or Initiative	Description	Support for Local Mitigation	Effectiveness in Local Mitigation
	is administered by the Department of Safety and Professional Services, Division of Safety and Buildings who is responsible for compliance with state building codes	dwellings. (Multi-family structures are covered under the commercial code.) Beginning January 1, 2005, all municipalities will have enforcement requirement of the code. Enforcement involves submitting building plans in order to obtain a building permit, and having electrical, construction, plumbing, and HVAC inspections during construction. (Previously municipalities with a population of 2,500 or less could choose by resolution to decline code enforcement although construction had to follow the code, but there may not have been any plan review or inspections.) Notable requirements of the code: • Roof surfaces must be designed to resist wind uplift of a minimum of 20 pounds per square foot • Clips, straps, or mechanical fasteners are required to connect roof framing members to load-bearing walls (regardless of construction type) when the roof framing has a span of six feet or more • Wall framing must be connected to the foundation or slab with half-inch diameter anchor bolts spaced at six feet on-center (or less) and placed within 18 inches of each building corner • Garages have the same structural requirements as dwellings • A minimum of two exits are required from the first floor of the structure	Approximately 900 municipalities that previously were not required to enforce the UDC have been required to do so since January 1, 2005. It will take time and training to get an established effective enforcement system into place. With the home building boom of the past decade, especially in rural areas, there were notable economic, safety, and legal problems due to non-conforming construction. It was estimated that about only 5,000 of 25,000 new dwellings built in a year were being inspected for code requirements
NR115 Shoreland Protection	Administrative Code NR115, Shoreland Protection Program, is administered by the Wisconsin Department of Natural Resources and establishes statewide minimum standards for shoreland development to control the intensity of development and create a buffer around water. It requires counties to adopt and administer shoreland zoning ordinances that meet or exceed the minimum standards. Standards include lot sizes, buffer strips, setbacks, and legal non-conformities.	Shoreland management and zoning promote mitigation by restricting development near water. This may prevent construction in dangerous near-shore areas, thereby mitigating possible flood damages. Grading restrictions prevent increased runoff and resulting erosion and flood damages.	Many counties have adopted ordinances that exceed the state minimum standards. New impervious surface standards and shoreland buffer restoration requirements will promote sustainable shoreland development, reduce runoff, promote infiltration of rainfall and protect natural shoreland functions. In conjunction with NR 116, this can be a powerful tool in regulating development in or near floodplains and near water
NR 116 Floodplain Management	Administrative Code NR 116, Floodplain Management is administered by the Wisconsin Department of Natural Resources. It requires local governments (counties, cities, and villages) to adopt reasonable and effective zoning ordinances to regulate floodplains in their jurisdictions. Floodplain zoning prohibits new construction or reconstruction of substantially damaged structures in mapped floodways. In addition, it requires elevation (two feet above the base flood elevation) and dry-land access in flood fringe areas. It also limits improvements to non-conforming structures and requires compensatory storages in flood storage areas.	Floodplain management and zoning promote mitigation by restricting development in mapped floodplains. This prevents flood damages by controlling the placement and elevation of structures. It sets strict standards for the removal of lands from the floodplain and limits the granting of variances in floodplains. New floodplain maps more accurately delineate flood hazard areas and encourage achievable mitigation projects. RiskMAP products will incorporate mitigation data and provide support for mitigation planning efforts.	The State's floodplain management law exceeds National Flood Insurance Program requirements. The additional two feet of flood elevation help protect structures from severe floods. It limits construction in the floodplain with no new construction in the floodway. Local governments can set more restrictive standards than the state and federal government. The rules are complicated and there is a lack of understanding in many communities particularly with enforcing the substantial damage or improvement

LOCAL CAPABILITY ASSESSMENT

Program or Initiative	Description	Support for Local Mitigation	Effectiveness in Local Mitigation
			provision of the law. There is a need for continued outreach and education to ensure that the program is implemented and enforced properly.
NR 117 Shoreland-Wetland Protection Program	Administrative Code NR117, Shoreland-Wetland Protection Program is administered by the Wisconsin Dept of Natural Resources. It establishes statewide minimum standards for cities' and villages' shoreland-wetland zoning ordinances in order to accomplish shoreland protection objectives. Cities and villages are required to adopt and administer shoreland-wetland zoning ordinances within six months or receipt of final wetland inventory maps, which are prepared by the DNR. The ordinance creates a shoreland-wetland zoning district for all wetlands of five acres or more, and all portions of wetlands of five acres or more located in the jurisdiction.	This preserves wetland areas which retain and infiltrate flood waters. A jurisdiction may not rezone a wetland in a shoreland-wetland zoning district, or any portion thereof, if the proposed rezoning may result in a significant adverse impact to stormwater and floodwater storage capacity and shoreline protection against soil erosion	Local governments can adopt ordinances that exceed the state minimum standards. In conjunction with NR 115 and 116, this can be a powerful tool in regulating development in or near floodplains and wetlands and near water in general. Small, isolated wetlands and degraded wetlands can be developed in some cases, which can cause higher flood levels and increased damages.
Comprehensive Planning	The State's Comprehensive Planning Law, commonly recognized as Wisconsin's "Smart Growth" legislation, requires any program or action of a town, village, city, county, or regional planning commission that affects land use after January 1, 2010 must be guided by, and consistent with, an adopted comprehensive plan. Comprehensive plans must contain 9 elements: issues and opportunities; housing; transportation; utilities and community relations; land use; agricultural, natural and cultural resources; economic development; intergovernmental cooperation; and implementation	This provides the opportunity for communities to incorporate their comprehensive planning with their all-hazards mitigation planning efforts. It presents an opportunity to build community support for investing in long-term hazard reduction. Comprehensive plans will include activities such as land use planning, zoning ordinances, construction site erosion control ordinances, stormwater management zoning, and agricultural preservation plans all of which can contribute to hazard mitigation within a community.	There is not a specific element pertaining to hazard avoidance or hazard reduction. However, all-hazards mitigation plans can be integrated into a community's comprehensive plan through the various planning elements or as its own element. Comprehensive plans should also be consulted when developing hazard mitigation plans. A good comprehensive plan that addresses its hazards will lead to good land use decisions. Information and data collected for comprehensive planning is also useful and necessary in all-hazards mitigation planning.
Wisconsin Regional Planning Commissions	The Wisconsin Regional Planning Commissions (RPCs) provide planning and technical services to the counties and municipalities that participate in the Commission. RPCs provide technical services through GIS mapping, zoning, and subdivision ordinance preparation; environmental assessments and impact reviews; and engineering services. RPCs provide planning services for development of hazard mitigation plans and comprehensive plans in addition to special purpose plans. RPCs develop zoning, subdivision and other land use ordinances for local governments. They implement projects through administration of grants. They also share costs in county administrative services and building and zoning code enforcement.	Services provided assist in land use planning and implementation of local government plans that address key community development needs. In many cases, the plans also mitigate losses from hazards. Data collection, analysis projections, mapping, programs, policies, and projects in comprehensive plans complement hazard mitigation planning. Stormwater, floodplain management, and sewer service area planning are a few of the areas addressed in comprehensive plans that have policies, programs, and projects that complement flood hazard mitigation. RPCs have partnered with Wisconsin Emergency Management in developing a resource guide that identified how comprehensive and hazard mitigation plans could be integrated.	Local governments are used to working through and with the RPCs in development of various plans. The RPCs are familiar with the local governments and the issues and politics that are involved at the local level. They provide a valuable service to local governments in the development of various planning efforts and in the provision of technical services. Limited budgets and funding levels do not allow the RPCs to meet the demand for technical and planning services requested of them. Hazard mitigation should be regularly considered when these services are provided. More specific concepts need to be developed to include hazard mitigation policies, programs, and projects when administering and implementing other plans and projects. A more formal policy for integrating comprehensive

LOCAL CAPABILITY ASSESSMENT			
Program or Initiative	**Description**	**Support for Local Mitigation**	**Effectiveness in Local Mitigation**
County Emergency Management	Emergency Management is a county office mandated by the State of Wisconsin. It is supported by county funds, which are reimbursed in part by federal funding. Emergency Management comprises organized analyses, planning, decision-making, and assignment of available resources to mitigate, prepare for, respond to, and recover from the effects of all hazards.	The County Emergency Management Department cooperates with the County in preparing timely releases that inform the public on actions and precautions they can take to minimize disruptions and losses. County staff works to reduce or eliminate repetitive loss or substantially damaged structures by writing letters to owners to inform them of techniques and potential state and federal resources available to reduce further flood losses.	and hazard mitigation planning needs to be developed.

Part V - Plan Maintenance Procedures

Part V of the Monroe County All-Hazard Mitigation Plan describes the plan adoption, implementation, and evaluation and maintenance.

PLAN ADOPTION

The adoption of the Monroe County All-Hazard Mitigation Plan lends itself to serve as a guiding document for all local government officials. It also certifies to program and grant administrators from 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 by the incorporated areas, the Plan must be sent to the state and federal level to verify that all DMA2K requirements are met. Once a draft of the Plan has been completed, it is submitted to the Wisconsin Emergency Management (WEM), State Hazard Mitigation Officer (SHMO).

Previous drafts of the Plan have already been reviewed prior to this submittal. The SHMO will determine if the Plan meets DMA2K and/or other state program requirements. Upon approval of the draft by WEM, the SHMO is responsible for showing the Plan to the FEMA Region V Office for review.

After review and approval by FEMA, the Plan must be formally adopted by Monroe County and its incorporated areas (County, City and Village) by a resolution. Incorporated communities that do not adopt the Plan cannot apply for mitigation grant funds unless they opt to prepare, adopt, and submit their own plan. According to FEMA Region V, unincorporated areas (towns) do not have to formally adopt the plan. Adoption of the plan gives the jurisdiction legal authority to enact ordinances, policies, or programs to reduce hazard losses and to implement other mitigation actions. Resolutions of adoption will be contained in APPENDIX B.

PLAN IMPLEMENTATION

Administrative Responsibilities

Once the Plan has been approved, stakeholders should be informed. The County Emergency Management Coordinator should distribute copies to these stakeholders. The County should make the Plan available to the public by linking the Plan on their web site.

During implementation of the Plan, the County Emergency Management Coordinator and Committee should take the role as overseer. As the developers of the Plan, the Coordinator and Committee should monitor its progress. They will help ensure that the Plan is used and not sidetracked by political or personal concerns, and hold the local governments and departments accountable for implementing the actions described in Part IV. It is also their role to reference the Plan when evaluating and making political decisions.

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

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

The role of department administrators, elected officials, local administrators are to ensure that adopted actions from Part IV are considered into 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 publics' health, safety, and property, they should be carefully considered as a priority. There is also the use of fees, taxes, bonds, and loans to finance projects if there is proper state enabling legislation, local authority, and enough political will.

Coordination with Comprehensive Plans

As Monroe County and its local units develop their comprehensive plans, incorporation of the All-Hazard Mitigation Plan is highly recommended.

Wisconsin comprehensive planning law includes a detailed description of nine elements. The following concepts should be considered when incorporating the All-Hazard Mitigation Plan into the nine elements of the County and local comprehensive plans.

- *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
- *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.

Promote Success of Identified Projects

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

PLAN 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.

It has been decided by the Committee that all parts of the Plan be evaluated and updated on an annual basis. Within this period, the Monroe County Emergency Management Coordinator should evaluate incoming information in the Plan to prepare for the revisions. It is recommended that the Committee discuss evaluation and revisions to the Plan one year from its adoption month. The Emergency Management Coordinator is encouraged to consult/coordinate with the NCWRPC at the time of revision.

It has also been decided by the Committee that the Plan be evaluated and revised following disasters, to determine if the recommended actions are appropriate given the impact of the event. This risk assessment (Part III) should also be revised to see if any changes are necessary based on the pattern of disaster damages. The Emergency Management Committee must approve all additions and updates to the plan.

The Committee should be sure to keep all stakeholders and the public in the County informed of the progress of the projects. When looking for involvement, a survey or open comment meeting should be conducted every five years.