

Marathon County All Hazards Mitigation Plan Update

NCWRPC

Prepared with the assistance of the North Central Wisconsin Regional Planning Commission


MARATHON COUNTY ALL HAZARDS MITIGATION PLAN UPDATE

prepared for:

Marathon County Emergency Management

by:

North Central Wisconsin Regional Planning Commission

adopted by Marathon County Board on:

March 28, 2017

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

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INTRODUCTION

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

DISASTER MITIGATION ACT OF 2000

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

- The Act establishes a new requirement for local governments and tribal organizations to prepare an All Hazards Mitigation Plan in order to be eligible for funding from FEMA through the Pre-Disaster Mitigation Assistance Program and Hazard Mitigation Grant Program.

- The Act establishes a requirement that natural hazards such as tornados, floods, wildfires need to be addressed in the risk assessment and vulnerability analysis parts of the All Hazards Mitigation Plan. Manmade types such as hazardous waste spills are encouraged but not required to be addressed.

- The Act authorizes up to seven percent of Hazard Mitigation Grant Program funds available to a state after a federal disaster to be used for development of state, local, and tribal organization All Hazards Mitigation Plans.

- The Act establishes November 1, 2004 as the date by which local governments and tribal organizations are to prepare and adopt their respective plans in order to be eligible for the FEMA's Hazard Mitigation Grant Program and 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 Hazards Mitigation Plan, local governments and tribal organizations cannot utilize funding through the Pre-Disaster Mitigation Grant Program.

- All Hazards Mitigation Plans must be updated every five years.

THE FIVE PARTS OF AN ALL HAZARDS MITIGATION PLAN UPDATE

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

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

DEVELOPMENT OF THE ALL HAZARDS MITIGATION PLAN UPDATE

The Marathon County Emergency Management Department received a Planning Grant at the end of 2014 to update its All Hazards Mitigation Plan through the Pre-Disaster Mitigation Grant Program (PDM).

In early 2015, the North Central Wisconsin Regional Planning Commission (NCWRPC) finalized a work agreement with Marathon County, but kick-off of work was delayed by the transition to a new County EM Director. NCWRPC Staff began preparation of the All Hazards Mitigation Plan Update at the request of the County Emergency Management Director in August of 2015.

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

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

KEY ELEMENTS OF THE UPDATE TO THE 2011 PLAN

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

- ✓ Review of Recommended Revisions - The final Crosswalk for the previous plan approval listed a number of "recommended revisions" which were addressed in this update through the experience of subsequent plan adoptions from other counties.
- ✓ Review and update of planning area chapter - The planning area description and inventory was expanded and improved with additional information and updated statistics.
- ✓ Addition of economic impact modeling of the cumulative effects of job loss (due to hazard event) in the top industry sectors of the County.
- ✓ Expanded Hazard Coverage - New hazards addressed in the Update include: lightning, hail, extreme heat and extreme cold.
- ✓ Review and update of risk assessment - The risk assessment was updated with documentation on recent hazard events. The priority level of hazards facing the County was also reviewed and updated.
- ✓ Review and update of Mitigation Strategy - The mitigation strategies chapter begins with a complete progress report on the strategies from the 2011 plan, establishment of new set of strategies for next five-year cycle and an updated prioritization of projects.

ALL HAZARDS MITIGATION PLAN UPDATE TASKFORCE

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

Scott Corbett	M.C. Corporation Counsel
Gordy Gauger	Kraft Foods
Dale Grosskurth	M.C. Health Dept.
Frank Hanousek (chair)	M.C. Communications
Meleesa Johnson	M.C. Solid Waste

Tracey Kujawa	City of Wausau Fire Dept.
Steve Lewens	Domtar Paper Co.
Mark Pankow	Wausau Police Dept.
Scott Parks	M.C. Sheriff Dept.
Bill Penker	Community Service
Bob Pound	SAFER Fire Dept.
Dan Raczkowski	M.C. Highway Dept.
Philip Rentmeester	M.C. Emergency Mgmt.
Erika Rinehart	Abbyland Foods
Jim Schaefer	M.C. Board of Supervisors
Tamarah Scholze	Aspirus Wausau Hospital
Kelly Zagrzebski (vice-chair)	Wisconsin Public Service

LOCAL GOVERNMENT INVOLVEMENT

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

In August of 2015 a hazard mitigation issues survey was sent to each town (unincorporated areas) chairperson and clerk requesting which hazards are a concern, input on past and future mitigation measures, and to document other information that could be incorporated into the All Hazards Mitigation Plan Update. Responses were received from 20 of 41 towns. A significant amount of information was gleaned from these questionnaires and incorporated into the planning document.

Some of the primary issues identified in the survey results include the following:

- Presence of extensive woodlands / "Plantation pines" (re forest fire)
- Marathon County Landfill fire potential
- Crop damage: high wind, drought
- Communications / loss of cell tower(s) during event
- Transport/storage of hazardous materials: general / ag-specific (liquid manure, anhydrous ammonia)
- Hazardous gas release at Mullins Cheese
- Wisconsin River / Eau Claire River / Rib River (FEMA relocations on Rib near Trails End)
- Culverts (upgrading, enlarging) / ditching / building up roads
- Mobile home parks
- Presence of "non-town" recreation facilities, parks and golf courses
- Water fill sites ("inadequate")

All incorporated areas of the County have participated in this plan update or, for those split between Marathon and another county, in the plan of their primary county. The Cities of Mosinee, Schofield and Wausau; and the Villages of Athens, Brokaw, Edgar, Elderon, Fenwood, Hatley, Kronenwetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston were extensively involved in the development of this Plan Update through a formal process. City and Village officials were introduced to the update process by NCWRPC staff and walked through an exercise to develop plan elements specific to each City and Village. The Cities of Abbotsford (Clark), Colby (Clark) and Marshfield (Wood); and the Villages of Birnamwood (Shawano) and Dorchester (Clark) are included in the plans of their primary county as indicated.

Note: as this study commenced, the Town of Maine went through the process of incorporating into a village. Some of the references and statistics within this report may still reflect Maine as a town. However, the incorporation took-in the entire town area, so no disparity is created, and the references within this report are transferrable. The next update of this plan will fully integrate Maine's status. In the interim, to ensure Maine's compliance with FEMA requirements for incorporated municipalities to fully participate in the development of an all hazards mitigation plan, Maine officials were led through the same planning process of the other village and cities within the County.

Dates and participants for each of the local government meetings were as follows:

City of Wausau	Lisa Rasmussen	Chair, Council President
Public Safety Meeting	Romey Wagner	Alderperson
May 16, 2016	Tara Alfonso	Asst. City Attorney
	Karen Kellbach	Alderperson, Co. Supervisor
	Becky McElhaney	Alderperson
	Tracey Kujawa	Fire Chief
	Robert Meilke	Mayor
	Jeff Hardel	Police Chief
Village of Spencer	Paul Hensch	Village Administrator
Special Meeting	Shawn Bauer	Police Chief
May 17, 2016	Pauline Fronee	Village President
	Jason Foth	Fire Chief
Village of Edgar	Louella Luedtke	Village Administrator
Special Meeting		
May 17, 2016		
Village of Marathon City	Mike Tylinski	Fire Chief
Fire & Police Committee	Kory Gertschen	Police Chief
May 18, 2016	Mark Ludwig	Trustee
	Luanne Wiesman	Deputy Clerk
	Andrew Kurtz	Village Administrator

	John Small	Village President
	Mark Ahrens	Trustee
	David Belanger	Trustee
	Connie Rupeinger	Trustee
	Craig Prihoda	Trustee
Village of Kronenwetter	Chris Voll	Village President
Public Safety Meeting	Judy Nitschke	Trustee
June 6, 2016	Amy Hahn	Citizen Committee Member
	Emil Wasniewski	Committee Chair
	Ray Bender	Citizen Committee Member
City of Schofield	Dan Vergin	Alderperson
City Plan Commission	Jesse Rozmarynowski	Commissioner
June 13, 2016	Patrick Snyder	Alderperson
	Lee Turonie	City Attorney
	Mark Thuot	Public Works Director
	Kregg Hoehn	Mayor
	Lisa Krause	Commissioner
City of Mosinee	Marge Rein	Councilperson
City Council Meeting	Nelson Pasha	Councilperson
June 13, 2016	Tom Helbach	Councilperson
	Keith Biederman	Councilperson
	Doug Meilke	Councilperson
	Brent Jacobson	Mayor
	Jeff Gates	City Administrator
	Doug Jennings	Fire Chief
	Ken Muelling	Police Chief
	Philip Rentmeester	County EM
Village of Brokaw	John Borth	Trustee
Village Board Meeting	James Sonnentag	Trustee
June 14, 2016	Dean Dietrich	Legal Counsel
	Jeff Weisenberger	Village President
	Brenda Weisenberger	Clerk
	Robert Baumann	Village Treasurer
	Marge Josiger	Trustee
	Dan Manowski	Trustee
	Diane Dettmering	Resident
	Rochelle Frank	Resident
	Charlie Blarek	Public Works Director
	Ruthelle Frank	Resident

Village of Rothschild	George Peterson	Village President
Special Meeting	Tim Vergara	Public Works Director
June 16, 2016	Philip Rentmeester	County EM
Village of Weston	Renee Hodell	Village Employee
Public Safety Meeting	Brian Fiene	Citizen Committee Member
June 27, 2016	Fred Schuster	Trustee
	Zachery Martin	Citizen Committee Member
	Tamara Hansen	Citizen Committee Member
	Bob Uesenick	Citizen Committee Member
	Dan Guild	Village Adminstrator
	Keith Donner	Public Works Director
	Mike Wodalski	Public Works Asst. Director
	Loren White	Trustee
	Wally Sparks	Everest Metro PD.
Village of Maine	Tom Mullaley	Trustee
Village Board Meeting	Vickie Bartelt	Trustee
July 11, 2016	Keith Rusch	Trustee
See pg 1-5 re Maine's T/V transition.	Patricia Behrendt	Village Treasurer
	Betty Hoenisch	Village President
	Rich Grefe	Zoning/Building Inspector
	Tad Schultz	Trustee
	Joe Graveen	Trustee
Village of Stratford	Keith Grell	Trustee
Village Board Meeting	Todd Belter	Trustee
July 12, 2016	Dale Heil	Trustee
	Bud Suckow	Village President
	June Krueger	Village Clerk
	Scott Pietrowski	Trustee
	Jerry Frodl	Director of Public Works
	Tim Miller	Chief of Police
Village of Fenwood	Jane Fischer	Trustee
Special Meeting	Paul Leffel	Trustee
August 11, 2016	Edward Mielke	Village President
Village of Elderon	Jim Schwalbach	Village President
Special Meeting	Dave Falstad	Trustee
August 18, 2016	Marlene Matteson	Trustee
Village of Athens	Chuck Kornack	Village President
Special Meeting	Randy Decker	Trustee
August 23, 2016	Johnathon Haines	Trustee
	Dwight Lehhard	Trustee

Village of Hatley Special Meeting October 17, 2016	David Narloch	Village President
Village of Unity Special Meeting October 17, 2016	Heidi Maldonis	Village Clerk

A common theme emerged as HazMat issues were brought up in a majority of the meetings. HazMat concerns voiced by the communities included: rail - number of trains, volume of material, unknown material; power plant; large industrial and agricultural facilities - concentration of toxic/explosive materials; increasing cost of maintaining regional team. Other noted issues included the following: public facilities not hardened; warning systems need update; communication with residents; evacuation of large populations such as hospitals and nursing homes (One community commented that the evacuation perimeter for a major agricultural facility, anhydrous ammonia threat, is the entire village.); wildland fire can still be a problem in urban areas; and sheltering is inadequately addressed.

The participants provided information on hazards that have significance to the area, discussed critical facilities and provided mitigation strategy ideas for the Plan Update.

NEIGHBORING COMMUNITY INVOLVEMENT

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

LOCAL AND REGIONAL AGENCY INVOLVEMENT

Another requirement of the update process was to involve local and regional agencies that have a role in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia, and other private and non-private interests. Although many of these categories are satisfied by the Plan Taskforce (see above), to further meet this objective and provide an opportunity for greater participation in the planning process, the NCWRPC invited a diverse group of stakeholders to discuss potential hazard mitigation strategies.

The meeting was held on March 30, 2016 at the Marathon County Courthouse in Wausau. Agencies and organizations represented include the following:

Larry Buchberger	Community Development Authority
Larry Cihlar	Wausau School District
Chief Dan Joling	Kronenwetter P.D.
Darryl Landeau	N. Central WI Regional Plan Commission
Jeff Lindell	Wausau School District
Rick Nowack	Wausau Manor Nursing Home
Bill Penker	Local Emergency Planning Committee
Jeff Pritchard	County Conservation, Planning & Zoning
Philip Rentmeester	County Emergency Management
Heather Schlessor	University of Wisconsin Extension
Julia Wicke	County Dept. of Social Services
Lowell Zahrt	Wausau Manor Nursing Home

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

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

The meeting resulted in good discussion on a diverse range of topics spanning all four phases of emergency management. Meeting attendees brought up issues including, but not limited to: evacuation and sheltering of vulnerable populations (nursing home residents, school children), community wide effects of a school building being destroyed in a disaster, loss of communication systems (cell, internet - social media) and how that is handled, how to handle livestock in an emergency (major agricultural sector), resource cooperation and sharing. The Wausau School District would like to move the repeater for its two-way radio system onto Rib Mountain and co-locate on an existing tower to improve the range of its radios.

PUBLIC REVIEW PROCESS AND PLAN ADOPTION

Opportunities for public comment were provided to review the Plan Update during the drafting stage and prior to Plan Update approval. See APPENDIX A for copies of public meeting notices. A copy of draft Plan Update elements were made available on the Internet during the planning process. Links that open an email submission form to the County Emergency Management Director or NCWRPC Staff were provided for questions or comments. The final Plan Update document will remain on the Internet until the next draft update is posted for review. The public can continue to submit questions or comments at any time via the email link. (See Contact Information, below, for web addresses.)

County Public Safety Committee meetings are always open to the public (unless entering into legal closed session), and the public can bring questions or comments regarding this Plan Update to any regular meeting. Meeting schedules can be obtained by checking the County website, contacting the County Clerk's Office or the Emergency Management Director (see Contact Information, below).

A public informational meeting on the draft update was held at the Marathon County Courthouse on March 30, 2016. Notices were distributed to each local unit of government and posted in the local newspapers. However, no one from the public attended, and thus no public comments were received. In addition, no written comments were submitted.

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

The Cities and Villages were asked to adopt the Plan Update for their jurisdictions at their own properly posted and open public meeting, see APPENDIX B for the County and other local units resolutions of adoption.

INCORPORATED PLANS, STUDIES, REPORTS AND TECHNICAL DATA

Many plans, reports, and technical data sources were referenced and incorporated into the Marathon County All Hazards Mitigation Plan Update. These sources include but are not necessarily limited to the following:

Wisconsin Department of Natural Resources, North Central Wisconsin Regional Planning Commission and Marathon County geographic information system databases provided much of the base data for the mapping and analysis within the Update. Statistical reports and data from the US Census and Wisconsin Departments of Administration, Revenue and Workforce Development where used for the demographic background in Part 2 of this Update. Land use data in Part 2 was obtained from the Marathon County Comprehensive Plan.

Wisconsin Department of Natural Resources Wetlands Inventory and Dams Database were used to identify and map wetlands and dams within the County for Maps 3 and 4 in Part 2 and Table 17 in Part 3. NFIP DFIRM flood zone maps for Marathon County provided the mapping of 100-year floodplain areas, Map 4 in Part 2, for flooding risk assessment, Map 13 in Part 3.

NOAA National Climatic Data Center severe weather event data was used extensively for the risk assessment in Part 3. The wildfire section of the risk assessment was based on the Wisconsin Department of Natural Resources' fire occurrence database and statewide Communities At Risk (CAR) assessment.

Other plans, reports, and documents were reviewed by staff during the update process including but not limited to the State of Wisconsin Hazard Mitigation Plan; the Hazard Analysis for the State of Wisconsin, the Wisconsin Repetitive Loss Report, the Marathon County Zoning Ordinance, the Marathon County Land and Water Resource Management Plan, the 2010 LTPO Preparedness in Wisconsin report, and the 2014 Commodity Flow Study for Marathon County. Although these may not have been directly incorporated, the review provided valuable insight and direction to the update process.

CONTACT INFORMATION

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www.ncwrpc.org/marathon/marathonhzdplan.html

www.co.marathon.wi.us/Departments/EmergencyManagement.aspx

INTRODUCTION

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

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

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

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

GENERAL GEOGRAPHY

LOCATION

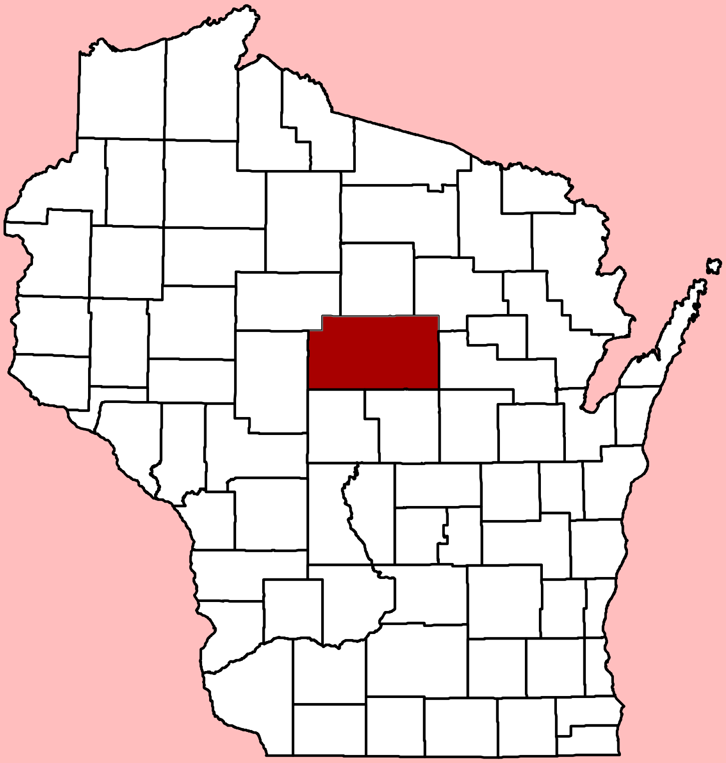
Marathon County is located in Central Wisconsin (See Map 1). The largest urban area is the Wausau Metropolitan Area, just slightly north and east of the center of the County, which is comprised of several cities and villages, including Wausau, Brokaw, Kronenwetter, Mosinee, Rothschild, Schofield, Weston and the Town of Rib Mountain. There are a number of other smaller cities and villages spread around the County, including several that straddle the county boundary (covered under the mitigation plan of the county containing the higher percentage of land area), as well as a variety of unincorporated "hamlets" (concentrations of development within rural towns). Because of the relatively high density urban area at its core, the U.S. Census Bureau has designated the entire county as a Metropolitan Statistical Area or MSA.

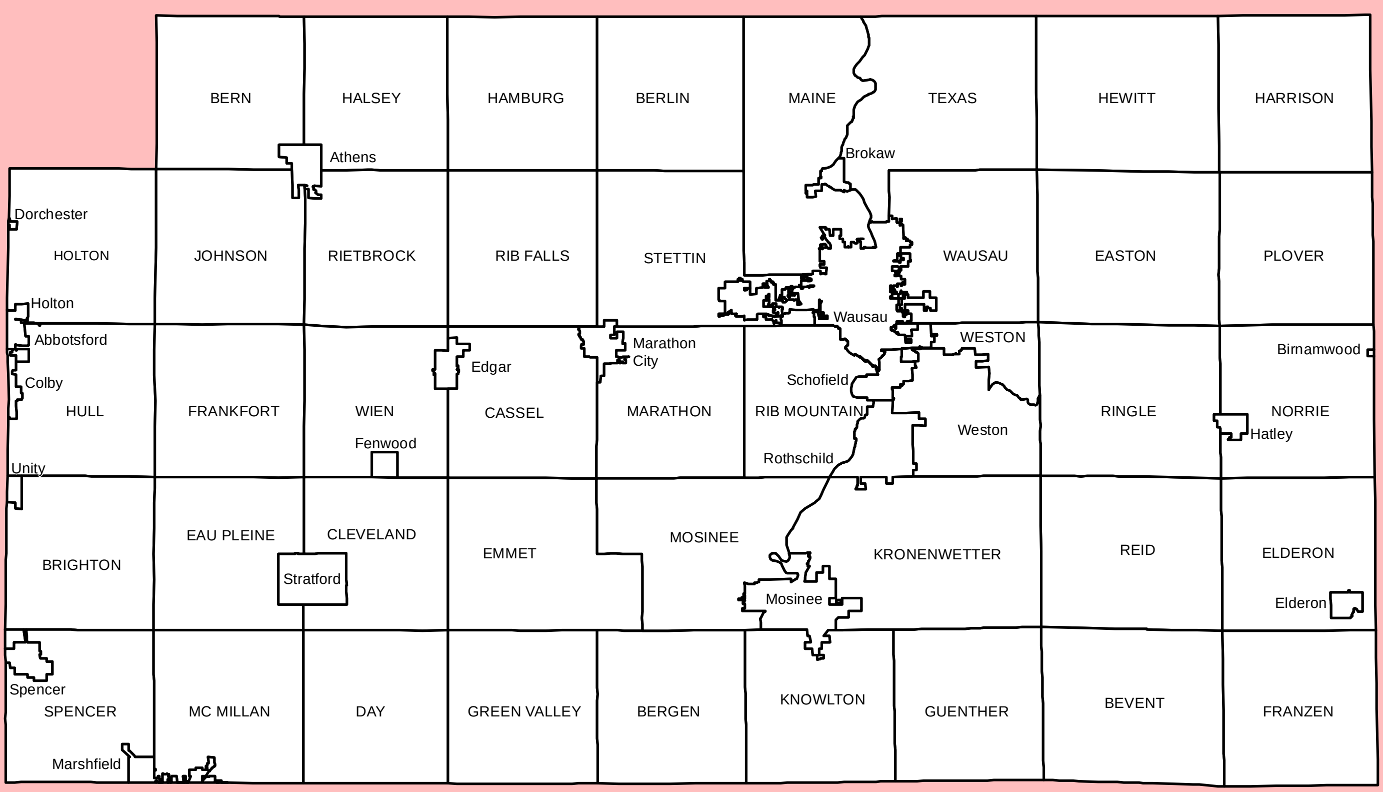
The County is bounded on the north by Lincoln, Taylor and Langlade Counties, on the east by Shawano, on the south by Portage, Wood and Waupaca, and on the west by Clark County. Marathon County lies 186 miles north of Milwaukee; 107 miles northwest of Green Bay; and 140 miles north of Madison. Major metropolitan areas outside of Wisconsin with transportation linkages to Marathon County are Chicago, 280 miles southeast; Minneapolis-St. Paul, 186 miles west; and Duluth, 233 miles northwest.

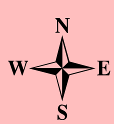
Marathon County
Wisconsin

All Hazard
Mitigation Plan

Map 1
Planning Context







Source: NCWRPC, Marathon County Geo Services

This map is neither a legally recorded map nor a survey of the actual boundary of any property depicted. This drawing is a compilation of records, information and data used for reference purposes only. NCWRPC is not responsible for any inaccuracies herein contained.

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CIVIL DIVISIONS

There are 62 municipalities (41 towns, 15 villages, and 6 cities) in the Marathon County planning area. The City of Wausau is the County Seat. These units of government comprise the basic structure of the decision-making framework. The County has a total surface area of 1,576 square miles, of which about 2 percent is water. The area and proportion of the County within each place is presented in Tables 1 a and b.

Table 1a: Civil Divisions - Geographical Size by Incorporated Areas

Incorporated Areas**	Approximate Area in Square Miles			Area as % of County
	Total	Water	Land	
Marathon County total	*1,576.31*	*31.33*	*1,544.98*	*100.0%*
Abbotsford city*	1.58	0.00	1.58	0.1%
Colby city*	0.80	0.00	0.80	0.1%
Marshfield city*	1.88	0.00	1.88	0.1%
Mosinee city	8.55	0.77	7.77	0.5%
Schofield city	2.83	1.07	1.76	0.2%
Wausau city	20.04	1.26	18.78	1.3%
Athens village	2.46	0.00	2.46	0.2%
Birnamwood village*	0.06	0.00	0.06	<0.1%
Brokaw village	1.23	0.16	1.07	0.1%
Dorchester village*	0.11	0.00	0.11	<0.1%
Edgar village	1.81	0.00	1.81	0.1%
Elderon village	1.16	0.06	1.10	0.1%
Fenwood village	0.99	0.00	0.99	0.1%
Hatley village	1.05	0.00	1.05	0.1%
Kronenwetter village	52.06	0.36	51.70	3.3%
Marathon City village	2.41	0.01	2.41	0.2%
Rothschild village	6.91	0.37	6.53	0.4%
Spencer village	2.01	0.00	2.01	0.1%
Stratford village	5.34	0.04	5.31	0.3%
Unity village*	0.66	0.00	0.66	<0.1%
Weston village	21.57	0.03	21.55	1.4%

*Source: U.S. Census and NCWRPC. *Denotes split between two counties. **See pg 1-5 re: Maine's T/V transition.*

Table 1b: Civil Divisions - Geographical Size by Unincorporated Areas				
Unincorporated Areas	Approximate Area in Square Miles			Area as % of County
	Total	Water	Land	
Bergen town	34.82	7.76	27.06	2.2%
Berlin town	34.71	0.00	34.71	2.2%
Bern town	34.06	0.01	34.05	2.2%
Bevent town	42.76	0.64	42.12	2.7%
Brighton town	34.25	0.02	34.23	2.2%
Cassel town	32.91	0.01	32.90	2.1%
Cleveland town	30.51	0.86	29.65	1.9%
Day town	33.99	0.24	33.75	2.2%
Easton town	42.86	0.02	42.84	2.7%
Eau Pleine town	33.23	0.01	33.22	2.1%
Elderon town	34.91	0.35	34.56	2.2%
Emmet town	40.24	0.37	39.87	2.6%
Frankfort town	35.07	0.01	35.06	2.2%
Franzen town	36.60	0.30	36.30	2.3%
Green Valley town	35.20	6.23	28.97	2.2%
Guenther town	34.71	0.04	34.67	2.2%
Halsey town	33.14	0.00	33.14	2.1%
Hamburg town	35.35	0.00	35.35	2.2%
Harrison town	36.66	0.03	36.63	2.3%
Hewitt town	43.49	0.00	43.49	2.8%
Holton town	34.55	0.01	34.54	2.2%
Hull town	32.55	0.07	32.48	2.1%
Johnson town	35.10	0.00	35.10	2.2%
Knowlton town	34.22	5.06	29.16	2.1%
McMillan town	34.35	0.20	34.14	2.2%
Maine*	42.39	0.42	41.97	2.7%
Marathon town	32.94	0.03	32.91	2.1%
Mosinee town	38.47	1.25	37.22	2.4%
Norrie town	35.14	0.63	34.51	2.2%
Plover town	36.08	0.04	36.03	2.3%
Reid town	42.25	0.56	41.68	2.7%
Rib Falls town	35.74	0.04	35.71	2.3%
Rib Mountain town	25.56	0.99	24.57	1.6%
Rietbrock town	33.92	0.00	33.92	2.2%
Ringle town	42.19	0.07	42.12	2.7%
Spencer town	31.60	0.20	31.39	2.0%
Stettin town	36.56	0.19	36.37	2.3%
Texas town	45.02	0.46	44.56	2.9%
Wausau town	32.24	0.00	32.24	2.0%
Weston town	8.91	0.06	8.85	0.6%
Wien town	31.54	0.01	31.53	2.0%

*Source: US Census and NCWRPC. *See pg 1-5 re: Maine's T/V transition.*

TOPOGRAPHY

Rib Mountain, located just west of the Wausau metropolitan area, is the highest elevation in Marathon County and the third highest point in the State of Wisconsin. Rib Mountain has an elevation of 1,924 feet above sea level. The lowest elevation in Marathon County is 1,100 feet above sea level at the southern end of the County where the Wisconsin River flows into Portage County. The majority of the County's topography ranges in elevation from 1,200 feet to 1,450 feet above sea level with a local elevation difference of less than 100 feet. The Wisconsin River bisects the County into two, fairly distinct halves. The eastern half of the County has retained a more wooded character while the western half contains large expanses of farmland.

The drainage pattern in the County is typical of a glaciated region: irregular and poorly defined. The majority of the County is drained by the Wisconsin River and its tributaries. But the Wolf River drains a portion in the southeastern part of the County, and a very small portion of western Marathon County is drained by the Black River.

CLIMATE

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

In winter, the average temperature is 18 degrees F., and the average daily minimum temperature is 9 degrees. The lowest temperature on record is - 40 degrees F., which occurred in 1951. The number of days at or below 0 degrees has varied from five in 2011 to 64 in 1916. In summer, the average temperature is 67 degrees F. and the average daily maximum temperature is 78 degrees F. The highest recorded temperature is 107 degrees F., which occurred in 1936. The number of days at or above 90 degrees has varied from 0 which last occurred in 2008 to 34 in 1955.

Total annual precipitation is about 32 inches. Of this, about 70% usually falls in April through September. Thunderstorms occur on about 38 days each year. Average annual snowfall is about 60 inches. The prevailing wind is from the Northwest, with the highest average wind speed of 12 mph during spring.

DEMOGRAPHIC AND ECONOMIC PROFILE

POPULATION AND HOUSEHOLDS

The official state population estimate for Marathon County shows a population of 135,341 people for 2015. This represents a nearly 1% increase over the 2010 Census reported population of 134,063. As with most counties in the area, this is a significant decline from growth rates observed the last couple of decades. At current rates, Marathon trails the state slightly, but lags only behind Portage in the area (refer to Table 2). If the growth rate continues at the current level, there will be approximately 138,061 people in Marathon County in 2025 and 140,836 people in 2035.

Population concentrations and trends are important when prioritizing hazard mitigation strategies. Approximately 59 percent of the population is classified by the Census as urban and 41 percent is rural. The Wausau metropolitan area is the most densely populated and developed area in the County. Map 2 shows areas of residential population concentrations in the County. Overall population density of the County is 86.8 persons-per-square-mile and ranges from a high of 2,082 in the City of Wausau to a low of 9.8 in the Town of Guenther.

Table 2	Population of Adjacent Counties			
	2010	2015	# Change	% Change
Marathon	134,063	135,341	1,278	1.0
Lincoln	28,743	28,835	92	0.3
Langlade	19,977	19,907	-70	-0.4
Shawano	41,949	41,849	-100	-0.2
Waupaca	52,410	52,429	19	0.0
Portage	70,019	70,940	921	1.3
Wood	74,749	74,965	216	0.3
Clark	34,690	34,868	178	0.5
Taylor	20,689	20,715	26	0.1
Wisconsin	5,686,986	5,753,324	66,338	1.2

Source: US Census, WIDOA & NCWRPC.

Between 2010 and 2015, some communities within the County experienced a slight decrease in their population (refer to Tables 3 a and b). However, most have gained residents. These increases are spread proportionally across the area, paralleling the County growth rate around 1%. Notable exceptions include the villages of Kronenwetter and Weston, both part of the Wausau metro-area, which added 315 and 408 new people, respectively. The most significant growth has taken place in and around the County's urban areas, and this is expected to continue moving forward.

Table 3a	Civil Divisions - Pop & Households by Incorporated Areas					
Incorporated Areas**	2010 Population	2010 Households	2015 Population	2015 Households	% '10-'15 Population	% '10-'15 Households
County total	*134,063*	*53,176*	*135,341*	*54,639*	*1.0%*	*2.8%*
Abbotsford city*	694	226	683	223	- 1.6%	-1.3%
Colby city*	498	199	498	199	0.0%	0.0%
Marshfield city*	900	394	942	410	4.7%	4.1%
Mosinee city	3,988	1,660	4,021	1,703	0.8%	2.6%
Schofield city	2,169	994	2,212	1,004	2.0%	1.0%
Wausau city	39,106	16,487	39,063	16,790	- 0.1%	1.8%
Athens village	1,105	471	1,105	478	0.0%	1.5%
Birnamwood v*	16	6	18	6	12.5%	0.0%
Brokaw village	251	123	243	124	- 3.2%	0.8%
Dorchester v*	5	1	5	1	0.0%	0.0%
Edgar village	1,479	597	1,474	605	- 0.3%	1.3%
Elderon village	179	80	177	79	- 1.1%	-1.3%
Fenwood village	152	64	146	62	- 3.9%	-3.1%
Hatley village	574	223	603	241	5.1%	8.1%
Kronenwetter v	7,210	2,652	7,525	2,801	4.4%	5.6%
Marathon City v	1,524	638	1,530	647	0.4%	1.4%
Rothschild village	5,269	2,199	5,302	2,251	0.6%	2.4%
Spencer village	1,925	816	1,932	833	0.4%	2.1%
Stratford village	1,578	666	1,599	684	1.3%	2.7%
Unity village*	204	84	201	83	- 1.5%	-1.2%
Weston village	14,868	5,772	15,276	6,085	2.7%	5.4%
*Source: US Census, WIDOA & NCWRPC. *Denotes split between two counties. **See pg 1-5 re Maine's T/V transition.*						

According to the Wisconsin Department of Workforce Development the median age in Marathon County is 39.4. In 2010 14 percent of the population was 65 or older. By 2020 it is anticipated that 16 percent of the population will be 65 or older and by 2030 21 percent will be 65 or older. This will have implications affecting the demand for emergency services.

Marathon County has a high population of Southeast Asian immigrants, particularly in the metro-area. In the rural farming areas, there is a high population of Hispanic and Latino immigrants. Minorities as a percent of the total population more than doubled from 3% in 1990 to 6.2% in 2000 and is at 6.6% as of the 2014 U.S. Census estimate. The language barrier is a potential issue in emergency response, recovery and mitigation efforts. In 2014, 8.1% of all Marathon County residents speak a language other than English as their primary language, according to the Census.

Table 3b	Civil Divisions - Pop & Households by Unincorporated Areas					
Unincorporated Areas	2010 Population	2010 Households	2015 Population	2015 Households	% '10-'15 Population	% '10-'15 Households
Bergen town	641	250	637	254	- 0.6%	1.6%
Berlin town	945	364	942	370	- 0.3%	1.6%
Bern town	591	189	606	197	2.5%	4.2%
Bevent town	1,118	454	1,122	465	0.4%	2.4%
Brighton town	612	214	611	215	- 0.2%	0.5%
Cassel town	911	322	913	328	0.2%	1.9%
Cleveland town	1,488	530	1,511	556	1.5%	4.9%
Day town	1,085	410	1,095	424	0.9%	3.4%
Easton town	1,111	426	1,132	441	1.9%	3.5%
Eau Pleine town	773	298	765	300	- 1.0%	0.7%
Elderon town	606	245	620	255	2.3%	4.1%
Emmet town	931	324	937	334	0.6%	3.1%
Frankfort town	670	242	662	244	- 1.2%	0.8%
Franzen town	578	219	584	226	1.0%	3.2%
Green Valley t	541	218	550	226	1.7%	3.7%
Guenther town	341	133	346	140	1.5%	5.3%
Halsey town	651	208	661	210	1.5%	1.0%
Hamburg town	918	322	918	326	0.0%	1.2%
Harrison town	374	150	372	150	- 0.5%	0.0%
Hewitt town	606	239	614	247	1.3%	3.3%
Holton town	873	308	884	315	1.3%	2.3%
Hull town	750	262	744	263	- 0.8%	0.4%
Johnson town	985	310	981	313	- 0.4%	1.0%
Knowlton town	1,910	760	1,929	788	1.0%	3.7%
Maine*	2,337	890	2,345	910	0.3%	2.2%
Marathon town	1,048	396	1,051	403	0.3%	1.8%
McMillan town	1,968	709	2,002	735	1.7%	3.7%
Mosinee town	2,174	814	2,189	836	0.7%	2.7%
Norrie town	976	368	979	377	0.3%	2.4%
Plover town	689	250	682	253	- 1.0%	1.2%
Reid town	1,215	489	1,240	506	2.1%	3.5%
Rib Falls town	993	345	997	353	0.4%	2.3%
Rib Mountain t	6,825	2,650	6,900	2,704	1.1%	2.0%
Rietbrock town	981	332	980	337	- 0.1%	1.5%
Ringle town	1,711	619	1,735	649	1.4%	4.8%
Spencer town	1,581	550	1,615	576	2.2%	4.7%
Stettin town	2,554	999	2,566	1,035	0.5%	3.6%
Texas town	1,615	645	1,614	649	- 0.1%	0.6%
Wausau town	2,229	860	2,249	881	0.9%	2.4%
Weston town	639	228	655	245	2.5%	7.5%
Wien town	825	283	851	294	3.2%	3.9%

*Source: US Census, WIDOA & NCWRPC. *See pg 1-5 re: Maine's T/V transition.*

SEASONAL POPULATION

In addition to the regular full-time resident population, the impact of seasonal populations cannot be overlooked when planning for hazards. Marathon County is not known as a vacation home mecca like Wisconsin's northern counties, however, the number of housing units identified as seasonal/recreational (only 1.5% of total units) by the US Census adds up to a significant number across the County. In addition, there is a significant seasonal migrant worker component resulting from the high concentration of ginseng and other agricultural production in the County.

Based on the number of units identified by the Census, an estimated seasonal resident population by municipality is shown in Tables 4 a and b. Determining when and for how long these seasonal residents will be in the County is problematic, but the numbers give some indication of what weekend or other peak period population levels might be.

Table 4a Estimated Seasonal Population - Incorporated Areas

Municipality**	Estimated Seasonal Housing Units	Estimated Seasonal Population
Marathon County Total	*840*	*2,146*
Abbotsford city*	0	0
Colby city*	2	5
Marshfield city*	0	0
Mosinee city	12	29
Schofield city	9	20
Wausau city	87	201
Athens village	4	9
Birnamwood village*	0	0
Brokaw village	0	0
Dorchester village*	0	0
Edgar village	0	0
Elderon village	0	0
Fenwood village	0	0
Hatley village	0	0
Kronenwetter village	17	46
Marathon City village	3	7
Rothschild village	6	14
Spencer village	1	2
Stratford village	3	7
Unity village*	0	0
Weston village	18	46

*Source: US Census 2010 & NCWRPC. *Denotes split between two counties. **See pg 1-5 re: Maine's T/V transition.*

Table 4b Estimated Seasonal Population - Unincorporated Areas		
Municipality	**Estimated Seasonal Housing Units**	**Estimated Seasonal Population**
Bergen town	33	84
Berlin town	5	13
Bern town	9	28
Bevent town	68	167
Brighton town	0	0
Cassel town	4	11
Cleveland town	31	87
Day town	2	5
Easton town	5	13
Eau Pleine town	2	5
Elderon town	43	106
Emmet town	14	40
Frankfort town	0	0
Franzen town	29	77
Green Valley Town	89	221
Guenther Town	9	23
Halsey town	12	38
Hamburg town	7	20
Harrison town	15	37
Hewitt town	15	38
Holton town	0	0
Hull town	0	0
Johnson town	3	10
Knowlton town	94	236
McMillan town	3	8
Maine*	9	24
Marathon town	7	19
Mosinee town	8	21
Norrie town	52	138
Plover town	20	55
Reid town	36	89
Rib Falls town	3	9
Rib Mountain town	15	39
Rietbrock town	3	9
Ringle town	9	25
Spencer town	2	6
Stettin town	1	3
Texas town	6	15
Wausau town	7	18
Weston town	3	8
Wien town	5	15
*Source: US Census 2010 & NCWRPC. *See pg 1-5 re: Maine's T/V transition.*		

Another component of the seasonal population includes short-term accommodations such as campgrounds or hotel-style lodging. The scope of this plan did not provide for a detailed inventory of accommodations; however the Wisconsin DNR completed a general inventory as part of its statewide comprehensive outdoor recreation plan. That inventory identified 1,875 hotel/motel beds, 29 bed and breakfast beds and 16 tourist rooming house beds available around the County. The DNR also identified nine campgrounds with 646 campsites across the County as well as seven educational/recreational camps with capacity for 134 individuals.

EMPLOYMENT

The trade, transportation & utilities industry sector has the greatest impact on Marathon County employment having the most employees at about 16,054 jobs in 2014 which is more than 23% of total employment. Manufacturing is the second largest sector in the County with 15,414 positions or 22.6% of total employment. The education and health sector has the third highest number of employees at about 12,886 or 19.8%.

Table 5	Prominent Employers in Marathon County		
Company	**Product or Service**	**# Employees**	**Location**
Aspirus Wausau Hospital	medical/surgical hospitals	1000 or more	C. Wausau
Greenheck Fan Corp.	fan and blower mfg	1000 or more	C. Schofield
Kolbe and Kolbe Millwork Company, Inc.	wood window and door manufacturing	500-999	C. Wausau
Eastbay	mail-order houses	500-999	C. Wausau
Marathon Cheese	dairy product wholesalers	500-999	V. Marathon
DC Everest School District	public K-12 schools	500-999	C. Schofield
North Central Health Care	psychiatric and substance abuse hospitals	500-999	C. Wausau
North Central Technical College	junior colleges	500-999	C. Wausau
Liberty Mutual Group Inc.	Direct property and casualty insurers	500-999	C. Wausau
Wausau Metals/Milco/Linetec	Metal window and door manufacturing	500-999	C. Wausau
Source: Wisconsin Department of Workforce Development, 2013			

Although the trade, transportation & utilities sector leads the County in employment, it is represented on the list of top employers (Table 5) in the County by only one firm, Eastbay. This sector is comprised of many smaller firms throughout the County. In contrast, the importance of the manufacturing sector to the economy is reflected through three spots on the top-10 employer list with Greenheck Fan, Kolbe & Kolbe Millwork and Wausau Metals. The education and health sector may be third in overall employment, but it has the largest employer in the County with Aspirus (hospital and clinics), as well as three other spots in the top ten with North Central Health Care (psychiatric), DC Everest School District and Northcentral Technical College.

Identifying locations of large employment is important when prioritizing hazard mitigation strategies. The listing of top employers further demonstrates that the Wausau area is the primary employment and service hub in the County.

In addition to seasonal swells in employment, the number of people working in a given locality fluctuates on a daily basis. The County is a net importer of labor. In other words, the County has more jobs than residents who work. Approximately 16 percent of the County's workforce enters from other counties while only about 13 percent of working residents travel to work outside the County. The top three counties that people commute between are Lincoln, Wood and Portage.

ECONOMIC IMPACT OF JOB LOSS IN MARATHON COUNTY

To help determine the potential impact of a hazard occurrence on the economy of the County, EMSI economic modeling software was used to estimate the cumulative effects of job losses in some select industry sectors of the County. A catastrophic, worst case, scenario is examined. Actual impacts would vary be degree of severity of the event. APPENDIX C contains a detailed printout of the analysis, and Table 6 shows a summary.

Table 6 Economic Impact of Catastrophic Event on Employment in Select Major Industry Sectors within Marathon County

Sector	Potential Jobs Impacted	Multiplier	Earnings
Fan/Blower/Air Purification Mfg	1,872	1.29	$109,706,179
Wood Window/Door Mfg	1,670	1.37	$68,672,580
Animal Prod. & Aquaculture	3,194	1.46	$100,943,433
Mail Order Houses	1,884	1.38	$66,599,862

Source: EMSI Economic Modeling Specialists and NCWRPC, 2015.

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.

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

Table 7	Generalized Land Use in Marathon County	
Description	**Acres**	**Percent**
Agriculture*	496,659	49.3%
Commercial and Industrial	11,684	1.1%
Public / Institutional	2,438	0.2%
Outdoor Recreation	2,313	0.2%
Residential	47,604	4.7%
Transportation	33,016	3.3%
Water	28,331	2.8%
Woodlands	387,718	38.4%
Total	1,009,763	100.0%

*Source: NCWRPC Update of County Inventory, 2015. *Broadly Includes farm areas in addition to active cropland: cranberry, open field & grasslands and other lands.*

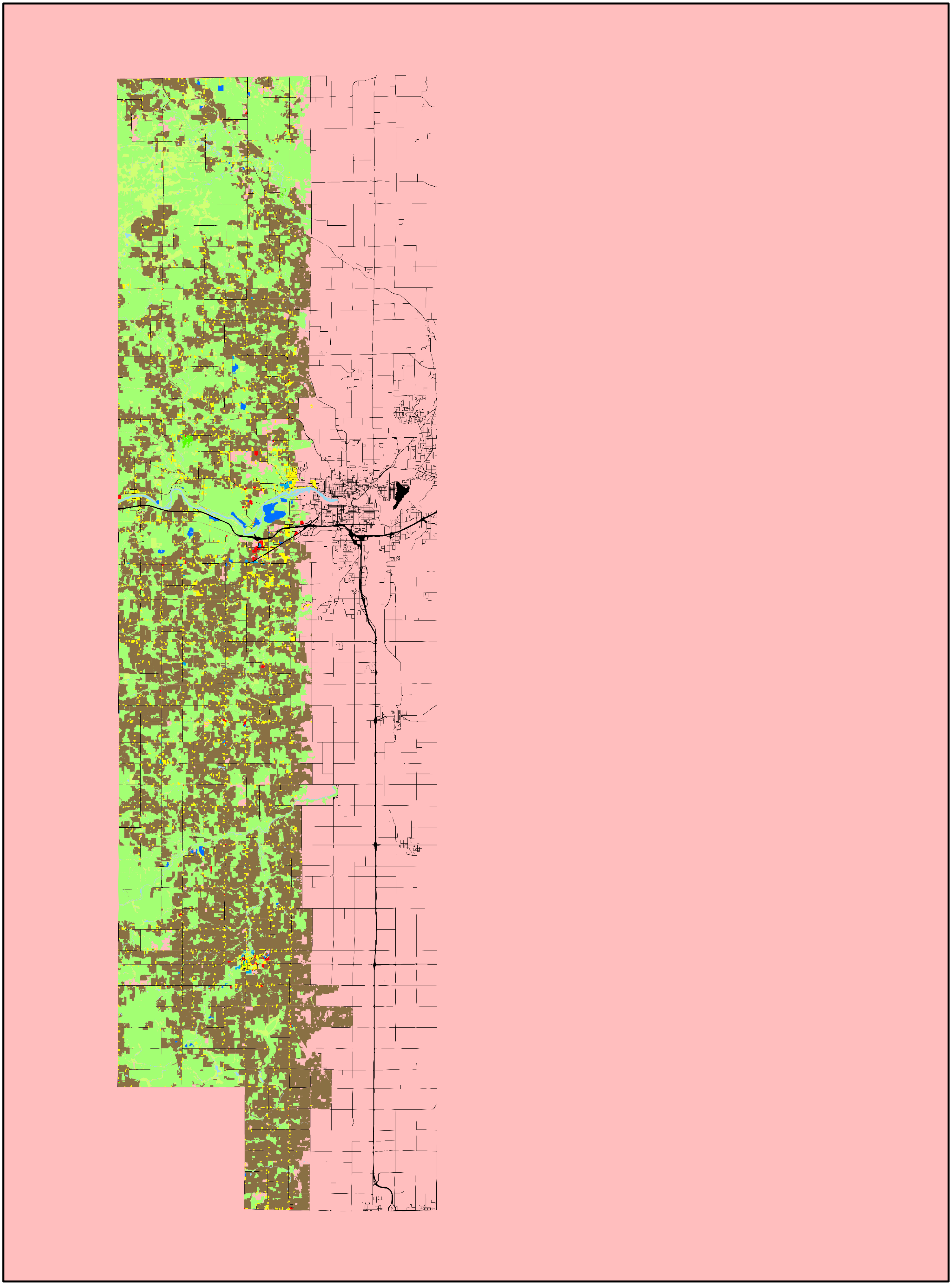
FORESTRY AND AGRICULTURE

The dominant land-uses in Marathon County are forestry and agriculture. Land area in the County is approximately 38 percent forested, comprised of 387,718 acres of woodland. Agricultural land covers another 49 percent of the county's land area. The main agricultural practices in the County are dairy farming, cattle ranching grain, vegetables, other crops and hay. Other leading crops include ginseng and maple syrup. The county has the most acres in the state in forage and ranks near the top for corn silage and oats grown for grain. Agriculture is scattered throughout the County but much of it is concentrated in the western half.

RESIDENTIAL DEVELOPMENT

Land in residential development makes up only 4.7 percent of the total County area. Residential land is scattered throughout the County (see "Population and Households" above), but a heavy concentration comprises the Wausau metro-area. The various small cities, villages and unincorporated hamlets around the County also represent higher density residential development.

There are a number of mobile home parks in the County. According to the U.S. Census, there were 1,987 mobile homes in 2013. This is about 3.4 percent of the housing units for the County compared to 3.7 percent for the entire state. Mobile home concentrations are significant due to their vulnerability to natural hazards, especially tornadoes. Map 12 displays the mobile home concentrations within the County.



- Springbrook Creek
- Upper Yellow River
- Black Creek
- Trappe River
- Devil Creek
- Mosinee Flowage
- Plover and Little Plover Rivers
- Upper Eau Claire River
- Lower Eau Claire River
- Little Eau Claire River
- Johnson and Peplin Creeks
- Middle and South Embarrass River
- Bull Junior Creek
- Popple River
- Copper River
- Upper Little Wolf River

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

FLOODPLAIN

The primary value of floodplains is their role in natural flood control. Floodplains are 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 Map 4 as floodplains should be able to handle a severe (regional) flood, i.e. those that have a probability of occurring once every one hundred years.

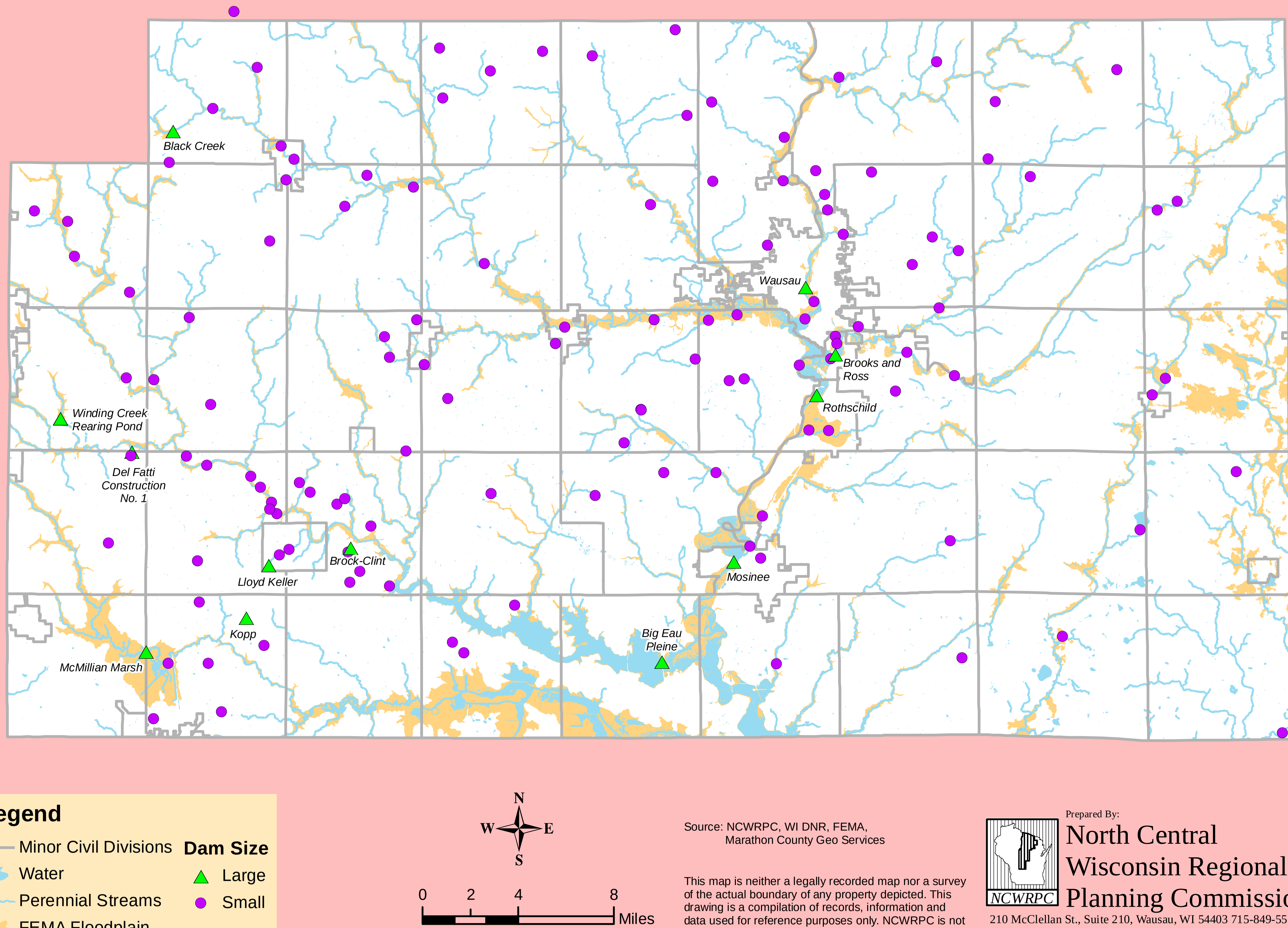
There is a value in preserving and protecting these natural flood control areas from encroachment. First, by preventing development in the floodplain, the cost of building dikes, levies, or other man-made flood control devices will be saved. Second, for each structure that is constructed in a flood-prone 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 floodplain 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.

Marathon County
Wisconsin

All Hazard
Mitigation Plan

Map 4
Floodplains & Dams



Source: NCWRPC, WI DNR, FEMA,
Marathon County Geo Services

This map is neither a legally recorded map nor a survey of the actual boundary of any property depicted. This drawing is a compilation of records, information and data used for reference purposes only. NCWRPC is not responsible for any inaccuracies herein contained.

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

In order to participate in the Federal Emergency Management Agency's (FEMA) National Flood Insurance Program (NFIP), Marathon County and the cities and villages within have completed a Flood Insurance Study and a Flood Insurance Rate Map (FIRM) that encompasses the County, see Table 8 for summary of NFIP status. This FIRM delineates the "A" Zones including the floodway and flood fringe which are those areas inundated by the 100-year flood within the County. In 2010, the study was updated with a new FIRM developed to digital standards. The digital FIRMs are referred to as DFIRM. The NCWRPC downloaded the DFIRM from FEMA's website for use in this plan. Although unofficial, the digital files indicate there are 95,917 acres floodplain in Marathon County, or 9.5 percent of the land area. Map 4 shows the approximate floodplains in Marathon County. Overall flooding in Marathon County is generally due to high stages on the Wisconsin River. Currently, there are three repetitive loss structures, those with multiple flood insurance claims, identified within Marathon County.

The Biggert-Waters Flood Insurance Reform Act was signed into law in July, 2012. This act implemented significant reforms to the structure of flood insurance under the National Flood Insurance Program (NFIP). Then, on March 21, 2014, President Obama signed the Homeowner Flood Insurance Affordability Act of 2014 (HFIAA) into law amending the NFIP further. These new laws impact the various elements of the NFIP, including Insurance, Flood Mapping, Mitigation, and Floodplain management.

HFIAA repeals and modifies certain provisions of the Biggert-Waters Flood Insurance Reform Act, and makes additional program changes to other aspects of the program not covered by that Act. Many provisions of the Biggert-Waters Flood Insurance Reform Act remain and are still being implemented. The new law lowers the recent rate increases on some policies, prevents some future rate increases, and implements a surcharge on all policyholders. The Act also repeals certain rate increases that have already gone into effect and provides for refunds to those policyholders. Both of these laws are important to local floodplain managers and planners because rate structure increases may increase interest of policy holders that own floodprone properties in alternatives to mitigate both flood risk and flood insurance costs for those properties.

Table 8 FEMA Community Status Book Report Communities Participating in the National Flood Insurance Program Wisconsin - Marathon County				
Community	**Initial FHBM**	**Initial FIRM**	**Current Map**	**Program Entry**
Marathon County	02/01/79	02/01/79	07/22/10	02/01/79
Abbotsford city*	n/a	07/06/10	07/22/10**	02/24/12
Colby city*	05/31/74	09/18/85	07/22/10**	09/18/85
Marshfield city	n/a	02/17/93	NSFHA***	10/06/09
Mosinee city	12/16/73	12/16/73	07/22/10	12/16/73
Schofield city	07/13/73	07/13/73	07/22/10	07/13/73
Wausau city	n/a	01/05/78	07/22/10	01/05/78
Athens village	05/31/74	08/15/80	07/22/10	08/15/80
Birnamwood village*	05/31/74	08/19/85	07/22/10**	08/19/85
Brokaw village	12/17/73	06/01/88	07/22/10**	06/01/88
Dorchester village*	n/a	n/a	n/a	n/a
Edgar village	12/03/76	09/30/88	07/22/10**	09/30/88
Elderon village	07/19/74	07/30/76	07/22/10	****
Fenwood village	08/02/74	05/14/76	07/22/10	****
Hatley village	07/19/74	09/27/85	07/22/10**	09/27/85
Kronenwetter village	n/a	08/03/81	07/22/10	10/07/08
Marathon City village	11/30/73	08/15/80	07/22/10	08/15/80
Rothschild village	04/11/73	05/11/73	07/22/10	05/11/73
Spencer village	n/a	07/22/10	NSFHA***	08/30/10
Stratford village	12/17/73	05/01/87	07/22/10**	05/01/87
Unity village*	09/20/74	07/06/10	07/22/10	****
Weston village	n/a	07/22/10	07/22/10	04/10/08
*Source: FEMA 2015. *Denotes split between two counties. **No elevation determined. ***No special flood hazard area - all zone C. ****Identified as not in the NFIP.*				

WETLANDS

Marathon County has about 172,363 acres of wetlands, or 17.1 percent of its total area. Map 3 shows these wetland areas in Marathon County. Wetlands perform many indispensable roles in the function of the hydrologic cycle and local ecological systems. In terms of hazard mitigation, they act as water storage areas in times of high water. Like sponges, wetlands absorb excess water and release it back into the watershed slowly, preventing flooding and minimizing flood damage. As more impermeable surfaces are developed, this excess capacity for water runoff storage becomes increasingly important.

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. Within in Marathon

County, wetlands were severely impacted or destroyed by agricultural activities from the late 1940s through the 1970s, many of them drained for cropland. Wetlands in the County are generally located adjacent to rivers, creeks and floodplains. Most are wooded, although other classifications of wetlands are found in Marathon County. Examples of significant wetlands complexes within the County include the Mead Wildlife Area and McMillan Marsh located in the southwestern corner.

OTHER LAND COVER/USES

Recreational lands including parks and outdoor sports facilities total about 2,313 acres or 0.2 percent of the County land area. Other lands may have recreational aspects, particularly woodlands. Governmental, public and institutional lands total about 2,438 acres or about 0.2 percent of the County area. The transportation category is primarily the roadway travel corridors for federal, state, county and local highways and roads, but also includes railroads and airports. Sometimes overlooked, transportation land use can be significant. In Marathon County, transportation facilities consume about 33,016 acres of land or about 3.3 percent of total area. Note that this is more than twice as much land area as is used for commercial, industrial, and institutional uses in the County.

FUTURE GROWTH AND DEVELOPMENT IN MARATHON COUNTY

Marathon County's population has increased 1.0% over the first half of this decade for a net gain of 1,287 residents. The County's rate of growth has declined from the high rates observed during previous decades. However, with the economy continuing to improve following the downturn, growth is expected to rebound. The County's rate of growth has historically been on par with the state average. By 2035, Marathon County will have grown to a population of about 140,836, a gain of 5,495 residents if the growth rate continues at the current level. This equates to approximately 2,189 residential structures/units or about 110 per year.

The communities of the Wausau metro-area will continue to see the strongest growth as the urban center offers the attraction of amenities, services and jobs. The surrounding towns, within a 20 minute drive of the city center, including Stettin, Maine, Texas, Wausau, Ringle and Mosinee, will also see more growth. One example comes from the Town of Stettin mitigation issues survey that cites "5 new subdivisions in last 15 years with homes being built to the present time." In addition, the southeastern towns of McMillan and Spencer will continue to grow in part as bedroom communities to the City of Marshfield.

New commercial and industrial development is expected to be gradual over time, paralleling population growth. The most significant concentrations of this development will, again, likely be in the Wausau metro-area, as well as the designated business/industrial parks that have developable land and municipal services readily available. For example, Stettin reports that they are already receiving commercial development interest in the area of a WisDOT proposed frontage road on State Highway 29 east of Highway 107. The County is expected to remain a net importer of labor as a higher concentration of manufacturing and health care jobs draw workers from the surrounding area.

Private projects currently in development around the Wausau metro-area include: new 107 room hotel to open in the Town of Rib Mountain in 2017 (replaces old hotel to be demolished on site) and Athletic Field improvements ($6 million - baseball stadium) in the City of Wausau.

However, this is not to dismiss the potential for commercial development in rural areas of the County. Agriculture is a major industrial sector in the Marathon County economy. This is illustrated by town mitigation survey results that identify a number of ag-sector developments that have occurred since the last mitigation plan was completed, including: Miltrim Farms expansion in the Town of Johnson, the new Seehafer Creamery in McMillan, and the $3 million upgrade of the Mullins Cheese Factory also in McMillan. Only one upcoming development was noted in the survey results: an expansion at Equity Livestock in Town of Frankfort.

The lack of information reflects the nature of private sector development. Information on planned developments is often kept secret and not widely released for competitive reasons. There will certainly be continued investment in existing and new facilities, but it will remain difficult to project and quantify for planning purposes.

New infrastructure or public facilities will continue to be somewhat minimal, excepting limited replacement of existing facilities. Despite a rebounding economy, local government budgets are expected to remain constrained well into the future. For example, Stettin has been "considering" a new town hall/community center for some time now, but no action appears to be imminent. The Town of McMillan is deciding between renovating the current town hall or constructing a new one. Budget constraints will curtail local governments' ability to develop new facilities and result in a tendency to make do with existing infrastructure and delay expansion plans.

One factor that may be causing additional fiscal restraint in certain municipalities with wastewater treatment and/or stormwater facilities is the pending reduction in the limits for pollutant loading, particularly phosphorus. Complying with these new limits may require communities to invest millions on treatment plant upgrades or replacement. Communities may be waiting to determine the full impacts of this compliance before committing to other public works projects.

One exception may be with outdoor park and recreation facilities. A number of communities report planned park facilities projects, i.e.: park shelter construction or trail development. This may be because these kinds of projects are less complex and more easily handled by local crews. The availability of stewardship grants along with local, grassroots fund raising may also help account for park and recreational facility development in the area, such as the Eastbay Sports Complex on the southeast side of the City of Wausau, Alexander Park near the City's airport and the inclusive park expansion in Brockmeyer Park on Wausau's west side. In addition, a number of Wausau area communities are planning off-road bike parks in support of a bid to become an International Mountain Bike Association Ride Center.

Another way some local governments are finding to develop their communities in the face of budget constraints is through public - private partnerships. In the City of Wausau, the City is working with a private investment group on a $20 million dollar riverfront redevelopment project encompassing 16 townhouses, 260 apartments, 70,000 square feet of mixed use space, and various recreational amenities on 16 acres of City property. Future phases could increase the total value to $100 million.

Other local development projects include planning and development of a joint fire station between Village of Rothschild and City of Schofield.

Current Marathon County facilities development projects include a new highway shop located in Stratford (est. value $660,000), terminal expansion at CWA airport (est. value $6,650,000), Bluebird Ridge (Solid Waste - est. value $5,800,00), and Sheriff's' Office (est. value $300,000).

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

PUBLIC FACILITIES AND SERVICES

TRANSPORTATION

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

The principal highways serving Marathon County are (north-south) US Highways 51/Interstate 39, Business 51, State Highway 13, 97, 49, and 107 and (east-west) State Highways 29, 52 and 153. These highways link the County with neighboring communities and are vital to the County's businesses and economic activities.

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

There are numerous bridges in Marathon County that carry traffic over or under bodies of water, transportation infrastructure or other barriers. These bridges can be critical to emergency response and can be especially vulnerable to hazards. The limited number of river crossings, especially over the Wisconsin River can create bottlenecks, potentially isolating sections of the county from emergency response and increasing hazard vulnerability. Since most of the existing river crossings are located in the Wausau metro area, traffic moving east or west across the County must funnel through a limited number of routes in the metro area.

Metro Ride in the City of Wausau coordinates transit services in the Wausau area primarily through a fixed route bus system. Metro Ride also operates a paratransit services for people with disabilities. Metro ride partners with the intercity bus lines Lamers and Jefferson Lines to connect these regional services to the Metro Ride system. This provides intercity service to Madison, Minneapolis, and Green Bay/Milwaukee.

North Central Health Care provides transit services for aging and disabled persons through demand services. There are also numerous private providers of transportation service for senior and disabled residents of Marathon County that can be contacted through the Aging and Disability Resource Center of Central Wisconsin.

The Canadian National Railroad operates the active rail lines in Marathon County. A central line runs along the north/south length of the County along the Wisconsin River and Interstate 39/US Highway 51 and serves the Wausau metro area. Another line runs through the western edge of the county connecting Marshfield and Spencer. A line branches off near Spencer that connects Abbotsford, Unity, and Colby and terminates in Medford. The Mountain-Bay State Trail rail-trail is built on the Chicago and Northwestern right-of-way connecting Wausau to Green Bay, running roughly parallel to State Highway 29.

Currently there are two airports servicing Marathon County. The first airport is located in Wausau on 725 Woods Place on the southeast side and serves private traffic only. The second airport is the Central Wisconsin Airport located in Mosinee, WI and provides 14 flights per day of passenger service through three main carriers, American, Delta, and United Airlines. These carriers provide connections to Minneapolis, Chicago and Detroit. Terminal renovation and expansion was completed in 2016 which increased operational space, expanded the security check-point, expanded parking facilities and relocated car rentals to a separate facility. In 2010, over 160,000 passengers traveled through CWA. March is the peak month for the CWA. Business travelers make up about 60 percent of passengers through the CWA. Recreational traffic is lower than most airports and discretionary travel is primarily outbound.

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, see Map 6.

The protection of the public water supply facilities from potential contamination during hazards such as flooding is a consideration for hazard mitigation planning. Most of the County's water is supplied through municipal or private wells. Soil type, depth of the wells and groundwater, and water table height all contribute to the potential for contamination of a water supply during a hazard event.

The protection of wastewater facilities is an important consideration for hazard mitigation planning because of the potential for contamination of nearby waterbodies in the event of high water. Also of concern during periods of flooding is the threat of damage to infrastructure and associated facilities. There are a number of sanitary sewer service facilities within Marathon County. Two main plants serve the Wausau metro sewer service area through the Wausau Water Works and the Rib Mountain Metropolitan Sewerage District. The other small cities and villages around the County have their own facilities.

The TransCanada - ANR manages a pipeline network for natural gas transmission throughout the state. Two lines run through Marathon County to supply natural gas for distribution: a north-south line through Wausau, with a spur from Wausau to the east and another line in the western part of the County. Wisconsin Public Service is the primary distributer of natural gas to Marathon County customers. In areas without natural gas, propane and heating oil are the primary fuel for heating. Enbridge has a crude oil pipeline clipping the far southwest corner of the County, and the Magellan pipeline runs east-west between Wausau and Minneapolis but is currently inactive.

The infrastructure of electric and telephone lines should be considered in the events of high wind, ice storms, tornadoes, flooding, and fire. The primary electrical service providers in Marathon County include WE Energies / Wisconsin Public Service Corporation, but other providers serve parts of the County, including Taylor Electric Cooperative, Clark Electric Cooperative and Central Wisconsin Electric Cooperative. WPS operates the coal fired Weston Power

Plant and We Energies has the Biomass Cogeneration Plant in Rothschild. The American Transmission Company (ATC) owns and maintains the major electric transmission facilities in the state; most notably the Arrowhead-Weston electric transmission line runs between the Village of Weston, through Marathon County, and Duluth, MN.

Frontier is the main company providing landline telephone service. Other companies serving the area include Telephone and Data Systems Inc., Mosinee Telephone, Wittenberg Telephone, ATT, Ameritech, and Mid-Way.

Charter Communications provides Internet based phone service along with its cable television and Internet services. The Internet has become vital to daily living and commerce. Frontier also provides Internet service (DSL type). Other DSL Internet providers include TDS Telecom, Wisconsin Internet DSL (Amherst Telephone Company), WittenbergNet (Wittenberg Telephone). There are also five known Wireless Internet Service Providers: AirRunner Networks, Cellcom, Country Wireless, Network Professionals/Air-Net and Solarus. Satellite internet providers include Hughes Net and Wildblue.

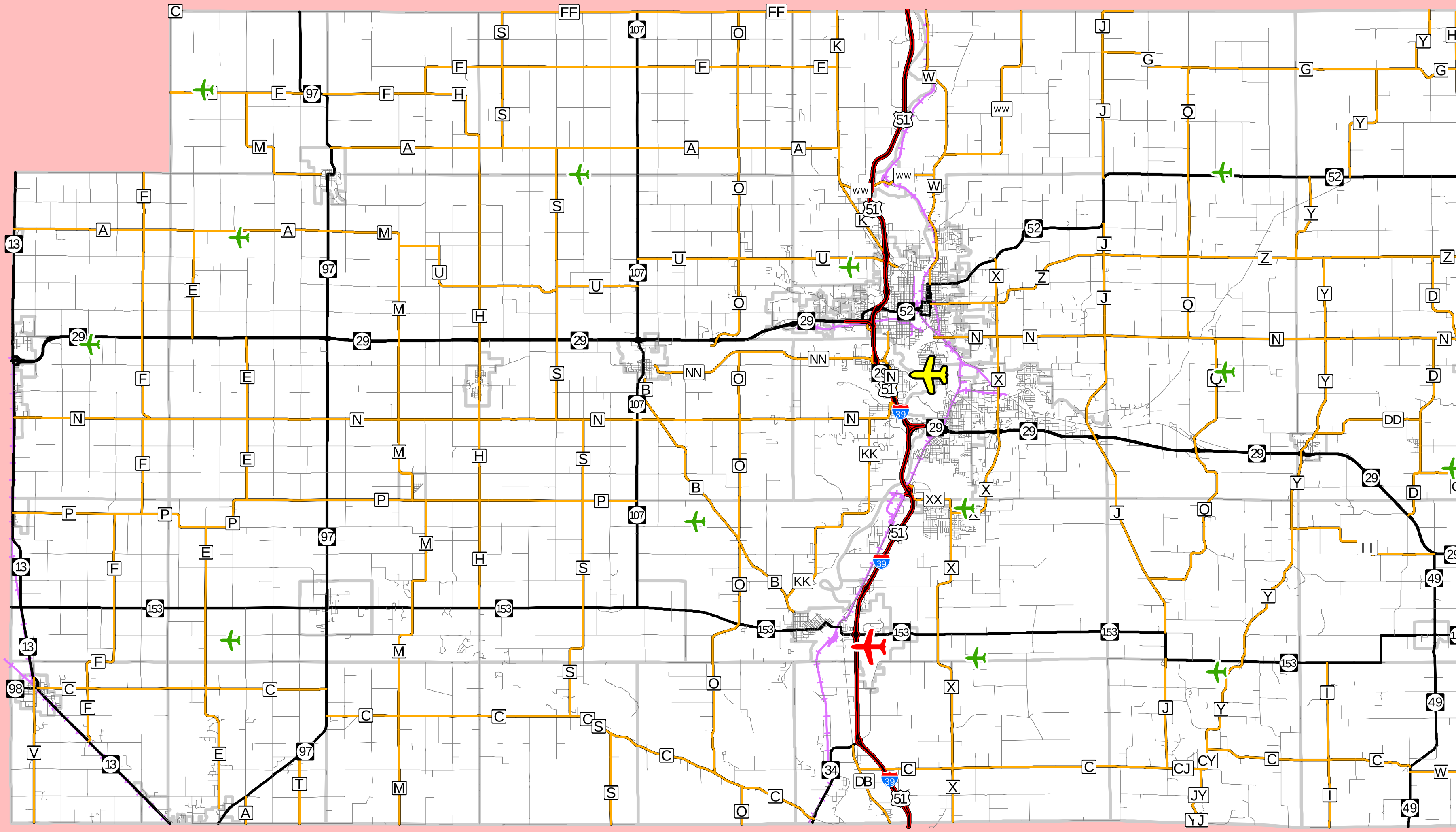
Nationwide, wireless, cellular telephone systems account for more than 75 percent, and growing, of all 911 calls. Service coverage is based upon the handset receiving a direct line-of-sight signal from a system provider's antenna on a tower. Limitations for receiving a signal include topography and the thickness & type of building materials. Signals generally cannot travel well in dense forest cover, over tall hills, or through thick or multiple cement walls. Cellular phones provide both advantages and disadvantages in emergency situations. Cellular phone locations are not always transmitted to 911 dispatchers and thus can create delays in emergency responses. On the other hand, emergency messages can be broadcast to cellular phones that are using towers within the emergency alert zone, increasing the potential reach of alerts.

WPS Power Plant in Rothschild and Kronenwetter

Marathon County
Wisconsin

All Hazard
Mitigation Plan

Map 5
Transportation



Legend

- Minor Civil Divisions
- US Highways
- State Highways
- County Highways
- Local Roads
- Railroad

Airports

- Commercial Service
- Large General Aviation
- Grass Strip (Private)

N W E S

0 2 4 8 Miles

Source: NCWRPC, WI DNR,
Marathon County Geo Services

This map is neither a legally recorded map nor a survey of the actual boundary of any property depicted. This drawing is a compilation of records, information and data used for reference purposes only. NCWRPC is not responsible for any inaccuracies herein contained.

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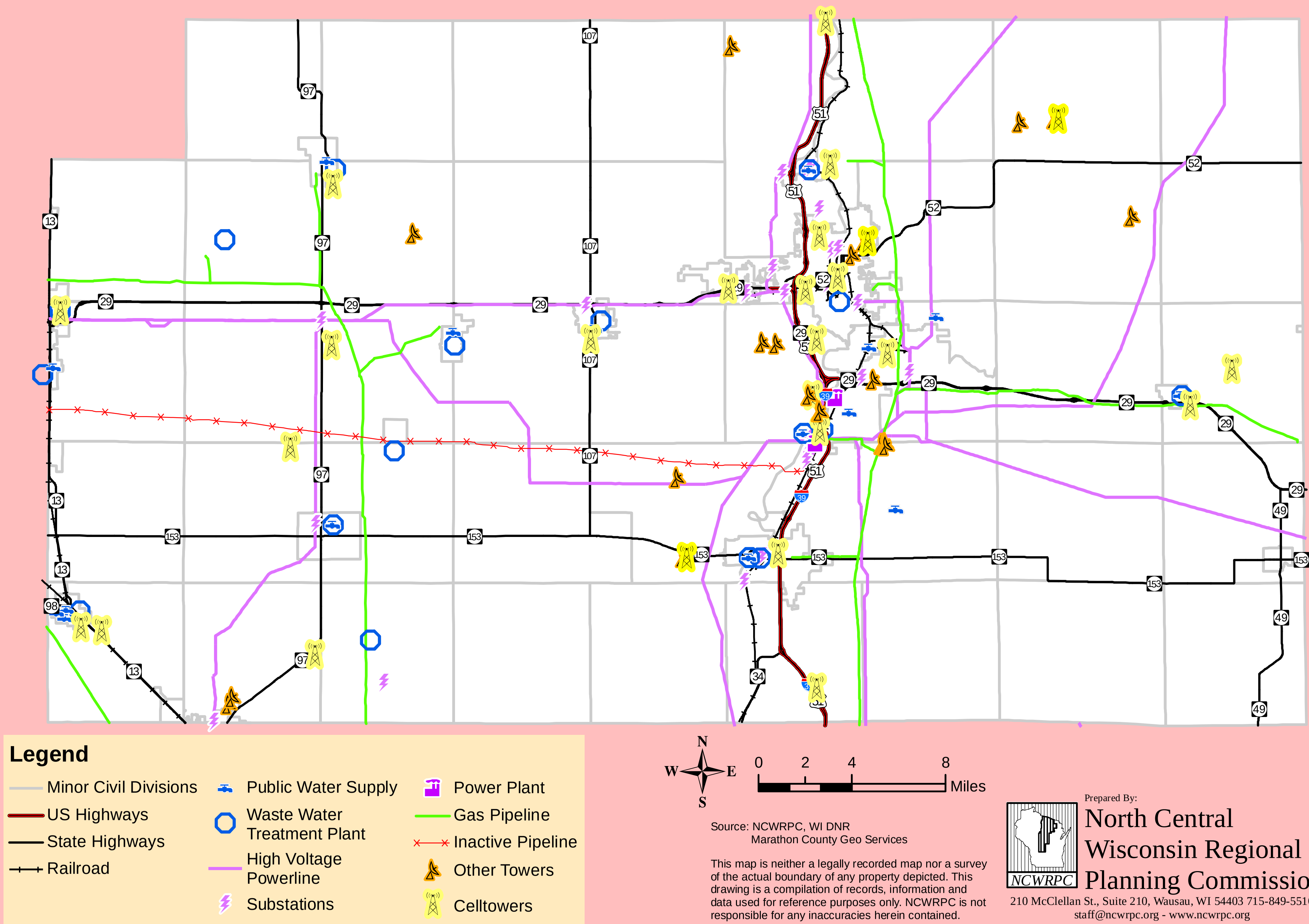
Transportation

Map 5

Marathon County
Wisconsin

All Hazard
Mitigation Plan

Map 6
Utilities



Source: NCWRPC, WI DNR
Marathon County Geo Services

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Utilities

Map 6

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. Fire, police, emergency medical services and first responder service areas and station locations are shown on Maps 7 through 10.

To coordinate these services, the County has created an *Emergency Response Plan (ERP)*. This provides a general guide for County and municipal emergency personnel during response to a variety of disasters. The document serves to coordinate the County and local governments during response and recovery. It also provides a link between the County and municipal plans. The Marathon County 911 Center, located in the Courthouse, is the primary location for coordinating the emergency response. The County also maintains remote sites and mobile facilities to supplement emergency operations and communications (for specific events) or to act as backup (in case of primary site failure).

There are 27 fire departments with all or part of their service area within Marathon County, see Map 7. Many of the departments service only their specific municipality, while others cover parts of other communities through a variety of agreements. Most are volunteer, on-call services. The Wausau Fire Department provides full-time fire and rescue services to the city via three station locations. The South Area Fire and Emergency Response (SAFER) District also provides full time fire and rescue services to the Town of Rib Mountain, Village and Town of Weston, and parts of the towns of Marathon and Stettin. Effective January 1, 2017, Schofield and Rothschild will be merging their departments to improve service and save money. Many of these departments participate in the Mutual Aid Box Alarm System (MABAS) which is a coordinated, pre-planned program to get the right equipment and personnel on scene in a timely fashion. Hazardous materials response is discussed in more detail later in this report.

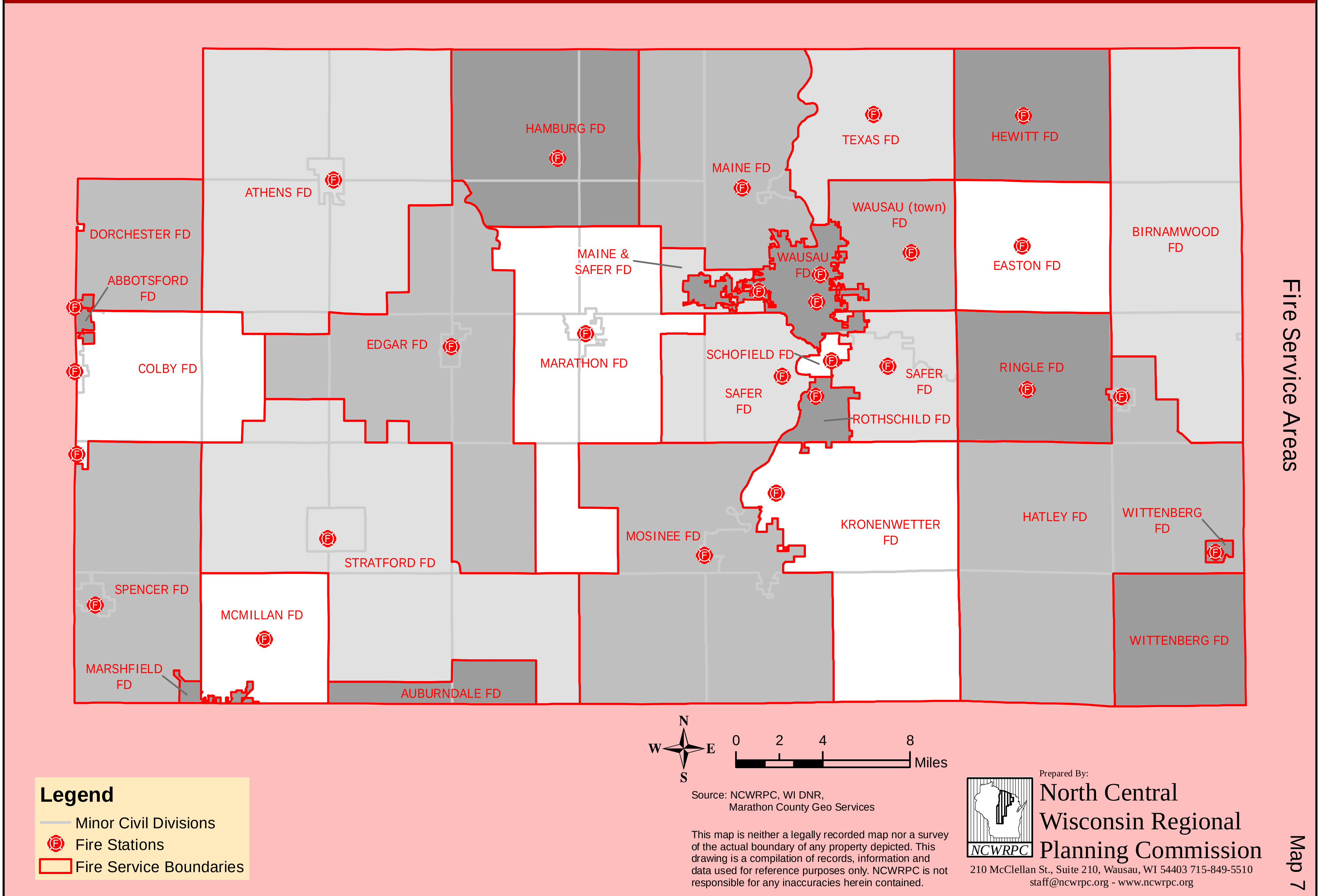
Police service coverage of Marathon County is provided by 13 local police departments and the Marathon County Sheriff’s Office, see Map 8. These departments also have mutual aid arrangements through a variety of agreements. The Marathon County Sheriff's Office supports the other departments through the operation of the Marathon County 911 Center, the Jail and the Juvenile Facility, as well as a variety of additional special services including a bomb squad and a SWAT team.

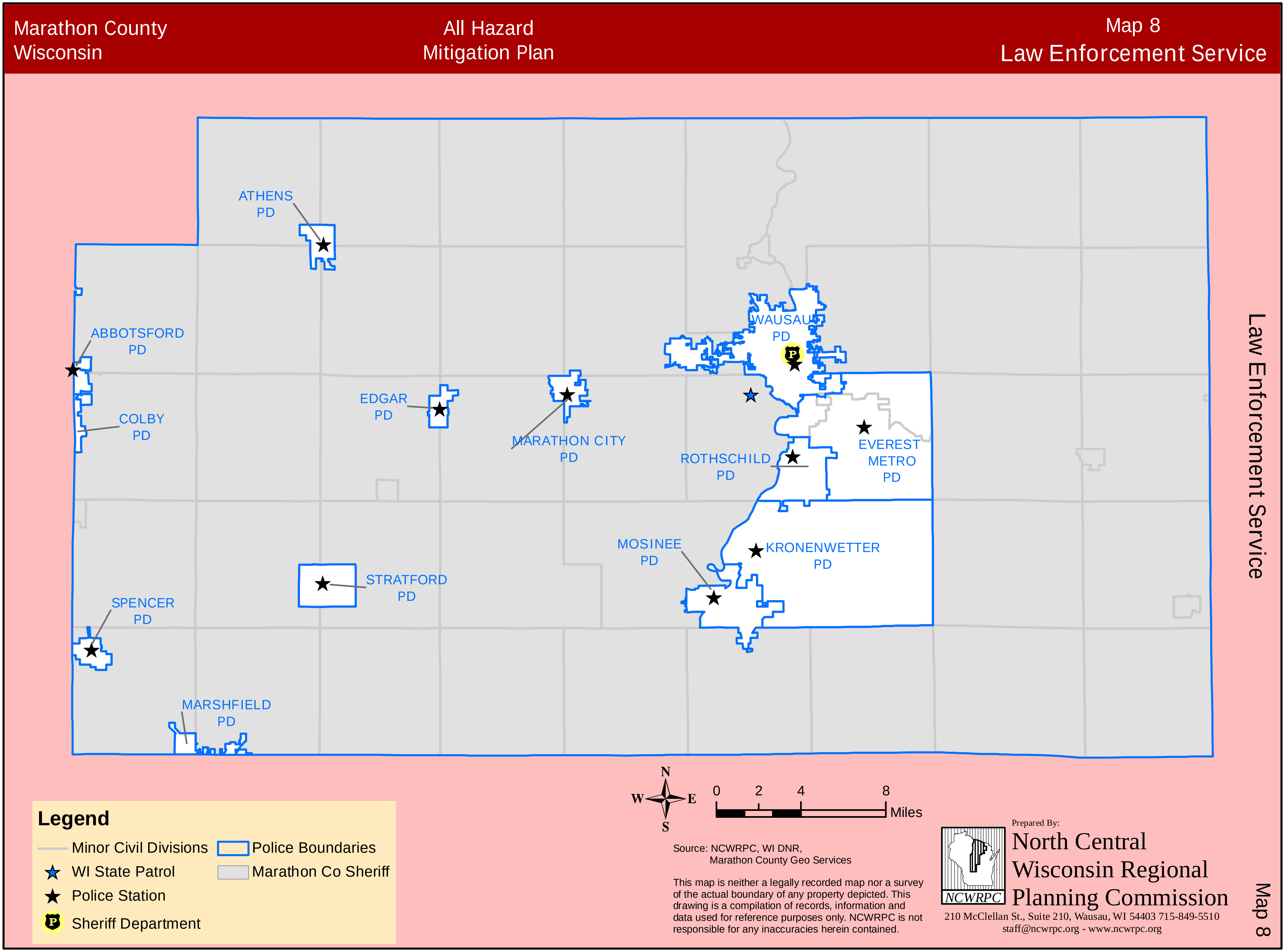
There are 16 emergency medical service (EMS) providers covering Marathon County, see Map 9. In addition, approximately half of the County also has coverage by one of 21 First Responder districts, see Map 10. Typically, when an emergency medical call is received, members of the First Responder team are dispatched to that medical call to assist the patient until the regular EMS arrives on scene.

Marathon County
Wisconsin

All Hazard
Mitigation Plan

Map 7
Fire Service Areas




Marathon County
Wisconsin
All Hazard
Mitigation Plan
Map 8
Law Enforcement Service
Law Enforcement Service
ATHENS PD
ABBOTSFORD PD
COLBY PD
EDGAR PD
MARATHON CITY PD
WAUSAU PD
ROTHSCHILD PD
EVEREST METRO PD
MOSINEE PD
KRONENWETTER PD
STRATFORD PD
SPENCER PD
MARSHFIELD PD
N
W
E
S
0
2
4
8
Miles
Legend
Minor Civil Divisions
WI State Patrol
Police Station
Sheriff Department
Police Boundaries
Marathon Co Sheriff
Source: NCWRPC, WI DNR,
Marathon County Geo Services
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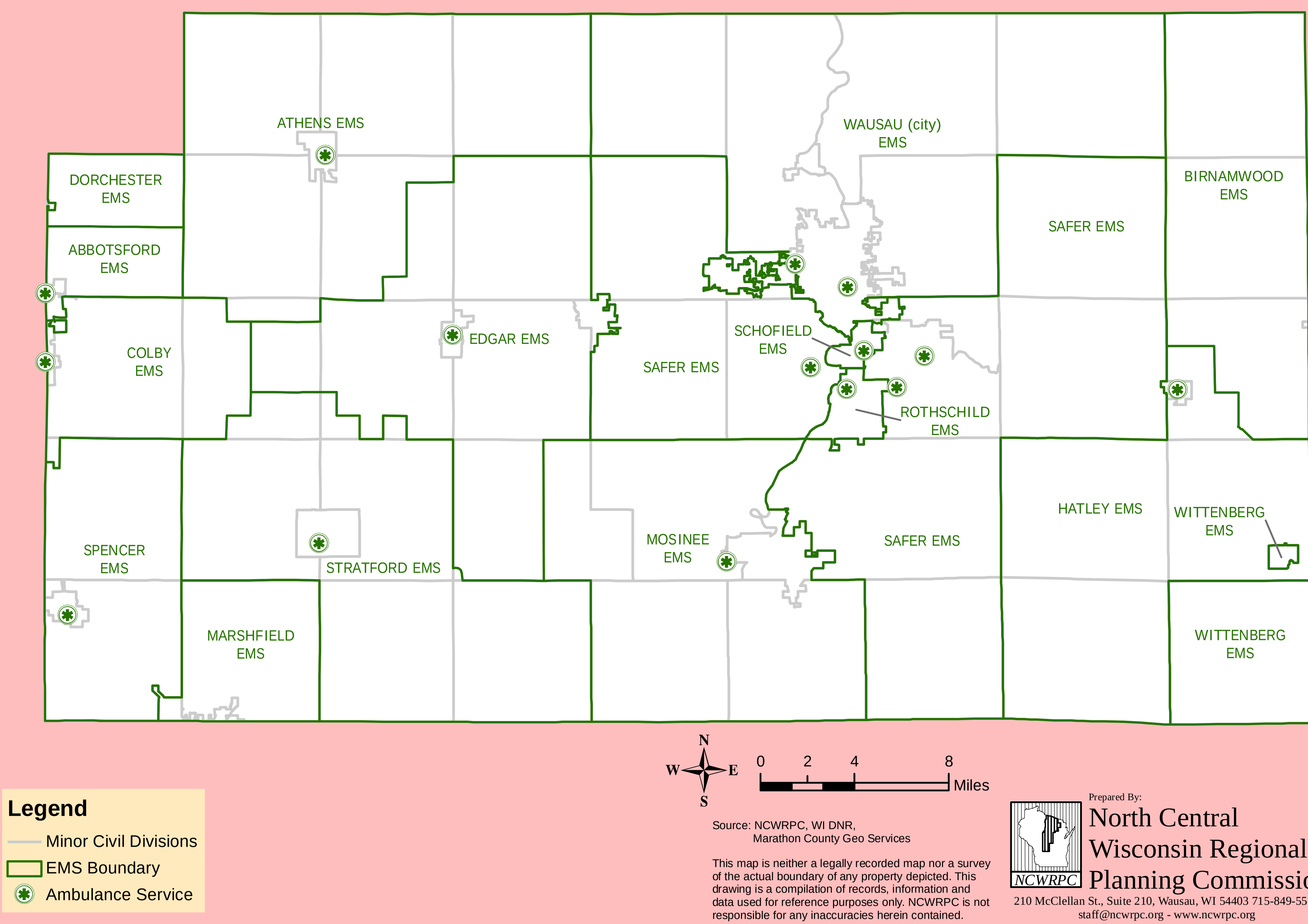
Map 8

Marathon County
Wisconsin

All Hazard
Mitigation Plan

Map 9
Emergency Medical Service Areas



Source: NCWRPC, WI DNR, Marathon County Geo Services

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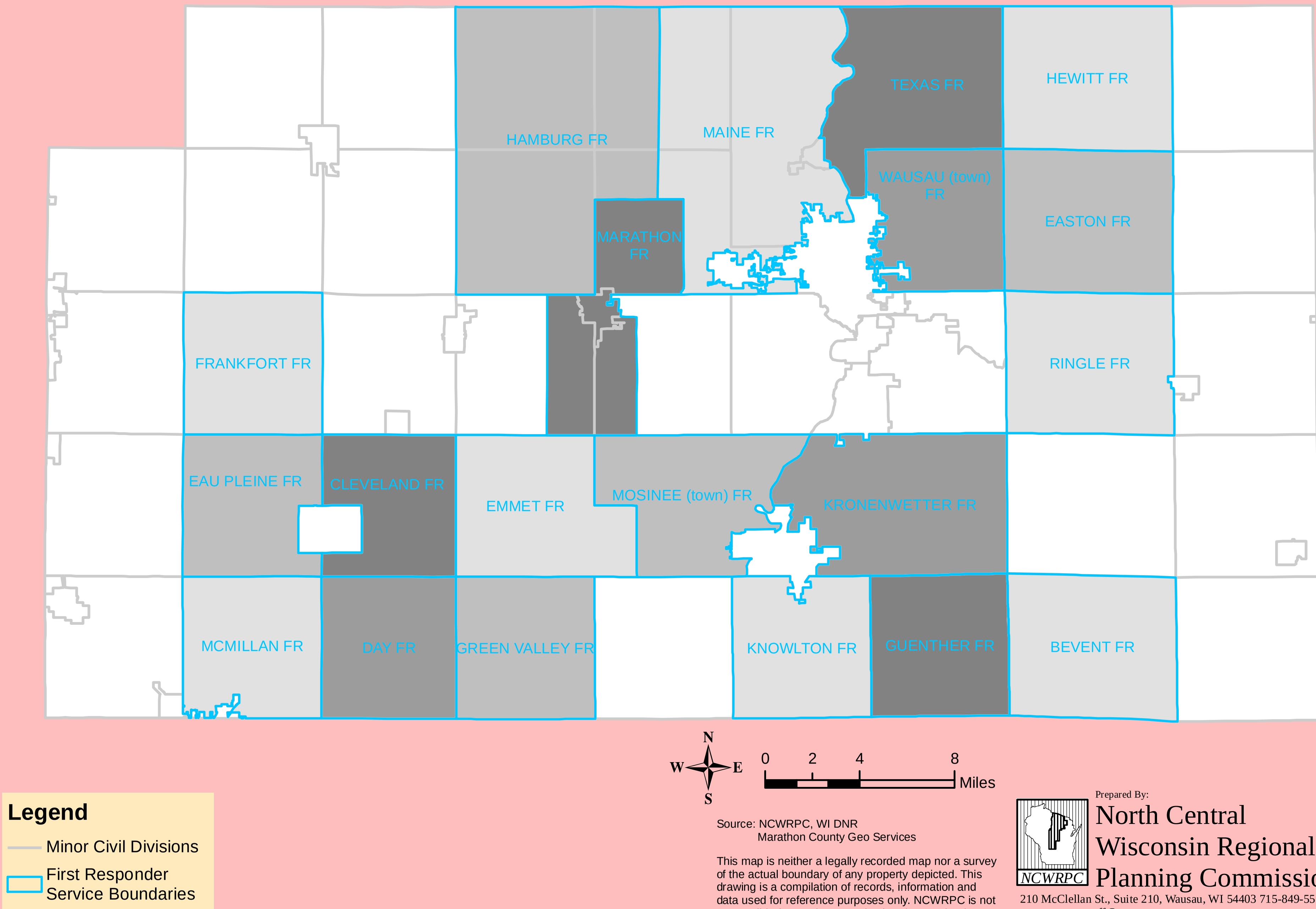
Emergency Medical Service Areas

Map 9

Marathon County
Wisconsin

All Hazard
Mitigation Plan

Map 10
First Responder Service



Source: NCWRPC, WI DNR
Marathon County Geo Services

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First Responder Service

Map 10

COMMUNITY FACILITIES

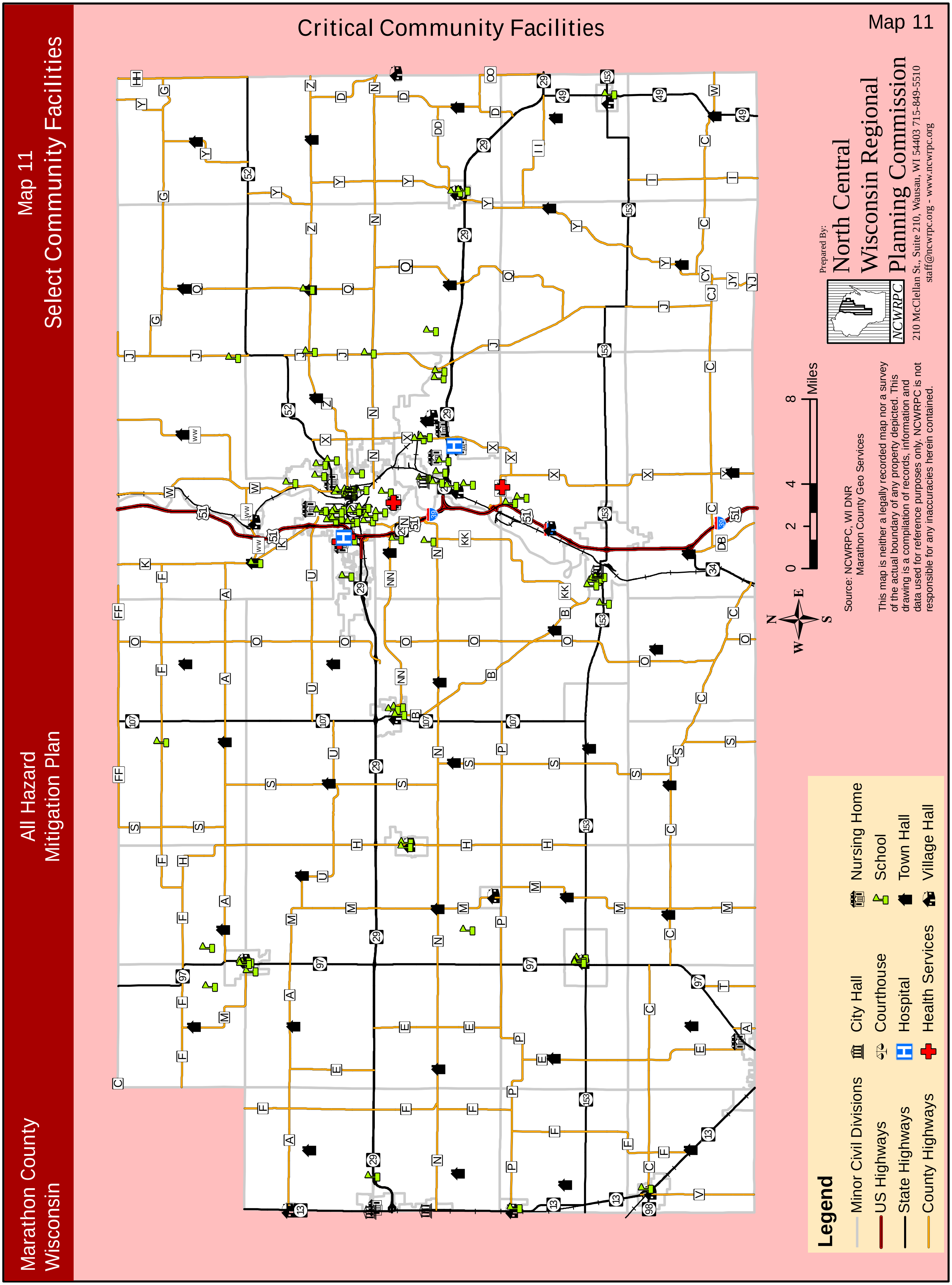
In addition to emergency service facilities, other community facilities are also important in hazard mitigation planning. Note that important community facilities may include, but are not limited to, those identified here. For example, government administration buildings serve as the headquarters that link to resources in helping solve potential problems. Schools are another example of critically important facilities, since thousands of the county's children are there for much of the year. Hospitals are very important for knowing where injured residents have to be transported and as to how many people each hospital can handle if a hazard would breakout. Other healthcare and nursing facilities may have vulnerable populations under their care.

There are two primary hospitals located in Marathon County including the Aspirus Wausau Hospital and Ministry Saint Clare's Hospital. Wausau hospital contains approximately 325 beds. It is a multi-specialty facility with trauma center. The hospital staffs about 350 doctors with a range of specialties. Ministry Saint Clare's Hospital is also a full service, multi-specialty facility with trauma center and approximately 69 beds located in Weston. Ministry St. Joseph's Hospital in Marshfield also serves Marathon County. In addition, numerous clinics and medical offices exist in various locations around the County.

As of the time of this study, North Central Healthcare provides mental health care services under contract with Marathon County, providing for mental/emotional health, people with developmental disabilities and substance abuse problems. North Central Health Care operates the Mount View Care Center nursing home which offers skilled nursing services with a licensed capacity of about 320. There are a variety of other nursing home and residential care sites around the County. Nursing homes are vulnerable, because of the high level of assistance needed by the residents.

Map 10 shows the location of various types of community facilities within Marathon County, for purposes of illustrating this mitigation plan only.

Marathon County Courthouse



Marathon County
Wisconsin
All Hazard
Mitigation Plan
Map 11
Select Community Facilities
Critical Community Facilities
Map 11
Legend
Minor Civil Divisions
US Highways
State Highways
County Highways
City Hall
Courthouse
Hospital
Health Services
Nursing Home
School
Town Hall
Village Hall
Source: NCWRPC, WI DNR
Marathon County Geo Services
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0 2 4 8
Miles
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INVENTORY OF STRUCTURES / PROPERTY IN MARATHON COUNTY

The value of the real estate and personal property in a community reflects the upper end of the potential for property damages in each community. The annual equalized value of each municipality represents the Department of Revenue estimate of market value (Agricultural land is included at Use Value) of all taxable property. Property tax levies of jurisdictions are apportioned to each municipality on the basis of equalized value. Table 9 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 9a	**Equalized Value by Incorporated Areas *(2014)***			
Municipality**	**Real Estate**	**Personal Property**	**Total**	**% of Total**
Marathon County Total	*9,381,494,000*	*288,575,100*	*9,670,069,100*	*100%*
Abbotsford city*	45,241,200	5,408,500	50,649,700	0.5%
Colby city*	27,565,100	1,469,700	29,034,800	0.3%
Marshfield city*	104,004,500	7,006,200	111,010,700	1.1%
Mosinee city	245,144,800	8,134,000	253,278,800	2.6%
Schofield city	177,203,300	11,653,900	188,857,200	2.0%
Wausau city	2,543,666,000	112,262,800	2,655,928,800	27.5%
Athens village	47,392,500	2,159,300	49,551,800	0.5%
Birnamwood village*	650,300	0	650,300	<0.1%
Brokaw village	21,210,200	4,247,900	25,458,100	0.3%
Dorchester village*	861,000	83,600	944,600	<0.1%
Edgar village	61,363,700	1,187,100	62,550,800	0.6%
Elderon village	6,223,400	23,800	6,247,200	0.1%
Kronenwetter village	481,916,400	7,708,200	489,624,600	5.1%
Hatley Village	30,937,100	201,600	31,138,700	0.3%
Marathon City village	109,191,700	7,401,100	116,592,800	1.2%
Rothschild village	379,234,500	24,873,100	404,107,600	4.2%
Spencer village	85,715,700	6,054,600	91,770,300	0.9%
Stratford village	89,120,800	4,143,100	93,263,900	1.0%
Unity village*	7,812,100	110,300	7,922,400	0.1%

*Source: WI Dept. of Revenue and NCWRPC. *Denotes split between two counties. *See pg 1-5 re Maine's T/V transition.*

The valuation of property in a community reflects the potential for property damages across the community. However, only taxable properties are included in this valuation. Tax-exempt government properties are not included. With Marathon County owning many critical facilities that are needed in times of disaster, the potential for damages to these structures could be devastating for the county. In Table 10, the county owned critical facilities are listed with the general location they are in and the value of the facilities. Town government facilities are given in Table 11. APPENDIX D contains an expanded inventory of critical facilities located within the cities and villages.

Table 9b	Equalized Value by Unincorporated Area *(2014)*			
Municipality	**Real Estate**	**Personal Property**	**Total**	**% of Total**
Bergen town	67,189,200	65,500	67,254,700	0.7%
Berlin town	68,455,900	327,100	68,783,000	0.7%
Bern town	32,827,500	321,300	33,148,800	0.3%
Bevent town	84,361,600	168,700	84,530,300	0.9%
Brighton town	40,819,600	531,100	41,350,700	0.4%
Cassel town	67,307,900	506,400	67,814,300	0.7%
Cleveland town	113,763,600	654,100	114,417,700	1.2%
Day town	73,458,700	587,500	74,046,200	0.8%
Easton town	74,474,800	298,900	74,773,700	0.8%
Eau Pleine town	58,430,300	319,700	58,750,000	0.6%
Elderon town	48,775,000	38,700	48,813,700	0.5%
Emmet town	68,513,200	381,800	68,895,000	0.7%
Frankfort town	41,371,400	418,900	41,790,300	0.4%
Franzen Town	39,143,200	316,800	39,460,000	0.4%
Green Valley Town	54,962,400	138,300	55,100,700	0.6%
Guenther Town	30,096,900	191,900	30,288,800	0.3%
Halsey Town	36,444,200	521,500	36,965,700	0.4%
Hamburg Town	53,382,300	442,100	53,824,400	0.6%
Harrison Town	23,943,400	83,500	24,026,900	0.2%
Hewitt Town	45,656,200	126,800	45,783,000	0.5%
Holton Town	48,109,900	263,400	48,373,300	0.5%
Hull Town	49,505,000	729,000	50,234,000	0.5%
Johnson Town	44,625,500	2,446,800	47,072,300	0.5%
Knowlton town	223,605,000	2,224,700	225,832,400	2.3%
McMillan town	186,517,800	2,438,800	188,956,600	2.0%
Maine*	189,298,200	2,653,200	191,951,400	2.0%
Marathon town	93,169,900	364,900	93,534,800	1.0%
Mosinee town	153,426,800	1,172,000	154,598,800	1.6%
Norrie town	65,384,000	343,300	65,727,300	0.7%
Plover town	43,424,900	354,600	43,779,500	0.5%
Reid town	84,526,700	338,400	84,865,100	0.9%
Rib Falls town	74,258,100	460,400	74,718,500	0.8%
Rib Mountain town	674,704,300	25,326,700	700,031,000	7.2%
Rietbrock town	46,573,900	443,800	47,017,700	0.5%
Ringle town	131,291,900	1,698,500	132,990,400	1.4%
Spencer town	110,101,600	1,587,900	111,689,500	1.2%
Stettin town	232,360,600	2,840,800	235,201,400	2.4%
Texas town	108,381,200	1,058,200	109,439,400	1.1%
Wausau town	146,809,600	1,508,300	148,317,900	1.5%
Weston Town	52,614,900	761,600	53,376,500	0.6%
Weston Village	972,377,300	28,605,600	1,000,982,900	10.4%
Wien Town	56,844,800	330,100	57,174,900	0.6%

*Source: WI Dept. of Revenue and NCWRPC. *See pg 1-5 re: Maine's T/V transition.*

Table 10	Inventory & Value of County Properties (2015)	
Name	**Value***	**Location**
Highway Department		
Headquarters/Shop	$6,935,958	Wausau
Shop	$2,438,360	Edgar
Shop	$442,654	Mosinee
Shop	$1,268,851	Hatley
Shop	$1,178,099	Abbotsford
Other	$82,534	Various
Parks. Rec. & Forestry Department		
Fairgrounds	$19,271,412	Wausau
Shooting Range	$394,881	T. Mosinee
Other Parks	$11,099,754	Various
Forestry	$1,180,941	Various
North Central Health Care Facilities		
North Central Health Care Center	$38,794,742	Wausau
Mt. View Center	$19,607,689	Wausau
Other	$1,918,968	Various
Juvenile Detention Site	$3,868,197	Wausau
Library System		
Main	$16,921,745	Wausau
Branches (8)	$949,668	Various
UW - Marathon County Campus	$67,476,558	Wausau
Central Wisconsin Airport	$13,266,760	Mosinee
Social Services Department	$5,194,581	Wausau
Solid Waste	$2,890,154	Ringle
Sheriff's Office		
HQ/911 Ctr/Jail	$50,359,604	Wausau
Training & Resource Center	$1,430,104	Wausau
Remote Sites	$392,942	Various
Storage Building	$275,749	Wausau
Communications	$460,390	Various
Courthouse	$50,757,244	Wausau
River Drive Offices	$6,322,629	Wausau
Maintenance Department	$1,497,209	Various
Special Education	$406,848	Edgar
Misc. Properties	$462,613	Various
County Total	$327,546,907	

Source: Marathon County. **Includes insured buildings, contents and property in the open.*

Table 11	Inventory & Value of Town Properties (2015)	
Municipality	Property	Value*
Bergen town	Town Hall / Shop	$704,000
Berlin town	Town Hall	$888,685
	Shop w/ Park (Pavilion)	$522,836
Bern town	Town Hall / Shop	$704,000
Bevent town	Town Hall / Shop	$704,000
Brighton town	Town Hall / Shop	$600,006
Cassel town	Town Hall / Shop	$704,000
Cleveland town	Town Hall / Shop	$704,000
Day town	Town Hall / Shop	$704,000
Easton town	Town Hall / Shop	$704,000
	Fire Dept.	$796,000
Eau Pleine town	Town Hall / Shop	$704,000
Elderon town	Town Hall / Shop	$704,000
Emmet town	Town Hall	$761,102
	Town Shop	$326,493
Frankfort town	Town Hall / Shop	$704,000
Franzen town	Town Hall / Shop	$704,000
Green Valley Town	Town Hall / Shop	$704,000
Guenther Town	Town Hall / Shop	$704,000
Halsey town	Town Hall / Shop	$704,000
Hamburg town	Town Hall / Shop	$449,629
	Fire Dept	$796,170
Harrison town	Town Hall / Shop	$704,000
Hewitt town	Town Hall / Shop	$704,000
	Fire Dept	$796,000
Holton town	Town Hall / Shop	$704,000
Hull town	Town Hall / Shop	$704,000
Johnson town	Town Hall / Shop	$379,568
Knowlton town	Town Hall / Shop	$704,000
McMillan town	Town Hall / Shop	$704,000
	Fire Dept	$796,000
Maine**	Hall / Shop	$704,000
	Fire Dept	$796,000
Marathon town	Town Hall / Shop	$704,000
	Fire Dept	$796,000
Mosinee town	Town Hall / Shop	$627,755
Norrie town	Town Hall / Shop	$704,000
Plover town	Town Hall / Shop	$704,000
Reid town	Town Hall / Shop	$704,000
Rib Falls town	Town Hall / Shop	$584,500
Rib Mountain town	Town Hall / Shop	$704,000
	Fire Dept	$796,000
Rietbrock town	Town Hall / Shop	$704,000

Table 11 Continued...		
Ringle town	Town Hall / Shop	$1,444,275
	Fire Dept	$796,000
Spencer town	Town Hall / Shop	$704,000
Stettin town	Town Hall / Shop	$843,535
Texas town	Town Hall / Shop	$704,000
	Fire Dept	$796,000
Wausau town	Town Hall / Shop	$704,000
	Fire Dept	$796,000
Weston town	Town Hall / Shop	$704,000
Wien town	Town Hall / Shop	$704,000
Source: Local Government Insurance Policy Declarations and NCWRPC Estimates. **Includes insured buildings, contents and property in the open. **See pg 1-5 re: Maine's T/V transition.*		

Town of Mosinee Town Hall

Lenticular Cloud Formation Over Wausau, 2014

INTRODUCTION

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

- Identification of the types of natural hazards that can affect Marathon County; and
- An analysis of the hazards identified as pertinent to Marathon County.

The Hazard Analysis will consist of:

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

HAZARD IDENTIFICATION

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

There are various lists of hazards available, but the scope of work for this Plan was based on utilization of the Natural Hazard Identification and Risk Assessment Matrix from the Resource Guide to All-Hazards Mitigation Planning in Wisconsin. That worksheet was used by the Update Taskforce to evaluate and rank the listing of possible hazards in order to identify which hazards should be included in the Plan Update according to threat to human safety and possible damage to property. The ranking was compared against the Wisconsin Hospital Emergency Preparedness Program Hazard Vulnerability Assessment (HVA) for the region including Marathon County.

After review of the hazard scoring exercise results, the Committee decided to replace fog at number four with hazardous materials incidents to reflect its level of risk compared to the other hazards as it was not included in the worksheet. Although determined by the Committee to be a concern, fog was removed the list due to a lack of ways to effectively mitigate against it.

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

1. Winter Storm / Extreme Cold
2. Tornado
3. Thunderstorm / High Wind / Hail / Lightning
4. Hazardous Materials Incidents / Groundwater Contamination

5. Flooding / Dam Failure
6. Drought / Extreme Heat
7. Forest Fire / Wildfire

Hazards that were ranked at the bottom of the worksheet were tagged to drop from the list based on their low score, including: agricultural, earthquake, coastal, landslide and subsidence. However, there was some discussion of the "agricultural" hazard due to the significance of agriculture in the Marathon County economy. Many "agricultural" hazards are addressed through other hazard categories. Extreme cold, high winds or tornados, flooding, hail and drought can all decimate crops and threaten livestock. In addition, the Committee identified livestock disease outbreak (i.e.: "mad cow" and other diseases) as an agricultural hazard of concern due to the potential impact of on the County's dairy and beef industries. Ultimately, it was determined that this was something addressed by few if any county mitigation plans in the state, and that neither the NCWRPC, MCEM nor the LEPC has adequate background or experience to deal with at this time. The consensus was to hold this item over for re-evaluation during the risk assessment for the next five-year update of the Plan.

Low magnitude earthquakes do occur occasionally in Wisconsin, such as the 2012 "mini-quake" near Clintonville (1.5 magnitude). However, none have exceeded a magnitude of 3.9, which would have vibrations similar to the passing of a semi-truck, therefore, earthquakes are not covered in this plan. Marathon County does not have avalanche, coastal hazard, hurricane, tsunami or volcano issues and conditions for landslide, subsidence or expansive soil problems are not significant in the County.

This Plan Update focuses on natural hazards that have or could cause disasters that can be mitigated on a local level. Hazards that are considered "technological" or "manmade" include things like cyber-attack, transportation incidents, structure fire, civil disturbances, mass casualty events, war, criminal activity and terrorism (including active shooter, biological, chemical, explosive and nuclear attack). Current mitigation planning regulations do not require inclusion of technological or manmade hazards, so they are not dealt with directly in this Plan. This is in part to maintain the manageability of the mitigation planning activity and also to reduce redundancy. Due to Homeland Security requirements, counties already plan and prepare for many of these types of events, so they are not included in this planning process to avoid duplication. However, local mitigation plans do have the option to include technological or manmade hazards, and many counties in Wisconsin, including Marathon, choose to cover hazardous materials incidents in their mitigation plans.

Some events that may under certain conditions be considered technological or manmade hazards in and of themselves such as supply disruption (including fuel shortage), power outage, computer failure, communications disruption, and municipal water contamination or water system failure are more commonly consequences of a hazard event, at least in central Wisconsin. As such, they are dealt with indirectly in this Plan as they relate to an addressed hazard. For example, heavy snow, high wind or tornado often results in power outage.

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

HAZARD ANALYSIS

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

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

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

Some disasters have had damages that exceeded the capabilities of local communities and state agencies. Federal assistance is then requested. Federal assistance may be offered through a variety of programs. Assistance may be directed to agricultural producers, individuals and families, businesses, or local governments. There have been 14 natural disasters in Marathon County where Presidential Declaration was requested from 1971-2015. They include the following:

- 1971 - Tornado
- 1971 - Flooding
- 1973 - Flooding - Disaster Declaration
- 1975 - Army Worm Infestation
- 1976 - Drought - Emergency Declaration
- 1977 - High Winds/Hail - Emergency Declaration
- 1980 - Flooding/Tornadoes/High Winds
- 1993 – Flooding - Disaster Declaration
- 2002 – Severe Storms/Flooding - Disaster Declaratlion
- 2002 – Severe Storms/Flooding/Tornado - Disaster Declaration
- 2004 – Severe Storms/Tornado - Disaster Declaration
- 2007 - Hail/Tornado
- 2010 - Flooding - State Disaster Fund

- 2010 - Flooding - Disaster Declaration

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

The National Oceanic and Atmospheric Administration (NOAA) and National Climatic Data Center (NCDC) publish the National Weather Service (NWS) data describing recorded weather events and resulting deaths, injuries, and damages. From January 1, 1950 to December 31, 2013, NCDC reported 608 severe weather events for Marathon County.

Note that since the earlier NCDC data is somewhat incomplete, this report focuses on the 10-year period from 2004 to 2013 for hazard analysis purposes. Other sources of data are used to supplement the NCDC data. These sources included other plans and reports, documents from the Marathon County Emergency Management Department, past local newspaper articles, the Wisconsin Department of Natural Resources (DNR), Wisconsin Emergency Management (WEM), and the National Weather Service.

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

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

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

HAZARD ANALYSIS: WINTER STORMS / EXTREME COLD

BACKGROUND ON WINTER STORMS/EXTREME COLD HAZARD:

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

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

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

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

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

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

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

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

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

Dangerously cold conditions can be the result of the combination of cold temperatures and high winds. The combination of cold temperatures and high wind creates a perceived temperature known as "wind chill". Wind chill is the apparent temperature that describes the combined effect of wind and air temperatures on exposed skin. When wind blows across the skin, it removes the insulating layer of warm air adjacent to the skin. When all factors are the same, the faster the wind blows the greater the heat loss, which results in a colder feeling. As winds increase, heat is carried away from the body at a faster rate, driving down both the skin temperature and eventually the internal body temperature.

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

HISTORY OF WINTER STORMS/EXTREME COLD IN MARATHON COUNTY:
The NCDC has reported 30 major winter storm or extreme cold events for Marathon County between 2004 and 2013. These events included four cold or wind chill events, six heavy snow events, one ice storm, 17 winter storms, and two accounts of severe winter weather. All winter storm events contained some form of snow, sleet, freezing rain, or ice conditions.

The most recent storm during this period was on December 3, 2013. An area of low pressure moved across Wisconsin, dropping four to six inches of snow followed by freezing rain and sleet. Slick roads from the quick blast of snow and ice resulted in a multitude of traffic accidents in central Wisconsin. Three roads in the City of Wausau were closed due to accidents and hazardous driving conditions.

On December 20, 2012, the largest winter storm in several years affected much of Wisconsin with wet, heavy snow. The City of Mosinee recorded the highest snowfall in Marathon County during this storm with 11.9 inches. Strong winds gusted at over 30 mph at times, but blowing snow was limited due to the high water content of the snow.

A major winter storm affected most of northern Wisconsin on March 22 and 23, 2011. This late season storm produced plenty of heavy, wet snow and occasional thundersnow across central Wisconsin. During the two-day period, Marathon County received about 12 inches of snow. Lightning from the storm destroyed a house in the Town of Knowlton causing $296,700 in property damage. The high water content of the snow caused many problems including a police squad car stuck in the snow for several hours. The two plow trucks that tried to push it free also became stuck.

The most damaging recent winter weather event occurred on May 7, 2010. This very late snowfall affected much of northern Wisconsin and the eastern and central parts of Marathon County received three to five inches of snow. The heavy, wet snow damaged nearly all of the ginseng gardens in the county as mesh shade structures, designed to protect the plants from sunlight, crushed the plants under the weight of the heavy wet snow. Damage to crops was estimated to be at least $15 million.

The most recent extreme cold event took place on February 10, 2008 when strong northwest winds behind a departing low pressure system brought cold air into Wisconsin. Temperatures fell into the 10 below zero to 20 below zero range overnight and combined with 15 to 30 mph winds to produce bitter cold wind chills. The wind chill in the City of Wausau was 43 below zero.

A winter storm on December 23 and 24, 2007 is notable for having some of the highest snowfall in recent years. Precipitation associated with the storm began in the form of rain and then rapidly changed to snow as winds circulating brought much colder air into the area. Heavy snow fell and combined with west winds gusting over 40 mph to produce blizzard conditions across central Wisconsin. Six-foot high snow drifts made some roads impassable in central Wisconsin. The highest snow in Marathon County was recorded in Colby which received 15.6 inches.

The most recent ice storm took place on January 1 and 2, 2005 when an approaching storm system forced warmer air and abundant moisture over sub-freezing air north of a surface warm front. The warm, moist air aloft and cold air at the surface resulted in freezing rain and a significant accumulation of ice across much of central and east-central Wisconsin.

WINTER STORMS / EXTREME COLD VULNERABILITY ASSESSMENT:
Winter storms and extreme cold present a serious threat to the health and safety of affected citizens and can result in significant damage to property. Heavy snow or accumulated ice can cause the structural collapse of buildings, down power lines, motor vehicle accidents or isolate people from assistance or services. Extreme cold includes risk of frostbite and hypothermia.

The following is a list of things that may be adversely affected by a winter storm or extreme cold. 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
- LP Gas at residences freezing in temps below -40 degrees
- Septic systems - freezing
- Transportation – automobile accidents, roadway plowing, salting/sanding
- Residential – roofs
- Businesses – commerce
- Agricultural - livestock, frost of snow damage to crops

Based on review of the historic events of winter storms and extreme cold, there are no specific areas in the County that have unusual risks. The risk for winter storms and extreme cold is relatively uniform and a county-wide concern. However, in their mitigation survey results Franzen, Johnson and Reitbrock identified winter storms as a significant vulnerability concern. Reitbrock cited inadequate equipment for road clearing as a contributing factor. During the local planning meetings, the City of Wausau also identified snow storms as a major concern citing hazardous driving conditions. Village of Elderon also cited winter storms as their top concern.

FUTURE PROBABILITY & POTENTIAL DOLLAR LOSSES – WINTER STORMS/EXTREME COLD:
Based on historical frequency, Marathon County can expect 3 significant winter storms per year on average. In other words the probability is 1.0 or a 100 % chance in a given year. For extreme cold temperatures, based on historical frequency, Marathon County can expect an occurrence every other year with the probability at about 0.4 or a 40 % chance in a given year.

Estimating potential future losses for winter storms is difficult. Damages and losses are typically widespread. Auto accidents and additional snow removal time are typical impacts of winter storms, and such claims are not aggregated or tracked for monetary damage. Winter storms do have the potential to be extremely destructive, particularly in the case of ice storms. Potential future losses per incident might range from $5,000 to $2 million based on experiences from other counties.

HAZARD ANALYSIS: TORNADOS

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

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

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

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

Table 12	**Tornado Wind and Damage Scale**	
Tornado Scale	Wind Speeds	Damage
EF0	65 to 85 MPH	Some damage to chimneys, TV antennas, roof shingles, trees, and windows.
EF1	86 to 110 MPH	Automobiles overturned, carports destroyed, trees uprooted
EF2	111 to 135 MPH	Roofs blown off homes, sheds and outbuildings demolished, mobile homes overturned.
EF3	136 to 165 MPH	Exterior walls and roofs blown off homes. Metal buildings collapsed or are severely damaged. Forests and farmland flattened.
EF4	166 to 200 MPH	Few walls, if any, standing in well-built homes. Large steel and concrete missiles thrown far distances.
EF5	OVER 200 MPH	Homes leveled with all debris removed. Schools, motels, and other larger structures have considerable damage with exterior walls and roofs gone. Top stories demolished

Source: National Weather Service

HISTORY OF TORNADOS IN MARATHON COUNTY:
Marathon County has had 12 verified tornados from 2004 to 2013. These tornados are documented along with 37 other historic tornados in Table 13. The most recent was on May 24, 2012 when a tornado formed southwest of Wausau just after 7:00 pm. This brief tornado registered as an EF0 and damaged about 100 trees but no structure damage was noted. This tornado was formed during a severe thunderstorm which generated high winds across north central Wisconsin.

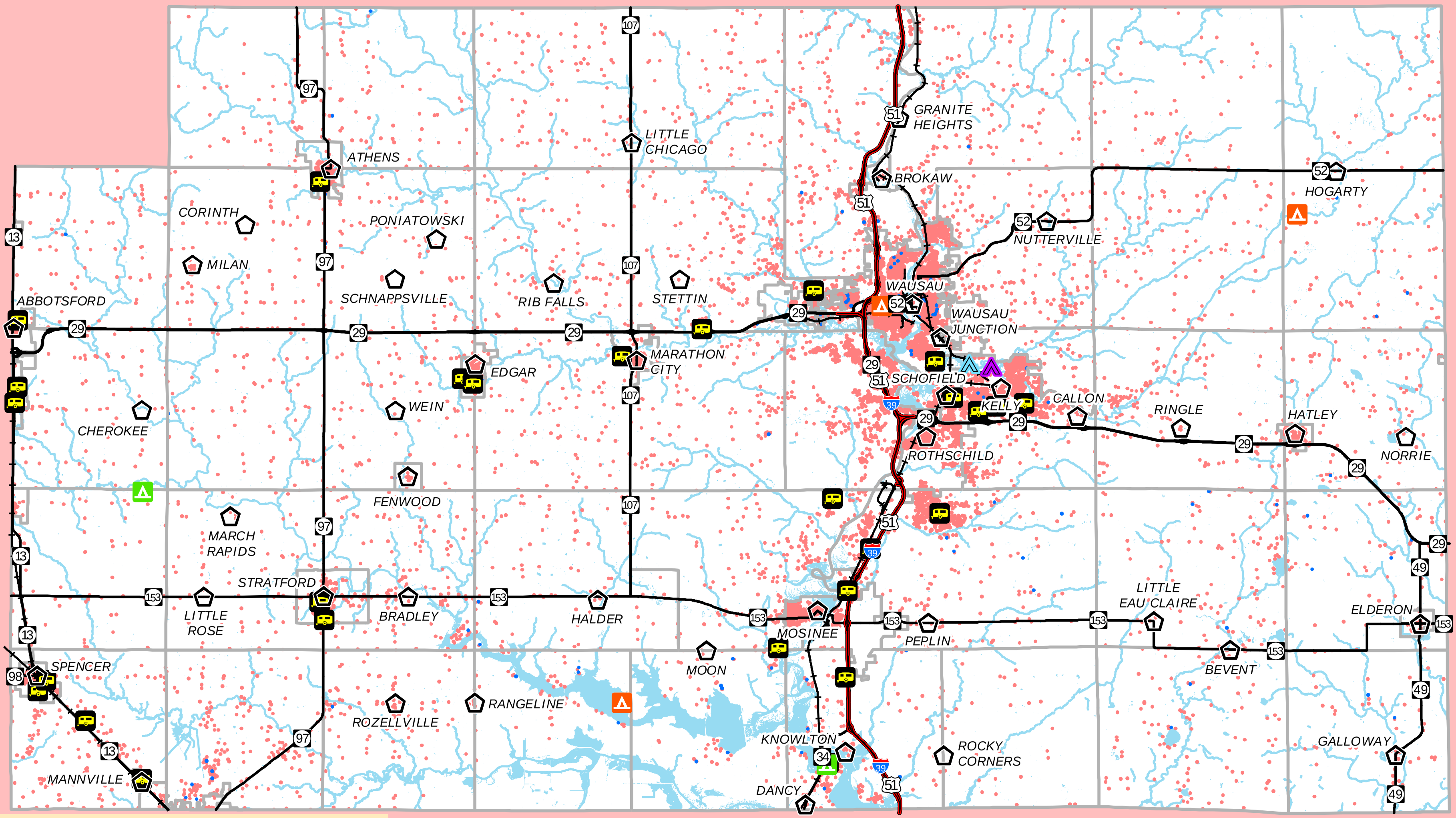
Table 13			Reported Tornados in Marathon County		
Date	Time CST	Fujita Scale	Injury/Death	Prop. Damage	Crop Damage
06/25/1950	2150	F2	0/0	25K	
06/20/1954	0230	F2	0/0	25K	
05/04/1959	1030	F0	0/0	0	
09/03/1961	0010	F2	0/0	3K	
09/03/1961	0100	F1	0/0	3K	
05/08/1964	1650	F2	0/0	250K	
08/19/1968	1730	F2	5/0	2.5M	
09/28/1971	1600	F3	0/0	250K	
09/28/1971	1605	F3	1/0	250K	
06/18/1973	1100	F1	0/0	25K	
04/12/1974	1405	F2	0/0	25K	
06/13/1976	2000	F1	0/0	3K	
08/31/1977	1815	F1	10/0	2.5M	
07/15/1982	1915	F1	0/0	3K	
07/03/1983	1735	F2	0/0	250K	
06/26/1984	1655	F1	0/0	25K	
09/24/1984	1650	F2	0/0	2.5M	
07/02/1987	1710	F1	0/0	250K	
05/08/1988	1710	F2	2/0	2.5K	
09/19/1988	1637	F0	0/0	0	
06/12/1990	1835	F1	0/0	25K	
07/19/1992	1554	F1	0/0	250K	
07/08/1994	1400	F1	0/0	50K	1K
05/07/1996	0145	F2	0/0	200K	250K
08/07/1996	0146	F1	0/0	100K	110K
08/07/1996	0219	F1	0/0	90K	10K
07/16/1997	1440	F2	0/0	1M	3M
07/16/1997	1500	F0	0/0	200K	
07/16/1997	1500	F0	0/0	5K	
07/16/1997	1509	F1	0/0	100K	
07/16/1997	1520	F0	0/0	1K	1K
05/31/1998	0020	F0	0/0	15K	0
04/18/2002	1813	F1	0/0	1.4M	32K
04/18/2002	1832	F0	0/0	0	0
07/30/2002	1822	F0	0/0	0	0
09/02/2002	1704	F0	1/0	0	0
09/02/2002	1735	F1	0/0	1.3M	0
06/04/2005	1527	F0	0/0	0	0
06/04/2005	1539	F0	0/0	0	0
06/04/2005	1706	F0	0/0	0	0
06/04/2005	1720	F0	0/0	0	0
06/04/2005	1918	F0	0/0	0	0
06/10/2005	1303	F0	0/0	0	0
06/07/2007	1501	F2	0/0	343K	0K
05/25/2008	2000	F0	0/0	0K	0K
07/29/2008	1527	F0	0/0	0K	0K
07/29/2008	1559	F0	0/0	0K	0K
04/10/2011	1708	F0	0/0	258K	0K
05/24/2012	1801	F0	0/0	0K	0K
		Totals	**19/0**	**16.7M**	**3.4M**

Source: NCDC and Marathon County

Marathon County
Wisconsin

All Hazard
Mitigation Plan

Map 12
Tornado Vulnerability



Legend

- Minor Civil Divisions
- Water
- Perennial Streams
- Population Concentration
- County
- Private
- Boy/Girl Scout Camp
- Youth Camp
- Mobile Home Parks
- Seasonal Housing Unit Pattern 1 Dot = 10
- Residential Population Unit Pattern 1 Dot = 10

N W E S

0 2 4 8 Miles

Source: NCWRPC, WI DNR
Marathon County Geo Services

This map is neither a legally recorded map nor a survey of the actual boundary of any property depicted. This drawing is a compilation of records, information and data used for reference purposes only. NCWRPC is not responsible for any inaccuracies herein contained.

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Tornado Vulnerability
Map 12

On April 10, 2011, a major storm moved across Wisconsin and produced 10 tornados during its transit. One tornado developed in the Town of Hamburg at 6:08 pm where it registered EF0, before moving northeast into Lincoln County and escalating to an EF3. Property damage in Hamburg totaled $258,000 due to damaged siding on a house and several barns which were blown down or lost their roofs. Major damages occurred in Lincoln County amounting to over 10 million dollars.

Most of the recent tornados reported in Marathon County registered EF0 and did damage to trees while on the ground but little of no significant property damage.

The most damaging recent tornado occurred on July 7, 2007 just after 4 pm in the Village of Kronenwetter near the Central Wisconsin Airport. The tornado was rated EF2 with estimated winds of 115 to 125 mph. This tornado did over $343,000 in property damage as it moved across eastern Marathon County. Ten residences, ten barns, and one business were damaged and many trees were snapped or uprooted during the tornado's 13 minute life. The same storm which generated this tornado produced four others, including a long-track tornado which passed through Shawano, Menominee, Langlade, and Oconto counties, reaching an intensity of EF3. Total damage from this severe thunderstorm which included five tornados, near record-size hail, and damaging winds was over $60 million.

The most recent tornado in which a person was injured took place in the City of Wausau on September 2, 2002. This F1 tornado did over $1.3 million in property damage. This tornado passed north of Wausau, staying on the ground for about 5 miles and destroying two barns, a garage, and a shed. It snapped hundreds of trees, heavily damaged 6 homes, and caused minor damage to 25 others. At least two vehicles traveling on Highway 51 were blown off the road and one driver was injured.

The most damaging tornado since 1950 occurred on August 31, 1977. This F1 tornado cut a 31 mile swath of destruction across Marathon County. First sighted near Fenwood, the tornado first touched down in the Town of Rib Mountain and skipped across the City of Wausau, periodically touching down then lifting up again. Total damage was estimated at $3.5 million including over a million dollars in damage to farms and over $1.5 million to residences. Ten people were injured during the event.

Since 1950, tornados in Marathon County have injured 19 people, but caused no fatalities. Damage caused by the 49 tornado events have amounted to an estimated $16.7 million in property damage and $3.4 million in damage to crops.

TORNADO VULNERABILITY ASSESSMENT:

Marathon County is a mix of urban, suburban, and rural communities. All of Marathon County is vulnerable to tornados; however centers of higher population are particularly vulnerable due to population density resulting in a greater threat to human safety and property damage. Map 12 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 3.4 percent of Marathon County's housing units are mobile homes, vulnerability to health and safety along with property damage is much greater. Research by the National Weather Service shows that about 40 percent of all deaths in the nation from tornados were in mobile homes, compared to 29 percent in stick-built homes, and 11 percent in vehicles.

While mobile homes are scattered throughout the County, many are concentrated in mobile home parks. Marathon County has approximately 27 mobile home parks, see Map 12 for locations. The Village of Weston has the highest number of mobile homes with 499 and the most parks with 4. The City of Wausau has about 183 mobile homes but only 1 park site identified. The total number of mobile homes in Marathon County is 1,987 according to 2013 American Community Survey figures.

In addition to mobile homes, there are many other areas vulnerable to tornados such as campgrounds. Like mobile homes parks, campgrounds are of concern in the County because people may be caught in severe conditions with little shelter available. The warmer months of the year have the highest occupancy in campgrounds, coinciding with the usual period of peak tornado activity. Map 12 also shows the location of campgrounds in the County.

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

- Community facilities – hospitals, schools, jails
- Public Service - police and fire departments
- Utilities - power lines, telephone lines, radio communication
- Transportation – debris clean-up, sign damage
- Residential – nursing homes, mobile homes/parks, garages, trees and limbs, roofs, siding, windows
- 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. However, in their mitigation survey results, Franzen and Stettin identified tornados as a major vulnerability concern. Stettin pointed to its mobile home park, and that the town is close to past tornado tracks as justification for their concern. Tornado was also a significant threat to many of the cities and villages in the local planning meetings, including: Athens, Brokaw, Elderon, Hatley, Marathon City, Spencer, Stratford, Unity, Wausau and Weston.

FUTURE PROBABILITY AND POTENTIAL DOLLAR LOSSES – TORNADOS:
With 49 historical occurrences over 63 years, the likelihood of a tornado hitting somewhere in Marathon County is .78 (78%) in any given year. However, yearly frequency is unpredictable, as historical data shows that three tornados occurred in 2008 and six in 2005, but many years have passed without a single tornado event. Marathon County has not gone more than five years without a tornado event, and often has multiple events in a single year. Table 14 indicates the probability of tornados of a specific magnitude.

Table 14 Probability of Intensity for any given Tornado in Marathon County

Tornado Scale	F/EF0	F/EF1	F/EF2	F/EF3	F/EF4	F/EF5
Number of Reported Tornados*	21	14	12	3	0	0
Probability of Occurrence	43%	29%	24%	4%	<1.0%	<1.0%

*Source: NCDC & NCWRPC – *Based on historical data from 1950 to 2013.*

Historic data is used to estimate potential future dollar losses due to tornado. Estimated damages resulting from various tornados in Marathon County range from $0 to $3.5 million. On average, Marathon County might expect damages of $50 thousand per tornado, based on the study period of 2004 to 2013. However, of all tornados in Marathon County since 1950, seven have had damages exceeding $1 million and fourteen did no property damage. Based on the most recent ten-year period, over the next ten-year period, tornado losses in Marathon County could be around $390 thousand.

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

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

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

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

HISTORY OF SEVERE THUNDERSTORMS IN MARATHON COUNTY:
The NCDC has reported 30 thunderstorm events for Marathon County between 2004 and 2013. These storms typically contain some form of heavy rain, strong winds, and lightning. About 33 recorded hail events, typically related to a severe thunderstorm, were listed during this time period. There were 12 lightning events and three high wind events recorded during this time period.

The most recent severe thunderstorm in Marathon County took place on September 1, 2013. During this event, thunderstorm winds downed approximately 30 trees on property near the Wausau Municipal Airport. The isolated damage was caused by thunderstorm winds that were estimated to be at least 70 mph. During this thunderstorm, nickel sized hail fell in the Town of Knowlton.

Several thunderstorms during the 2012 did property damage in Marathon County. A storm on October 25, 2012 downed two barns, heavily damaged a metal pole barn, toppled trees and power lines, and damaged two silos in the Town of Hull, doing approximately $100,000 in property damage. This same storm knocked a tree over onto a house in the Village of Athens and dropped half-dollar sized hail in the Village of Weston. A storm on September 4, 2012 produced winds of up to 80 mph and blew off part of a roof of a metal building in the City of Schofield, doing approximately $16,000 in property damage. A storm on June 19, 2012 downed a barn and picked up a pole shed and threw it against a house, causing $100,000 in damage. During this storm, more than 15,000 customers across central Wisconsin lost power due to downed trees damaging power lines.

The most destructive recent thunderstorm event took place on July 20, 2010. Severe thunderstorms across northeast Wisconsin produced winds estimated as high as 100 mph and golf ball sized hail, causing millions of dollars in damage, power outages to thousands, and injuring one person in Shawano County. In Marathon County, lightning struck a house near Stratford causing roof and electrical damage. Near Ingersoll, winds collapsed a barn, killing or severely injuring 50 head of milking cattle, and collapsing part of the milking parlor. Hail the size of a quarter was reported across the County. This storm did approximately $215,000 of property damage in Marathon County, and over $15 million across northeast Wisconsin.

Hail events usually coincide with thunderstorms and the most recent hail events in Marathon County are mentioned in the accounts of recent thunderstorms above. The largest hail in recent years fell on April 25, 2008 when strong thunderstorms produced baseball sized hail in the Village of Marathon City. This large hail caused damage to several vehicles and did $10,000 in property damage.

The most recent lightning event took place during a storm on August 21, 2013. This storm produced large hail and damaging wind gusts around 70 mph. A lightning strike sparked a fire which destroyed a duplex on Wausau's east side at approximately 6:30 pm. No one was injured in the blaze. Property damage was estimated at $99,000.

Two very expensive lightning events occurred during the past decade in Marathon County. On August 23, 2008, a lightning strike at 2:29 am generated a fire at the Gordon Aluminum Industries in Schofield. The fire destroyed a row of offices and generated enough heat to incapacitate nearby machinery. A blown gas main valve near the apparent source of the fire served to fuel the blaze. In addition to fire damage at the plant, many nearby materials were damaged as a result of the smoke, ash, and water used to douse the flames. This event did $8 million in property damage. On October 10, 2007, lightning stuck a power plant in the Wausau area, causing damage severe enough to keep it off-line for several months. In addition to the $8.3 million in damage to the plant, the utility company had to pay an additional $30 million to purchase power to replace the amount that would have been generated while repairs were made.

The most recent high wind event took place on May 9, 2011. Strong and gusty winds developed as an area of weakening showers and thunderstorms moved away from the region. Wind gusts as high was 65 mph in Weston and 61 mph at the Wausau Municipal Airport downed numerous trees and power lines in the area. Around 9,000 people in Wausau lost power. An uprooted tree broke a gas line and trees on power lines started several small fires in the area.

On October 23, 2007, the most damaging recent high wind event took place in Wausau. A wind gust of 64 mph knocked down a power pole on Bridge Street, causing 600 residents to lose power. This incident did approximately $500,000 in property damage.

SEVERE THUNDERSTORM VULNERABILITY ASSESSMENT:

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

Many thunderstorm events (without tornados) have caused substantial property and infrastructure damage, and have the potential to cause future damage. In order to assess the vulnerability of the Marathon County area to thunderstorms and related storm hazards, a review of 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

Based on review of the historic patterns of thunderstorms associated with high wind, hail, or lightening, there are no specific areas in the County that have unusual risks. The events are relatively uniform and a countywide concern. However, in their mitigation survey results, Cassel indicated that lightening and high wind and associated crop damage were major vulnerability concerns for their rural, farming community. In the local planning meetings, Athens, Kronenwetter, Maine, Mosinee and Wausau cited concern regarding straight-line winds from thunderstorms. Fenwood noted downed trees and power outages resulting from severe storms as their main concerns.

FUTURE PROBABILITY AND POTENTIAL DOLLAR LOSSES - SEVERE THUNDERSTORMS:
Based on historical frequency, Marathon County can expect 3 thunderstorm events per year on average. In other words, the probability is 1.0 or a 100% chance of multiple storms in a given year. The probability of a thunderstorm with damaging hail in Marathon County is also at 1.0 or 100% chance with about 3.3 incidents in a given year. The probability of a lightning event is also 1.0 or 100%, with an average of 1.2 events per year.

According to the NCDC, historic thunderstorm events with associated high wind and reported damages averaged $74,000 in property damage per incident. Historic thunderstorm events with associated hail that reported property damage averaged about $4,000. Historic thunderstorm events with associated lightning that reported property damage averaged $2.4 million. Losses in Marathon County associated with severe thunderstorms could approach $15 million over the next ten-year period.

HAZARD ANALYSIS: HAZARDOUS MATERIALS INCIDENTS / GROUNDWATER CONTAMINATION

BACKGROUND ON HAZARDOUS MATERIALS INCIDENTS / GROUNDWATER CONTAMINATION HAZARD:
A hazardous materials incident 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. Groundwater contamination occurs when contaminants reach levels that are considered unsafe for human and/or animal to be exposed to or drink. There are a variety of sources for such contaminants, including hazardous materials incidents. Preventing groundwater contamination is a principal concern of hazardous materials incident response and mitigation efforts. Further details on groundwater contamination hazard can be referenced in APPENDIX E.

Under the Emergency Planning and Community Right to Know Act (EPCRA), a hazardous material is defined as any chemical that is a physical hazard or health hazard [defined at 29 CFR 1910.1200(c)] for which the Occupational Health and Safety Administration (OSHA) requires a facility to maintain a Material Safety Data Sheet (MSDS). Under EPCRA there is no specific list of hazardous materials. An extremely hazardous substance (EHS) is defined as one of 356 substances on the United States Environmental Protection Agency list of extremely hazardous substances, identified at 40 CFR Part 355.

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

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

To meet the requirements of Title III of EPCRA, the LEPC developed the County Hazardous Materials Response Plan. This plan establishes policies and procedures for responding to hazardous material incidents. The LEPC is required to review, test, and update the Plan every two years. Methods for notification and reporting an incident are outlined in the plan. This plan also works in conjunction of the County Emergency Response Plan (ERP) 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 22 Regional Hazardous Materials Response Teams. The teams are divided into Task Forces: Northeast Task Force, Northwest Task Force, Southeast Task Force, and the Southwest Task Force. These Task Forces are then divided into Type I, Type II, and Type III teams, all with complimentary capabilities and training requirements. Marathon County is located in the Northeast Taskforce area with a Type II team at the City of Wausau (in partnership with Oneida County). The Regional Response Team may be activated for an incident involving a hazardous materials spill, leak, explosion, injury or the potential of immediate threat to life, the environment, or property. The Regional Teams respond to the most serious of spills and releases requiring the highest level of skin and respiratory protective gear. This includes all chemical, biological, or radiological emergencies. Marathon County also has its own local Hazardous Materials Response Team capable of responding to level B events.

Table 15: HAZMAT INCIDENTS / MARATHON COUNTY: 1/1/05 thru 12/31/14

SUBSTANCE	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Petroleum Products	1	4	3	1	10	9	6	7	11	30
Oils	0	0	0	0	1	3	1	0	0	0
Aviation Fuel	0	0	0	0	0	0	0	0	0	0
Agricultural Chemicals	1	0	0	1	0	1	1	0	0	0
Acid	0	0	0	0	0	0	1	0	0	0
Solvent	0	0	0	0	0	0	0	0	0	0
Chlorine	0	0	0	0	0	0	0	0	1	0
Ammonia	0	1	1	2	0	1	0	0	0	0
PCB's	0	0	0	0	0	0	0	0	0	0
Liquid Propane	0	0	0	0	0	1	0	0	0	0
Unk. White Substance	0	0	0	0	0	0	0	0	0	0
Other	6	1	2	0	4	2	5	2	6	2
FIXED SITE RELEASE	2	1	1	3	4	8	7	1	10	13
TRANSPORTATION	6	5	5	1	11	8	7	7	8	17
ILLEGAL DUMPING	0	0	0	0	0	1	0	1	0	2
Yearly Totals	**8**	**6**	**6**	**4**	**15**	**17**	**14**	**9**	**18**	**32**

HISTORY OF HAZARDOUS MATERIALS INCIDENTS IN MARATHON COUNTY:
The last major reported hazardous material problems involving Marathon County occurred on June 12, 2008, when 23 people were injured at Brokaw Paper Mill after a trucking company from out of the area poured Phosphoric Acid into a tank containing Sodium-Hypochlorite creating Chlorine gas. Most of those injured reported irritation to their eyes and respiratory systems. The paper mill was re-opened the next day. The Marathon County Hazardous Materials Team responded to the incident along with local fire departments and law enforcement.

Many other hazardous materials incidents have occurred but on a relatively small scale. They still, however, can cause considerable property damage and can have a high risk in terms of loss of human life or injury. The WDNR Bureau for Remediation and Redevelopment Tracking System or BRRTS maintains a listing of contaminated properties on-line. The BRRTS database identifies 317 environmental spills in Marathon County between 2005 and 2014. All of these spill sites have been cleaned and closed at this time.

HAZARDOUS MATERIALS INCIDENT VULNERABILITY ASSESSMENT:
In 2014, the Marathon County LEPC participated in a detailed Hazardous Materials Commodity Flow Study with Langlade, Lincoln and Oneida counties. This Study inventoried the risk factors that make hazardous materials incidents a keen concern in Marathon County, which are reviewed below:

Fixed Facilities
The Commodity Flow Study identified that facilities within Marathon County utilize 43 substances meeting EPCRA (Tier II) reporting requirements and are considered a controlled material by US DOT. These are sites that have hazardous materials present at any one time in amount equal to or exceeding the chemical-specific threshold planning quantity (TPQ).

Highway
Trucks carry the bulk of hazardous materials to and through the County. Regular shipments of gasoline, propane, acid and other substances are delivered across Wisconsin. Every roadway in the County is a potential route for hazardous material transport, but major transportation routes are Interstate 39/USH 51, STH 13, STH 29, STH 52, STH 97, and STH 153 (see Map 5).

The Commodity Flow Study monitored traffic at key locations and counted trucks with Hazardous Warning Placards. The locations of the intersections and the total number of trucks with hazardous materials are seen in Table 16.

Table 16 – Number of Trucks Carrying Hazardous Materials at Intersections in County	
Intersection	**# of Trucks**
Hwy 51 N. of Hwy 29	8
I39 S. of Hwy 29	16
Hwy 29 at Cty X	11
Hwy 52 at Cty 52	2
Hwy 29 at Hwy 13 (N.)	5
Hwy 29 at Hwy 13 (S.)	6
Hwy 97 at Hwy 153	7
Total Observations	55

Source: Marathon Co. LEPC, 2014.

Railroad

The Canadian National (CN) Railroad – another mode for the transportation of hazardous material, provides 99 miles of track in Marathon County (see Map 5) with a rail yard located on the south side of the City of Wausau. Although trucks transport most of the hazardous materials in the state and the U.S., rail can carry significantly larger loads of hazardous materials. The Commodity Flow Study identified the hazardous materials being transported by rail through Marathon County including: gases; flammable and combustible liquids; flammable solids, spontaneously combustible materials, dangerous when wet/water reactive materials; and miscellaneous hazardous materials/products, substances or organisms.

Pipeline

There are several pipelines traversing Marathon County: the TransCanada carries natural gas through the central and eastern parts of the County, Enbridge carries crude oil through the southwest corner, and the former Magellan petroleum line runs through the western side to a storage terminal in Kronenwetter, however, the pipe and terminal are currently dormant pending re-opening or sale by the company (see Map 6).

A hazardous materials incident can have far reaching impacts, however, those communities which are traversed by major highways, rail or pipeline are susceptible to a higher risk, refer to Maps 5 and 6. In particular, neighboring towns of Hamburg and Rib Falls identified hazmat incidents as a major vulnerability concern. Both towns cited, in their mitigation survey results, daily transport of hazardous agricultural materials such as anhydrous ammonia and liquid manure from large farms in the area. A hazardous materials incident was probably the most cited concern in the local planning meetings, as identified by: Brokaw, Kronenwetter, Maine, Marathon City, Mosinee, Rothschild, Schofield, Spencer, Wausau, and Weston. Typically, they referenced the high volume of dangerous chemicals moving by road, rail and pipeline across the county.

FUTURE PROBABILITY & POTENTIAL DOLLAR LOSS – HAZARDOUS MATERIALS INCIDENTS:
Based on the historic data presented here (frequency of past events), Marathon County can expect about 12.9 minor hazardous material releases each year on average, which is a probability of 1.0 or a 100 percent chance in a given year.

There is insufficient data to determine the probability of a major incident. However, with the number of verified trucks carrying hazardous materials, a major industrial railway and a natural gas pipeline moving through the County, the chances appear to be significant for a catastrophic hazardous materials incident occurring at some point in Marathon County.

As with the probability, there is limited historic data to base an estimate of potential dollar losses from HazMat incidents. However, based on occurrences statewide, damages range from $100 to $10.5 million per incident. The higher end of the range is not impossible in Marathon County.

Regional HAZMAT Exercise

HAZARD ANALYSIS: FLOODING/DAM FAILURE

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

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

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

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

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

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

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

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

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

Major floods in Marathon County tend to occur in the spring when melting snow adds to normal runoff and in summer or early fall after intense rainfalls. Flooding occurs in the spring due to snowmelt and frozen soil that can't absorb the water and can be compounded when coinciding with excessive rainfall. This build up continues until the river or stream overflows its banks, for as long as a week or two and then slowly recedes inch by inch. The timing and location of this type of flooding is fairly predictable and allows ample time for evacuation of people and protection of property.

Flooding is a significant hazard in Marathon County, particularly because the Wisconsin River flows through it. As described in Part II, there are 356 rivers and streams in Marathon County within 22 watersheds.

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

There are 132 dams in Marathon County, according to the WDNR which tracks information for all dams in the State of Wisconsin. These dams serve many useful purposes including agricultural uses, providing recreational areas, electrical power generation, erosion control, water level control and flood control. Of those 132, 13 are classified as large dams (see Table 17). DNR defines large dams as those which either have a structural height of 6+ feet and an impound volume of at least 50 acre-feet or have a structural height of 25+ feet and an impound volume of at least 15 acre-feet. The Wisconsin DNR regulates all dams on waterways to some degree, however the small dams are not stringently regulated for safety purposes. The federal government has jurisdiction over large dams that produce hydroelectricity.

Table 17 Large Dams in Marathon County

Name	Next City Down from Dam	Miles Next City is Down from Dam	Hazard Rating
Wausau	Wausau	0	High
Winding Creek Rearing Pond	None	0	High
Rothschild	Rothschild	0	Significant
Big Eau Pleine	Knowlton	5	Low
Black Creek	Athens	No data	Low
Brock-Clint	None	-	Low
Brooks and Ross	Schofield	No data	Low
Del Fatti Construction No.1	None	-	Low
Kopp	None	-	Low
Lloyd Keller	Stratford	1	Low
McMillan Marsh	None	-	Low
Mosinee	Mosinee	0	Low
Winding Creek Diversion	None	-	Low

Source: WisDNR Dam Database and NCWRPC.

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, weakening caused by burrowing animals or vegetation, surface erosion, vandalism or a combination of these. Dam failure can happen with little warning resulting in loss of life and significant property damage in an extensive area downstream of the dam.

The WDNR assigns hazard ratings to large dams within the state. When assigning hazard ratings, two factors are considered: existing land use and land use controls (zoning) downstream of the dam. Dams are classified into three categories that identify the potential hazard to life and property downstream should the dam fail. A high hazard indicates that a failure would 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. Marathon County has 13 large dams, of which two have a high hazard rating and one a significant hazard rating.

HISTORY OF FLOODING IN MARATHON COUNTY:

Flooding was the principal cause of damage in five of eight Presidential Disaster Declarations in Marathon County from 1971 to 2013. The most recent declaration as of this Plan occurred in 2010, when an excessive rainfall event took place across north central Wisconsin on September 22 and 23. Flash flooding was common as most areas of central Wisconsin received between three and five inches of rainfall. In Marathon County, moderate flooding occurred on the Wisconsin River, Big Eau Pleine River, and Big Rib River, but the rivers fell below flood state by late evening on the 25th. Roads were washed out all across Marathon County, accounting for over $330,000 damage to roads. Twenty-seven residents were evacuated from nine homes, mainly along River Road in Marathon City, due to flooding on the Big Rib River, and basements of all homes along River Road were flooded. The flooding caused minor damage to four homes, major damage to one, and destroyed three others. Property damage to these homes totaled approximately $400,000.

On July 19, 2007, western Marathon County was hit with flash flooding. Thunderstorms moving across central Wisconsin produced damaging winds, hail, and flooding. The torrential rainfall in western Marathon County resulted in water, 8 to 10 inches deep, flowing over State Highway 13 near Abbotsford.

In March, 2007, flooding was seen across northern Wisconsin. Early March saw 10 to 20 inches of snow cover, but above normal temperatures during the second week of the month resulted in a 5-day snow melt. Runoff from the melted snow, along with some rainfall, caused some rivers to rise above flood stage for less than a day. In Marathon County, the Big Eau Pleine River flooded near Stratford, causing flooding of mainly agricultural land.

Widespread flooding across all of Marathon County occurred in June 2002. Thunderstorms lingered for several hours across central Wisconsin, dropping heavy rain during the night of June 21-22. Over five inches of rain fell during a three hour period across the affected areas. A trailer park in Stratford had to be evacuated due to high water, and basements were flooded in homes all across central Wisconsin. Several bridges were out due to the flooding and roads were washed out in numerous locations. One town in Marathon County had 40 miles of roads that needed to be resurfaced. The June and August flood events in Marathon County resulted in Presidential Disaster Declarations.

Extreme flooding can also result in dam failures. There are no recent incidences of dam failure. Historic dam failures in Marathon County took place in 1911, 1912 and 1941. In 1911, the dam at the Marathon Paper Mill in Rothschild had just been completed, creating Lake Wausau. Shortly after completion, a hole was blown in the dam in an attempt to save the mill from flooding. After a period of heavy rains in 1912, the Brokaw Dam broke, causing flooding and bridge damage in the City of Wausau. The newly reconstructed Rothschild Dam was again blown to relieve pressure behind it. In 1941, heavy rains also fell causing a similar situation at Brokaw and Rothschild dams. The Brokaw dam was never rebuilt after this event. No other reports of dam failure have been reported since 1941.

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

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

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

One of the first reports to reference in assessing vulnerability to structures during flooding is the Wisconsin Repetitive Loss Report. The Repetitive Loss Report provides information to the status of repetitive loss properties by community. FEMA classifies a repetitive loss structure “when more than one flood insurance claim of at least $1,000 is made within a ten-year period”. The information is used as a floodplain management tool and to supplement information provided by communities for flood mitigation grants administered by WEM. According to the report, there are just three repetitive loss structures currently listed within Marathon County, one is in the Village of Marathon City and two are in the Town of Stettin. Two of the structures are residential and the other is commercial. Data is limited to protect the privacy of owners.

Table 18a Improvement Values for Structures In Floodplains - Incorporated Areas			
Municipality**	**Structures in Floodplains**	**Median Value**	**Total Value**
Marathon County Total	3,565	$ 142,900.00	$ 509,438,500.00
Abbotsford city*	10	$ 57,000.00	$ 570,000.00
Colby city*	4	$ 89,600.00	$ 358,400.00
Marshfield city*	0	$ 100,000.00	$ -
Mosinee city	39	$ 114,900.00	$ 4,481,100.00
Schofield city	143	$ 102,700.00	$ 14,686,100.00
Wausau city	917	$ 113,800.00	$ 104,354,600.00
Athens village	19	$ 106,400.00	$ 2,021,600.00
Birnamwood village*	0	-	$ -
Brokaw village	15	$ 168,800.00	$ 2,532,000.00
Dorchester village*	0	-	$ -
Edgar village	36	$ 127,000.00	$ 4,572,000.00
Elderon village	5	$ 74,300.00	$ 371,500.00
Fenwood village	0	$ 97,500.00	$ -
Hatley village	31	$ 152,400.00	$ 4,724,400.00
Kronenwetter village	331	$ 165,400.00	$ 54,747,400.00
Marathon City village	62	$ 138,000.00	$ 8,556,000.00
Rothschild village	624	$ 129,800.00	$ 80,995,200.00
Spencer village	0	$ 101,400.00	$ -
Stratford village	3	$ 124,300.00	$ 372,900.00
Unity village*	0	$ 87,300.00	$ -
Weston village	30	$ 143,500.00	$ 4,305,000.00
*Source: American Community Survey 2014 & NCWRPC 2016. *Denotes split between two counties. **See pg 1-5 re: Maine's T/V transition.*			

Since there are limited repetitive loss structures, structures within floodplains were analyzed to get a more accurate picture of the potential flood vulnerability in the County, see methodology outlined below. The floodplain boundaries within Marathon County are shown on Map 4. Table 18 shows the number of structures in each municipality identified as "vulnerable to flooding" according to proximity to floodplains. There were a total of 3,565 structures identified in the designated floodplain boundaries, see Map 13. Estimated value of structures located with the floodplain in Marathon County is over $500 million.

Methodology – Structures within Floodplains:

1. *NCWRPC downloaded the individual DFIRM floodplain maps from the FEMA website into a GIS coverage for the County.*
2. *A building point cover was created from NCWRPC and County GIS data.*
3. *The floodplain coverage was then combined with the building point coverage to identify those structures within the floodplain boundary.*
4. *Total structures with the floodplain were then tabulated by municipality.*
5. *Median value data from the US Census was used to estimate total value for the identified vulnerable structures by municipality.*

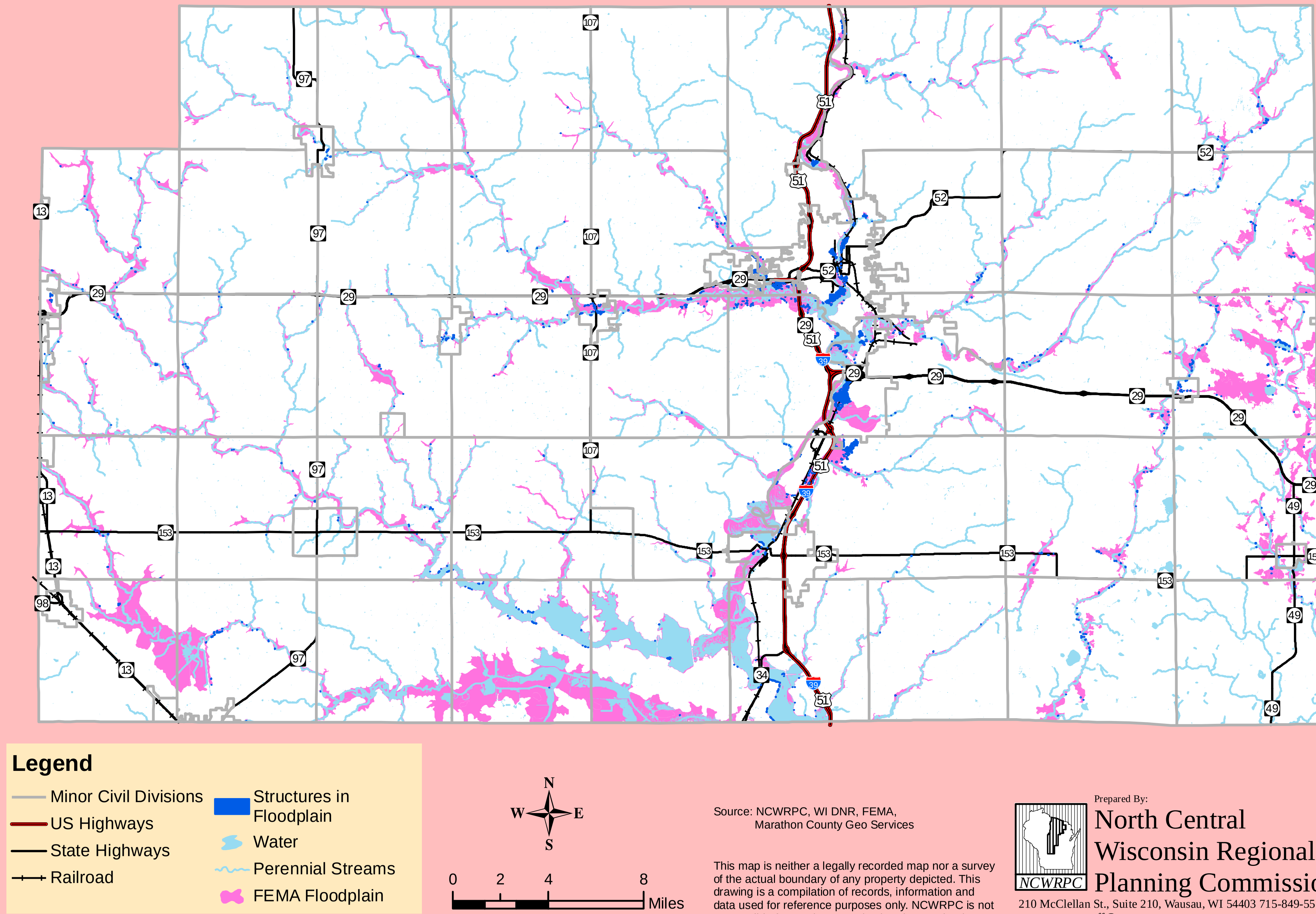
Table 18b Improvement Values for Structures In Floodplains - Unincorporated Areas			
Municipality	**Structures in Floodplains**	**Median Value**	**Total Value**
Bergen town	20	$ 223,400.00	$ 4,468,000.00
Berlin town	2	$ 156,900.00	$ 313,800.00
Bern town	1	$ 147,100.00	$ 147,100.00
Bevent town	48	$ 155,600.00	$ 7,468,800.00
Brighton town	21	$ 166,500.00	$ 3,496,500.00
Cassel town	20	$ 181,300.00	$ 3,626,000.00
Cleveland town	32	$ 180,900.00	$ 5,788,800.00
Day town	1	$ 171,000.00	$ 171,000.00
Easton town	18	$ 177,700.00	$ 3,198,600.00
Eau Pleine town	9	$ 143,500.00	$ 1,291,500.00
Elderon town	42	$ 146,600.00	$ 6,157,200.00
Emmet town	8	$ 173,900.00	$ 1,391,200.00
Frankfort town	21	$ 126,100.00	$ 2,648,100.00
Franzen town	5	$ 140,300.00	$ 701,500.00
Green Valley Town	48	$ 205,600.00	$ 9,868,800.00
Guenther Town	8	$ 192,500.00	$ 1,540,000.00
Halsey town	4	$ 165,200.00	$ 660,800.00
Hamburg town	3	$ 156,300.00	$ 468,900.00
Harrison town	43	$ 113,700.00	$ 4,889,100.00
Hewitt town	9	$ 182,200.00	$ 1,639,800.00
Holton town	28	$ 143,800.00	$ 4,026,400.00
Hull town	26	$ 144,400.00	$ 3,754,400.00
Johnson town	2	$ 132,600.00	$ 265,200.00
Knowlton town	89	$ 215,700.00	$ 19,197,300.00
McMillan town	18	$ 227,800.00	$ 4,100,400.00
Maine*	44	$ 183,100.00	$ 8,056,400.00
Marathon town	33	$ 174,800.00	$ 5,768,400.00
Mosinee town	15	$ 186,700.00	$ 2,800,500.00
Norrie town	161	$ 156,900.00	$ 25,260,900.00
Plover town	43	$ 133,600.00	$ 5,744,800.00
Reid town	46	$ 153,100.00	$ 7,042,600.00
Rib Falls town	17	$ 202,000.00	$ 3,434,000.00
Rib Mountain town	120	$ 176,100.00	$ 21,132,000.00
Rietbrock town	10	$ 148,600.00	$ 1,486,000.00
Ringle town	53	$ 185,700.00	$ 9,842,100.00
Spencer town	11	$ 181,700.00	$ 1,998,700.00
Stettin town	140	$ 218,100.00	$ 30,534,000.00
Texas town	37	$ 163,100.00	$ 6,034,700.00
Wausau town	15	$ 169,300.00	$ 2,539,500.00
Weston town	8	$ 184,200.00	$ 1,473,600.00
Wien town	17	$ 162,500.00	$ 2,762,500.00

*Source: American Community Survey 2014 & NCWRPC 2016. *See pg 1-5 re: Maine's T/V transition.*

Marathon County
Wisconsin

All Hazard
Mitigation Plan

Map 13
Flood Vulnerability



Source: NCWRPC, WI DNR, FEMA, Marathon County Geo Services

This map is neither a legally recorded map nor a survey of the actual boundary of any property depicted. This drawing is a compilation of records, information and data used for reference purposes only. NCWRPC is not responsible for any inaccuracies herein contained.

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Flooding in Marathon County is often felt beyond the floodplain boundaries due to factors such as topography and high groundwater. The drainage (surface runoff) network in the County is poorly defined. During periods of extended rainfall and/or snowmelt, a general condition of flooding exists throughout the communities. During this time, basements and roadways (including surfaces, culverts and bridges) can suffer considerable damage. Flooding has inundated or washed-out roads for varying periods of time. Such interruptions in the County transportation network cause travel delays through detours, and businesses are often impacted by restriction in access.

Businesses can be forced to close due to septic system problems and other issues resulting from flooding and the high water table. Tourism is an important industry in the County and several campgrounds, recreational facilities, and restaurants may be affected by flooding.

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

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

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

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

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

The areas considered to have a higher risk for impact from flooding include those communities with structures in floodplains as shown in Map 13. Flooding was the most commonly cited concern for the rural areas of the County. In their mitigation survey results, Brighton, Emmet, Johnson, Knowlton, McMillan, Plover, Reitbrock, Rib Falls, Ringle and Stettin identified flooding as a major vulnerability concern. Some towns referred to areas along the Eau Claire, Little Eau Pleine, Rib and Wisconsin Rivers as being prone to flooding. Emmet cited concerns about road washouts and culverts unable to handle heavy rains that fall in a short period of time. Flooding was also a common concern in the local planning meetings with the urban areas of the County. Brokaw, Edgar, Fenwood, Kronenwetter, Maine, Marathon City, Schofield, Stratford and Wausau all cited flooding as a significant hazard concern. A wide-range of flood related issues were identified.

FUTURE PROBABILITY AND POTENTIAL DOLLAR LOSSES – FLOOD:
Based on the historic data presented here (frequency of past events - 2004 to 2013), Marathon County can expect a notable flood event about every year on average. This equates to a probability of 0.9 or about a 90 percent chance in a given year.

Due to the significant number of dams, dam failure is an important hazard event to plan for in Marathon County. However, based on past experience, the actual probability of a major dam failure is very low. Based on historic flood frequency data, probability of dam failure might be estimated at (less than) 0.02 or 2 percent chance in a given year.

Historic data is again used to estimate potential future dollar losses due to flood. On average, Marathon County might expect property and crop losses of $45,500 on average, per flood occurrence based on the study period of 2004 to 2013. Over the next ten-year period, flood losses in Marathon County could approach $410,000. However, there is always the chance that a more significant flood will occur like in 2002 or 2010 with much greater potential for damage.

HAZARD ANALYSIS: DROUGHT / EXTREME HEAT

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

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

Extended periods of warm, humid weather can create significant risks for people, particularly the elderly who may lack air conditioning or proper insulation or ventilation in their homes. Animals are also at risk during extended periods of heat and humidity. The National Weather Service issues a Heat Advisory when the Heat Index ranges from 105 to 114 degrees daytime and remains at or above 80 degrees at night, during a 24-hour period. The heat index combines the effects of heat and humidity to better reflect the risk of warm weather to people and animals. When heat and humidity combine to reduce the amount of evaporation of sweat from the body, outdoor activity becomes dangerous even for those in good shape. The index measures the apparent temperature in the shade. People exposed to the sun would experience an even higher apparent temperature. A heat index of 105 is considered dangerous and prolonged exposure can result in heat stroke, exhaustion and cramps. People should be reminded to use extreme caution when the heat index is between 95 and 105. A heat index of 95 occurs when the temperature is 90 degrees and the relative humidity is 50 percent.

HISTORY OF DROUGHT / EXTREME HEAT IN MARATHON COUNTY:
NCDC reports indicate that much of Wisconsin including Marathon County was under drought conditions between 2004 and 2013. At one point, the Governor had declared a state of emergency to get assistance to the state's agricultural sectors. The extended dry conditions posed serious challenges for farmers from drought stressed crops to issues providing feed for livestock.

Beginning in 2013, improved rainfall across the Midwest gradually relieved the drought in Wisconsin. Nationally, however, what is being tagged at the 2012-2015 North American Drought has affected over 80% of the U.S. as well as parts of Canada and Mexico, and drought continues to affect parts of the country. This drought is on track to exceed the 1988-89 drought, which also affected Wisconsin/Marathon County, as the costliest natural disaster in U.S. history.

Marathon County was one of 64 counties that were included in a Presidential Emergency Declaration for the drought of 1976-1977. Statewide agricultural losses during this drought were set at $624 million. Marathon County suffered fire losses in local forests and farmers suffered great loss of crops. A number of wells in the County went dry and financial assistance was needed to drill new ones. Federal monies totaled only 19% of losses attributed to the drought.

Despite all this drought, there is only one incidence of excessive heat listed by the NCDC for Marathon County between 2004 and 2013. The last excessive heat event reported by the NCDC was in 2012 when a hot air mass settled over Wisconsin in early July, bringing highs of 100 degrees or hotter to central

Wisconsin from July 3rd through July 6th. Relative humidities were low, but heat indices still managed to reach the 100 to 110 range.

DROUGHT / EXTREME HEAT VULNERABILITY ASSESSMENT:
Droughts can have a dramatic effect on the farms and other agricultural activities as well as forestry enterprises located throughout Marathon County. With forestry and agriculture being important sectors of the County's economy, droughts can 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.

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

Another significant area of impact from drought includes the tourism sector of the economy. As water levels go down, there is less tourism seen in the County. The past drought conditions reduced water levels on many lakes and streams across the County.

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 - forest products
- Agricultural - crops, livestock

The areas most susceptible to drought conditions would be agricultural towns. Agricultural land is scattered throughout the County but is heavily concentrated in the western half of the County, see Map 2. In their mitigation survey results Stettin identified drought as a significant vulnerability concern due to the impact it would have on its farming community.

According to the Wisconsin Emergency Management, excessive heat has become the most deadly hazard in Wisconsin in recent times. Extreme heat can happen anywhere within Marathon County affecting everyone, however the elderly and young are the ones with the highest risk of getting heat related injuries, which can lead to death. Ways to prevent injuries include wearing light-colored clothing, drink plenty of water, slow down, and do not stay in the sun for too long.

FUTURE PROBABILITY AND POTENTIAL DOLLAR LOSSES – DROUGHT/EXTREME HEAT:
Based on the historic data presented here (frequency of past events), Marathon 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 from two previous major droughts for which figures are available can give some indication of potential impact. Those droughts resulted in losses of $9.6 million (1976-77) to $18 million (1987-88) per county in Wisconsin on average.

Normally, central Wisconsin is known for its cold winters, however, extreme heat waves will affect Marathon County in the future. Marathon County can expect a heat wave once about every 10 years for about a 10 percent chance in a given year based on the historic data presented.

HAZARD ANALYSIS: FOREST FIRE / WILDFIRE

BACKGROUND ON FOREST FIRE / WILDFIRE HAZARD:
A Forest Fire or Wildfire is an uncontrolled, wild, or running fire occurring on forest, marsh, field, cutover, or other lands or involving farm, city, or village property and improvements incidental to the uncontrolled, wild, or running fire occurring on forest, marsh, field, cutover, or other lands.

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

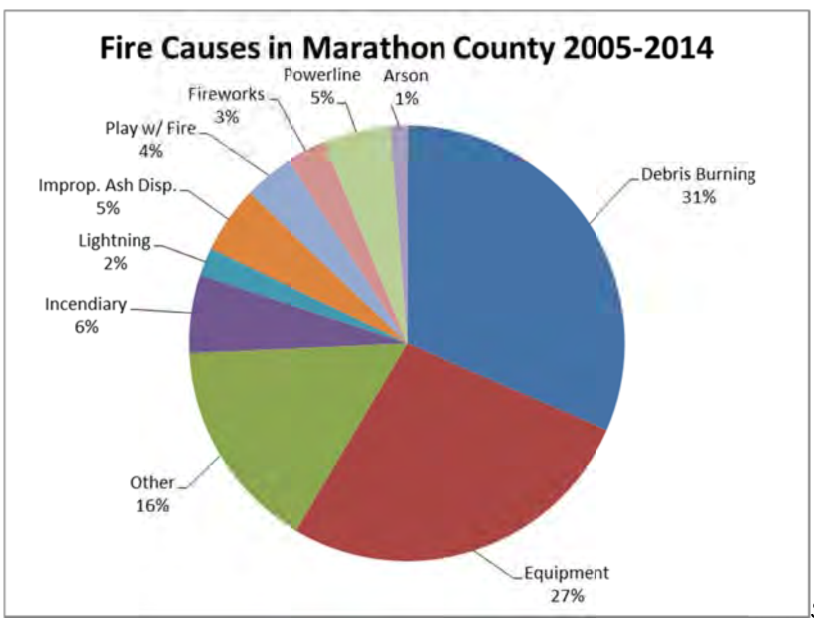
HISTORY OF FOREST FIRE / WILDFIRE IN MARATHON COUNTY:
The Wisconsin DNR maintains a database of wildfire data. This data represents the most comprehensive source of information for analyzing fire trends in an area such as Marathon County. WisDNR staff provided data for the 10-year span from 2005 through 2014. Between 2005 and 2014, there was an average of 24 fires that have burned 42 acres, annually. The typical fire in Marathon County burns about 1.75 acres. NFIRS data for the same period indicates 320 wildland fires, see Table 19. This corresponds to an additional 80 fires, or 8 per year on

average, occurring on lands outside the WisDNR's fire coverage area. NFIRS indicates that 30 of the 320 fires reported exceeded one acre in area burned.

Table 19	NFIRS Reported Fires in Marathon County 2005 - 2014		
Incident Code	**Incident Description**	**Frequency #**	**Frequency %**
140	Natural vegetation fire, other	33	10.31%
141	Forest, woods, or wildland fire	40	12.50%
142	Brush, or brush & grass mix fire	107	33.44%
143	Grass fire	140	43.75%
	Total	320	100%
National Fire Incident Reporting System and WisDSPS, 2016.			

April is the leading month for fire in Marathon with 39% of the total number of fires between 2005 and 2014. No fires have occurred in the months of January, February or December in Marathon County over this time period.

The largest wildfire that has occurred during this 10-year period was on October 23, 2008 in the Town of Green Valley when some debris burning spread to 150 acres. This is still relatively minor compared to the 2005 Cottonville fire, 2 counties south of Marathon which burned over 3,400 acres and 90 structures or the 2012 Duck Lake Fire just across the WI/MI-border in the Upper Peninsula which consumed 21,000 acres and 136 structures. More recently, the largest fire noted within the last 5 years in Marathon burned only 20 acres on March 23, 2010 in the Town of Harrison when workmen accidently ignited a wildfire while using a cutting torch.



Source: WisDNR

The chart below breaks down the causes of wildfire within Marathon County between 2005 and 2014 as classified by the WisDNR. The principle cause of wildfire in the Marathon County and Wisconsin as a whole is debris burning which resulted in 76 or 31% of wildfires within the County. Equipment is the next leading category at 27% and includes vehicle, motor and other machinery related causes except railroad. The "Other" category includes a variety of factors such as campfires, smoking, railroad, power lines, and structure fires. Arson resulted in about 1% of wildfires. Lightning, the only natural cause of fire, was responsible for only 5 of the fires or about 2%.

FOREST FIRE / WILDFIRE VULNERABILITY ASSESSMENT:
Marathon County has approximately 387,000 acres of woodlands, or about 38 percent of the total land area, scattered throughout the County. In addition, the County has about significant area of "open lands", typically grasslands or brushy areas. The potential for property damage from fire increases each year as more development occurs in and around these areas.

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

The WDNR has completed a statewide evaluation of fire risk, referred to as the CAR or Communities At Risk assessment. This assessment uses extensive DNR geo-databases to analyze and map hazardous woodland fuel types and the degree of the intermixing of development with wildlands. The maps identify the level of risk for each community on a scale of very high, high, moderate, or low, and also have a community of concern designation, see Map 14. There are scattered areas of very high risk around the County. However, the WisDNR has identified The Towns of Bevent, Knowlton, Mosinee, Rib Mountain, Weston, and the Village of Kronenwetter as having high risk for wildfire. Maine and the Towns of Marathon, Reid, Ringle, Texas, and the Village of Weston are communities of concern, according to the WisDNR assessment.

Cottonville Fire, 2005

In addition to Knowlton, Ringle and Plover, the Towns of Harrison, McMillan and Rib Falls identified wildfire as a significant vulnerability concern in their mitigation survey results. In Knowlton, they cited a lot of "plantation pines" as their main concern. Similarly, Ringle noted that the town has a lot of woodland, but also a large fire having occurred in the past. Plover indicated, "A good portion of our Town is in DNR land and forest crop which means a lot of public use. These are wooded and meadow lands vulnerable to fire." During the local planning meetings, it was noted that wildfire can also impact incorporated areas. The City of Wausau's Fire Department has already responded to three wildfires within the city limits as of the May 17 meeting date. Wildfire is one of the Village of Spencer's major hazard concerns. Fires can occur in the swamp north of Spencer, and prevailing winds drive the fires toward the Village. There is no fire break between the Village and the marsh. The situation is currently exacerbated by extensive marsh blight.

WisDNR reports indicate that the loss of buildings in a wildfire is often due, in part, to a lack of access (long, narrow driveways) and a lack of defensible space (free of fuels that can transmit fire to the structure and allow firefighters to safely operate).

Campgrounds are also a concern because of campfires. The WisDNR has identified nine campgrounds with 646 campsites in various campgrounds across the County as well as seven educational/recreational camps with capacity for 134 individuals. Locations of the campgrounds and camps are shown on Map 12.

FUTURE PROBABILITY AND POTENTIAL DOLLAR LOSSES – FOREST FIRE / WILDFIRE:

Forest and wild- fires are relatively common occurrences in Marathon County. Over the 10 year period of analysis, there has been an average of 24 fires per year in the County. In other words, the probability is 1.0 or 100% chance of wildfire each year. However, these fires are typically contained rapidly and remain small, so that each has a minimal impact. The probability of a fire becoming more substantial, like Cottonville or Duck Lake, might be estimated at (less than) 1% per year or 0.01.

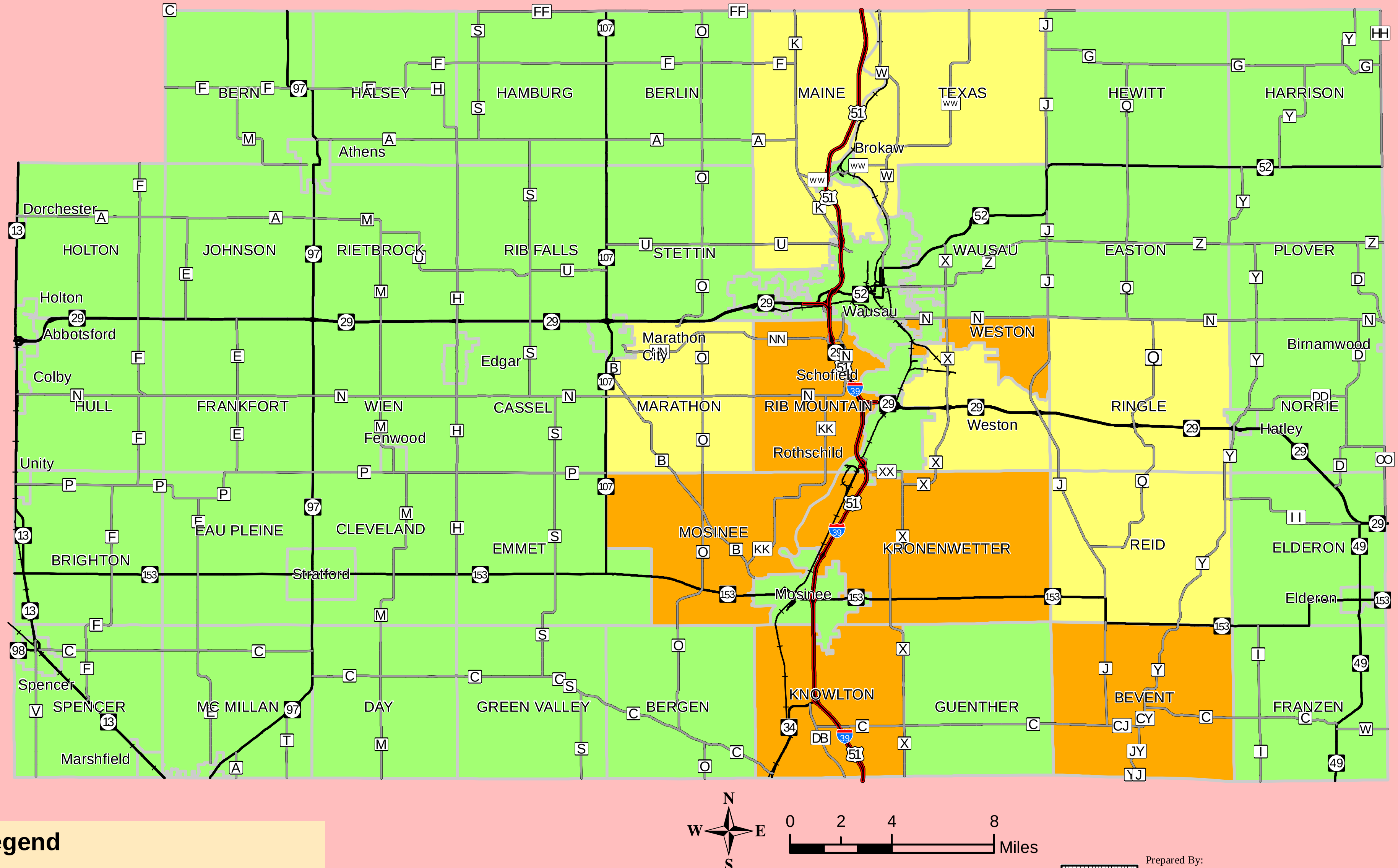
Because of the relatively small impact of typical individual fires in the County, loss data is not tracked. This makes it difficult to develop an estimate of potential future dollar losses. However, with 24 fires per year, the County can anticipate loss potential to approach or exceed the $1.4 million in damages of the Cottonville Fire.

Aerial Surveillance Fully Replaces Fire Tower Use in 2016.

Marathon County
Wisconsin

All Hazard
Mitigation Plan

Map 14
Wildfire Risk



Legend

- Minor Civil Divisions
- US Highways
- State Highways
- County Highways

Wildfire Risk

- High
- Concern
- Low

Source: NCWRPC, WI DNR, Marathon Co.

This map is neither a legally recorded map nor a survey of the actual boundary of any property depicted. This drawing is a compilation of records, information and data used for reference purposes only. NCWRPC is not responsible for any inaccuracies herein contained.

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Map 14
Wildfire Risk

INTRODUCTION

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

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

- Benchmark Progress of Previous Plan 2011-2016
- Review of Mitigation Goals
- Prioritize Identified Mitigation Strategies
- Establish Mitigation Action Plan

PROGRESS REPORT 2011 - 2016

Table 20 identifies the completed, deleted or deferred mitigation actions from the previous update in 2011. For each action recommendation, a brief status report is provided which describes the progress made on that measure. If an item remains unchanged, a description is provided as to why no action has been taken and whether that item is deferred to the new plan.

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

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

TABLE 20 BENCHMARK FOR PROGRESS 2011 - 2016 PLAN			
2011-2016 Plan Measure	***Progress Report***	***Original Status***	***New Status***
Obtain up-to-date portable radios...(C. Mosinee)	Completed. New radios were needed to comply with federal narrowbanding requirements.	2011	*Completed*
Tabletop training on a major disaster...	County EM regularly coordinates tabletop exercises.	Unspecified	*Completed*
Obtain battery back-up for public warning system (V. Athens)	Completed. Reported as "done".	Unspecified	*Completed*
Reduce number of neighborhoods served by only one road (V. Kronenwetter)	Limited progress - budget constraints.	On-going	On-going
Rebuild Plaza Rd Bridge...(V. Kronenwetter)	Completed. Reported as "done".	Unspecified	*Completed*
Evaluate potential evacuation routes for Happy Hollow Rd area (V. Kronenwetter)	Limited progress to date. Needs remain. Combine with similar / related recommendation, above.	On-going	*Combined*
Increase local law enforcement capabilities...	Completed. Reported as "done".	On-going	*Completed*
Incident command training and practice...	Training coordinated in 2010. Area would benefit from regular, coordinated training.	On-going	On-going
Establish local networks of...monitors for the elderly and disabled living alone	Limited progress. Identified as an area of need in outreach to towns.	Unspecified	On-going
Obtain VFH Narrow Band...	Completed. Compliance with federal narrowbanding requirements.	Unspecified	*Completed*
The use of translators and/or printed materials in Hmong and Spanish	Limited progress. Still a need based on high percentage of limited English language proficiency residents.	Unspecified	On-going
Develop debris management plan	Limited progress. Still a need.	2011	2018
Continue training related to long-term power failure	Multi-county exercise in 2011 - limited progress since. Still a need.	Unspecified	On-going
Promote planting of windbreaks/living snow fences	Limited progress. Still a need.	On-going	On-going
Review / Revise local building codes...snow load	Progress varies by community. Remains advisory recommendation.	2016	2020
Routine trimming of branches / vegetation near power lines...	On-going effort. Applies to several hazard types -Move to "All" category.	On-going	On-going
Routine monitoring of power systems; implement backup...	Progress varies by community. Still a need. Applies to several hazard types - move to "All" category.	On-going	On-going
Obtain better snow plowing equipment (T. Texas)	No indication this remains a viable recommendation. - Should be incorporated into regular budgeting for life-cycle replacement.	Unspecified	*Deleted*

TABLE 20 *Continued*			
2011 - 2016 Plan Measure	***Progress Report***	***Original Status***	***New Status***
Work with DOT to manage ice on bridges along Hwy 51/29...	Changing procedures and evolving de-icing technology need ongoing attention.	Pending	On-going
Obtain new utility and brush trucks (V.Kronenwetter)	Completed. Reported as "done".	Unspecified	*Completed*
Work with utility companies to implement buried power lines...	On-going process.	On-going	On-going
Identify and inform the public of shelters; identify areas with deficient safety shelters	Limited progress. Still a need. Applies to several hazard types - move to "All" category.	On-going	2021
Develop/review mobile home guidelines and ordinances...	Progress varies by community. Remains advisory recommendation.	Unspecified	2020
Routine trimming of branches / vegetation near power lines...	Duplicate of earlier recommendation - remove.	On-going	*Deleted*
Ensure back up power systems are operational...	Duplicate of earlier recommendation - remove.	On-going	*Deleted*
Pursue construction of a storm shelter... (T. Holton)	No information available on this specific project. Consolidate with overall shelter recommendation under "All" category.	Unspecified	*Deleted*
Require that restroom or other community buildings in mobile home parks be designed...	Limited progress. Remains advisory recommendation.	TBD	2020
Replace / upgrade of bridges in various communities...	On-going life cycle replacement.	On-going	On-going
Routine checking and clearing of culverts/ditches (All Towns) / Ditch and replace culverts...	On-going maintenance item required to ensure carrying capacity.	On-going	On-going
Improve key roads by paving / elevating...	Progress varies by community. Needs remain.	On-going	On-going
Implement storm water detention basins...	Limited progress. Needs remain.	TBD	On-going
Increase size of storm sewers... (C. Wausau)	Progress made. Needs remain. Combine with similar / related recommendations - "stormwater", above.	On-going	On-going
Disconnect storm drains from sewer system...(V. Edgar)	Progress limited. Combine with similar / related recommendations - "stormwater", above.	On-going	*Combined*
Survey property owners in floodplain about acquisition...	NFIP compliance item. Maintain in Plan.	2016	As Needed
Approach Repetitive Loss Properties about acquisition...	NFIP compliance item. Maintain in Plan. Combine with item above.	2016	*Combined*
Chesak Road improvements ...(T. Cassel)	Bridge still in need of replacement - prone to flooding. Combine with similar / related recommendations - "bridges", above.	Unspecified	*Combined*
Resurface roads subject to frequent flooding...(T. Texas)	Progress made. Needs remain. Combine with similar / related recommendations - "road improvements", above.	On-going	*Combined*

TABLE 20 *Continued*			
2011 - 2016 Plan Measure	***Progress Report***	***Original Status***	***New Status***
Continue program of upgrading frequently flooded areas (T. Stettin)	Progress made. Needs remain. Combine with similar / related recommendations - "stormwater", above.	Unspecified	*Combined*
Blacktop Rangeline Rd and Smokey Hill Rd to prevent future flood damage (T. Greenvalley)	Limited progress. Needs remain. Combine with similar / related recommendations - "road improvements", above.	Unspecified	*Combined*
Replace bridge over County Line Creek (Maine)	Completed. Reported as "done".	Unspecified	*Completed*
Blacktop and improve select roads in T Rib Mountain....	Progress made. Needs remain. Combine with similar / related recommendations - "road improvements", above.	On-going	*Combined*
Raise Fir Lane and install riprap... (T. Rietbrock)	Completed. Reported as "done".	Unspecified	*Completed*
Blacktop Killdeer Rd to prevent washout... (T. Reitbrock)	Limited progress. Needs remain. Combine with similar / related recommendations - "road improvements", above.	2011	*Combined*
Flood protection study for dike along shore of Lake Wausau	Completed. Flood Insurance Study completed 2010.	On-going	*Completed*
Pursue additional fire training / implement MABAS	Regular ongoing training programed by FDs and Co. EM. MABAS work in progress.	On-going	On-going
Continue participation in the Forest Fire Protection Grant Program	Awareness item in previous plan. Convert to "Resources to Implement" section of Plan Update.	On-going	*Deleted*
Maintain a database of addresses and fire numbers and identify information for those not listed	No indication this remains a viable recommendation. - Operational practice option of local departments.	On-going	*Deleted*
Continue school education programs	Fire Depts regularly coordinate school education programs.	On-going	*Completed*
Investigate gating of railroad crossings... (C.Wausau)	Duplicate of recommendation below - remove.	On-going	*Deleted*
Work with DOT to manage ice on bridges along Hwy 51/29...	Duplicate of earlier recommendation - remove.	Pending	*Deleted*
Obtain training in use of chemical resistant suits and masks (C. Mosinee)	County EM regularly coordinates needed hazmat training.	Unspecified	*Completed*
Investigate gating of railroad crossings... (C.Wausau)	Some progress. Needs remain.	On-going	On-going
Maintain countywide hazmat response team...	Marathon County supports and maintains local and regional (w/Oneida Co.) hazmat teams.	Unspecified	On-going
Conduct & coordinate training exercises for local emergency response services...	County EM regularly coordinates needed hazmat training.	Unspecified	On-going
Work w/ DATCP & DNR during clean-up of hazmat & groundwater contamination...	WisDNR and DATCP are the primary agencies involved with hazmat situations.	Unspecified	On-going

TABLE 20 *Continued*			
2011 - 2016 Plan Measure	***Progress Report***	***Original Status***	***New Status***
Site an additional municipal water well ...(V. Brokaw)	WisDNR has negated this option. (See recommendation below.)	Unspecified	*Deleted*
Explore purchase of water from other communities (V. Brokaw)	Village obtains water from the City of Wausau.	Unspecified	*Completed*
Educate residents on private well testing	Standard component of County Conservation Planning & Zoning Dept.	On-going	*Completed*
Maintain and update the County Groundwater Protection Guide	Guide is aging and in need of an update.	Unspecified	2019

LOCAL HAZARD MITIGATION GOALS

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

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

- *Be as prepared as possible; to protect residents and visitors from hazards.*
- *Maintain minimum disruption to power systems and transportation systems.*
- *Protect health and safety of county residents and visitors during and after winter storm events or periods of extreme cold.*
- *Limit property damage resulting from high winds and heavy snow.*
- *Protect the health and safety of county residents and visitors during and after tornadic events.*
- *Reduce the threat to human life and property damage caused by associated heavy rain, high wind and lightning.*
- *Protect the health and safety of county residents and visitors during fire events.*
- *Reduce the number of human-caused wildfires in the County.*
- *Protect the health and safety of county residents and visitors by limiting exposure to hazardous materials.*
- *Protect the County's water supply from contamination; to preserve the quality of the drinking water for residents.*
- *Protect health and safety of county residents and visitors during periods of extreme heat.*
- *Minimize crop loss while maintaining water supplies during times of drought.*
- *Lessen the impact that floods have on people, property (loss resulting from water damage), and the environment; to protect the health and safety of county residents and visitors during and after flood events.*

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

PRIORITIZATION OF STRATEGIES

The Plan Update Taskforce considered a number of factors in identifying and ranking proposed mitigation strategies. The matrix, below, describes the factors incorporated into the prioritization process. The resulting priority of each strategy is shown in the summary Table 21.

Prioritization Factors for Marathon County Mitigation Strategies

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

Members of the Plan Update Taskforce scored each strategy based on these prioritization factors and assigned a high, medium or low rating to reflect their relative level of priority for that strategy. A 3-point weighted scale was used to average the scores into the overall high, medium or low priority for the County or local units as shown in Table 20.

MITIGATION ACTION PLAN

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

Each section of this part is broken down as follows:

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

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

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

The chapter concludes with a summary of the recommended mitigation strategies shown in Table 21 and supplemental recommendations shown in Table 22.

HAZARD: ALL HAZARDS

GOALS
- Be as prepared as possible for future hazards.

- Protect residents and visitors and from all hazards.

- Maintain minimum disruption to power systems and transportation systems.

ACTION 1
Ensure backup power systems are operational; implement backup power systems if they do not exist. There should be a countywide effort to itemize and test back-up power at all critical facilities. Critical facilities need operational power for communications, heating/cooling, water and sewer, refrigeration of food supplies and medicines, etc. to function effectively. Generators can be used for back-up power at critical facilities. The need for back-up generators in the event of a power outage at each facility should be examined. Existing back-up power systems need to be maintained to ensure operation in time of need.

Identified needs to acquire new back-up power generators include the Town of Berlin for its community center (shelter) and the Town of McMillan for its fire department. The Village of Spencer has identified the need for a generator for its village hall. The City of Mosinee has identified city hall and the city garage as facilities in need of emergency back-up generators. The Village of Weston has generators at some facilities, but has identified the village hall as a location still needing back-up power. Maine needs a generator for the village hall in part to serve as cooling shelter at times of severe heat.

Participating Jurisdictions for Action 1
Lead agency will be Marathon County Emergency Management; i.e. to spearhead the County's effort as appropriate and to encourage action by the local units. Jurisdictions participating in this action will include: Marathon County, the Cities of Abbotsford, Colby, Marshfield, Mosinee, Schofield and Wausau, the Villages of Athens, Birnamwood, Brokaw, Dorchester, Edgar, Elderon, Fenwood, Hatley, Kronenewetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston, and all Towns.

ACTION 2
Reduce number of neighborhoods served by only one road within the Village of Kronenwetter. This recommendation originated with the first All Hazards Mitigation Plan and was carried over to the previous update. The historical development pattern of the Village resulted in a many neighborhoods and residential areas with only one access point in and out. The Village recognizes that this is not an ideal situation for emergency access or evacuation, and has been planning ways to address, but funding available has been limited.

For example, "Evaluate potential evacuation routes for Happy Hollow Road area." is a related recommendation also originating with the first All Hazards Mitigation Plan and was carried over to the previous update. Happy Hallow Road extends into an area surrounded, in part, by the Wisconsin River and wetlands which limit the ability to fully develop a road network. Currently, there is only one way in or out of the area with a significant number of residences and some businesses, and as such is a higher priority for the Village to address.

Participating Jurisdictions for Action 2
Lead agency will be Village of Kronenwetter. The only directly participating jurisdiction will be the Village of Kronenwetter. However, this recommendation may apply anywhere identified as having a single point of access.

ACTION 3
Identify and inform the public of shelters; identify areas with deficient safety shelters. Pursue construction of shelters where appropriate.

Shelter and evacuation related concerns were identified during the development of this All-Hazards Plan Update. To address these concerns, the County should work to develop a countywide disaster evacuation and shelter plan. One issue with shelters may stem from lack of knowledge regarding existence of shelters and procedures for use. Plan distribution and public informational efforts are recommended. The local American Red Cross chapter is a potential partner in designating and outfitting shelters and should be brought into the discussions.

The plan should identify available shelters by type/function and determine where coverage is deficient. The function of a shelter is to protect people during a disaster event, to accommodate displaced people in the aftermath, or both. Existing facilities (schools, churches, public buildings, etc.) should be evaluated for suitability or locations determined for new structures. Mobile home parks, campgrounds and County parks within the County lack shelters and are a particular concern. One potential problem includes the availability of personnel willing to assume the responsibility of manning the sites along with the overall liability of maintaining such sites.

A community building (or buildings) often looked to is the local school. However, it is important to remember that school buildings can sustain significant damage or be destroyed as well. The shelter plan would evaluate the most appropriate use for school buildings to meet the communities sheltering needs. Agreements would have to be put in place between the school district and the community / disaster relief agency. Schools often have a variety of useful resources that should be evaluated when planning for shelters, such as large prep kitchens and cold storage facilities.

The plan should establish zones to help people to identify which shelter they should go to and procedures for notification. It is also important to evaluate shelters for suitability for various types of hazards. For example, a shelter located within a floodplain may not be the best place to send people during a storm that could result in flooding. Adequate heat (and back-up source of energy to run it) is an important consideration when seeking to shelter people during a winter weather power outage. Local sponsors should be identified to help maintain shelters and ensure they are open in time of need. Transportation options should also be considered especially for the elderly and those with disabilities. The transportation and subsequent shelter of persons with special medical or other needs are critical factors to address. Many patients will need to be moved in a timely fashion due to medical issues. Nursing homes should be prepared in advance with transportation and shelter options to handle their residents. Some nursing homes may not know what to do with their residents if their building is extensively damaged. County-wide shelter planning could help nursing homes make the necessary preparations.

Identified needs to develop new emergency shelters include the Town of Mosinee's Edgewood and Deer Trail mobile home parks which currently have no basements or other shelter to take cover from a tornado or other severe weather. The Town of Stettin also has a mobile home park where the lack of shelter is a concern, and they are looking at the possibility of using its new Town Hall/ Community Center as a temporary shelter. The Town of McMillan for a new Town Hall with a storm shelter, and they also looking at upgrading heat at its park pavilion for cold weather sheltering needs. The Town of Brighton is considering a shelter facility at the Town of Brighton Park. The Town of Guenther sees the need for an emergency shelter on Town property (Town Hall, park), but does not have the capacity to fund such a project. The Town of Cassel has need for a shelter facility, possibly at the Town Hall. The Town Hall in Rib Falls is centrally located and designed for shelter purposes with a generator on site, but the Town would like to remodel with showers and handicapped restroom facilities.

The unincorporated areas of the County are not the only ones with inadequate sheltering preparations. These recommendations apply to many if not all of the County's incorporated area as well. This shelter plan concept addresses many of the concerns raised by the City of Wausau. The Village of Spencer indicates it does not currently have a good place identified for sheltering, and that it should identify and develop an emergency shelter(s). The Village of Athens has indicated it would like to develop a better shelter, and the City of Mosinee would like to utilize its recreation center as a shelter, but some HVAC work is needed. The Village of Rothschild suggest use of the Pavilion for shelter purposes.

Participating Jurisdictions for Action 3
Lead agencies will be Marathon County Emergency Management as well as Health and Social Services and the various cities and villages. Jurisdictions participating in this action will include Marathon County, the Cities of Abbotsford, Colby, Marshfield, Mosinee, Schofield and Wausau, the Villages of Athens, Birnamwood, Brokaw, Dorchester, Edgar, Elderon, Fenwood, Hatley, Kronenewetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston, and all Towns. The American Red Cross Chapter should also be consulted.

ACTION 4
Provide on-going training and continue to work toward MABAS implementation.

MABAS or Mutual Aid Box Alarm System basically inventories the local fire departments and resources available for emergency response and pre-identifies what is needed for a particular situation and location and organizes it into "boxes". So, if the situation calls box alarm or higher, all those agencies listed are immediately dispatched improving overall response time and coordination. The system involves creating mutual aid agreements with all the entities involved. Several factors including financial concerns have slowed MABAS implementation in Marathon County.

Participating Jurisdictions for Action 4
Lead agencies will be each jurisdiction participating in MABAS. Those not currently participating are recommended to take steps toward MABAS implementation. Jurisdictions participating in this action will include Marathon County, the Cities of Abbotsford, Colby, Marshfield, Mosinee, Schofield and Wausau, the Villages of Athens, Birnamwood, Brokaw, Dorchester, Edgar, Elderon, Fenwood, Hatley, Kronenwetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston, all Towns, and the various emergency services operations for these jurisdictions.

ACTION 5
The area would benefit from regular, coordinated incident command training and practice (exercises), including traffic incident management and other training. WEM has funding available for training and exercises.

The National Incident Management System, NIMS, is a structure for management of large-scale or multi-jurisdictional incidents. NIMS was developed by the Department of Homeland Security in March 2004, as directed by Presidential Order. It is now required that all jurisdictions at the federal, state and local levels be NIMS compliant. NIMS provides a standardized approach to incident management and response. It establishes a uniform set of processes and procedures that emergency responders at all levels of government must use to conduct response operations. Through NIMS, responders at all levels are to work together more effectively and efficiently to manage domestic incidents no matter what the cause, size or complexity, including catastrophic acts of terrorism and disasters.

NIMS compliance involves the adoption and use of the Incident Command System (ICS), a plain language requirement, the inventorying and typing of resources, etc.

According to FEMA, the ICS is a management system designed to enable effective and efficient domestic incident management by integrating a combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure. ICS is normally structured to facilitate activities in major functional areas including: command, operations, planning, logistics, intelligence & investigations, finance and administration. It is a fundamental form of management, with the purpose of enabling incident managers to identify the key concerns associated with the incident, often under urgent conditions, without sacrificing attention to any component of the command system.

Participating Jurisdictions for Action 5
Lead agencies will be each respective jurisdiction (All municipalities are expected to participate.). Jurisdictions participating in this action will include Marathon County, the Cities of Abbotsford, Colby, Marshfield, Mosinee, Schofield and Wausau, the Villages of Athens, Birnamwood, Brokaw, Dorchester, Edgar, Elderon, Fenwood, Hatley,

Kronenwetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston, and all Towns. Training has been put on by Northcentral Technical College (NTC) in the past.

ACTION 6

Establish local networks of neighbors or emergency alert monitors for the elderly and disabled residents living alone. Community groups and service organizations are a possible resource to tap in providing a mechanism to provide this aid.

In Marathon County there are many people living in remote areas and/or have limited communications. The County Aging & Disability Resource Center could assist by helping to educate the elderly and disabled in these situations with information they need to help themselves and their neighbors. The County should coordinate with organizations like the Salvation Army and/or Red Cross for their assistance with door to door sweeps during an event. Evacuation is another multi-faceted issue that needs preplanning, training, coordination and cooperation. Local units of government should consider and plan for this issue when developing emergency response plans.

Addressing vulnerable populations in emergency situations can be a complex and difficult job in a county the size of Marathon. Identification and preplanning for problem areas can help manage the burden. For example, area power companies have information on customers in situations requiring power (e.g. O_2 and other medical devices) which they can combine with areas they know are without power during an outage. County and local government officials/emergency responders should develop relationships with power company representatives to streamline access to this type of information when needed.

Participating Jurisdictions for Action 6

Lead agency will be Marathon County Emergency Management; i.e. to spearhead the County's effort as appropriate and to encourage action by the local units. Jurisdictions participating in this action will include: Marathon County, the Cities of Abbotsford, Colby, Marshfield, Mosinee, Schofield and Wausau, the Villages of Athens, Birnamwood, Brokaw, Dorchester, Edgar, Elderon, Fenwood, Hatley, Kronenewetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston, and all Towns.

ACTION 7

Translate emergency preparedness and other hazards related materials into Hmong and Spanish. In Marathon County, a significant portion of the population, 8.1%, do not have English as their primary language. This can be a barrier in communicating important messages related to emergency response, recovery and mitigation efforts.

Participating Jurisdictions for Action 7

Lead agency will be Marathon County Emergency Management; i.e. to spearhead the County's effort as appropriate and work with other County departments that provide translated materials and language services, as well as to encourage action by the local units. Jurisdictions participating in this action will include: Marathon County, the Cities of Abbotsford, Colby, Marshfield, Mosinee, Schofield and Wausau, the Villages of

Athens, Birnamwood, Brokaw, Dorchester, Edgar, Elderon, Fenwood, Hatley, Kronenewetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston, and all Towns.

ACTION 8

Develop Debris Management Plans. The County and local units of government should address debris management in their emergency response plans. This should include identification of debris management sites for temporary storage of storm debris for later separation and transport to permanent disposal sites. A little advance preparation can avoid conflicts between residents and local officials, reduce development of nuisance situations such as breeding sites for insects and rodents, and minimize the accumulation of debris in the road right-of-way. The County has a draft plan that should be moved forward and may serve as a model for other units.

Participating Jurisdictions for Action 8

Lead agency will be Marathon County Emergency Management; i.e. to spearhead the County's effort as appropriate and to encourage action by the local units. Jurisdictions participating in this action will include: Marathon County, the Cities of Abbotsford, Colby, Marshfield, Mosinee, Schofield and Wausau, the Villages of Athens, Birnamwood, Brokaw, Dorchester, Edgar, Elderon, Fenwood, Hatley, Kronenewetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston, and all Towns.

ACTION 9

Continue training related to long-term power failure. The County will continue to implement the recommendations of the 2010 report on Long Term Power Outage (LTPO) In Wisconsin. This report determined that more educational efforts on the risks and impacts of a LTPO event are needed to increase awareness that the potential exists for widespread, long-term power loss which may last for weeks, not just a couple of days. The project also demonstrated that there was not a firm understanding among many participants of what utilities, communication systems, shelters, and other services would be available during a LTPO event.

Specific training recommendations included development of ongoing training for key public officials and staff members. This training should include individual's roles, responsibilities, and authority during a disaster situation or a declared State of Emergency.

In addition to the training, additional LTPO exercises at the county or community level were recommended. The tabletop exercise used during the project is available for use locally with assistance from the Wisconsin Emergency Management Exercise Officers.
Specific recommendations for exercises included:

1. Periodically exercise emergency plans so that the abilities of public officials and staff members are objectively evaluated. An After Action Report and Improvement Plan should be a product of the exercises.
2. Evaluate and exercise any newly-developed or modified plans.

3. Evaluate the ability of non-typical responders to work in an Incident Management System.

There was interest in expanding the scope of the exercises to include different operational periods. (The project focused on a single county for the initial 12-hour period once the ice storm struck.) Questions for these local exercise to explore might include: What actions should take place in the 12-hour period prior to the storm, since some advanced notice is likely?; What happens in the next 12-48 hours, especially once the wet snow begins to fall and begins to take down more trees, closes more roads, breaks power lines, etc.?; and How do the county-level EOC and plans/procedures relate to regional, state, and federal response, command and control, and authority during such an event?

The participation of electric providers during the project and table tops increased local government awareness of related issues and established a foundation for future communication. Related issues discussed during the table tops included prioritization for road clearing, equipment staging areas and joint information centers.

Many long-term care facilities and other private sector entities have expectations that the county or local government will "step in" and meet their needs during an event. For many (if not most) long-term care facilities representatives who participated, the project offered their first glimpse into how an emergency response system would work and raised the awareness of all parties involved of the unique risks and needs of these critical facilities.

Participating Jurisdictions for Action 9
Lead agencies will be Marathon County Emergency Management to coordinate the training and exercises on behalf of the County and the various local units of government and agencies. Jurisdictions participating in this action will include Marathon County, the Cities of Abbotsford, Colby, Marshfield, Mosinee, Schofield and Wausau, the Villages of Athens, Birnamwood, Brokaw, Dorchester, Edgar, Elderon, Fenwood, Hatley, Kronenwetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston, and all Towns.

ACTION 10
Routine trimming of branches/vegetation near power lines and structures. Tree pruning near powerlines can reduce the potential for trees or branches falling on and breaking powerlines or damaging/destroying nearby buildings. Tree trimming and maintenance is important for preventing limb breakage and for safeguarding nearby utility lines. Typically, power companies work to protect their powerline facilities, but local officials could seek to coordinate with these companies to ensure measures are adequate. Areas outside those effecting powerlines could be specifically by the local units to protect structures or public facilities.

Participating Jurisdictions for Action 10
Lead agency will be the various cities and villages. Jurisdictions participating in this action will include: the Cities of Abbotsford, Colby, Marshfield, Mosinee, Schofield and Wausau, the Villages of Athens, Birnamwood, Brokaw, Dorchester, Edgar, Elderon, Fenwood, Hatley, Kronenewetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston, and all Towns.

HAZARD: WINTER STORMS / EXTREME COLD

GOAL
- Protect health and safety of county residents and visitors during and after winter storm events or periods of extreme cold.

- Limit property damage resulting from high winds and heavy snow.

ACTION 11
The County, Cities and Villages should promote winter hazards awareness, including home and travel safety measures, such as avoiding travel during winter storms. If travel cannot be avoided, having a shovel, sand, warm clothing, food, water, etc. should be encouraged to have in vehicles.

Participating Jurisdictions for Action 11
Lead agency will be Marathon County and the various cities and villages. Jurisdictions participating in this action will include: Marathon County, the Cities of Abbotsford, Colby, Marshfield, Mosinee, Schofield and Wausau, the Villages of Athens, Birnamwood, Brokaw, Dorchester, Edgar, Elderon, Fenwood, Hatley, Kronenewetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston, and all Towns.

ACTION 12
The County should encourage the development of snow fences for public safety. Using snow fences or "living snow fences" (rows of trees or other vegetation) can limit blowing and drifting of snow over critical roadway segments. Assistance can be provided by the County Land and Water Conservation Department and USDA Natural Resource Conservation Service (NRCS) to develop windbreaks. Windbreaks would be advantageous to the County Highway Department and towns to prevent blowing and drifting on roadways.

Participating Jurisdictions for Action 12
Lead agencies will be Marathon County Conservation, Planning & Zoning and Highway Departments. Jurisdictions participating in this action will include: Marathon County, the Cities of Abbotsford, Colby, Marshfield, Mosinee, Schofield and Wausau, the Villages of Athens, Birnamwood, Brokaw, Dorchester, Edgar, Elderon, Fenwood, Hatley, Kronenwetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston, and all Towns.

ACTION 13

Review/revisions of local building codes - improve structural ability to withstand high winds/snow load. A review of local building codes should be conducted to determine if revisions are needed to improve a structures ability to withstand greater wind velocities and snow load. The building code provisions may include requirements for construction methods that employ cross-bracing, anchoring of walls to foundation, and anchoring roof rafters to walls and measures to provide wind protection and retrofits for vulnerable features (windows, garage doors, patio doors, double-wide entry doors, siding and bracing for walls and rafters. A single snow load weight capacity standard may not be adequate for all areas. Local building departments should determine the snow load limits for their community based on local data. A community's building code can include snow load limits or weight capacity standards in an appendix.

Participating Jurisdictions for Action 13

Lead agencies will be each City and Village building inspection or similarly responsible departments. Jurisdictions participating in this action will include: the Cities of Abbotsford, Colby, Marshfield, Mosinee, Schofield and Wausau, the Villages of Athens, Birnamwood, Brokaw, Dorchester, Edgar, Elderon, Fenwood, Hatley, Kronenwetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston, and all Towns.

ACTION 14

Work with utility companies to implement buried power lines when and where feasible. Local units of government should work with area power companies to identify critical sections of aerial power line within their areas which are vulnerable to downing for conversion to underground lines. Burying overhead power lines reduces the risk of power outage.

The primary programs that might fund such projects include mitigation grants under the Pre-Disaster Mitigation Program (PDM) or the Hazard Mitigation Grant Program (HMGP). The local unit would likely need to sponsor the application unless the utility was qualified participant in the State Hazard Mitigation Plan Rural Electric Cooperative Annex. Private utilities like WPS would not be eligible to apply directly, but the local unit could work with one of these utilities to sponsor a project.

The HMGP funding becomes available when there is a disaster declaration in the state. The PDM program has been a recent budget casualty, and it is uncertain when funding will be restored. A benefit-cost analysis is required for these applications and is completed by WEM using data provided by the applicant. Documentation of significant previous damages, ie costly power outage and damage to power lines in this case. However, 5% of HMGP funding for each disaster is made available for projects for which it is difficult to perform a benefit-cost analysis.

Participating Jurisdictions for Action 14

Lead agencies will be each City and Village. Jurisdictions participating in this action will include: the Cities of Abbotsford, Colby, Marshfield, Mosinee, Schofield and Wausau, the Villages of Athens, Birnamwood, Brokaw, Dorchester, Edgar, Elderon, Fenwood, Hatley, Kronenewetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston, and all Towns.

ACTION 15

Work with WisDOT to manage ice on bridges and overpasses. In previous plans this was focusing on Hwy 51/29, however, it seems equally applicable across the entire highway and local road system. Changing procedures and evolving de-icing technology need ongoing attention.

Participating Jurisdictions for Action 15

Lead agencies will be the Marathon County Highway Department and each City and Village street department. Jurisdictions participating in this action will include: Marathon County and the Cities of Abbotsford, Colby, Marshfield, Mosinee, Schofield and Wausau, the Villages of Athens, Birnamwood, Brokaw, Dorchester, Edgar, Elderon, Fenwood, Hatley, Kronenewetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston, and all Towns.

HAZARD: SEVERE THUNDERSTORMS / HIGH WIND / HAIL / LIGHTNING

GOAL

- Reduce the threat to human life and property damage caused by associated heavy rain, high wind and lightning.

ACTION 16

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

Participating Jurisdictions for Action 16

Lead agency will be Marathon County Emergency Management; i.e. to spearhead the County's effort as appropriate and to encourage action by the local units. Jurisdictions participating in this action will include: Marathon County, the Cities of Abbotsford, Colby, Marshfield, Mosinee, Schofield and Wausau, the Villages of Athens, Birnamwood, Brokaw, Dorchester, Edgar, Elderon, Fenwood, Hatley, Kronenwetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston, and all Towns.

ACTION 17

The County should promote the planting of windbreaks to protect farmsteads, buildings, and open fields from high winds. Established trees and shrubs can slow wind on the downwind side of a windbreak for a distance of 10 times the height of the trees. The windbreaks can also reduce soil erosion, act as snow fences, provide wildlife food and cover, and offer a number of other benefits.

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

Participating Jurisdictions for Action 17
Lead agency will be Marathon County Conservation, Planning & Zoning. Marathon County works cooperatively with NRCS on this activity. Participating jurisdictions in this action will include Marathon County and all Towns.

HAZARD: TORNADOS

GOAL
- Protect the health and safety of county residents and visitors during and after tornadic events.

ACTION 18
Develop/review mobile home guidelines and ordinances to implement measures to help reduce risk of damage - tie-downs, ground anchors, etc. Entities with building code inspection / enforcement responsibilities should ensure that new manufactured homes follow Uniform Dwelling Code specifications regarding tie downs to resist high winds.

Participating Jurisdictions for Action 18
Lead agencies will be Marathon County Conservation, Planning & Zoning and each City and Village. Jurisdictions participating in this action will include: Marathon County, the Cities of Abbotsford, Colby, Marshfield, Mosinee, Schofield and Wausau, the Villages of Athens, Birnamwood, Brokaw, Dorchester, Edgar, Elderon, Fenwood, Hatley, Kronenwetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston, and all Towns.

ACTION 19
In an effort to address the lack of shelter in vulnerable areas, explore options to require restrooms or other community buildings in mobile home parks or campgrounds be designed /constructed to be suitable as tornado shelters.

Participating Jurisdictions for Action 19
Lead agencies will be Marathon County Conservation, Planning & Zoning and each City and Village. Jurisdictions participating in this action will include: Marathon County, the Cities of Abbotsford, Colby, Marshfield, Mosinee, Schofield and Wausau, the Villages of Athens, Birnamwood, Brokaw, Dorchester, Edgar, Elderon, Fenwood, Hatley, Kronenwetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston, and all Towns.

HAZARD: FOREST FIRE / WILD FIRE

GOAL
- Protect the health and safety of county residents and visitors during wildfire events.

- Reduce the number of human-caused wildfires in the County.

ACTION 20
Support establishment of Firewise Communities across the County. The national Firewise Communities program is a multi-agency program, which promotes partnerships between community leaders, homeowners, planners, developers and others to promote wildfire preparedness - before a fire starts. The Firewise approach emphasizes local community responsibility for designing and maintaining safe communities through land use planning, mitigation activities, collective decision-making and effective response.

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

Becoming a Firewise Community involves a 7-step process.

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

Mitigation grants are available to assist communities with hazardous fuels reduction, ie clean-up of excess woody debris from storm damage for example.

Participating Jurisdictions for Action 20
Lead agency will be Marathon County Emergency Management; i.e. to encourage action and assist the local units. Jurisdictions participating in this action will include: Marathon County, the Villages of Kronenwetter and Weston and all Towns.

ACTION 21
Towns with high risk of wildfire should develop Community Wildfire Protection Plans (CWPPs). In Marathon County, the Towns of Bevent, Knowlton, Mosinee, Rib Mountain, Weston, and the Village of Kronenwetter have been identified by WDNR as high risk for wildfire. A CWPP identifies and prioritizes areas for hazardous fuels reduction treatments and recommends types and methods of treatment that will protect at-risk areas and critical infrastructure. WisDNR has grant funding available for community wildfire protection planning.

Participating Jurisdictions for Action 21
Lead agency will be the respective jurisdictions. Jurisdictions participating in this action will include: Marathon County, the Towns of Bevent, Knowlton, Mosinee, Rib Mountain, Weston, and the Village of Kronenwetter.

ACTION 22
County Emergency Management should work with towns, rural fire departments and the Department of Natural Resources to ensure adequacy of water fill sites for rural firefighting. Water pickup sites are designated locations where a fire suppression truck or pumper can access a water source. Water pickup sites may not provide all-season access. Dry hydrants are designated locations where a fire suppression truck or pumper can draw water. Dry hydrants provide all-season access.

Participating Jurisdictions for Action 22
Lead agency will be Marathon County Emergency Management; i.e. to encourage action and assist the local units. Jurisdictions participating in this action will include: Marathon County, the Villages of Kronenwetter and Weston and all Towns.

HAZARDOUS MATERIAL INCIDENT / GROUND WATER CONTAMINATION

GOALS
- Protect the health and safety of county residents and visitors by limiting exposure to hazardous materials.

- Protect the County's drinking water supply from contamination.

- Preserve the quality of the County's drinking water for residents.

ACTION 23
Local officials should investigate gating of critical railroad crossings such as at 5th, and 6th Streets; 1st and 3rd Avenues; Franklin Street and Town Line Road in Wausau. This measure would help protect hazardous materials shipments moving by both rail and truck.

Participating Jurisdictions for Action 23
Lead agencies will be each local unit with rail crossings of roads under their jurisdiction. Jurisdictions participating in this action will include: Marathon County, the Cities of Abbotsford, Colby, Marshfield, Mosinee, Schofield and Wausau, the Villages of Athens, Birnamwood, Brokaw, Dorchester, Edgar, Elderon, Fenwood, Hatley, Kronenwetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston, and all Towns.

ACTION 24
The County should continue to support its County Level and Regional Hazardous Materials Response Teams to respond to hazardous spill situations. The County regularly coordinates training exercises for these teams. Several factors support this, such as the concentration of fixed-facilities in the Wausau Metro Area and around the County (such as the various agricultural operations, power plant, mills and other industrial operations), the level of traffic carrying hazardous materials over the major transportation routes, the rail line and the pipelines. Maintaining these teams provides more immediate response to incidents that require a Hazardous Material Team response.

Participating Jurisdictions for Action 24
Lead agencies will be Marathon County Emergency Management along with the Marathon County HazMat Team and the Local Emergency Planning Committee (LEPC). Participating jurisdictions include Marathon County, the Cities of Abbotsford, Colby, Marshfield, Mosinee, Schofield and Wausau, the Villages of Athens, Birnamwood, Brokaw, Dorchester, Edgar, Elderon, Fenwood, Hatley, Kronenewetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston, and all Towns.

ACTION 25
Marathon County Emergency Management conducts and coordinates hazmat training exercises for County/Municipal emergency response services. These activities should be continued to support the LEPC and Regional/County Hazardous Materials Response team(s) as well as local government and local fire department/emergency services training needs.

Participating Jurisdictions for Action 25
Lead agencies will be Marathon County Emergency Management along with the Marathon County HazMat Team and the Local Emergency Planning Committee (LEPC). Participating jurisdictions include Marathon County, the Cities of Abbotsford, Colby, Marshfield, Mosinee, Schofield and Wausau, the Villages of Athens, Birnamwood, Brokaw, Dorchester, Edgar, Elderon, Fenwood, Hatley, Kronenewetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston, and all Towns.

ACTION 26
County and local officials and agencies should continue to work with the Department of Agriculture Trade and Consumer Protection along with the DNR during clean-up of Hazardous Materials and Ground Water Contamination incidents; as needed.

Participating Jurisdictions for Action 26
Lead agencies will be Marathon County Emergency Management along with the Marathon County HazMat Team, the Local Emergency Planning Committee (LEPC), and Conservation, Planning and Zoning (CPZ). Participating jurisdictions include Marathon County, the Cities of Abbotsford, Colby, Marshfield, Mosinee, Schofield and Wausau, the Villages of Athens, Birnamwood, Brokaw, Dorchester, Edgar, Elderon, Fenwood, Hatley, Kronenewetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston, and all Towns.

ACTION 27
Update and maintain the County Groundwater Protection Guide and educate residents on private well testing. The groundwater guide is somewhat dated (circa 2001) and out of use. An update and promotion of the Guide would be a good first step in reinvigorating the County's groundwater protection program.

Participating Jurisdictions for Action 27
Lead agency will be Marathon County Conservation, Planning & Zoning. Jurisdictions participating in this action will include: Marathon County, the Cities of Abbotsford, Colby, Marshfield, Mosinee, Schofield and Wausau, the Villages of Athens, Birnamwood, Brokaw, Dorchester, Edgar, Elderon, Fenwood, Hatley, Kronenewetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston, and all Towns.

ACTION 28
Implement recommendations within the Multi-County Commodity Flow Study and Responder Hazardous Materials Training Assessment report. These recommendations are outlined below:

1. *Awareness level* training has occurred in several counties as a result of other commodity flow studies. The training involved the general properties of various groups of hazardous materials as well as hazmat specific to their county; the effective use of the Emergency Response Guidebook (ERG) was covered. The training was well received and popular. Based on this experience, as well as the responses to both the written and verbal surveys/interviews, it is recommended that *Awareness* training be arranged for all response agencies - Fire, Law, EMS or Public Works. Holding a session open to all disciplines may be beneficial in terms of the questions asked and the networking opportunities. Provisions for annual refresher training should be part of the planning. Including the regional and local *Operations level* team would reaffirm with first responders how to contact these resources, the type of information they need, and establish mutual expectation for response actions to help ensure maximum safety for both responders and the general public. Some of this type of training is eligible for

financial support through the HMEP grant process, and counties should explore that possibility.

2. Some agencies in the past have stated that they feel overtaxed with training requirements. If this is the case for the departments that did not respond to the survey, they would be best served to contact WEM to discuss a proposal that would bring the agencies into compliance over a specific timeframe if efforts towards immediate compliance would prove to be a significant hardship.

3. Each County should work to establish/renew a relationship with their regional *Technician Level* hazardous materials team and a nearby *Operations Level* trained department. This would help ensure smooth communications and coordination of response efforts in the event of a transportation accident involving hazardous materials.

4. As a result of any training, and with the help of the regional *Technician Level* teams, local *Operations Level* teams and *Awareness* Level departments should identify equipment that would improve overall safety; they may wish to research potential grants as a funding source for needed equipment.

5. Continue dialogue with, and take advantage of free training provided by the Railroads.

6. Periodically review Tier II information for changes in materials listing; update First Responders as necessary. An annual review should be set as a minimum.

7. Distribute this commodity flow study to each Law Enforcement, Fire, EMS response agency for review and discussion of the results and recommendations of this study.

Participating Jurisdictions for Action 28
Lead agencies will be Marathon County Emergency Management along with the Marathon County HazMat Team and the Local Emergency Planning Committee (LEPC). Participating jurisdictions include Marathon County, the Cities of Abbotsford, Colby, Marshfield, Mosinee, Schofield and Wausau, the Villages of Athens, Birnamwood, Brokaw, Dorchester, Edgar, Elderon, Fenwood, Hatley, Kronenewetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston, and all Towns.

HAZARD: DROUGHT / EXTREME HEAT

GOALS

- Protect health and safety of county residents and visitors during periods of extreme heat.

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

ACTION 29
The County should promote heat hazards awareness, to assist the population with reducing heat disorders; as needed; including home and travel safety measures. Include suggestions regarding checking on neighbors or other known that live alone or that may be at a disadvantage in fending for themselves.

Participating Jurisdictions for Action 29
Lead agency will be Marathon County Health Department with Emergency Management to spearhead the County's effort and to encourage action by the local units. Jurisdictions participating in this action will include: Marathon County, the Cities of Abbotsford, Colby, Marshfield, Mosinee, Schofield and Wausau, the Villages of Athens, Birnamwood, Brokaw, Dorchester, Edgar, Elderon, Fenwood, Hatley, Kronenewetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston, and all Towns.

ACTION 30
Develop countywide drought mitigation plan to encourage multi-agency approaches to water conservation, drought prediction, and stream and groundwater monitoring, as well as development and application of water use ordinances. Drought can have a significant impact on tourism, agriculture and forest products; all major sectors of the County's economy. Based on the potential significance of the impact on the County's economy, drought becomes an important hazard to prepare for.

Drought probably has the greatest impact on agricultural areas. Even droughts of limited duration can reduce crop growth and yields, adversely affecting farm income. More substantial events can decimate croplands and result in total loss, negatively impacting both the individual producer and the local economy. Similarly, drought can stress and damage forest crops. Drought impact on lake levels, for example, can curtain tourism. Continuous monitoring of hydrologic conditions is important to identify and assess drought conditions.

Participating Jurisdictions for Action 30
Lead agency will be Marathon County Conservation, Planning & Zoning in conjunction with Emergency Management and UWEX. Jurisdictions participating in this action will include: Marathon County, the Cities of Abbotsford, Colby, Marshfield, Mosinee, Schofield and Wausau, the Villages of Athens, Birnamwood, Brokaw, Dorchester, Edgar, Elderon, Fenwood, Hatley, Kronenewetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston, and all Towns.

HAZARD: FLOODING / DAM FAILURE

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

- Protect the health and safety of county residents and visitors during and after flood events.

- Reduce effects of property loss resulting from water damage.

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

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

ACTION 31*:
Communities within Marathon County currently participating in the National Flood Insurance Program (NFIP) should work to ensure continued compliance. Compliance primarily entails adopting and enforcing floodplain management regulations that meet minimum criteria. Marathon County and all the currently incorporated cities and villages except Elderon, Fenwood and Unity are in the program. All towns are included under the umbrella of the County through the state mandated county shoreland zoning.

The Villages of Elderon, Fenwood and Unity have chosen not to participate in the NFIP. This Plan recommends these villages take the necessary steps to come into compliance for participation in the NFIP. By not participating in the program, residents of these villages are not eligible for flood insurance and certain types of disaster aid in the event of a flood event. To enter the program, each village would have to adopt a compliant floodplain zoning ordinance and the floodplain boundary map from FEMA by resolution and file forms with the WisDNR. Sample documents are available.

Participating Jurisdictions for Action 31
Lead agencies will be Marathon County Conservation, Planning & Zoning and each city and village. Jurisdictions participating in this action will include: Marathon County, the Cities of Abbotsford, Colby, Marshfield, Mosinee, Schofield and Wausau, the Villages of Athens, Birnamwood, Brokaw, Dorchester, Edgar, Elderon, Fenwood, Hatley, Kronenewetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston.

ACTION 32
Review and test dam failure Emergency Action Plan (EAP) for each significant and high hazard dam within Marathon County. FEMA guidelines for dam safety indicate that training and exercises are necessary to maintain operational readiness, timeliness and responsiveness. The status of training and levels of readiness should be evaluated in periodic simulated emergency exercises for response personnel and the dam owner.

Emergency situations and/or dam failures are not common events. The EAP can become outdated, lose its effectiveness and no longer be workable if the plan is not practiced. Those involved may become unfamiliar with their roles and responsibilities, especially with the turnover of local officials. If the plan is not updated, the information contained in it may become outdated and useless.

There are five types of exercises, including: orientation seminar, drill, tabletop exercise, functional exercise and full-scale exercise. They range in complexity from simple to more complex, but it is not required that every exercise program include all five types.

Participating Jurisdictions for Action 32
Lead agency will be Marathon County Emergency Management and Conservation, Planning and Zoning Departments. Participating jurisdictions will include those local units with affected dams. Federal and state officials should also be invited including DNR and State Patrol, as well as dam owners/operators.

ACTION 33*
If evidence of recurring flooding (repetitive loss structure or otherwise) is an issue with specific properties after a significant flood event, investigate, as a possible solution, the voluntary acquisition / removal of buildings in a floodplain with flood damage. May involve surveying of property owners. *(FEMA NFIP requirement)

Participating Jurisdictions for Action 33
Lead agency will be Marathon County Emergency Management; i.e. to spearhead the County's effort and to encourage action by the local units. Jurisdictions participating in this action will include: Marathon County, the Cities of Abbotsford, Colby, Marshfield, Mosinee, Schofield and Wausau, the Villages of Athens, Birnamwood, Brokaw, Dorchester, Edgar, Elderon, Fenwood, Hatley, Kronenewetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston, and all Towns.

ACTION 34
Replacement/upgrade of bridges at risk for overtopping or washout is recommended to maintain the integrity of the transportation system and protect the investment in public infrastructure.

Examples of applications for this recommendation include: The bridge on Corlad Road south of County A in the Town of Johnson has been identified for replacement; and the Cherak Road bridge in the Town of Cassel is prone to flooding and a potential for washout and has been identified for replacement.

Participating Jurisdictions for Action 34
Lead agencies will be Marathon County Emergency Management and Highway Department; i.e. to spearhead the County's effort and to encourage action by the local units. Jurisdictions participating in this action will include: Marathon County, the Cities of Abbotsford, Colby, Marshfield, Mosinee, Schofield and Wausau, the Villages of Athens, Birnamwood, Brokaw, Dorchester, Edgar, Elderon, Fenwood, Hatley, Kronenwetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston, and all Towns.

ACTION 35
Routine checking and clearing of culverts/ditches is recommended to ensure the drainage system can flow properly. This recommendation includes ditching and

replacement of culverts as needed or installation of larger culverts as appropriate. In the mitigation issues survey, the need to replace, upgrade, enlarge, and add additional culverts to better handle heavy rainfalls and snowmelt was identified by the Towns of Brighton, Emmet, Guenther, Johnson, Knowlton, Plover, Rietbrock and Ringle.

Participating Jurisdictions for Action 35
Lead agencies will be Marathon County Emergency Management and Highway Department; i.e. to spearhead the County's effort and to encourage action by the local units. Jurisdictions participating in this action will include: Marathon County and all Towns.

ACTION 36
Improve key roads by paving, installing riprap or other appropriate countermeasures and/or elevating; especially those subject to frequent flooding to prevent future damages or to maintain access to areas subject to flooding or isolation.

Road maintenance is a principal function of local government, and many cite road improvements made to protect roadways or maintain access across the County, including the Towns of Emmet and Guenther.

Participating Jurisdictions for Action 36
Lead agencies will be Marathon County Emergency Management and Highway Department; i.e. to spearhead the County's effort and to encourage action by the local units. Jurisdictions participating in this action will include: Marathon County and all Towns.

ACTION 37
Implement stormwater improvements in urban areas such as development of detention basins to mitigate small area flooding; increasing size of storm sewer mains; separating storm drains and sump pumps from sanitary sewers to improve capacity and reduce backups.

Participating Jurisdictions for Action 37
Lead agencies will be Marathon County Emergency Management and Highway Department; i.e. to spearhead the County's effort and to encourage action by the local units. Jurisdictions participating in this action will include: Marathon County, the Cities of Abbotsford, Colby, Marshfield, Mosinee, Schofield and Wausau, the Villages of Athens, Birnamwood, Brokaw, Dorchester, Edgar, Elderon, Fenwood, Hatley, Kronenwetter, Marathon City, Rothschild, Spencer, Stratford, Unity and Weston, and the Town of Rib Mountain.

TABLE 21 SUMMARY OF MITIGATION STRATEGIES
MARATHON COUNTY ALL HAZARDS MITIGATION PLAN UPDATE

MITIGATION MEASURES (See Expanded Description in Plan Text)	RESPONSIBLE UNITS	COST ESTIMATE	EXISTING & POTENTIAL RESOURCES TO IMPLEMENT	PROJECT * TIMEFRAME	PRIORITY LEVEL
ALL HAZARDS					
1. Ensure backup power systems are operational; implement backup power systems if they do not exist.	County EM Dept. / All Cities, Villages & Towns	Costs to be determined	Dept. Budget / General Funds / PDM / HMGP	On-going	High
2. Reduce number of neighborhoods served by only one road.	Village of Kronenwetter	Costs to be determined	General Fund / Local Road Aids	On-going	Medium
3. Identify and inform the public of shelters; identify areas with deficient safety shelters. Pursue construction of shelters where appropriate.	County EM Dept. / All Cities, Villages & Towns	Costs to be determined	CDBG Program / Mitigation grants / General Funds	On-going	High
4. Provide on-going training and continue to work toward MABAS implementation.	County EM Dept. / All Cities, Villages & Towns	Staff Time	Dept. Budget / WEM training funds	On-going	High
5. Incident Command Training and Practice	County EM Dept.	Staff Time	Dept. Budget / WEM training funds	On-going	High
6. Establish local networks of neighbors or emergency alert monitors for the elderly and disabled residents living alone	County EM Dept./ All Cities, Villages & Towns	Staff Time	Dept. Budget / General Funds	On-going	Medium
7. Translate emergency preparedness and other hazards related materials into Hmong and Spanish.	County EM Dept.	Staff Time	Dept. Budget	On-going	Medium
8. Develop Debris Management Plans	Co. EM Dept / Co. Hwy Dept. / All Cities, Villages & Towns	Staff Time	Dept. Budgets / General Funds	2018	Medium
9. Continue training related to long-term power failure.	County EM Dept. / All Cities, Villages & Towns	Staff Time	Dept. Budgets / General Funds	On-going	Medium
10. Routine trimming of branches/vegetation near power lines and structures.	All Cities, Villages & Towns	Costs to be determined	General Funds / Power Company Resources	On-going	Medium

MITIGATION MEASURES (See Expanded Description in Plan Text)	**RESPONSIBLE UNITS**	**COST ESTIMATE**	**EXISTING & POTENTIAL RESOURCES TO IMPLEMENT**	**PROJECT * TIMEFRAME**	**PRIORITY LEVEL**
WINTER STORM / EXTREME COLD					
11. Promote winter hazards awareness including home and travel safety measures.	County EM Dept.	Staff Time	Dept. Budget	Annual	Low
12. Promote planting of windbreaks/living snow fences	Co. Hwy Dept. / Co. CPZ Dept.	Costs to be determined	Dept. Budgets / NRCS Funding Programs	On-going	Low
13. Review/revisions of local building codes - improve structural ability to withstand high winds/snow load	County CPZ Dept. / All Cities, Villages & Towns	Staff Time	Dept. Budget / General Funds	2020	Medium
14. Work with utility companies to implement buried power lines when and where feasible.	All Cities, Villages & Towns	Costs to be determined	General Funds / Power Company Resources / Hazard Mitigation Grants	On-going	Low
15. Work with WisDOT to manage ice on bridges and overpasses.	County Hwy Dept. / All Cities, Villages & Towns	Costs to be determined	State Maintenance Budget / Local Road Aids	Annual	Medium
SEVERE THUNDERSTORM / HIGH WIND / HAIL / LIGHTNING					
16. Promote lightning safety awareness to reduce risk.	County EM Dept.	Staff Time	Dept. Budget	Annual	Low
17. Promote the planting of windbreaks to protect farmlands from highwinds.	Co. CPZ Dept. / Co. Hwy Dept.	Costs to be determined	Dept. Budgets / NRCS Funding	On-going	Low
TORNADO					
18. Develop/review mobile home guidelines and ordinances to implement measures to help reduce risk of damage - tie-downs, ground anchors, etc.	County CPZ Dept. / All Cities, Villages & Towns	Staff Time	Dept. Budget / General Funds	2020	Medium
19. Require restrooms or other community. buildings in mobile home parks or campgrounds be designed /constructed to be suitable as tornado shelter	County CPZ Dept. / All Cities, Villages & Towns	Staff Time	Dept. Budget / General Funds	2021	High
FOREST FIRE / WILDFIRE					
20. Promote Firewise program and related educational materials to increase community awareness of wildfire risk within the County.	County EM Dept. / All Towns	Staff Time	Dept. Budget / General Funds	Annual	Medium
21. Develop Community Wildfire Protection Plans (CWPP) for higher risk towns.	Affected Towns / WDNR	$20,000 ea.	WisDNR National Fire Plan Funding	On-going	Medium
22. Work w/ Towns, rural Fire Depts & DNR to ensure adequacy of water fill sites for rural firefighting.	County EM Dept. / All Towns	Staff Time	Dept. Budget / General Funds	On-going	High

MITIGATION MEASURES (See Expanded Description in Plan Text)	RESPONSIBLE UNITS	COST ESTIMATE	EXISTING & POTENTIAL RESOURCES TO IMPLEMENT	PROJECT * TIMEFRAME	PRIORITY LEVEL
HAZARDOUS MATERIALS INCIDENTS / GROUND WATER CONTAMINATION					
23. Investigate gating of critical railroad crossings such as at 5th, and 6th Streets; 1st and 3rd Avenues; Franklin Street and County Line Road in Wausau.	County Highway Dept. / All Cities, Villages & Towns	Staff Time	Dept. Budget / General Funds	On-going	Medium
24. Continue support for the County's Local and Regional hazardous materials response teams.	County EM Dept. / All Cities, Villages & Towns	$/yr	EPCRA / HazMat Grant	On-going	High
25. Conduct and coordinate training exercises for County/Municipal emergency response services.	County EM Dept. / All Cities, Villages & Towns	Costs to be determined	WEM Training Funds / HMEP Grants	On-going	High
26. Work with the Department of Agriculture Trade and Consumer Protection along with the DNR during clean-up of Hazardous Materials and Ground Water Contamination incidents.	County EM Dept./ County CPZ / All Cities, Villages & Towns	Costs to be determined	Dept. Budget / General Funds	As needed	High
27. Update and maintain the County Groundwater Protection Guide and educate residents on private well testing.	County CPZ Dept.	Staff Time	Dept. Budget	2019	Medium
28. Implement recommendations within the Multi-County Commodity Flow Study and Responder Hazardous Materials Training Assessment report.	County EM Dept.	Costs to be determined	General Fund / HMEP Grants / Mitigation Grants	On-going	Medium
DROUGHT / EXTREME HEAT					
29. Assist population with reducing heat disorders through awareness program as needed.	Co. Health Dept. All Cities/Villages & Towns	Staff Time	Dept. Budgets	As needed	Medium
30. Develop countywide drought mitigation plans.	Co. CPZ Dept / Co. UWEX / All Cities, Villages & Towns	Staff Time	Dept. Budgets	As needed	Low

MITIGATION MEASURES (See Expanded Description in Plan Text)	**RESPONSIBLE UNITS**	**COST ESTIMATE**	**EXISTING & POTENTIAL RESOURCES TO IMPLEMENT**	**PROJECT * TIMEFRAME**	**PRIORITY LEVEL**
FLOODING / DAM FAILURE					
31. *County / City / Village continued compliance in the National Flood Insurance Program (NFIP).*	County CPZ Dept. / All Cities and Villages	Staff Time	Dept. Budgets / General Funds	On-going	Medium
32. *Continue to work with dam owners to review Emergency Action Plan (EAP) for each significant and high hazard dam.*	County EM Dept.	Staff Time	Dept. Budget / Dam Owners	On-going	High
33. *If evidence of recurring flooding (repetitive loss structure or otherwise) is an issue with specific properties after a significant flood event, investigate, as a possible solution, the voluntary acquisition / removal of buildings in a floodplain with flood damage.* (FEMA NFIP requirement)*	County CPZ Dept. / All Cities and Villages	Costs to be determined	Dept. Budget / General Funds / Mitigation Grants	As needed	High
34. Replacement/upgrade of bridges at risk for overtopping or washout.	County Hwy Dept. / All Cities, Villages & Towns	Costs to be determined	General Fund / Local Road Aids / Local Bridge Assistance Program	On-going	High
35. Routine checking and clearing of culverts/ditches. Ditching and replacement of culverts as needed including installation of larger culverts as appropriate.	County Hwy Dept. / All Towns	Costs to be determined	General Funds / Local Road Aids / Local Road Improvement Program	Annual	High
36. Improve key roads by paving, installing riprap or other appropriate countermeasures and/or elevating; especially those subject to frequent flooding to prevent future damages or to maintain access to areas subject to flooding or isolation.	All Towns	Costs to be determined	General Funds / Local Road Aids / Town Road Improvement Program / Disaster Damage Assistance Program	On-going	High
37. Implement stormwater improvements in urban areas such as development of detention basins to mitigate small area flooding; increasing size of storm sewer mains; separating storm drains and sump pumps from sanitary sewers to improve capacity and reduce back ups.	All Cities and Villages	Costs to be determined	General Funds / TIF / CDBG Program	On-going	Medium
***Actual project implementation dependent on funding and staff availability.**					

TABLE 22 SUPPLEMENTAL MITIGATION STRATEGIES FOR INDIVIDUAL LOCAL UNITS MARATHON COUNTY ALL HAZARDS MITIGATION PLAN UPDATE

MITIGATION MEASURES	RESPONSIBLE UNITS	COST ESTIMATE	EXISTING & POTENTIAL RESOURCES TO IMPLEMENT	PROJECT * TIMEFRAME	PRIORITY LEVEL
S1. Establish Local Emergency Management Contact: Each local unit of government should designate an authorized Emergency Point-of-Contact that can coordinate with the Marathon County Emergency Management Office during emergency situations.	All Cities, Villages and Towns	Staff Time	General Funds	On-going	High
S2. Dredge Scotch Creek in increase carrying capacity and protect Village from flooding.	Village of Edgar	Costs to be determined	General Fund	2021	Low
S3. Install warning sirens to fill in coverage gaps or expand coverage area or replace aging equipment as necessary.	Villages of Spencer, Weston & Marathon City	$25,000 ea.	General Funds	On-going	Medium
S4. Work with WisDNR and FEMA to engineer solution to better handle flood water flow through village park / Park Road.	Village of Marathon City	Costs to be determined	General Fund	2020	Medium
S5. Study fire and EMS service needs for joint Maine / Brokaw area, including staffing, equipment and warning/notification. Establish new fire station, with shelter facilities.	Maine and Village of Brokaw	Costs to be determined	General Funds / Dept. Budgets / Research grants and funding opportunities.	2019	High
S6. Request FEMA to reevaluate the floodplain from the Rothschild Dam, south to the Mosinee Dam using new LIDAR data as was done with Lake Wausau. Current mapping is based on 10-foot. The more accurate LIDAR data can ascertain actual floodplain boundary at (+/-) 2-feet and is expected to eliminate a large number of parcels from floodplain.	Village of Rothschild	Costs to be determined	General Fund	On-going	Medium
S7. Study vehicular and pedestrian traffic circulation and access to ensure safe alternative routes throughout the Village.	Village of Stratford	Costs to be determined	General Fund	On-going	Medium
S8. Develop continuity of government and continuation of operations plans to ensure essential services in case of a catastrophic event.	All Cities and Villages	Staff Time	Dept. Budgets / General Funds	2018	Medium
S9. Relocate repeater to Rib Mt. to improve radio range. Collocate if possible.	Wausau School District	Costs to be determined	Dept. Budget	2017	Medium

INTRODUCTION

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

PLAN UPDATE ADOPTION

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

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

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

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

PLAN UPDATE IMPLEMENTATION

Administrative Responsibilities

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

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

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

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

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

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

- Notification of County Departments and Local Units of Government - Upon adoption of the All Hazards Mitigation Plan, the County EM Director will distribute a letter that explains how the Plan applies to other planning efforts they might undertake and how to obtain copies of the Mitigation Plan.

- Promotion by EM Director - The EM Department will promote incorporation of the All Hazards Mitigation Plan as the EM Director is made aware of or becomes a participate in any new planning process.

The upcoming County Comprehensive Plan Update has been identified for incorporation of the All Hazards Mitigation Plan, as follows:

Marathon County Comprehensive Plan

The following concepts will be considered when developing the Marathon County Comprehensive Plan Update, based on the nine elements of the Wisconsin comprehensive planning law:

- *Issues and Opportunities Element* – a summary of major hazards local government is vulnerable to, and what is proposed to done to mitigate future losses from the hazards.
- *Housing Element* – an inventory of the properties that are in the floodplain boundaries, the location of mobile homes, recommendation on building codes, shelter opportunities, and a survey of homeowners that may be interested in a voluntary buyout and relocation program.
- *Utilities and Community Facilities Element* – identify critical facilities such as shelter, schools, medical, water infrastructure, etc. and make recommendations on how to mitigate specific risks factors
- *Transportation Element* – identify any transportation routes or facilities that are more at risk during flooding, winter storms, or hazardous material spills.
- *Agricultural, Natural Resources, and Cultural Resources Element* – identify the floodplains and agricultural areas that area at risk to hazardous events. Incorporate recommendations on how to mitigate future losses to agricultural areas.
- *Economic Development Element* – describe the impact past hazards have had on County and municipal business.
- *Intergovernmental Cooperation Element* - identify intergovernmental police, fire, and rescue service sharing agreements that are in effect, or which may merit further investigation, consider cost-sharing and resource pooling on government services and facilities.
- *Land Use Element* - describe how flooding have impacted land uses and what is being done to mitigate negative land use impacts from flooding; map and identify hazard areas such as floodplains, hazardous materials areas, and soils with limitations.
- *Implementation Element* – have action plans from this Plan implemented into comprehensive plans.

PLAN UPDATE MONITORING, EVALUATION AND MAINTENANCE

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

The Plan will be monitored and evaluated on an annual basis as needed by Emergency Management. The Marathon County Emergency Management Director will evaluate incoming information against the contents of the Plan to determine possible need for revisions; and bring that information to the County Public Safety Committee to discuss the evaluation and potential revisions to the Plan as needed. The Emergency Management Director is encouraged to consult/coordinate with the NCWRPC in the event of any revision.

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

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

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

Appendix A – Meeting Notices

OFFICE OF NAN KOTTKE
COUNTY CLERK
MARATHON COUNTY

Marathon County Mission Statement: *Marathon County Government serves people by leading, coordinating, and providing county, regional, and statewide initiatives. It directly or in cooperation with other public and private partners provides services and creates opportunities that make Marathon County and the surrounding area a preferred place to live, work, visit, and do business*

ADDENDUM ITEM

ADJOURNED ANNUAL MEETING

THE ADJOURNED ANNUAL MEETING of the Marathon County Board of Supervisors, composed of thirty-eight (38) members, will convene at the Marathon County Courthouse, Assembly Room, 500 Forest Street, Wausau, on Tuesday, March 28, 2017, at 7:00 p.m. to consider the following matters:

A. OPENING OF SESSION:
1. Meeting called to order by Chairperson Gibbs at 7:00 p.m., the agenda being duly signed and posted
2. Pledge of Allegiance to the Flag
3. Reading of Notice
4. Request for silencing of cellphones and other electronic devices
5. Roll Call
6. Acknowledgment of visitors

B. CONSENT AGENDA:
7. Approval of minutes from the February 9 and 14, 2017 meetings
8. Referral of bills and communications to respective committees
9. Authorizing the Clerk to issue orders, bills and claims from the last session through this session
10. Confirmation of Appointments:
    a) North Central Community Services Program Board
    b) Solid Waste Management Board
    c) Diversity Affairs Committee
11. Enactment of Ordinances:
    a) Town of Holton Rezone, Tim Vreeland on behalf of Dan Heindl #O-5-17
    b) Amending General Code of Ordinances for Marathon County, Chapter 17 Zoning Code #O-6-17
12. Adoption of Resolutions:
    a) Public Safety Committee:
        A. Adopting the Marathon County All Hazards Mitigation Plan Update #R-15-17
    b) Land Conservation and Zoning Committee:
        A. Town of Stettin Local Zoning Ordinance Amendments (6) #R-16-17
        B. Town of Wausau Local Zoning Ordinance Text Amendments (2) #R-17-17
    c) County Board of Supervisors:
        A. Change in Supervisory District Boundary Change Resulting from Village of Marathon City Annexation #R-18-17
        B. Change in Supervisory District Boundary Change Resulting from Village of Maine Annexation #R-19-17
    d) Infrastructure Committee:
        A. Resolution Designating the Week of April 3 – 7, 2017 as "Work Zone Safety Awareness Week" in Marathon County #R-20-17
        B. Approving Naming the Stratford Highway Building "The Bob Wiesman Building" #R-21-17
    e) Executive Committee:
        A. Support for Legislation and/or Administrative Rules to Close Loopholes in Commercial Property Assessments #R-22-17

BB. REPORT:

12a. Potential elimination of the municipal cost share for uniform addressing (Craig McEwen)

C. MEMORIAL:

13. Life and Public Service of Alfred King

D. CLAIM:

14. Town of Holton

E. ORDINANCE:

15. Amend Marathon County Rules of Procedure, Chapter 2 of the General Code of Ordinances for Marathon County #O-7-17
    a) Supervisor Hoogendyk - Invocation #O-8-17
    b) Supervisor Quamme - Appointment of Standing Committee Chair and Vice-Chair #O-9-17
    c) Supervisor Opall - Scheduling County Board Voting Meetings for 2:00 p.m. #O-10-17

RESOLUTIONS

F. HUMAN RESOURCES, FINANCE AND PROPERTY COMMITTEE:

16. 2016 Budget Transfers For Marathon County Department Appropriations #R-23-17
17. 2017 Budget Transfers For Marathon County Department Appropriations #R-24-17
18. Approving Private Sale of Tax Deed Property to the Village of Spencer #R-25-17
19. Resolution for Petty Cash Drawer at the University of Wisconsin Extension #R-26-17
20. Resolution to Amend the Marathon County Investment Policy #R-27-17

G. MISCELLANEOUS BUSINESS:

21. Announcements or requests
22. Move to adjourn

WITNESS: My signature this 24th day of March, 2017.

Nan Kottke
Marathon County Clerk

NOTE: The next meetings of the County Board will be:

Thursday, April 13, 2017, 7:00 p.m. (Educational Meeting)
Tuesday, April 18, 2017, 7:00 p.m. (Organizational Meeting)

Both meetings will be held in the Assembly Room at the Marathon County Courthouse

NOTICE PROVIDED TO: County Board Members
Marathon County Departments
News Media
Posted on County Website: www.co.marathon.wi.us

Any person planning to attend this meeting who needs some type of special accommodation in order to participate should call the County Clerk's Office at 261-1500 or e-mail infomarathon@co.marathon.wi.us one business day before the meeting.

OFFICIAL NOTICE AND AGENDA
of a meeting of the County Board,
Committee, Agency, Corporation
or a sub-unit thereof.

MARATHON COUNTY

MARATHON COUNTY, WISCONSIN

Marathon County Mission Statement: Marathon County Government serves people by leading, coordinating, and providing county, regional, and statewide initiatives. It directly or in cooperation with other public and private partners provides services and creates opportunities that make Marathon County and the surrounding area a preferred place to live, work, visit, and do business.

An educational meeting of the **COUNTY BOARD OF SUPERVISORS** will be held at the Marathon County Courthouse, Assembly Room, 500 Forest Street, in the City of Wausau, at **7:00 p.m.**, on **Thursday, March 23, 2017.**

AGENDA

1. Meeting called to order at 7:00 p.m. by Chairperson Gibbs, the agenda being duly signed and posted
2. Pledge of Allegiance to the Flag
3. Reading of Notice
4. Request to Silence Cell Phones and Other Electronic Devices
5. Roll Call
6. Acknowledgement of Visitors
7. 15 Minute Public Comment
8. Education Presentations/Reports:
   a) Standing Committee Chairpersons or Designees
   b) Presentation on Work Zone Safety – James Griesbach
   c) ADRC-CW Update – Linda Weitz
   d) Results of Marathon County's 2016 Wellness Program – Mary Jo Maly

Signed: /s/ Kurt Gibbs
Presiding Officer or His/Her Designee

FAXED TO DAILY HERALD

Date ________ Time ________ AM/PM

By ______________________

THIS NOTICE POSTED AT THE COURTHOUSE

Date ________ Time ________ AM/PM

By ______________________

Any person planning to attend this meeting who needs some type of special accommodation in order to participate should call the County Clerk's Office at 261-1500 or e-mail <u>infomarathon@co.marathon.wi.us</u> one business day before the meeting.

9. Review and discussion of Tuesday meeting agenda items:
   a) Memorial:
      1. Life and Public Service of Alfred King

   b) Appointments:
      1. North Central Community Services Program Board
      2. Solid Waste Management Board

   c) Claim:
      1. Town of Holton

   d) Ordinances:
      1. Town of Holton Rezone, Tim Vreeland on behalf of Dan Heindl
      2. Amending General Code of Ordinances for Marathon County, Chapter 17 Zoning Code
      3. Amendments to County Board Rules of Procedure

   e) Resolutions:
      1. Public Safety Committee:
         A. Adopting the Marathon County All Hazards Mitigation Plan Update

      2. Land Conservation and Zoning Committee:
         A. Town of Stettin Local Zoning Ordinance Amendments (6)
         B. Town of Wausau Local Zoning Ordinance Text Amendments (2)

      3. County Board of Supervisors:
         A. Change in Supervisory District Boundary Change Resulting from Village of Marathon City Annexation
         B. Change in Supervisory District Boundary Change Resulting from Village of Maine Annexation

      4. Human Resources, Finance and Property Committee
         A. 2016 Budget Transfers For Marathon County Department Appropriations
         B. 2017 Budget Transfers For Marathon County Department Appropriations
         C. Approving Private Sale of Tax Deed Property to the Village of Spencer
         D. Resolution for Petty Cash Drawer at the University of Wisconsin Extension
         E. Resolution to Amend the Marathon County Investment Policy

      5. Infrastructure Committee:
         A. Resolution Designating the Week of April 3 – 7, 2017 as "Work Zone Safety Awareness Week" in Marathon County
         B. Approving Naming the Stratford Highway Building "The Bob Wiesman Building"

      6. Executive Committee:
         A. Support for Legislation and/or Administrative Rules to Close Loopholes in Commercial Property Assessments

10. Announcements and/or Requests

11. Adjourn

MARATHON COUNTY PUBLIC SAFETY COMMITTEE MEETING

AGENDA

Date & Time of Meeting: **Wednesday, February 8, 2017, at Noon**

Meeting Location: **Courthouse Assembly Room B-105 – 500 Forest St., Wausau**

Committee Members: Craig McEwen, Chair, Jim Schaefer, Vice-Chair, Sherry Abitz, Jack Hoogendyk, Karen Kellbach, Jean Maszk, Yee Leng Xiong

Marathon County Mission Statement: *Marathon County Government serves people by leading, coordinating, and providing county, regional, and statewide initiatives. It directly or in cooperation with other public and private partners provides services and creates opportunities that make Marathon County and the surrounding area a preferred place to live, work, visit, and do business. (Last updated: 12-20-05)*
Committee Mission Statement: *Provide leadership for the implementation of the Strategic Plan, monitoring outcomes, reviewing and recommending to the County Board policies related to public safety initiatives of Marathon County.*

1. **Call Meeting to Order**

2. **Public Comment (15 minute limit)**

3. **Approval of the Minutes of the Public Safety Meeting on January 11, 2017**

4. **Educational Presentations/Outcome Monitoring Reports** - None

5. **Policy Issues Discussion and Committee Determination to the County Board for its Consideration**
   A. Uniform Addressing
      1. Rib Mountain Concerns
      2. Concern Expressed at Western Towns Meeting

   B. Marathon County Hazard Mitigation Plan

6. **Next Meeting Time, Location, Announcements and Agenda Items:**
   A. Committee members are asked to bring ideas for future discussion
   B. Next meeting: **Wednesday, March 8, 2017 at Noon** the Courthouse Assembly Room

7. **Adjournment**

"Any person planning to attend this meeting who needs some type of special accommodation in order to participate should call the County Clerk's Office at 715-261-1500 or e-mail infomarathon@mail.co.marathon.wi.us one business day before the meeting.

SIGNED /s/ Craig McEwen
Presiding Officer or Designee

FAXED TO:	Wausau Daily Herald, City Pages, and		NOTICE POSTED AT COURTHOUSE
FAXED TO:	Other Media Groups		
FAXED BY:	M. Palmer	BY:	M. Palmer
FAXED DATE:		DATE:	
FAXED TIME:		TIME:	

AGENDA

November 3, 2016

OFFICIAL MEETING NOTICE AND AGENDA

Local Emergency Planning Committee

Pre-Disaster Mitigation (PDM) Plan

A meeting of the MARATHON COUNTY LOCAL EMERGENCY PLANNING COMMITTEE will be held in the Marathon County Courthouse Assembly Room (main level) at 2:00 p.m., Thursday, November 3, 2016.

1. Meeting Called To Order
2. Roll Call
3. Approval of Minutes (From February)
4. PDM Plan Update / Discussion
5. Public Comments
6. Approval Of Plan
7. Adjourn

Any person planning to attend this meeting and may need some type of special accommodation in order to participate should call the County Clerk's office at 715-261-1500 or e-mail infomarathon@co.marathon.wi.us one business day before the meeting.

Frank Hanousek

LEPC Chair

FAXED TO WAUSAU DAILY HERALD, CITY PAGES & MARSHFIELD NEWS:	POSTED AT THE MARATHON COUNTY COURTHOUSE:
Date: ____________	Date: ____________
Time: ____________	Time: ____________
By: ____________	By: ____________

AGENDA

September 8, 2016

OFFICIAL MEETING NOTICE AND AGENDA

A meeting of the MARATHON COUNTY LOCAL EMERGENCY PLANNING COMMITTEE will be held in the Marathon County Courthouse Assembly Room (main level) at 2:00 p.m., Thursday, September 8, 2015.

1. Meeting Called To Order
2. Roll Call
3. Approval of Minutes (March)
4. Review/Approval - HazMat Costs
5. Review/Approval - Rules Of Operation
6. Spill / Response Incidents
7. Approval of Off-Site Facility Plans*
   - USPS Mail Processing, Woods Equipment
   - Foremost (Athens), Foremost (Rothschild)
   - Graphic Pkg., Land O'Lakes/Spencer Cheese
   - Marathon County Parks (Ice Arena)
   - Sam's Club, Siemens Energy
   - Wal-Mart (Rib Mtn.), Wausau Tile
8. PDM Grant Update
9. Comments From The Public
10. Schedule Next Meeting Date / Time
11. Adjourn

Copies of Off-Site Plans will be available prior to meeting for members to review.

Any person(s) planning to attend this meeting and may need some type of special accommodation in order to participate should call the County Clerk's office at 715-261-1500 or e-mail infomarathon@co.marathon.wi.us one business day before the meeting.

Frank Hanousek
LEPC Chairperson

FAXED TO: CITY PAGES, WAUSAU DAILY HERALD
Date: ____________________
Time: ____________________
By: ____________________

POSTED AT THE MARATHON COUNTY COURTHOUSE:
Date: ____________________
Time: ____________________
By: ____________________

Marathon County All Hazards Mitigation Plan Update

Village of Stratford Planning Meeting SIGN-IN

July 12, 2016 - 7:00 PM

	Name		ID all HATS you wear for Village OR General Public
1	Keith Grell		Trustee
2	TODD Belter		Village Trustee
3	Dale Neil		TRUSTEE
4	Harvey 'Bud' Suckow		Village President
5	June Krueger		Village Clerk
6	Scott Pietrowski		Trustee
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Marathon County All Hazards Mitigation Plan Update

Village of Maine Planning Meeting SIGN-IN

July 11, 2016 - 7:00 PM

	Name	ID all HATS you wear for Village OR General Public
1	[illegible]	Village Trustee
2	Vickie Bartelt	Village Trustee
3	KEITH RUSCH	VILLAGE TRUSTEE
4	Patricia M Behrendt	Village Treasurer
5	Betty Hoenisch	Village President
6	Rich Graefe	Zoning and Building Inspector
7	[illegible]	Village Trustee
8	Jon Graveen	Village Trustee
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Marathon County All Hazards Mitigation Plan Update

Village of Weston Planning Meeting SIGN-IN

June 27, 2016 - 6:30 PM

	Name		ID all HATS you wear for Village OR General Public
1	Renee Hodell		Taxpayer Relations Coordinator
2	Brian Fiene		Citizen member CLPS Committee
3	Fred Schuster		Village Trustee
4	Zachary Martin		Citizen Member CLPS Committee
5	Tamera Hansen		member CLPS committee
6	Bob Wesenick		Member of Town of Weston
7	Daniel Guild		Administrator
8	Keith Donner		Director of Public Works
9	Michael Wodalski		Deputy Director of Public Works
10	Loren White		Village of Weston Trustee
11	Wally Sparks		Everest Metro PD
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Marathon County All Hazards Mitigation Plan Update

Village of Rothschild Planning Meeting SIGN-IN

June 16, 2016 - 9:00 AM

	Name		ID all HATS you were for Village OR General Public
1	George J Peterson		Village President
2	Tim Vergara, PE		Administrator of Public Works/
3			Zoning Administrator
4	Philip Rentmeester		
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Marathon County All Hazards Mitigation Plan Update

Village of Brokaw Planning Meeting SIGN-IN

June14, 2016 - 6:30 PM

	Name	ID all HATS you were for Village OR General Public
1	John Barth	Village Trustee / Public Works Chair
2	James Sonnentag	Village Trustee
3	Dan R. [illegible]	Village Legal Counsel
4	[illegible]	Village PRESIDENT
5	Brenda Weisenberger	Deputy Clerk
6	Robert Baumann	Village Brokaw treas.
7	Marge [illegible]	Village Trustee
8	Daniel Hanowitz	Village Trustee
9	Diane Dettmering	resident of Brokaw
10	Rochelle Frank	Resident of Brokaw
11	Richelle Frank	Village Resident
12	Charlie Blarek	Public Works
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Marathon County All Hazards Mitigation Plan Update

City of Schofield Planning Meeting SIGN-IN

June 13, 2016 - 5:00 PM

	Name		ID all HATS you were for City OR General Public
1	Daniel R. Vergin		Alderman, City of Schofield
2	Jesse Rozmarynowski		Planning Commission - Public member
3	Patrick Snyder		Alderman, City of Schofield
4	Lee Turonie		City Attorney
5	Lisa Krause		Planning Commission Member
6	Matt Thao T		Public Works
7	Gregg Hoehn		Mayor - Schofield
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AGENDA

June 9, 2016

OFFICIAL MEETING NOTICE AND AGENDA

A meeting of the MARATHON COUNTY LOCAL EMERGENCY PLANNING COMMITTEE will be held in the Marathon county Courthouse Assembly Room (main level) at 2:00 p.m., Thursday, June 9, 2016.

1. Meeting Called To Order
2. Roll Call
3. Approval of Minutes
4. Spills / Response Incidents (attached)
5. Approval of Off-Site Facility Plans* (11)
   - USPS Mail Processing, Woods Equipment,
   - Foremost (Athens), Foremost (Rothschild)
   - Graphic Pkg., Land O'Lakes/Spencer Cheese
   - Marathon County Parks (Ice Arena)
   - Sam's Club, Siemens Energy
   - Wal-Mart (Rib Mtn), Wausau Tile

7. WPS Presentation
8. PDM Grant Update
9. Comments From The Public
10. Schedule Next Meeting Date / Time
11. Adjourn

* Copies of Off-Site Plans will be available prior to meeting for members to review.

Any person(s) planning to attend this meeting and may need some type of special accommodation in order to participate should call the County Clerk's office at 715-261-1500 or e-mail infomarathon@co.marathon.wi.us one business day before the meeting.

Frank Hanousek
LEPC Chair

FAXED TO WAUSAU DAILY HERALD, CITY PAGES & MARSHFIELD NEWS:	POSTED AT THE MARATHON COUNTY COURTHOUSE:
Date:	Date:
Time:	Time:
By:	By:

Marathon County All Hazards Mitigation Plan Update

Village of Kronenwetter Planning Meeting SIGN-IN

June 6, 2016 - 6:30 PM

	Name		ID all HATS you were for Village OR General Public
1	C. J. Voel		Village President
2	Judy Nitschke		Trustee
3	Amy Hahn		Secretary
4	Emil Wasmundt		Chair
5	Ray Bender		Committee member
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Marathon County All Hazards Mitigation Plan Update

Village of Marathon City Planning Meeting SIGN-IN

May 18, 2016 - 7:00 PM

	Name		ID all HATS you were for Village OR General Public
1	Mike Tylinski Fire Chief		
2	Kory Gentschow Police Chief		
3	Mark Ludwig - Board Member		
4	Luanne Wiesman - Deputy clerk		
5	Andrew Kurtz		Administrator, Clerk, Treasurer
6	Tom Small	VP	
7	Mark Ahrens	T	
8	David Belanger	T	
9	Connie Ruplinger	T	
10	Craig Prihoda	T	
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Marathon County All Hazards Mitigation Plan Update

Village of Spencer Planning Meeting SIGN-IN

May 17, 2016 - 10:00 AM

	Name		ID all HATS you were for Village OR General Public
1	Paul Hensch		Administrator Clerk Treasurer
2	Shawn Bauer		Chief of Police -
3	Pauline Frome		Village President
4	Jason Foth		Fire Chief
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Marathon County All Hazards Mitigation Plan Update

City of Wausau Planning Meeting SIGN-IN

May 16, 2016 - 5:15 PM

	Name	ID all HATS you were for City OR General Public
1	Lisa Rasmussen	City Council President, Chair
2		PH+S Committee, Ald-Dist 7
3	Romey Wagner	City Council Alderperson Dist 2
4	Tara Alfonso	Asst. City Atty
5	Karen Kellbach	City Alderperson - County Supervisor Dist 8
6	Becky McElhaney	City Council Alderperson Dist. 6
7	Tracy Kujawa	City of Wausau FD
8	ROBERT MIELKE	MAYOR - City of Wausau
9	Chief	Wausau PD
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Marathon County All Hazards Mitigation Plan Update

Public Informational Meeting SIGN-IN

March 30, 2016 - 5:00 PM

	Name		Address
1	Frank Hanousek		Marathon Co. Sheriff's Office
2	Philip Rentmeester		Marathon Co. Emergency Management Office
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Marathon County All Hazards Mitigation Plan Update

Agency and Interest Group Meeting SIGN-IN

March 30, 2016 - 2:00 PM

	Name	Department	Email
1	DAN JOLING	KRONENWETTER P.D.	policechief@kronenwetter.org
2	Jeff Pritchard	C.P.Z	
3	Philip Rentmeester	E.M.	phil.rentmeester@co.marathon.wi.us
4	Julia Wicke	MCDSS	Julia Wicke
5	LOWELL ZAHRT	WAUSAU MANOR MAINT	LZAHRT@WAUSAUMANORCARES.COM
6	Larry Buchberger	Community Dev. Auth.	Larry.buchberger@ci.wausau
7	Bill Fenker	Marathon C LEPC	sycon.grp@gmail.com
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Marathon County All Hazards Mitigation Plan Update

Agency and Interest Group Meeting SIGN-IN

March 30, 2016 - 2:00 PM

	Name	Department	Email
1	Rick Nowack	Wausau Manor	rjnowack@gmail.com
2	LARRY CIHLAR	WAUSAU SCHOOL DIST	LCIHLAR@WAUSAUSCHOOLS.ORG
3	Jeff Lindell	Wausau School Dist.	jlindell@wausauschools.org
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Marathon County All Hazards Mitigation Plan Update

Agency and Interest Group Meeting SIGN-IN

March 30, 2016 - 2:00 PM

	Name	Department	Email
1	Heather Schlesser	UW-Extension	Heather.Schlesser@co.marathon.wi.us.
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MARATHON COUNTY
HAZARD MITIGATION PLAN
PUBLIC INFORMATIONAL MEETING

Notice is hereby given by the Marathon County Local Emergency Planning Committee that there will be a public informational meeting at the Marathon County Courthouse - Assembly Room, 500 Forest St., Wausau on Wednesday, March 30, 2016 from 5 to 6:30pm to discuss the County's draft All Hazards Mitigation Plan, which includes each city and village.

The meeting will be an open house format and provide information about the natural hazards that can affect the County and the strategies being developed to mitigate against future loses and reduce public expenditure for response and recovery. A copy of the draft plan can be reviewed on the web at http:/ /www.ncwrpc.org/marathon/hazard/index.html

All interested parties are encouraged to attend. Contact Marathon County Emergency Management Director Philip Rentmeester at 715-261-1229 for more information.

WI-5001986971 WNAXLP

NORTH CENTRAL WISCONSIN REGIONAL PLANNING COMMISSION

210 McClellan Street, Suite 210, Wausau, Wisconsin 54403
Telephone: (715) 849-5510 Fax: (715) 849-5110
Web Page: www.ncwrpc.org Email: staff@ncwrpc.org

NCWRPC

SERVING ADAMS, FOREST, JUNEAU, LANGLADE, LINCOLN, MARATHON, ONEIDA, PORTAGE, VILAS AND WOOD COUNTIES

MEMORANDUM

DATE: February 25, 2016

TO: Town Clerks in Marathon County

FROM: Darryl L. Landeau, AICP DLL

RE: Marathon County All Hazards Mitigation Planning Meeting Notice

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Marathon County Emergency Management and the NCWRPC will be hosting an open house / public informational meeting on strategies to mitigate the effects of future natural disasters in Marathon County. The meeting will take place in an open house format between 5 and 6:30 pm on Wednesday, March 30 in the Marathon County Assembly Room, 500 Forest Street, Wausau.

If possible, please share this information with your chairperson and other supervisors in case they are interested in attending this session. This meeting will provide an update on the project and an opportunity to provide input on possible recommendations to protect life and property within the County. The draft will incorporate information from the survey sent to the towns.

These strategies will become part of the County's All Hazards Mitigation Plan update currently being developed. Counties are required to make such plans as a result of the federal Disaster Mitigation Act of 2000 (DMA2K). This Act put a national priority on hazard mitigation by requiring mitigation plans in order to be eligible for disaster mitigation grant programs from FEMA. Marathon County is developing a multi-jurisdictional plan to establish eligibility for both the county and each municipality in the same way the county-wide outdoor recreation plan works with DNR grants. This in no way obligates or commits any local jurisdiction.

The meetings will provide information about the natural hazards that can affect Marathon County, and copies of the draft plan material will be available for review. *Public Comment will also be solicited, so we request that you post this notice at your primary posting location to help us encourage public attendance.* We have already published legal notice in the newspaper, so that is not something we are asking any of you to do.

If you have any questions, please feel free to contact me at 715-849-5510 extension 308 or email to dlandeau@ncwrpc.org.

N:\DARRYL\MARATHON\COUNTY\MITIGATIONPLAN\MC_MEETINGS\MARATHONCO_CLERKS_NOTICED.DOC

MARATHON COUNTY EMERGENCY MANAGEMENT

Prevent. Prepare. Mitigate. Respond. Recover.

MEMORANDUM

TO:	Government agencies, County department staff, and other private or non-profit organizations within Marathon County
FROM:	Philip Rentmeester, Director - Marathon County Emergency Management PR
DATE:	February 25, 2016
RE:	Marathon Co. All-Hazards Mitigation Plan Update Interest Group Meeting Notice

Marathon County has received a grant through the Federal Emergency Management Agency (FEMA) to complete an update of its All-Hazards Mitigation Plan to protect the health and safety of residents from the impacts of natural hazards and to minimize and prevent damages caused by these events. The North Central Wisconsin Regional Planning Commission (NCWRPC) is assisting Marathon County with this plan.

As a requirement of the planning process, an opportunity must be provided to local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as business, academia and private and non-profit interests to be involved. To meet this requirement, an interest group meeting is scheduled for the following date and place:

When: **Wednesday, March 30, 2016 at 2:00 p.m.**
Where: **Marathon County Courthouse - Assembly Room**
500 Forest Street, Wausau, Wisconsin

In addition to meeting FEMA requirements, the interest group meeting will be a way to gather ideas on how to safeguard the residents and visitors of Marathon County and protect property in the event of natural disasters. Since you live and/or do business in or around Marathon County, your input in this process is very valuable.

Please call or email me if you have any questions regarding this meeting. My number is 715-261-1229, and my email is phil.rentmeester@co.marathon.wi.us. I highly encourage at least one staff person from your department or agency with responsibilities relating to or potentially impacted by natural hazards / disaster to attend.

Thank you.

AGENDA

February 11, 2016

OFFICIAL MEETING NOTICE AND AGENDA

Local Emergency Planning Committee

Pre-Disaster Mitigation (PDM) Plan

A meeting of the MARATHON COUNTY LOCAL EMERGENCY PLANNING COMMITTEE will be held in the Marathon county Courthouse *Assembly Room* (main level) at 2:00 p.m., Thursday, February 11, 2016.

1. Meeting Called To Order
2. Roll Call
3. PDM Plan Update / Discussion
4. Public Comments
5. Adjourn

Any person planning to attend this meeting and may need some type of special accommodation in order to participate should call the County Clerk's office at 715-261-1500 or e-mail infomarathon@co.marathon.wi.us one business day before the meeting.

Frank Hanousek
LEPC Chairperson

FAXED TO WAUSAU DAILY HERALD, CITY PAGES & MARSHFIELD NEWS:	POSTED AT THE MARATHON COUNTY COURTHOUSE:
Date: ______	Date: ______
Time: ______	Time: ______
By: ______	By: ______

AGENDA

December 10, 2015

OFFICIAL MEETING NOTICE AND AGENDA

A meeting of the MARATHON COUNTY LOCAL EMERGENCY PLANNING COMMITTEE will be held in the Marathon County Courthouse Assembly Room (main level) at 2:00 p.m. Thursday, to consider the following:

1. Meeting Called To Order
2. Roll Call
3. Approval Of Minutes
4. Member Update
5. HazMat / Response Incidents
6. Approval Of Off-Site Facility Plans*
   - 3M Company (Rosecrans St – Wausau)
7. PDM Plan Update
8. Comments From The Public
9. Schedule Next Meeting Date / Time
10. Adjourn

* Copies of Off-Site Plans will be available prior to meeting for members to review

Any person planning to attend this meeting and may need some type of special accommodation in order to participate should call the County Clerk's Office at 261-1500 or e-mail infomarathon@co.marathon.wi.us one business day before the meeting.

Frank Hanousek
LEPC Chairperson

FAXED TO THE DAILY HERALD, CITY PAGES & MARSHFIELD NEWS:

DATE: ____________________
TIME: ____________________
BY: ____________________

POSTED AT THE MARATHON COUNTY COURTHOUSE:

DATE: ____________________
TIME: ____________________
BY: ____________________

AGENDA

November 12, 2015

OFFICIAL MEETING NOTICE AND AGENDA

Local Emergency Planning Committee

Pre-Disaster Mitigation (PDM) Plan

A meeting of the MARATHON COUNTY LOCAL EMERGENCY PLANNING COMMITTEE will be held in the Marathon county Courthouse *Employee Resources Conference Room* (main level) at 2:00 p.m., Thursday, November 12, 2015.

1. Meeting Called To Order
2. Roll Call
3. PDM Plan Update / Discussion
4. Public Comments
5. Adjourn

Any person planning to attend this meeting and may need some type of special accommodation in order to participate should call the County Clerk's office at 715-261-1500 or e-mail infomarathon@co.marathon.wi.us one business day before the meeting.

Frank Hanousek
LEPC Chairperson

FAXED TO WAUSAU DAILY HERALD, CITY PAGES & MARSHFIELD NEWS:	POSTED AT THE MARATHON COUNTY COURTHOUSE:
Date:	Date:
Time:	Time:
By:	By:

AGENDA

October 8, 2015

OFFICIAL MEETING NOTICE AND AGENDA

Pre-Disaster Mitigation (PDM) Plan

A meeting of the MARATHON COUNTY LOCAL EMERGENCY PLANNING COMMITTEE will be held in the Marathon county Courthouse *Employee Resources Conference Room* (main level) at 2:00 p.m., Thursday, October 8, 2015.

1. Meeting Called To Order
2. Roll Call
3. PDM Plan Update / Discussion
4. Adjourn

Any person planning to attend this meeting and may need some type of special accommodation in order to participate should call the County Clerk's office at 715-261-1500 or e-mail infomarathon@co.marathon.wi.us one business day before the meeting.

Frank Hanousek
LEPC Chairperson

FAXED TO WAUSAU DAILY HERALD, CITY PAGES & MARSHFIELD NEWS:
Date:
Time:
By:

POSTED AT THE MARATHON COUNTY COURTHOUSE:
Date:
Time:
By:

AGENDA

OFFICIAL MEETING NOTICE

September 10, 2015

A meeting of the MARATHON COUNTY LOCAL EMERGENCY PLANNING COMMITTEE will be held in the Marathon County Courthouse Assembly Room on Thursday, September 10, 2015 at 2:00 p.m.

1. Meeting Called To Order
2. Roll Call
3. Approval Of Minutes
4. Election of Vice-Chair

Member Update
HazMat / Response Incidents
Approval Of Off-Site Facility Plans*
- Footlocker.com/Eastbay – Frontier Communications
- Green Bay Packaging – Greenheck Fan (2&8)
- Kolbe & Kolbe – Kraft Foods
- Hydrite Chemical (facility closed)
- Lintec Anodizing – Lintec Paint/Plastics

Hazard Mitigation Plan Update
Set Oversight Committee Date(s)
Exercise Review
Comments From The Public
Schedule Next Meeting Date / Time
Adjourn

* Copies of Off-Site Plans will be available prior to meeting for members to review.

Any person planning to attend this meeting and may need some type of special accommodation in order to participate should call the County Clerk's Office at 261-1500 or e-mail infomarathon@co.marathon.wi.us one business day before the meeting.

Frank Hanousek
LEPC Chairperson

FAXED TO THE DAILY HERALD, CITY PAGES & MARSHFIELD NEWS:

DATE: ______________

TIME: ______________

BY: ______________

POSTED AT THE MARATHON COUNTY COURTHOUSE:

DATE: ______________

TIME: ______________

BY: ______________

AGENDA

OFFICIAL MEETING NOTICE AND AGENDA

June 11, 2015

A meeting of the MARATHON COUNTY LOCAL EMERGENCY PLANNING COMMITTEE will be held in the Marathon County Courthouse Assembly Room (main level) at 2:00 p.m., Thursday, June 11, 2015 to consider the following:

1. Meeting Called To Order
2. Election Of Officers
3. Roll Call
4. Approval Of Minutes
5. Hazard Mitigation Update – Darryl Landeau
6. HazMat / Response Incidents
7. Approval Of Off-Site Facility Plans*
   - Charter Communications – Schofield
   - Mullins Cheese – Mosinee
8. Pipeline Awareness – Bryon Bensen
9. Comments From The Public
10. Schedule Next Meeting Date / Time
11. Adjourn

*** Copies of Off-Site Plans will be available prior to meeting for members to review.**

Any person planning to attend this meeting and may need some type of special accommodation in order to participate should call the County Clerk's Office at 261-1500 or e-mail informarathon@mail co.marathon.wi.us one business day before the meeting.

Phil Rentmeester

(Signed) Chairman or Designee

FAXED TO THE DAILY HERALD, CITY PAGES & MARSHFIELD NEWS:

DATE: ____________________

TIME: ____________________

BY: ____________________

POSTED AT THE MARATHON COUNTY COURTHOUSE:

DATE: ____________________

TIME: ____________________

BY: ____________________

Appendix B – Resolutions of Plan Update Adoption

RESOLUTION #R-15 -17
Adopting the Marathon County All Hazards Mitigation Plan Update

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

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

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

WHEREAS, pursuant to 44 Code of Federal Regulations, Section 201.6, all hazard mitigation plans are required to be updated every 5-years; and

WHEREAS, Marathon County adopted its last 5-year All Hazards Mitigation Plan Update on June 21, 2011; and

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

WHEREAS, the Marathon County Public Safety Committee has approved the attached All Hazards Mitigation Plan update at its meeting on February 8, 2017.

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

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

Respectfully submitted this 20th day of March, 2017.

PUBLIC SAFETY COMMITTEE

Fiscal Impact: *No anticipated budgetary impact for 2017.*

STATE OF WISCONSIN)
)SS.
COUNTY OF MARATHON)

I, Nan Kottke, County Clerk in and for Marathon County, Wisconsin, hereby certify that the attached Resolution #R-15-17 was adopted by the Marathon County Board of Supervisors at their Adjourned Annual meeting which was held March 28, 2017.

Nan Kottke

SEAL

Nan Kottke
Marathon County Clerk

RESOLUTION # ________

ADOPTING THE MARATHON COUNTY ALL HAZARDS MITIGATION PLAN UPDATE

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

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

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

WHEREAS, all hazard mitigation plans are required to be updated every 5-years; and

WHEREAS, the City/Village of __________ adopted the last 5-year All Hazards Mitigation Plan Update on _________ __, _____; and

WHEREAS, the City/Village of __________ participated jointly in the planning process with Marathon County and the other local units of government within the County to prepare an update to the All Hazards Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the City/Village Council/Board of the City/Village of _________, hereby adopts the Marathon County All Hazards Mitigation Plan Update as an official plan; and

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

PASSED:___________.

____
Certifying Official

Appendix C – EMSI Job Loss Analysis

Marathon County All Hazard I/O

EMSI Q3 2015 Data Set

December 2015

North Central Wisconsin Regional Planning Commission

210 McClellan Street, Suite 210
Wausau, Wisconsin 54403

Changes to Industrial and Commercial Fan and Blower and Air Purification Equipment Manufacturing

$-109,706,179	-1,872	$58,593
Change in Earnings 1.29 Multiplier	Change in Jobs 1.50 Multiplier	Average Earnings Per Job (2012)

Scenario Results - Industry

NAICS	Industry	Change in Jobs
11	Crop and Animal Production	-1
21	Mining, Quarrying, and Oil and Gas Extraction	0
22	Utilities	-1
23	Construction	-27
31	Manufacturing	-1,298
42	Wholesale Trade	-30
44	Retail Trade	-101
48	Transportation and Warehousing	-16
51	Information	-6
52	Finance and Insurance	-30
53	Real Estate and Rental and Leasing	-15
54	Professional, Scientific, and Technical Services	-29
55	Management of Companies and Enterprises	-9
56	Administrative and Support and Waste Management and Remediation Services	-21
61	Educational Services	-12
62	Health Care and Social Assistance	-120
71	Arts, Entertainment, and Recreation	-14
72	Accommodation and Food Services	-59
81	Other Services (except Public Administration)	-49
90	Government	-34

Scenario Results - Occupation

SOC	Occupation	Change in Jobs
11-0000	Management Occupations	-101
13-0000	Business and Financial Operations Occupations	-75
15-0000	Computer and Mathematical Occupations	-37
17-0000	Architecture and Engineering Occupations	-123
19-0000	Life, Physical, and Social Science Occupations	-3
21-0000	Community and Social Service Occupations	-10
23-0000	Legal Occupations	-4
25-0000	Education, Training, and Library Occupations	-21
27-0000	Arts, Design, Entertainment, Sports, and Media Occupations	-22
29-0000	Healthcare Practitioners and Technical Occupations	-42
31-0000	Healthcare Support Occupations	-28
33-0000	Protective Service Occupations	-7
35-0000	Food Preparation and Serving Related Occupations	-60
37-0000	Building and Grounds Cleaning and Maintenance Occupations	-31
39-0000	Personal Care and Service Occupations	-38
41-0000	Sales and Related Occupations	-130
43-0000	Office and Administrative Support Occupations	-211
45-0000	Farming, Fishing, and Forestry Occupations	-1
47-0000	Construction and Extraction Occupations	-66
49-0000	Installation, Maintenance, and Repair Occupations	-72
51-0000	Production Occupations	-685
53-0000	Transportation and Material Moving Occupations	-102
55-0000	Military occupations	0
99-0000	Unclassified Occupation	-3

Scenario Results - Demographics

Demographics	Change in Jobs
Female 14-18	-16
Male 14-18	-12
Female 19-21	-30
Male 19-21	-30
Female 22-24	-26
Male 22-24	-44
Female 25-34	-107
Male 25-34	-213
Female 35-44	-139
Male 35-44	-309
Female 45-54	-157
Male 45-54	-354
Female 55-64	-94
Male 55-64	-259
Female 65-99	-26
Male 65-99	-56

Changes to Wood Window and Door Manufacturing

$-68,672,580 Change in Earnings 1.37 Multiplier	**-1,670** Change in Jobs 1.42 Multiplier	**$41,125** Average Earnings Per Job (2012)

Scenario Results - Industry

NAICS	Industry	Change in Jobs
11	Crop and Animal Production	-14
21	Mining, Quarrying, and Oil and Gas Extraction	0
22	Utilities	-1
23	Construction	-13
31	Manufacturing	-1,254
42	Wholesale Trade	-19
44	Retail Trade	-62
48	Transportation and Warehousing	-18
51	Information	-5
52	Finance and Insurance	-16
53	Real Estate and Rental and Leasing	-10
54	Professional, Scientific, and Technical Services	-26
55	Management of Companies and Enterprises	-8
56	Administrative and Support and Waste Management and Remediation Services	-30
61	Educational Services	-7
62	Health Care and Social Assistance	-72
71	Arts, Entertainment, and Recreation	-10
72	Accommodation and Food Services	-46
81	Other Services (except Public Administration)	-34
90	Government	-23

Scenario Results - Occupation

SOC	Occupation	Change in Jobs
11-0000	Management Occupations	-73
13-0000	Business and Financial Operations Occupations	-43
15-0000	Computer and Mathematical Occupations	-15
17-0000	Architecture and Engineering Occupations	-26
19-0000	Life, Physical, and Social Science Occupations	-2
21-0000	Community and Social Service Occupations	-6
23-0000	Legal Occupations	-2
25-0000	Education, Training, and Library Occupations	-14
27-0000	Arts, Design, Entertainment, Sports, and Media Occupations	-16
29-0000	Healthcare Practitioners and Technical Occupations	-25
31-0000	Healthcare Support Occupations	-16
33-0000	Protective Service Occupations	-6
35-0000	Food Preparation and Serving Related Occupations	-45
37-0000	Building and Grounds Cleaning and Maintenance Occupations	-28
39-0000	Personal Care and Service Occupations	-24
41-0000	Sales and Related Occupations	-99
43-0000	Office and Administrative Support Occupations	-166
45-0000	Farming, Fishing, and Forestry Occupations	-21
47-0000	Construction and Extraction Occupations	-161
49-0000	Installation, Maintenance, and Repair Occupations	-53
51-0000	Production Occupations	-623
53-0000	Transportation and Material Moving Occupations	-200
55-0000	Military occupations	0
99-0000	Unclassified Occupation	-4

Scenario Results - Demographics

Demographics	Change in Jobs
Female 14-18	-15
Male 14-18	-15
Female 19-21	-22
Male 19-21	-37
Female 22-24	-20
Male 22-24	-48
Female 25-34	-105
Male 25-34	-185
Female 35-44	-142
Male 35-44	-219
Female 45-54	-172
Male 45-54	-304
Female 55-64	-101
Male 55-64	-207
Female 65-99	-38
Male 65-99	-40

Changes to General Medical and Surgical Hospitals

$-173,481,000	-3,713	$46,723
Change in Earnings 1.29 Multiplier	Change in Jobs 1.41 Multiplier	Average Earnings Per Job (2012)

Scenario Results - Industry

NAICS	Industry	Change in Jobs
11	Crop and Animal Production	-3
21	Mining, Quarrying, and Oil and Gas Extraction	0
22	Utilities	-2
23	Construction	-29
31	Manufacturing	-12
42	Wholesale Trade	-18
44	Retail Trade	-154
48	Transportation and Warehousing	-18
51	Information	-11
52	Finance and Insurance	-90
53	Real Estate and Rental and Leasing	-63
54	Professional, Scientific, and Technical Services	-68
55	Management of Companies and Enterprises	-5
56	Administrative and Support and Waste Management and Remediation Services	-96
61	Educational Services	-16
62	Health Care and Social Assistance	-2,830
71	Arts, Entertainment, and Recreation	-23
72	Accommodation and Food Services	-115
81	Other Services (except Public Administration)	-110
90	Government	-49

Scenario Results - Occupation

SOC	Occupation	Change in Jobs
11-0000	Management Occupations	-154
13-0000	Business and Financial Operations Occupations	-118
15-0000	Computer and Mathematical Occupations	-61
17-0000	Architecture and Engineering Occupations	-7
19-0000	Life, Physical, and Social Science Occupations	-15
21-0000	Community and Social Service Occupations	-86
23-0000	Legal Occupations	-12
25-0000	Education, Training, and Library Occupations	-39
27-0000	Arts, Design, Entertainment, Sports, and Media Occupations	-36
29-0000	Healthcare Practitioners and Technical Occupations	-1,324
31-0000	Healthcare Support Occupations	-443
33-0000	Protective Service Occupations	-21
35-0000	Food Preparation and Serving Related Occupations	-194
37-0000	Building and Grounds Cleaning and Maintenance Occupations	-242
39-0000	Personal Care and Service Occupations	-87
41-0000	Sales and Related Occupations	-183
43-0000	Office and Administrative Support Occupations	-448
45-0000	Farming, Fishing, and Forestry Occupations	-2
47-0000	Construction and Extraction Occupations	-37
49-0000	Installation, Maintenance, and Repair Occupations	-72
51-0000	Production Occupations	-41
53-0000	Transportation and Material Moving Occupations	-69
55-0000	Military occupations	0
99-0000	Unclassified Occupation	-22

Scenario Results - Demographics

Demographics	Change in Jobs
Female 14-18	-47
Male 14-18	-23
Female 19-21	-96
Male 19-21	-30
Female 22-24	-150
Male 22-24	-36
Female 25-34	-642
Male 25-34	-168
Female 35-44	-562
Male 35-44	-203
Female 45-54	-676
Male 45-54	-219
Female 55-64	-494
Male 55-64	-163
Female 65-99	-126
Male 65-99	-78

Changes to Offices of Physicians (except Mental Health Specialists)

$-200,951,789	-2,428	$82,781
Change in Earnings 1.23 Multiplier	Change in Jobs 1.76 Multiplier	Average Earnings Per Job (2012)

Scenario Results - Industry

NAICS	Industry	Change in Jobs
11	Crop and Animal Production	-2
21	Mining, Quarrying, and Oil and Gas Extraction	0
22	Utilities	-1
23	Construction	-25
31	Manufacturing	-10
42	Wholesale Trade	-16
44	Retail Trade	-172
48	Transportation and Warehousing	-15
51	Information	-11
52	Finance and Insurance	-68
53	Real Estate and Rental and Leasing	-69
54	Professional, Scientific, and Technical Services	-52
55	Management of Companies and Enterprises	-9
56	Administrative and Support and Waste Management and Remediation Services	-75
61	Educational Services	-19
62	Health Care and Social Assistance	-1,592
71	Arts, Entertainment, and Recreation	-26
72	Accommodation and Food Services	-130
81	Other Services (except Public Administration)	-90
90	Government	-44

Scenario Results - Occupation

SOC	Occupation	Change in Jobs
11-0000	Management Occupations	-98
13-0000	Business and Financial Operations Occupations	-78
15-0000	Computer and Mathematical Occupations	-30
17-0000	Architecture and Engineering Occupations	-5
19-0000	Life, Physical, and Social Science Occupations	-11
21-0000	Community and Social Service Occupations	-42
23-0000	Legal Occupations	-7
25-0000	Education, Training, and Library Occupations	-31
27-0000	Arts, Design, Entertainment, Sports, and Media Occupations	-30
29-0000	Healthcare Practitioners and Technical Occupations	-580
31-0000	Healthcare Support Occupations	-246
33-0000	Protective Service Occupations	-14
35-0000	Food Preparation and Serving Related Occupations	-131
37-0000	Building and Grounds Cleaning and Maintenance Occupations	-64
39-0000	Personal Care and Service Occupations	-75
41-0000	Sales and Related Occupations	-183
43-0000	Office and Administrative Support Occupations	-664
45-0000	Farming, Fishing, and Forestry Occupations	-1
47-0000	Construction and Extraction Occupations	-25
49-0000	Installation, Maintenance, and Repair Occupations	-35
51-0000	Production Occupations	-22
53-0000	Transportation and Material Moving Occupations	-47
55-0000	Military occupations	0
99-0000	Unclassified Occupation	-6

Scenario Results - Demographics

Demographics	Change in Jobs
Female 14-18	-31
Male 14-18	-20
Female 19-21	-48
Male 19-21	-24
Female 22-24	-65
Male 22-24	-24
Female 25-34	-295
Male 25-34	-121
Female 35-44	-317
Male 35-44	-239
Female 45-54	-370
Male 45-54	-322
Female 55-64	-212
Male 55-64	-239
Female 65-99	-41
Male 65-99	-59

Changes to Animal Production and Aquaculture

$-100,943,433	-3,194	$31,607
Change in Earnings 1.46 Multiplier	Change in Jobs 1.36 Multiplier	Average Earnings Per Job (2012)

Scenario Results - Industry

NAICS	Industry	Change in Jobs
11	Crop and Animal Production	-2,484
21	Mining, Quarrying, and Oil and Gas Extraction	-2
22	Utilities	-2
23	Construction	-57
31	Manufacturing	-18
42	Wholesale Trade	-45
44	Retail Trade	-107
48	Transportation and Warehousing	-32
51	Information	-6
52	Finance and Insurance	-38
53	Real Estate and Rental and Leasing	-19
54	Professional, Scientific, and Technical Services	-36
55	Management of Companies and Enterprises	-1
56	Administrative and Support and Waste Management and Remediation Services	-19
61	Educational Services	-10
62	Health Care and Social Assistance	-120
71	Arts, Entertainment, and Recreation	-13
72	Accommodation and Food Services	-56
81	Other Services (except Public Administration)	-50
90	Government	-78

Scenario Results - Occupation

SOC	Occupation	Change in Jobs
11-0000	Management Occupations	-1,802
13-0000	Business and Financial Operations Occupations	-37
15-0000	Computer and Mathematical Occupations	-10
17-0000	Architecture and Engineering Occupations	-6
19-0000	Life, Physical, and Social Science Occupations	-5
21-0000	Community and Social Service Occupations	-12
23-0000	Legal Occupations	-4
25-0000	Education, Training, and Library Occupations	-41
27-0000	Arts, Design, Entertainment, Sports, and Media Occupations	-18
29-0000	Healthcare Practitioners and Technical Occupations	-53
31-0000	Healthcare Support Occupations	-30
33-0000	Protective Service Occupations	-15
35-0000	Food Preparation and Serving Related Occupations	-65
37-0000	Building and Grounds Cleaning and Maintenance Occupations	-47
39-0000	Personal Care and Service Occupations	-126
41-0000	Sales and Related Occupations	-110
43-0000	Office and Administrative Support Occupations	-136
45-0000	Farming, Fishing, and Forestry Occupations	-455
47-0000	Construction and Extraction Occupations	-58
49-0000	Installation, Maintenance, and Repair Occupations	-39
51-0000	Production Occupations	-34
53-0000	Transportation and Material Moving Occupations	-89
55-0000	Military occupations	0
99-0000	Unclassified Occupation	-3

Scenario Results - Demographics

Demographics	Change in Jobs
Female 14-18	-49
Male 14-18	-108
Female 19-21	-61
Male 19-21	-109
Female 22-24	-47
Male 22-24	-142
Female 25-34	-148
Male 25-34	-348
Female 35-44	-169
Male 35-44	-398
Female 45-54	-208
Male 45-54	-496
Female 55-64	-170
Male 55-64	-312
Female 65-99	-135
Male 65-99	-295

Changes to Supermarkets and Other Grocery (except Convenience) Stores

$-29,941,268 Change in Earnings 1.34 Multiplier	**-1,256** Change in Jobs 1.19 Multiplier	**$23,834** Average Earnings Per Job (2012)

Scenario Results - Industry

NAICS	Industry	Change in Jobs
11	Crop and Animal Production	-1
21	Mining, Quarrying, and Oil and Gas Extraction	0
22	Utilities	0
23	Construction	-10
31	Manufacturing	-3
42	Wholesale Trade	-3
44	Retail Trade	-1,086
48	Transportation and Warehousing	-7
51	Information	-2
52	Finance and Insurance	-8
53	Real Estate and Rental and Leasing	-16
54	Professional, Scientific, and Technical Services	-10
55	Management of Companies and Enterprises	-1
56	Administrative and Support and Waste Management and Remediation Services	-10
61	Educational Services	-4
62	Health Care and Social Assistance	-28
71	Arts, Entertainment, and Recreation	-4
72	Accommodation and Food Services	-15
81	Other Services (except Public Administration)	-14
90	Government	-34

Scenario Results - Occupation

SOC	Occupation	Change in Jobs
11-0000	Management Occupations	-23
13-0000	Business and Financial Operations Occupations	-12
15-0000	Computer and Mathematical Occupations	-3
17-0000	Architecture and Engineering Occupations	-1
19-0000	Life, Physical, and Social Science Occupations	-1
21-0000	Community and Social Service Occupations	-3
23-0000	Legal Occupations	-1
25-0000	Education, Training, and Library Occupations	-15
27-0000	Arts, Design, Entertainment, Sports, and Media Occupations	-12
29-0000	Healthcare Practitioners and Technical Occupations	-30
31-0000	Healthcare Support Occupations	-9
33-0000	Protective Service Occupations	-6
35-0000	Food Preparation and Serving Related Occupations	-184
37-0000	Building and Grounds Cleaning and Maintenance Occupations	-21
39-0000	Personal Care and Service Occupations	-10
41-0000	Sales and Related Occupations	-446
43-0000	Office and Administrative Support Occupations	-256
45-0000	Farming, Fishing, and Forestry Occupations	-1
47-0000	Construction and Extraction Occupations	-10
49-0000	Installation, Maintenance, and Repair Occupations	-9
51-0000	Production Occupations	-90
53-0000	Transportation and Material Moving Occupations	-112
55-0000	Military occupations	0
99-0000	Unclassified Occupation	-1

Scenario Results - Demographics

Demographics	Change in Jobs
Female 14-18	-136
Male 14-18	-127
Female 19-21	-81
Male 19-21	-69
Female 22-24	-47
Male 22-24	-44
Female 25-34	-69
Male 25-34	-88
Female 35-44	-82
Male 35-44	-54
Female 45-54	-134
Male 45-54	-75
Female 55-64	-111
Male 55-64	-58
Female 65-99	-51
Male 65-99	-31

Changes to Mail-Order Houses

$-66,599,862	-1,884	$35,356
Change in Earnings 1.38 Multiplier	Change in Jobs 1.34 Multiplier	Average Earnings Per Job (2012)

Scenario Results - Industry

NAICS	Industry	Change in Jobs
11	Crop and Animal Production	-1
21	Mining, Quarrying, and Oil and Gas Extraction	0
22	Utilities	-1
23	Construction	-16
31	Manufacturing	-5
42	Wholesale Trade	-8
44	Retail Trade	-1,465
48	Transportation and Warehousing	-16
51	Information	-7
52	Finance and Insurance	-20
53	Real Estate and Rental and Leasing	-43
54	Professional, Scientific, and Technical Services	-28
55	Management of Companies and Enterprises	-3
56	Administrative and Support and Waste Management and Remediation Services	-27
61	Educational Services	-11
62	Health Care and Social Assistance	-66
71	Arts, Entertainment, and Recreation	-9
72	Accommodation and Food Services	-34
81	Other Services (except Public Administration)	-33
90	Government	-91

Scenario Results - Occupation

SOC	Occupation	Change in Jobs
11-0000	Management Occupations	-100
13-0000	Business and Financial Operations Occupations	-102
15-0000	Computer and Mathematical Occupations	-114
17-0000	Architecture and Engineering Occupations	-6
19-0000	Life, Physical, and Social Science Occupations	-2
21-0000	Community and Social Service Occupations	-9
23-0000	Legal Occupations	-4
25-0000	Education, Training, and Library Occupations	-41
27-0000	Arts, Design, Entertainment, Sports, and Media Occupations	-81
29-0000	Healthcare Practitioners and Technical Occupations	-70
31-0000	Healthcare Support Occupations	-16
33-0000	Protective Service Occupations	-16
35-0000	Food Preparation and Serving Related Occupations	-39
37-0000	Building and Grounds Cleaning and Maintenance Occupations	-31
39-0000	Personal Care and Service Occupations	-26
41-0000	Sales and Related Occupations	-262
43-0000	Office and Administrative Support Occupations	-659
45-0000	Farming, Fishing, and Forestry Occupations	-3
47-0000	Construction and Extraction Occupations	-19
49-0000	Installation, Maintenance, and Repair Occupations	-29
51-0000	Production Occupations	-58
53-0000	Transportation and Material Moving Occupations	-195
55-0000	Military occupations	0
99-0000	Unclassified Occupation	-2

Scenario Results - Demographics

Demographics	Change in Jobs
Female 14-18	-71
Male 14-18	-63
Female 19-21	-87
Male 19-21	-92
Female 22-24	-94
Male 22-24	-84
Female 25-34	-213
Male 25-34	-216
Female 35-44	-182
Male 35-44	-181
Female 45-54	-172
Male 45-54	-143
Female 55-64	-124
Male 55-64	-93
Female 65-99	-40
Male 65-99	-29

Appendix A - Data Sources and Calculations

Input-Output Data

The input-output model in this report is EMSI's gravitational flows multi-regional social account matrix model (MR-SAM). It is based on data from the Census Bureau's Current Population Survey and American Community Survey; as well as the Bureau of Economic Analysis' National Income and Product Accounts, Input-Output Make and Use Tables, and Gross State Product data. In addition, several EMSI in-house data sets are used, as well as data from Oak Ridge National Labs on the cost of transportation between counties.

State Data Sources

This report uses state data from the following agencies: Wisconsin Department of Workforce Development, Bureau of Workforce Information

Appendix D – City/Village Facility Inventory

This list includes various community facilities for the incorporated urban areas covered by this plan, such as police/fire departments, hospitals, schools, community halls, etc as identified in the previous AHMP and updated for the current planning process. It is anticipated that future updates of the county mitigation plan will include an expansion of community by community inventory details.

Name	Location	Jurisdiction	Hazard Specifically Vulnerable To
River Park		C. Mosinee	Flood
Chuck's Landing		C. Mosinee	Flood
Boulevard School	591 W. Sth-153	C. Mosinee	
St. Paul's School	404 High Street	C. Mosinee	
Mosinee Library	123 Main Street	C. Mosinee	Flood
Karl Mathie House		C. Mosinee	
National Guard Armory	11th and Jackson St	C. Mosinee	
Mosinee City Hall	225 Main Street	C. Mosinee	
Mosinee Elementary	600 12th Street	C. Mosinee	
Mosinee Middle	700 High Street	C. Mosinee	
Mosinee High School	1000 High Street	C. Mosinee	
Mosinee Police Dept	301 Main Street	C. Mosinee	
Mosinee Fire Department	303 3rd Street	C. Mosinee	
Schofield Elementary	1310 Grand Avenue	C. Schofield	
St. Peters Lutheran School	115 Eau Claire Street	C. Schofield	
Schofield Fire Department	1325 Schofield Ave.	C. Schofield	
Hazardous Waste Collection Facility	301 Alderson Street	C. Schofield	
Schofield City Hall	200 Park Street	C. Schofield	
Pine Island/Wausau Country Club	304 Country Club Rd	C. Schofield	
East High School	2607 N. 18th Street	C. Wausau	
Wausau Waste Water Treatment		C. Wausau	Flood-in hollow area
Franklin Elementary	1509 N. 5th Street	C. Wausau	
Flood Dike	On Lake Wausau, south and west of Wausau Waste Water Treatment Plant	C. Wausau	Flood
CD Jones Elementary	1018 S. 12th Avenue	C. Wausau	
Grant Elementary	500 N. 4th Avenue	C. Wausau	
Horace Mann Middle School	3101 N. 13th Street	C. Wausau	
John Muir Middle School	140 Stewart Avenue	C. Wausau	
Lincoln Elementary	720 S. 6th Avenue	C. Wausau	
Newman High School	1130 W. Bridge Street	C. Wausau	
Thom Field	1601 N. 10th Street	C. Wausau	
Wausau West High School	1200 W. Wausau Ave	C. Wausau	
AC Kiefer Educational Center	700 W. Strowbridge	C. Wausau	

Name	Location	Jurisdiction	Hazard Specifically Vulnerable To
Faith Christian Academy	2607 N. 18th Avenue	C. Wausau	
Holy Name Catholic School	1122 S. 9th Ave.	C. Wausau	
Life Skill Center	120 S. 14th Avenue	C. Wausau	
Montessori Educational Center	214 Sherman Street	C. Wausau	
Our Saviors School	703 Flieth Street	C. Wausau	
St. Anne Catholic School	604 N. 6th Avenue	C. Wausau	
St. Matthew Catholic School	225 S. 28th Avenue	C. Wausau	
St. Michael's Catholic School	614 Stueben Street	C. Wausau	
Trinity Lutheran School	501 Stewart Avenue	C. Wausau	
Wausau Community Christian	209 N. 25th Street	C. Wausau	
Zion Lutheran School	616 Grant Street	C. Wausau	
Northcentral Technical College	1000 W. Campus Drive	C. Wausau	
University of Wisconsin – Marathon County	518 S. 7th Avenue	C. Wausau	
Wausau Public Library	300 N. 1st Street	C. Wausau	
Aspirus Hospital and Associated Clinics	425 Pine Ridge Blvd	C. Wausau	
Wausau City Hall	407 Grant Street	C. Wausau	
Marathon County Courthouse	500 Forest Street	C. Wausau	
Andrew Warren Historic District	4th Street to 7th Street Fulton Street to Grant St	C. Wausau	
Grand Theater	401 N. 4th Street	C. Wausau	
Leigh Yawkey Woodson Art Museum	700 N. 12th Street	C. Wausau	
Marathon County Historical Museum	410 Mc Indoe Street	C. Wausau	
Residences along main line of CP Railroad		C. Wausau	Flood
North Central Health Care	1100 Lakeview Drive	C. Wausau	
Railroad Crossings	3rd, 5th and 6th Streets 1st and 3rd Avenues Franklin Street Townline Road	C. Wausau	Transportation Accidents, Hazardous Materials Incidents
Wausau Police Department	515 Grand Avenue	C. Wausau	
Wausau Fire Department	515 Grand Avenue	C. Wausau	
Marathon Park/Fairgrounds	1201 Stewart Avenue	C. Wausau	Tornados Thunderstorms
Brockmeyer Park	4200 Stettin Drive	C. Wausau	Tornados Thunderstorms
Memorial Park	505 Memorial Park Rd.	C. Wausau	Tornados Thunderstorms

Name	Location	Jurisdiction	Hazard Specifically Vulnerable To
Duck Island		C. Wausau	Tornados Thunderstorms
Riverview Elementary School	4303 Troy Street	C. Wausau	
Wausau Airport	725 Woods Place	C. Wausau	
St. Anthony's School	309 Mueller Street	V. Athens	
Trinity Lutheran School	301 Elm Street	V. Athens	
Athens Public Library	221 Caroline Street	V. Athens	
Athens Elementary School	209 N. Schlegel	V. Athens	
Athens Middle/High School	601 W. Limit Rd.	V. Athens	
Learning Tree Child Care	325 Washington Street	V. Athens	
Athens Area Fire Commission	221 Caroline Street	V. Athens	
Athens Police Department	221 Caroline Street	V. Athens	
Birnamwood Elementary School	337 Main Street	V. Birnamwood	
Aspirus Clinic – Birnamwood	400 Railroad Avenue	V. Birnamwood	
Birnamwood Village Hall	354 Main Street	V. Birnamwood	
Birnamwood Fire Dept	365 Birch Street	V. Birnamwood	
Brokaw Village Hall	200 2nd Street	V. Brokaw	
Community Health Care – Edgar Clinic	103 S. 3rd Avenue	V. Edgar	
St. Johns Catholic School	125 N. 4th Avenue	V. Edgar	
Edgar Branch Library	224 S. 3rd Avenue	V. Edgar	
Edgar Elementary School	203 E. Maple Street	V. Edgar	
Edgar Alternative High School	218 E. Maple Street	V. Edgar	
Edgar High School	203 E. Birch Street	V. Edgar	
Edgar Village Hall	224 S. 3rd Avenue	V. Edgar	
Edgar Police Department	224 S. 3rd Avenue	V. Edgar	
Edgar Fire Department	108 W. Beech Street	V. Edgar	
Elderon Elementary School	460 Sth-49	V. Elderon	
Elderon Fire Department	9187 Main Street	V. Elderon	
Elderon Village Hall	9187 Main Street	V. Elderon	
Fenwood Village Hall	3776 Beech Street	V. Fenwood	
Hatley Village Hall	300 Clark Street	V. Hatley	
St. Florian's Catholic School	504 Church Ln.	V. Hatley	
Hatley Elementary School	417 Emmonsville Rd	V. Hatley	
Hatley Library	435 Curtis Avenue	V. Hatley	
Hatley Fire Department	300 Clark Street	V. Hatley	
ANR Pipeline Meter Station		V. Kronenwetter	
William Brothers Tank Farm	Bus 51	V. Kronenwetter	Haz Mat Incident
All Water Wells	Multiple Locations	V. Kronenwetter	Water Contamination
Evergreen Elementary	610 Pine Road	V. Rothschild	
Kronenwetter Municipal	1582 Kronenwetter Dr	V. Kronenwetter	

Name	Location	Jurisdiction	Hazard Specifically Vulnerable To
Center			
Evergreen Area	Cth-X near Bull Junior Creek	V. Kronenwetter	Flood
Neighborhood with one point access	Various	V. Kronenwetter	All Hazards (Limited Evacuation Routes)
Plaza Road Bridge	Plaza Road	V. Kronenwetter	All Hazards (Limited Evacuation Routes)
Northland Lutheran High School	2107 Tower Road	V. Kronenwetter	
River Road and Homes		V. Marathon	Flood
Rib River Park		V. Marathon	Flood
St. Mary's School	716 Market Street	V. Marathon	
Marathon School	704 3rd Street	V. Marathon	
Marathon Elementary School	100 Spring Valley Drive	V. Marathon	
Marathon High School	204 East Street	V. Marathon	
Fricke-Menzner house		V. Marathon	
Marathon City Police Dept.	311 Walnut Street	V. Marathon	
St. Mark's Catholic School	602 Military Road	V. Rothschild	
Rothschild Branch Library	221 Grand Avenue	V. Rothschild	
Rothschild Pavilion		V. Rothschild	
Rothschild Village Hall	221 Grand Avenue	V. Rothschild	
Rothschild Police Department	221 Grand Avenue	V. Rothschild	
Business 51	Cedar Creek Area	V. Rothschild	Flood
Public Works Facility	1001 Leon Street	V. Rothschild	
Rothschild Fire Department	211 Grand Avenue	V. Rothschild	
Rothschild Elementary School	810 First Street	V. Rothschild	
St. Therese Catholic School	113 W. Kort Street	V. Rothschild	
Spencer Branch Library	105 Park Street	V. Spencer	
Spencer Municipal Hall	105 Park Street	V. Spencer	
Lucille Tack Center	300 School Street	V. Spencer	
Spencer Police Department	105 Park Street	V. Spencer	
Spencer Fire Department	206 Willow Drive	V. Spencer	
Health South Physical Therapy	702 E. Willow Dr.	V. Spencer	
Stratford Community Hall	300 E. Larch Street	V. Stratford	
St. Andrew's Catholic School	1872 Cth-C	V. Stratford	
St. Joseph's Catholic School	430 Larch St	V. Stratford	
Stratford Branch Library	400 N. 4th Avenue	V. Stratford	
Stratford Elementary School	522 N. 3rd Avenue	V. Stratford	
Stratford Junior/Senior High	522 N. 3rd Avenue	V. Stratford	
Stratford Police Dept.	265 N. 3rd Avenue	V. Stratford	

Name	Location	Jurisdiction	Hazard Specifically Vulnerable To
Stratford Fire Department	613 S. Weber Avenue	V. Stratford	
Stratford Physical Therapy Services	225 N. 2nd Avenue	V. Stratford	
Stratford Elementary School	522 N. 3rd Avenue	V. Stratford	
DC Everest Junior High	1000 Machmueller St	V. Weston	
DC Everest Middle School	9302 Schofield Avenue	V. Weston	
DC Everest Senior High	6500 Alderson Street	V. Weston	
Weston Municipal Center	5500 Schofield Avenue	V. Weston	
Everest Metro Police Dept	5303 Mesker Street	V. Weston	
St. Clare's Hospital	3400 Ministry Pkwy	V. Weston	
Weston Elementary	5200 Camp Phillips Rd	V. Weston	
Weston Fire Dept.	5303 Mesker Street	V. Weston	
Everest Metro Safety Building	5303 Mesker Street	V. Weston	
Unity Village Hall	121 N. Madison Street	V. Unity	
Unity Waste Water Plant	393 N. Front Street	V. Unity	

Appendix E – Groundwater Risk Assessment

Groundwater Contamination Risk Assessment

This section excerpted from previous County Hazard Mitigation Plan 2011-2016.

Hazard Analysis

Groundwater is a very important resource in the County, as it is the major source of all water consumption. All public and private water supplies and most of the domestic, industrial and agricultural supplies rely on groundwater. From 1979 to 2005, total water use in Marathon County increased from 47.7 million gallons per day to 68.2 million gallons per day. Most groundwater reserves are held in glacial drift aquifers consisting of sand and gravel that allows for rapid percolation and flow to most areas.

Due to the County's heavy dependence on groundwater, contamination can be a serious problem. Groundwater contamination occurs when contaminants reach levels that are considered unsafe for humans and/or animals to be exposed to or drink. Contamination can be caused by septic system failures, water treatment problems, agricultural runoff (fertilizers, animal waste), urban runoff (industrial chemicals, yard fertilizer, household chemicals), hazardous waste spills or leaks, and leaking landfills. Three contaminants present in Marathon County that are of particular concern are coli form bacteria, nitrates and volatile organic compounds (VOCs).

Coli form bacteria are microorganisms found in surface water, soil and in the feces of humans and animals. They do not usually cause disease. However, their presence indicates that fecal wastes may be contaminating the water and means that pathogenic (disease-causing) organisms could be present. If human or animal wastes are contaminating the water, gastrointestinal diseases, hepatitis, or other diseases may result. Presence of a specific fecal coli form bacteria, *E. coli*, is more conclusive evidence of fecal contamination, which presents an even greater health risk than total coli form bacteria.

Nitrate nitrogen is a commonly used lawn and agricultural fertilizer. It is also a chemical formed in the decomposition of waste materials, such as manure or sewage. High nitrate levels (> 10 milligrams per liter [mg/L]) can cause birth defects, miscarriages, and infant illness. High nitrate levels also suggest that other contaminants might be present. The natural level of nitrate in Wisconsin's groundwater is less than 0.2 mg/L. Nitrite is an unstable form of nitrogen that might be found in small amounts along with nitrate. Sometimes results of nitrate and nitrite are reported together.

VOCs are a group of commonly used chemicals that evaporate when exposed to air. Since they dissolve many other substances, VOCs are widely used as cleaning and liquefying agents in fuels, degreasers, solvents, polishes, cosmetics, drugs, and dry cleaning solutions. Some common VOC's are trichloroethylene (TCE), tetrachloroethylene (also called "perchlorethylene," which is dry cleaning fluid), trichloroethane, benzene, toluene, and xylenes. VOCs can irritate the eyes and throat if inhaled in large quantities or consistently over time. Many VOCs are known carcinogens, and many more are suspected.

The State of Wisconsin mandates Wellhead Protection Plans for any municipal drinking well installed after 1996. Currently, seventeen public water sources and two sanitary districts have Wellhead Protection Plans. These plans serve to protect the public water supply through proactive steps to prevent contaminants from entering public water supply wells.

Groundwater contamination can occur anywhere in the County, at any time.

History in Marathon County

There have been several instances in the County where groundwater quality has been changed in some way due to a past incident of contamination. The following are a few incidents as reported in the *Marathon County 2001 Groundwater Protection Guide.*

In spring 1999, contaminants were detected in the groundwater monitoring wells at the former Gorski Landfill in the Town of Mosinee. In July 2000, an investigation of the former landfill was re-initiated after the discovery that potentially hazardous chemicals remained in the local water supply. The primary contaminants found were VOCs. The WDNR is still investigating. The cost to date is undetermined.

In 1986, work was completed on the Rib Mountain Metropolitan Sewage District sewer and water facility. The project was in response to long-term groundwater problems experienced in the Town. The cost to date for this project is $21.6 million. In addition, landowners paid between $600 and $4,000 each to connect their homes to the new system.

In May 1985, 95 wells in the Town of Stettin were found to be contaminated and unsafe for cooking and drinking. This problem later expanded to more wells and resulted in the 1986 annexation of more than 700 homes, 1,500 persons and $39 million in assessed property to the City of Wausau. New municipal water lines were constructed in the area at a cost of $1.75 million.

In 1982, 35 residential homes located adjacent to a potato field near Mosinee were found to have unsafe levels of Aldicarb, a highly toxic pesticide, in their well water. The incident caused great anxiety among landowners, especially pregnant women and those with small children. It also resulted in some owners deepening their wells at considerable expense, only to find increases in iron and manganese levels replacing the Aldicarb in the water. Although these elements don't represent the risk of Aldicarb, experimental filters are now being used. Other landowners chose not to increase well depth and are still experiencing high Aldicarb levels. Aldicarb has been banned from this potato growing area. The cost to date for well remediation and damages is undetermined.

Vulnerability Assessment

Areas become vulnerable to groundwater contamination because they are naturally drainage deficient (porous soils), contain large supplies of valuable water (public water systems), or house a site that presents a risk (leaking landfill site). The vulnerability assessment will address these areas, as well as sensitive populations.

Water Sources

Public water supply systems

Approximately two-thirds of Marathon County residents obtain their drinking water from public water supply sources. Most are municipal water systems. Other year-round systems that serve the same group of people include mobile home parks and other residential developments. Based on the 2009 American Community Survey population estimate of 131,619 estimating that 2/3 of Marathon County residents get their water from a public water supply source results in approximately 87,750 residents on public water supplies. If these sources were to become contaminated, thousands of people could be affected.

The municipal water systems that serve residents of Marathon County are listed in the table, below. The Environmental Protection Agency (EPA) regulates the amount of certain contaminants allowable in public water systems. Public water systems are therefore required to conduct testing for contaminants in the water supply. Required testing includes: disinfection byproducts, inorganic contaminants, microbiological contaminants including pesticides and herbicides, and volatile organic contaminants (VOC).

Marathon County Public Water Systems

Public Water System	2009 Est. Pop. Served	Service Connects	Storage Capacity	Wellhead Protection Plan
*Abbotsford Waterworks	1,991	918	413420	yes
Athens Waterworks	1,125	436	49000	
*Birnamwood Waterworks	818			
Brokaw Waterworks	229	60	60000	yes
*Colby Waterworks	1,767	687	300000	yes
*Dorchester Waterworks	855	398	250000	yes
Edgar Waterworks	1,489	509	200000	yes
Hatley Waterworks	526	191		yes
Kronenwetter Water Works	6,517	1792	300000	yes
Marathon City Waterworks	1,630	602		yes
*Marshfield Utilities	19,413	7977	4229600	yes
Mosinee Waterworks	4,232	1716	1025000	yes

Rib Mountain Metropolitan Sewage District 1	7,652	2342		yes
Rothschild Waterworks	5,390	1404	688000	yes
Schofield Waterworks	2,309	1008	525000	
Spencer Waterworks	1,970	807	250000	yes
Stratford Waterworks	1,594	554	190000	yes
Wausau Waterworks	40,700	15643	5300000	yes
Weston Waterworks	14,310	3525	450000	yes

*Source: http://dnr.wi.gov/org/water/dwg/gw/wellhead.htm * municipalities service multiple counties*

Municipal water supply issues/hazards:

The City of Abbotsford currently has high quality water; however the quantity of water available is of concern. In 2008, water treatment plant number 2 experienced a failure. The plant was non-functioning for 2 days. This posed a safety risk to the residents in the event of a fire. To address the issue, the city analyzed 3 alternatives to alleviate the water supply issue. The three alternatives investigated by the City include purchased water from another municipality, developing a groundwater source of supply and developing a surface water source of supply, with interim groundwater wells. The City chose to pursue the 3rd alternative. Construction of a new water tower and main and a surface water treatment plant is anticipated to begin in late 2010.

The Village of Brokaw learned that one of their wells was contaminated. Wisconsin DNR ordered the Village to find a new water source. The decision was made that Brokaw would purchase water from Wausau. The city and village cost share the construction of a new booster station on the northwest side of Wausau. A pipeline was installed by Brokaw to serve the village. Brokaw purchases approximately 40,000 gallons per day.

Private water supply

In rural areas, residents rely on private wells for their water supply. These rural residents account for about 36 percent of the County population. Private Wells serve fewer people, but may be at greater risk for certain types of contamination (i.e. nitrates) because they are located in areas that are typically agricultural and have higher instances of fertilizer or animal waste runoff. Private Wells can also be contaminated by private septic systems, which may be more likely to leak.

Of the 1,862 private wells tested in 2008 by the Marathon County Health Department, 16.9% tested unsafe for coli form bacteria. 8.5% of wells that were tested for nitrate-nitrogen tested unsafe, and 4.7% of the wells tested for fluoride had unsafe fluoride levels. (These samples may include multiple samples on the same well, which could result in successive unsafe or safe samples, which could skew the actual percentages of unsafe testing.)

52% of private well samples taken between 1990 and 2006 showed elevated nitrates. Nitrates serve as an indicator that land use is negatively affecting groundwater. The Wisconsin Department of Agriculture, Trade and Consumer Protection and DNR report that 80% of the nitrates in wells originate from the agricultural land-spreading of nutrients and legume cropping.

Private water supply issues/hazards:

While public water supply systems are regulated by the EPA and therefore required to undergo periodic testing for a wide range of contaminants, private well testing is on a voluntary basis. Often residents do not have their water tested unless there is a noticeable unpleasant odor, color, or taste. Additionally, private water supplies are usually tested for coli form bacteria, nitrate-nitrogen, and fluoride. More comprehensive water testing, such as what is required for public water systems can be cost-prohibitive.

Geology

Groundwater characteristics and contamination potential are influenced by the porosity, texture and depth of area soils. A coarse texture makes a soil more porous and allows contaminants to reach groundwater at a faster rate and with less filtering. A finer texture with less pores acts as a natural filter for the contaminant, slowing it down and reducing the potential impact on the groundwater.

Along the Wisconsin River, Rib River and Eau Claire River in Marathon County, the dominant soil formation (Mahtomedi-Fordum-Sturgeon Association) is very coarse. This results in the highest volume yield wells in the County at 2,000 gallons per minute in the Village of Weston. However, the coarse soil type is also conducive to high infiltration and permeability rates. This makes the groundwater vulnerable because the soil does not filter contaminants well, and allows them to reach the groundwater faster. As shown in Figure 8, this soil formation is predominant along the USH 51 corridor and spreading east and west from the Town of Rib Falls to the Town of Easton.

Throughout most of Marathon County, groundwater can be found at depths of 20 feet or less. This is good for groundwater availability, but can provide a shorter path for contaminants.

At-Risk Sites

The United States Geological Survey (USGS) reports that as of 2007, Marathon County has 140 open-status sites of contaminated groundwater and/or soil. Contaminated sites in Marathon County that contain or previously contained hazardous materials may pose a threat to surrounding groundwater resources. Areas around the sites, particularly residential areas and water supply wells, may be more vulnerable to groundwater contamination due to spills or leakage of hazardous materials or contaminants.

The Superfund Program was established in 1980 to locate, investigate, and clean up the worst chemical and hazardous waste sites nationwide. There are three identified Superfund sites in Marathon County: Wausau Groundwater Site, Spickler Landfill, and Mid-State Disposal Inc. Landfill.

The Wausau Groundwater site encompasses an area in the northern section of the City of Wausau. In 1983, three of the City's six drinking water wells on the site were found to be contaminated with high levels of VOCs. Approximately 32,000 people live within a three-mile radius of the site. The contamination was believed to be caused by an old municipal landfill on the Marathon Electric property and the Wausau Chemical facility property. Soils at both of these areas are contaminated with VOCs. The site has been addressed by the responsible parties through installation of a pump and treatment system and construction of two air strippers. The site is monitored every five years and remains within acceptable levels to date.

The Spickler Landfill site is a former open municipal and industrial dump site. It is comprised of two fill areas totaling 10 acres on an 80-acre parcel of land in the Town of Spencer. In 1987, some landfill gas was detected onsite, and asbestos was confirmed in a soil sample. Leachate samples included elevated levels of calcium, magnesium, mercury, and nine organic compounds. Groundwater samples from monitoring wells showed exceedance of acceptable levels for the following chemicals: benzene, vinyl chloride, barium, copper, iron and manganese. Eight private wells near the site were sampled, and four exceeded acceptable levels of one or more of the above-mentioned chemicals. The site has been closely monitored, and modifications have been made to remediation activities to ensure that contamination does not migrate off-site.

The Mid-State Disposal Inc. Landfill site is located four miles east of the Village of Stratford. The site is a 160-acre parcel containing a 35-acre mound landfill, a five-acre "interim expansion" area, and a three-acre sludge lagoon. The landfill was in operation from 1970 to 1979 and accepted paper mill sludge's, asbestos dust, solvents, pesticides, paint sludge's, and metals, as well as municipal waste. In 1983, groundwater in vicinity of the site was shown to contain VOCs. A remediation plan including a gas extraction and collection system among other remedies was implemented in 1994. Further remediation, including construction of an alternate water supply for nine area residents, is contingent upon VOC levels in surrounding residential wells. The site is monitored every five years and remains within acceptable levels to date.

Marathon County Solid Waste Department began operating a landfill in the Town of Ringle on December 1, 1980. Marathon County owns 575 acres of land that can be utilized for waste and recycling materials management. The Solid Waste Department accepts municipal, commercial and industrial waste and recycling for processing. The Resource Conservation Recovery Act (RCRA) Subtitle D regulations, for landfill construction and operations, are employed to protect the environment and public health.

Other facilities in Marathon County that may be at risk of causing groundwater contamination are as follows:

- Confined Animal Feed Operations and barnyards – poor manure management

- Farm fields – overuse of fertilizer and manure spreading
- Chemical/fuel storage facilities – poor or faulty storage, spills
- Stockpiles/tailings piles – leaching of contaminants
- Underground Storage Tanks – leaks
- Industrial/commercial facilities – poor or faulty storage, poorly managed disposal methods
- Pipelines – rupture

Sensitive Populations

People of all ages and races are vulnerable to negative effects of contaminants. It has been suggested that small children or elderly may be more susceptible due to weakened or underdeveloped immune systems. Infants less than six months of age and pregnant women may be at particular risk if they drink water containing more than 10 mg/L of nitrates. This would put the infants at risk for methemoglobinemia, a disease that interferes with the blood's ability to carry oxygen. Recent studies also suggest that high nitrate water may be linked to birth defects and miscarriages.

Future Probability and Potential Losses

Based on the past occurrences and the trend of continuing contamination, the probability of future water contamination in Marathon County is high. Past groundwater contamination events in Marathon County have most often been in the millions of dollars to remediate and improve infrastructure. In many cases, the full cost of remediation is not realized, even after several years, even decades, have passed. Groundwater, once polluted, may take decades or even centuries to be flushed of contaminants. People who drink contaminated water may, immediately or over time, suffer from a variety of health problems including malignant tumors; kidney, urinary and digestive tract disorders; leukemia or birth defects. The health clean-up costs associated with a major, long-term contamination incident can be staggering.

The need for clean groundwater is not only a health issue; it is also an economic issue. Where groundwater becomes polluted, property values drop and land may become unsellable. People may relocate to new groundwater resources, perhaps to a new city or county.